METROPOLITAN COAL

2025 ANNUAL REVIEW




Peabody

Name of Operation	Metropolitan Coal
Name of Operator	Peabody Energy Australia Pty Ltd
Project Approval	Project Approval 08_0149
Name of Holder of Project Approval	Metropolitan Collieries Pty Ltd
Mining Leases	Consolidated Coal Lease 703 Mining Lease 1610 Mining Lease 1702 Mining Purpose Lease 320 Coal Lease 379 Exploration Licence 9364
Name of Holder of Mining Leases	Metropolitan Collieries Pty Ltd
Water Licence	Water Access Licence – WAL25410 Bore Licence Certificate – 10BL603595
Name of Holder of Water Licence	Metropolitan Collieries Pty Ltd
Annual Review Start Date	1 January 2025
Annual Review End Date	31 December 2025

I, James Hannigan, certify that to the best of my knowledge and belief that this Annual Review is a true and accurate record of the compliance status of Metropolitan Coal for the period 1 January to 31 December 2025 and that I am authorised to make this statement on behalf of Peabody Energy Australia Pty Ltd.

Name of Authorised Reporting Officer	James Hannigan
Title of Authorised Reporting Officer	General Manager
Signature of Authorised Reporting Officer	
Date	31/03/2026

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF FIGURES (Continued)

LIST OF APPENDICES

LIST OF APPENDICES (Continued)

1 STATEMENT OF COMPLIANCE

The compliance status of the Metropolitan Coal Mine with its relevant approval conditions at the end of the reporting period (31 December 2025) is provided in Table 1.

Table 1
Statement of Compliance

Were all conditions of the relevant approval(s) complied with?	
Project Approval 08_0149	Yes
Development Consent D90/832	Yes
Consolidated Coal Lease 703	Yes
Mining Lease 1610	Yes
Mining Lease 1702	Yes
Coal Lease 379	Yes
Mining Purpose Lease 320	Yes
Exploration Licence 9364	Yes
Environment Protection Licence No. 767	Yes

Table 2 summarises the non-compliances with the approval conditions.

Table 2
Summary of Non-Compliances

Relevant Approval	Condition Number	Condition Description	Comment	Report Section
Project Approval 08_0149	Condition 1, Schedule 3	Subsidence Impact Performance Measures (Table 1 of Project Approval)	Exceedance of the Eastern Tributary watercourse subsidence impact performance measure in relation to iron staining and pool flow/drainage behaviour downstream of the Longwall 26 maingate.	6.2 and 13.1

2 INTRODUCTION

The Metropolitan Colliery (Metropolitan Coal Mine) is owned and operated by Metropolitan Collieries Pty Ltd (Metropolitan Coal), which is a wholly owned subsidiary of Peabody Energy Australia Pty Ltd (Peabody), and is located adjacent to the township of Helensburgh and approximately 30 kilometres (km) north of Wollongong in New South Wales (NSW) (Figure 1). Metropolitan Coal is located within Consolidated Coal Lease (CCL) 703, Mining Lease (ML) 1610 and ML 1702. Metropolitan Coal is one of the earliest established and longest continually running coal mining operations in Australia, with a history dating back to the 1880s.

Metropolitan Coal was granted approval for the Metropolitan Coal Project (the Project) by the Minister for Planning under section 75J of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act) on 22 June 2009. A copy of the Project Approval (08_0149) is available on the Peabody website (http://www.peabodyenergy.com). The Project comprises the continuation, upgrade and extension of underground coal mining operations and surface facilities at Metropolitan Coal. The underground mining longwall layout is shown on Figure 1. The extent of the mine's surface facilities area is shown on Figure 2.

The surface facilities include administration buildings, workshops, bath houses, ablution facilities, haul roads, access roads, fuel and consumables storages, hardstand areas, a coal handling and preparation plant (CHPP), stockpiles (including run-of-mine [ROM] coal, product coal and coal reject stockpiles), underground coal reject emplacement plant and associated coal handling infrastructure (e.g. conveyors, transfer points and buffer bins).

Coal extracted from the underground mining operations is transferred by conveyor to the surface facilities area. ROM coal is crushed, screened and washed at the CHPP. The majority of product coal is transported by train to the Port Kembla Coal Terminal (PKCT) (in Wollongong) for domestic and overseas customers. CHPP coal reject material is transported by rail and truck to the PKCT, emplaced in unused workings, or transported to offsite locations for beneficial reuse.

The Environmental Management Structure of the Project is shown on Figure 3. It includes the Metropolitan Coal Environmental Management Strategy, developed to provide the strategic context for environmental management at Metropolitan Coal, and management plans and monitoring programs applicable to the underground mining area or mine's surface facilities area.

Metropolitan Coal submitted the updated Longwalls 311-316 Extraction Plan to the NSW Department of Planning, Housing and Infrastructure (DPHI) in October of 2024. The Longwalls 311-316 Extraction Plan includes post-mining monitoring and management of potential subsidence impacts and environmental consequences, subject to the previously approved Metropolitan Coal Extraction Plans for Longwalls 20-22, 23-27, 301-303, 304, 305-307 and 308-310. The DPHI approved the extraction of Longwall 311 on 19 October 2024 and secondary extraction commenced on 21 October 2024. On 19 June 2025, DPHI approved the Longwalls 311-316 Extraction Plan. Under this Annual Review, environmental performance for the period 1 January 2025 to 31 December 2025 is reported against the Longwalls 311-316 Extraction Plan.

2.1 PURPOSE AND SCOPE

Metropolitan Coal's environmental reporting requirements include an Annual Review, which is to be prepared in accordance with Condition 3, Schedule 7 of the Project Approval, an Annual Environmental Management Report, to be prepared in accordance with CCL 703, and an Annual Rehabilitation Report, to be prepared in accordance with ML 1610, ML 1702, MPL 320 and Coal Lease (CL) 379.

The Metropolitan Coal 2025 Annual Review has been prepared to meet the above reporting requirements and to review the environmental performance of the Project during the reporting period (i.e. 1 January to 31 December 2025), consistent with the NSW Government (2015) *Annual Review Guideline for State Significant Mining Developments*.

2.2 MINE CONTACTS

Contact details for key Metropolitan Coal employees are provided below:

James Hannigan
General Manager
Telephone: (02) 4294 7234
Email: jhannigan@peabodyenergy.com

Jon Degotardi
Manager, Project Approvals
Telephone: (02) 4294 7233
Email: jdegotardi@peabodyenergy.com

Stephen Love
Environment & Community Superintendent
Telephone: (02) 4294 7384
Email: slove@peabodyenergy.com

The street and postal address for Metropolitan Coal is provided below:

Street Address
Parkes Street
HELENSBURGH NSW 2508

Postal Address
PO Box 402
HELENSBURGH NSW 2508

3 APPROVALS

Metropolitan Coal operates under a number of statutory approvals, leases and licences granted by the NSW Government as outlined in Table 3.

Table 3
Consent, Lease and Licence Details

Consent/Lease/Licence	Authority	Grant/Renewal	Expiry Date
Project Approval 08_0149	DPHI	22/6/2009	22/6/2032
Project Approval 08_0149 – Mod 1	DPHI	8/9/2010	22/6/2032
Project Approval 08_0149 – Mod 2	DPHI	2/7/2011	22/6/2032
Project Approval 08_0149 – Mod 3	DPHI	3/10/2013	22/6/2032
Development Consent D90/832	WCC	5/1/1995	-
Consolidated Coal Lease 703	RR	27/1/2024	26/1/2045
Mining Lease 1610	RR	19/5/2014	18/12/2031
Coal Lease 379	RR	14/11/2013*	4/10/2033
Mining Purpose Lease 320	RR	16/6/2014	9/12/2035
Mining Lease 1702	RR	13/10/2014	13/10/2035
Exploration License 9364	RR	24/02/2022	24/02/2028
Bore Licence Certificate 10BL603595	NSW DCCEEW - Water	25/1/2013	24/1/2028
Camp Creek Weir Surface Water Certificate of Title	NSW DCCEEW - Water	28/11/2012	-
Environment Protection Licence (EPL) No. 767	EPA	9/9/2002	-
Radiation Licence – Radiation Management Licence 5063985	EPA	27/9/2025	27/9/2026
Licence to Store Explosives and/or Security Sensitive Dangerous Substances – Licence XSTR200082	SafeWork NSW	15/06/2017	15/06/2027

Note: DPHI = NSW Department of Planning, Housing and Infrastructure; RR = NSW Resources Regulator; EPA = NSW Environment Protection Authority; WCC = Wollongong City Council; NSW DCCEEW – Water = NSW Department of Climate Change, Energy, the Environment and Water - Water.

* Date lease offer was signed.

4 OPERATIONS SUMMARY

4.1 MINING OPERATIONS

Prior to the reporting period, the extraction of Longwall 311 commenced on 21 October 2024 and was completed in June 2025. Longwall 312 commenced on 1 August 2025 and continued through the remainder of the reporting period (Figure 4).

The amount of ROM coal, coal wash reject (CWR) and product coal produced in the previous reporting period, current reporting period and forecast for the next reporting period is provided in Table 4.

Table 4
Production Summary

Material	Approval Limit	2024 Reporting Period (Actual)	2025 Reporting Period (Actual)	2026 Reporting Period (Forecast)
ROM Coal	3.2 Mt per calendar year[1]	2,233,297 t	2,254,594 t	1,949,668 t
Coal Wash Reject[2]	N/A	605,440 t	658,085 t	534,308 t
Saleable Product[2,3]	2.8 Mt per calendar year[1]	1,628,836 t	1,598,434 t	1,415,360 t

N/A = not applicable; Mt = million tonnes; t = tonnes.

1 Condition 6, Schedule 2 of the Project Approval states:

The Proponent shall not:

(a) extract more than 3.2 million tonnes of ROM coal from the mining area in a calendar year, or

(b) transport more than 2.8 million tonnes of product coal from the site in a calendar year.

2 Coal rejects and saleable product out of the CHPP.

3 Note, there is no Approval limit for saleable product itself. The only Approval limit relating to saleable product is the amount of product coal transported from the site in a calendar year. Note that the quantities presented in Table 4 reflect the saleable product produced by Metropolitan Coal and are therefore not consistent with the quantities dispatched from site that are reported on the Peabody website in the Truck and Rail Register.

4.2 OTHER OPERATIONS – METROPOLITAN COAL SURFACE FACILITIES AREA

In addition to the Project Approval limits detailed in Table 4, other relevant operational conditions are described in Table 5 and primarily relate to the Metropolitan Coal surface facilities area.

During the reporting period, Metropolitan Coal continued the coal reject backfill emplacement of fine CWR.

Table 5
Other Relevant Operational Conditions

Operational Condition		Operational Condition Met?	Comment
Limits on Approval (Project Approval Conditions 5, 7 and 8, Schedule 2)	5. *The Proponent may undertake mining operations in the mining area for up to 23 years from the date of this approval.* *Note: Under this approval, the Proponent is required to rehabilitate the site and perform additional undertakings to the satisfaction of the Director-General. Consequently, this approval will continue to apply in all other respects other than the right to conduct mining operations until the site has been properly rehabilitated.*	Yes	Metropolitan Coal was granted approval for the Project in June 2009.
	7. *The Proponent shall not export any coal reject from the site after 2021 without the written approval of the Director-General.*	Yes	Metropolitan Coal has DPHI approval to continue the export of Coal Wash Reject (CWR) from site until 31 December 2026. All CWR was transported from site by rail during the reporting period.
	8. *The Proponent shall not emplace coal reject on the surface of the site without the written approval of the Director-General.* *Note: This condition applies to the Camp Gully Emplacement Area, as well as to the rest of the surface of the site. It does not apply to the proposed additional coal reject stockpile shown in Appendix 4.*	Yes	Metropolitan Coal has DPHI approval to emplace coal reject on the site when used for construction purposes (e.g. as engineered fill material). No construction activities requiring fill were undertaken and no coal reject was emplaced on the surface of the site during the reporting period.
Structural Adequacy (Project Approval Condition 9, Schedule 2)	• *The Proponent shall ensure that all new buildings and structures, and any alterations or additions to existing buildings and structure, are constructed in accordance with:* *(a) the relevant requirements of the BCA; and* *(b) any additional requirements of the MSB in areas where subsidence effects are likely to occur.* *Notes:* • *Under Part 4A of the EP&A Act, the Proponent is required to obtain construction and occupation certificates for the proposed building works.* • *Part 8 of the EP&A Regulation sets out the requirements for the certification of the project.*	Yes	Metropolitan Coal did not undertake any construction activities during the reporting period.
Demolition (Project Approval Condition 10, Schedule 2)	• *The Proponent shall ensure that all demolition work is carried out in accordance with Australian Standard AS 2601-2001: The Demolition of Structures, or its latest version.*	Yes	Metropolitan Coal did not undertake any demolition activities during the reporting period.
Operation of Plant and Equipment (Project Approval Condition 11, Schedule 2)	• *The Proponent shall ensure that all plant and equipment used at the site is:* *(a) maintained in a proper and efficient condition; and* *(b) operated in a proper and efficient manner.*	Yes	All plant and equipment in use at Metropolitan Coal is regularly serviced in accordance with the relevant Industry & Investment NSW *Mining Design Guidelines* to ensure plant and equipment is maintained in proper and efficient condition. All plant and equipment are operated in a proper and efficient manner.

Table 5
Other Relevant Operational Conditions (Continued)

Operational Condition		Operational Condition Met?	Comment
Rail Noise (Project Approval Condition 4, Schedule 4)	4. *The Proponent shall only use locomotives that are approved to operate on the NSW rail network in accordance with noise limits L6.1 to L6.4 in RailCorp's EPL (No. 12208) and ARTC's EPL (No. 3142) or a Pollution Control Approval issued under the former Pollution Control Act 1970.*	Yes	All locomotives used by Metropolitan Coal are approved to operate on the NSW rail network in accordance with the relevant noise limits.
Blasting (Project Approval Condition 7, Schedule 4)	• *The Proponent shall not undertake blasting operations at the surface facilities area without the written approval of the Director-General.*	Yes	No blasting activities were carried out at the surface facilities area during the reporting period. Minor blasting underground is necessary at times when geological structures are encountered that cannot be excavated by the continuous miner or the longwall mining machine and when a section of the longwall roof falls ahead of the hydraulic supports of the longwall mining machine.

4.3 OPERATIONAL ACTIVITIES IN THE NEXT REPORTING PERIOD

Longwall 312 commenced extraction on 1 August 2025 and was completed in February 2026. The figures presented in this Annual Review show the approved Longwalls 311-316 Extraction Plan layout. In the next reporting period, Longwall 313 is anticipated to commence extraction in March 2026 (Figure 5).

The amount of waste rock/overburden, ROM coal, coal reject and product coal forecast for the next reporting period is provided in Table 4.

5 ACTIONS REQUIRED FROM PREVIOUS ANNUAL REVIEW

A reconciliation of the actions required by relevant agencies, the previous Annual Review and actions taken in response by Metropolitan Coal during the reporting period are outlined in Table 6.

In the approval letter for Longwalls 311-316 dated 19 June 2025, the Department requested for the provision of specific timeframes for implementing the remaining recommendations from previous advice received from the Independent Expert Advisory Panel for Mining (IEAPM), *Water Quality Performance Measures for Metropolitan Coal Mine (IEAPM 202310-1(R1)).* Actions taken in response to these remaining recommendations are outlined in Table 6.

In the 2024 Annual Review, several commitments based on responses to the IEAPM that were reported to be included in the 2025 Annual Review. For consistency, updates on this has been included in Section 15 '*Actions from Recommendations of the Independent Expert Advisory Panel*', noting some of these are replicates of the content in Table 6.

WaterNSW provided comments on the 2024 Annual Review in its letter dated 19 December 2025. These comments have been incorporated into the 2025 Annual Review where appropriate and outlined in Table 6.

Table 6
Actions Required by Relevant Agencies and 2024 Annual Review

Action	Requested by	Action Taken	Section Reference
Consider contaminant loads as well as concentrations in performance measure reporting.	DPHI	ATC Williams Pty Ltd (ATC Williams) has completed a Woronora Loads Assessment, which considers contaminant loads as well as concentrations in performance measure reporting. The assessment was supported by relevant water quality data to support analysis. Total concentrations for the reporting period at sites ETWQ Au, WQW9 and WOWQ2 have been included in this Annual Review.	Section 6.2 Appendix B
Obtain flow event water quality of EC, pH, redox potential and turbidity as well as dissolved and total Fe, Mn and Al at ETWQ AU, WQWQ9 and WOWO2 to support contaminant loads analysis.			
Conduct analysis of flow-concentration relationships, approximation of loads and whether these have changed over progression of the mine. Include total Fe, Mn and Al loads at ETWQ AU, WQW9 and WOWO2 results in future Annual Reviews.			
Improve the extension of the Eastern Tributary rating curves to improve high flow measurement accuracy. Alternate methods should be considered in areas where extending rating curves is impractical.		ATC Williams has revised the AWBM model. Alternate methods to improve rating curves on the Eastern Tributary have been considered and discussed in the Annual Surface Water Review.	
Capture both the temperature stratification and water quality at various depths through the water column at locations such as WDFS1 (which is downstream from the entry of both the Waratah Rivulet and Eastern Tributary)		Associate Professor Barry Noller (the University of Queensland [UQ]) assessed the water quality at WDFS1 and the results are reported in Appendix P.	Appendix P

Table 6 (Continued)
Actions Required by Relevant Agencies and 2024 Annual Review

Action	Requested by	Action Taken	Section Reference
Quantify observed or inferred baseflow changes in the Eastern Tributary and Waratah Rivulet and assess the implications of these changes for observed water quality.	WaterNSW	Included in the Annual Surface Water Review.	Section 6.2 Appendix B
Summarise deep groundwater monitoring data to quantify the magnitude and spatial extent of regional groundwater decline and assess the implications of post-mining groundwater level changes for reservoir–groundwater interactions, including groundwater discharge to the reservoir.		SLR has summarised deep groundwater monitoring data and provided analysis of post-mining groundwater changes in reservoir-groundwater interactions in the Groundwater Review.	Section 6.2 Appendix C
Publish the entire content of the Annual Review Reports as required by the development consent Schedule 7, Section 10f.		Published.	N/A

6 ENVIRONMENTAL PERFORMANCE – UNDERGROUND MINING AREA AND SURROUNDS

This section provides a summary of the key environmental monitoring results for subsidence, surface water, groundwater, biodiversity, land, heritage and public safety in the underground mining area, an assessment of environmental performance and a description of the management measures implemented during the reporting period.

Each section indicates the relevant management plan or monitoring program where details of the underground mining management and monitoring are available. The Metropolitan Coal management plans/monitoring programs are available on the Peabody website (http://www.peabodyenergy.com).

The Longwalls 311-316 Extraction Plan includes post-mining monitoring and management of potential subsidence impacts and environmental consequences, subject to the previously approved Metropolitan Coal Extraction Plans for Longwalls 20-22, 23-27, 301-303, 304, 305-307 and 308-310.

6.1 SUBSIDENCE MONITORING

The Longwall 311-316 Subsidence Monitoring Program was prepared to validate subsidence predictions and analyse the relationship between the subsidence effects and subsidence impacts of the Metropolitan Coal Longwall 311-316 Extraction Plan in accordance with Condition 6(e), Schedule 3 of the Project Approval.

Subsidence movements are surveyed in three dimensions using a total station survey instrument, real time Global Navigation Satellite System and Light Detection and Ranging (LiDAR) units. The subsidence parameter monitoring locations are shown on Figure 6.

A review of the subsidence survey results and comparison between the predicted and observed subsidence movements for the reporting period has been conducted by Mine Subsidence Engineering Consultants Pty Ltd (MSEC). The report prepared by MSEC is provided in Appendix A. A summary of the key findings is provided below.

6.1.1 Predicted and Observed Subsidence Movements

The reporting period from 1 January to 31 December 2025 included the continued extraction of Longwall 311 from chainage 1,266 m (void length 563 m) to completion and Longwall 312 from commencement to chainage 260 m (void length 1,242 m). The total length of extraction for Longwalls 311 and 312 during the 2025 reporting period was 2,508 m. Details of the observed and predicted subsidence movements at the subsidence monitoring locations (300 XL Line, Waratah Rivulet Cross Lines, Ridge Top and Reservoir Survey Stations, and Large Swamp Valley Closure Lines) are provided in Appendix A. The monitoring locations are shown on Figure 6.

The observed subsidence profile shapes and subsidence parameters were generally similar to those predicted or within limits of accuracy of the predicted subsidence parameters. The maximum observed total conventional subsidence parameters above the extracted longwalls were generally less than predicted with few instances greater than predicted. The GNSS monitoring across the Large Swamps demonstrated the maximum observed total subsidence was generally low in magnitude with the exception of S77-1-Est, however, the predicted and observed values are less than 50 mm. The observed closures for the Large Swamp Valley Closure lines were less than predicted. The LiDAR surveys were generally consistent with the predictions (Appendix A).

Metropolitan Coal used a Trigger Action Response Plan (TARP) designed to monitor valley closure movements on the Waratah Rivulet. The Waratah Rivulet Valley Closure TARP has been successfully implemented by Metropolitan Coal for Longwalls 307, 308, 309, 310, 311 and 312.

Condition 3, Schedule 3 of the Project Approval states:

3. *If the subsidence effects and subsidence impacts of the project exceed the relevant predictions by more than 15% at any time after mining has progressed beyond the halfway mark of Longwall 21, or if the profile of vertical displacement does not reflect predictions, then the Proponent shall use appropriate numerical modelling to supplement the subsequent predictions of subsidence effects and subsidence impacts for the project to the satisfaction of the Director-General.*

A comparison of the maximum observed and maximum predicted total conventional subsidence for the Project after each longwall for Longwalls 3-27 and Longwalls 301-311 is shown in Chart 1. The comparison of conventional subsidence effects excludes the valley cross lines which represent non-conventional subsidence movements.

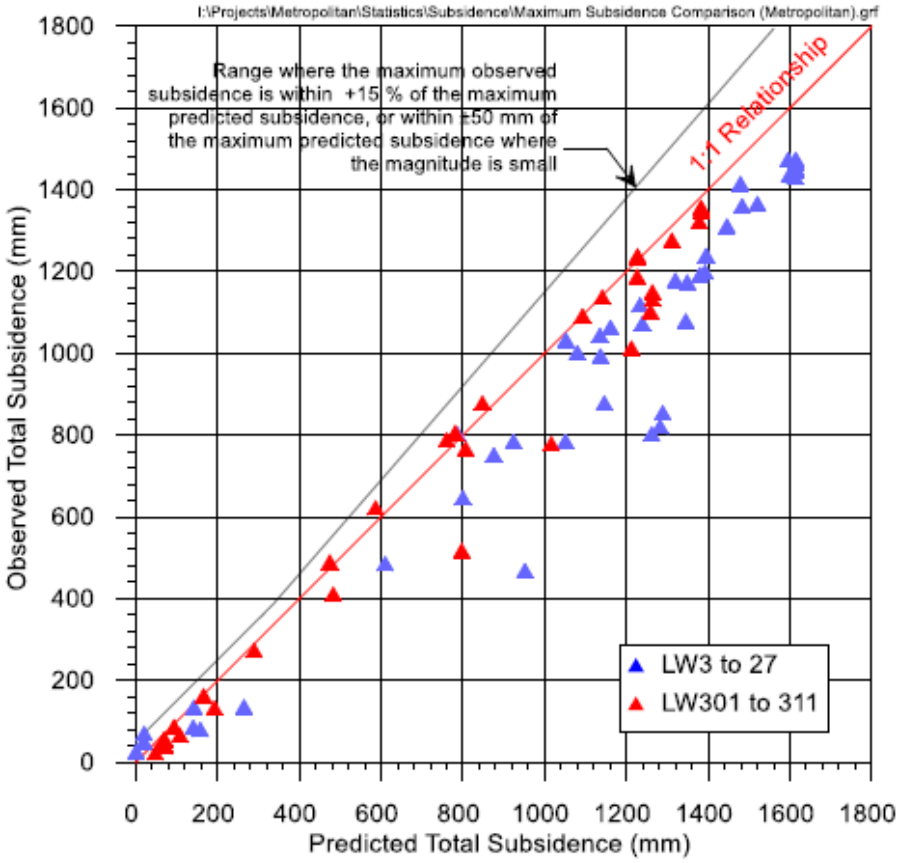


Chart 1 Comparison Between the Maximum Observed and Maximum Predicted Total Conventional Subsidence for Longwalls 3-27 and Longwalls 301-311 at Metropolitan Colliery

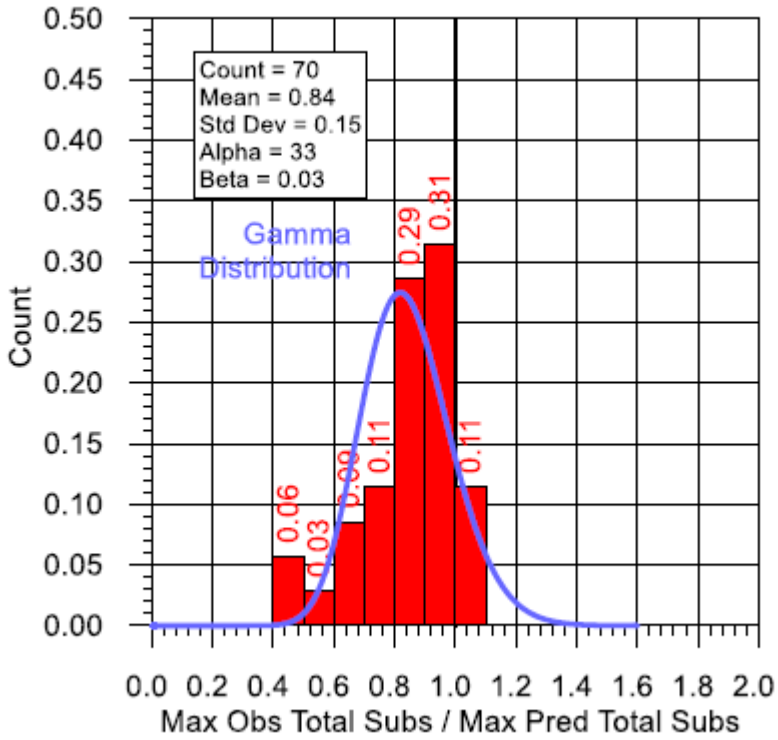


Chart 2 Histogram of Maximum Observed/Maximum Predicted Total Vertical Subsidence with Gamma Distribution

An analysis of the maximum observed versus maximum predicted vertical subsidence was undertaken by MSEC (Appendix A). The mean of the maximum observed divided by the maximum predicted vertical subsidence for the project shown in Chart 2 is 0.84, indicating that, on average, observed subsidence is 16 percent (%) less than predicted for the project. Based on the results of survey data to date and comparison with predicted conventional subsidence parameters, the profiles of vertical displacement adequately reflect the predictions. The overall subsidence effects of the project do not exceed predictions by more than 15% (Appendix A).

6.2 WATER MANAGEMENT

The Metropolitan Coal Longwalls 311-316 Water Management Plan was prepared to manage the potential environmental consequences of the Metropolitan Coal Longwalls 311-316 Extraction Plan on watercourses (including the Woronora Reservoir), aquifers, and catchment yield in accordance with Condition 6, Schedule 3 of the Project Approval.

The Longwalls 311-316 Water Management Plan includes post-mining monitoring and management of potential subsidence impacts and environmental consequences associated with Longwalls 20-22, Longwalls 23-27, Longwalls 301-303, Longwall 304, Longwalls 305-307 and Longwalls 308-310.

ATC Williams Pty Ltd (ATC Williams) (Appendix B) and SLR Consulting Australia Pty Ltd (SLR) (Appendix C) have reviewed the environmental performance of the Project in relation to surface water and groundwater in the underground mining area and surrounds for the reporting period.

The surface water, groundwater and meteorological monitoring locations are shown on Figures 7 to 12.

Sections 6.2.1 to 6.2.11 provide a summary of the surface water and groundwater assessments for the reporting period.

Section 6.8 provides a summary of the assessments against the water resource and watercourse subsidence impact performance indicators and measures for the reporting period.

6.2.1 Stream Features

Visual inspections and photographic surveys of the Waratah Rivulet (from Pool P [downstream of Longwall 23] to the Woronora Reservoir's full supply level) and Eastern Tributary (from the full supply level of the Woronora Reservoir to the maingate of Longwall 26) were conducted within three months of the completion of Longwall 311.

The visual and photographic surveys conducted at the completion of each longwall provide a detailed photographic record of stream features. The visual and photographic surveys have recorded observations of mining impacts including surface cracking, iron staining, gas releases and water discoloration/opacity. A summary of the observations for the reporting period is provided for the Waratah Rivulet (Table 7) and Eastern Tributary (Table 8). The location of mapped pools on the Waratah Rivulet and Eastern Tributary is provided in Appendix D.

During the reporting period, weekly inspections have also been undertaken where gas releases occur, and monthly inspections have been undertaken of the Eastern Tributary between the full supply level of the Woronora Reservoir and the Longwall 26 maingate to document surface cracking and iron staining. The results of these inspections are included in Table 8.

Visual inspections and photographic surveys of the Eastern Tributary (from the Woronora Reservoir full supply level to the Longwall 26 maingate) continued to be conducted monthly while Longwall 311 extraction was within 450 m of the stream. Visual inspections and photographic surveys were also conducted along the Waratah Rivulet (from Pool P to the full supply level of the Woronora Reservoir) within three months of the completion of Longwall 311.

Visual inspections and photographic surveys of the Eastern Tributary (from the Woronora Reservoir full supply level to the Longwall 26 maingate) will continue to be conducted monthly while Longwall 312 extraction is within 450 m of the stream. Visual inspections and photographic surveys will also be conducted along the Waratah Rivulet (from Pool P to the full supply level of the Woronora Reservoir) within three months of the completion of Longwall 312.

Table 7
Monitoring of Stream Features – Waratah Rivulet Downstream of the Longwall 23 Maingate

Stream Feature	Summary of Observations
Surface Cracking and Drainage Behaviour	Metropolitan Coal's visual inspections of Pools P, Q, R, S, T, U, V and W downstream of the maingate of Longwall 23 indicate no mine-induced surface cracking and no observed changes to the natural drainage behaviour of the pools. The performance indicator, *No change to the natural drainage behaviour of Pools T, U, V and W,* was not exceeded during the reporting period.
Surface Flow/ Pool Water Levels	Water levels in pools on the Waratah Rivulet from Pool P to the full supply level of the Woronora Reservoir (i.e. in Pools P, Q, R, S, T, U, V and W) have been monitored using a continuous water level sensor and logger. The recorded water levels in Pools P, T, U, V and W have remained at or above the pools' previously recorded minimum levels. The recorded water levels in Pools Q, R and S have remained above that required to maintain water over the downstream rock bar. The monitoring results for the reporting period are further discussed in Section 6.2.3 and Appendix B. The performance indicators, *Analysis of water level data for Pools T, U, V and W indicates the water level is at or above the pool's previous minimum,* and *Analysis of water level data for Pools Q, R and S indicates the water levels are above that required to maintain water over the downstream rock bar*, were not exceeded during the reporting period.
Iron Staining/ Flocculent	No change in iron staining was observed between Pools P to W on the Waratah Rivulet as a result of mining during the reporting period. Natural seeps and associated iron staining (as recorded by baseline mapping) continue to be recorded within this reach. The performance indicator, *Visual inspection of the Waratah Rivulet from Pool P to the full supply level of the Woronora Reservoir does not show significant changes in the extent or nature of iron staining that isn't also occurring in the Woronora River (control site),* was not exceeded during the reporting period.
Gas Releases	Gas releases continued to be observed and monitored on the Waratah Rivulet at Pool P (in January and May 2025) and at Pool U (in January 2025). No environmental effects resulting from the gas releases (such as riparian vegetation dieback or dead fish) have been observed. The performance indicator *Gas releases in Waratah Rivulet from Pool T to the full supply level of the Woronora Reservoir have not increased beyond those observed up to the commencement of Longwall 301 extraction*, was not exceeded at Pool P or Pool U during the reporting period.
Water Discoloration/ Opacity	Pools along the Waratah Rivulet were generally observed to be clear, sometimes showing a green opacity.

Table 8
Monitoring of Stream Features – Eastern Tributary Downstream of the Longwall 26 Maingate

Stream Feature	Summary of Observations
Surface Cracking and Drainage Behaviour	Metropolitan Coal's visual inspections of Pools ETAS, ETAT and ETAU (and associated rock bars) indicate that no mine-induced surface cracking has been observed at Pools ETAS and ETAT during the reporting period and no increase in the occurrence of cracking has been observed at Pool ETAU. There have been no observed changes to the natural drainage behaviour of Pools ETAS, ETAT or ETAU during the review period. The performance indicator, *No change to the natural drainage behaviour of Pools ETAS, ETAT and ETAU*, was not exceeded during the reporting period.
Surface Flow/ Pool Water Levels	As previously reported in the 2016 to 2024 Metropolitan Coal Annual Reviews, mine subsidence resulted in the diversion of flows or change to the natural drainage behaviour of Pools ETAG to ETAR between the full supply level of the Woronora Reservoir and the Longwall 26 maingate, (Figure 7 and Appendix D). As of December 2025, mining had not resulted in the diversion of flows or change to the natural drainage behaviour of Pools ETAS, ETAT and ETAU (Figure 7 and Appendix D). Water levels in Pool ETAU and in Pools ETAS/ETAT (since May 2018) have been monitored using a continuous water level sensor and logger (Figure 7 and Appendix D). The monitoring results are discussed in Section 6.2.3 and in Appendix B and indicate the natural drainage behaviour of Pools ETAS/ETAT and ETAU have not been impacted by mine subsidence. The performance indicator, *Analysis of water level data for Pool ETAS/ETAT and Pool ETAU indicates the water levels are above that required to maintain water over the downstream rock bar*, was not exceed during the reporting period.
Iron Staining/ Flocculent	As previously reported in the 2016 to 2024 Metropolitan Coal Annual Reviews, mine subsidence resulted in the exceedance of the Eastern Tributary performance measure in relation to iron staining (emphasis added): *Negligible environmental consequences over at least 70% of the stream length (that is no diversion of flows, no change in the natural drainage behaviour of pools, **minimal iron staining** and minimal gas releases) on the Eastern Tributary between the full supply level of the Woronora Reservoir and the maingate of Longwall 26.* During the reporting period, iron staining continued to be observed along the reach of the Eastern Tributary between the full supply level of the Woronora Reservoir and the Longwall 26 maingate and was most evident in the reach from Pool ETAQ to Boulderfield ETAU.
Gas Releases	No gas releases were observed on the Eastern Tributary during the reporting period. No environmental effects resulting from the has releases (such as riparian vegetation dieback or dead fish) have been observed. The performance indicator, *Gas releases in Eastern Tributary between the full supply level of the Woronora Reservoir and the maingate of Longwall 26 have not increased beyond those observed up to the commencement of Longwall 301 extraction,* was not exceeded during the reporting period
Water Discoloration/ Opacity	Orange in colour where iron staining occurred. Pools along the Eastern Tributary observed with a green opacity.

The results of the stream inspections (Tables 7 and 8) are consistent with the potential subsidence impacts described in the Metropolitan Coal Project Environmental Assessment (Project EA) (Helensburgh Coal Pty Ltd [HCPL], 2008), the Preferred Project Report (HCPL, 2009) and the Metropolitan Coal Water Management Plans, including cracking and dilation of bedrock which has resulted in the localised diversion of a portion of the surface flow through either:

- **diversion into subterranean flows**, where water travels via new mining induced fractures and opened natural joints in the bedrock into near-surface dilated strata beneath the bedrock, ultimately re-emerging at the surface downstream; or
- **leakage through rock bars**, where the rate of leakage from pools through rock bars to the downstream reaches of the stream is increased by new mining induced fractures.

The Project EA, Preferred Project Report and Metropolitan Coal Water Management Plans indicated that the effects of underflow would be localised to the subsidence affected reaches of streams. Underflow has been observed to result in lower water levels in pools as they become hydraulically connected with the fracture network. During prolonged dry periods when flows recede to low levels, the number of instances where loss of flow continuity between pools occurs increases with a greater proportion of the flow being conveyed entirely in the subsurface fracture network.

The Preferred Project Report and Metropolitan Coal Water Management Plan indicated that valley closure values of greater than 200 millimetres (mm) were predicted at pools/rock bars on the Waratah Rivulet upstream of the maingate of Longwall 23, downstream to rock bar ETAL on the Eastern Tributary, and on Tributary B. The NSW Planning Assessment Commission's Report for the Metropolitan Coal Project (NSW Planning Assessment Commission, 2009) indicates the Panel considered 'negligible consequence' for a watercourse to mean, *'no diversion of flows, no change in the natural drainage behaviour of pools, minimal iron staining, and minimal gas releases'*, and was assumed to be achieved in circumstances where predicted valley closure was less than 200 mm.

Up until December 2016, the monitoring of water levels/drainage behaviour of pools on the Eastern Tributary between the maingate of Longwall 26 and the full supply level of the Woronora Reservoir was consistent with predictions. In the Longwalls 20-22 Extraction Plan Subsidence Assessment it was recognised that fracturing resulting in surface flow diversion could be observed at a site where the predicted total closure is less than 200 mm, although none had been observed to date. The report also noted that reference to the 200 mm predicted total closure value should be viewed as an indication of low probability (10%) of impact rather than certainty. In the Longwalls 23-27 Extraction Plan Subsidence Assessment, additional case studies were added to the pool impact model, including cases where loss of pool water levels had occurred at less than 200 mm predicted total closure. Similar to the previous database for Longwalls 20-22, the updated database showed that based on a maximum predicted total closure of 200 mm, the proportion of pools that experienced loss of pool water levels was around 10%.

In December 2016 and January 2017, a number of pools with predicted closure values of less than 200 mm experienced loss of pool water levels. This resulted in the exceedance of the negligible environmental consequences performance measure for the Eastern Tributary in relation to diversion of flows and drainage behaviour. The impacts are considered to be anomalous in that more than 15% of pools on the Eastern Tributary have experienced loss of pool water levels at predicted closure values of less than 200 mm. However, the combined data that is available to MSEC for the Southern Coalfield (including the Waratah Rivulet and Eastern Tributary results) indicates that less than 10% of all pools have experienced the diversion of flow at predicted closure values of less than 200 mm, consistent with previous assessments of potential pool impacts. On their own, the impacts for the Eastern Tributary are outside of the predictions of the empirical based model.

Metropolitan Coal's actions in relation to the Eastern Tributary Incident are described in Section 13.1. No additional pools downstream of the Longwall 26 maingate to those identified previously as being impacted (in terms of drainage behaviour) have been impacted during the reporting period.

The key potential subsidence impacts and environmental consequences in relation to bed gradients, scouring and stream alignment described in the Project EA, Preferred Project Report and Metropolitan Coal Water Management Plans included:

- Potential changes in bed gradients could occur, however, were anticipated to be small relative to the existing grades.
- An increased potential for scouring of the stream bed and banks (at locations where the predicted tilts considerably increase the natural pre-mining stream gradients). The potential for scouring is greatest in stream sections with alluvial deposits. Since the streambed of the Waratah Rivulet and the Eastern Tributary is predominantly erosion-resistant Hawkesbury Sandstone, scouring was expected to be very low.
- Subsidence fracturing of bedrock has the potential to cause dislodgement of rock fragments during high flow events.
- The potential for changes to stream alignment as a result of mine subsidence effects was considered to be low.
- Minor stream bank erosion, where changes in channel gradients result in increases in flow energy. It would be expected that bank erosion would be relatively minor and comprise a slow retreat of the bank until a new dynamic equilibrium is reached.

The results of the stream inspections have generally been consistent with these predictions. On the Waratah Rivulet (in a section of the stream over Longwall 21) and Eastern Tributary (in a section of the stream over Longwalls 20 and 21) increased ponding from changes in bed gradients has previously resulted in the prolonged inundation of the adjacent riparian vegetation which has resulted in some vegetation dieback on a local scale as described in Section 6.3.3.

As described in the Southern Coalfield Panel Report (Department of Planning [DoP], 2008) and the NSW Planning Assessment Commission's Report for the Metropolitan Coal Project (NSW Planning Assessment Commission, 2009), under certain conditions the cracking of stream beds and underlying strata has the potential to result in changes in water quality, particularly ferruginous springs and/or development of iron bacterial mats. Experience at Metropolitan Coal prior to Project Approval indicated that areas of the substratum can be covered by iron flocculent material for several hundred metres downstream of mine subsidence fractures.

Metropolitan Coal has monitored the extent of iron staining through visual and photographic surveys and assessed the extent of iron staining against the subsidence impact performance measures as follows:

- *Negligible environmental consequences (that is, no diversion of flows, no change in the natural drainage behaviour of pools, minimal iron staining, and minimal gas releases) on the Waratah Rivulet between the full supply level of the Woronora Reservoir and the maingate of Longwall 23 (upstream of Pool P).*
- *Negligible environmental consequences over at least 70% of the stream length (that is, no diversion of flows, no change in the natural drainage behaviour of pools, minimal iron staining, and minimal gas releases) on the Eastern Tributary between the full supply level of the Woronora Reservoir and the maingate of Longwall 26.*

From January to December 2025, iron staining continued to be observed along the reach of the Eastern Tributary between the full supply level of the Woronora Reservoir and the Longwall 26 maingate and was most evident in the reach from Pool ETAQ to Boulderfield ETAU.

Prior to approval of the Project in 2009, no gas releases had been observed along the Waratah Rivulet, Eastern Tributary or other tributaries over the Metropolitan Coal lease, either before or during mining. Notwithstanding, the Project EA, Preferred Project Report, and Metropolitan Coal Water Management Plans recognised there was the potential for gas releases to occur.

During the reporting period 1 January 2025 to 31 December 2025, monitoring of gas releases was undertaken in accordance with the Metropolitan Coal Longwalls 311-316 Water Management Plan.

No gas releases observed on the Eastern Tributary or the Waratah Rivulet exceeded the performance indicators and therefore an assessment against the performance measures is not required.

6.2.2 Surface Water Flow

Waratah Rivulet stream flow data (GS 2132102; Figure 7) is analysed to assess whether a statistically significant reduction in the quantity of water entering Woronora Reservoir in the post-mine period relative to the pre-mine period has occurred, that has not also occurred in the control catchment(s).

The quantity of water entering the Woronora Reservoir is not considered to be significantly different post-mining compared to pre-mining if the median of the ratios (of 14-day sums of monitored flow) for the 'sliding' 12-month period does not fall below the 20th percentile of the baseline data.

Chart 3 shows a plot of the sliding 12-month median of the ratio of 14-day sums of monitored and modelled flow at Waratah Rivulet (GS 2132102) to 31 December 2025.

For the Project EA, a comprehensive analysis of stream flow data and data on the yield behaviour of Woronora Reservoir indicated that past mining at Metropolitan Coal had no discernible effect on the inflow to, or yield from, the reservoir. Surface water flow monitoring indicates there has been a negligible reduction in the quantity of water resources reaching the Woronora Reservoir during the reporting period.

The results show that the moving 12-month median of the 14-day filtered low flow ratio remained above the 35th percentile for the duration of the reporting period. In accordance with the Metropolitan Coal Longwalls 311-316 Water Management Plan TARP, this equates to a Level 1 significance from 1 January to 31 December 2025.

As such, it is considered that the performance indicator, *Changes in the quantity of water entering Woronora Reservoir are not significantly different post-mining compared to pre-mining, that are not also occurring in the control catchment*, relating to the quantity of water entering Woronora Reservoir from Waratah Rivulet has not been exceeded and an assessment against the performance measure is not required.

Chart 4 shows the flow monitoring data that is available since gauging station construction on the Eastern Tributary (GS 300078; Figure 7) in September 2012 compared to model predictions. The results for the reporting period indicate that flow has been continuous at the gauging station and that it has been generally consistent with, or above, model predictions (Chart 4). The 2021 Metropolitan Coal Surface Water Review (Hydro Engineering & Consulting [HEC], 2022) identified that the streamflow recorded at the gauging station has been increasingly higher than the model predictions from mid-2018.

In late 2025, an extension of Eastern Tributary (GS 300078) rating relationship beyond the capacity of the flume was undertaken per recommendations from IEAPM (2023). Following the extension of the rating relationship, a recalibration of the AWBM (Boughton, 2004) was undertaken based on the revised streamflow records for the calibration period and is documented in Appendix B. Accordingly, Chart 4 differs in comparison to that presented in previous annual surface water reviews.

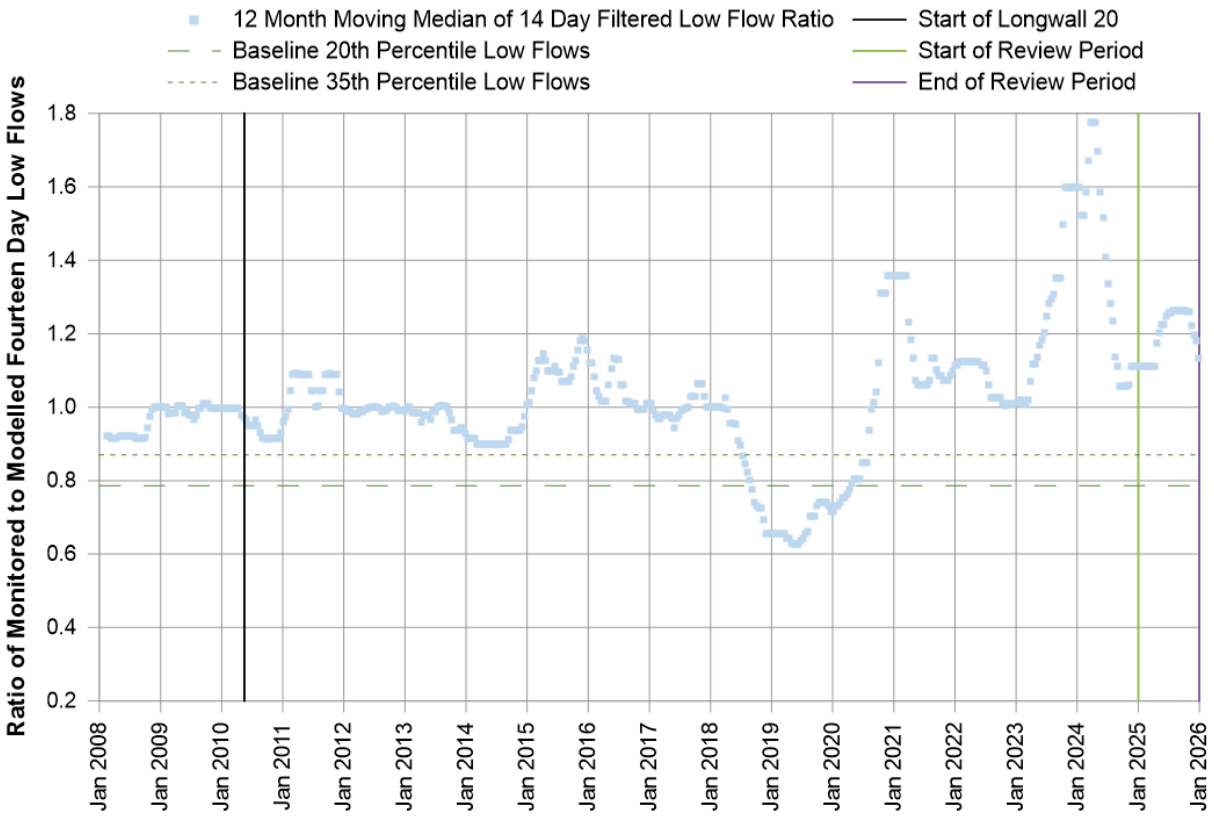


Chart 3 **One Year Sliding Median for the Ratios of the 14 Day Sums of Monitored and Modelled Flow Rates at Waratah Rivulet (GS 2132102)**

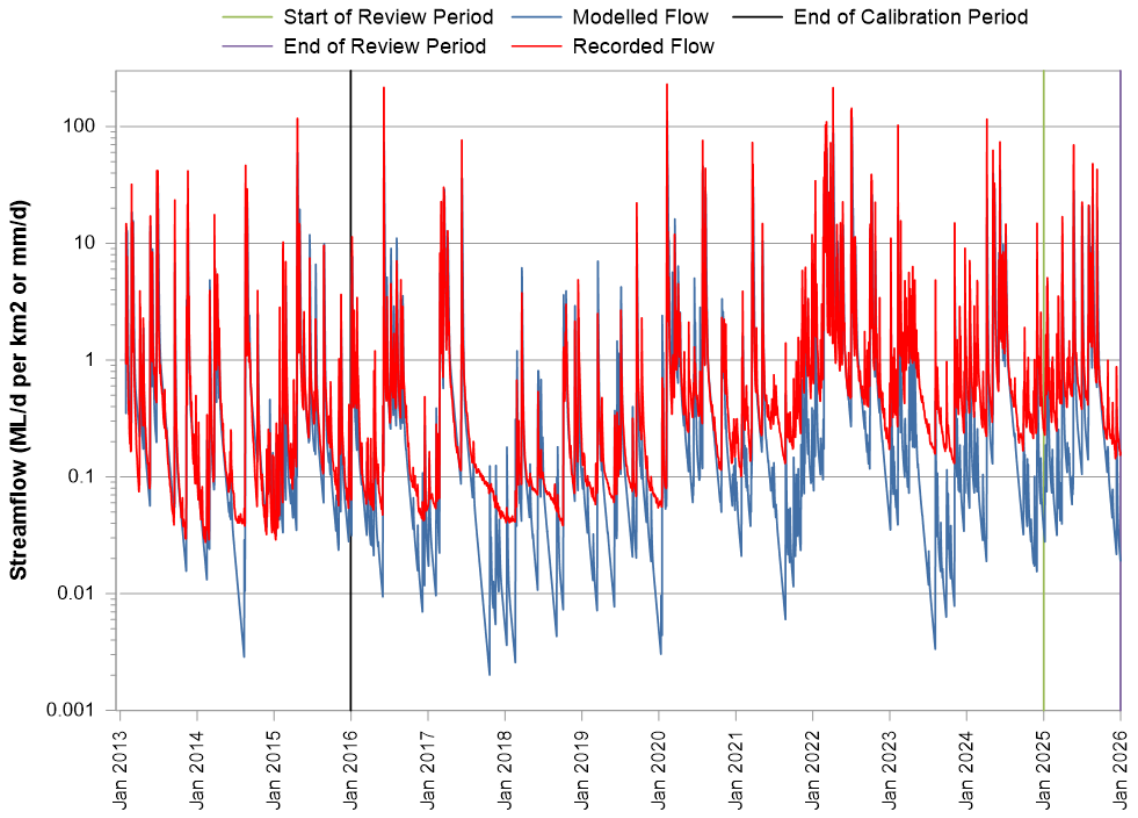


Chart 4 **Monitored and Model Predicted Flows – Eastern Tributary Upstream of Woronora Reservoir**

Key outcomes of the review of the recorded streamflow at GS 300078 are:

1. A controlled hazard reduction burn was conducted within the Metropolitan Special Area and the catchment of GS 300078 on 29 April 2021. For a period of approximately 10 months following, the divergence between the hydrographs increases and this behaviour is considered related to the effects of the burn, which likely increased the rate of catchment runoff. However, this behaviour appears to have diminished since the onset of higher rainfall in approximately March 2023.
2. During periods of flow recession dating back to spring 2017, the modified streamflow record somewhat exceeds modelled flow. It is considered that this may be related to increased baseflow occurring due to subsidence-induced stream bed fracturing upstream of GS 300078 leading to flow diversion through the fracture network which increases flow routing.
3. Streamflow records at GS 300078 (Eastern Tributary) indicate continuous flow, with characteristics generally similar to or greater than model predictions.

This indicates that flows reaching the Woronora Reservoir have not been reduced by mining (Appendix B).

6.2.3 Pool Water Levels

The water level in a number of pools on the Waratah Rivulet, Eastern Tributary, Tributary B and Woronora River (Figure 7) has been either manually monitored on a daily basis[1] or monitored using a continuous water level sensor and logger.

During the reporting period, all pools on the Waratah Rivulet (Pools B, C, E, F, G, G1, H, I, J, K, L, M, N, O, P, Q, R, S, V and W) remained above their cease to flow levels or historical minimums for the duration of the reporting period.

A review of the Waratah Rivulet monitoring site water level graphs, shown in Appendix B, indicates that the water level for most pools show a slight declining trend from mid-September to mid-December 2025. The water levels of these pools then increase following a rainfall event on 13 December 2025. It is noted that:

- for brief periods in August and September 2025, the water level at Pool T declined below the cease to flow level;
- during late November and December 2025, the water level at Pool A declined below the cease to flow level; and
- In December 2025, Pool U's water level declined below the cease to flow level.

Metropolitan Coal's visual inspection records for the Waratah Rivulet monitoring sites indicate that all pools were overflowing the respective natural control at the time of each inspection with the exception of Pool A and Pool B on the 30 November 2025.

There were no exceedances of the performance indicator, *Analysis of water level data for Pools P, T, U, V and W indicates the water level is at or above the pool's previous minimum* from January to December 2025. Metropolitan Coal's visual inspections of Pools P, Q, R, S, T, U, V and W downstream of the maingate of Longwall 23 indicate no mine-induced surface cracking and no observed changes to the natural drainage behaviour of the pools (Metropolitan Coal, pers. comm). The visual inspection results equate to a TARP Level 1 significance level.

[1] Specifically, Pools B, C, E, G, G1, H and I on Waratah Rivulet.

On the Eastern Tributary, water levels in Pools ETG, ETJ, ETM, ETU, ETW, ETAF, ETAG, ETAH, ETAI/ETAJ/ETAK[2], ETAL, ETAM, ETAN, ETAO, ETAP, ETAQ, ETAR, ETAS/ETAT[3] and ETAU are monitored using a continuous water level sensor and logger (Figure 7).

A review of the Eastern Tributary water level graphs as shown in Charts 5 to 12, indicates that water level records at pools within the reach, between EG and ETW, are consistent with historical records and that the pool continued to flow for the duration of the reporting period, aside from a brief decline below the cease to flow level in the month of December. Water level records at pools within the reach between ETAF and ETAR recorded a decline in water level below the cease to flow level between October and December. It is noted that below average rainfall conditions were recorded during this period, however, Woronora River water level monitoring sites did not record a similar decline.

A review of the water level graphs for pools located on tributaries of Waratah Rivulet including Tributary B, Stream R and Stream P (RTP1, RTP2, SR1, SR2 and SP1), indicates that water levels were consistent with historical trends. Metropolitan Coal's visual inspection records confirm that the pool water level data was accurate. Records indicate that Pool RTP1 is typically dry, only overflowing due to significant rainfall events. Water level records for RTP2, SR1, SR2 and SP1 show an increase in pool level in response to high rainfall experienced in May 2025.

As described in Section 6.2.1, the Eastern Tributary pool water level monitoring results for the reporting period were consistent with the potential subsidence impacts and environmental consequences described in the Project EA, Preferred Project Report and Metropolitan Coal Water Management Plans in that data that is available to MSEC for the Southern Coalfield (including the Waratah Rivulet and Eastern Tributary results) indicates that less than 10% of all pools have experienced the diversion of flow at predicted closure values of less than 200 mm, consistent with previous assessments of potential pool impacts. On their own, the impacts for the Eastern Tributary are outside of the predictions of the empirical based model.

[2] Only small rock bars separate Pools ETAI, ETAJ and ETAK, with the pools joining to become the one large pool as water levels rise. Pool ETAK is controlled by a more substantial rock bar. Readings from the water level sensor situated in Pool ETAI is considered to also be representative of the water level in Pools ETAJ and ETAK.

[3] Due to the nature of rock bar ETAS, Pool ETAS and Pool ETAT typically record the same level. A continuous water level sensor and logger was installed at Pool ETAT. Water level data for Pools ETAS/ETAT is available from 24 May 2018.

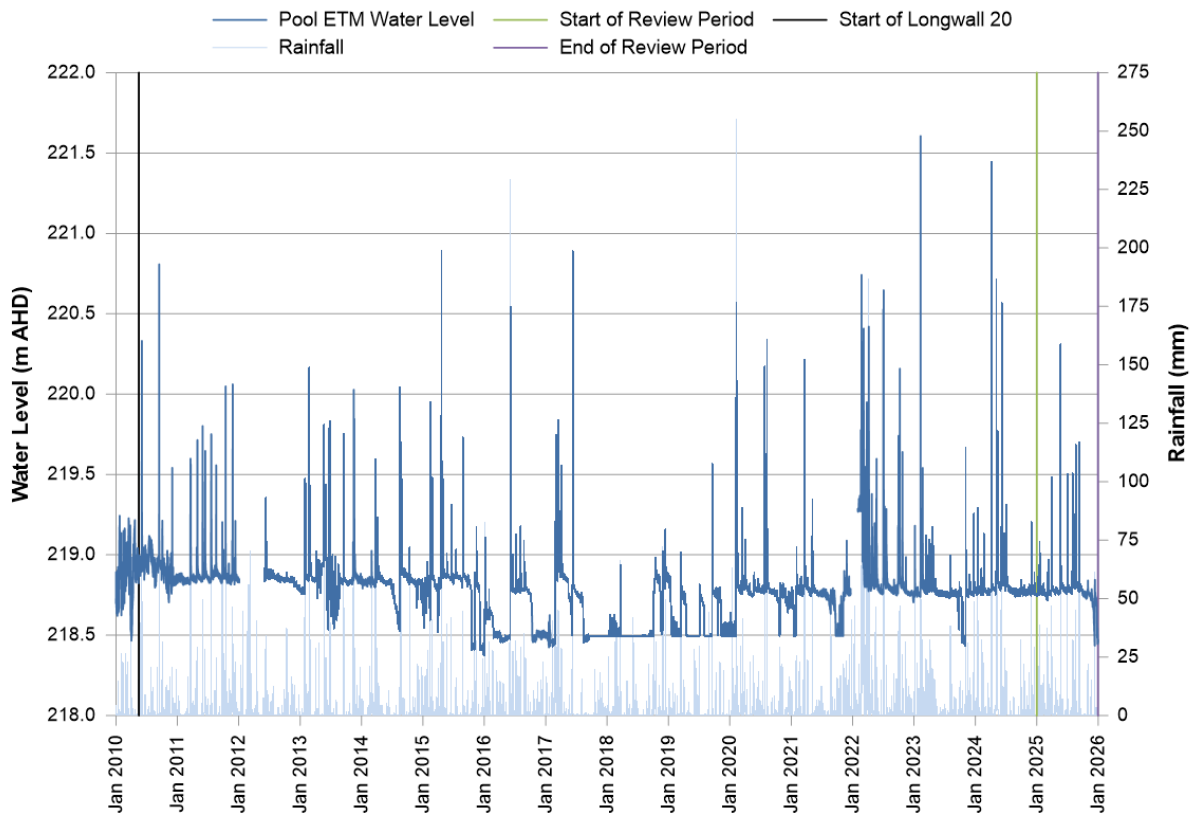


Chart 5 Pool ETM

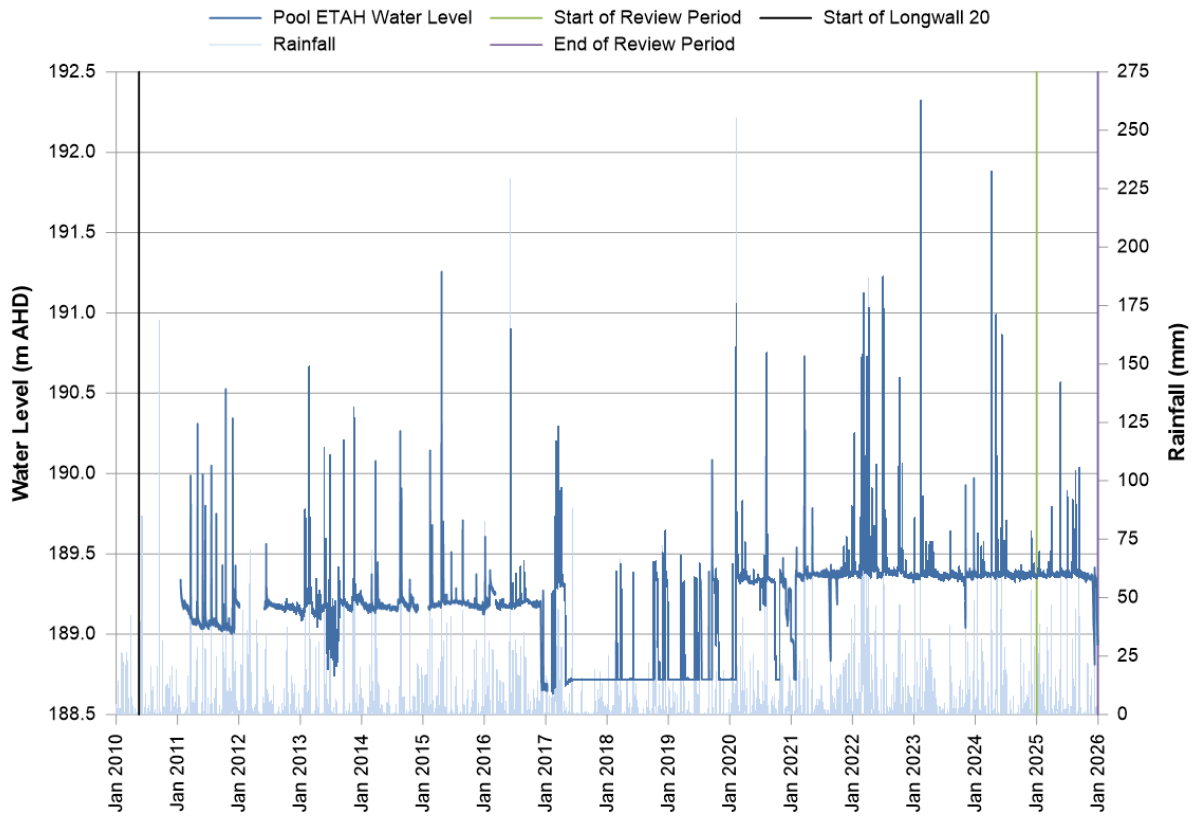


Chart 6 Pool ETAH

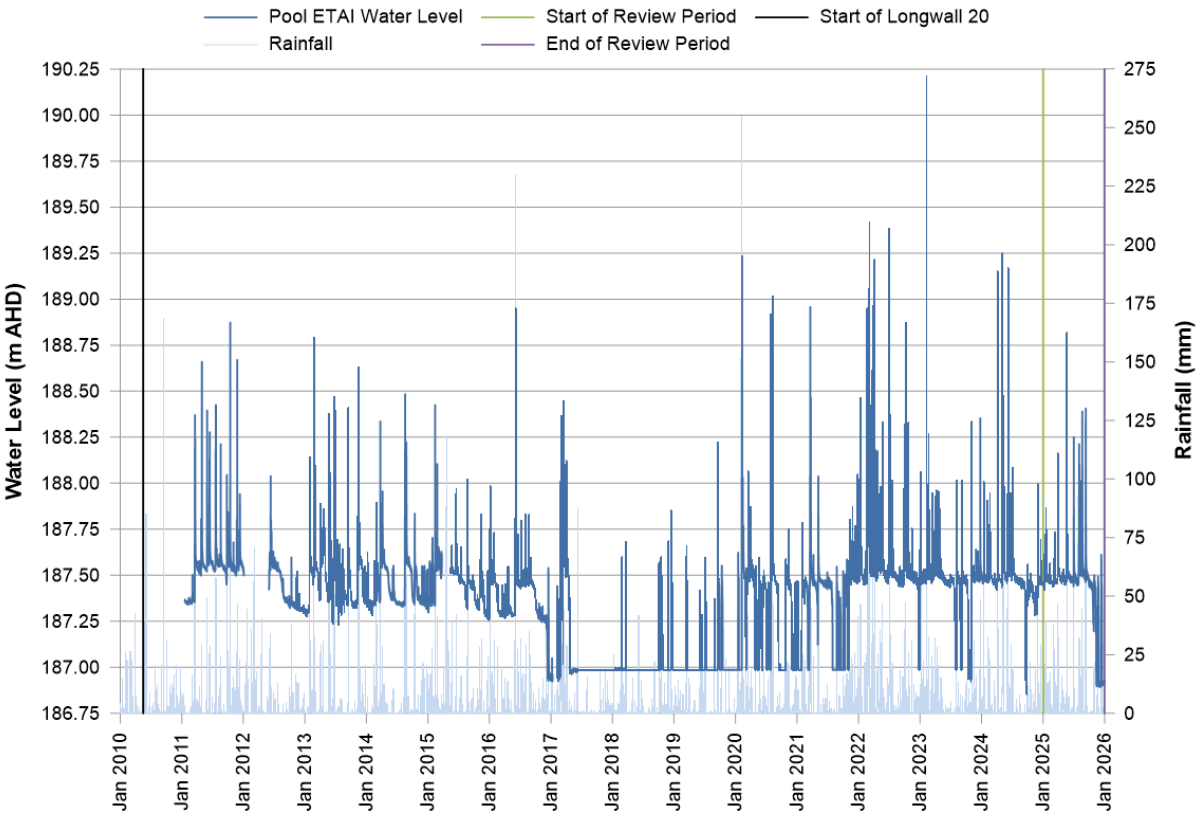


Chart 7 Pool ETAI

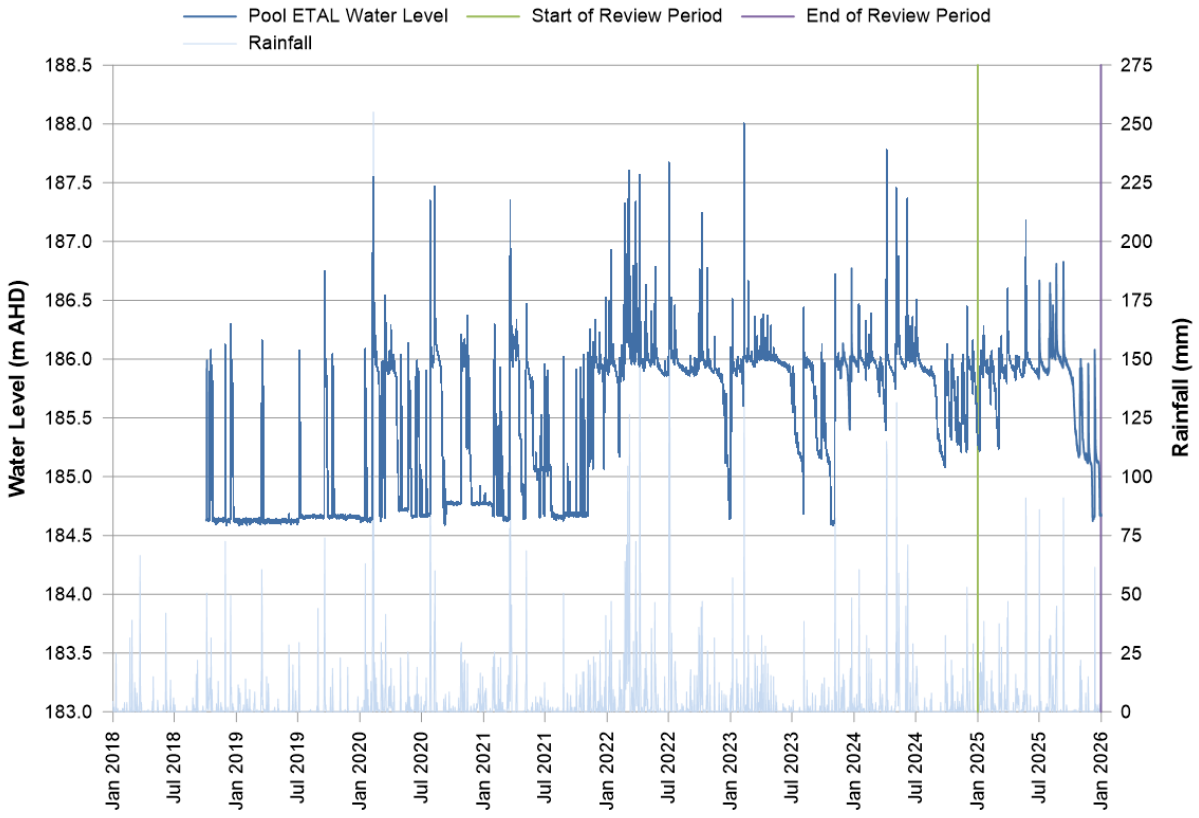


Chart 8 Pool ETAL

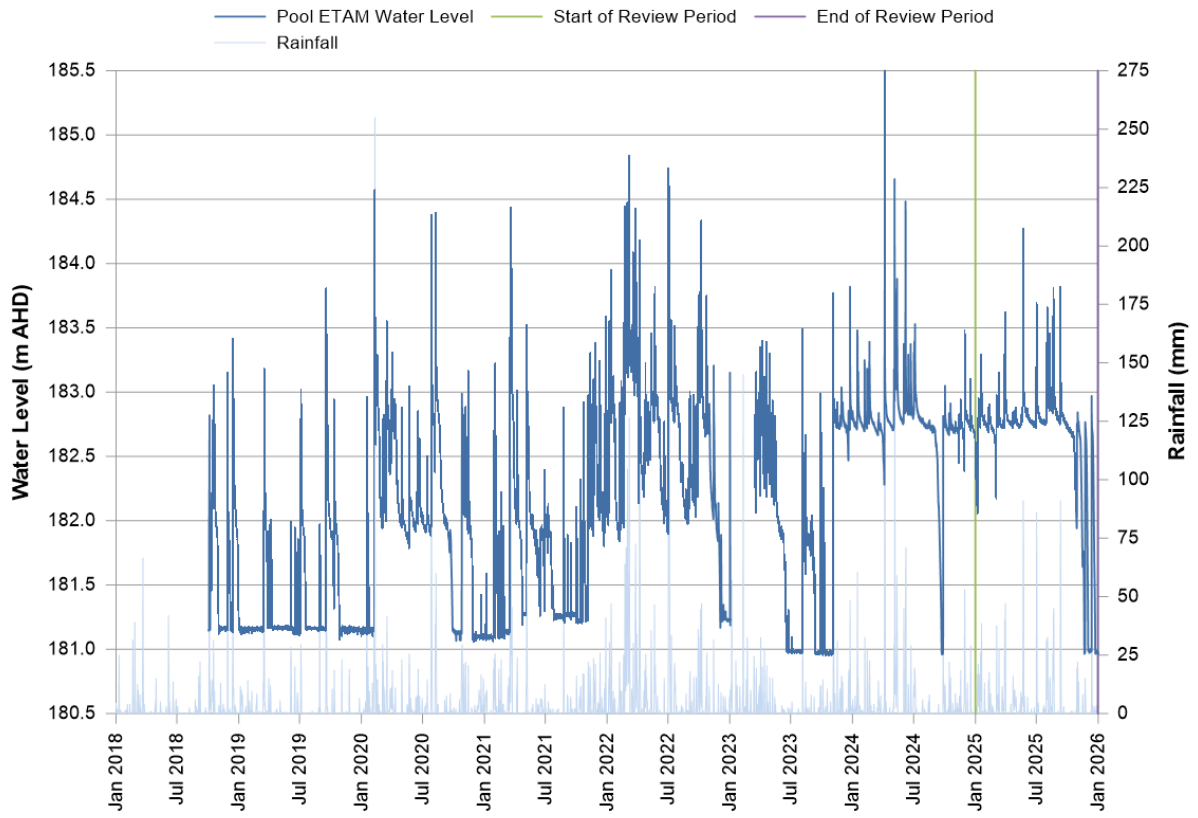


Chart 9 Pool ETAM

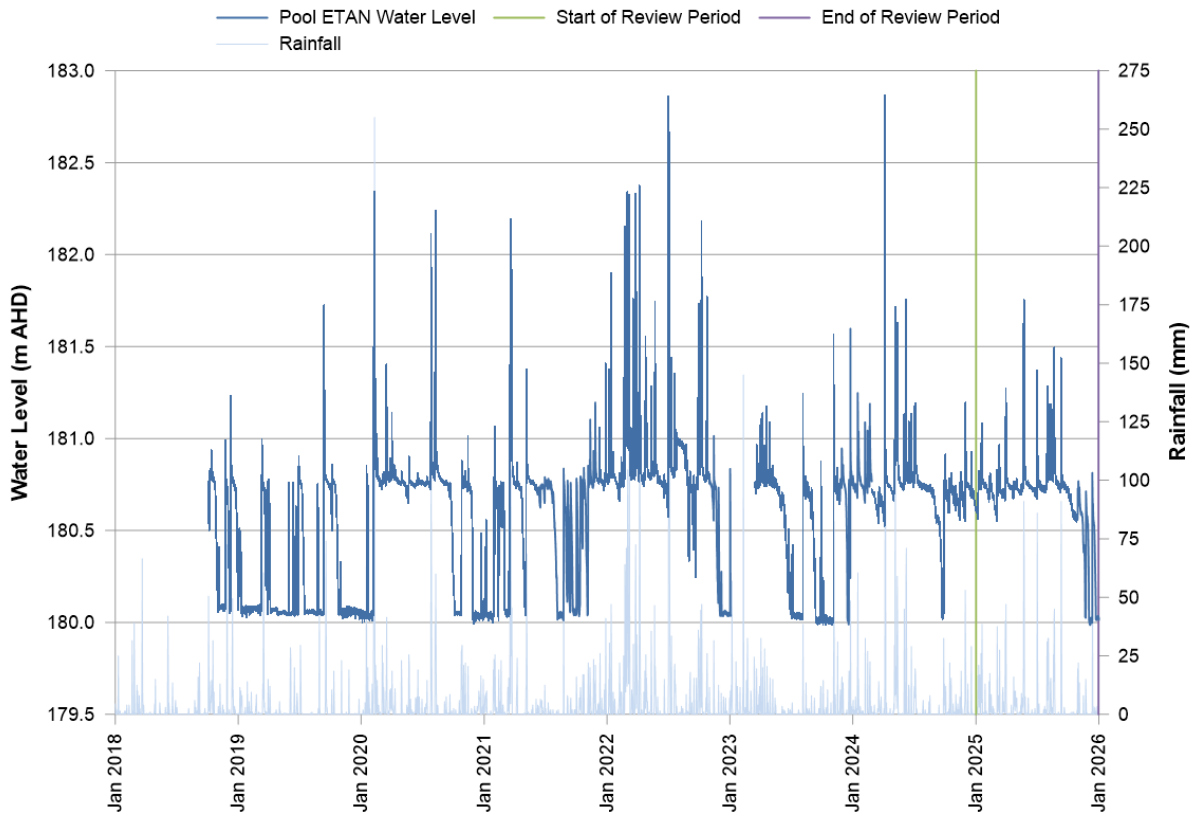


Chart 10 Pool ETAN

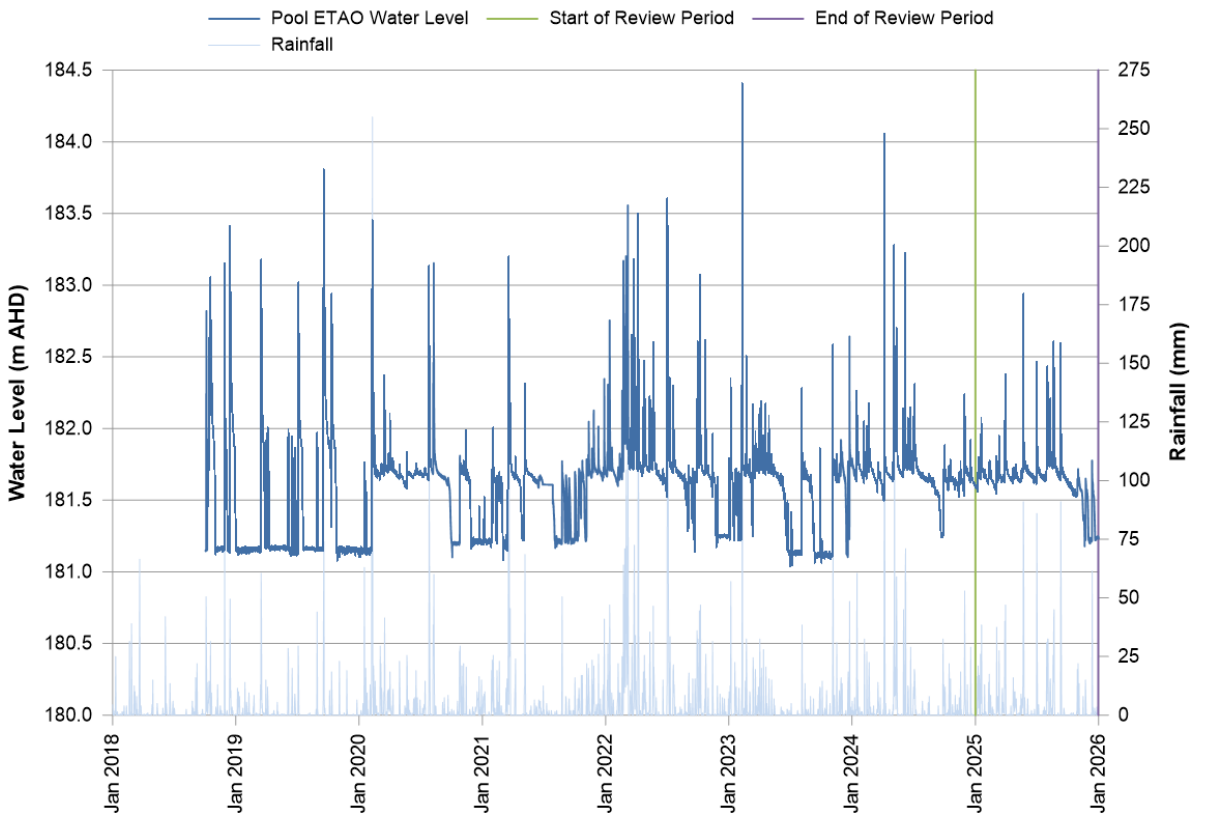


Chart 11 Pool ETAO

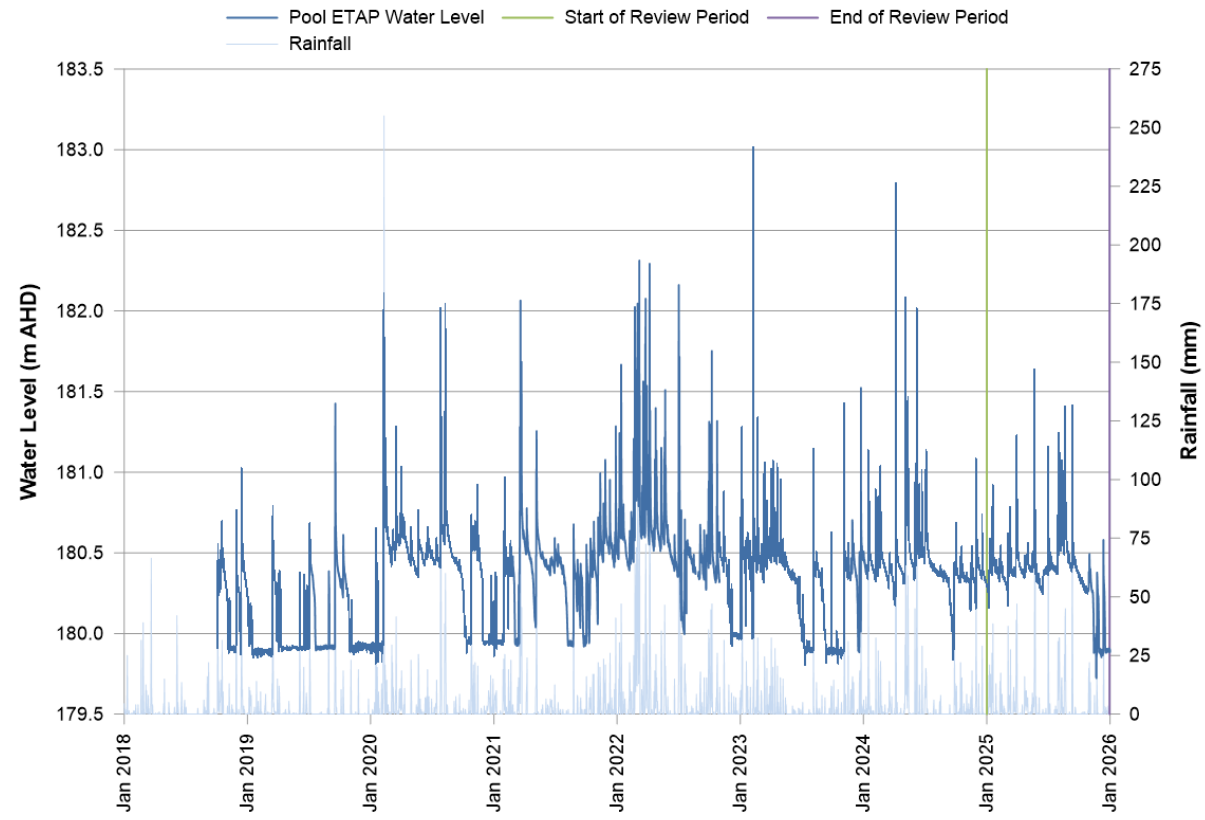


Chart 12 Pool ETAP

6.2.4 Stream Water Quality

Surface water quality sampling has been conducted monthly in the Waratah Rivulet (sites WRWQ2, WRWQ6, WRWQ8, WRWQ9, WRWQM, WRWQN, WRWQP, WRWQR, WRWQT, WRWQU, WRWQV, WRWQW), Eastern Tributary (sites ETWQF, ETWQJ, ETWQN, ETWQU, ETWQW, ETWQAF, ETWQAH, ETWQAQ, ETWQAU), Tributary B (site RTWQ1), Tributary D (site UTWQ1), Far Eastern Tributary (site FEWQ1), Honeysuckle Creek (site HCWQ1), Bee Creek (site BCWQ1), Woronora Reservoir Tributaries (SR1, SR2 and SP1) and Woronora River (WOWQ1 and WOWQ2) (Figure 8) in accordance with the Metropolitan Coal Longwalls 311-316 Water Management Plan.

In October 2016, Metropolitan Coal increased the frequency of water quality sampling at select sites on the Eastern Tributary (sites ETWQ F, ETWQ N, ETWQ AF, ETWQ AG, ETWQ AH, ETWQ AI, ETWQ AK, ETWQ AQ and ETWQ AU) and at site WOWQ 2 on the Woronora Reservoir from monthly to weekly in response to the Eastern Tributary Incident. Weekly sampling continued throughout the reporting period.

Trends in the monitoring data to date for key parameters (pH, electrical conductivity [EC], dissolved iron, dissolved manganese, dissolved aluminium, total iron, total manganese and total aluminium) are summarised in Table 9 and shown on Charts 13 to 52 (Appendix B). Historical trends in the monitoring data for the key parameters (pH, EC, dissolved iron, dissolved manganese, dissolved aluminium, total iron, total manganese and total aluminium) are summarised in Appendix B.

Water quality data has been analysed for key water quality parameters of relevance to water supply and the effects of subsidence, namely iron, manganese and aluminium at site WRWQ9 on Waratah Rivulet, site ETWQ AU on Eastern Tributary and at control site WOWQ2 on the Woronora River.

The performance indicator, *Changes in the quality of water entering Woronora Reservoir are not significantly different post-mining compared to pre-mining concentrations that are not also occurring at control site WOWQ2,* is considered to have been exceeded if data analysis indicates a significant change in the quality of water post-mining of Longwall 20. Specifically, if[4]:

- any water quality parameter exceeds the adjusted baseline mean plus two standard deviations for two consecutive months; or
- over a three-month period the water quality parameter exceeds the adjusted mean plus two standard deviations in the first month, the adjusted mean plus one standard deviation in the next month and the adjusted mean plus two standard deviations in the third month; or
- the six-month mean of the water quality parameter exceeds the adjusted baseline mean plus one standard deviation for two consecutive assessment periods (i.e. over two six-monthly reports); and
- there was not a similar exceedance of the trigger at the control site.

Total iron, manganese and aluminium concentrations have been assessed against the Sydney Catchment Authority and Sydney Water Corporation Raw Water Supply Agreement (WaterNSW, 2013) (Appendix B). The water quality standard applicable to metals concentrations (assumed to be for total concentration) is as follows:

- total iron = 1 milligram per litre (mg/L)
- total aluminium = 0.4 mg/L
- total manganese = 0.1 mg/L

[4] Note each ‘mean’ is calculated as a geometric mean.

Table 9
Summary of Results for Key Water Quality Parameters During the Reporting Period

Stream(s)	pH	EC	Dissolved and Total Iron	Dissolved and Total Manganese	Dissolved and Total Aluminium
Waratah Rivulet (sites WRWQ2, WRWQ6, WRWQ8, WRWQ9, WRWQM, WRWQN, WRWQP, WRWQR, WRWQT, WRWQU, WRWQV and WRWQW) (Charts 13 to 28)	• pH values recorded for upper to middle reach site predominantly range between 6 and 8. • No historically high values were recorded during the reporting period.	• EC at all sites were generally low concentrations compared to historical records. • Since 2020, EC values have demonstrated overall decreasing trends, with the exception of brief periods of elevated values in mid to late 2021 and early to mid-2023. • No historically high values were recorded during the reporting period.	• Dissolved iron concentrations at all upper to middle reach sites decreased from higher EC values observed in mid-2024. Sites WRWQ6 and WRWQ8 decreased to approximately 0.8-1.0 mg/L in mid-2025. All other sites remained below 0.4 mg/L for the duration of the reporting period. • No historically high values were recorded during the reporting period. • Dissolved iron concentrations at all lower reach sites increased during the reporting period, however concentrations remained within the range of historical values for all sites. • Total iron concentrations for all lower reach sites were increased from mid-2024 to early 2025, before declining by approximately 0.4 mg/L in mid-2025. • Total iron concentrations recorded were within historical range for upper, middle and lower reach sites.	• Dissolved manganese concentrations were generally elevated for upper and middle reach sites with concentrations ranging up to 0.4 mg/L in comparison to lower reach sites with concentrations below 0.2 mg/L. • Total manganese concentrations for the Waratah Rivulet sites are limited to 2024 and 2025. Based on available records, upper to middle reach sites were generally elevated in comparison to lower reach sites. • Total manganese concentrations at upper to middle reach sites range up to approximately 0.3 mg/L, while lower reach sites were less than 0.12 mg/L.	• Dissolved aluminium concentrations at upper, middle and lower reach sites was generally less than 0.05 mg/L throughout the period of record. • Dissolved aluminium concentrations generally decreased throughout the reporting period, however, were within the range of historical values. • Total aluminium records for Waratah Rivulet sites are limited to 2024 and 2025, however, based on available records concentrations were variable and range up to approximately 0.4 mg/L, decreasing from the previous reporting period.

Table 9 (Continued)
Summary of Results for Key Water Quality Parameters During the Reporting Period

Stream(s)	pH	EC	Dissolved and Total Iron	Dissolved and Total Manganese	Dissolved and Total Aluminium
Woronora River (sites WOWQ1 and WOWQ2, control stream) (Charts 29 to 36)	• Slightly acidic pH levels. • pH levels at both sides were within the range of historical values.	• Values at WOWQ2 exhibited more variability than values recorded at WOWQ1. • All sites were generally within the range of historical values except for site WOWQ1 which experienced a historical low of less than 50 microsiemens per centimetre.	• Both dissolved and total iron concentrations were generally below 2 mg/L at both WOWQ1 and WOWQ2, although WOWQ2 concentrations were slightly higher than WOWQ1. • Dissolved iron concentrations remained low and relatively consistent with historical trends at both sites during the reporting period. • Total iron concentrations remained consistent with historical records during the reporting period, with higher variability evident than that of dissolved iron.	• Dissolved manganese concentrations were slightly elevated at WOWQ2 during summer months and slightly declined during the remainder of reporting period. • Dissolved manganese concentrations were within the range of historical values during 2025 for both sites.	• Dissolved aluminium concentrations at all sites were within the range of historical concentrations during the reporting period. • Total aluminium concentrations for WOWQ2 were available for the majority of 2024 and throughout 2025 and generally ranged between 0.05 and 3 mg/L.
Eastern Tributary (sites ETWQF, ETWQJ, ETWQN, ETWQU, ETWQW, ETWQAF, ETWQAH, ETWQAQ and ETWQAU)[1] (Charts 37 to 44)	• Slightly acidic to near neutral conditions • pH values were within the range of historical values at all sites	• EC values were generally consistent, with majority of values ranging between 100 and 200 microsiemens per centimetre. • Values recorded during the reporting period were generally consistent with historical values.	• Dissolved iron concentrations were generally at or below 1 mg/L for all sites except ETWQ AQ. • Total iron concentrations ranged between 1-2 mg/L at all sites except ETWQ AQ, ETWQF and ETWQU. • Consistent with historical behaviour, dissolved and total iron concentrations recorded at ETWQ AQ were variable and elevated in comparison to other sites on the Eastern Tributary.	• Dissolved manganese concentrations were generally consistent with the majority of records at less than 0.5 mg/L during the reporting period. • Total manganese concentrations were less than 1 mg/L for the period of record.	• Dissolved aluminium concentrations were generally within the range of historical values for the duration of the reporting period. • Total aluminium concentrations are similar to dissolved concentrations, although are slightly elevated in comparison.

Table 9 (Continued)
Summary of Results for Key Water Quality Parameters During the Reporting Period

Stream(s)	pH	EC	Dissolved and Total Iron	Dissolved and Total Manganese	Dissolved and Total Aluminium
Bee Creek (site BCWQ1, control stream), Honeysuckle Creek (site HCWQ1, control stream), Far Eastern Tributary (site FEWQ1) and Tributary B (site RTWQ1) (Charts 45 to 52)	• Bee Creek and Honeysuckle Creek had slightly acidic to acidic pH levels. • Far Eastern Tributary generally had circumneutral pH levels. • Tributary B had near neutral to slightly alkaline pH levels. • Overall, the pH levels were consistent with historical values.	• The values recorded during the reporting period were consistent with historical values.	• Total and dissolved iron concentrations were within the range of historical values at all sites during the reporting period.	• Dissolved manganese concentrations were consistently low (less than 0.1 mg/L) at sites HCWQ1 and BCWQ1 during reporting period, however, were within the range of historical values. • Total and dissolved manganese concentrations at all sites were within the range of historical values during the reporting period.	• Total and dissolved aluminium concentrations at all sites were within the range of historical values during the reporting period.
Western Tributaries of Waratah Rivulet (SP1, SR1 and SR2)	• Slightly acidic to acidic pH levels were recorded at sites SP1, SR1 and SR2, ranging between pH levels of 4 and 7. • pH values were within the range of historical values at all sites.	• Values at all sites were generally consistent with historical values during the reporting period.	• Total and dissolved iron concentrations at all sites except for SP1 were within the range of historical values during the reporting period. Site SP1 was recorded at approximately 3 mg/L on few occasions throughout the reporting period.	• Dissolved manganese concentrations at all sites were consistently at low concentrations (less than 0.05 mg/L). • Total manganese concentrations at all sites were less than 0.25 mg/L. • Total and dissolved manganese concentrations at all sites were generally within the range of historical values during the reporting period.	• Total and dissolved aluminium concentrations at all sites were generally within the range of historical values during the reporting period.

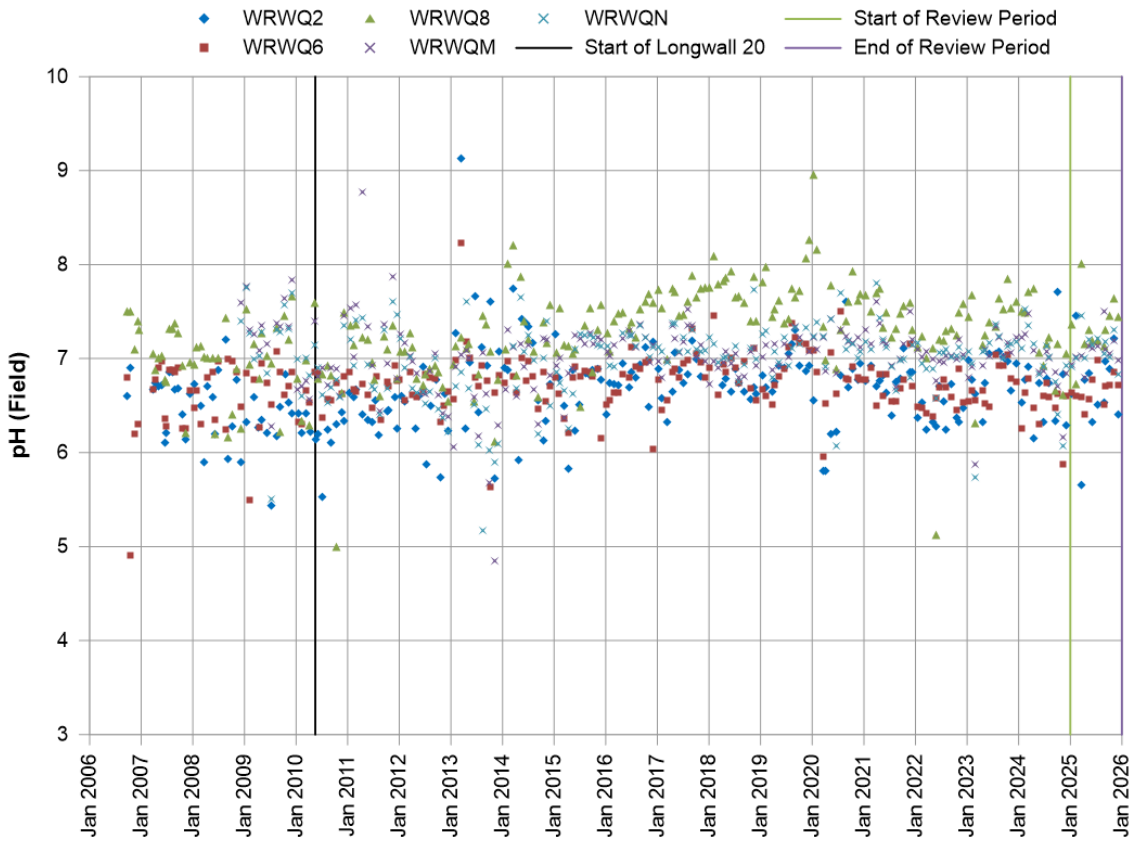


Chart 13 pH Levels Waratah Rivulet – Upper to Middle Reach Sites

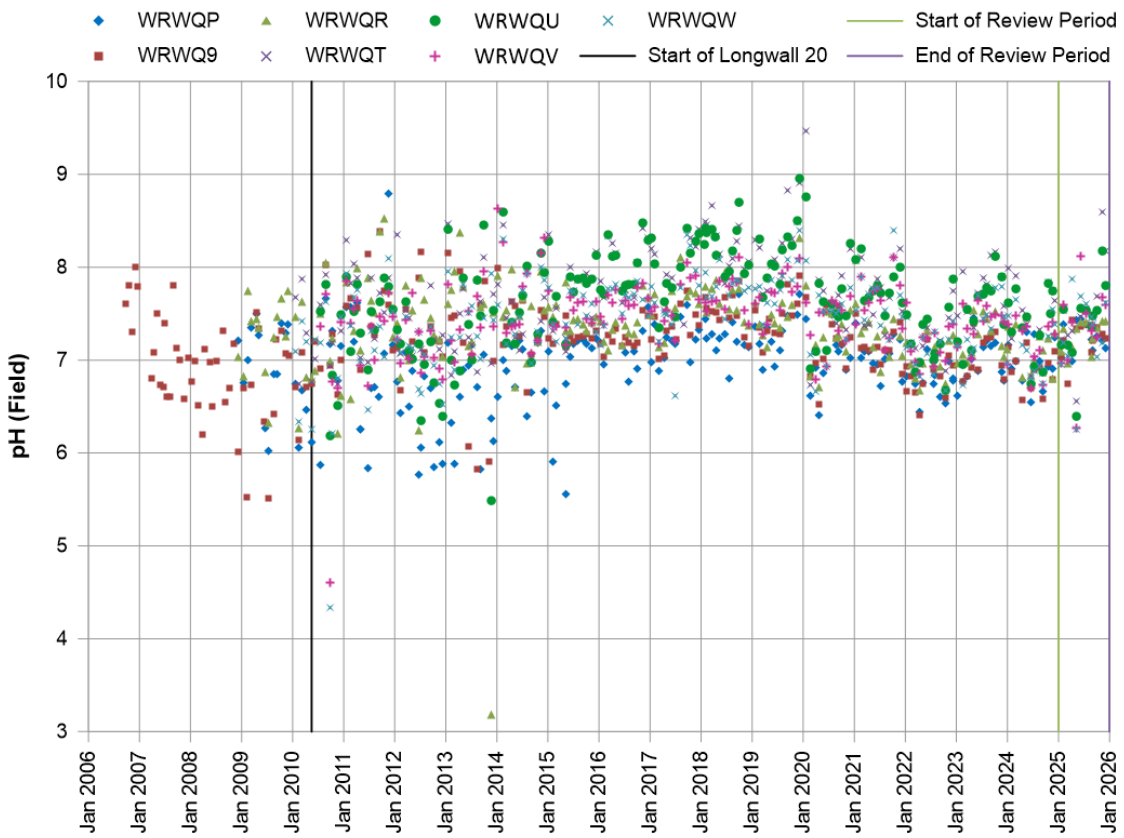


Chart 14 pH Levels Waratah Rivulet – Lower Reach Sites

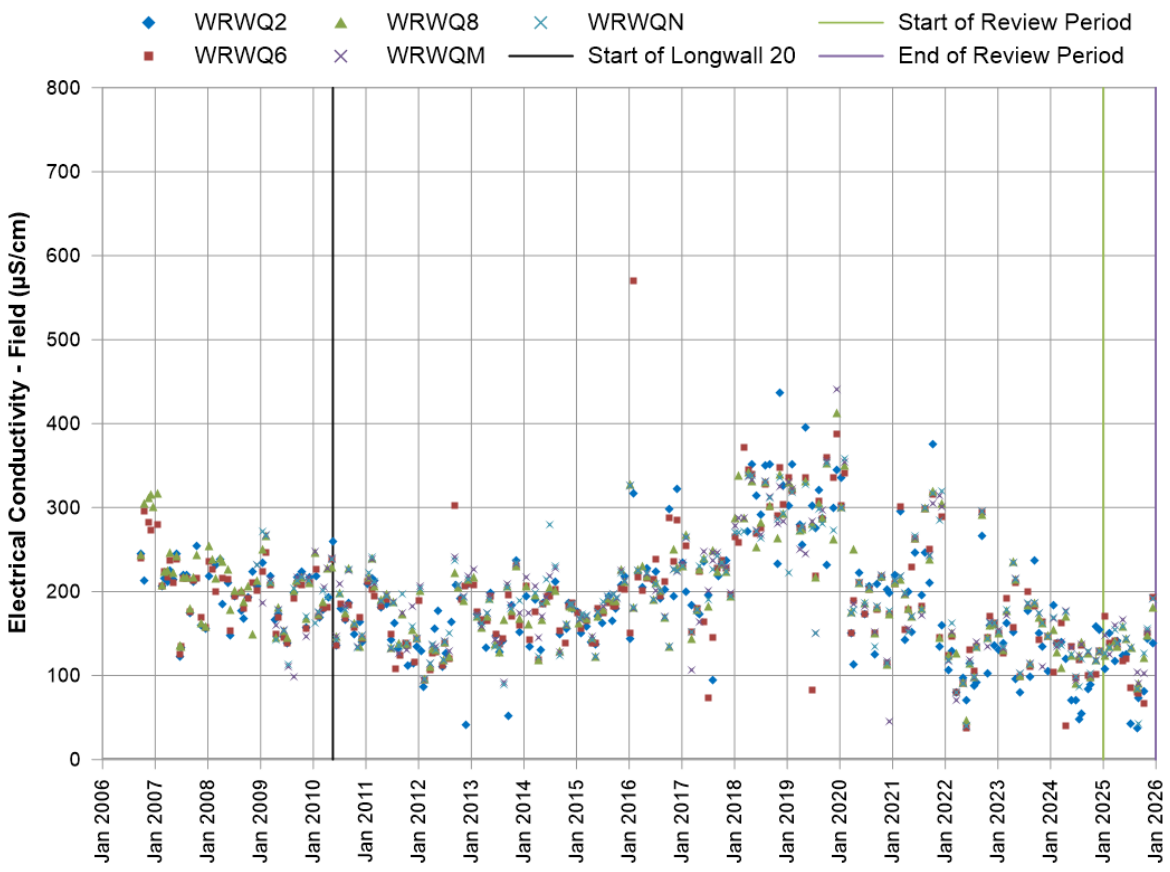


Chart 15 EC Waratah Rivulet – Upper to Middle Reach Sites

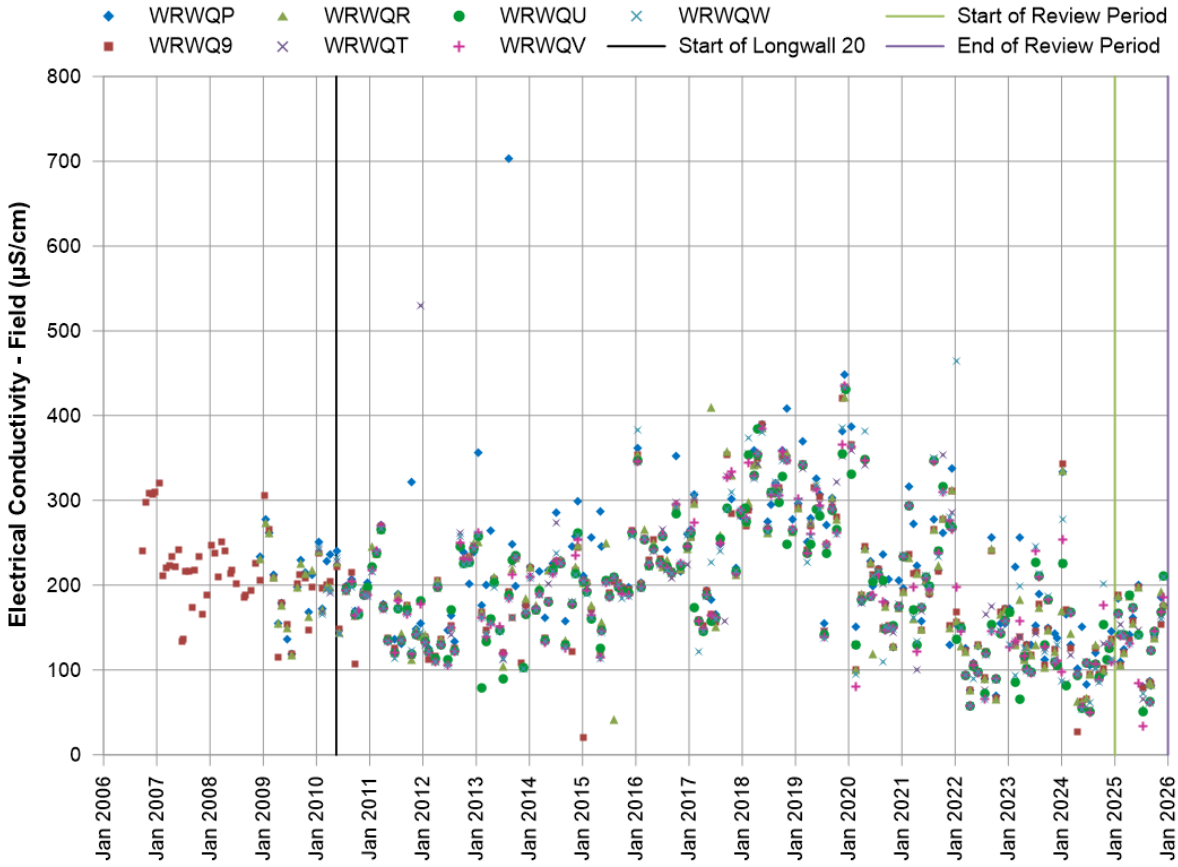


Chart 16 EC Waratah Rivulet – Lower Reach Sites

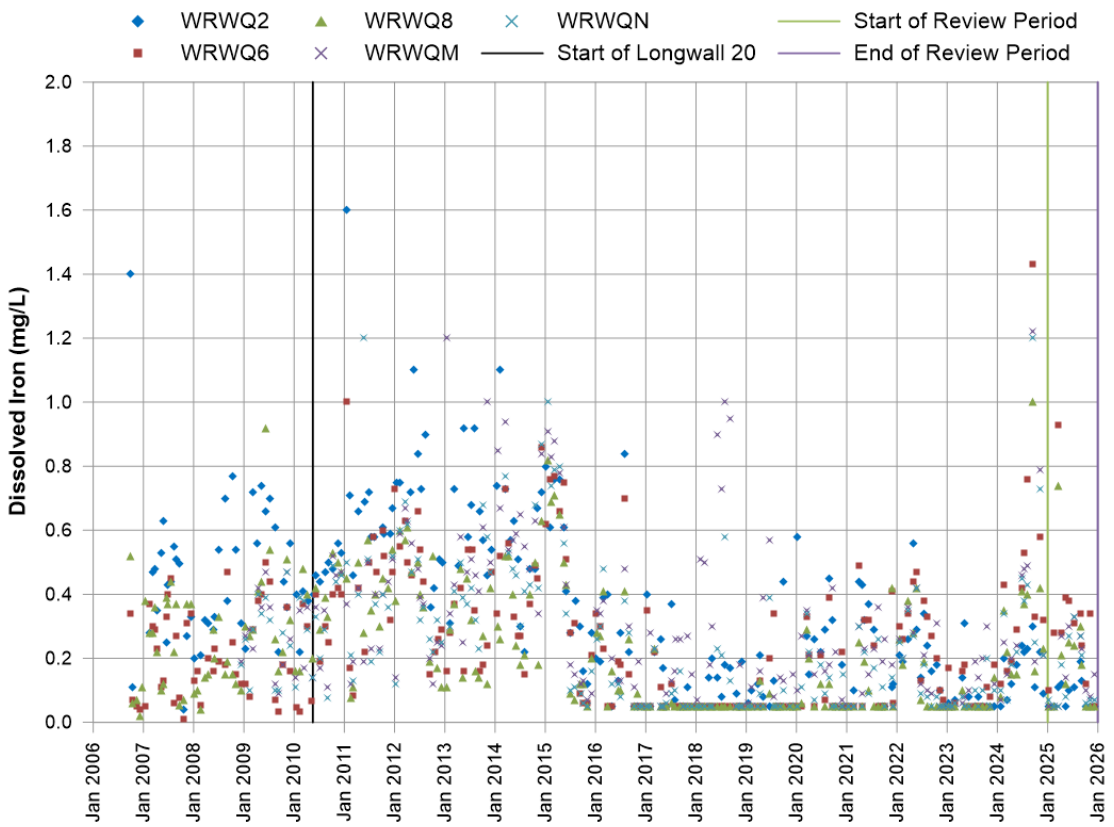


Chart 17 Dissolved Iron Waratah Rivulet – Upper and Middle Reach Sites

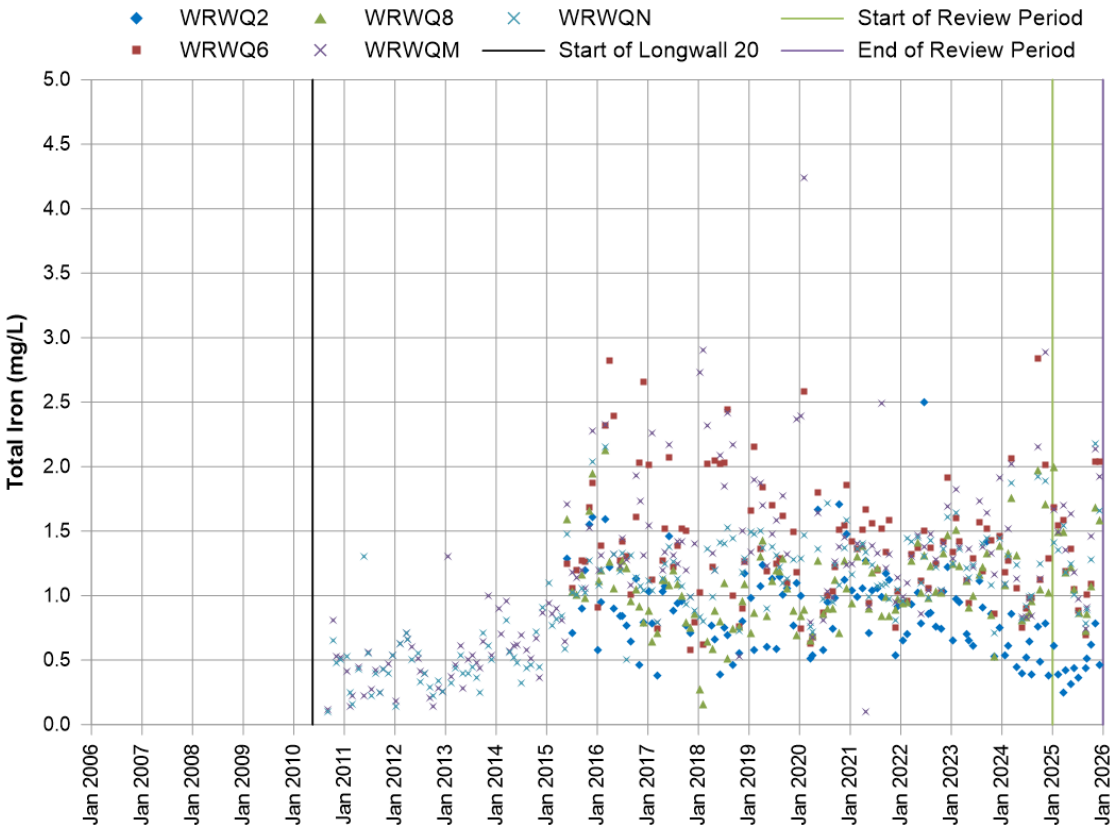


Chart 18 Total Iron Waratah Rivulet – Upper and Middle Reach Sites

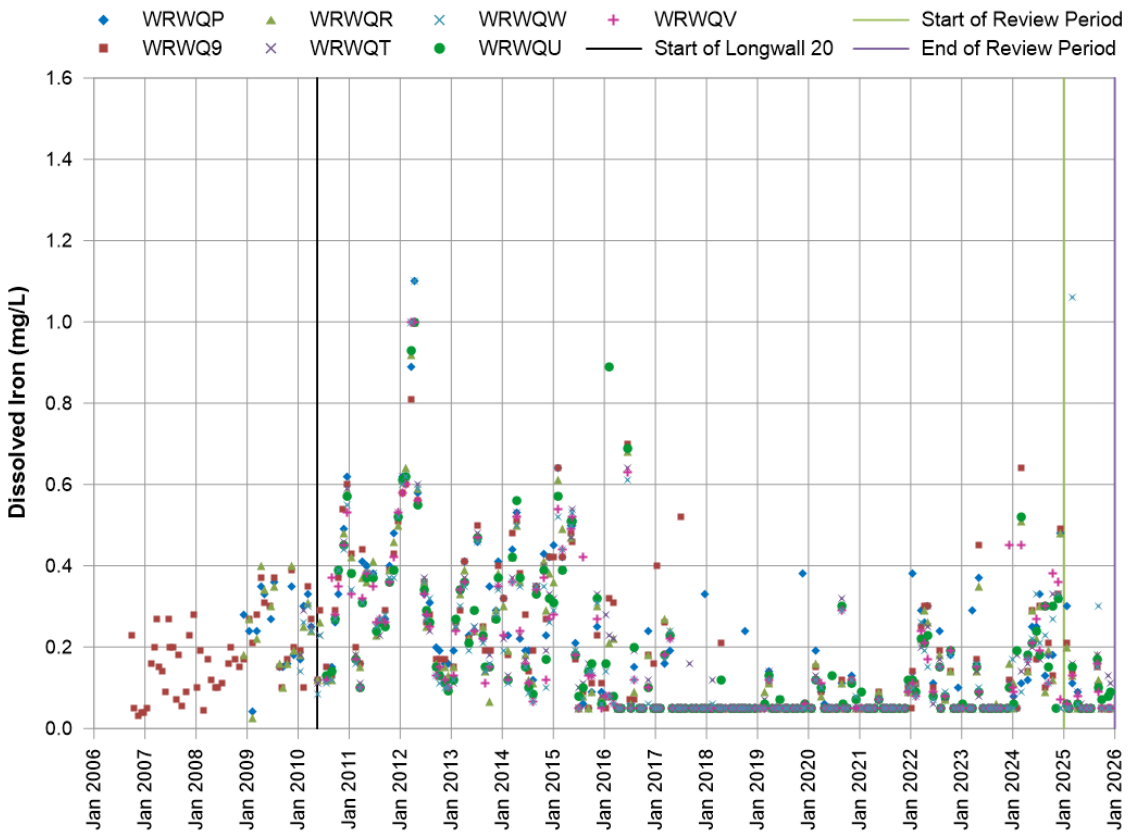


Chart 19 Dissolved Iron Waratah Rivulet – Lower Reach Sites

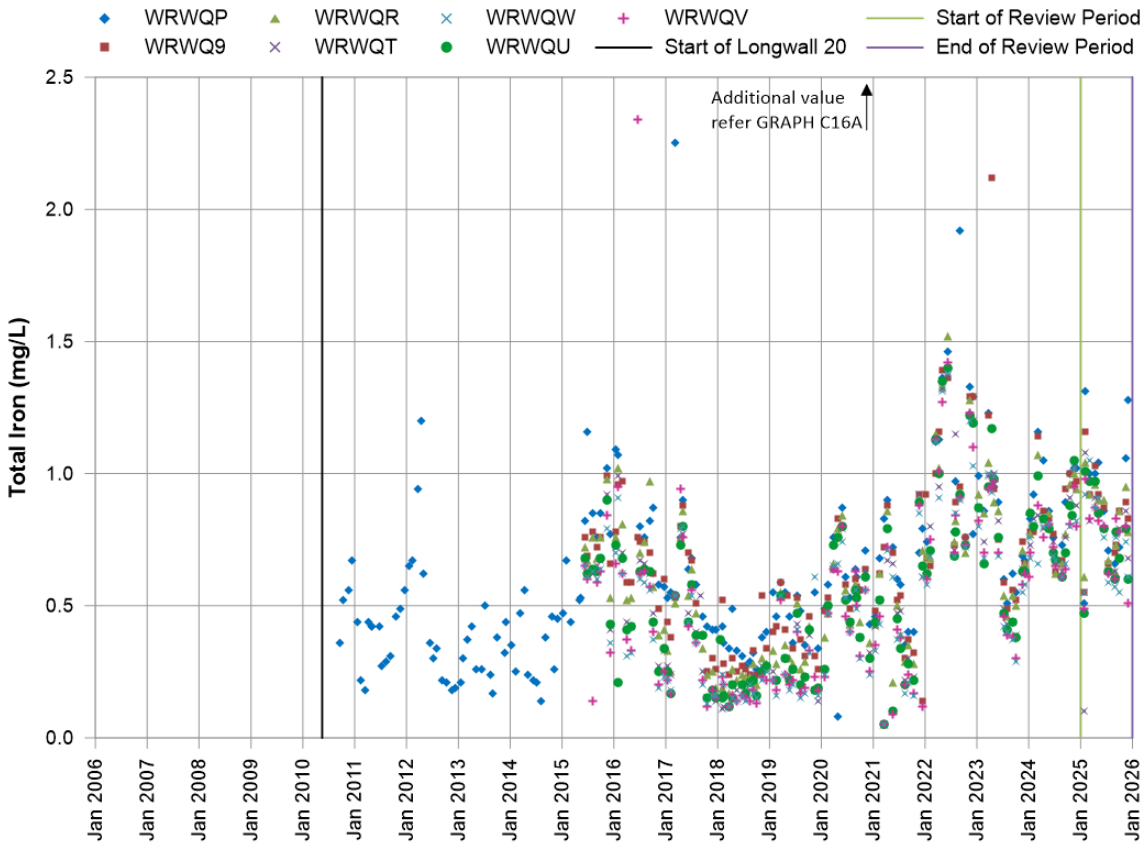


Chart 20 Total Iron Waratah Rivulet – Lower Reach Sites

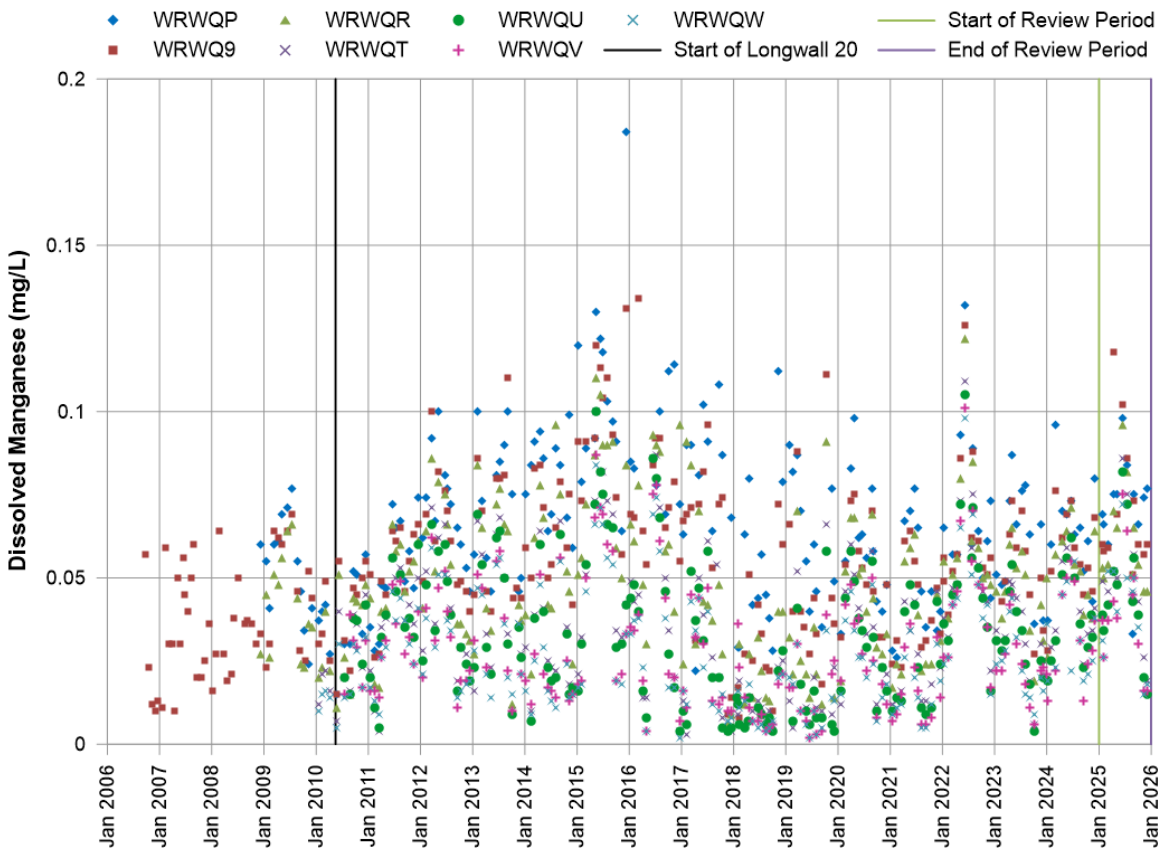


Chart 21 Dissolved Manganese Waratah Rivulet – Lower Reach Sites

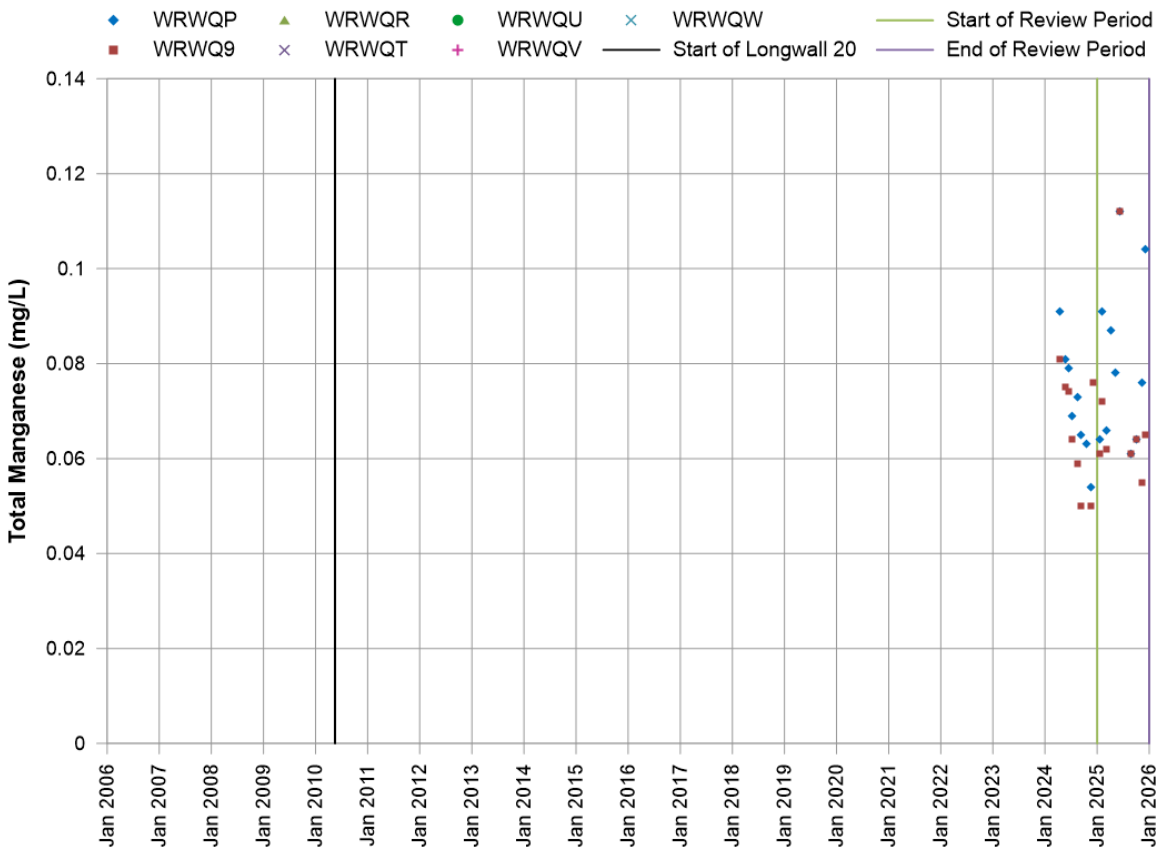


Chart 22 Total Manganese Waratah Rivulet – Lower Reach Sites

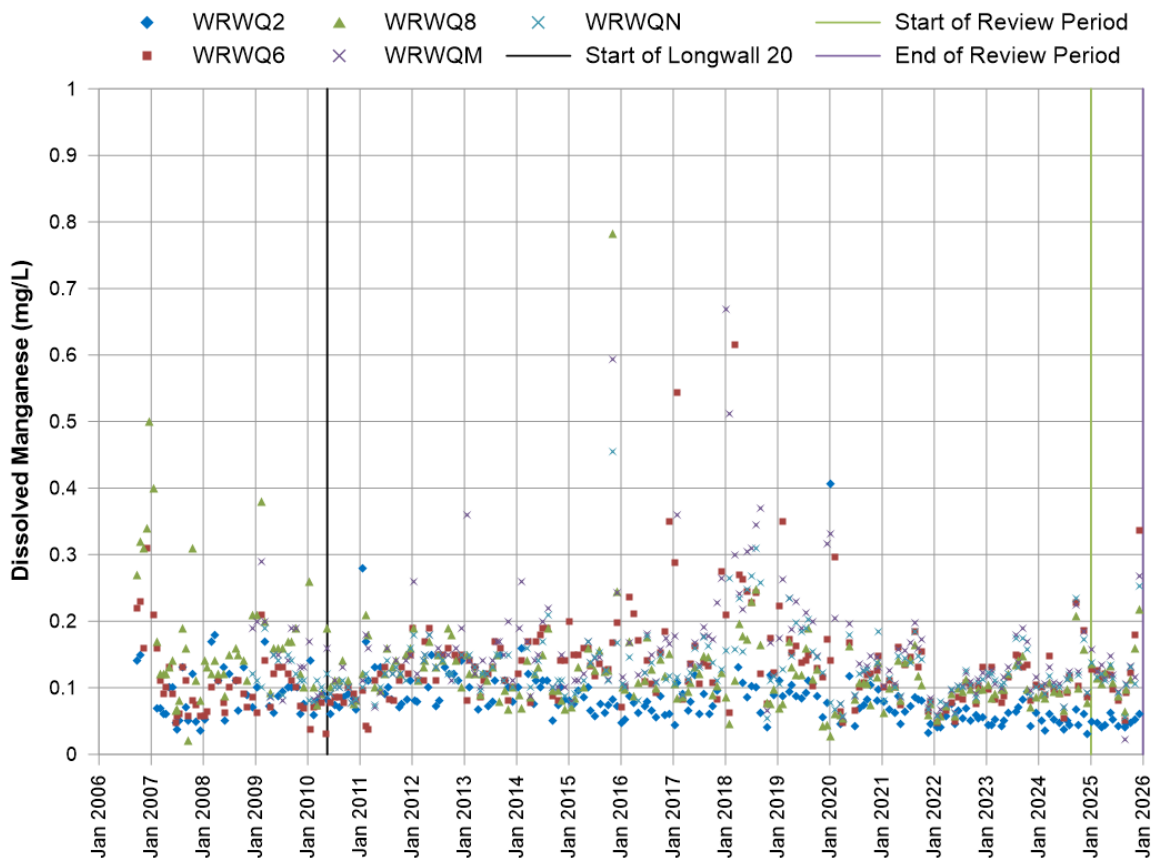


Chart 23 Dissolved Manganese Waratah Rivulet – Upper and Middle Reach Sites

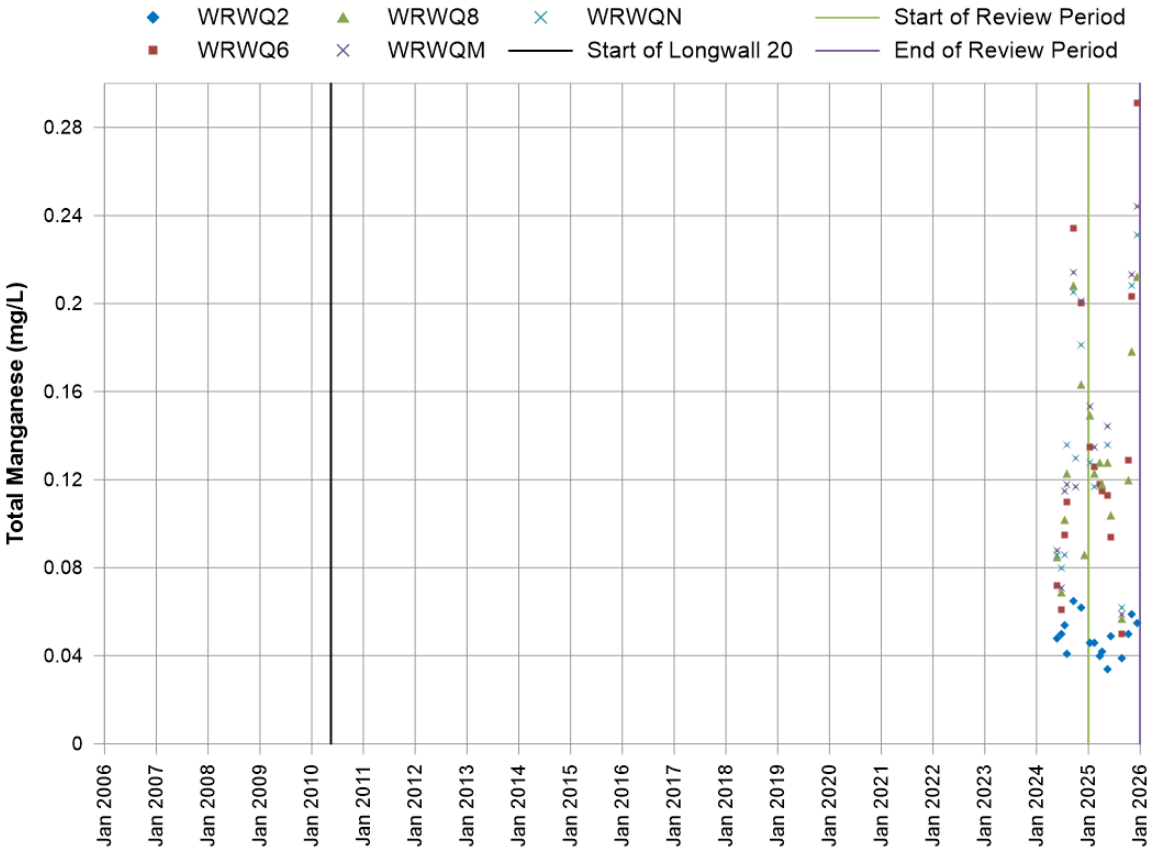


Chart 24 Total Manganese Waratah Rivulet – Upper and Middle Reach Sites

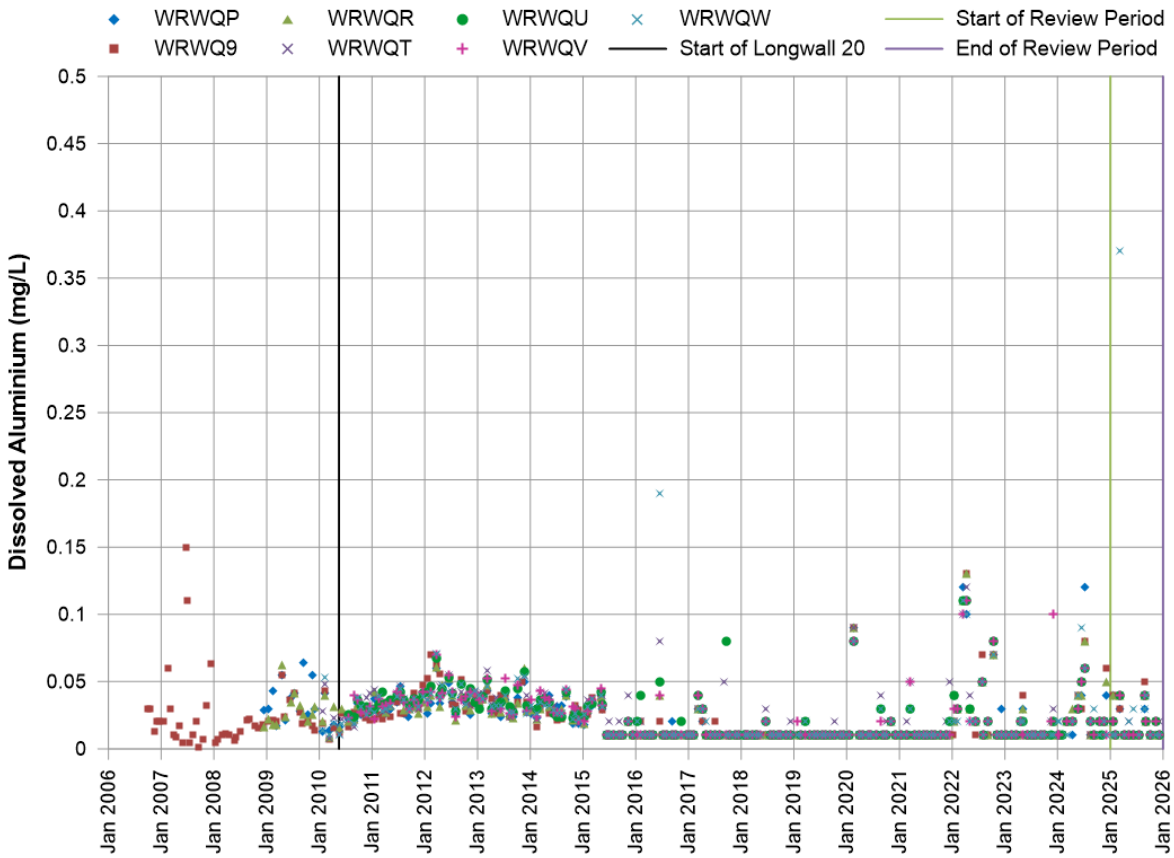


Chart 25 Dissolved Aluminium Waratah Rivulet – Lower Reach Sites

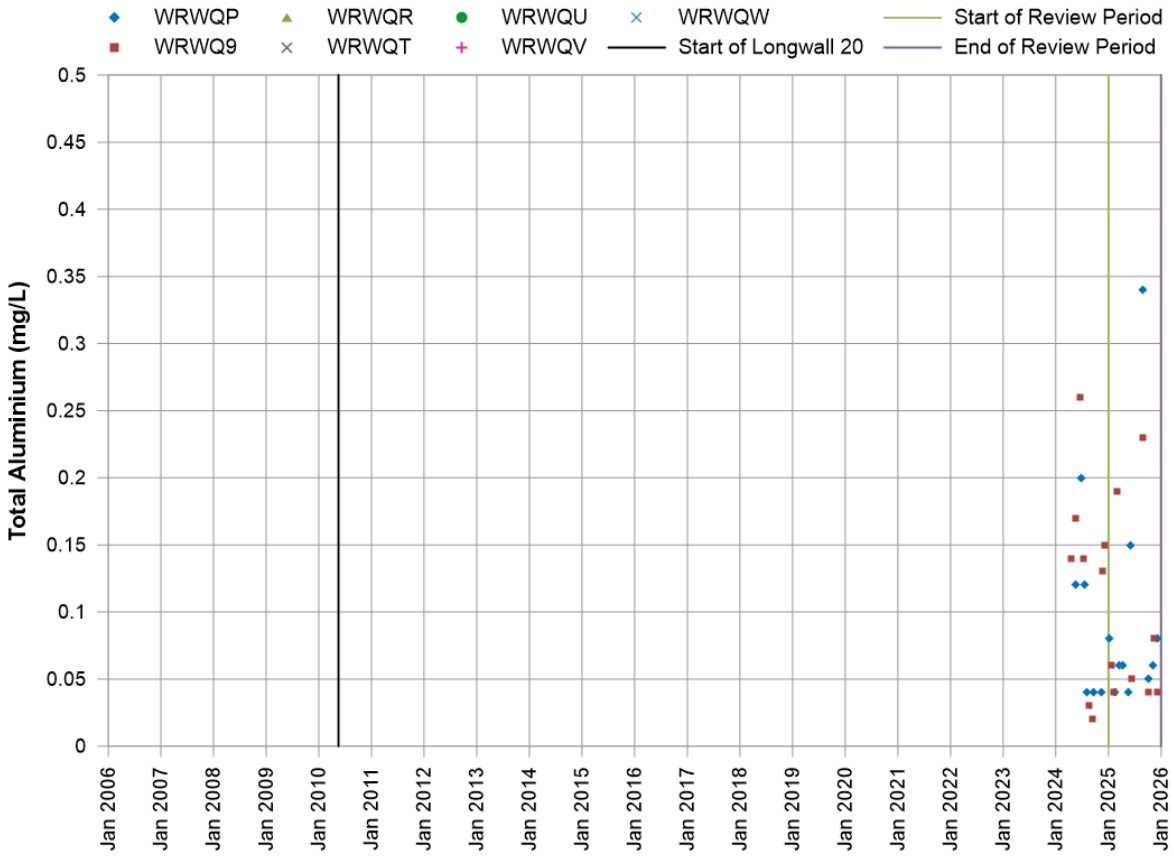


Chart 26 Total Aluminium Waratah Rivulet – Lower Reach Sites

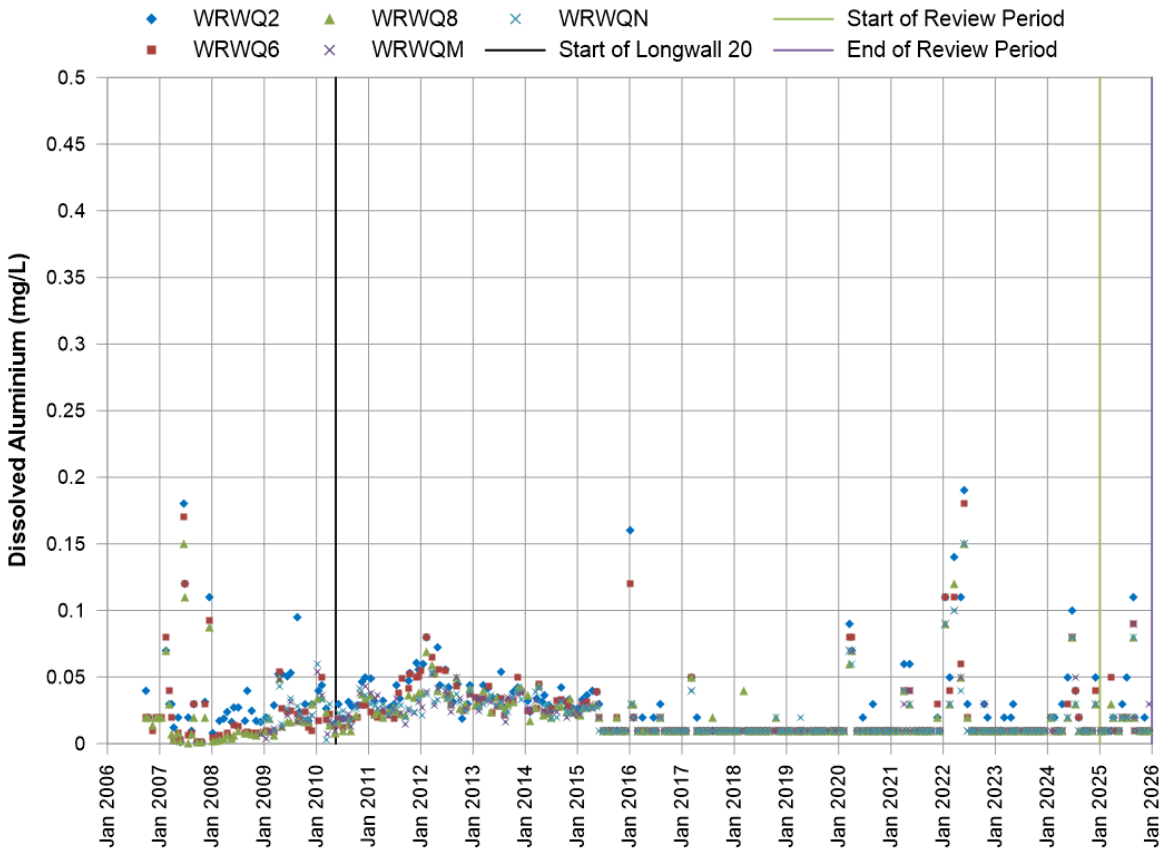


Chart 27 Dissolved Aluminium Waratah Rivulet – Upper and Middle Reach Sites

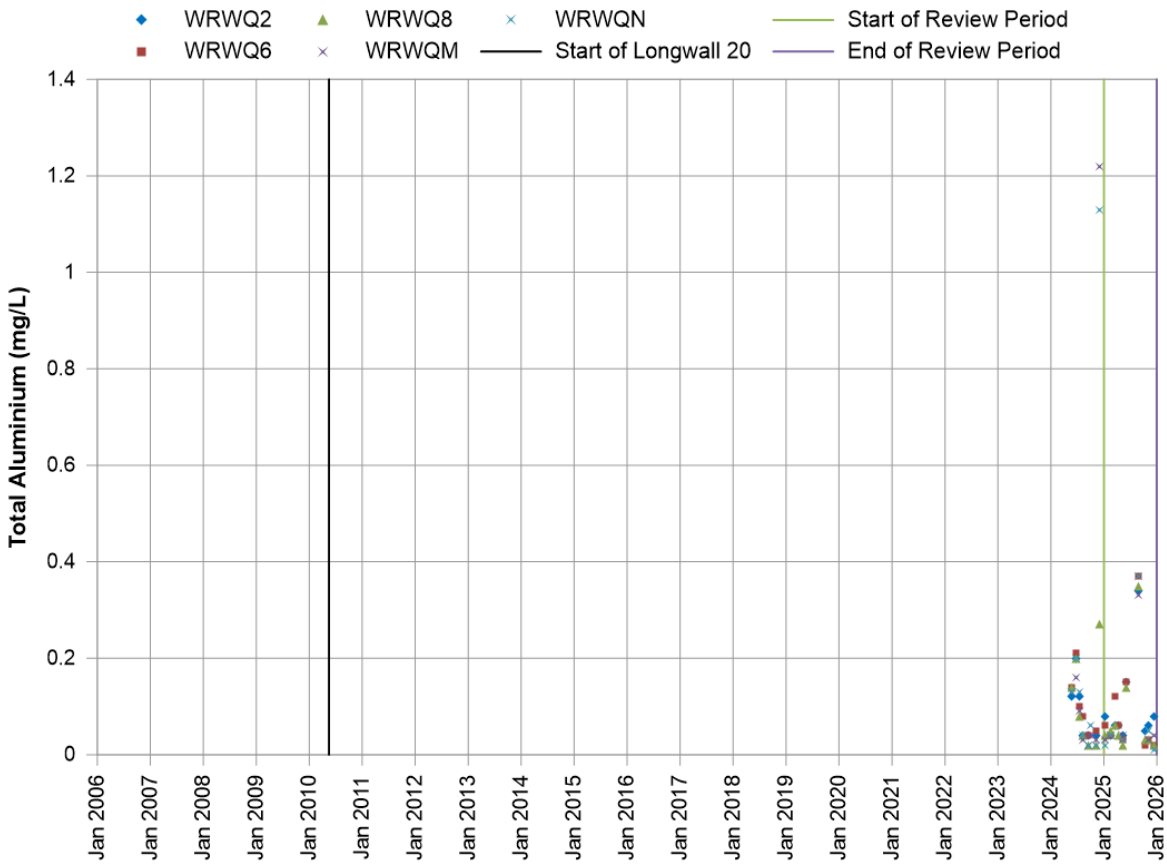


Chart 28 Total Aluminium Waratah Rivulet – Upper and Middle Reach Sites

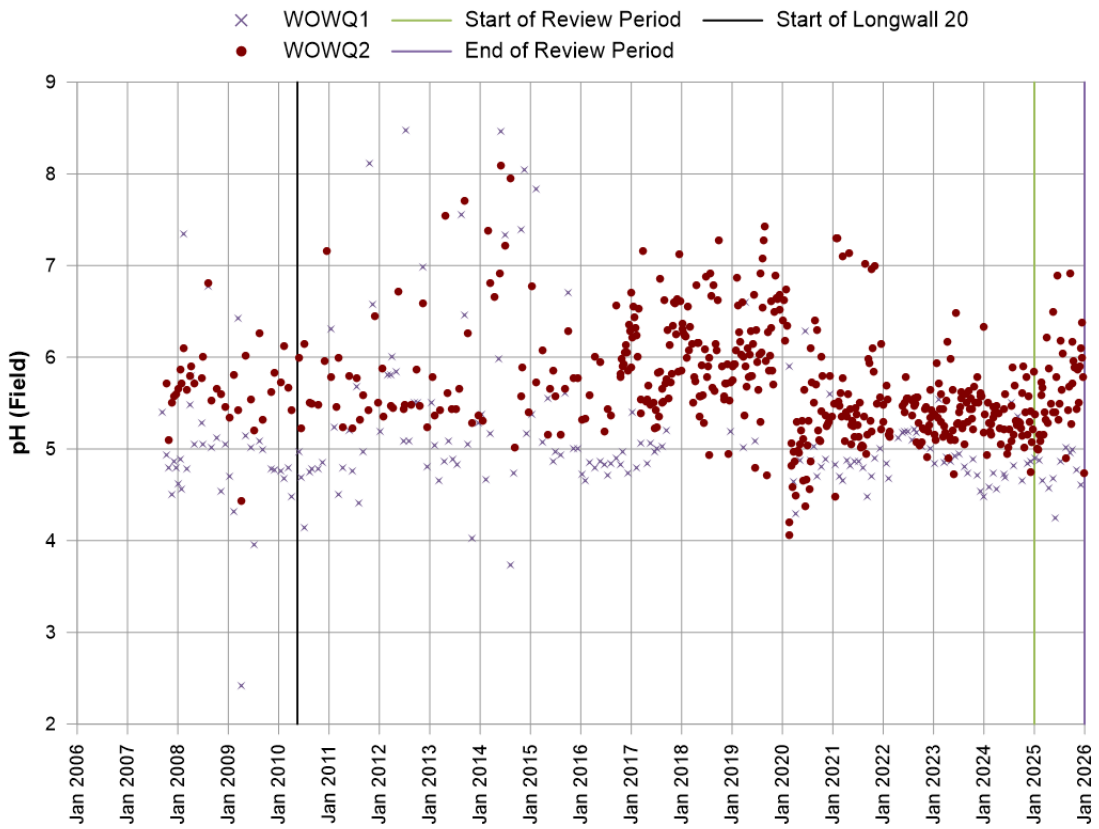


Chart 29 pH Levels Woronora River[5]

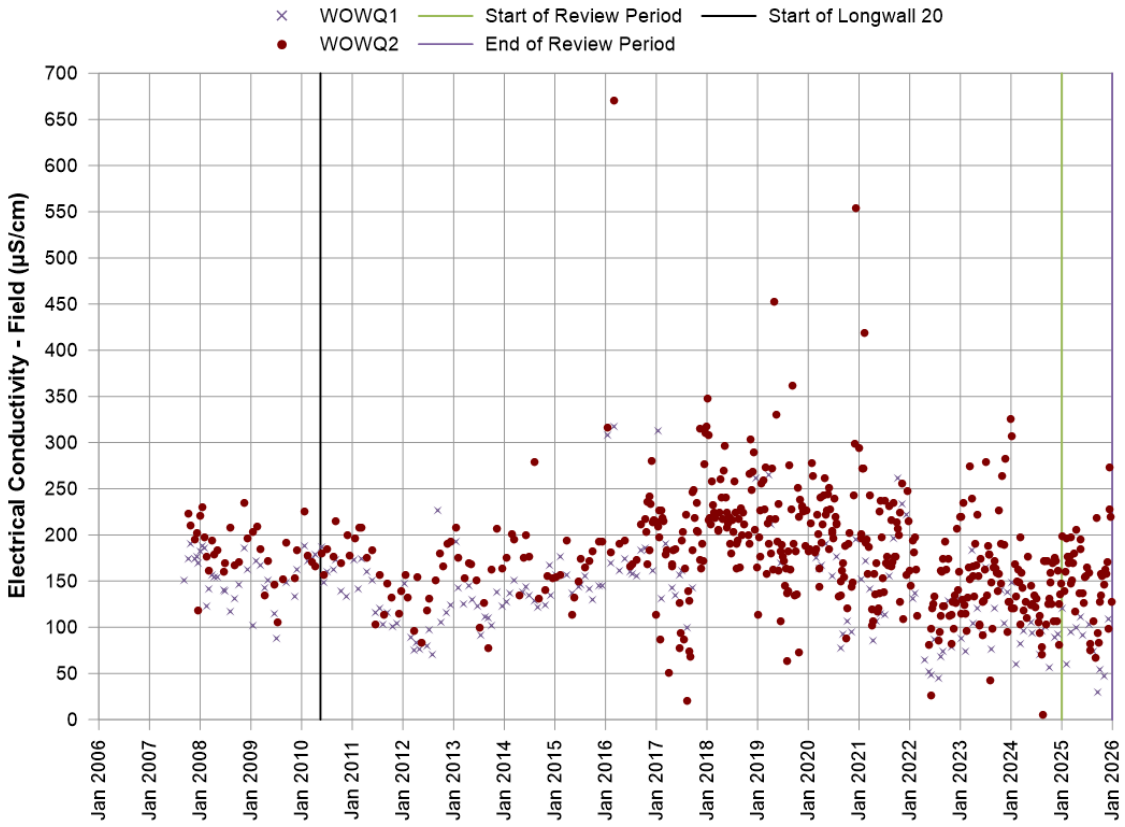


Chart 30 EC Woronora River

[5] WOWQ1 was dry between 23 October 2017 and 20 December 2018, in May 2019 and between 3 July 2019 and 12 December 2019 and hence no water quality samples were collected.

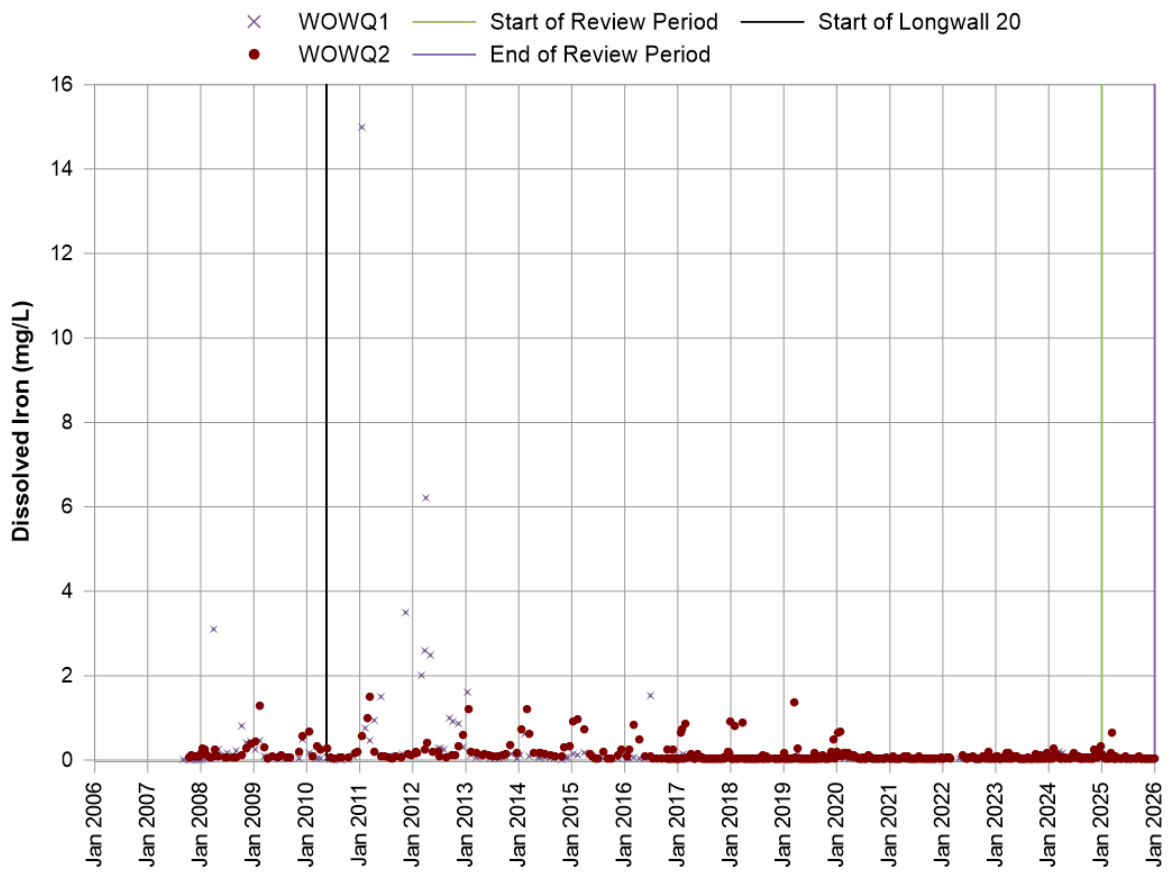


Chart 31 Dissolved Iron Woronora River

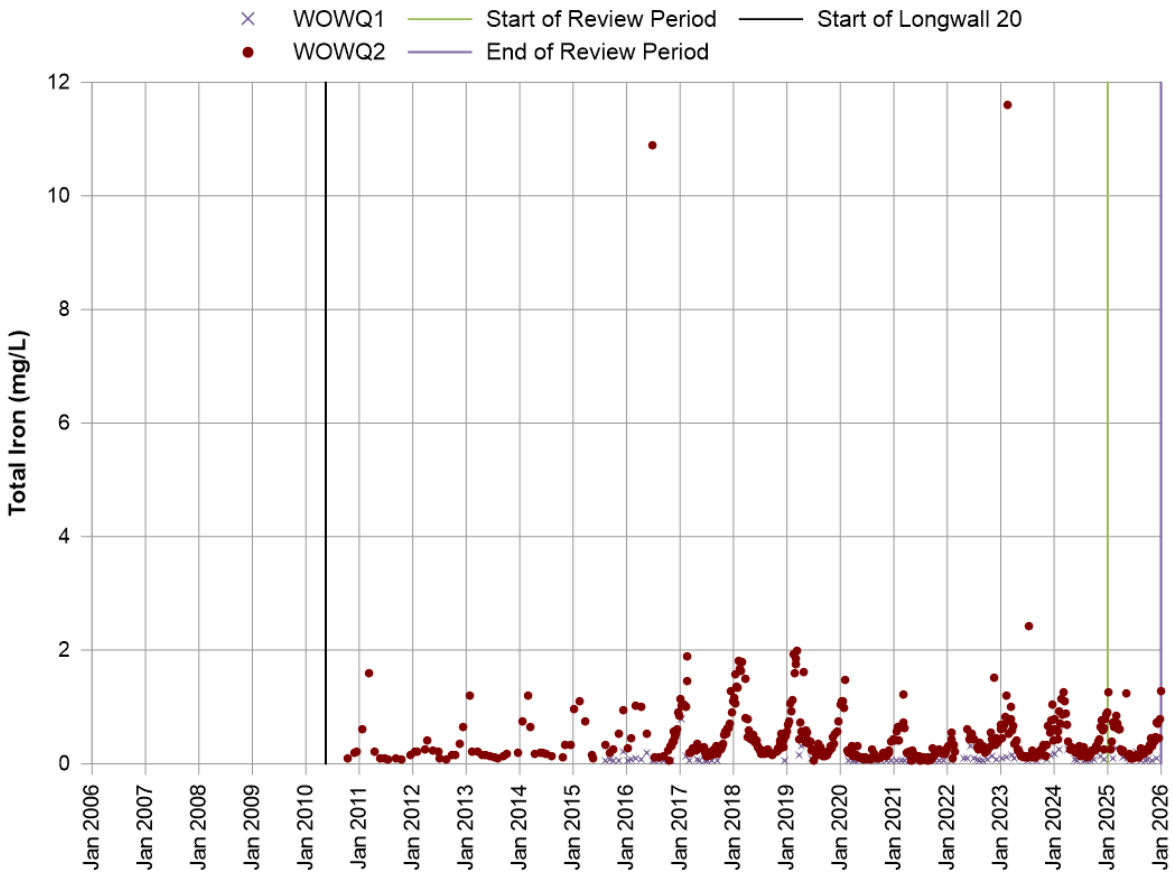


Chart 32 Total Iron Woronora River

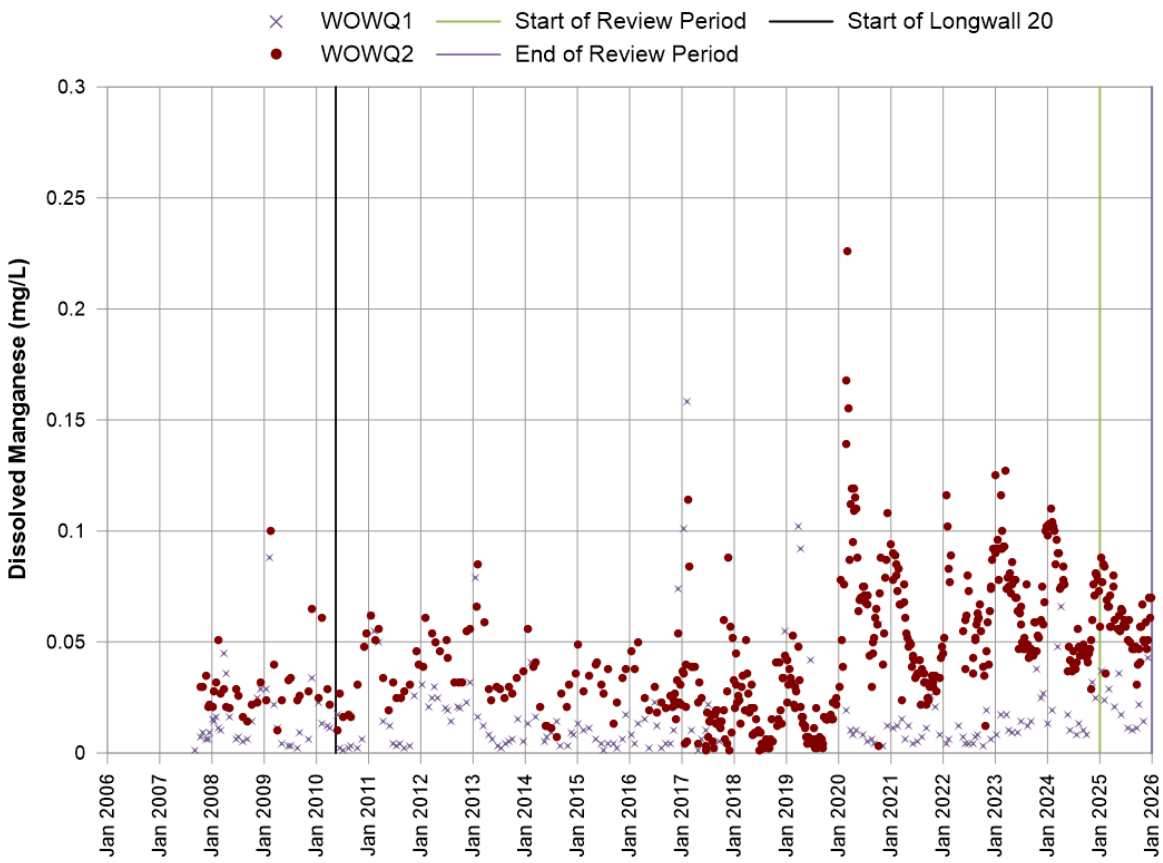


Chart 33 Dissolved Manganese Woronora River

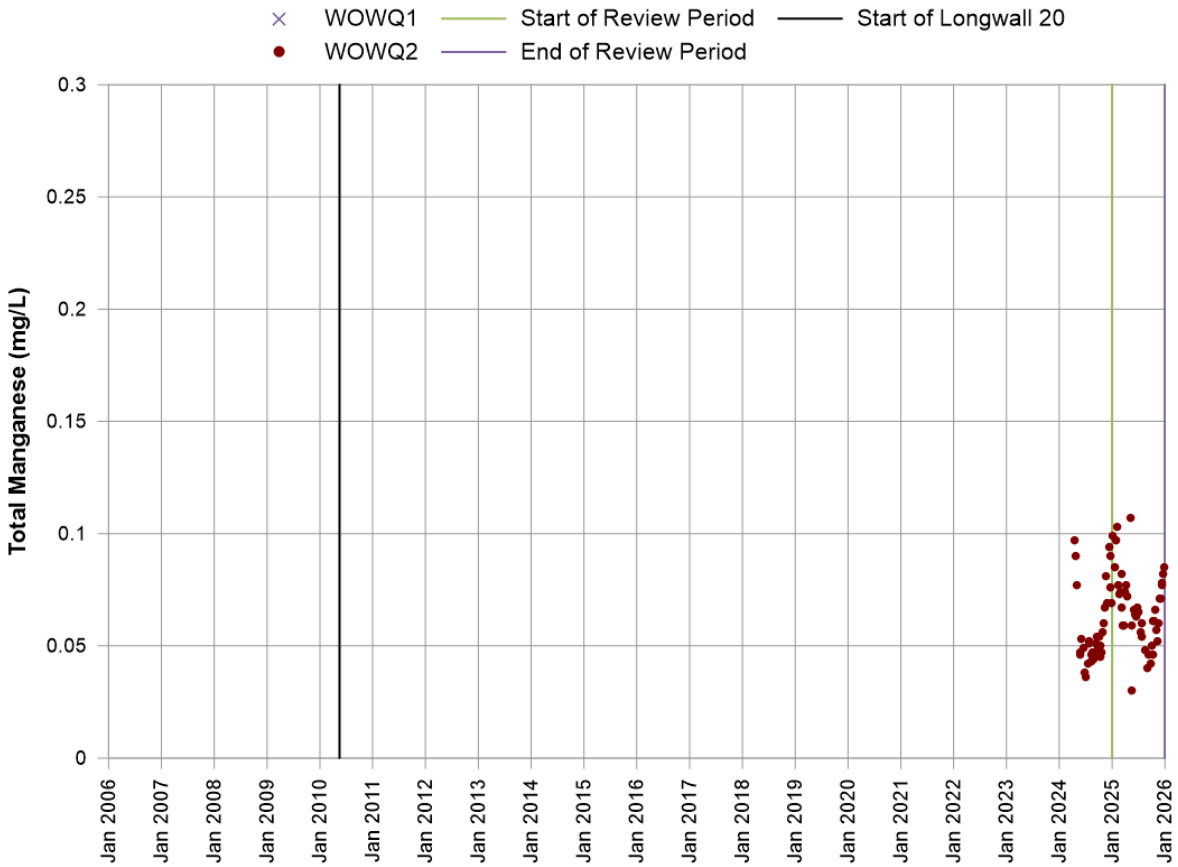


Chart 34 Total Manganese Woronora River

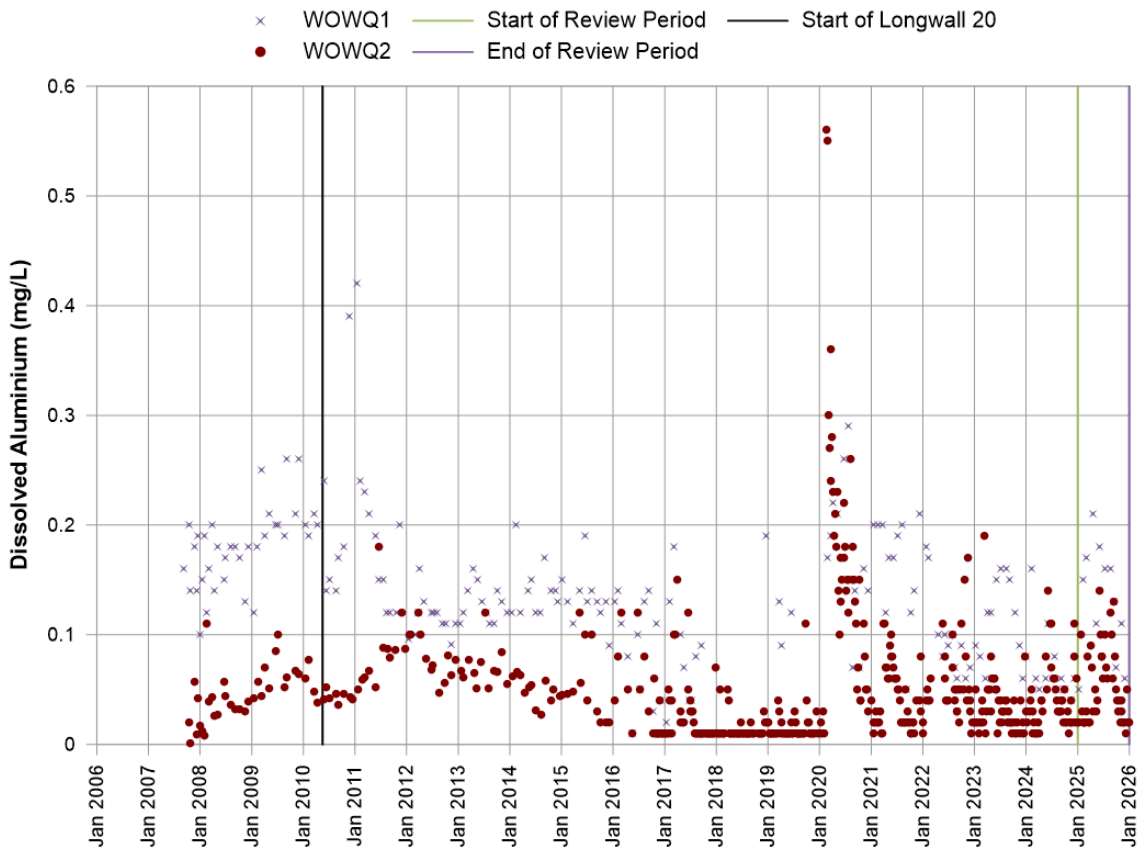


Chart 35 Dissolved Aluminium Woronora River

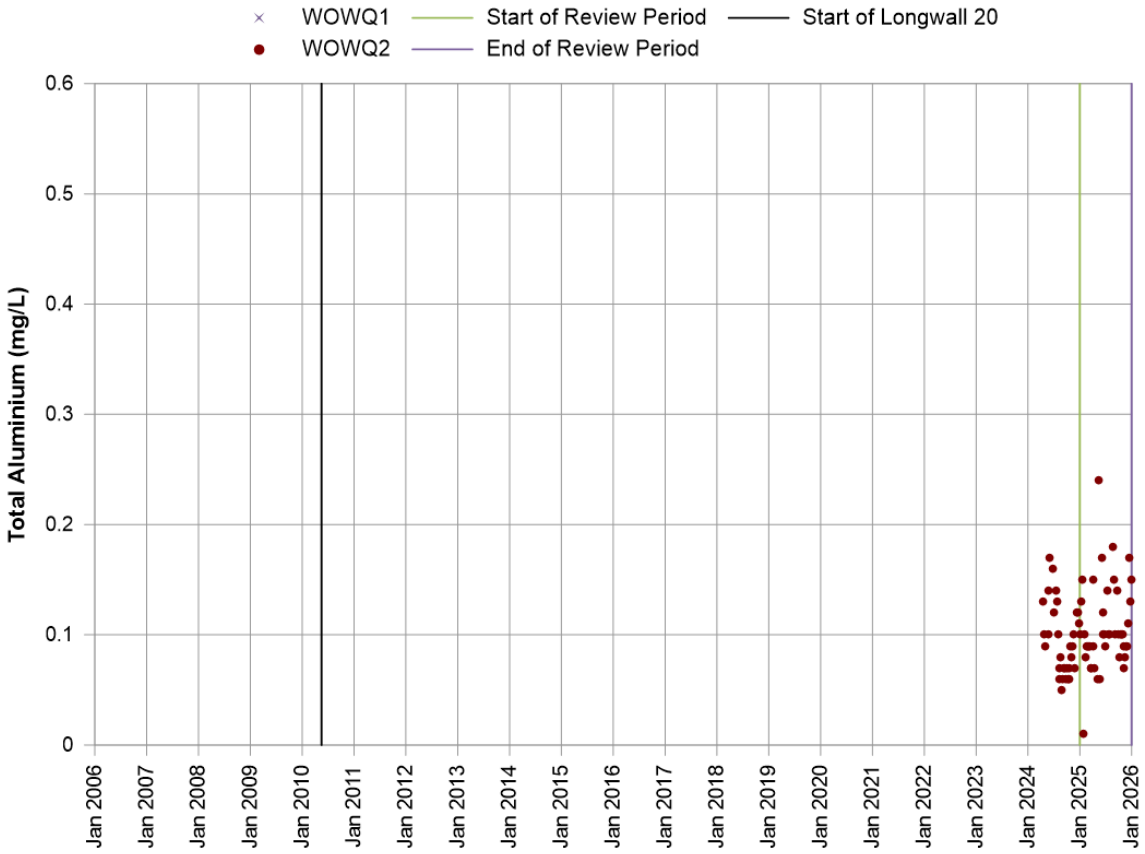


Chart 36 Total Aluminium Woronora River

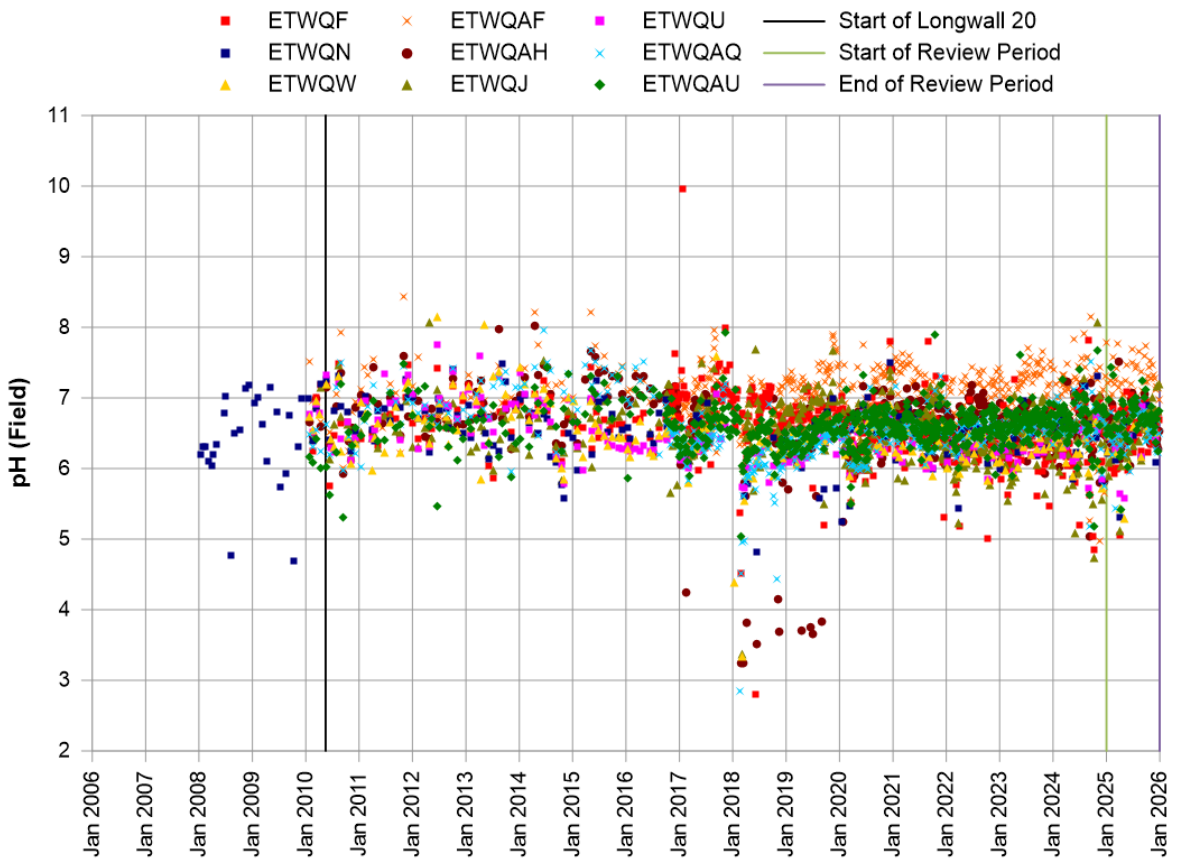


Chart 37 pH Levels Eastern Tributary

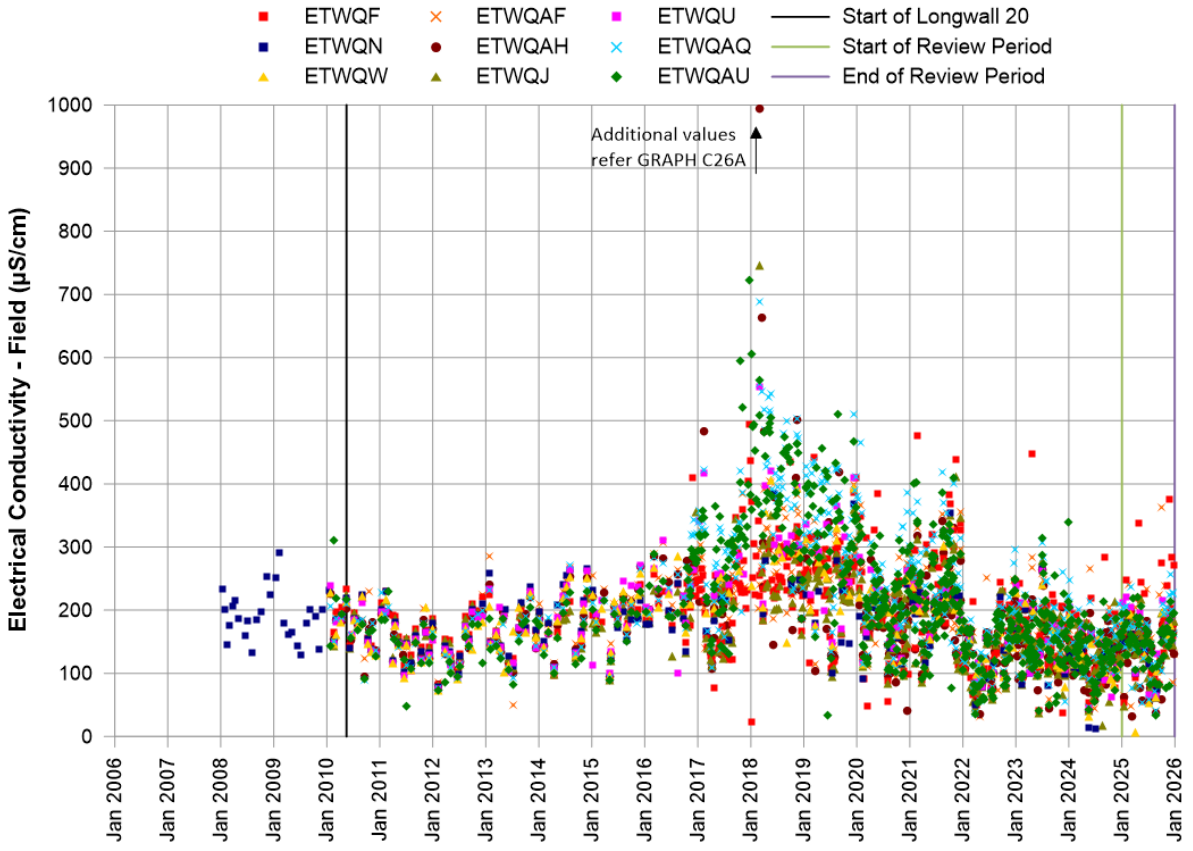


Chart 38a EC Eastern Tributary

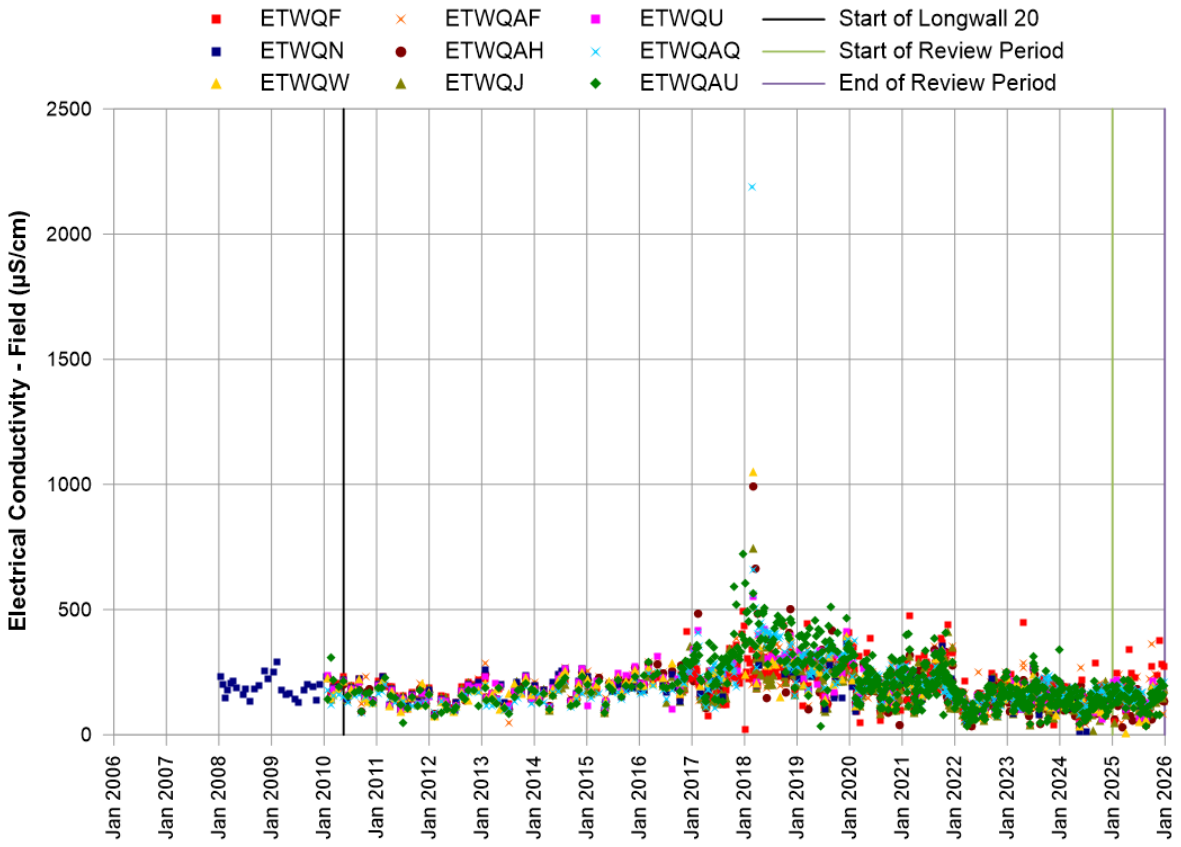


Chart 38b EC Eastern Tributary

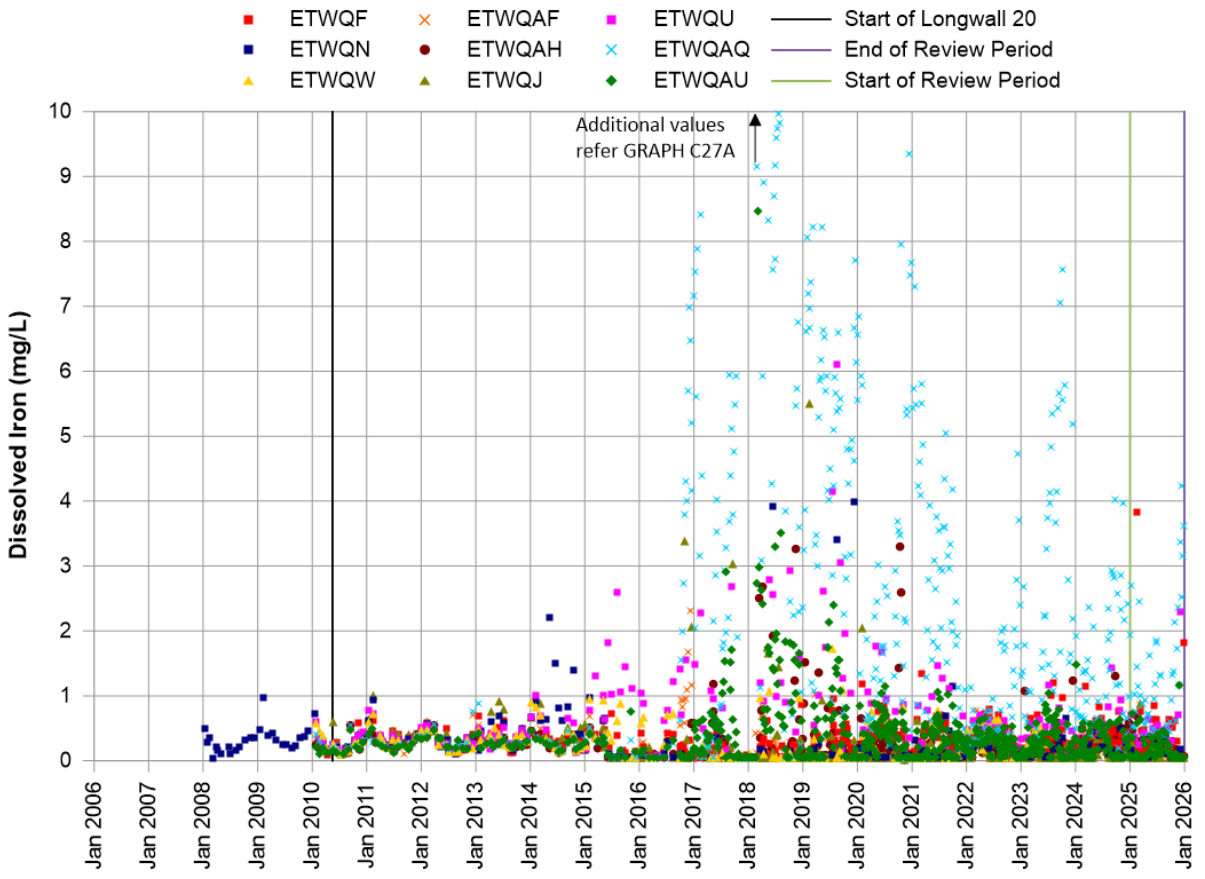


Chart 39a Dissolved Iron Eastern Tributary

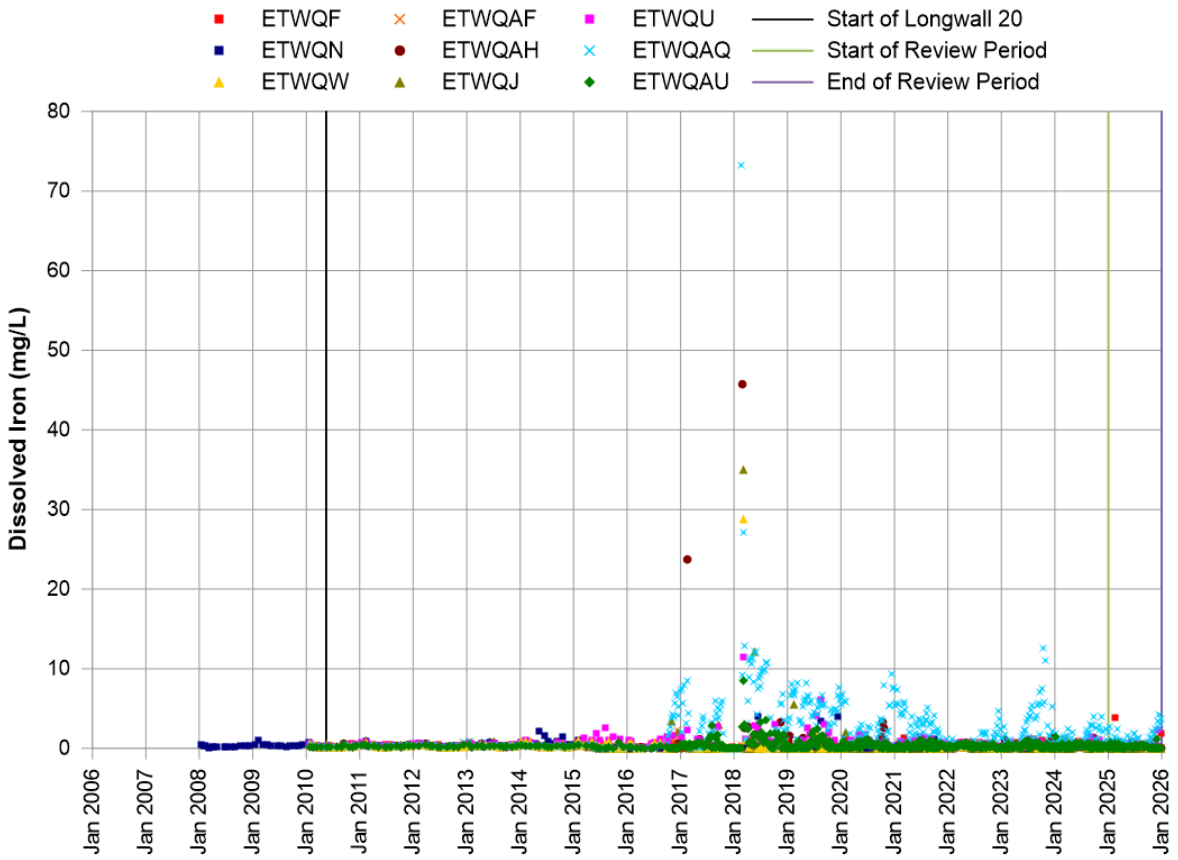


Chart 39b Dissolved Iron Eastern Tributary

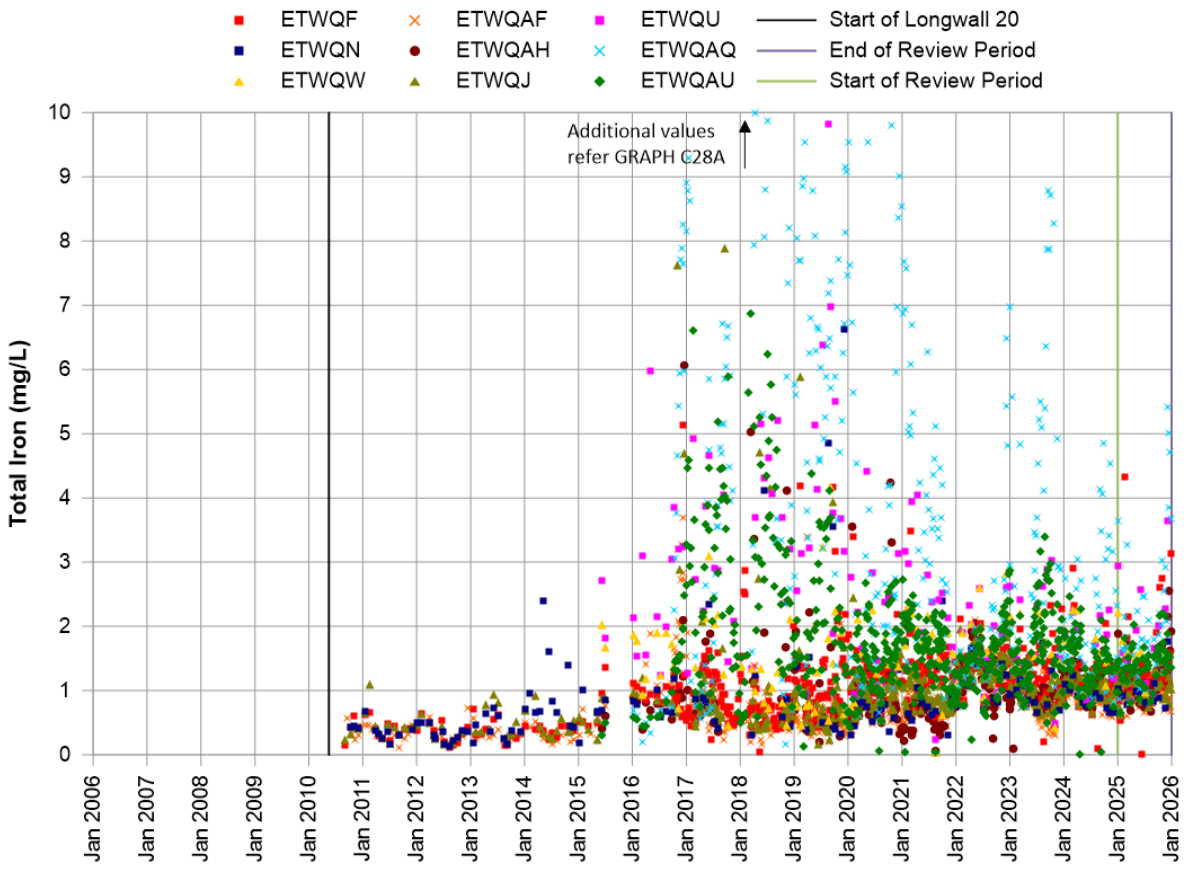


Chart 40a Total Iron Eastern Tributary

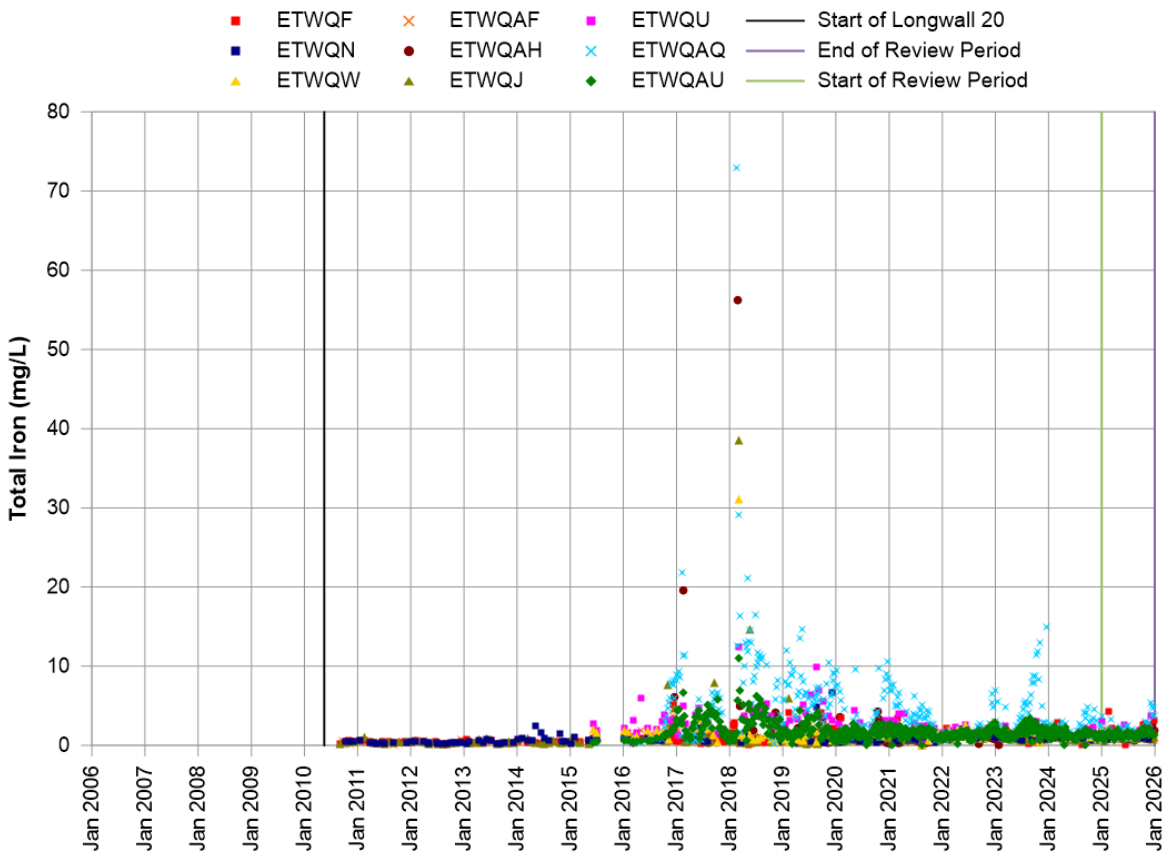


Chart 40b Total Iron Eastern Tributary

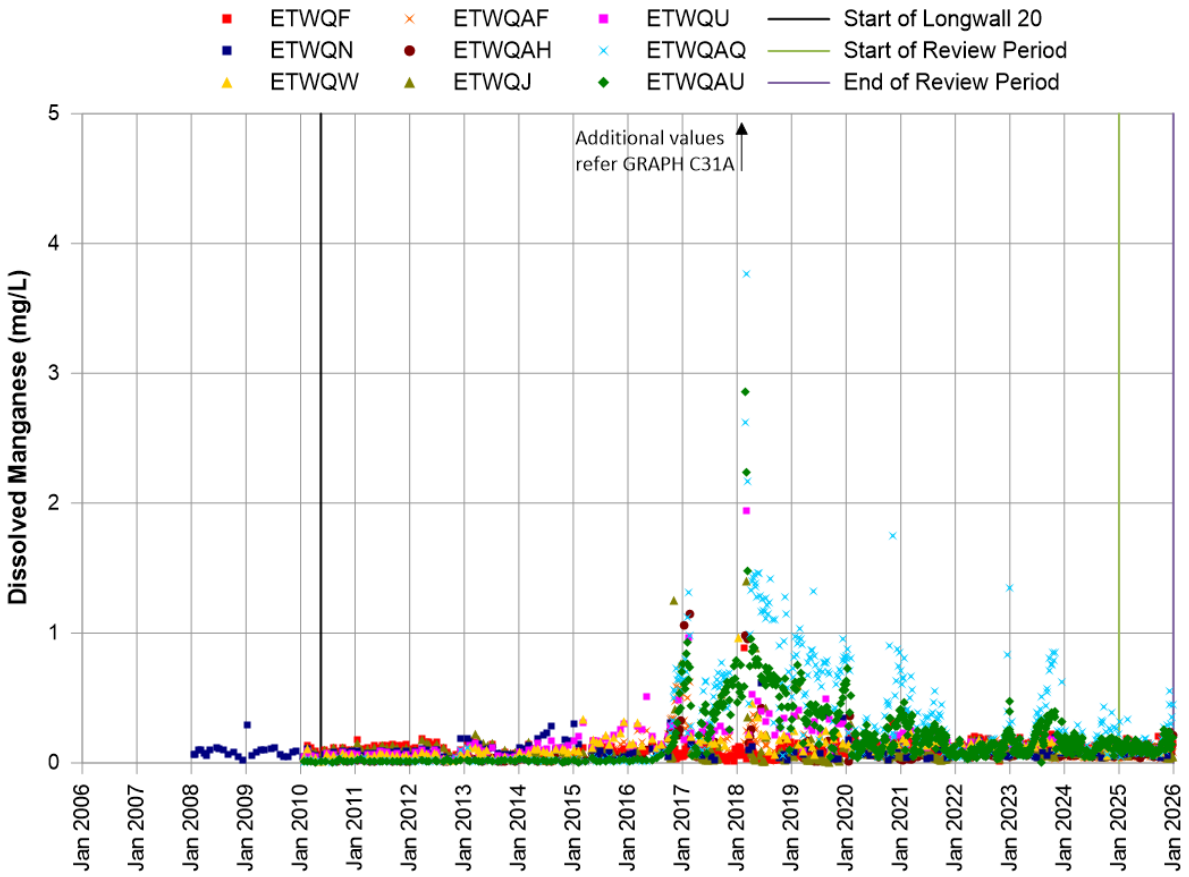


Chart 41a Dissolved Manganese Eastern Tributary

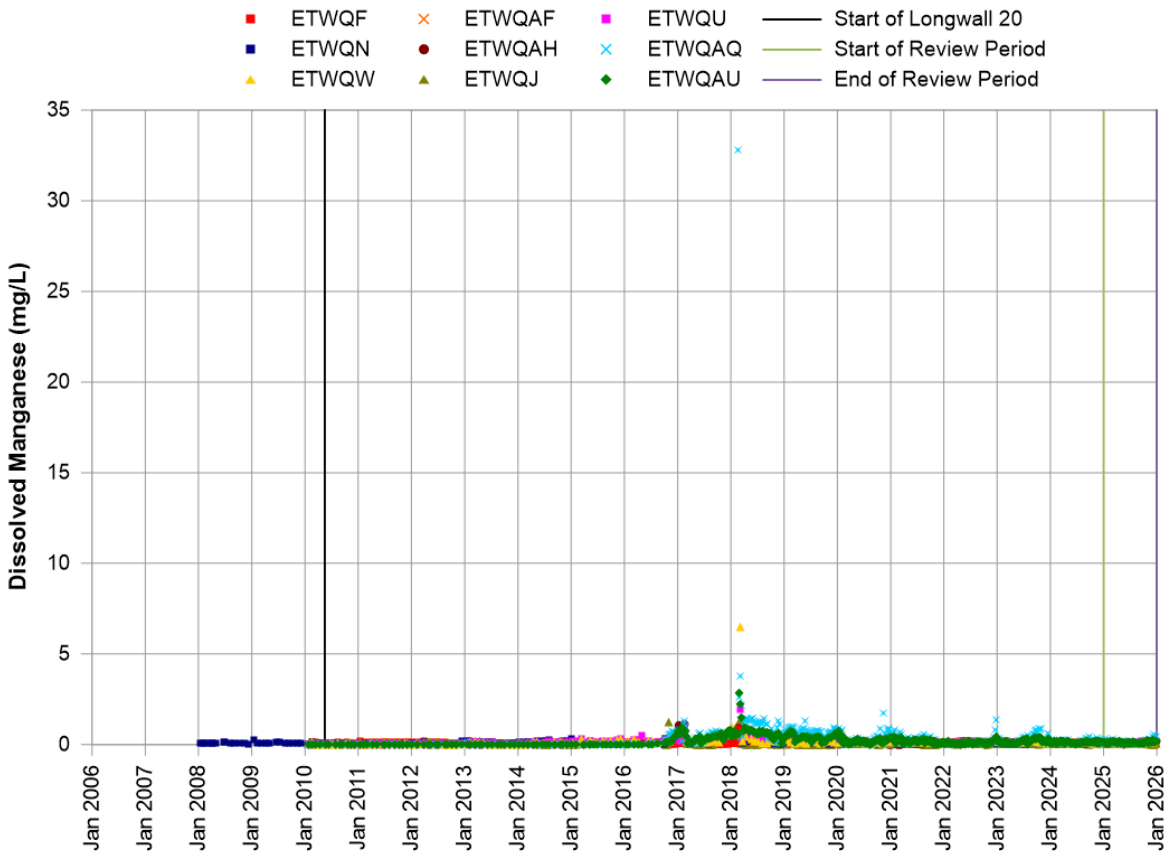


Chart 41b Dissolved Manganese Eastern Tributary

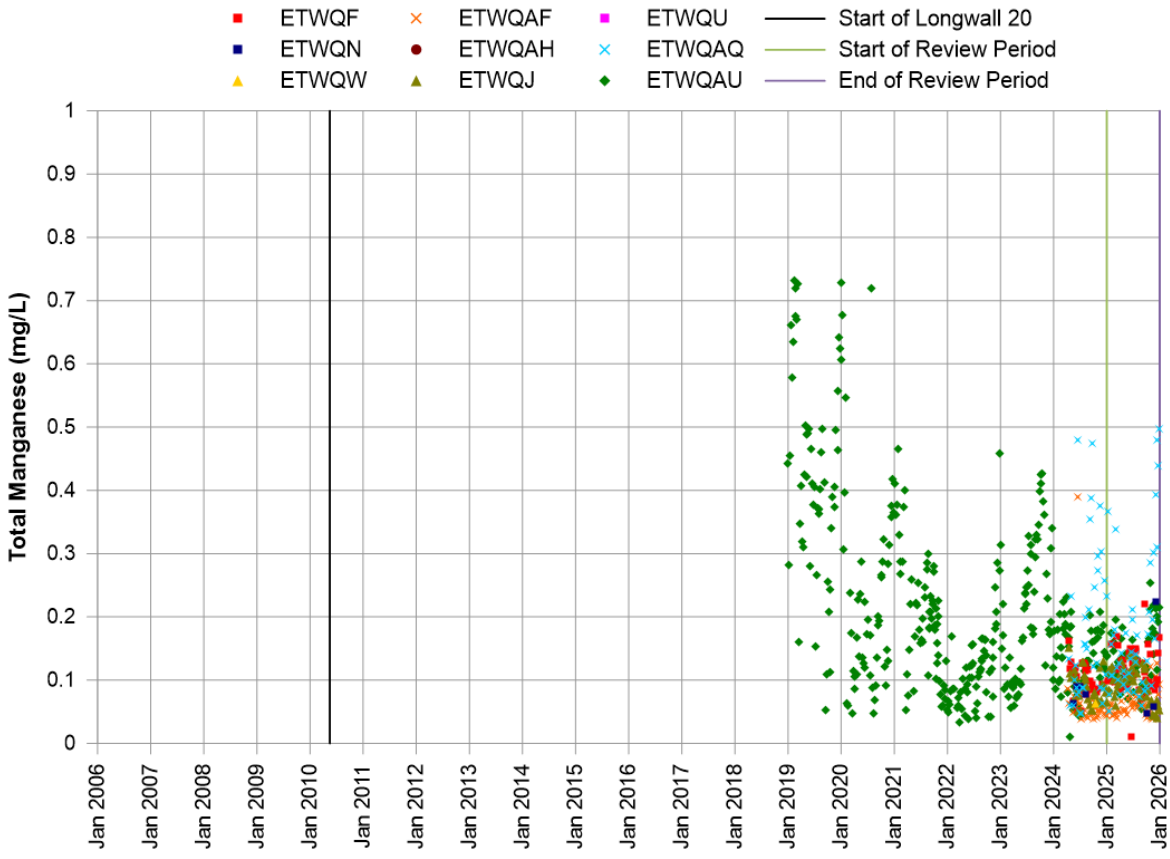


Chart 42 Total Manganese Eastern Tributary

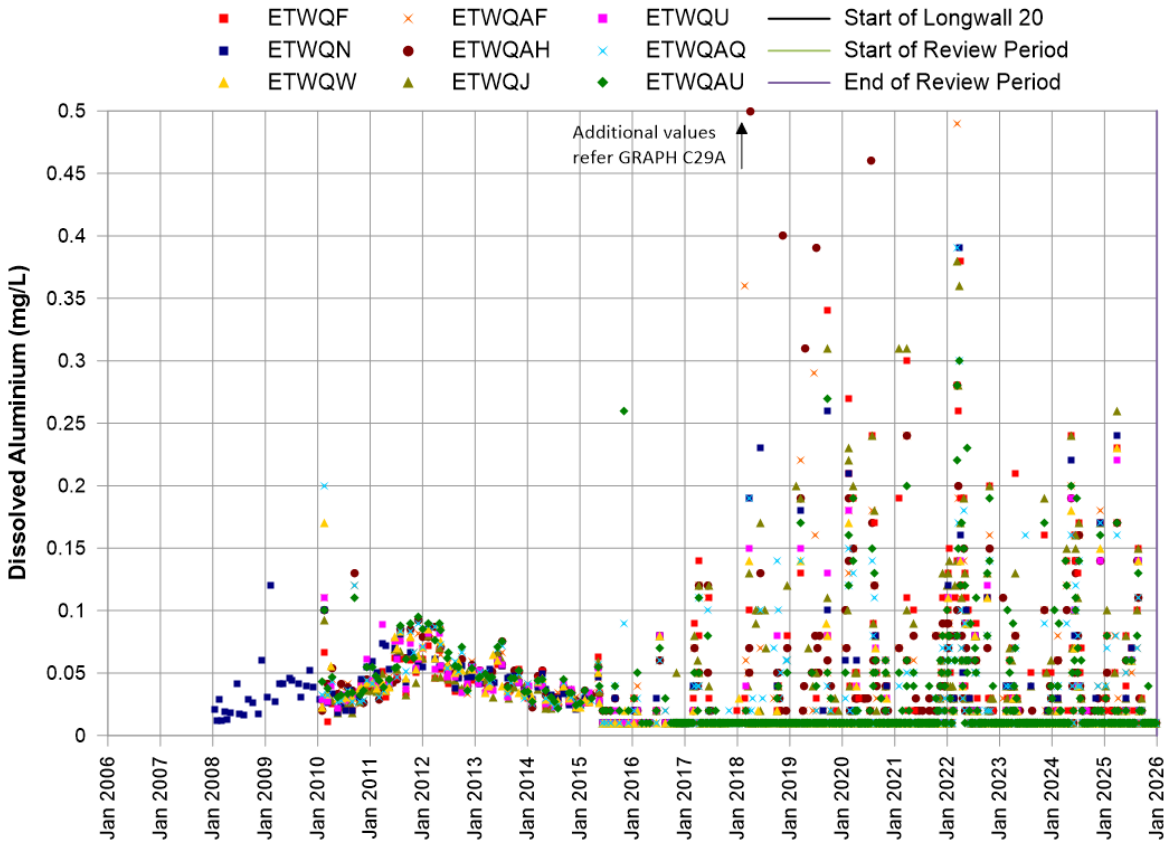


Chart 43a Dissolved Aluminium Eastern Tributary

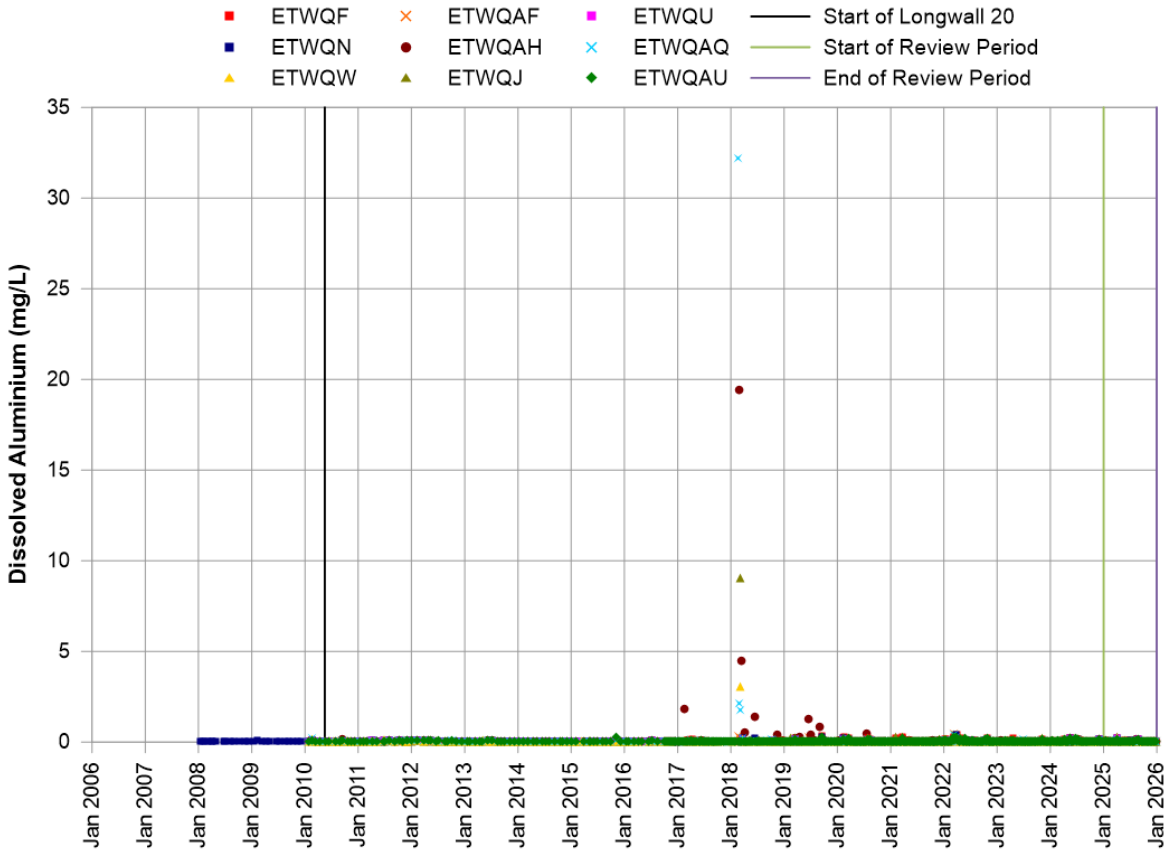


Chart 43b Dissolved Aluminium Eastern Tributary

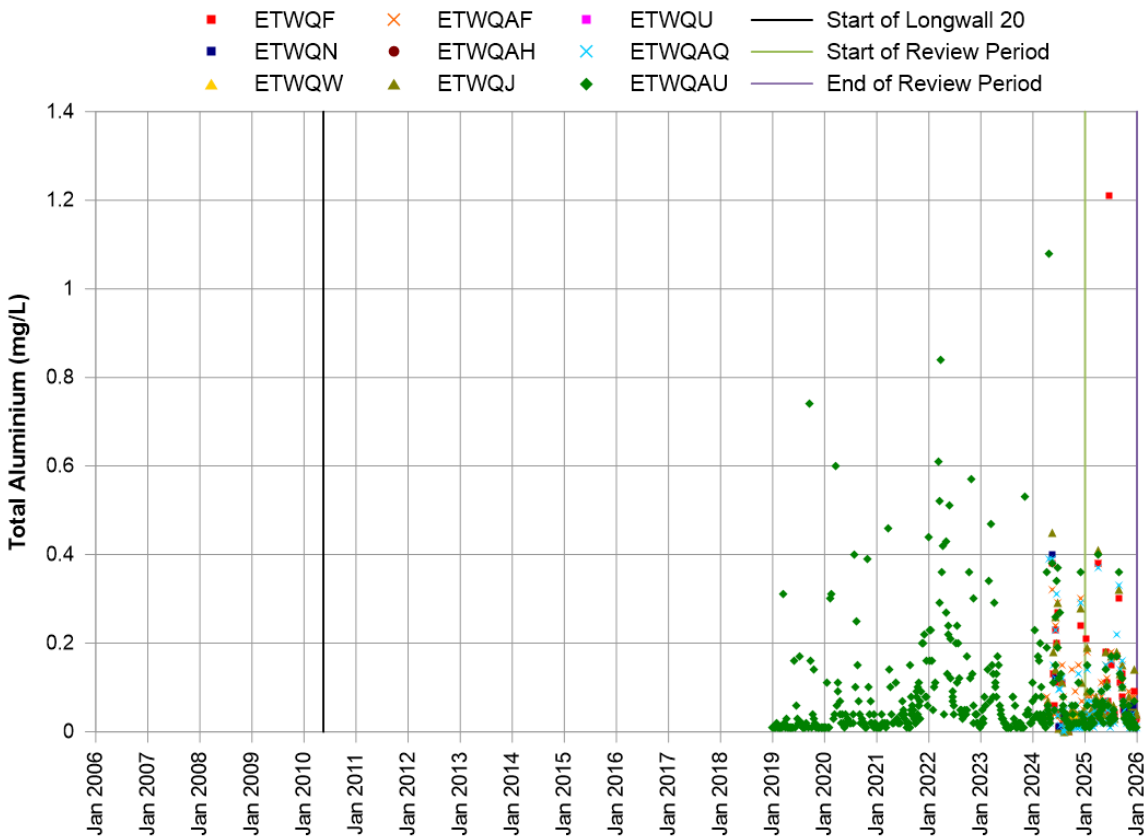


Chart 44 Total Aluminium Eastern Tributary

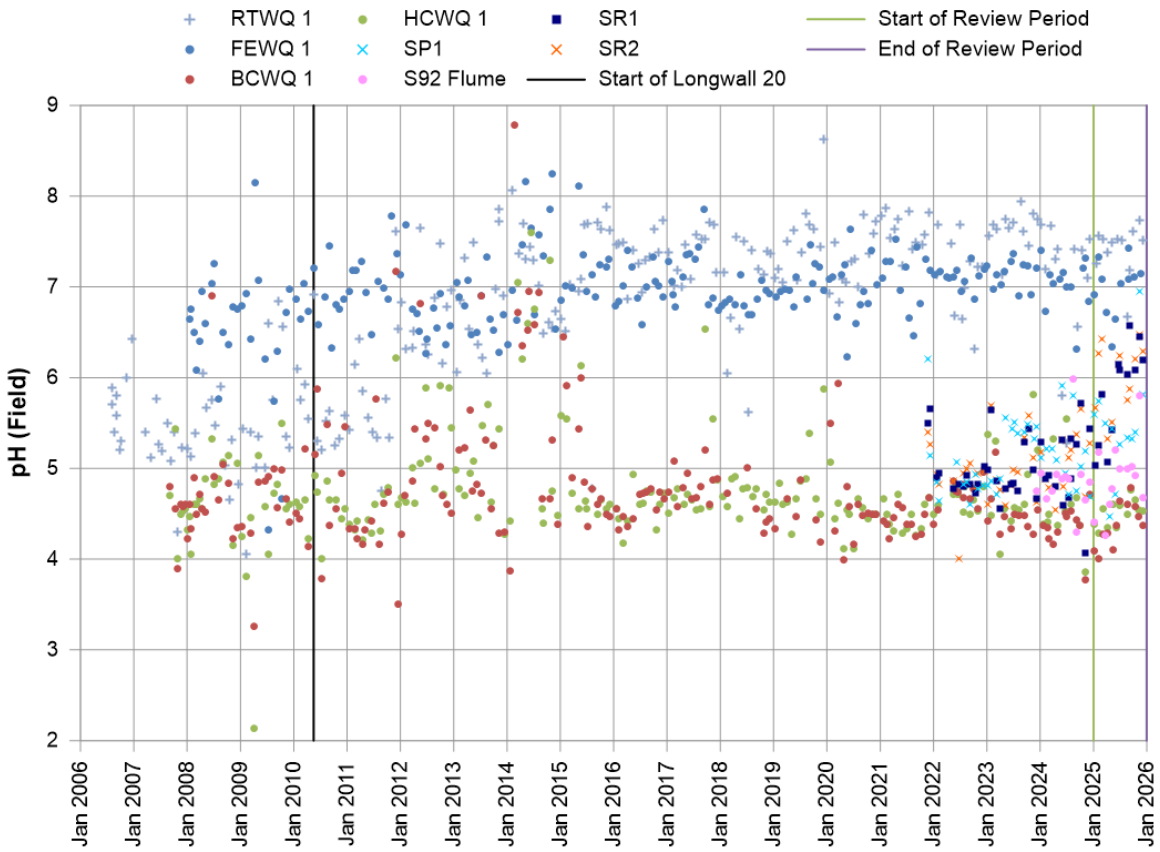


Chart 45 pH Levels Tributary B (RTWQ 1), Far Eastern Tributary (FEWQ1), Bee Creek (BCWQ 1) and Honeysuckle Creek (HCWQ 1)

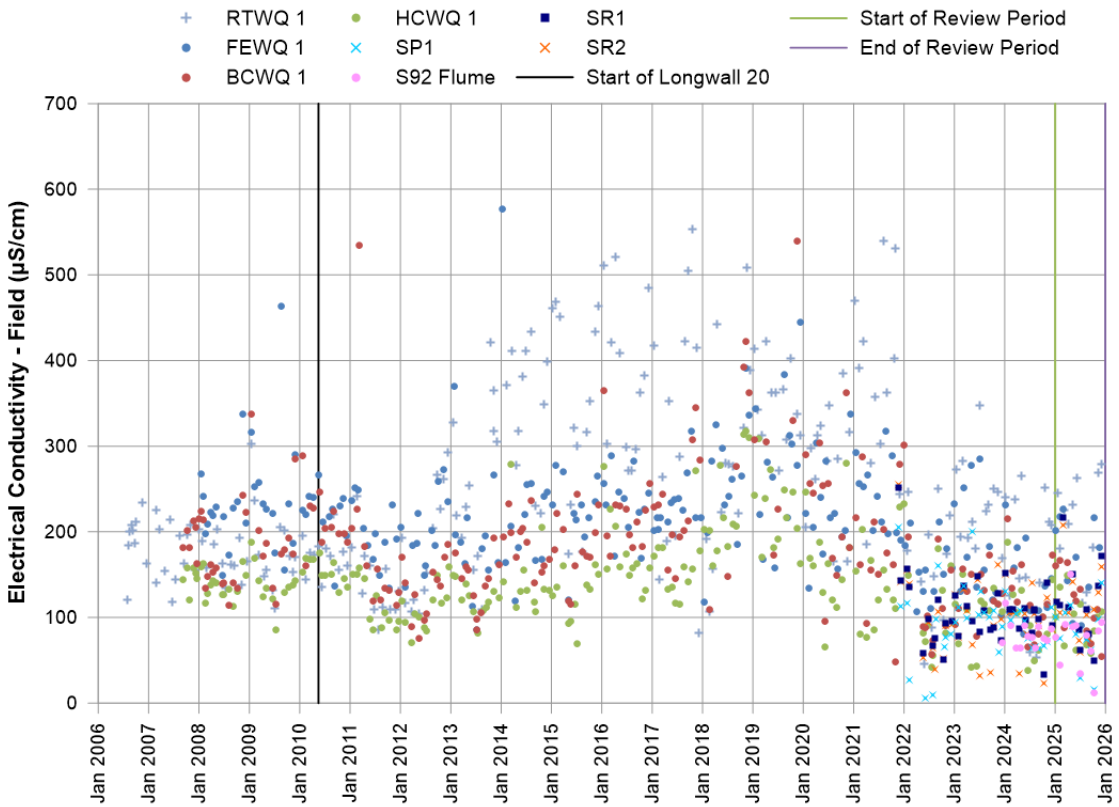


Chart 46 **EC Tributary B (RTWQ 1), Far Eastern Tributary (FEWQ 1), Bee Creek (BCWQ 1) and Honeysuckle Creek (HCWQ 1)**

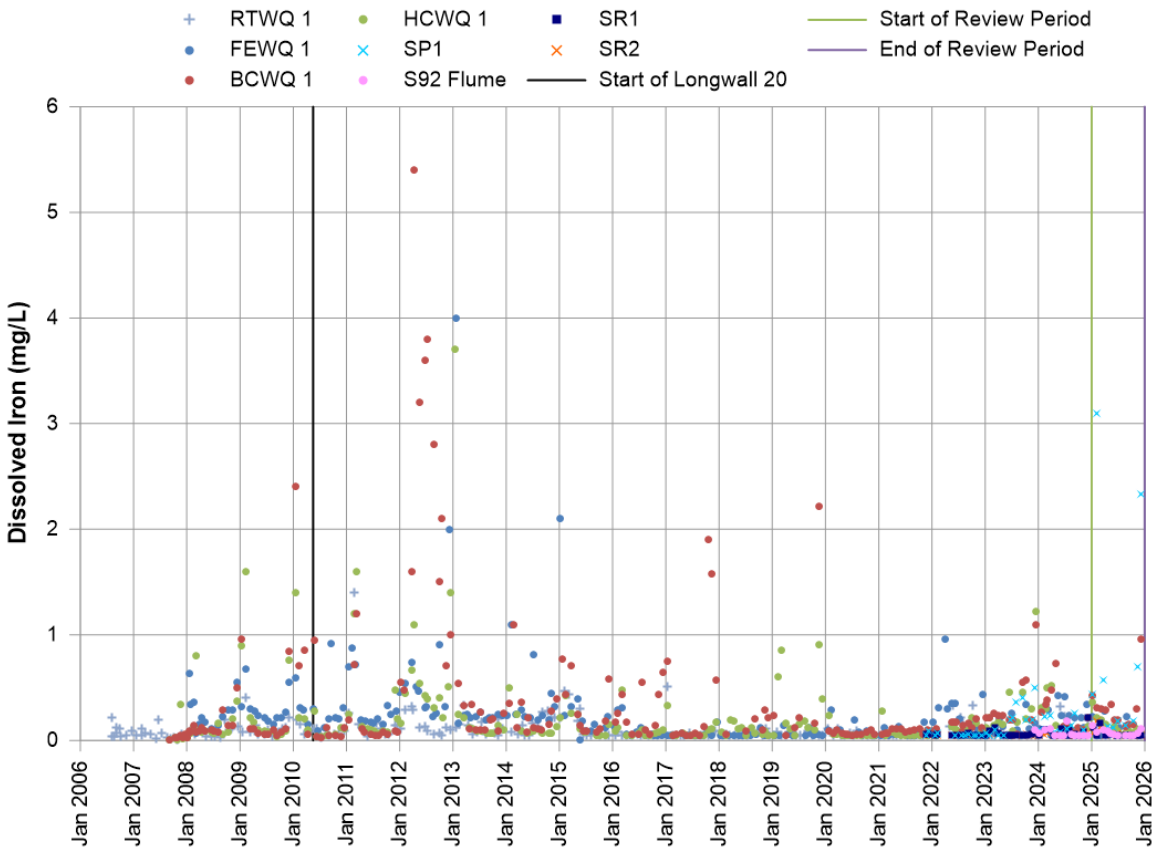


Chart 47 **Dissolved Iron Tributary B (RTWQ 1), Far Eastern Tributary (FEWQ 1), Bee Creek (BCWQ 1) and Honeysuckle Creek (HCWQ 1)**

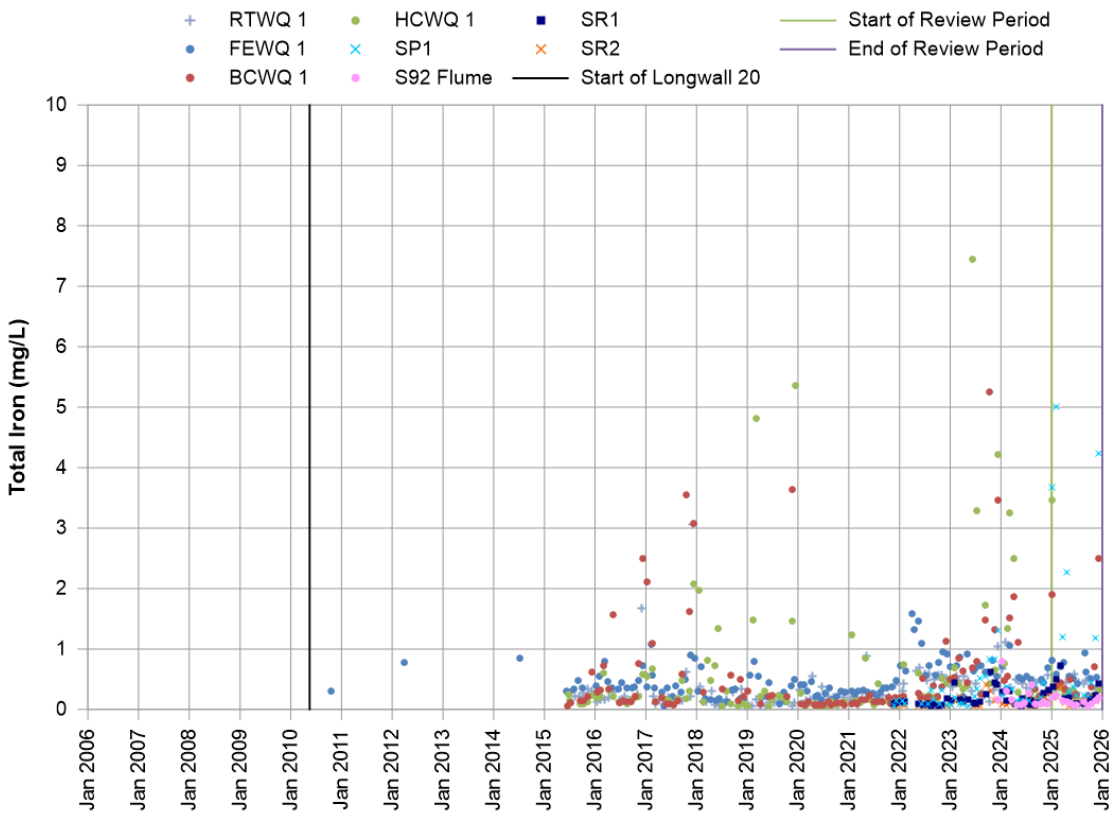


Chart 48 **Total Iron Tributary B (RTWQ 1), Far Eastern Tributary (FEWQ 1), Bee Creek (BCWQ 1) and Honeysuckle Creek (HCWQ 1)**

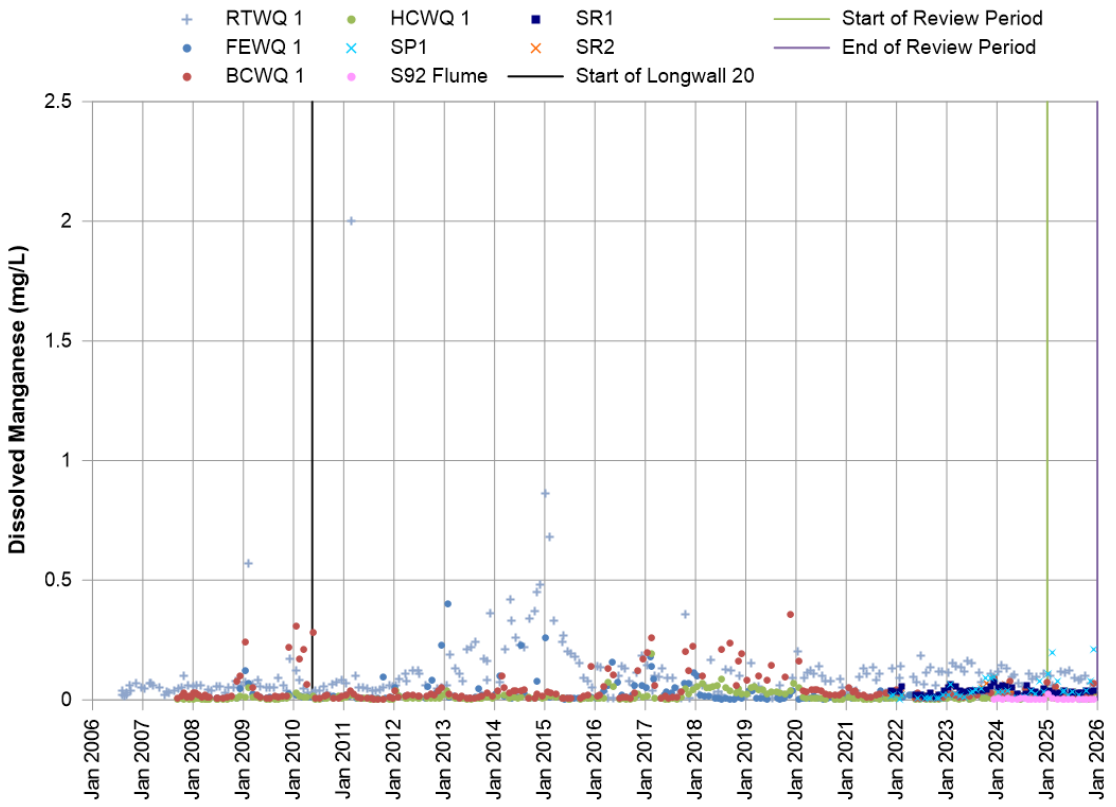


Chart 49 **Dissolved Manganese Tributary B (RTWQ 1), Far Eastern Tributary (FEWQ 1), Bee Creek (BCWQ 1) and Honeysuckle Creek (HCWQ 1)**

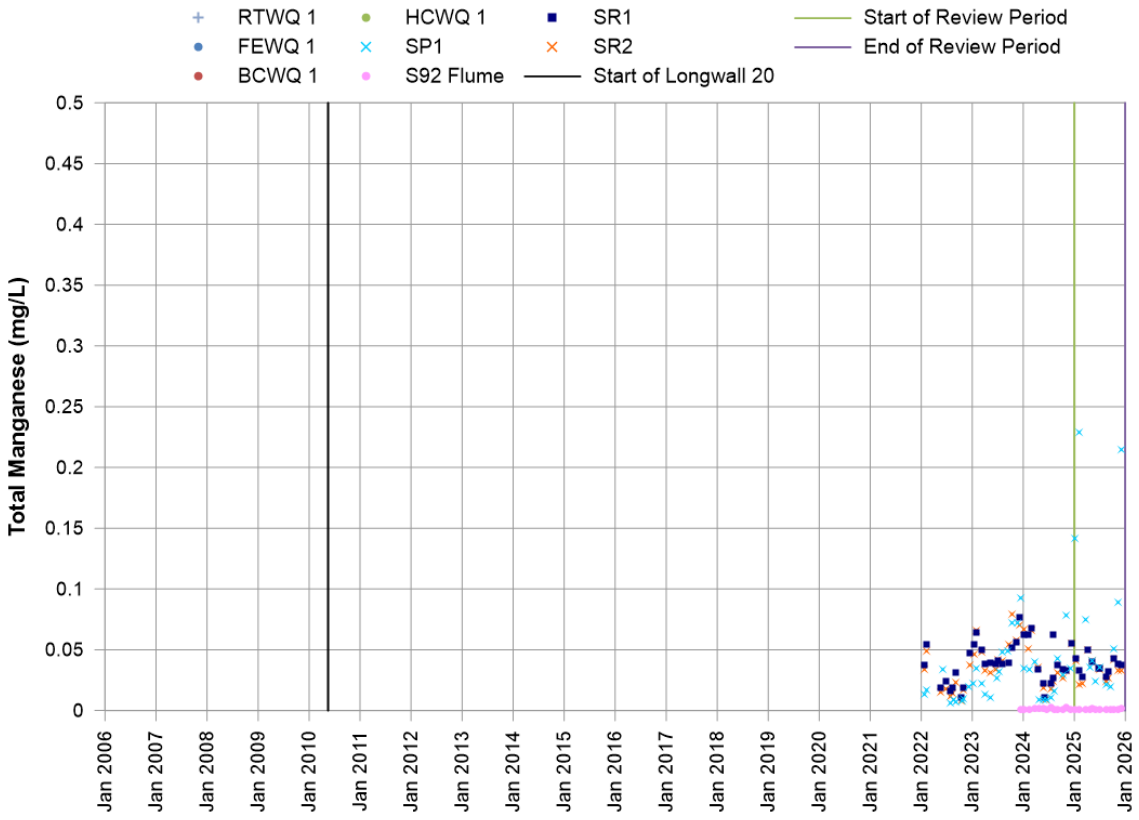


Chart 50 Total Manganese Tributary B (RTWQ 1), Far Eastern Tributary (FEWQ 1), Bee Creek (BCWQ 1) and Honeysuckle Creek (HCWQ 1)

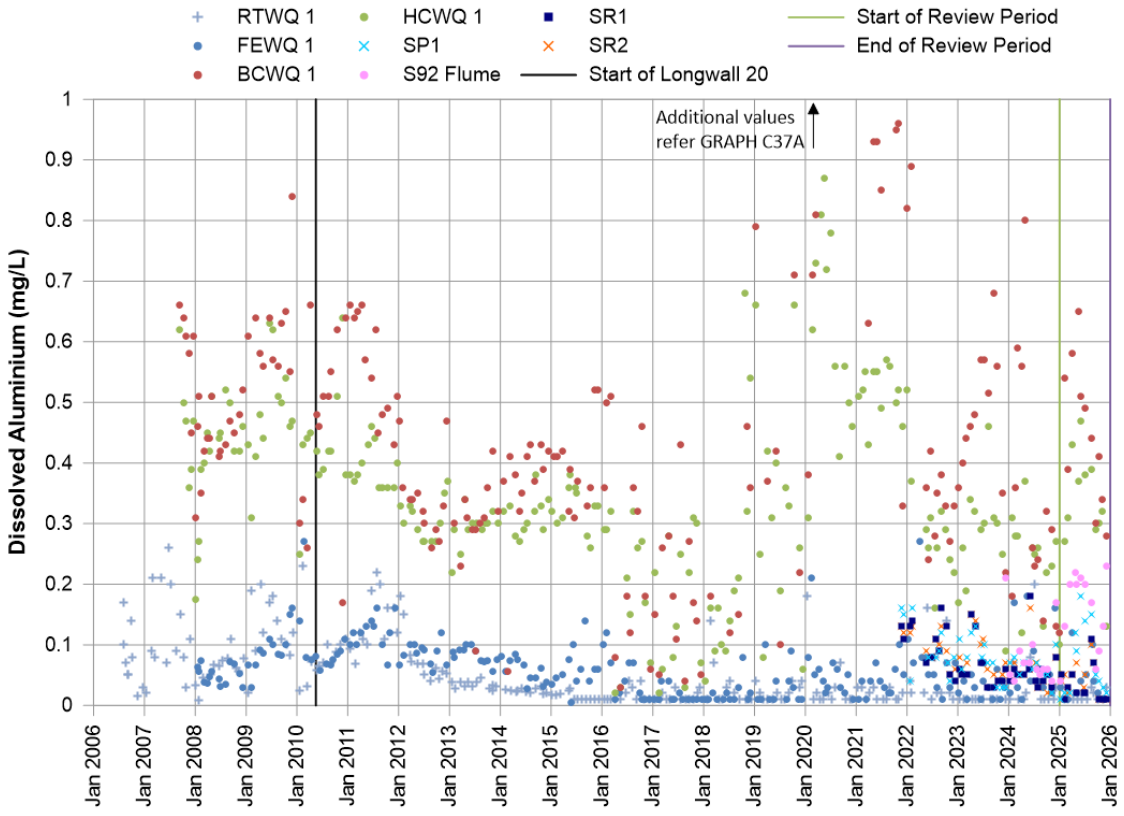


Chart 51a Dissolved Aluminium Tributary B (RTWQ 1), Far Eastern Tributary (FEWQ 1), Bee Creek (BCWQ 1) and Honeysuckle Creek (HCWQ 1)

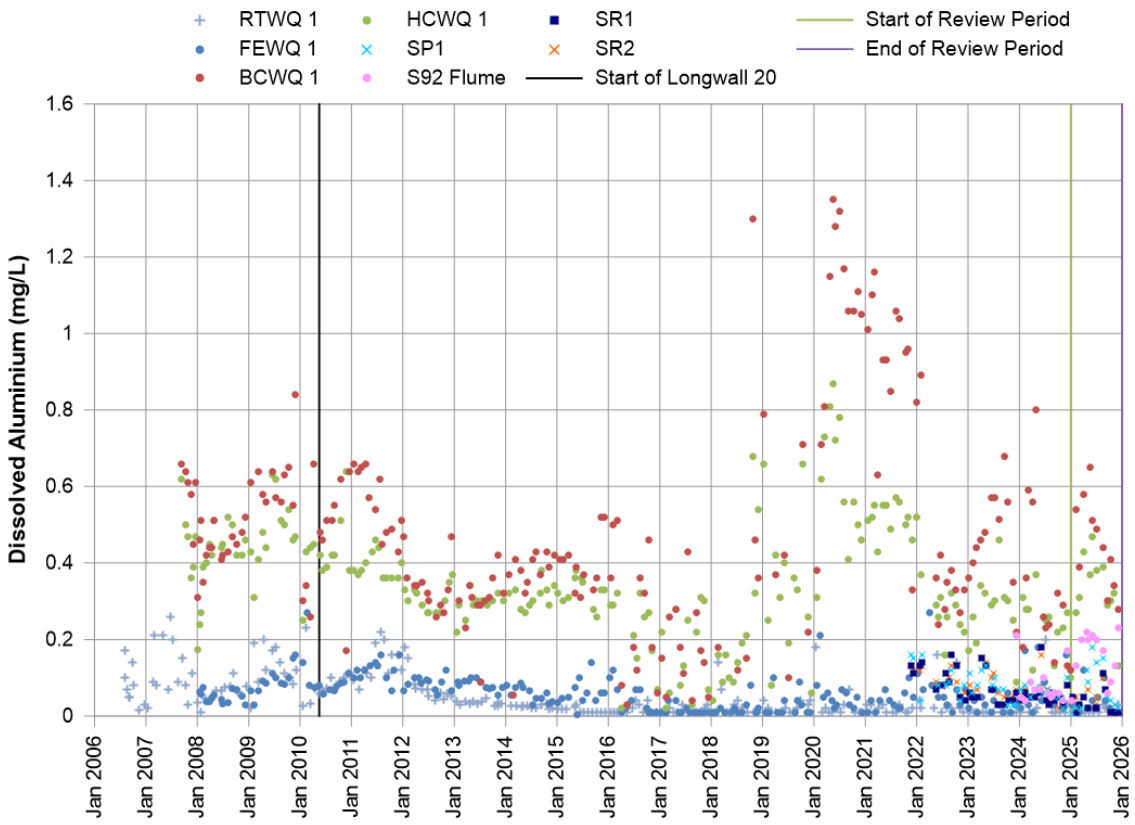


Chart 51b Dissolved Aluminium Tributary B (RTWQ 1), Far Eastern Tributary (FEWQ 1), Bee Creek (BCWQ 1) and Honeysuckle Creek (HCWQ 1)

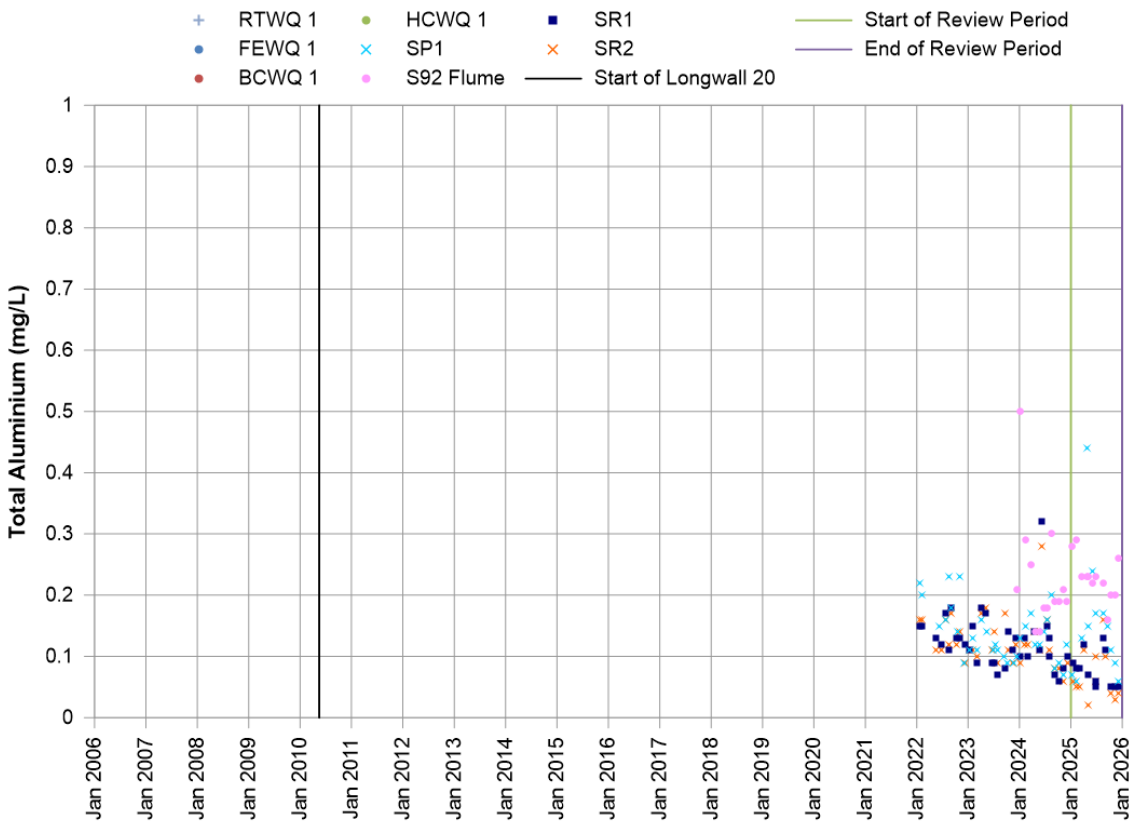


Chart 52 Total Aluminium Tributary B (RTWQ 1), Far Eastern Tributary (FEWQ 1), Bee Creek (BCWQ 1) and Honeysuckle Creek (HCWQ 1)

Assessment of Water Quality at Site WRWQ9

There were no exceedances of the adjusted baseline mean plus two standard deviations for dissolved iron at site WRWQ9 on the Waratah Rivulet during the reporting period. The result equates to a TARP Level 1 significance level for dissolved iron from January to December 2025 (Appendix B).

There was one exceedance recorded of the adjusted baseline mean plus two standard deviations for dissolved manganese at site WRWQ9 in April 2025. There was an exceedance of the adjusted baseline mean plus two standard deviations for dissolved manganese at control site WOWQ2 on the Woronora River in January and February 2025 but no other months during the reporting period. The results equate to a TARP Level 1 significance level from January to March 2025, Level 2 significance level in April 2025 and Level 1 significance level from May to December 2025 (Appendix B).

There were no exceedances of the adjusted baseline mean plus two standard deviation for dissolved aluminium at site WRWQ9 from January to December 2025. There were no exceedances of the adjusted baseline mean plus two standard deviations at control site WOWQ2 on the Woronora River for dissolved aluminium during the reporting period. This results in a TARP Level 1 significance level January to December 2025 (Appendix B).

Assessment of Water Quality at Site ETWQ AU

There were no exceedances of the adjusted baseline mean plus two standard deviations for dissolved iron at site ETWQ AU (Charts 53a and 53b). Similarly, there were no exceedances of the adjusted baseline mean plus two standard deviation six-month mean at control site WOWQ2 on the Woronora River for dissolved iron. This equates to a TARP Level 1 significance level from 1 January to 31 December 2025, as there was not a similar exceedance at the control site WOWQ2 (Appendix B).

The dissolved manganese concentrations continued to exceed the adjusted baseline mean plus two standard deviations at sampling site ETWQ AU for the duration of the reporting period (Charts 55a and 55b). The six-monthly dissolved manganese concentration at the control site WOWQ2 on the Woronora River remained below the adjusted baseline mean plus two standard deviations for dissolved manganese during the reporting period. Accordingly, the results equate to a TARP Level 3 significance for dissolved manganese recorded at site ETWQ AU from 1 January to 31 December 2025 (Appendix B).

There were no exceedances of the adjusted baseline mean plus one standard deviation in any six-month means for dissolved aluminium at site ETWQ AU (Chart 57). Similarly, there were no exceedances of the adjusted baseline mean plus one standard deviation six-month mean at control site WOWQ2 on the Woronora River for dissolved aluminium. This equates to a TARP Level 1 significance level from 1 January to 31 December 2025, as there was not a similar exceedance at the control site WOWQ2 (Appendix B).

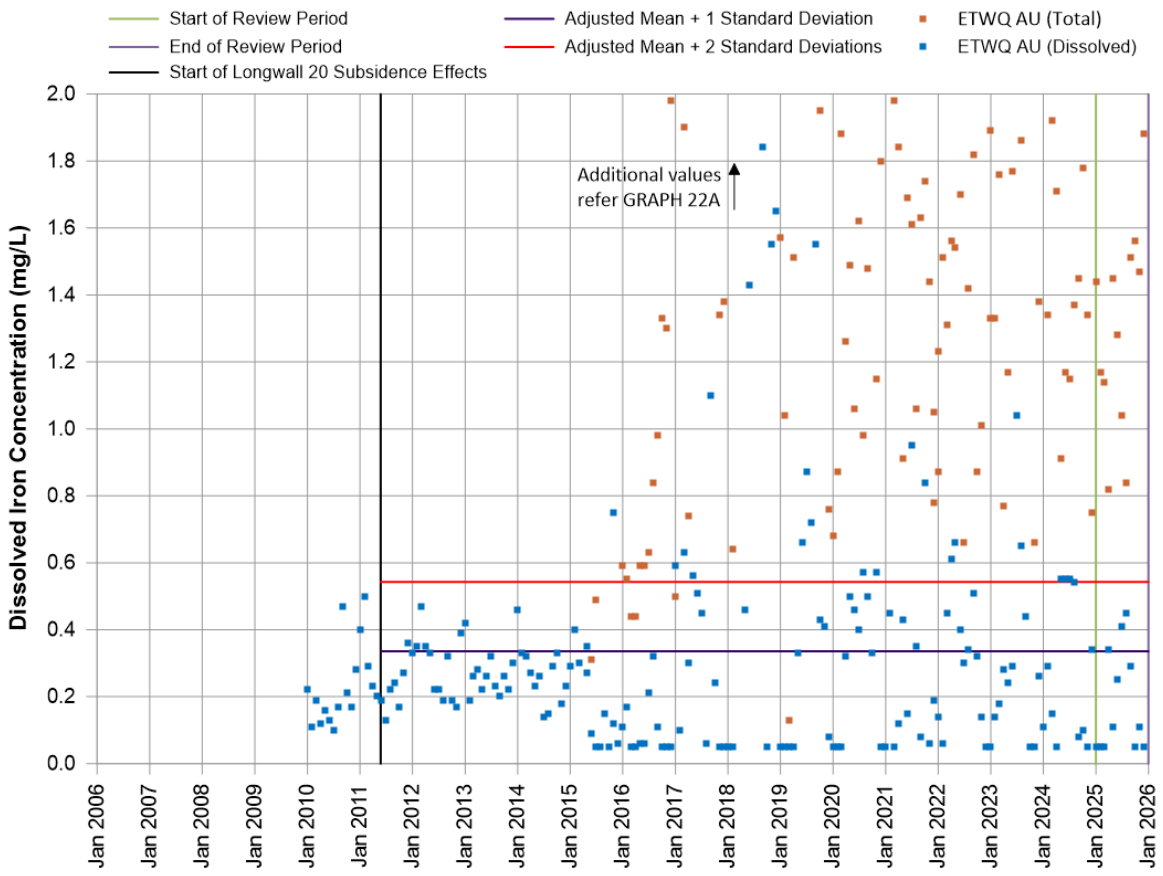


Chart 53a Iron Concentrations in Eastern Tributary at ETWQ AU

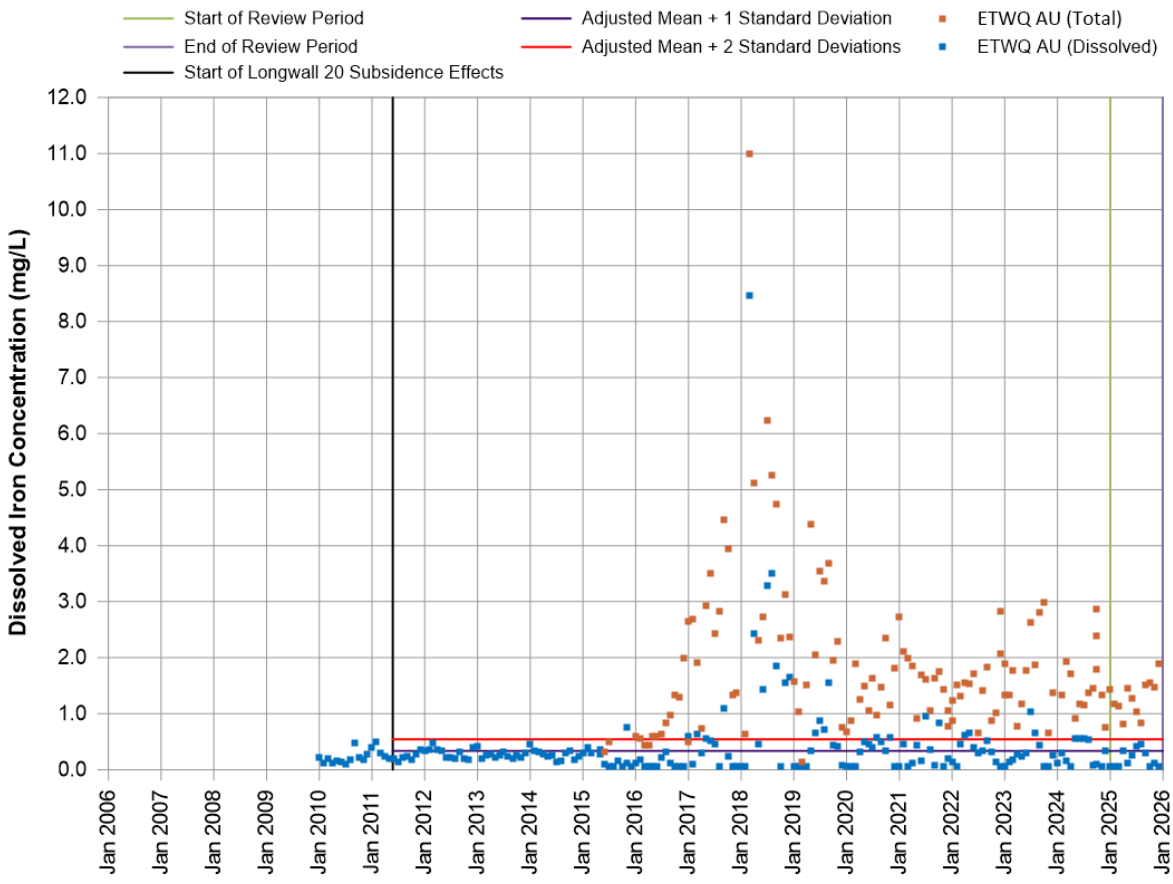


Chart 53b Iron Concentrations in Eastern Tributary at ETWQ AU

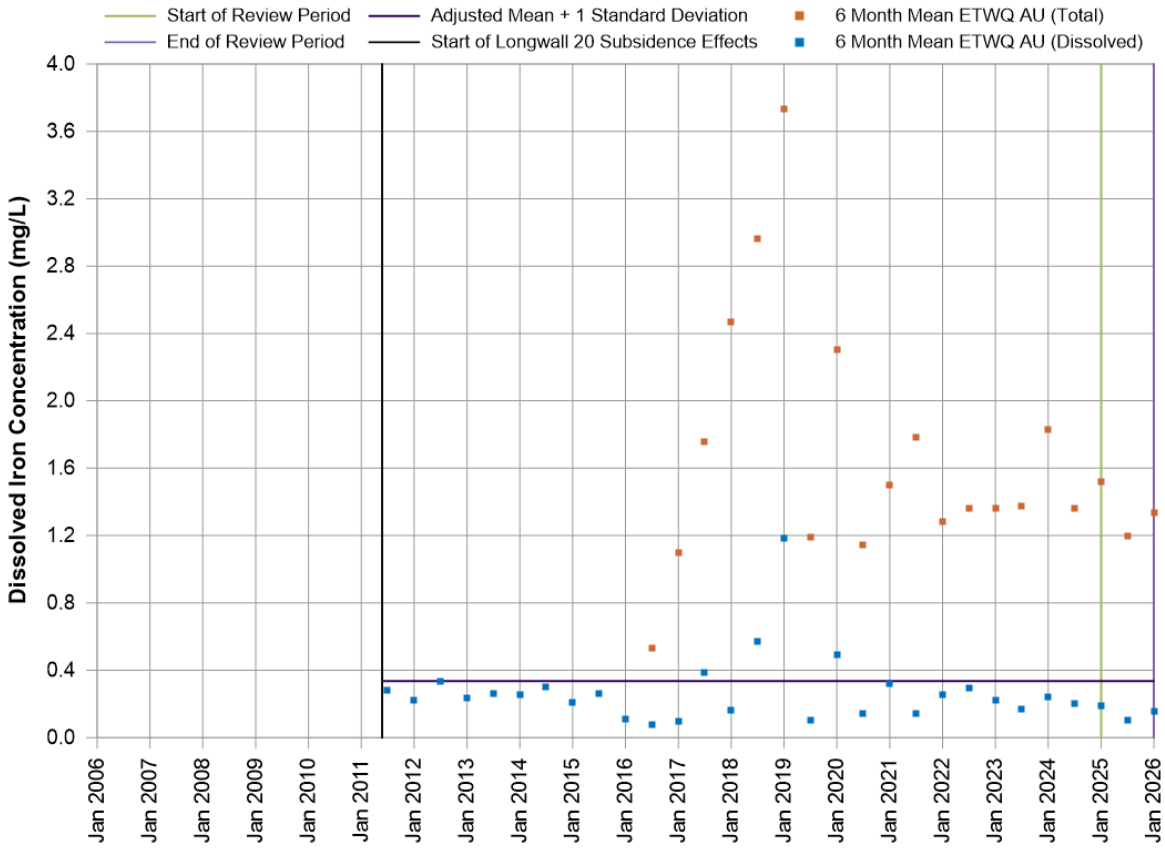


Chart 54 Six Month Means of Iron Concentrations in Eastern Tributary at ETWQ AU

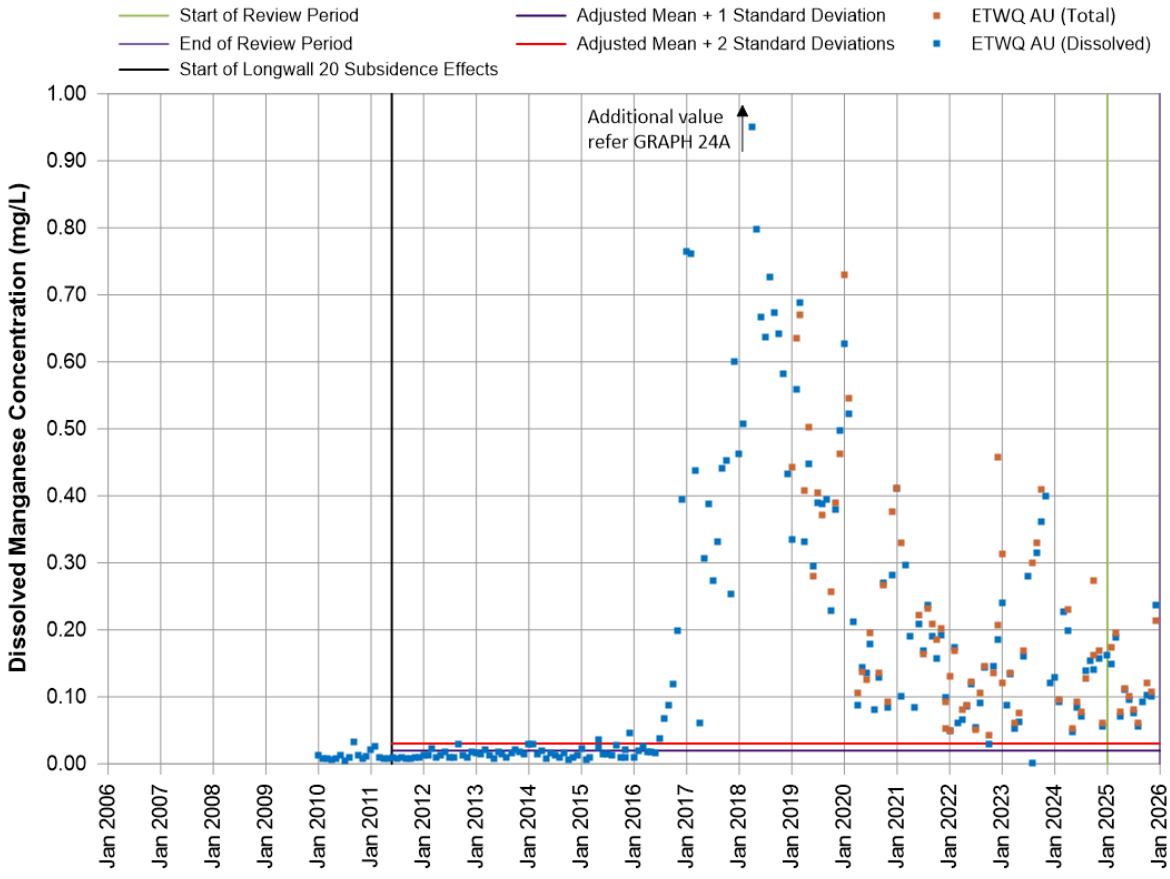


Chart 55a Manganese Concentrations in Eastern Tributary at ETWQ AU

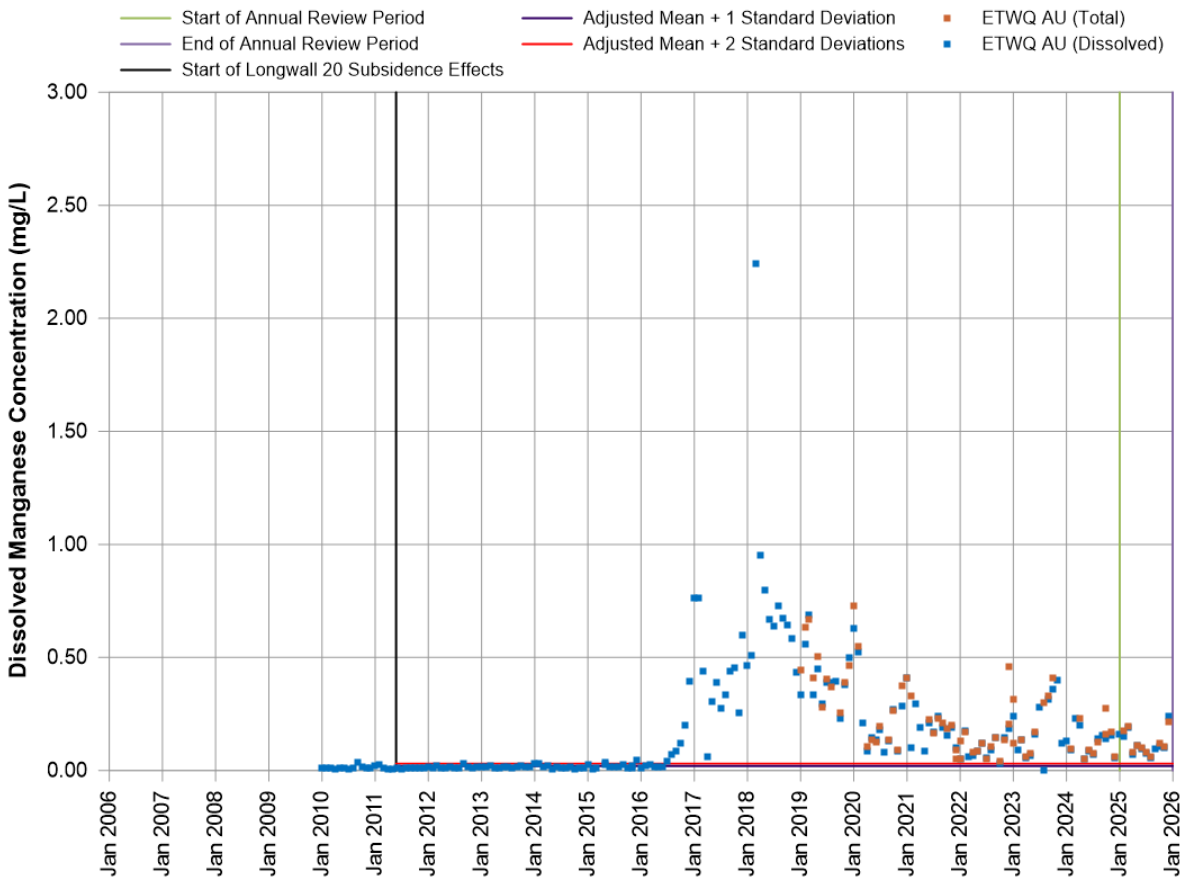


Chart 55b Manganese Concentrations in Eastern Tributary at ETWQ AU

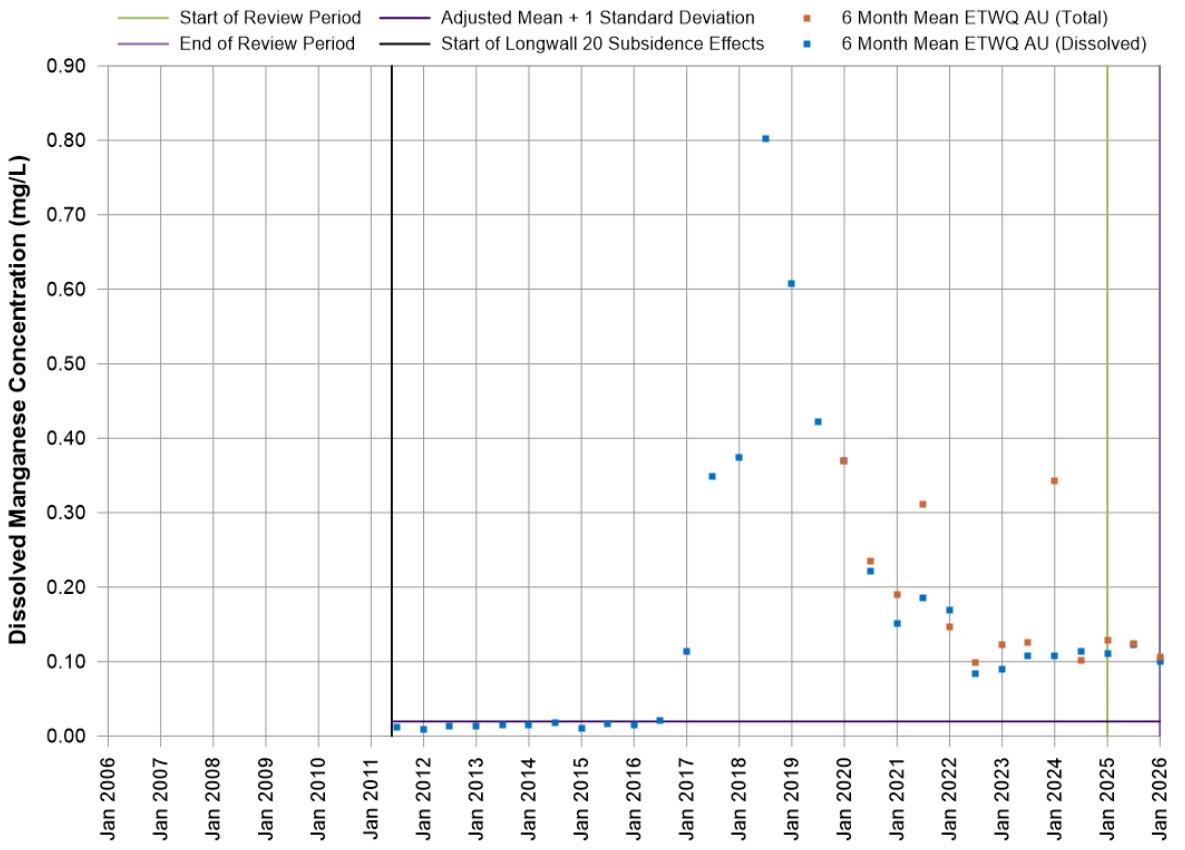


Chart 56 Six Month Means of Manganese Concentrations in Eastern Tributary at ETWQ AU

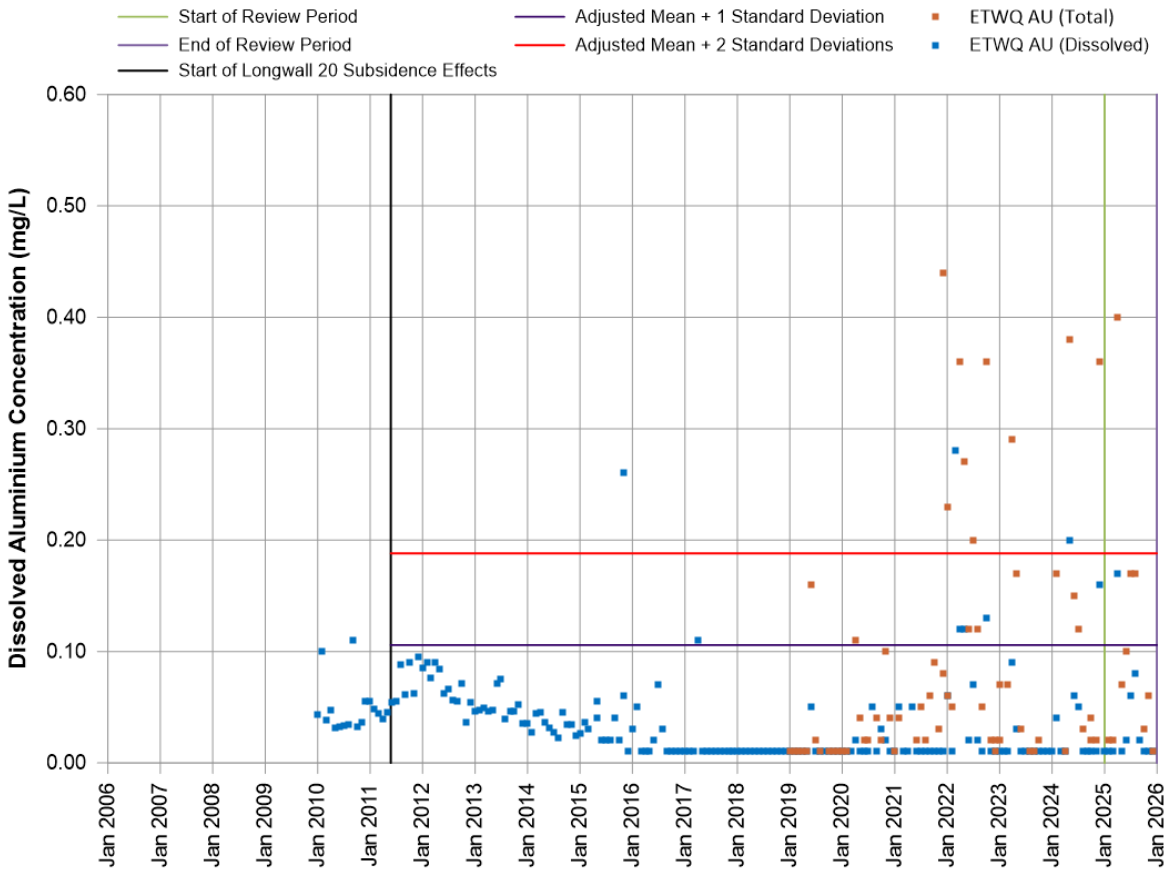


Chart 57 Aluminium Concentrations in Eastern Tributary at ETWQ AU

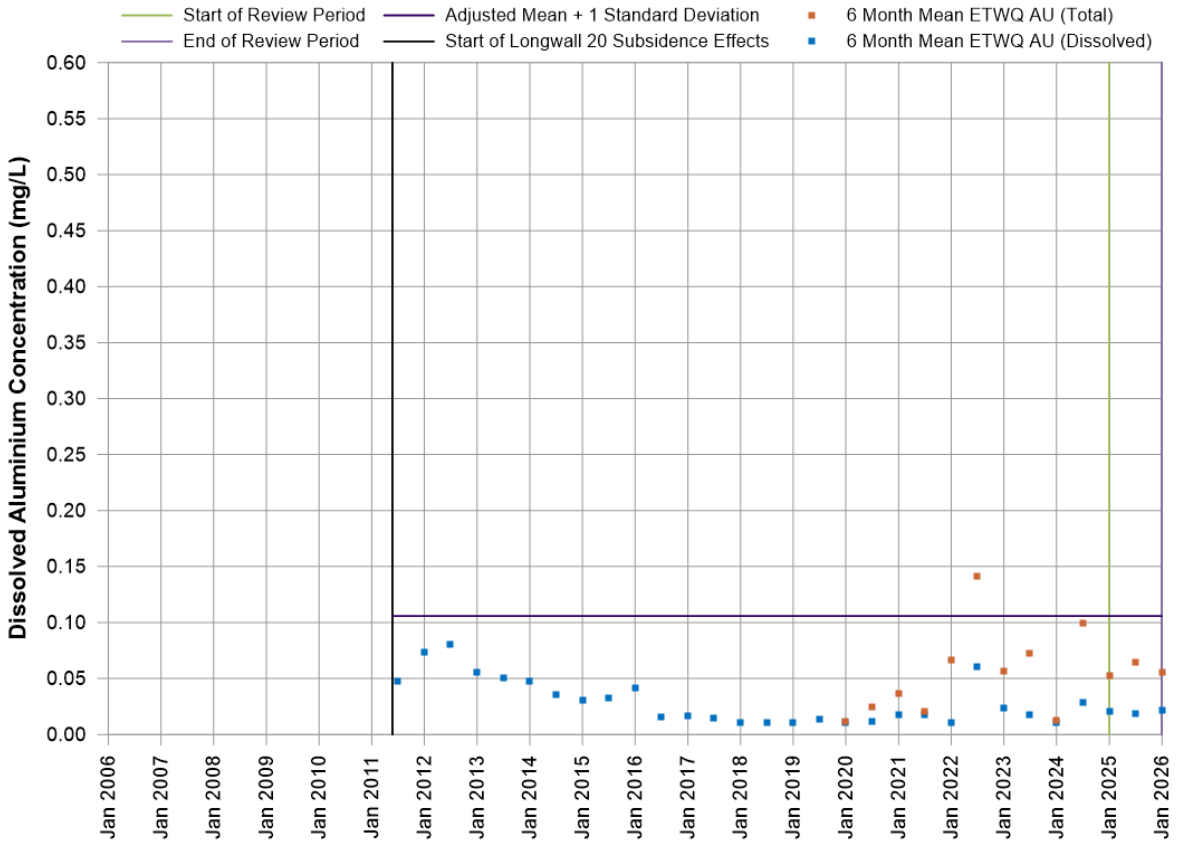


Chart 58 Six Month Means of Aluminium Concentrations in Eastern Tributary at ETWQ AU

The cracking and dilation of bedrock and associated diversion of surface flow and leakage of water through rock bars at pools which has occurred on the Eastern Tributary, including at the location of the stream which was the subject of the exceedance of the Eastern Tributary watercourse performance measure (the Eastern Tributary Incident), has resulted in increases in dissolved manganese and iron.

As a result of the performance indicator exceedances for dissolved manganese at site ETWQ AU on the Eastern Tributary in January to December 2025, assessments were made against the subsidence impact performance measure, *Negligible reduction to the quality of water resources reaching the Woronora Reservoir.* The assessments were undertaken by Associate Professor Barry Noller and are provided in Appendix E, and consider the manganese concentrations reaching the Woronora Reservoir. These assessments found there has been a negligible reduction in the quality of water resources reaching the Woronora Reservoir. The watercourse performance measure, *Negligible reduction to the quality of water resources reaching the Woronora Reservoir,* is not considered to have been exceeded (Appendix E).

The environmental consequences of subsidence impacts on water quality were predicted by the Project EA, Preferred Project Report and Metropolitan Coal Water Management Plans to be similar to that previously observed at Metropolitan Coal, specifically, transient pulses of iron, manganese and aluminium, which would likely occur following fresh cracking of the stream bed.

Monitoring and analysis of water quality data will continue in accordance with the Longwalls 311-316 Water Management Plan. Metropolitan Coal is committed to the remediation of pools on the Eastern Tributary. It is anticipated that ongoing stream remediation activities (described in Section 10.3.2) will reduce the transfer of iron and manganese from the groundwater to the Eastern Tributary.

6.2.5 Woronora Reservoir Water Quality

Metropolitan Coal has sourced water quality data for the Woronora Reservoir (at sampling location DWO1) from WaterNSW in accordance with a data exchange agreement. Results in relation to total iron, aluminium and manganese at levels from 0 m to 9 m below the reservoir surface for Woronora Reservoir throughout the period of record are presented in Charts 59 to 61.

The data presented in Charts 59 to 61 indicate that a gradual increasing trend in total iron, total aluminium and total manganese has been recorded since early to mid-2020 following the onset of higher rainfall conditions. The trend in total iron concentrations during 2022-2025 resembles that recorded in 1990-1991. The peak concentration recorded for this period (0.75 mg/L recorded in June 2023) is less than the historical maximum (0.85 mg/L recorded in 1965). Total iron concentrations show a declining trend from September 2023 with concentrations ranging between 0.24 to 0.66 mg/L to the end of 2025 (Chart 59).

Following from elevated concentrations at the end of 2022, there was a decrease in total aluminium in March 2024 with concentrations recorded below 0.15 mg/L during February and March 2024. Concentrations during 2024 and 2025 were between 0.09 and 0.46 mg/L, which is within the range of concentrations prior to the start of Longwall 20 (Chart 60). Total manganese concentrations have been slightly elevated since early to mid-2020 compared with previous years. Concentrations show a decreasing trend from mid to late 2023. Concentrations remained relatively constant during 2024 and 2025, ranging at approximately 0.012 to 0.025 mg/L (Chart 61).

Water quality data in the Woronora Reservoir is analysed annually and assessed against the following performance indicator:

> *Changes in the quality of water in the Woronora Reservoir are not significantly different post-mining compared to pre-mining concentrations.*

The performance indicator is considered to have been exceeded if data analysis indicates a significant change in the quality of water post-mining compared to pre-mining concentrations, specifically if the current year's duration exceedance curve for a water quality parameter in Woronora Reservoir (total iron, total aluminium and total manganese) is above the baseline 20 year average recurrence interval (ARI) exceedance curve for any range of the duration percentages from 0% to 75%. The results of this assessment are shown on Chart 62, Chart 63 and Chart 64, respectively.

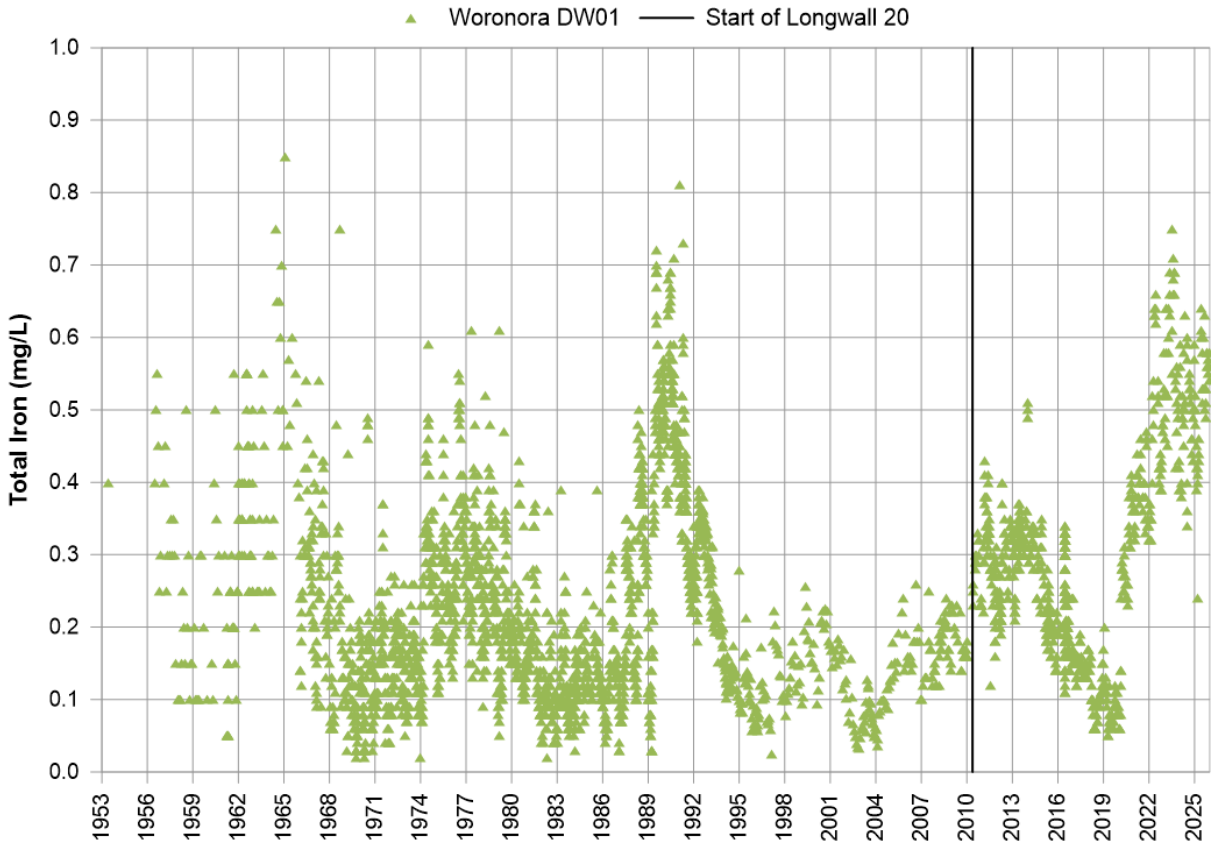


Chart 59 Total Iron Concentration Woronora Reservoir

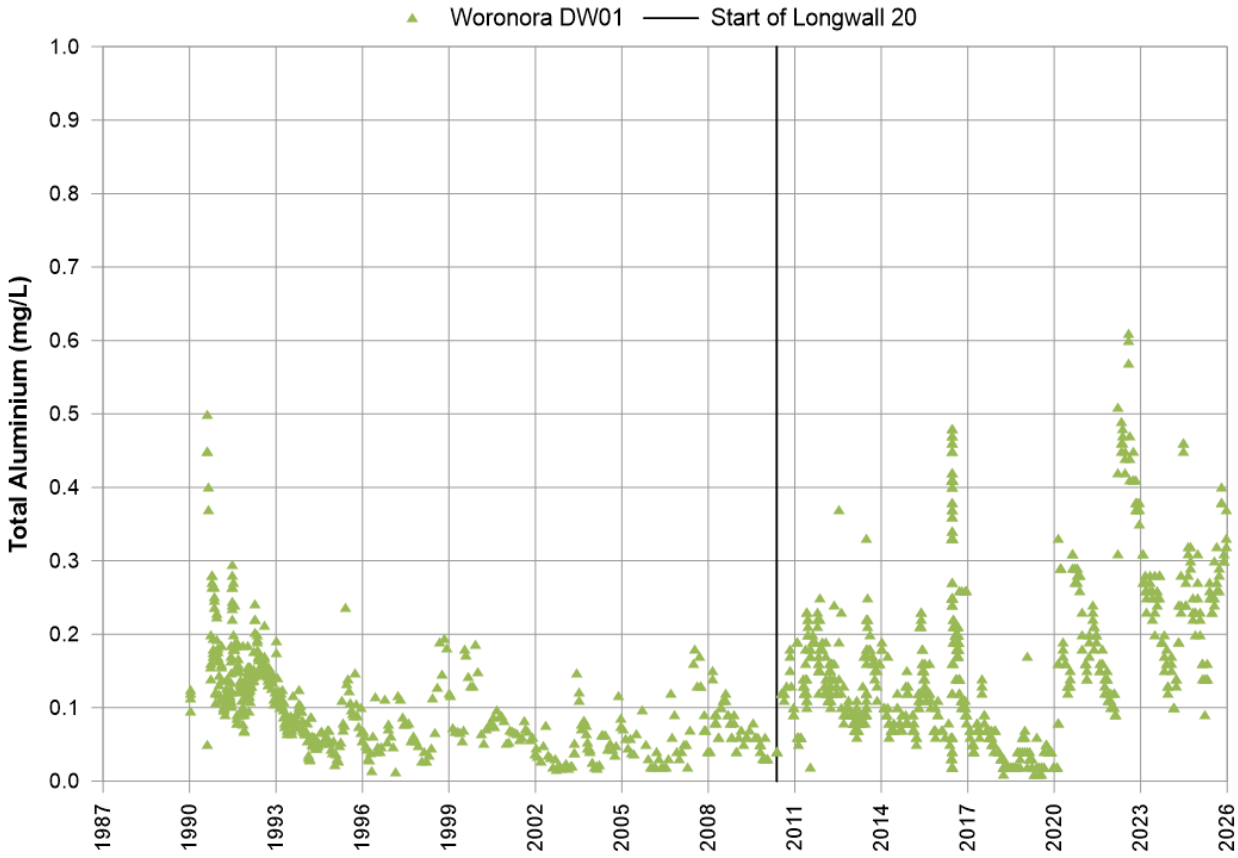


Chart 60 Total Aluminium Concentration Woronora Reservoir

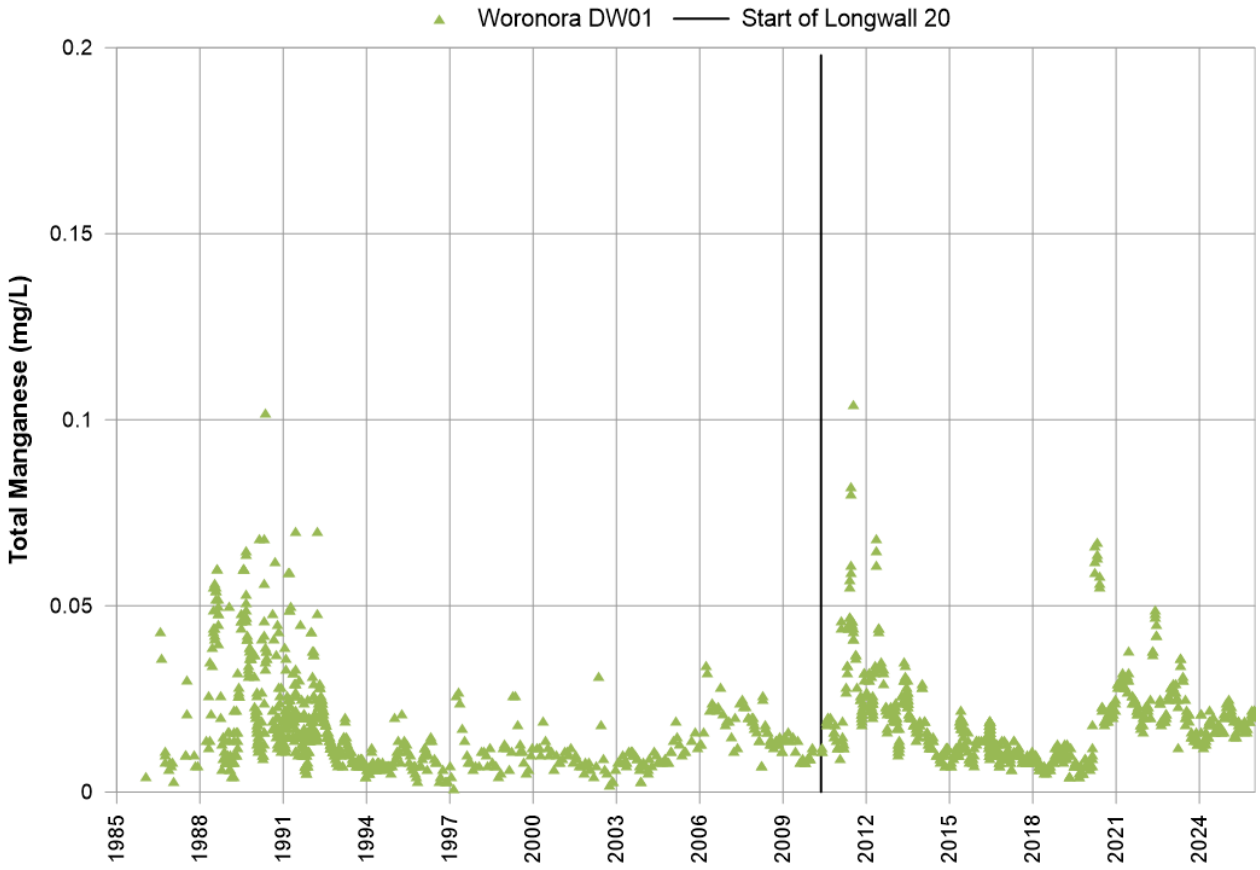


Chart 61 Total Manganese Concentration Woronora Reservoir

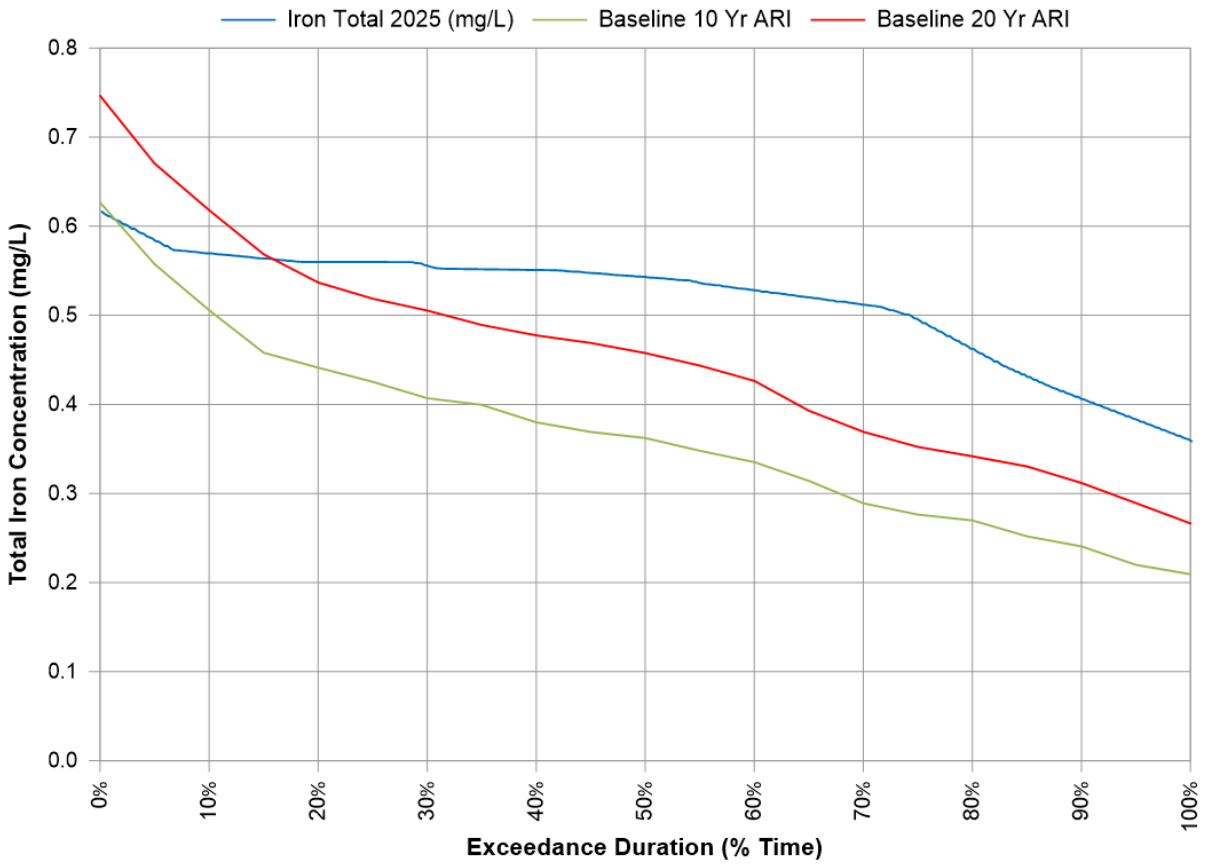


Chart 62 Total Iron Performance Indicator Woronora Reservoir 2025

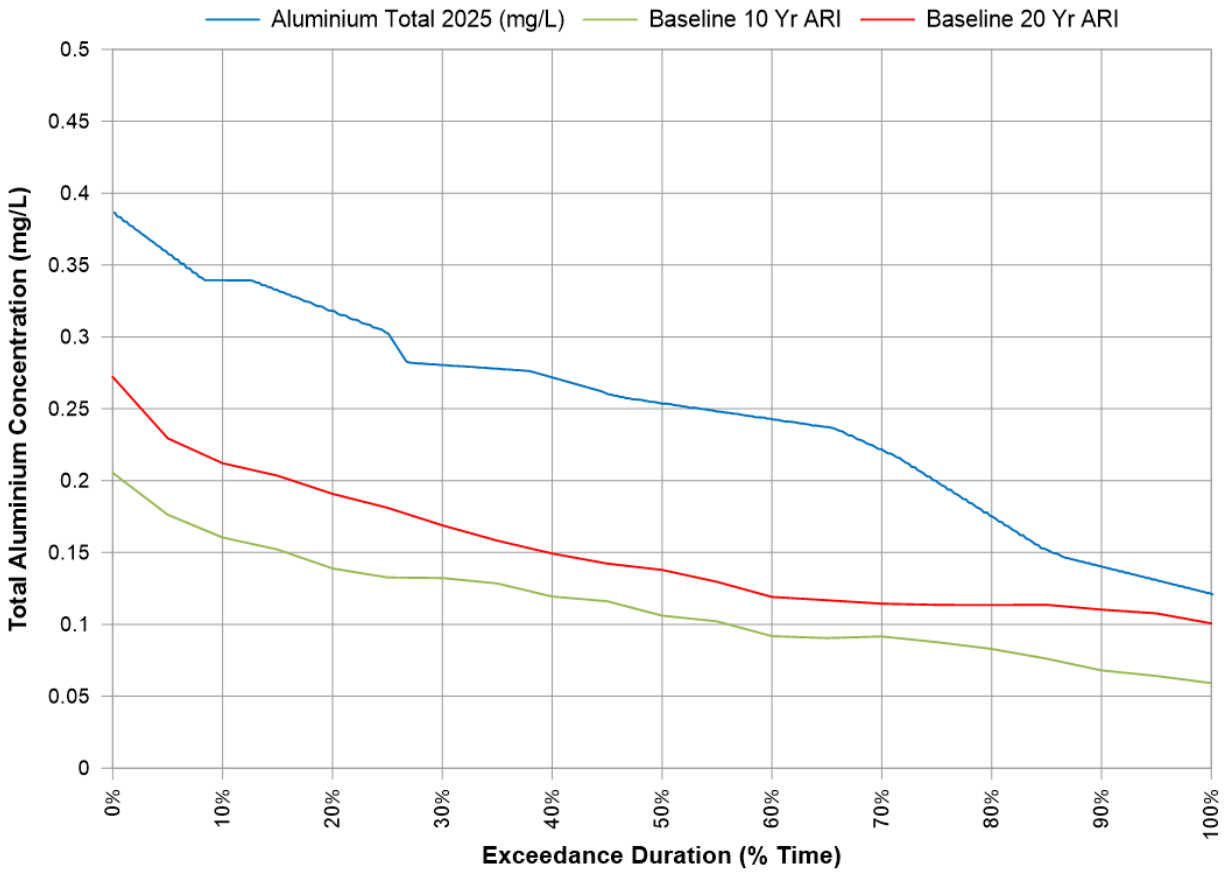


Chart 63 Total Aluminium Performance Indicator Woronora Reservoir 2025

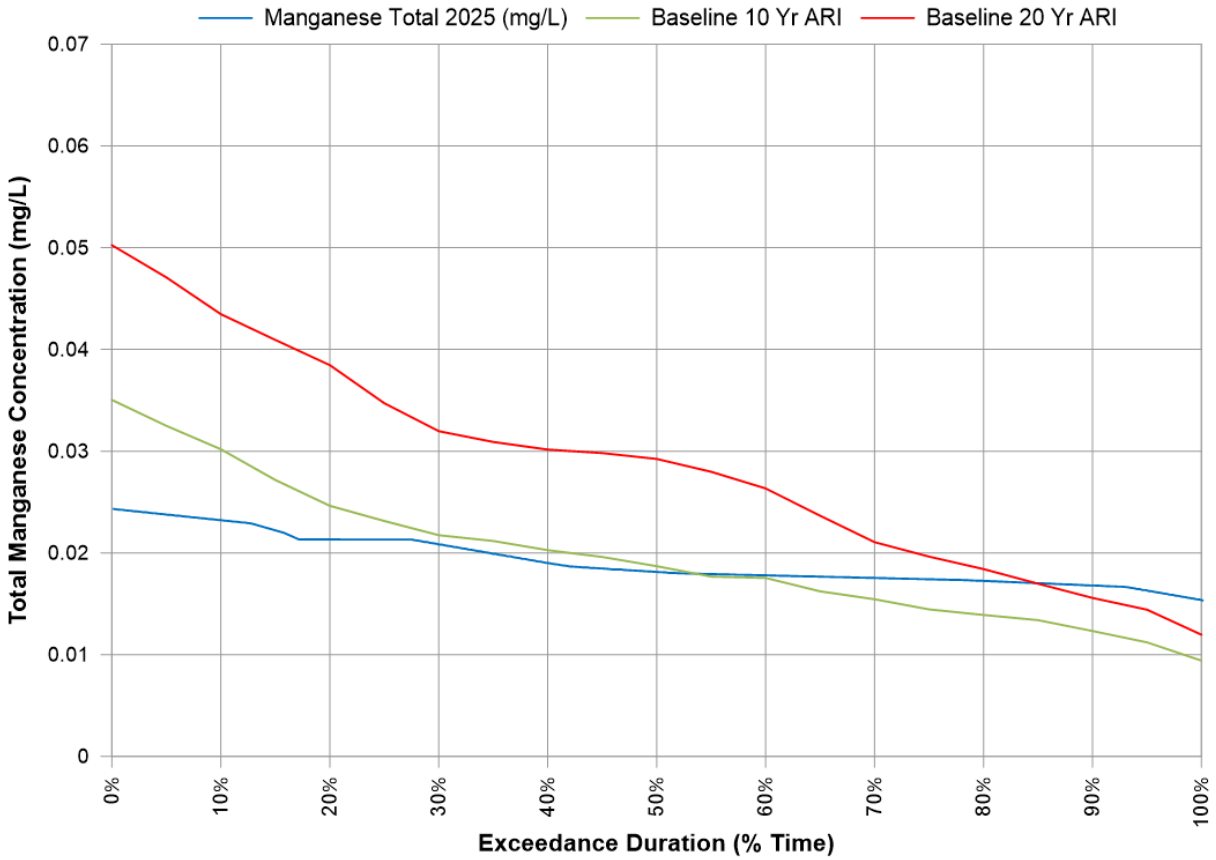


Chart 64 Total Manganese Performance Indicator Woronora Reservoir 2025

Total iron exceeded the baseline 10 Year ARI exceedance curve for 95% of the reporting period and exceeded the baseline 20 Year ARI exceedance curve for approximately 85% of the reporting period (Chart 62). Total aluminium exceeded the baseline 10 Year and 20 Year ARI exceedance curves for 100% of the reporting period (Chart 63). Total manganese exceeded the baseline 10 Year exceedance curve for 45% of the reporting period and marginally exceeded the baseline 20 Year ARI exceedance curve for approximately 15% of the reporting period (Chart 64). The results for total iron and total aluminium equate to a TARP Level 3 significance and for total manganese equate to TARP Level 2 significance.

In accordance with the Longwalls 311-316 Water Management Plan, an assessment against the Performance Measure was completed by ATC Williams and is provided in Appendix B. The assessment concluded that the performance measure, *Negligible reduction in the water quality of Woronora Reservoir,* has not been exceeded.

The elevated concentration of total aluminium at site DW01 in the Woronora Reservoir is unlikely to be related to mining activities and more likely to be related to elevated concentrations in surface water system inflows from catchments that are outside of the potential influence of mining during and following a period of substantial rainfall. The elevated concentrations of total iron and manganese at site DW01 are likely to be partly related to the elevated concentrations of the respective metal inflows from the Eastern Tributary. Although inflows from the Eastern Tributary are subject to potential mining influences, it should be noted that dissolved iron and manganese concentrations in inflow from the Eastern Tributary were also elevated at similar levels in 2019, with no significant increase in total iron or manganese concentrations in the Woronora Reservoir at this time.

The Project EA, Preferred Project Report and Metropolitan Coal Water Management Plans predicted the Project would not impact on the performance of the Woronora Reservoir and would have a neutral effect on water quality. The water quality monitoring results are consistent with the predictions.

6.2.6 Swamp Groundwater Levels

Groundwater monitoring of upland swamps has involved the use, where practicable, of paired piezometers, one in the swamp substrate (at approximately 1 m depth) and one in the underlying sandstone (at a depth of approximately 10 m) (Figure 9). Data shows that water levels within the swamps over longwalls are typically perched above those of the local Hawkesbury Sandstone groundwater levels and indicates a separate control on swamp water levels. That is, the swamps are primarily surface water fed systems and generally water infiltrates downwards from the swamps to the groundwater.

Swamp substrate water levels at Swamps 14, 40, 41, 46, 50, 51, 52, 53, 62, 71a, 72, 74, 75, 76-1, 76-2, 76-3, 77-1, 77-2, 81, 82, 89, 92-1, 92-2, 92-3, 101, 106, 113, 115, 119, 137a, 137b and Bee Creek Swamp are used to assess the impact on threatened species, populations, or ecological communities in accordance with the Longwalls 311-316 Biodiversity Management Plan. With the commencement of mining of Longwall 311 in October 2024, swamp substrate levels in the period January to December 2025, are assessed against the TARP for Longwalls 311-316 Biodiversity Management Plan. The swamp substrate water levels are assessed against the following upland swamp groundwater performance indicator:

> *Subsidence impacts are not expected to result in measurable changes to swamp groundwater levels when compared to control swamps or seasonal variations in water levels experienced by upland swamps prior to mining*

Swamp Monitoring for Longwalls 20-27

Paired piezometers have been monitored in Swamp 25 overlying Longwalls 20-22, Swamps 28, 30, 33 and 35 overlying Longwalls 23-27, and in control swamps 101, 137a, 137b and Bee Creek Swamp (Figure 9). At Swamp 20 (overlying Longwall 21) and at control swamp Woronora River Swamp 1 , multiple piezometers have been monitored (i.e. one swamp substrate piezometer to a depth of approximately 0.9 m and two sandstone piezometers to depths of approximately 4 and 10 m) (Figure 9).

The Longwalls 305-307 Biodiversity Management Plan upland swamp groundwater performance indicator was exceeded at Swamp 20 since 2012 and at Swamp 28 since 2016 indicating a mining impact at these two swamps. As part of the Longwalls 311-316 Biodiversity Management Plans, no trigger is assigned to either Swamp 20 or Swamp 28 due to these swamps previously having been impacted by mining. These swamps are no longer assessed against performance criterion, however, are assessed every second year by relevant specialists.

Swamp 20

The upland swamp groundwater performance indicator has been exceeded at Swamp 20 since 2012. Swamp 20 substrate water levels changed from being permanently saturated to being periodically saturated as a result of the passing of Longwall 21 (Appendix C). There is a very strong correlation with rainfall trends at Swamp 20 and control swamp Woronora River Swamp 1 over the period of record. As the rate of decline in the two piezometers is similar between 2013 and 2016 but different in 2012, it is likely that Longwall 21 caused a mining effect at Swamp 20, but the effects have not been exacerbated by Longwalls 22-27 or Longwalls 301-306 (Appendix C).

In 2018 and 2019, both swamps reported water levels at the base of the substrate dataloggers for the full period apart from the short period of saturation recorded in Swamp 20 in September 2019. Both swamps increased in water levels after the large rain event in February 2020. However, following rainfall events throughout 2020, 2021 and 2022, Swamp 20 exhibited a decrease in groundwater levels whereas the WRSWAMP1 water levels remained at near-saturated levels.

In 2023, both swamps water levels were concordant with rainfall, both experiencing upward trends due to January to April rainfall, with downward trends during dryer months. However, Swamp 20 still displayed more rapid drawdowns than that exhibited in WRSWAMP1 and dropped to sensor level between July and November 2023. Even though control swamp WRSWAMP1 does not show low level of saturation, other control swamps (Swamps 101, 137a, 137b) showed low level of saturation in late 2023, hence the low water level in Swamp 20 is deemed natural.

In 2024, the water levels in Swamp 20 and WRSWAMP1 showed similar trends, with Swamp 20 showing a more pronounced response to the weather conditions.

During 2025, there were fluctuations in water levels in line with climatic conditions until November when a lower rainfall period caused a decrease in the water level in Swamp 20.

Swamp 28

A potential mining effect to the substrate water levels of Swamp 28 (overlying Longwall 24) was identified in 2016 based on the incomplete recovery of substrate water levels following rainfall events (Appendix C). At the time, Swamp 28 was considered to have an impact from mining of Longwall 25, although no effect on swamp substrate water levels occurred when Longwall 24 passed directly beneath the monitoring site (Appendix C)

The substrate piezometer at Swamp 28 returned to dry conditions from September 2017, remaining so until a rainfall event in February 2020, where the Swamp 28 substrate piezometer was re-saturated, returning to a saturation and recession pattern as observed prior to the drought. This behaviour was also observed at the two control swamp piezometers (Swamps 137a and 137b). The substrate piezometer at Swamp 28 indicated saturated conditions until December 2020.

Groundwater levels were intermittently saturated throughout 2021. Groundwater levels responded to rainfall events towards the end of 2021 in both Swamp 28 and the controls swamps. Over 2022, the substrate was permanently saturated with groundwater levels constantly about 1 m above the sensor level in the first half of 2022, decreasing to 0.5 m by the end of the 2022.

In 2023, water levels in all sensors increased and then declined following weather conditions and remained at the sensor level towards the end of the year. In the first half of 2024, water levels generally increased to near saturation, with a brief decrease observed in March 2024. Compared to the water levels in two control swamps, Swamp 28 displayed a similar trend but showed less responsiveness.

In the first half of 2024, the water level recovered to previously recorded levels after a number of rainfall events. In the second half, water levels showed a general decreasing trend. Similarly, early 2025 saw a gradual water level increase in both substrate and deep piezometers to approximately 247 m RL and 244 mRL, respectively. This was followed by a decline and return to previous levels between October and December 2025.

An investigation by ATC Williams (2025) included a comparative assessment of upland swamps where groundwater levels have been monitored, focusing on substrate water level recession rates. This analysis compared Swamp 28 with control Swamp 137B and found that, despite previously documented impacts to the upper Hawkesbury Sandstone in the vicinity of Swamp 28, there was no material change in the rate of substrate water level recession at Swamp 28 before and after 2015.

Long-term substrate water level trends at Swamp 28 were found to be consistent with those observed at control Swamp 137B across the period of record. Observed fluctuations in substrate water levels at both sites were considered to be driven by rainfall variability rather than mining related effects. Accordingly, as of 31 December 2025, it is considered that there is a negligible impact to the substrate water level at Swamp 28

Swamps Monitoring for Longwalls 301-304

Paired piezometers (i.e. one swamp substrate piezometer and one sandstone piezometer) have been monitored in Swamps 40, 41, 46, 50, 51, 52 and 53 overlying Longwalls 301-304 (Figure 9). As indicated in Section 4.1, Longwall 303 was completed on 2 June 2019 and the extraction of Longwall 304 commenced on 27 July 2019 and was completed on 28 January 2020.

The swamp substrate hydrographs for Swamps 40, 41, 46, 50, 51, 52 and 53 indicate that the correlation of swamp substrate with the rainfall trend is strong (Appendix C). Data analysis for the reporting period indicates the seven-day moving average for all swamps was at or above the minimum established for the swamp's length of record (Appendix C).

Between October 2019 and January 2020, the Swamp 50 shallow sandstone (10 m) piezometer displayed a pronounced decline in water level coinciding with the passage of Longwall 304. After February 2020, groundwater levels have increased in response to increased regional rainfall; however, the maximum recorded groundwater levels during this period are approximately 3 m below those recorded prior to the passage of Longwall 304. This is an apparent mining effect considered to be related to mine subsidence to the Swamp 50 shallow sandstone (10 m) piezometer. The Swamp 50 performance indicator relates to the substrate piezometer and not the shallow sandstone (10 m) piezometer. Since February 2020, the substrate piezometer has generally remained saturated, excluding short-term groundwater declines during low rainfall periods. The substrate piezometer displayed correlation with rainfall throughout the reporting period, with water levels initially decreasing to above or at the sensor level, followed by some recovery in response to weather conditions. The seven-day moving average for Swamp 50 was at or above the minimum the minimum established for the swamp's full length of record, during the reporting period.

Swamps Monitoring for Longwalls 305-307

Paired piezometers (i.e. one swamp substrate piezometer and one sandstone piezometer) have been monitored in Swamps 71a and 72, relating to Longwalls 305-307 (Figure 9). Mining of Longwall 305 commenced on 12 April 2020 and ceased on 21 November 2020. Mining of Longwall 306 commenced extraction on 15 June 2022 and was completed in March 2022. Mining of Longwall 307 commenced on 22 April 2022 and was completed on 21 November 2022.

Semi-quantitative comparisons of the swamp substrate water levels of Swamps 71a and 72 with control swamps and rainfall records during the reporting period do not show a definitive mining effect and the dry conditions are regarded as a natural response to reduced rainfall (Appendix C).

Swamps Monitoring for Longwalls 308-310

Paired piezometers (i.e. one swamp substrate piezometer and one sandstone piezometer) have been monitored in Swamps 62, 64 and 92-2 and individual swamp substrate piezometers (i.e. one piezometer to a depth of approximately 1 m) have been monitored in Swamps 82, 92-1 and 92-3, relating to Longwalls 308-310 (Figure 9). Mining of Longwall 308 commenced on 12 December 2022 and ceased on 7 July 2023. Mining of Longwall 309 commenced on 28 July 2023 and ceased on 26 February 2024. Mining of Longwall 310 commenced on 22 March 2024 and ceased on 2 October 2024.

Data analysis for the reporting period indicates the seven-day moving average for all swamps was at or above the minimum established for the swamp's length of record (Appendix C).

The key potential subsidence impacts and environmental consequences on perched groundwater systems described in the Project EA, Preferred Project Report and Metropolitan Coal Water Management Plans and Biodiversity Management Plans, included:

- Any cracking of the bedrock within upland swamps is expected to be isolated and of a minor nature, due to the relatively low magnitudes of the predicted strains and the relatively high depths of cover.
- Surface cracking resulting from mine subsidence within the upland swamps is not expected to result in an increase in the vertical movement of water from the perched water table into the regional aquifer as the sandstone bedrock is massive in structure and permeability decreases with depth.
- It is expected that any surface cracking that may occur would be superficial in nature (i.e. would be relatively shallow) and would terminate within the unsaturated part of the low permeability sandstone. Any changes in swamp water levels as a result of cracking are expected to be immeasurable when compared to the scale of seasonal and even individual rainfall event based changes in swamp groundwater levels.
- Whilst swamp grades vary naturally, the predicted maximum mining-induced tilts are generally orders of magnitude lower than the existing natural grades within the swamps. The predicted tilts would not have any significant effect on the localised or overall gradient of the swamps or the flow of water. Any minor mining-induced tilting of the scale and nature predicted is not expected to significantly increase lateral surface water movements which are small in relation to the other components in the swamp water balance.

No change to the fundamental surface hydrological processes and upland swamp vegetation were expected within upland swamps associated with Longwalls 301-310.

In relation to impacts of the Project on upland swamps, the NSW Planning Assessment Commission (2009) concluded that the mining parameters were such that:

- for most swamps in the Project Area, there was low risk of negative environmental consequences; and
- that there was a very low risk that a significant number of swamps would suffer such consequences.

While the water lost from Swamp 20 and Swamp 28 was retained in the unsaturated sandstone above the regional water table, the changes in swamp water levels as a result of cracking are measurable when compared to seasonal individual rainfall event-based changes in swamp groundwater levels. There is currently no sign that the vegetation in Swamp 20 is being impacted by the changed hydrological conditions, however, the vegetation monitoring results suggest that the changes in vegetation occurring in Swamp 28 were significantly different to changes in the control swamps from autumn 2017 to spring 2019.

Swamps Monitoring for Longwalls 311-316

Individual swamp substrate piezometers (i.e. one piezometer to a depth of approximately 1 m) have been monitored in Swamps 81 and 89 relating to Longwalls 311-316. Mining of Longwall 311 commenced on 21 October 2024 and was completed on 6 June 2025. Longwall 312 commenced in August 2025 and continued through the remainder of the reporting period.

The visual comparison against control swamps shows that Swamp 89 remains unaffected by mining. The substrate in Swamp 89 showed a similar water level trend to the control swamps in response to rainfall events. However, Swamp 89 has experienced a narrower range of groundwater level changes and is dry less frequently compared to the control swamps.

Large Swamps

Individual swamp substrate piezometers (i.e. one piezometer to a depth of approximately 1 m) have been monitored in the upstream and downstream section and a paired piezometer (i.e. one swamp substrate piezometer and one sandstone piezometer) in the mid-section of Swamps 76, 77 and 92 since November 2020. Sandstone piezometers were installed in the in the upstream and downstream sections of Swamps 76 and 77 (where the substrate piezometers are located) in August 2024.

Sandstone piezometers are planned to be installed in two locations where swamp substrate piezometers are located in Swamp 92 as soon as possible, subject to suitable weather and access.

The visual comparison for the Large Swamps with their respective control swamps shows that all the Large Swamps remain unaffected by mining. All Large Swamps displayed similar water level trend to the control swamps, in response to the rainfall events. However, Swamps 92-1, and 92-3 have seen a narrower range of groundwater level change and are dry less frequently compared to the control swamps. Swamps 76-2, 76-3, and 77-3 dried for longer period compared to the control swamps (Appendix C).

All Large Swamps, excluding Swamp 76-2, equate to a TARP Level 1 significance level, as their minimums over the reporting period were above the baseline minimum (Appendix C).

Swamp 76-2 was classified as TARP Level 2, as the seven-day average minimum substrate water level over the reporting period was at the BMP (baseline) minimum and the associated deep piezometer water level is below the 10th percentile of the baseline. The semi-quantitative analysis showed that Swamp 76-2 has a higher degree of variability and saturation than the control swamps (Appendix C). The results showed that the baseline and impact recession-recovery curves show the same pattern, which indicates that there is no change in the swamp dynamics.

6.2.7 Shallow Groundwater Levels

Shallow Groundwater Level Sites near Streams

Continuous water level monitoring of shallow groundwater levels has been conducted at sites WRGW1, WRGW2, WRGW3, WRGW5, WRGW6 and WRGW7 along Waratah Rivulet and sites ETGW1[6] and ETGW2 on the Eastern Tributary (Figure 10). Additional water level monitoring of shallow groundwater levels has been conducted at sites ETO1, ETO2, ETO3 and ETO4 adjacent to Pool ETO on the Eastern Tributary.

At the time of passage of the Longwall 21 mining face past the piezometer sites WRGW1 and WRGW2 on the Waratah Rivulet (March 2012), the measured groundwater levels dropped by approximately 1 m (Chart 65). As wet conditions prevailed at the time, this was not a climatic effect. Since March 2012, groundwater levels recorded at sites WRGW1 and WRGW2 have fluctuated in response to seasonal rainfall variations with a seasonal (dry) minimum that is approximately 0.75 m below previous levels (Chart 65 and Appendix C). From January to June 2018 the rainfall residual mass continued to decline and water levels at WRGW1 and WRGW2 spiked following rainfall in March 2018. From July 2018, the water level trend followed the rainfall residual mass trend, declining from July to September 2018 and increasing from October to December 2018. During January to June 2019, the water level correlated with daily rainfall, including a large spike following the March rainfall event, and generally correlated with the residual mass curve except for January and February, when following rainfall in December 2018 the water level increased while the monthly rainfall was below average. The water levels have not returned to pre-March 2012 levels.

[6] Site ETGW1 was unable to be sampled since August 2017.

The groundwater level trends at both sites continued to be concordant with rainfall throughout the 2025 reporting period with rapid response to rainfall events and sharp spikes associated with runoff events, indicating interaction with the Waratah Rivulet. WRGW2 was observed to have a more rapid drawdown than WRGW1 around May 2023. Since that time, the difference between the groundwater levels at these locations has remained larger than historically, however this is a small change. In 2024 and through the 2025 reporting period, these sites maintained this groundwater level separation and produced generally stable results with fluctuations attributed to changing climatic conditions.

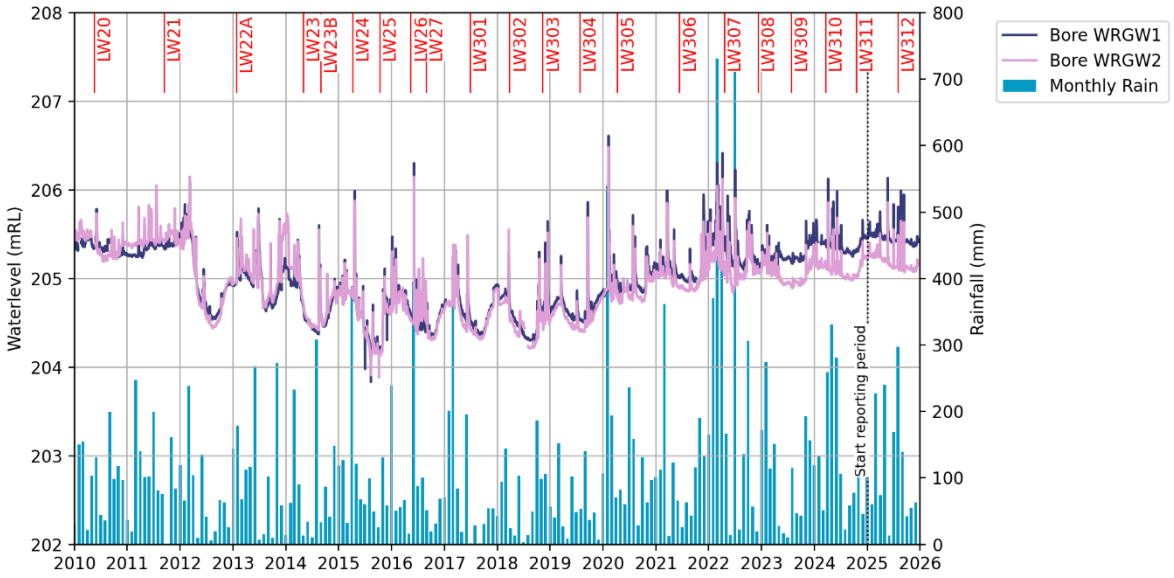


Chart 65 Shallow Groundwater Hydrographs on Waratah Rivulet at WRGW1 and WRGW2

Since December 2015, water level monitoring at WRGW3, WRGW5 and WRGW6 has generally been stable in response to rainfall events (Chart 66 and 67). Substantial water level drawdown in WRGW3 occurred in January and February 2018, followed by rapid recovery in March 2018 after rainfall events. Similar to WRGW3, water levels in WRGW5 and WRGW6 showed a substantial decrease starting in December 2017, with a recovery to pre-decrease levels by March 2018. However, both WRGW5 and WRGW6 exhibited a greater response, with the decrease being approximately 2 m. Similarly in 2024, all three sites exhibited a gradual decrease in water level occurring in July and August, subsequently followed by recharging during wet periods. During the reporting period, groundwater level remained mostly stable with short-scale fluctuations due to significant rainfall events.

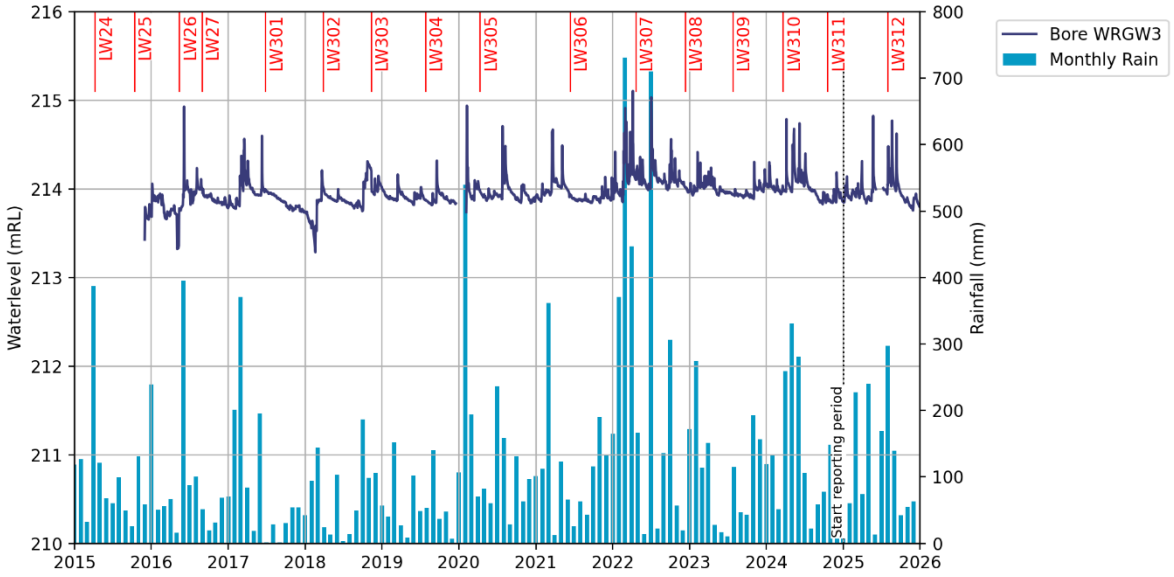


Chart 66 Shallow groundwater hydrograph on Waratah Rivulet at WRGW3

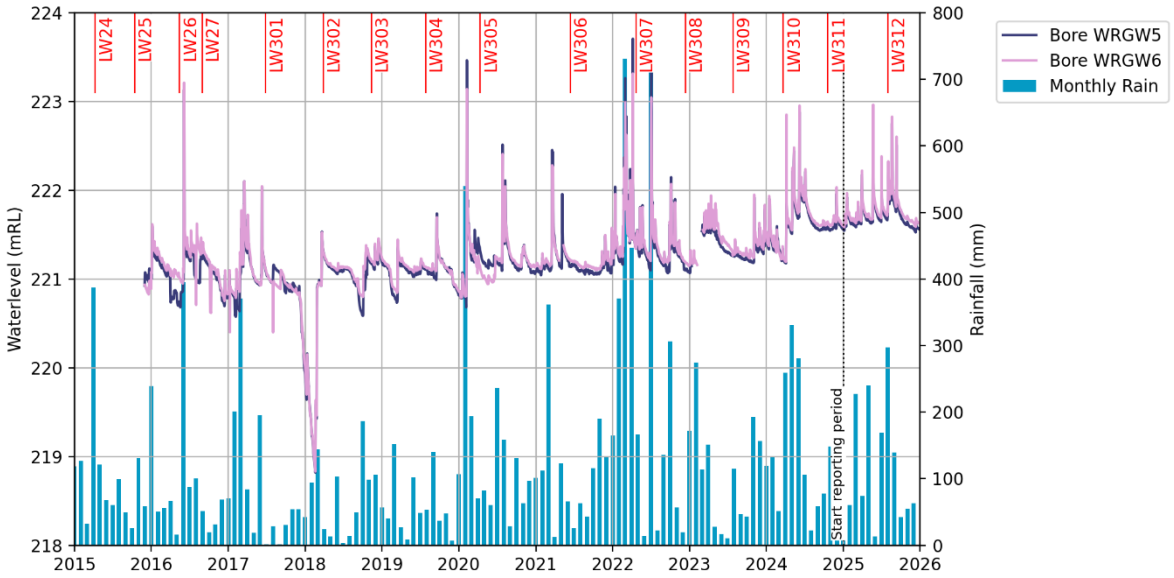


Chart 67 Shallow groundwater hydrograph on Waratah Rivulet at WRGW5 and WRGW6

Similar to the previous reporting periods, site WRGW7 remains unaffected by mining. During this reporting period, groundwater levels remained stable with similar reactivity to rainfall events as in previous years (Chart 68, and Appendix C).

At the Eastern Tributary sites ETGW1 and ETGW2, shallow groundwater levels have previously followed the rainfall trends closely (Chart 69) and have continued to show a close correlation during the reporting period. The variations at these sites are unrelated to mining (Appendix C). Reservoir water levels also respond to rainfall with a similar pattern. A groundwater hydraulic gradient was maintained towards the reservoir because the groundwater levels were at least 2 to 3 m higher than the reservoir levels, which were observed to be approximately 169 metres Australian Height Datum (mAHD) at the end of 2022 (Appendix C). Bore ETGW1 previously sheared, but water level logger data was still retrievable. Since July 2021, the water level measurements are now unavailable. As the two bores have always provided equivalent information, there is no need to replace ETGW1. The water levels in ETGW2 declined by approximately 3 m (to 167 mAHD) and then stopped recording in January 2023. The reason for this is unknown.

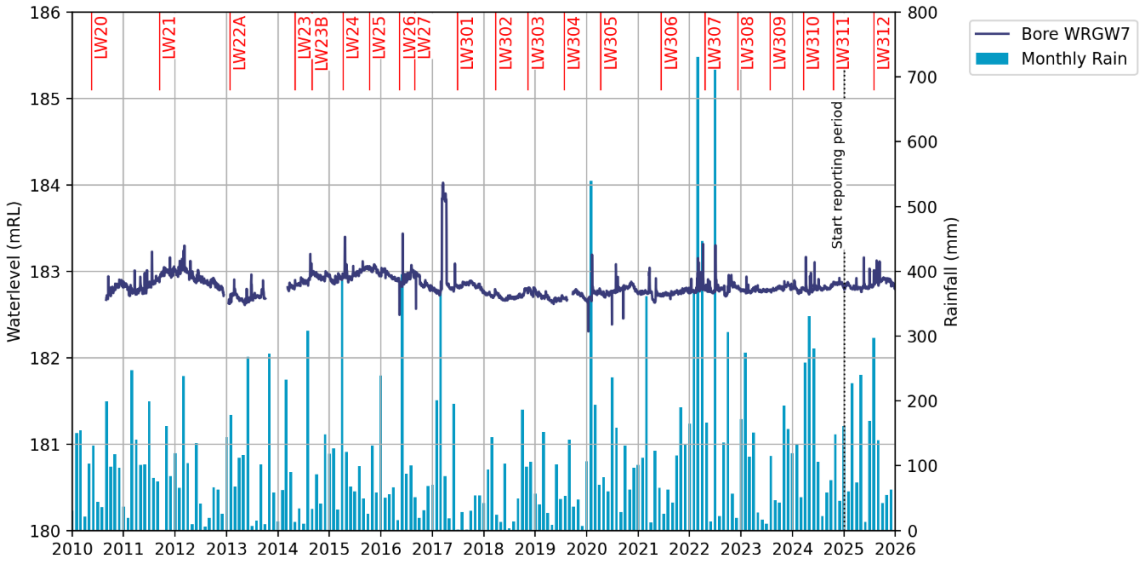


Chart 68 Shallow Groundwater Hydrograph on Waratah Rivulet at WRGW7

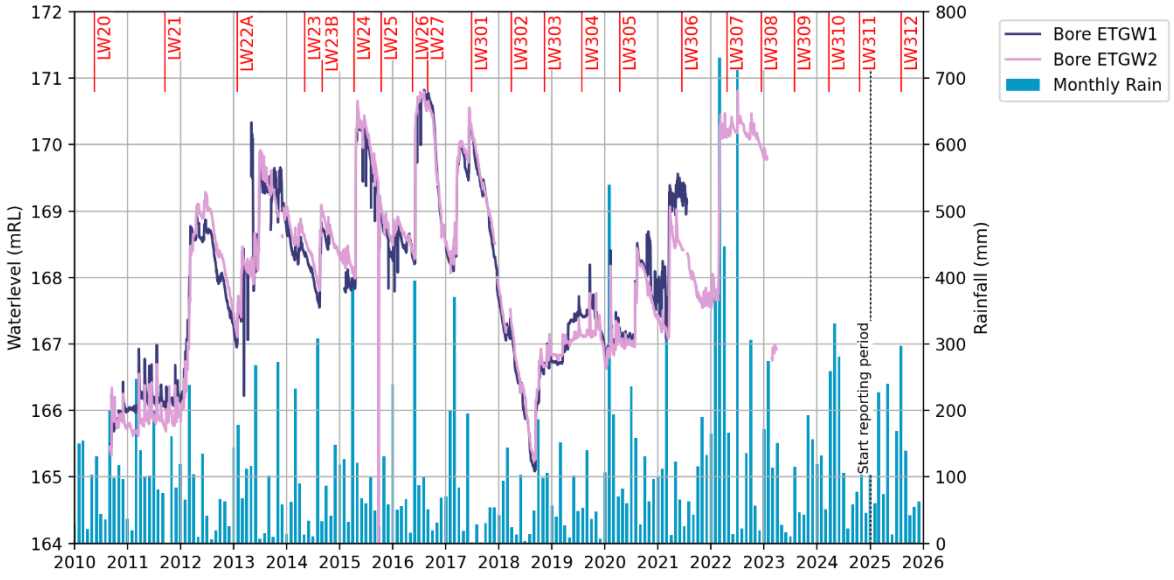


Chart 69 Shallow Groundwater Hydrographs on Eastern Tributary at ETGW1 and ETGW2

Chart 72 shows water levels at ETO1 to ETO4. All bores started monitoring in May 2019. The groundwater levels in all bores showed a similar trend in response to rainfall events. Bore ETO1 had a similar water level to ETO3 and ETO4 until early 2020, after which ETO1 showed a slightly greater decrease in water level compared to ETO3 and ETO4. Since then, the water level in ETO1 has been slightly lower than in ETO3 and ETO4, with the difference gradually increasing over the years. Although the water level in ETO2 started at a similar level to the other bores, it showed less response to rainfall events compared to the others. By December 2024, there was an approximate 1.4 m difference between the water levels in ETO2 and those in ETO3 and ETO4. During this reporting period, groundwater levels remained stable with fluctuations attributable to significant rainfall events.

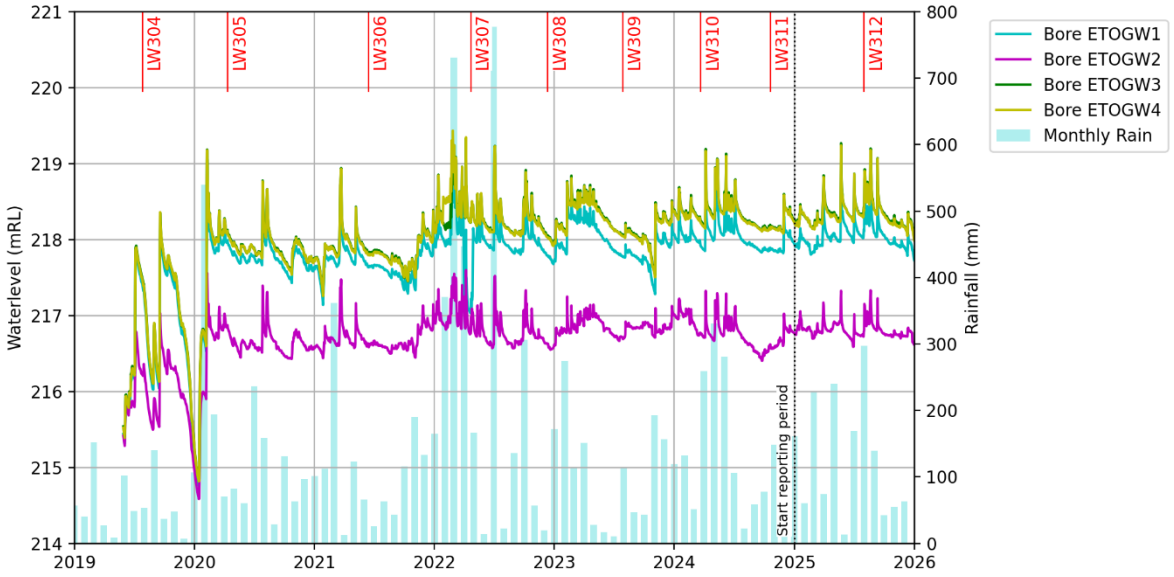


Chart 70 Shallow Groundwater Hydrographs on Eastern Tributary at ETO1, ETO2, ETO3 and ETO4.

Shallow Groundwater Transect

Continuous groundwater level monitoring has also been conducted at an approximately east-west transect of bores (sites T1, T2, T3, T4, T5 and T6) located above Longwalls 305-307 (T1-T5) and to the west on the other side of Woronora reservoir (T6) located above the chain pillar between Longwalls 309 and 310. The water levels of the six bores, the Woronora Reservoir Level (WRL) and the monthly rainfall are shown in Chart 71.

Bore T1, the closest of the five bores to Woronora Reservoir, has almost identical water levels to those measured in the reservoir, until an old weir across the rivulet is exposed at low water levels. In that case, T1 water levels were maintained a little below the water level in the weir pool, but above the WRL until the end of the reporting period (Appendix C).

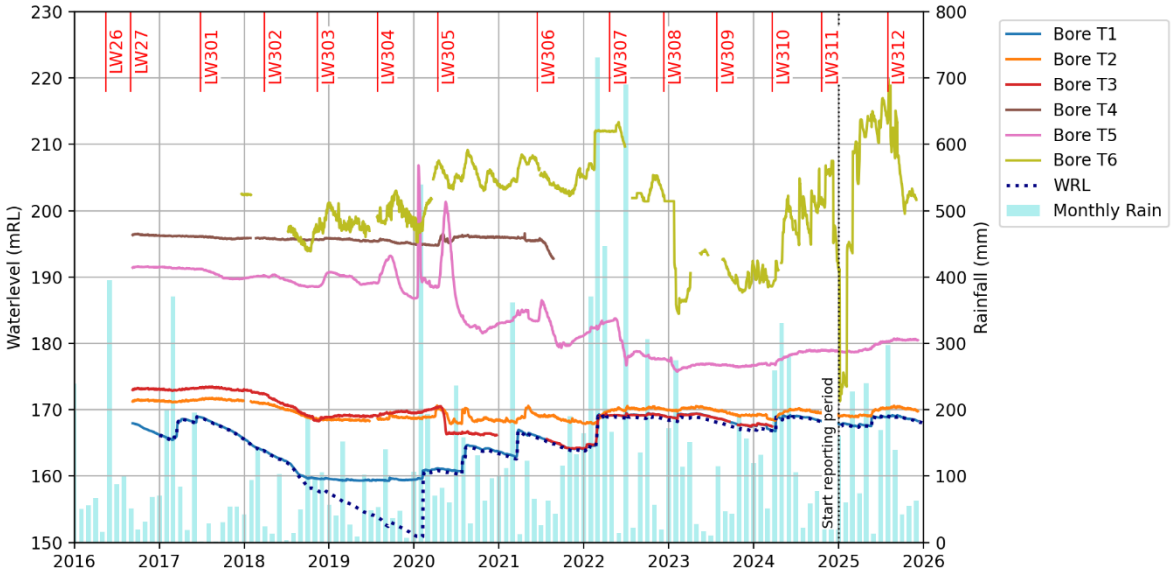


Chart 71 Groundwater Level in Bores T1 to T6

Bore T2 has shown fairly stable water levels, with limited response to the rainfall events over 2022. The water levels showed a slight continual increase in early 2022, before stabilising at approximately 170 mAHD over late 2022 and into this reporting period. The hydraulic gradient was maintained from T2 towards T1 and the reservoir for most of 2024, except in early April 2024, when the WRL rose quickly in response to a large rainfall event, but T2 groundwater displayed a lagged response to this rainfall event. (Appendix C).

Bore T3 has been dry since May 2020 until it ceased recording in December 2020. The bore has been replaced by a redrilled bore T3-R in May 2021, approximately 10 m to the north of the original T3 location. The redrilled bore is around 20 m deeper than the original bore. The current observations show a reflection of the reservoir (and T1) water levels. From 24 March 2024 onwards, water level data was lost in T3-R. Site personnel subsequently investigated this data loss, but data could not be recovered (Appendix C).

Bore T4 stopped working in August 2021 after a sharp decline in water levels after the passage of Longwall 306. Prior to this, bore T4 was anomalous, as its head was higher than the head at upgradient site T5. This is unlikely to be a groundwater divide as it is not related to the topographic ridge well upgradient. The sharp decline in groundwater levels in July 2021 occurred after the passage of Longwall 306. Given that the bore is located in the footprint of Longwall 306, this decline is interpreted as a mining effect. As T4 has never provided meaningful information, there is no need to reinstate this bore (Appendix C).

In the first half of 2020, the water levels at T5 showed a high variability. The water level increased by 15 m in early January 2020 and decreased in late January 2020. This spike in water level was unrelated to the large rainfall event in February 2020. Since April 2020 (after Longwall 305 started), the water levels increased again, this time over a longer period and have again decreased. The second spike is reflected in the observations for T4, which shows a lower rise and fall at the same time. The broad rises in T5 water levels in 2019 and 2020 are compressive effects associated with the passage of Longwalls 304 and 305, respectively. After the passage of Longwall 306, the water levels at T5 showed another decrease to 180 mAHD, before stabilising at that level in the last quarter of 2021. In early 2022, water levels increased in the first half before decreasing from May 2022 onwards, after the passage of Longwall 307. This is indicative of a mining effect associated with shallow tensile cracking above the eastern edge of the longwall panel. Although there appears to be a permanent lowering of the water table at this site due to mining, a positive hydraulic gradient towards the reservoir is maintained and the water levels in T5 have been stable since 2023, continuing on into 2024 with a slight upward trend.

During late 2024, water levels in T5 maintained around 178.8 mAHD. During this reporting period, T5 groundwater levels steadily increased to approximately 180 mAHD (Appendix C).

Bore T6 lies on the western side of Woronora Reservoir at a higher elevation than the eastern transect. Unlike the eastern bores T1 to T5, it responds readily to rainfall recharge and its dynamics closely correlate with the rainfall trends. Since January 2023, the water level rapidly decreased, independent of the high rainfall during this time period. The decrease correlates to the passing of Longwall 308, which lies 200 m east of T6. In July 2023, another decrease in groundwater level was seen. No decrease was seen upon passing of Longwall 309 or Longwall 310. Although there appears to be a lowering of the water table at this site due to mining at Longwall 308, a positive hydraulic gradient towards the reservoir is maintained. Until December 2024, groundwater levels at the bore had increased by approximately 10 m and had recovered to levels comparable to those observed in 2018–2020 (Appendix C). The water level then suddenly dropped from about 207.5 metres Relative Level (mRL) to 171.3 mAHD between 9 December 2024 and 7 January 2025. This occurred approximately one and a half months after the commencement of Longwall 311 on 20 October 2024. The water level subsequently recovered rapidly to pre-decline conditions following a few rainfall events, rising to approximately 208.9 mRL by March 2025. Following this recovery, water levels briefly increased by a further approximately 10 m by August 2025, specifically after the rainfall in June and July 2025. A second groundwater level decrease of approximately 20 m was observed between 12 August 2025 and 13 October 2025. This occurred after the commencement of Longwall 312 on 1 August 2025. The water level then briefly increased again by approximately 4 m by December 2025.

Assessments against the performance indicators specified in the Longwalls 311-316 Water Management Plan for the transect bores are presented in Appendix C.

The hydraulic gradient at transect bores T2, T3 and T5 has been assessed against the performance indicators below in accordance with the Longwalls 311-316 Water Management Plan:

> *The hydraulic gradient from transect bore T5 to bore T2 does not reduce outside the range seen during the baseline period (baseline period between 21 December 2022 to 29 February 2024).*
>
> *The hydraulic gradient from transect bore T2 to the Woronora Reservoir remains positive (towards the Reservoir).*

The performance indicator is designed to provide an early warning for the assessment of negligible leakage from the Woronora Reservoir. Leakage from the Woronora Reservoir to the surrounding groundwater environment would occur if there were a reversal of hydraulic gradient (i.e. when the water table in surrounding piezometers is below the water level in the Woronora Reservoir).

The hydraulic gradient from transect bore T5 to transect bore T2 over the reporting period is presented on Chart 72. The T3 logger stopped working and was subsequently replaced by a logger in bore T3-R in May 2021, with reliable data being made available from 28 June 2021. Since the installation of T3-R in May 2021, the performance indicator is at Level 3. T5 has shown large changes in water level, occasioned by proximity to Longwalls 304, 305, 306, and 307 as mining passed nearby. From 24 March 2024 onwards, water level data was lost in T3-R. Investigation into this data loss was subsequently carried out but no data could not be recovered. Note, at the time of data loss, the hydraulic gradient between T5 and T2 was increasing, with a steady increase seen since early 2023.

The hydraulic gradient from transect bore T5 to transect bore T2 over the reporting period was compared to the relevant trigger level in the TARP for no connective cracking between the surface and the mine and negligible leakage from Woronora Reservoir. The hydraulic gradient from T5 to T2 remains within TARP Level 1 for this criterion for the entire reporting period (Chart 72).

The hydraulic gradient from transect bore T2 to the Woronora Reservoir is shown in Chart 73. In early 2024, T2 was in the TARP Level 2 due to T2 - Woronora Reservoir Level <= 0 m but T2 shows a lagged response to changes in Woronora Reservoir Level. During this reporting period, T2 remained within Level 1 for this criterion (Chart 73).

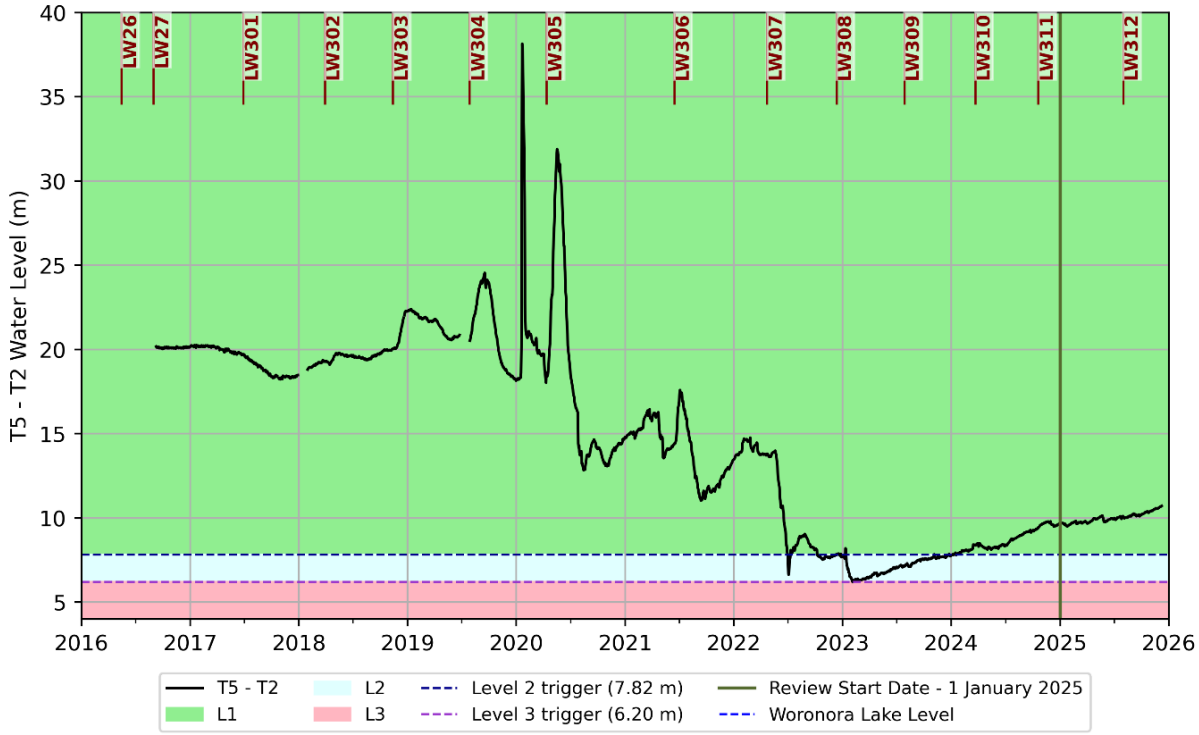


Chart 72 Hydraulic Gradient Measured from Bore T5 to T2

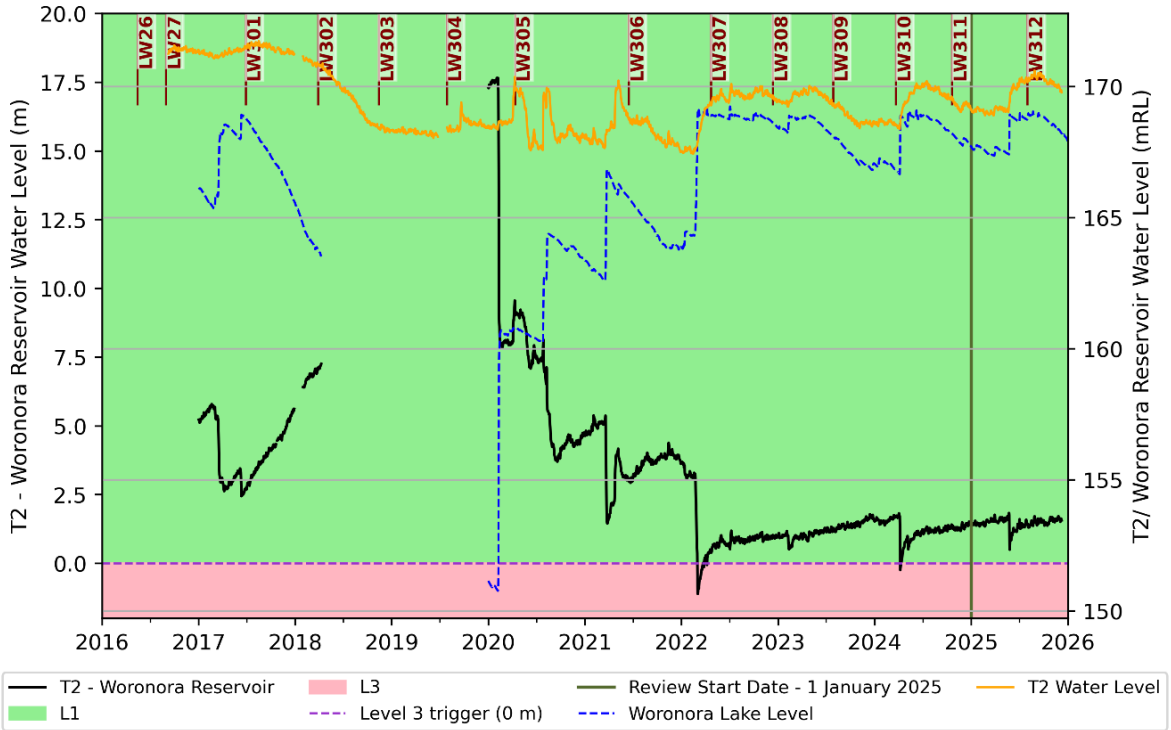


Chart 73 Hydraulic Gradient Measured from Bore T2 to Woronora Reservoir

6.2.8 Deep Groundwater Levels

Immediately above a mined coal seam, rocks collapse into the void created by the removal of coal to form a caved zone and a fractured zone develops above the caved zone. This causes aquifer properties to change (e.g. permeability and porosity) and results in a higher vertical permeability as a result of mining.

A three-dimensional numerical model of groundwater flow was developed in 2008 for the Project EA. The groundwater model was recalibrated in December 2012 for the Preferred Project Layout by revising the hydraulic conductivities in the Hawkesbury Sandstone and the Bald Hill Claystone. At this time, two extra layers were added to the Hawkesbury Sandstone section to improve resolution of the vertical hydraulic gradient in the shallow groundwater system. The model simulations are based on initial conditions at the end of Longwall 14, consistent with the Project EA assessment (Heritage Computing, 2008).

Transient calibration was undertaken to incorporate Metropolitan Coal updates to the geological model. The revised model includes an update of the topographical surface and geological interfaces, the addition of two model layers below the Bulli Seam and updated estimates of the fractured zone height. A report for the updated model has been prepared (HydroSimulations, 2018a) and this model has been used for the assessment of Longwall 304 and Longwalls 305-307.

In 2020, and consistent with the recommendations of the Woronora Reservoir Impact Strategy (WRIS) Panel Stage 2 Report (Hebblewhite *et al*., 2019), the groundwater model was updated to include the incorporation of 'stacked drains' to represent the fractured zone instead of using enhanced hydraulic conductivity and storage properties. A calibration report for the updated model was prepared by SLR (2020), which was used for the assessment of Longwalls 308-310.

In December 2020, Metropolitan Coal commissioned Dr Justin Bell (JBS&G) to undertake a peer review of the calibration report for the updated model (SLR Consulting, 2020). Although the peer review was focussed around the incorporation of stacked drains, Dr Bell reviewed the complete groundwater model as described in the calibration report. Dr Bell concluded that "*the current approach to the groundwater model is 'fit-for-purpose', as per the definition of the NSW Aquifer Interference Policy"*.

6.2.8.1 Time Series Head Variations and Vertical Head Differences

Continuous deep groundwater level monitoring is conducted at bores 9HGW0 (Longwall 10 Goaf Hole), 9EGW1B, 9FGW1A, 9GGW1-3, 9GGW1-80, 9GGW2B, 9HGW1B, PM02, PM01, 9EGW2A, 9EGW2-4, S1997, PM03, PHGW1B, PHGW2A, LW305-Goaf, F6GW3A, F6GW4A, F6GW4D, TBS02, TBS03 (Figure 10) in accordance with the Longwalls 311-316 Water Management Plan. The time-series head variations and vertical head differences for these bores have been examined (Appendix C).

The time-series head variations and vertical head differences for these bores have been examined, with the following outcomes:

- sites close to current mining show significant depressurisation with depth, consistent with the Project EA (HCPL, 2008); and
- sites close to old workings at Helensburgh show substantial depressurisation with depth, consistent with the Project EA.

Of those monitoring sites mentioned above, the following bores are located within 600 m from Longwalls 311-316 secondary extraction: bores 9EGW2A, 9EGW2-4, PM01 and PM02. Located outside of that area, but still in proximity is bore 9EGW1B (Figure 10 and Appendix C).

Bore F6GW4A

Bore F6GW4A overlies the chain pillars between Longwalls 303 and 304. The time-series record for bore F6GW4A is shown on Chart 74. This bore is two panel widths from Longwall 301 and one panel width from Longwall 302. The respective mining faces came closest to the bore in late-September 2017 and late-May 2018, at which times distinct features are evident on all hydrographs. The passage of Longwall 301 caused mild responses, generally short-term increases in head, while the passage of Longwall 302 caused sharp cusp-like features on the Hawkesbury Sandstone hydrographs, sustained rises in the upper and mid Bulgo Sandstone, and strong declines in the three deepest piezometers. In January 2019, F6GW4A was undermined by Longwall 303 causing the depressurisation and disabling of the six lower sensors (i.e. 139 metres below ground level [mbgl], 201 mbgl, 278 mbgl, 362 mbgl, 440 mbgl and 512 mbgl). The upper and mid Hawkesbury Sandstone piezometers (50 mbgl and 90 mbgl) also displayed a lowering of groundwater head following the passage of Longwall 303, however, they showed no significant decline after the passage of Longwall 304, 305, 306, 307, 308 or 309. Both piezometers show stable, slightly increasing, water levels over this reporting period.

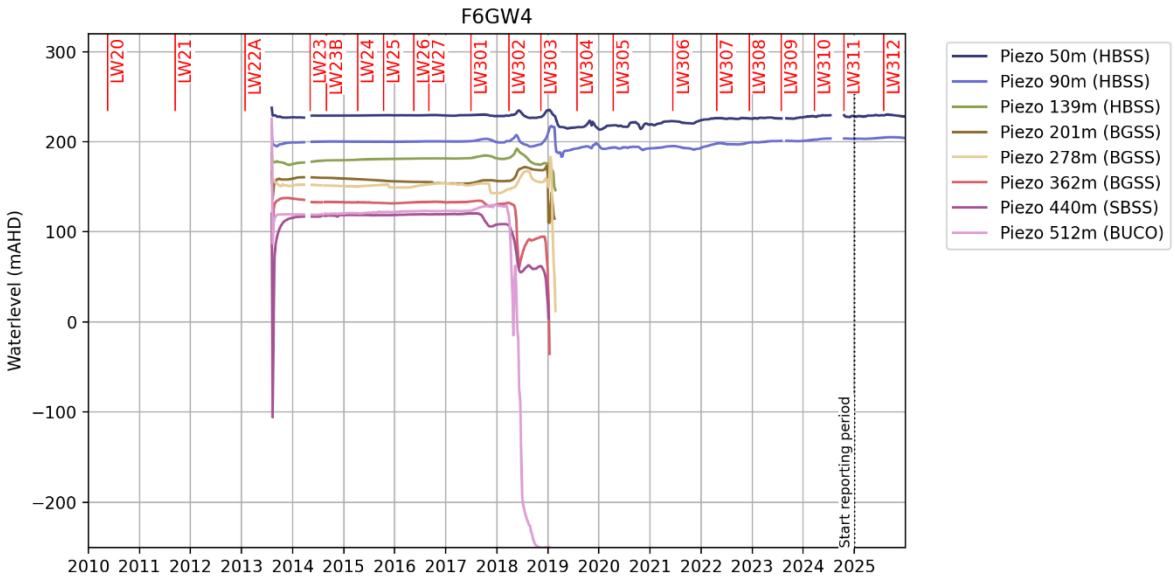


Chart 74 Time Variations in Potentiometric Heads at F6GW4A

Bore PHGW2A

Chart 75 shows the groundwater levels at site PHGW2A, located about 400 m north-east of the commencement of Longwall 309. A connection failure prevented upload of data for sensors in PHGW2A in 2016. Sensors have now been reinstated. All vibrating wire piezometers (VWPs), except for the shallowest 60 mbgl piezometer, had a compressive response to the commencement of Longwall 305, about 400 m away. In June 2021, the three deepest piezometers (piezometers at 411 mbgl, 437 mbgl and 470 mbgl) showed a depressurisation, likely linked to the start of mining of Longwall 306. After this rapid depressurisation, the water levels showed a recovery. Most piezometers showed an increase in levels from June 2021, with the top two piezometers showing rises and declines in response to individual rainfall events. The deepest piezometer (470 mbgl) experienced a rapid depressurisation in early May 2022 of approximately 40 m; this occurred after the start of Longwall 307, which was 288 m from PHGW2A at this time.

By early September 2022, three piezometers (piezometers at 389 mbgl, 411 mbgl, and 437 mbgl) experienced depressurisation after a period of non-recording, coinciding with the start of Longwall 307. In the last reporting period, only four of the 10 piezometers (piezometers at 60 mbgl, 97.5 mbgl, 135 mbgl, 181.5 mbgl) were recording during this reporting period, all four show a decrease in groundwater pressure, before increasing in mid-2023. Additionally, lost monitoring data from early 2023 for piezometers 389 mbgl, 411 mbgl, and 437 mbgl were recovered and updated. In this reporting period, most piezometers (piezometers at 60 mbgl, 98 mbgl, 135 mbgl, 201 mbgl, 182 mbgl, 389 mbgl, and 437 mbgl) showed stable readings, with a brief interruption in data recording in August 2023. This is seemingly independent of the climate. During this reporting period, the water level in all piezometers were generally stable, except water level in piezometer 411 mbgl showed a decrease followed by a gradual recovery. Piezometer 389 mbgl has been disconnected since June 2024.

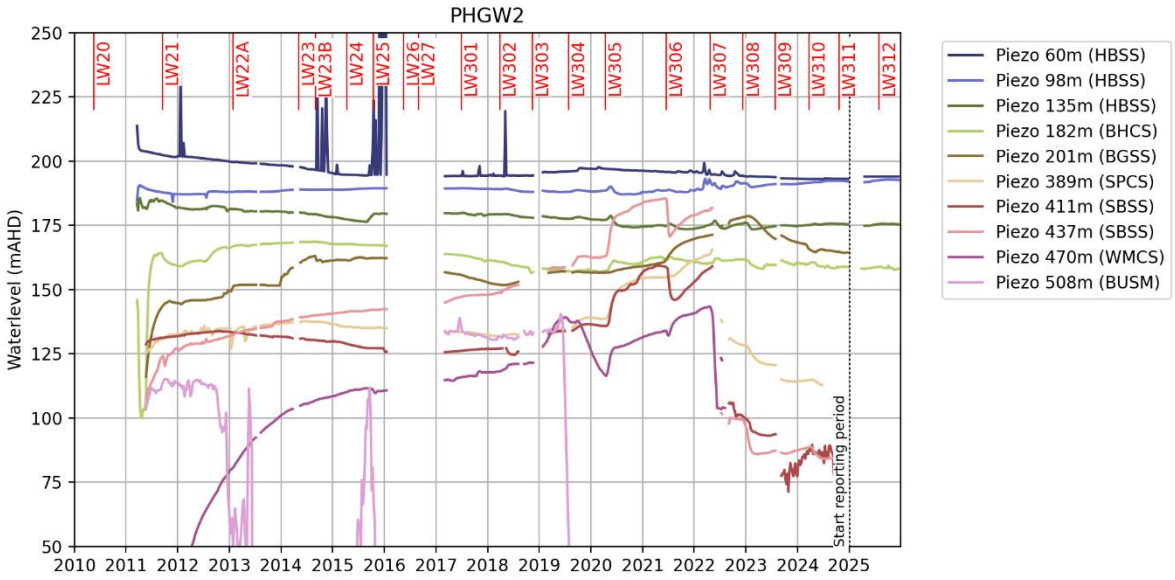


Chart 75 Time Variations in Potentiometric Heads at PHGW2A

Bores 9EGW2A and 9EG2A-4

Chart 76 shows the potentiometric heads for bores 9EGW2A and 9EG2A-4 which are about 100 m west of Longwall 308. Piezometers 484 mbgl, 517 mbgl, and 557 mbgl showed a significant decline in late 2021 and a rapid increase at the end of 2022. This decrease can be attributed to in-seam gas drainage holes, which arrived at this location. Geophysics showed an unusually high pore space in the respective claystone formations above the Bulli Seam, which is thought to be the reason for those declines. Piezometers at 484 mbgl and 517 mbgl have shown an oscillation response with rapid recovery towards the end of 2022. Spikes in water level were observed in piezometers 60 mbgl and 235 mbgl before becoming stable in late 2022, this is likely due to the loggers malfunctioning. In October 2023, piezometers 60 mbgl, 155 mbgl, and 235 mbgl have shown a sustained rise, before stabilising through the first half of 2024, whilst strong declines in the deeper piezometers 407 mbgl, 433 mbgl, 454 mbgl, and 517 mbgl. In early 2024, water levels in most piezometers remained stable, with no response to the passage of Longwall 310. Meanwhile, water levels in piezometer 433 mgbl slightly increased.

In June 2024, both 9EGW2A and 9EGW2-4 were turned off to allow the passage of Longwall 310 through the area. The upper piezometers were reconnected after Longwall 310 was 200 m south of the monitoring site, while the lower three piezometers are permanently disconnected and wires removed. After connection, the water level in piezometer 60 mbgl was stable and piezometers 155 mbgl and 235 mbgl showed a rapid decrease in water level, while piezometers 108 mbgl and 212 mbgl showed a slow increase.

After the reconnection of the upper piezometers, bore 9EGW2A was at a TARP Level 3 significance level. However, water level increased during the end of 2024 and the performance indicator recovered to Level 2 significance level (Chart 77). During this reporting period most piezometers stabilised, returning to approximate water levels pre-longwall passage, with the exception of piezometer 235 mbgl, which was disconnected in February 2025 and has remained so throughout the reporting period. Piezometer 212 mbgl has also been disconnected as of September 2025.

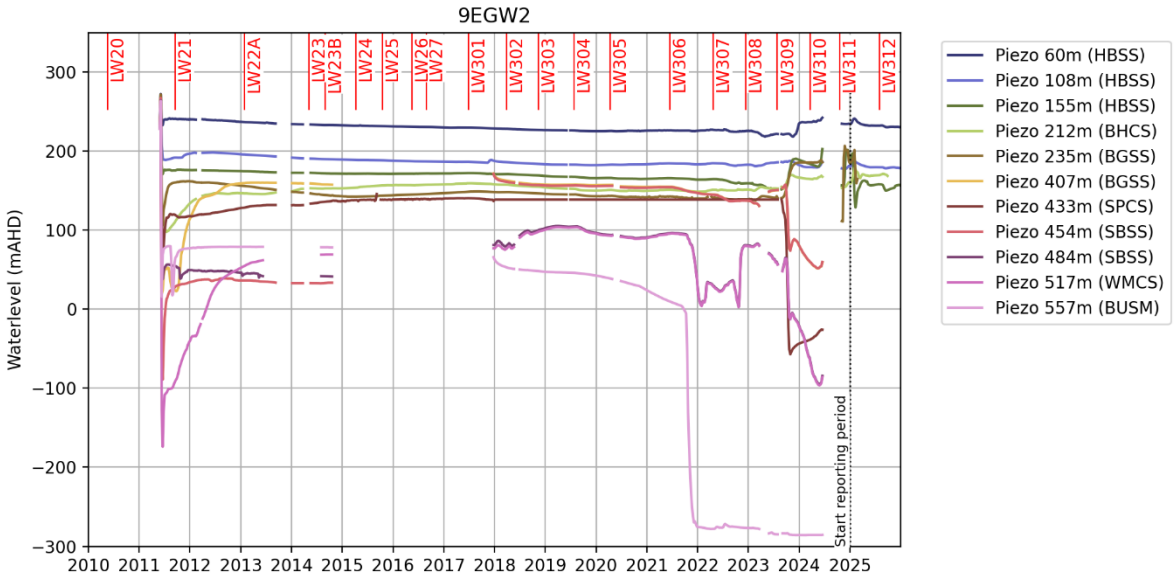


Chart 76 Time Variations in Potentiometric Heads at 9EGW2A and 9EGW2-4

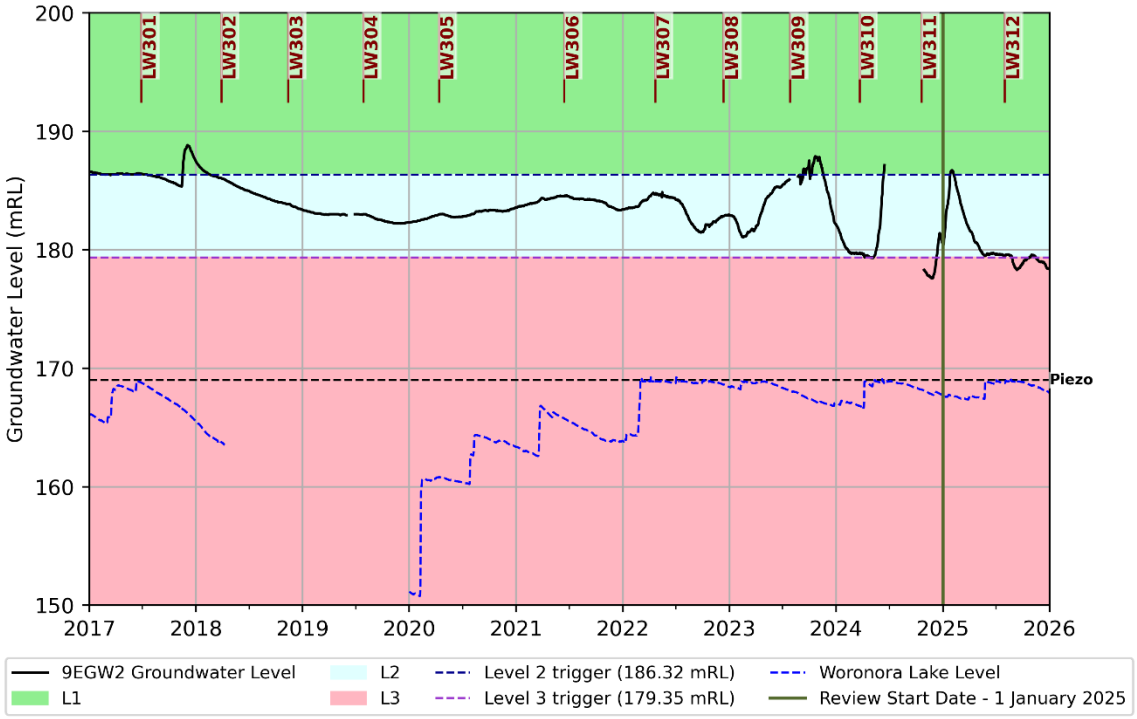


Chart 77 Groundwater Levels at 9EGW2A

Bore PHGW1B

Chart 78 shows the water levels at VWP PHGW1B. The piezometers are located approximately 600 m north of Longwall 310. A connection failure prevented upload of data for sensors in PHGW1B in 2016. Sensors have now been reinstated. During the reporting period, all piezometers showed steady water pressures and no response to mining at Longwall 311-312.

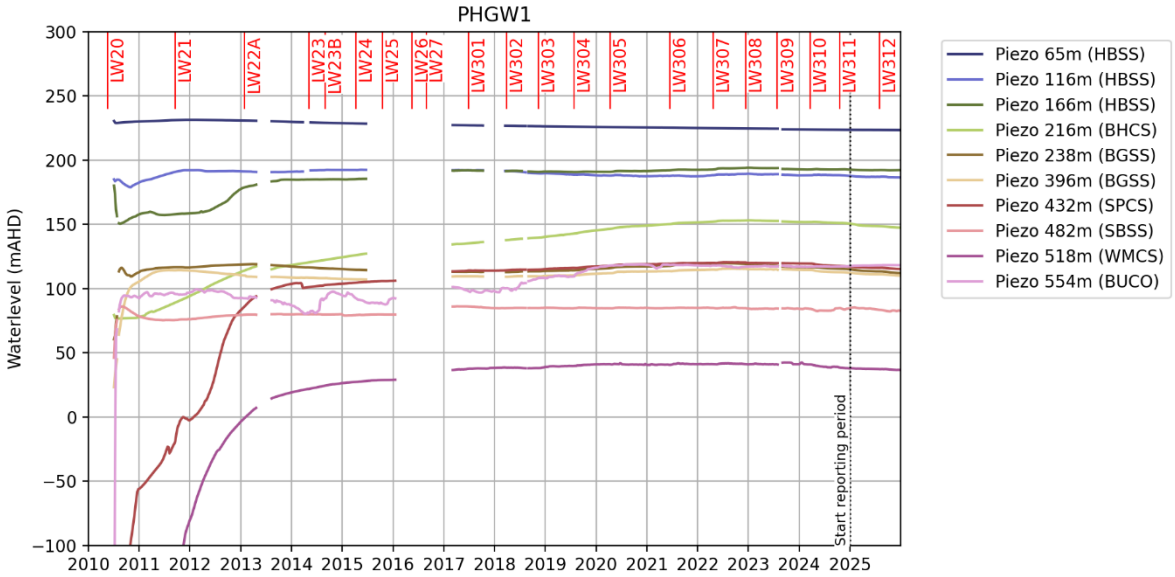


Chart 78 Time Variations in Potentiometric Heads at PHGW1B

Bore LW305-Goaf Hole

Chart 79 shows the water levels at bore LW305-Goaf Hole. Bore LW305 goaf hole was installed in 2022 for post extraction monitoring for the narrow longwall extraction geometry underneath the reservoir as required in the Longwalls 305-307 Extraction Plan. The three shallowest piezometers in the Hawkesbury Sandstone at this location have showed stable water levels since monitoring began. Piezometer 203 mbgl showed a decrease in 2022, followed by a steady increase through 2023 and 2024. Piezometers 250 mbgl and 331 mbgl showed steady declines in water level of approximately 30 m and 50 m respectively during 2023. During 2024, all sensors remained stable or had slight increases in groundwater levels. Sensor data in the four shallowest piezometers was unavailable between May and October 2024. During this reporting period, all piezometers have remained stable or showed a steady increase in groundwater levels. Piezometer 94 mbgl was disconnected in May 2025 for the remainder of the reporting period.

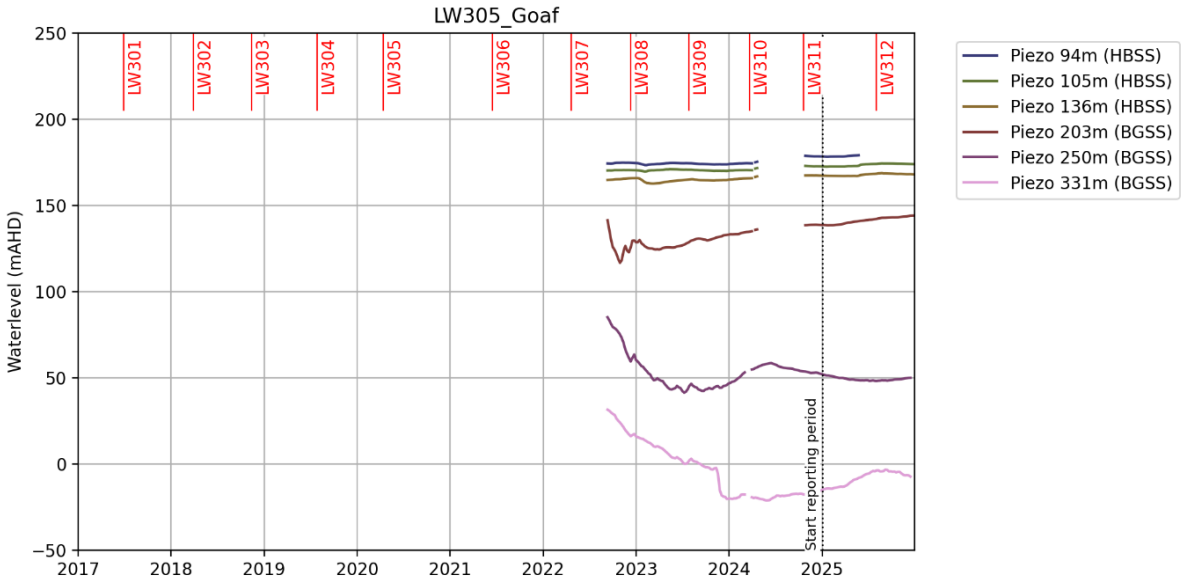


Chart 79 Time Variations in Potentiometric Heads at LW305-Goaf

PM02

Chart 80 shows the groundwater levels at PM02, located along Fire Trail 9D (at LW315). The passage of Longwalls has had seemingly no effect on the piezometers at PM02. Minor rises and declines observed within the piezometers, particularly piezometers 220 mbgl and 250 mbgl may reflect natural variations in deep aquifer systems.

In mid-2023, data gaps were observed, likely from a logger malfunction. After recovery of the data, the water level readings in piezometers exhibited a 'jump' up from levels previous to the logger malfunctions. The reason for this jump is unknown. In 2024 and 2025, all piezometers showed stable water levels with no response to mining at Longwalls 309-311. Until the end of 2024, water level in piezometers 400 mbgl, 435 mbgl, 475 mbgl, and 495 mbgl showed a brief increase which continued throughout 2025.

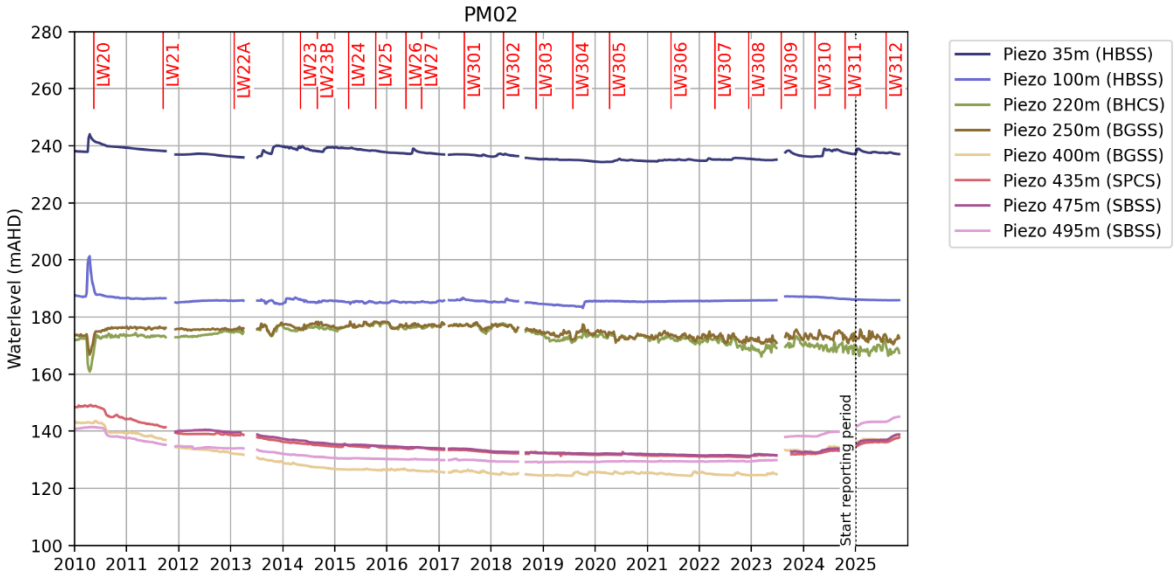


Chart 80 Time Variations in Potentiometric Heads at PM02

6.2.8.2 Assessment of Vertical Potentiometric Head Profiles

Vertical potentiometric head profiles at bores PM01 and PM02 are used to assess connective cracking between the surface and the mine in accordance with the Longwalls 311-316 Water Management Plan.

The vertical potentiometric head profiles have been assessed against the following performance indicators:

> *Significant departure from the predicted envelope of the vertical potentiometric head profile at Bore PM01 does not occur.*
>
> *Significant departure from the predicted envelope of the vertical potentiometric head profile at Bore PM02 does not occur.*

The performance indicators were not exceeded during the reporting period because the measured potentiometric head profiles are consistent in shape and do not lie significantly to the left of the predicted model curves (Appendix C).

6.2.8.3 Assessment of Hydraulic Gradient to the Woronora Reservoir

The groundwater head of Bores PHGW2A, 9EGW2A and PM02 are compared to the full supply level of the Woronora Reservoir to assess reductions in hydraulic gradient from the bores to the Woronora Reservoir in accordance with the Longwalls 311-316 Water Management Plan.

The results have been assessed against the following performance indicators:

> *The hydraulic gradient to the Woronora Reservoir at full supply level from Bore PHGW2A is reduced by no more than 40% from that measured to 30 June 2017.*
>
> *The hydraulic gradient to the Woronora Reservoir at full supply level from Bore 9EGW2A is reduced by no more than 40% from that measured to 30 June 2017.*
>
> *The hydraulic gradient to the Woronora Reservoir at full supply level from Bore PM02 is reduced by no more than 40% from that measured to 30 June 2017.*

The performance indicators for bores PHGW2A and PM02 were not exceeded during the reporting period (Appendix C).

An exceedance of the performance indicator during the reporting period, *The hydraulic gradient to the Woronora Reservoir at full supply level from Bore 9EGW2A is reduced by no more than 40% from that measured to 30 June 2017,* was identified at bore 9EGW2A. In accordance with the Longwalls 311-316 Water Management Plan, data analysis is undertaken monthly and an assessment against the performance measure was undertaken.

The exceedance of the TARP Level 3 performance indicator for bore 9EGW2A has been assessed by SLR (2025) and is provided in Appendix F.

The findings of SLR (2025) are summarised below:

- In accordance with the Longwalls 311-316 Water Management Plan, investigations were initiated due to exceedances of TARP Level 3 groundwater trigger levels at bore 9EGW2A, associated with the hydraulic gradient. Despite a general decline in groundwater levels, recent October 2025 data show an upward trend, with the latest recorded groundwater level of 179.42 mAHD confirming the return to TARP Level 2. This trend will need further verification through subsequent monitoring.

- The hydraulic gradient from bore 9EGW2A to the Woronora Reservoir has remained consistently maintained, with a maximum reduction of 46% observed upon activation of TARP Level 3 in August 2025. This reduction slightly improved to 39% in the latest monitoring rounds.
- As the groundwater level in 9EGW2A and surrounding piezometers has not dropped below the Woronora Reservoir water level, the hydraulic gradient has not been reversed. Therefore, the performance measure relating to bore 9EGW2A listed in the Longwalls 311-316 Water Management Plan, *Negligible leakage from the Woronora Reservoir*, has not been exceeded.
- There is still a substantial hydraulic gradient from 9EGW2A to the Woronora Reservoir, with a current head difference of about 10 m.
- Groundwater fluctuations observed in 9EGW2A are likely linked to mining activity along Longwalls, becoming more pronounced with advances from Longwalls 309-311. With the passage of Longwall 312, similar fluctuations are anticipated, potentially resulting in a slight decrease in groundwater levels in the future.
- Since the performance indicator associated with bore 9EGW2A was exceeded, in addition to conducting this investigation, the Longwalls 311-316 Water Management Plan requires Metropolitan Coal to consider the need for management measures. However, as the TARP level has returned to Level 2, ongoing monitoring with monthly analysis is deemed sufficient.

The key potential subsidence impacts and environmental consequences on the deep groundwater system described in the Project EA, Preferred Project Report and Metropolitan Coal Water Management Plans, included:

- Based on experience at Metropolitan Coal, substantial depressurisation of the deep aquifers in the fractured zone above the goaf is restricted to a height of less than 130 m from the top of the goaf, while transient pressure effects have been observed to propagate to a height of about 300 m above the goaf. That is, there is a pronounced increase in vertical hydraulic gradient in the deep groundwater system over the Metropolitan Coal longwalls.
- Above goaf zones there would be substantial changes in fracture porosity and permeability, due to opening up of existing joints, new fractures and bed separation. Permeability increases would have accompanying reductions in lateral hydraulic gradients, with associated changes in groundwater levels and pressures. Pronounced changes in groundwater levels can occur without any significant drainage into a mine, particularly from the Narrabeen Group sandstones.
- Groundwater discharge to the mined seam would occur from above and below the seam in proportion to local permeabilities. Based on earlier modelling, the water make (i.e. groundwater inflow) was expected to be in the order of 0.1 megalitres per day (ML/day) for Longwalls 20-27 and from 0.045 to 0.6 ML/day for Longwalls 301-303. Modelling indicated that the inflow could be up to 0.5 ML/day from the deep groundwater system during mining of Longwall 24 and up to 0.6 ML/day during the mining of Longwall 302. The 2018 groundwater model predicted that inflow for Longwalls 305-307 would be approximately 0.02 ML/day to approximately 0.24 ML/day at the end of Longwall 307. A recalibration of the groundwater model was completed by SLR in 2020 and predicted groundwater inflow of approximately 0.1 ML/day. Improving the previous overly conservative prediction of inflows that predicted of up to 0.24 ML/day.
- Due to the substantial depths of cover at the Project, there would not be connective cracking from the mined seam to the surface. Groundwater modelling for the Project indicates that there is expected to be eventual recovery of deep groundwater system pressures over many decades following the cessation of mining.

The NSW Planning Assessment Commission (2009) concluded that given the considerable depth of mining and the restricted panel width in the Project Area, that, in the absence of geological structures such as faults and igneous intrusions (sills, dykes and diatremes), there is a very high probability that a constrained zone will be associated with the mine layout proposed over the Project Area, thereby preventing direct hydraulic connections between mine workings and surface water bodies.

The groundwater monitoring results are consistent with the potential subsidence impacts and environmental consequences described in the Project EA, Preferred Project Report and Metropolitan Coal Water Management Plans.

6.2.9 Groundwater Quality

Waratah Rivulet

Groundwater quality at sites WRGW1 to WRGW7[7] on Waratah Rivulet (Figure 11) is shown on Charts 81 to 83 for iron, manganese and pH, respectively.

Groundwater quality monitoring at sites WRGW1 to WRGW7 indicates dissolved iron concentrations are usually in the 1 to 10 mg/L range, with the exception of sites WRGW1 and WRGW2 which peaked at 14 mg/L in earlier years (2010-2011) (Chart 81). Iron concentrations in groundwater at WRGW1 and WRGW2 have decreased since 2011. In 2024, concentrations remained below 10 mg/L at both bores excluding WRGW2 in March and from September to November 2024. Dissolved iron concentrations in groundwater at site WRGW5, WRGW6 and WRGW7 remained below 4 mg/L while WRGW3 varied between 2.7 and 6.7 mg/L during 2024. During this reporting period, WRGW2 produced a short spike above 10 mg/L in March, as well as two readings in November and December. All other bores remained within the usual 1-10 mg/L range (Chart 81 and Appendix C).

Dissolved manganese concentrations at sites WRGW1 to WRGW7 are typically less than 1 mg/L. Higher concentrations of manganese were reported for WRGW3 in June 2015 (3.36 mg/L), September 2015 (1.47 mg/L), March 2017 (1.31 mg/L) and April 2017 (1.65 mg/L) and for WRGW6 in April 2017 (1.77 mg/L) (Chart 82). Dissolved manganese concentrations at WRGW3 have followed a slight increasing trend since 2007. The trend reversed in 2018 and the concentrations are decreasing slightly, now in the range of 0.5 to 0.75 mg/L. In the current reporting period, all sites remained below 1 mg/L (Chart 82, Appendix C).

The pH level at the Waratah Rivulet sites has been generally acidic and usually between pH 5.5 and 7. Occasional occurrences in excess of pH 9 and less than pH 5 in prior reporting periods are unsustained outliers. The pH at all sites increased towards more neutral/alkaline conditions compared to the historical range since 2019, with pH observed between 6.2 and 8. During this reporting period, the pH levels at all sites were similar to those recorded in 2023 and 2024 (Chart 83, and Appendix C).

[7] Site WRGW4 was sheared in 2011 and has subsequently not been sampled.

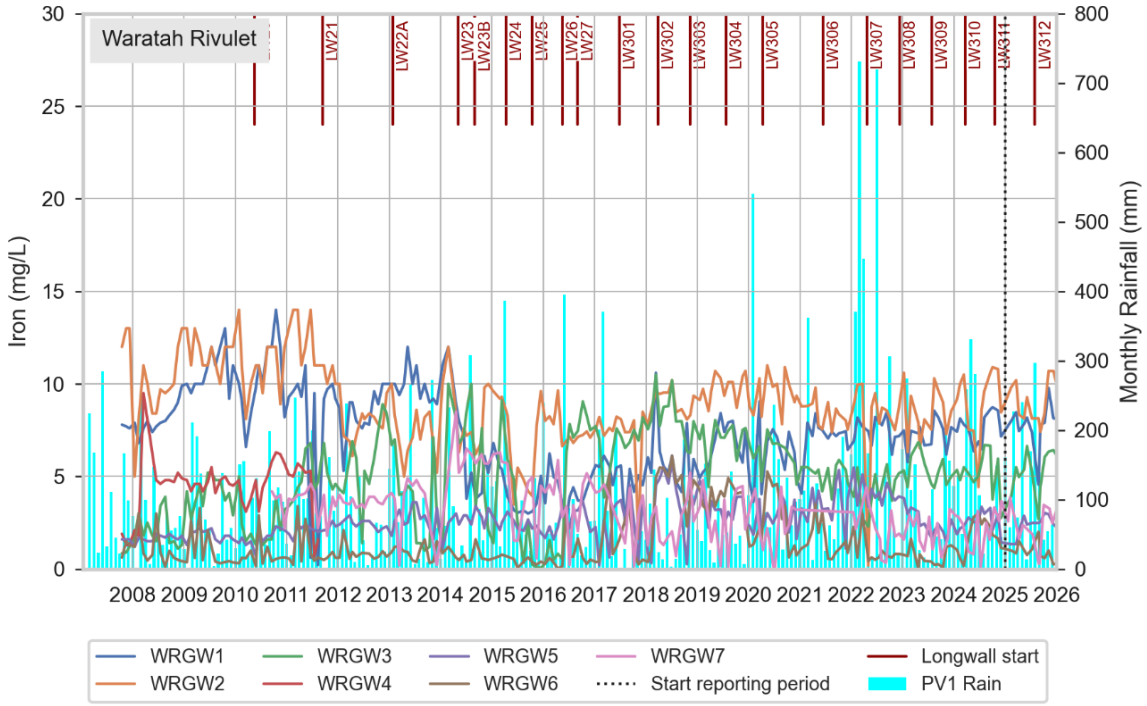


Chart 81 Iron Concentrations at WRGW1 to WRGW7

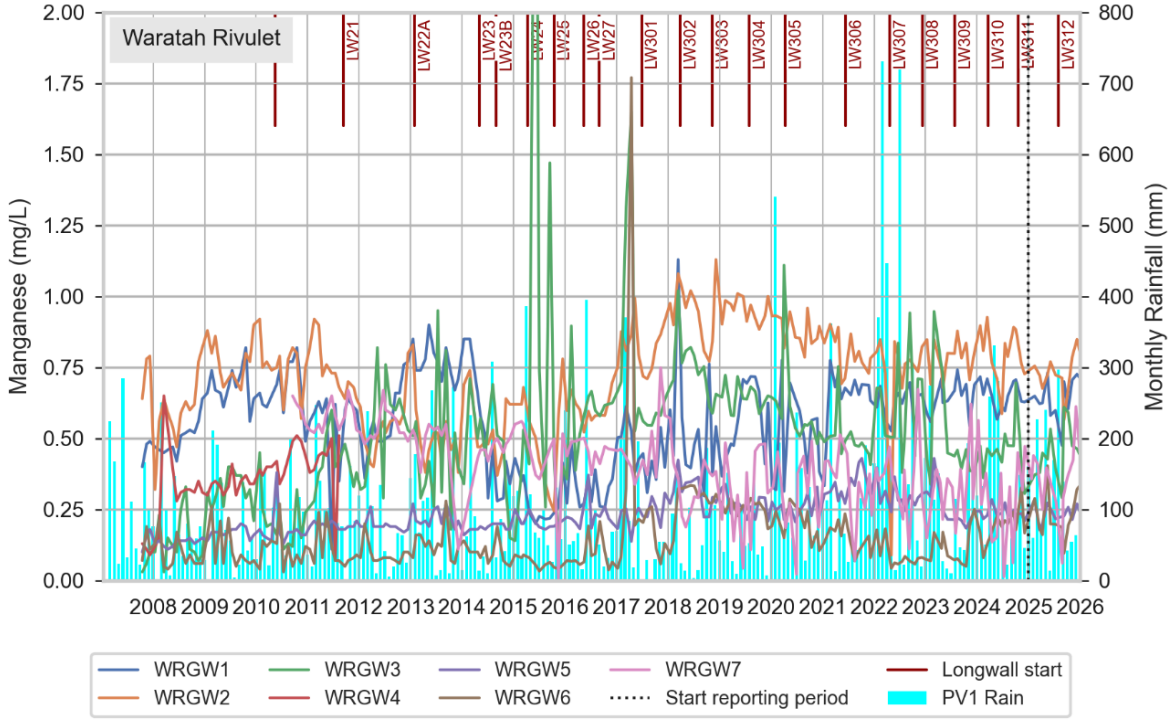


Chart 82 Manganese Concentrations at WRGW1 to WRGW7

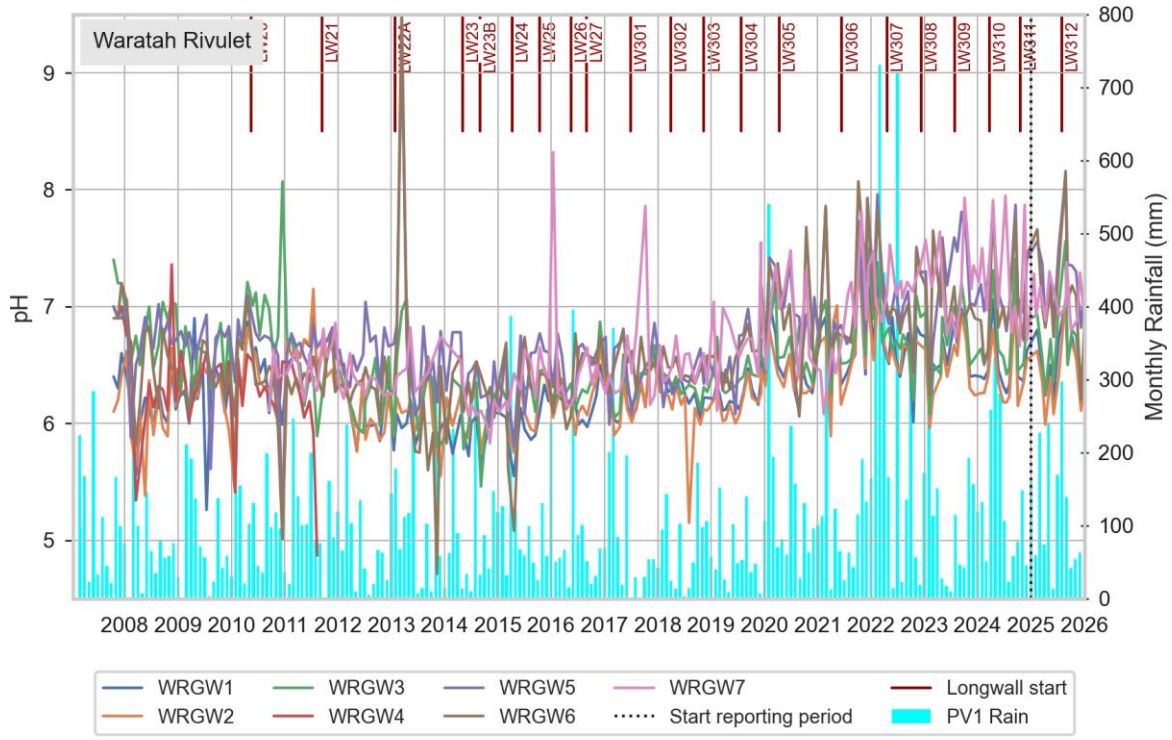


Chart 83 pH Levels at WRGW1 to WRGW7

6.2.10 Inspections of Mine Workings

Mine inspections did not identify any abnormal water flows from the goaf, geological structure, or strata generally during the reporting period.

6.2.11 Mine Water Intake

Monitoring of the mine water balance comprises:

- Metered water reticulated into the mine (recorded continuously and downloaded monthly).
- Backfill water used to assist pumping into the mine (recorded continuously and downloaded monthly).
- Metered water reticulated out of the mine (recorded continuously and downloaded monthly).
- Manual measurement of moisture content into and out of the mine through the mine ventilation system using a digital psychrometer. The frequency of readings is as follows:
  - every hour over a nine-hour period on two occasions during a 12-month period;
  - daily (week day) except public holidays or other circumstances (access, fan maintenance, etc.) that prevent readings to be taken; and
  - once per week as a minimum.
- Measurement of the *in-situ* moisture content of the coal during channel sampling for coal quality.
- Measurement of the moisture content of ROM coal conveyed out of the mine at the drift portal using an automated moisture scanner. A fully automated data acquisition system records and stores the data.

The inferred water make (i.e. groundwater that has seeped into the mine from the strata) is calculated from the difference between total mine inflows (reticulated water into the mine, moisture in the downcast ventilation, and the *in-situ* coal moisture content) and total mine outflows (reticulated water out of the mine, moisture in the exhaust ventilation, and moisture in the ROM coal). Given the large fluctuations in daily water usage and the cycle period for water entering the mine, a 20-day average is used to provide a more reliable estimate of water make.

The average daily mine water make was approximately 0.32 ML/day during the reporting period (i.e. well below the 0.5 ML/day Level 2 TARP trigger) (Chart 84).

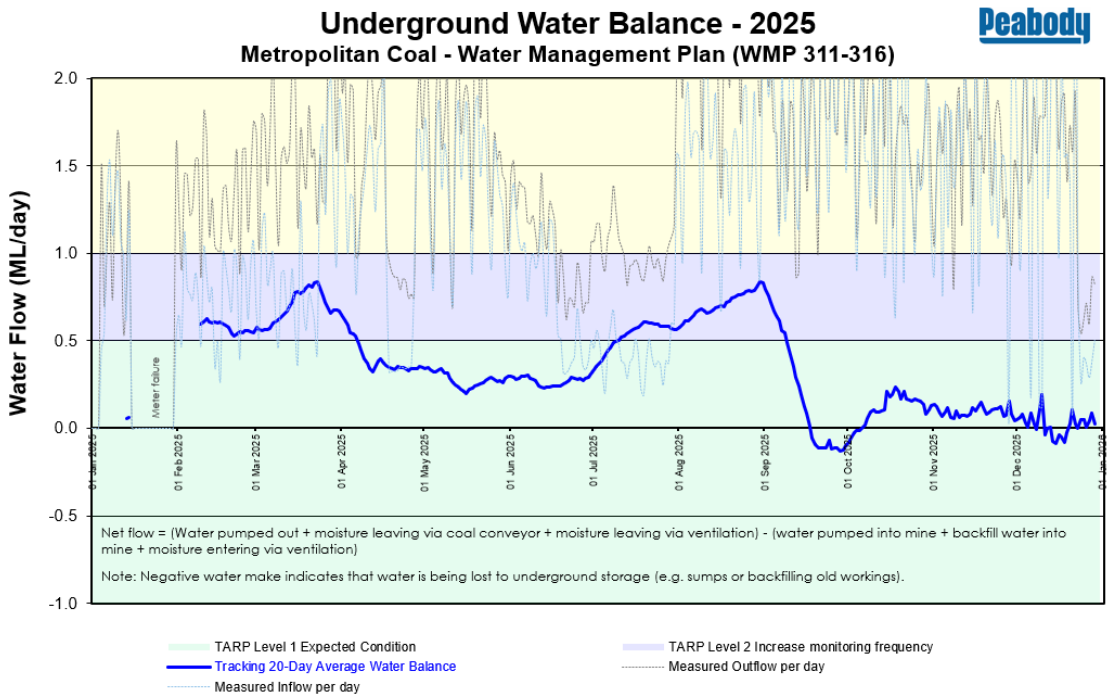


Chart 84 Estimated Daily Mine Water Make

6.2.12 Large Swamp Hydrological and Hydrogeological Models

Conceptual one-dimensional and two-dimensional hydrological and hydrogeological models were developed for the Large Swamps (namely, Swamps 76, 77 and 92) as part of the Large Swamp Assessment prepared for the Longwalls 311-316 Extraction Plan. Appendix N provides the conceptual hydrological and hydrogeological models for the Large Swamps.

Based on the hydrological and hydrogeological processes described in the Large Swamp Assessment prepared by ATC Williams (ATC Williams, 2024), it is considered that the swamp water balance is dominated by direct rainfall, actual evapotranspiration, runoff (in excess of the swamp substrate capacity) and basal seepage.

Based on the monitoring data to date, no subsidence consequence has been observed at the Large Swamps and the groundwater monitoring indicated all Large Swamp monitoring sites, except, in 2024 Swamp 77-3 was above the baseline minimums . Swamp 77-3 average minimum level was below the baseline minimum towards the end of the reporting period. However, semi-quantitative analysis indicated that Swamp 77-3 shows a higher degree of variability and saturation compared to the control swamps and that there was no change in swamp dynamics (Appendix C).

In consideration of the above, no change to the hydrological and hydrogeological processes and upland swamp vegetation were identified for the Large Swamps during the reporting period.

6.3 BIODIVERSITY MANAGEMENT

The Metropolitan Coal Longwalls 311-316 Biodiversity Management Plan was prepared to manage the potential environmental consequences of the Longwalls 311-316 Extraction Plan on aquatic and terrestrial flora and fauna, with a specific focus on swamps, in accordance with Condition 6, Schedule 3 of the Project Approval.

The Longwalls 311-316 Biodiversity Management Plan includes post-mining monitoring and management of potential subsidence impacts and environmental consequences associated with Longwalls 20-22, Longwalls 23-27, Longwalls 301-303, Longwall 304, Longwalls 305-307 and Longwalls 308-310.

Sections 6.3.1 to 6.3.6 provide a summary of the biodiversity assessments for the reporting period. Section 6.7 provides a summary of the assessments against the biodiversity subsidence impact performance indicators and measures for the reporting period.

6.3.1 Upland Swamp Vegetation Monitoring

Visual inspections are be conducted of Swamps 74, 75, 76, 77, 92, 106, 119, 128 and 139 (Figure 9), located within the Longwalls 311-316 35° angle of draw and/or predicted 20 mm subsidence contour. Visual inspections will also continue to be conducted in control Swamps 101, 135, 136, 137a, 137b, 138, Bee Creek Swamp, Woronora River south arm and Dahlia Swamp (Figure 9).

Traverses over the swamps are conducted biannually in autumn and spring for swamps overlying or adjacent to Longwalls 301-317 and every third year in autumn and spring for swamps overlying and adjacent to Longwalls 20-27. The visual inspections assess the changes in observed physical condition of the swamps over time.

Visual inspections continue to be conducted of Swamps 16, 17, 18, 19, 20, 24, 25, 28, 30, 31, 32, 33, 34, 35, 36 and 94 overlying or adjacent to Longwalls 20-27 to record evidence of potential subsidence impacts. Some of these swamps are also subject to biannual transect/quadrat and/or indicator species monitoring. None of these swamps are located within the Longwalls 311-316 35° angle of draw and/or predicted 20 mm subsidence contour (Figure 9).

The Longwalls 308-310 Biodiversity Management Plan was superseded by the Longwalls 311-316 Biodiversity Management Plan following conclusion of mining at Longwall 310 in October 2024. The Longwalls 311-316 Biodiversity Management Plan no longer includes the upland swamp TARP. However, the vegetation survey results for spring 2024 and autumn 2025 have been assessed against the Longwalls 308-310 BMP Performance Indicator for upland swamp vegetation to remain conservative during the transition period between the previous and current Biodiversity Management Plan. The results of the vegetation surveys are summarised in Section 6.7.

6.3.1.1 Longwalls 20-22 and Longwalls 23-27

Upland swamp vegetation monitoring is conducted biannually (in autumn and spring) at a number of swamps overlying or adjacent to Longwalls 20-22 and Longwalls 23-27, and at a number of control swamps (Figure 9).

In autumn 2025, visual inspections were conducted in Swamps 16, 17, 18, 19, 20, 24, 25, 28, 30, 31, 32, 33, 34, 35, 36 and 94 overlying or adjacent to Longwalls 20-27 and in control Swamps 101, 111a, 125, 135, 136, 137a, 137b, 138, Bee Creek Swamp, Dahlia Swamp, Woronora River 1, and Woronora River south arm.

Transect/quadrat monitoring of Longwalls 20-22 sites was discontinued from autumn 2023 onwards, as outlined in the Longwalls 311-316 Biodiversity Management Plan. This was due to the relative stability of the vegetation condition, as reflected by species richness, in the Longwalls 20-22 sites over the eight years since the completion of mining of Longwalls 20-22. This was applicable to all sites overlying or immediately adjacent to Longwalls 20-22, namely Swamps 16, 17, 18, 20, 24, and 25. Transect/quadrat monitoring was conducted in Swamps 28, 30, 33, 35 and 94 overlying or adjacent to Longwalls 23-27 and in control Swamps 101, 111a, 125, 135, 136, 137a, 137b, 138, Bee Creek Swamp, Woronora River 1, and Woronora River south arm.

Indicator species monitoring for Longwalls 20-22 includes 20 tagged individuals of *Epacris obtusifolia* (in Swamps 18, 24, 25, 101, 111a and 125), *Pultenaea aristata* (in Swamps 18, 24, 25, 101 and 111a) and *Sprengelia incarnata* (in Swamps 24, 101 and 125). Three indicator species characteristic of the Tea Tree Thicket vegetation community, namely *Banksia robur, Callistemon citrinus* and *Leptospermum juniperinum* are monitored in Swamp 20 and at control Swamps Woronora River 1, Woronora River south arm and Dahlia Swamp.

Indicator species monitoring for Longwalls 23-27 includes 20 tagged individuals of *Epacris obtusifolia* (in Swamps 19, 30, 33, 35, 94, 101, 111a, 125, 135, 136, 137a, 137b and 138), *Pultenaea aristata* (in Swamps 19, 30, 33, 35, 94, 101, 111a, 135, 136, 137a and 138), *Sprengelia incarnata* (in Swamps 19, 33, 35, 94, 101, 125, 135, 136, 137a and 138) and *Banksia robur* and *Callistemon citrinus* in Swamp 28 and control Swamps Woronora River 1, Woronora River south arm and Dahlia Swamp.

It is noted the declining trend in vegetation condition previously observed in Swamp 20 continues to reverse in Spring 2024 as shown by continued improved vegetation condition, continued stable condition of all indicator species, very limited dieback, and continued abundant growth of *Gleichenia* spp. Across Swamp 20.

The results of the spring 2024 and autumn 2025 survey in relation to the Longwalls 308-310 Biodiversity Management Plan TARP are summarised in Section 6.7.

The spring 2024 and autumn 2025 Longwalls 20-22 and Longwalls 23-27 Vegetation Monitoring Reports prepared by Eco Logical Australia (Eco Logical) describe the results of these surveys, and are provided as Appendices G1, G2, G3 and G4, respectively.

6.3.1.2 Longwalls 301-304

The upland swamp vegetation monitoring program used for Longwalls 301-304 (visual, transect/quadrat and indicator species monitoring) is consistent with those used for the Longwalls 20-22 and Longwalls 23-27 upland swamp vegetation monitoring programs. Upland swamp vegetation monitoring continues to be conducted at a number of swamps overlying or adjacent to Longwalls 301-304 and at a number of control swamps (Figure 9).

In autumn 2025, visual inspections were conducted for swamps overlying or adjacent to Longwalls 301-304 (Swamps 40, 41, 46, 47, 48, 49, 50, 51/52, 53 and 58) and in control Swamps 101, 111a, 125, 135, 136, 137a, 137b and 138 to record evidence of potential subsidence impacts.

Transect/quadrat monitoring was also conducted in autumn 2025 at Swamps 40, 41, 46, 48, 50, 51/52 and 53. Control Swamps 101, 135, 136, 137a and 137b were selected for comparison and the same transect/quadrat monitoring methodology was used to survey each of these swamps. Swamps 46 and 51/52 were subject to WaterNSW hazard reduction burns following the autumn 2017 baseline survey and prior to the spring 2017 survey, resulting in vegetation along transects in these swamps no longer being comparable to the control swamps. Similarly, sections of Swamps 40, 48, and 50 were burnt in a WaterNSW hazard reduction burn during the autumn 2021 survey period, although only a portion of each was directly affected and the majority of the previous vegetation community still remains.

Indicator species monitoring for Longwalls 301-304 previously included 20 tagged individuals of *Epacris obtusifolia* (in Swamps 40, 51/52, 53, 101, 136 and 137a) and *Sprengelia incarnata* (in Swamps 40, 51/52, 53, 101, 136 and 137b). However, subsequent to the autumn 2017 baseline survey and prior to the spring 2017 survey, Swamp 51/52 was subject to WaterNSW hazard reduction burns, resulting in the death of indicator species in Swamp 51/52. As a result, indicator species monitoring in Swamp 51/52 was removed from the monitoring program.

The results of the autumn 2025 survey in relation to the Longwalls 308-310 Biodiversity Management Plan TARP are summarised in Section 6.7. The results of the Longwalls 301-304 upland swamp vegetation monitoring program (up to and including the autumn 2025 survey) can be summarised as follows:

- Visual inspections did not identify any cracking of exposed bedrock areas or swamp sediments in longwall sites as a result of mine subsidence. Localised cracking of swamp surface sediments were recorded in two control sites (Swamp 173a and 137b) with occasional lifting of sediment. Minor cracks in exposed bedrock have previously been recorded in Swamp 137b (e.g. weathering artefact and fire damage).
- No new areas of active erosion were observed in autumn 2025. Existing erosion adjacent to and within the creek at longwall site Swamp 125 was evident, however no increase to erosion impacts observed in previous seasons was recorded.
- Vegetation monitoring in upland Swamps 47, 49 and 58 indicates there is no declining trend in the condition of the swamp vegetation and there are no significant changes in vegetation between the longwall and control swamps.
- The completion of the autumn 2025 survey was delayed by two months due to rainfall events throughout the survey period. The weather conditions throughout surveys were similar in rainfall to previous Autumn survey periods. The autumn 2025 survey was conducted following a period of well below average rainfall in December, above-average rainfall in January, and well below average rainfall in February. The conditions leading up to, and throughout, the survey period reflect the variability of seepage recorded in longwall and control valley side swamps.
- Vegetation in autumn 2025 at both longwall and control sites was found to be in a generally good condition. An exception to this was widespread dieback of shrubs and sedges on the rock shelf and along the drainage line of control Swamp 137a. Evidence of water or sediment discolouration was not observed in this area, however the upper rock bench was largely dry with cracking. Isolated dieback and senescence of individual plants was observed in both longwall and control sites, although healthy individuals of all species observed with dieback were also observed throughout the sites.
- Species richness within individual valley side swamps in autumn 2025 was within the range recorded in previous seasons for most longwall and control swamps, with the exception of Swamp 50 which increased above previously recorded levels and Swamps 101 and 136 which decreased below previously recorded levels. In autumn 2025, species richness increased in four of the seven longwall sites, with increases in species richness from small (Swamp 40, 46 and 53) to large (Swamp 50), compared to Spring 2024. Two longwall sites recorded a small decrease in species richness (Swamp 41 and 48) and one longwall site experienced no change (Swamp 51/52) compared to the previous season. Species richness decreased in four of the six control sites, with decreases in species richness ranging from moderate (Swamp 137b and 136) to large (Swamp 101 and Swamp 137a), compared to spring 2024. No change in species richness was observed in control Swamp 135 in autumn 2025.
- Fluctuations in species cover/abundance and condition were recorded across all sites throughout the reporting period. No patterns of increasing or decreasing cover/abundance, or declines in vegetation condition, were identified during the autumn 2025 monitoring in relation to individual species across sites or groups of species (i.e. swamp indicator species, generalist species, shrubs, ground covers) within sites.

- In autumn 2025, the proportion of upland swamp indicator species which were dead was greater at longwall sites than control sites for *Epacris obtusifolia.* This trend has been observed since the baseline monitoring period. Since the large increase in the proportion of dead indicator species observed for control sites in autumn 2018, the seasonal increases have been consistent between longwall and control sites. Mortality of tagged indicator species may be attributed to environmental conditions including the stress associated with drying out of shallow soils during periods of below-average rainfall.
- In autumn 2025, the mean vegetation condition of tagged *Epacris obtusifolia* individuals was lower than the range observed across the baseline monitoring seasons for both longwall and control sites. As these declines have occurred at both longwall and control swamps, it is considered to reflect the natural fluctuations in plant health associated with herbivory, resource competition, ageing plants and, in particular, the ongoing drought conditions following an extended period of below-average rainfall from July 2017 to February 2020.
- The flowering status of tagged indicator species, as recorded in the mean reproductive status shows that across all seasons, flowering has been highly variable, particularly within control sites. The mean reproductive status of tagged indicator species has also been variable between longwall and control swamps in individual seasons. Flowering in autumn 2025 was slightly higher in both longwall and control sites in compared to the previous spring 2024 survey. In control swamps, the mean reproductive status varied from table (Swamp 137a) to slightly lower (Swamp 101) to considerably lower (Swamp 136) in the autumn 2025 survey compared to spring 2024.
- The upland swamp performance indicator '*The vegetation in upland swamps is not expected to experience changes significantly different to changes in control swamp*s' has not been exceeded for any of the Longwalls 301-304 upland swamps to date.

The spring 2024 and autumn 2025 Longwalls 301-304 Vegetation Monitoring Reports prepared by Eco Logical are provided as Appendices G5 and G6, respectively.

6.3.1.3 Longwalls 305-307

The upland swamp vegetation monitoring program used for Longwalls 305-307 (visual and transect/quadrat monitoring) is consistent with those used for the Longwalls 20-22, Longwalls 23-27 and Longwalls 301-304 upland swamp vegetation monitoring programs. Upland swamp vegetation monitoring continues to be conducted at a number of swamps overlying or adjacent to Longwalls 305-307 and at a number of control swamps (Figure 9).

In autumn 2025, visual inspections were conducted in Swamps 69, 70, 71a, 71b, 72 and 73, and transect/quadrat monitoring was conducted in Swamp 71a overlying or adjacent to Longwalls 305-307. Control Swamps 101, 111a, 125, 135, 136, 137a, 137b, and 138 were selected for comparison with the swamps over Longwalls 305-307 and the same transect/quadrat monitoring methodology was used to survey each of these swamps. Swamps 69, 70, 71a and 71b were subject to WaterNSW hazard reduction burns in 2016 and 2017.

The vegetation survey results for autumn 2025 have been assessed in accordance with the Longwalls 308-310 Biodiversity Management Plan. The results of the autumn 2025 survey in relation to the Longwalls 308-310 Biodiversity Management Plan TARP are summarised in Section 6.7. The results of the Longwalls 305-307 upland swamp vegetation monitoring program (up to and including the autumn 2025 survey) can be summarised as follows:

- Visual inspections in autumn 2025 did not identify any areas of cracking of exposed bedrock areas or swamp sediments in longwall swamps, other than minor cracks in exposed bedrock which have previously been recorded (e.g. weathering artefact and fire damage in Swamp 137b).

- No new areas subject to active erosion were observed in autumn 2025. A minor increase to erosion impacts was observed in one control site (Swamp 125), where erosion has been previously recorded along an existing water flow path. Although, the presence and new growth of ground layer species indicate recovery is occurring. Erosion in Swamp 73 has been previously observed during a number of monitoring surveys along existing water flow paths, where loss and deposition of sediments and exposure of plant roots was observed. While existing erosion was evident in autumn 2025, no increase to erosion was observed.
- Vegetation in autumn 2025 at both longwall and control sites was found to be generally in good condition. An exception to this was widespread dieback of shrubs and sedges on the rock shelf and along the drainage line of control Swamp 137a. Evidence of water or sediment discolouration was not observed in this area, however, the upper rock bench was largely dry with cracking and occasional lifting of swamp surface sediments. Isolated dieback and senescence of individuals was observed in both longwall and control sites, although healthy individuals of all species observed with dieback were also observed throughout the sites.
- The vegetation structure, dominant species and estimated cover for each stratum has been variable across the baseline monitoring period, during the mining period (Spring 2020 to Spring 2022) and the four monitoring seasons since the completion of long wall mining, with variations recorded between sites, seasons and strata. This variability is considered to reflect both the natural variations in the height and cover/abundance of vegetation structural layers through time, as well as the subjective nature of data collection and impacts from fire.
- Fluctuations in species cover/abundance and condition were recorded across all sites. No patterns of increasing or decreasing cover/abundance were identified in relation to individual species across sites or groups of species (i.e. swamp indicator species, generalist species, shrubs, ground covers) within sites.
- Species richness within individual valley side swamps in autumn 2025 was within the range previously recorded across all previous monitoring seasons for the single longwall site (Swamp 71a) and most control sites, the exception being Swamp 101 and Swamp 136 which decreased below previously recorded levels. In autumn 2025, species richness moderately decreased at the longwall site (Swamp 71a) when compared to spring 2024. Between spring 2024 and autumn 2025, a large decrease in species richness was observed in two of the five control sites (Swamp 101 and 137a), while species richness moderately decreased in two other control sites (Swamp 136 and 137b). In autumn 2025, one of the control sites experienced no change in species richness (Swamp 135), compared to spring 2024.
- The upland swamp performance indicator, '*The vegetation in upland swamps is not expected to experience changes significantly different to changes in control swamps*' has not been exceeded in autumn 2025.

The spring 2024 and autumn 2025 Longwalls 305-307 Vegetation Monitoring Reports prepared by Eco Logical are provided as Appendices G7 and G8, respectively.

6.3.1.4 Longwalls 308-310

In autumn 2025, visual inspections were conducted for swamps overlying or adjacent to Longwalls 308-310 (Swamps 61, 62, 63, 64, 78, 79, 80, 81, 82, 83, 88, 89, 90, and 92SH and S92TTT) and in control Swamps 101, 111a, 125, 135, 136, 137a, 137b and 138 to record evidence of potential subsidence impacts.

Transect/quadrat monitoring was also conducted in autumn 2025 at Swamps 62, 64, 78, 79, 80, 81, 82, 89, 90, 92SH and 92TTT. Control Swamps 101, 135, 136, 137a, 137b and 138, were selected for comparison and the same transect/quadrat monitoring methodology was used to survey each of these swamps.

The vegetation survey results for autumn 2025 have been assessed in accordance with the Longwalls 308-310 Biodiversity Management Plan. The results of the autumn 2025 survey in relation to the Biodiversity Management Plan TARP are summarised in Section 6.7. The results of the Longwalls 308-310 upland swamp vegetation monitoring program (up to and including the autumn 2025 survey) can be summarised as follows:

- Visual inspections did not identify any cracking of exposed bedrock areas or swamp sediments in either longwall or control swamps, other than two minor cracks in exposed bedrock in two control swamps (Swamp 137a and 137b) which have been previously recorded and considered a weathering artefact and fire damage.
- Areas in which active erosion was observed in autumn 2025 was minor. Minor erosion was recorded at two longwall sites (Swamps 62 and 64), with increased erosion along the track of longwall site Swamp 92TTT. Erosion from anthropogenic activity was recorded along the middle of transects in control site Woronora River south arm. A minor increase to erosion within control site Swamp 125 was recorded along the flow path, however presence and new growth of ground layer species in these areas indicate recovery is occurring. Dahlia Swamp had a slight increase in erosion along the flow path.
- For Banksia Thicket/Sedgeland-Heath swamps minor to moderate seepage was recorded across most control sites (Swamp 101, 125, 135, 137a, 137b and 138) and longwall sites (Swamp 64, 78, 81, 82, 88, 89, 90 and 92SH). Seepage was generally observed on terminal steps or along transect paths and creek lines.
- For Tea Tree Thicket control swamps, seepage was abundant at all three of the Tea Tree Thicket control sites (Woronora River 1, Woronora River south arm and Dahlia Swamp) and longwall Swamp 92TTT. Seepage was present along existing access tracks, transects and/or the main drainage line, which tends to run through the centre of each of these swamps.
- Where seepage occurred, water was clear across both longwall and control sites in Autumn 2025.

The spring 2024 and autumn 2025 Longwalls 308-310 Vegetation Monitoring Reports prepared by Eco Logical are provided as Appendices G9 and G10, respectively.

6.3.2 Upland Swamp Groundwater Monitoring

Swamp substrate water levels are assessed against the following upland swamp groundwater performance indicator in the Longwalls 311-316 Biodiversity Management Plan:

> *Subsidence impacts are not expected to result in measurable changes to swamp groundwater levels when compared to control swamps or seasonal variations in water levels experienced by upland swamps prior to mining.*

As described in Section 6.2.6, semi-quantitative comparisons of the swamp substrate water levels of Swamps 25, 30, 35 and 50 with control swamps and rainfall records do not show a definitive mining effect and the dry conditions are regarded as a natural response to reduced rainfall (Appendix C).

The swamp substrate hydrographs for Swamps 33, 35, 40, 41, 46, 51, 52, 53, 71a and 72 indicate that the correlation of swamp substrate with the rainfall trend is strong (Appendix C). Data analysis for the reporting period indicates the seven-day moving averages for all swamps apart from Swamp 76-2 were at or above the swamp's minimum recorded in the baseline period (Appendix C) The seven-day moving average minimum level of Swamp 76-2 were at the baseline minimum in 2025 and the associated deep piezometer was below the baseline minimum.

Within the Longwalls 311-316 Biodiversity Management Plan, no trigger is assigned to either Swamp 20 or Swamp 28 due to these swamps previously having been impacted by mining. Though for completeness they have been briefly summarised below.

The upland swamp groundwater performance indicator has been exceeded at Swamp 20 since 2012. Swamp 20 substrate water levels changed from being permanently saturated to being periodically saturated as a result of the passing of Longwall 21 (Appendix C). Rainfall events in 2020 and 2021 saw short-term increases in the water levels. Over the first half of 2022, the substrate piezometer showed a more permanent increase in water levels with the piezometer remaining fully saturated over the entire period, excluding a brief period in February 2023 when water levels were close to the sensor level. This correlates with the intensive rainfall events experienced over the first half of 2022. Over late 2022, the substrate levels showed a declining trend to the sensor level, and the swamp is once again showing temporally saturated behaviour during the first half of 2023. In late 2023, the substrate level was generally at the sensor level, with a slight increase observed towards the end. In 2024, the water levels in Swamp 20 and control swamps showed similar trends, with Swamp 20 showing a more pronounced response to the weather conditions. During 2025, there were fluctuations in the water levels in line with climatic conditions until November when a lower rainfall period caused a decrease back to approximately 210 mRL.

A potential mining effect to the substrate water levels of Swamp 28 (overlying Longwall 24) was identified in 2016 based on the incomplete recovery of substrate water levels following rainfall events (Appendix C). Swamp 28 was considered to have an impact from mining of Longwall 25, although no effect on swamp substrate water levels occurred when Longwall 24 passed directly beneath the monitoring site (Appendix C). The substrate piezometer at Swamp 28 returned to dry conditions from September 2017, remaining so until a rainfall event in February 2020, where the Swamp 28 substrate piezometer was re-saturated, returning to a saturation and recession pattern as observed prior to the drought. This behaviour was also observed at the two control swamp piezometers (Swamps 137a and 137b). The substrate piezometer at Swamp 28 indicated saturated conditions until December 2020. Over 2022, the substrate has been permanently saturated with groundwater levels constantly about 1 m above the sensor level in the first half of 2022, decreasing to 0.5 m by the end of the 2022. This decreasing trend continued into 2023, before a recharge event in February 2023 caused a rapid increase in substrate levels. The substrate water level gradually decreased to approximately sensor level from mid to late 2023. In the first half of 2024, water levels generally increased to near saturation, with a brief decrease observed in March 2024. Compared to the water levels in control swamps, Swamp 28 displayed a similar trend but showed less responsiveness. During the second half of 2024, Swamp 28 showed a similar trend to the control swamps. This was followed by a decline and return to previous levels between October and December 2025.

As discussed in Section 6.2.6, the Swamp 28 substrate piezometer was concluded to not have been impacted by mining despite an impact being observed to the deep sandstone piezometer (Appendix C). Following further analysis of monitoring data to date, it has been determined that the mining effect to the substrate water levels of Swamp 28 was concluded during a period of substantial drought. The substrate piezometer at Swamp 28 returned to pre-drought saturation and recession patterns following rainfall in February 2020, which was also observed at control Swamps 137a and 137b. As such, the conclusion that a mining impact was observed at the Swamp 28 substrate piezometer is no longer supported (Appendix C).

An investigation by ATC Williams (2025) included a comparative assessment of upland swamps where groundwater levels have been monitored, focusing on substrate water level recession rates. This analysis compared Swamp 28 with control Swamp 137B and found that, despite previously documented impacts to the upper Hawkesbury Sandstone in the vicinity of Swamp 28, there was no material change in the rate of substrate water level recession at Swamp 28 before and after 2015.

Long-term substrate water level trends at Swamp 28 were found to be consistent with those observed at control Swamp 137B across the period of record. Observed fluctuations in substrate water levels at both sites were considered to be driven by rainfall variability rather than mining related effects. Accordingly, as of 31 December 2025, it is considered that there is a negligible impact to the substrate water level at Swamp 28.

6.3.3 Riparian Vegetation Monitoring

Riparian vegetation monitoring is conducted at a number of sites on the Waratah Rivulet and Eastern Tributary, overlying Longwalls 20-27 and downstream of Longwalls 20-27 (Figure 13).

The vegetation survey results for autumn 2025 have been assessed in accordance with the Longwalls 311-316 Biodiversity Management Plan. The results of the autumn 2025 survey in relation to the Biodiversity Management Plan TARPs are summarised in Table 10 in Section 6.7. The results of the Longwalls 20-22 and Longwalls 23-27 autumn 2025 riparian vegetation monitoring surveys can be summarised as follows:

- Water levels at all riparian sites along the Waratah Rivulet, both Longwall (MRIP01 and MRIP02) and control (MRIP03 and MRIP04) were similar to spring 2024. At control site MRIP10, water levels were higher in autumn 2025 than in autumn 2024.
- The effects of the major rain and flood event in February 2023 remain evident in Autumn 2025. All riparian sites were severely impacted and were previously observed with a greater extent of vegetation dieback in Autumn 2023. Flooding impacts from high velocity water flow resulted in detached vegetation, erosion and sediment and woody debris deposition. Vegetation including large shrubs and small trees were often uprooted beyond top of bank at most sites and the ground layer was often missing or swept away. As of Autumn 2025, previous flood impacts remain apparent. New flood impacts were observed in localised areas of MRIP05, MRIP06 and MRIP10 in Autumn 2025. No other flood impacts were evident across riparian sites and vegetation dieback has not extended or increased. In Autumn 2025, resprouting of flood-impacted individuals and seedling establishment in ground and mid layer species was observed.
- Based on the surveys, it was considered likely the vegetation condition will continue to recover if a reasonable number of stable seasons are experienced. This was the case in Spring 2023, Autumn 2024, and Spring 2024 where stable and average rainfall was experienced. These previous surveys and the Autumn 2025 survey observed improved vegetation condition and continued signs of vegetation regrowth in impacted areas.
- Vegetation was generally observed in good condition across and adjacent to all riparian monitoring sites in autumn 2025, despite the flood impacts. Exceptions to the generally good condition of vegetation within these riparian sites was limited to isolated and scattered individuals observed with dieback and flood impacts including prone vegetation and burial by flood debris.
- In autumn 2025, the percent cover and height of the structural layers was generally similar to that recorded for previous seasons. Across all seasons (since the surveys commenced in spring 2008), the vegetation structure, dominant species and estimated cover for each stratum has varied between sites and between seasons within sites, with no clear trends in vegetation cover across sites.
- Species richness in autumn 2025 was generally higher compared to previous seasons. This contrasts to spring 2024 where species richness has decreased at longwall at control sites. This was considered to have been attributed to a combination of average to dry conditions prior to survey in addition to successive flood events.
- Up to and including the autumn 2025 survey, mean vegetation condition has decreased over the entire survey period for the three riparian indicator species Lomatia myricoides, Prostanthera linearis and Schoenus melanostachys, within both longwall and control sites, with the extent of decline greatest for Prostanthera linearis and only a minor decline observed for Lomatia myricoides.

- In autumn 2025, the mean reproductive status for tagged riparian indicator species was slightly higher at longwall sites compared to control sites for *Prostanthera linearis*, whilst for *Lomatia myricoides* it was slightly higher at control sites compared to longwall sites. Mean reproductive status of *Schoenus melanostachys* was similar between longwall and control sites. The mean reproductive status of Prostanthera linearis and Schoenus melanostachys has been considerably more variable between seasons, and between longwall and control sites within seasons, than for Lomatia myricoides, preventing any discernible trend from being detected.
- Four species of conservation significance were recorded at riparian vegetation monitoring sites in autumn 2025, namely *Eucalyptus luehmanniana, Hibbertia nitida, Lomandra fluviatilis* and *Pultenaea aristata*. Generally, the significant species observed were recorded in a good condition at both longwall and control sites.
- Two introduced species were observed in riparian monitoring sites: *Conzya bonariensis* (Fleabane) (MRIP02) and *Senecio madagascariensis* (Fireweed) (MRIP01).

The spring 2024 and autumn 2025 Longwalls 20-22, Longwalls 23-27, Longwalls 301-304, Longwalls 305-307 and Longwalls 308-310 Vegetation Monitoring Reports prepared by Eco Logical are provided in Appendices G1 to G10.

6.3.4 Aquatic Biota and Their Habitats

The aquatic ecology monitoring programs for Longwalls 20-22 and Longwalls 23-27 were designed to monitor subsidence-induced impacts on aquatic ecology (referred to as stream monitoring) and the response of aquatic ecosystems to the implementation of potential future stream remediation works (referred to as pool monitoring). The locations of the monitoring sites are shown on Figure 14.

The Longwalls 311-316 Biodiversity Management Plan include post-mining monitoring and management of potential subsidence impacts and environmental consequences associated with Longwalls 20-22 and Longwalls 23-27. No additional aquatic ecology monitoring sites have been established for Longwalls 311-316.

Multivariate and univariate statistical procedures (Permutational Multivariate Analyses of Variance [PERMANOVA] and Plymouth Routines in Multivariate Ecological Research software packages) are used to examine temporal and spatial patterns in macroinvertebrates and macrophytes sampled within the study area. Specifically, PERMANOVA's are used to test hypotheses related to differential changes (e.g. before-versus-after commencement of mining) in multivariate and univariate (e.g. total number of taxa, total abundance and abundances of the most important taxonomic groups identified from the samples) estimates occurring in streams or pools subject to mining (i.e. potential 'impact' streams), in comparison to independent streams or pools that are not subject to mine subsidence (i.e. control places).

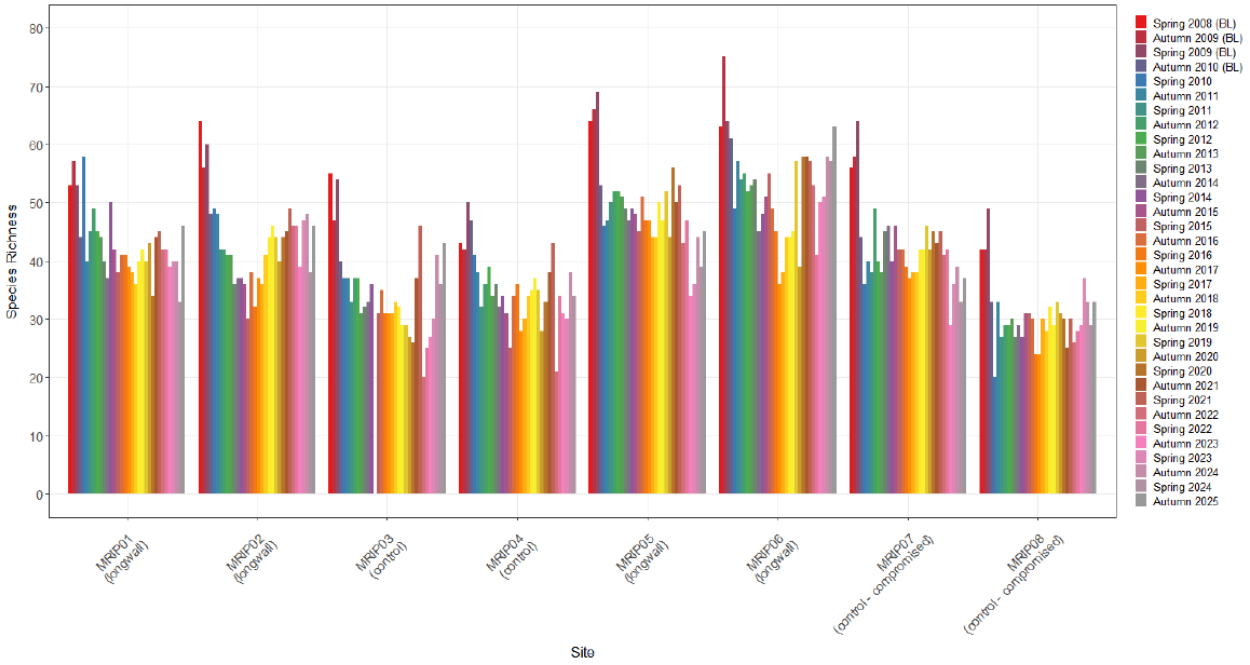


Chart 85 Native Species Richness within Riparian Monitoring Sites across All Seasons – Longwalls 20-22 Monitoring Program

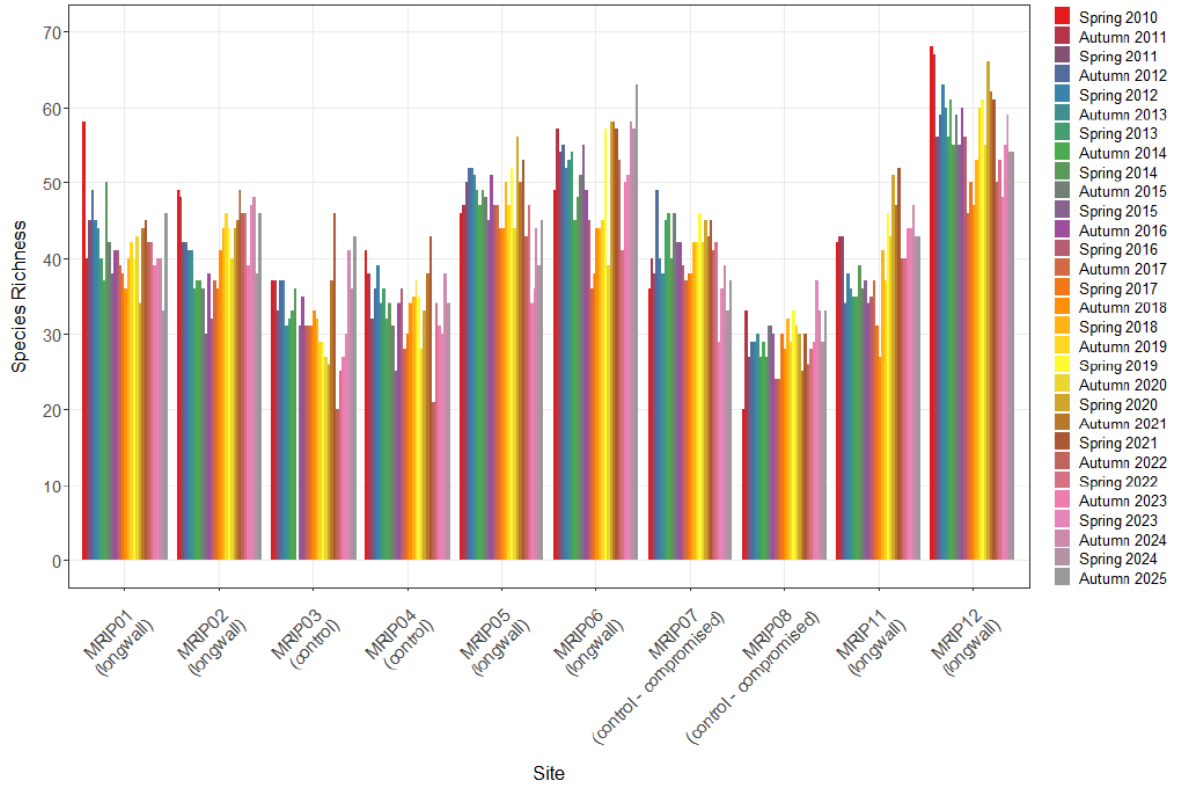


Chart 86 Native Species Richness within Riparian Monitoring Sites across All Seasons – Longwalls 23-27 Monitoring Program

The spring 2024 Longwalls 20-27 and autumn 2025 Longwalls 20-27 Aquatic Ecology Monitoring Reports prepared by Bio-Analysis Pty Ltd are provided in Appendices H1 and H2, respectively.

The results of the Longwalls 20-27 aquatic ecology programs (up to and including the autumn 2025 survey) are summarised below.

6.3.4.1 Stream Monitoring Program

Eastern Tributary

The results of the Longwalls 20-27 riparian vegetation monitoring surveys on the Eastern Tributary[8] in autumn 2024 can be summarised as follows:

- At Location C1, during autumn 2022, spring 2022, autumn 2023, spring 2023, autumn 2024 and spring 2024 quantitative analyses detected a significant mining-related impact to aquatic macroinvertebrate fauna, namely a reduction in mean numbers of the freshwater shrimp family, Atyidae, post-extraction of the Longwalls 20-22. Quantitative analyses have continued to find no changes to other performance indicators.
- At Location C2, there has been evidence of significant mining-related reductions in mean numbers of Atyidae post-extraction of the Longwalls 20-22, in spring 2015, autumn 2021, spring 2021, autumn 2022, autumn 2023, spring 2023, autumn 2024, spring 2024 and autumn 2025. Multivariate analyses detected evidence of changes to the structure of assemblages of aquatic macroinvertebrates at Location C2 from spring 2019 to autumn 2023, but not subsequently, as a result of mining activities of Longwalls 23-27. Mean numbers of Atyidae collected were significantly fewer within survey periods between autumn 2016 and 2018 and between autumn 2020 and spring 2021, but not subsequently.
- At Location C3, statistical analyses have not detected significant changes in aquatic macroinvertebrate or aquatic macrophyte indicators that would indicate an impact from mining.
- At Location C4, analyses show that the structure of the macroinvertebrate assemblage sampled from spring 2019 to autumn 2023 and autumn 2025 surveys differed significantly from assemblages collected within the before-period but not subsequently. Temporal patterns in diversity of macroinvertebrates and mayflies (Leptophlebiidae) at Location C4 have become significantly variable between periods since autumn 2018, in relation to the control locations. Significantly fewer Atyidae were collected at Location C4 in autumn 2016, spring 2018, spring 2019 and autumn 2020, but not subsequently. The structure of the aquatic macrophyte assemblage at Location C4 has differed significantly from assemblages within the before-period since autumn 2018.

The subsidence impacts at Locations C2 and C4 have triggered an assessment against the biodiversity subsidence impact performance measure, *Negligible impact on threatened species, populations, or ecological communities*, which have been undertaken by Ecoplanning and Niche (Appendices I1 and I2). The assessments conclude that the subsidence impact performance measure has been met.

Location C1 triggered an assessment against the biodiversity subsidence measure in autumn 2025. A separate investigation will be conducted, and the results will be reported to relevant agencies.

[8] The Eastern Tributary is also known as Tributary C. Locations ET1 to ET4 shown on Figure 14 are the same as Locations C1 to C4 discussed in this section of the Annual Review, and in Appendices J1 and J2.

Waratah Rivulet

The results of the Longwalls 20-27 riparian vegetation monitoring surveys on the Waratah Rivulet in autumn 2025 can be summarised as follows:

- An iron precipitate/micro-organism complex has commonly been observed at Locations WT3, WT4 and WT5 since sampling commenced in spring 2008. Cracking of bedrock in the stream channel due to subsidence was first noted at Location WT3 in spring 2013. Mining-related cracking does not appear to have occurred at Locations WT4 or WT5.
- To date, analyses comparing temporal changes in components of assemblages of macroinvertebrates and macrophytes at Locations WT3, WT4 and WT5 on the Waratah Rivulet in relation to control locations have not detected significant changes that would indicate an impact during or after mining of the Longwalls 20-22 underground area.
- Univariate analyses, however, have detected a significant change in mean diversity of macroinvertebrates at Location WT3, in spring 2016, autumn 2018 and subsequent surveys, however, no significant change in mean diversity was observed in autumn 2025. A significant mining related impact to mean numbers of Atyidae was detected at Location WT3 in spring 2021 and subsequent surveys, including spring 2024 and autumn 2025. Atyidae have declined significantly at WT3 but not at the control locations.
- There were no conspicuous differences in mean diversity at Locations WT4 or WT5 in relation to the control locations. Mean abundance of macroinvertebrates and mean numbers of Leptophlebiidae and Atyidae did not differ at Location WT4 or WT5 in relation to the control locations between the before- and after-mining periods.
- There were no detectable changes to aquatic macrophytes at the Waratah Rivulet locations in relation to the control locations that could be associated with mining.

The subsidence impacts at Location WT3 triggered an assessment against the biodiversity subsidence impact performance measure, *Negligible impact on threatened species, populations, or ecological communities*, which have been undertaken by Ecoplanning and Niche (Appendices I1 and I2). The assessments conclude that the subsidence impact performance measure has been met.

6.3.4.2 Pool Monitoring Program

Eastern Tributary

As described in the Longwalls 311-316 Biodiversity Management Plan, Pools ETAG, ETAH, ETAI and ETAK on the Eastern Tributary monitored by the previous pool monitoring program were impacted by mine subsidence in late 2016 or early 2017. Since that time, Pools ETAG, ETAH, ETAI and ETAK have often been dry or contained insufficient aquatic habitat for sampling as a result of the mine subsidence impacts. As described in Section 13.1, Metropolitan Coal is conducting stream remediation activities on the Eastern Tributary in accordance with the Metropolitan Coal Stream Remediation Plan. Monitoring of Pools ETAG and ETAH will recommence subsequent to the conduct of stream remediation activities at Pool ETAH and will be conducted biannually[9]. Monitoring of Pools ETAI and ETAK will recommence subsequent to the conduct of stream remediation activities at Pool ETAK and will be conducted biannually[10].

[9] Monitoring will commence after the first stream remediation campaign at Pool ETAH has been conducted (i.e. once the stream remediation activities have moved from the site).

[10] Monitoring will commence after the first stream remediation campaign at Pool ETAK has been conducted (i.e. once the stream remediation activities have moved from the site).

The relevant control pools on the Woronora River (larger Pool WP and/or smaller Pools WP-A, WP-B and WP-C) and O'Hares Creek (larger Pool OC and/or smaller Pools OC-A, OC-B and OC-C) will be monitored biannually when sampling of the pools described above recommences.

6.3.4.3 Assessment of Subsidence Impacts and Environmental Consequences on Aquatic Habitats and Biodiversity

The key potential subsidence impacts and environmental consequences for streams described in the Project EA, Preferred Project Report and Metropolitan Coal Biodiversity Management Plans include impacts on aquatic habitats (e.g. alteration of hydrology, pool habitat, in-stream connectivity and water quality), and on biodiversity (e.g. aquatic macrophytes, macroinvertebrates, fish and riparian vegetation). In summary, the key potential environmental consequences described in the Project EA, Preferred Project Report, and Metropolitan Coal Biodiversity Management Plans include:

- Changes in stream flows as a result of fracturing of bedrock and the consequent diversion of a portion of the total stream flow as underflow. The effects of underflow would be most noticeable during periods of low flow and on the frequency of no flow, while the effects on the frequency and magnitude of high flows would be negligible.
- Changes in pool water levels and in-stream connectivity—underflow has been observed to result in lower water levels in pools as they become hydraulically connected with the fracture network. During prolonged dry periods when flows recede to low levels, the number of instances where loss of flow continuity between pools increases with a greater proportion of these lower flows being conveyed entirely in the subsurface fracture network.
- Impacts on water quality following cracking of the stream bed that can reduce the quality of habitat for aquatic biota (e.g. generation of iron flocculent material).
- Minor stream bank erosion, where changes in channel gradients result in increases in flow energy.
- Impacts on aquatic macrophytes plants (e.g. as a result of changes in hydrology described above) resulting in exposure and desiccation or smothering of plants by iron flocculent material. Aquatic macrophytes have evolved reproductive strategies to cope with the variable nature of flow in streams and wetlands within Australia. Obligate water plants generally require permanent water, however, they can recolonise once water becomes available again.
- Localised impacts on aquatic macroinvertebrates as a result of changes in aquatic habitat/hydrology described above. The Project is unlikely to have any significant long-term impacts on assemblages of macroinvertebrates.
- The conveyance of surface water flows to sub-surface fractures in the area affected by subsidence has the potential to reduce available habitat for fish and connectivity among sections of the stream channel, impeding fish passage.

The results of aquatic ecology monitoring are considered to be consistent with the potential subsidence impacts and environmental consequences described in the Project EA, Preferred Project Report and the Metropolitan Coal Water Management Plans and Biodiversity Management Plans.

The subsidence impacts on Locations C2, C4 and WT3 during the reporting period on the Eastern Tributary and Waratah Rivulet have triggered assessments against the biodiversity subsidence impact performance measure, *Negligible impact on threatened species, populations, or ecological communities*. The threatened flora and fauna assessments prepared by Ecoplanning and Niche are provided in Appendices I1 and I2, respectively. The assessments conclude that the subsidence impact performance measure has been met.

Location C1 triggered an assessment against the biodiversity subsidence measure in autumn 2025. A separate investigation will be conducted, and the results will be reported to relevant agencies.

Subsidence impacts on Tributary B have resulted in no surface flow along the stream in the vicinity of Location B1 for an extended period of time. This change in aquatic habitat/hydrology has resulted in long term impacts to the aquatic macroinvertebrate assemblage at this location (Location B1) and downstream at Location B2. This has not resulted in an exceedance of the biodiversity subsidence impact performance measure, *Negligible impact on threatened species, populations or ecological communities*.

Metropolitan Coal will continue to conduct stream remediation of pools on the Eastern Tributary in accordance with the Metropolitan Coal Stream Remediation Plan (Section 13.1).

6.3.5 Amphibian Surveys

For previous reporting periods, the amphibian monitoring program consisted of four separate monitoring programs developed for Longwalls 20-22, Longwalls 23-27, Longwalls 301-307 and Longwalls 308-317. Monitoring and reporting for inclusion in the Annual Reviews was conducted by Cenwest Environmental Services (Cenwest) until summer 2024.

As provided in the 2024 Annual Review and described in Section 15 of this report, Metropolitan Coal engaged Niche to assist with developing an updated amphibian monitoring program for the three Large Swamps in response to comments from the IEAPM. The revised monitoring program uses best-practice methods consistent with contemporary guidelines (i.e. NSW Threatened Frog Survey Guidelines) and collects several population parameters for each threatened amphibian species such as relative abundance, seasonality, visual changes in habitat, habitat suitability to enable analysis of potential mining and climatic effects on threatened amphibian populations. The three targeted threatened species are consistent with the previous program which include the Giant Burrowing Frog (*Heleiporus australiacus australiacus*), Red-crowned Toadlet (*Pseudophryne australis*) and Littlejohn's Tree Frog (*Litoria littlejohni*). A total of 12 potential impact and control sites are monitored.

Baseline surveys for the Longwalls 311-316 amphibian monitoring were conducted in early 2025 to collect baseline data and enable multivariate analysis to be conducted for the first year of mining near the Large Swamps (i.e. Longwall 312).

The monitoring site locations target areas where habitat is most suitable for the threatened amphibian species within the Large Swamps (i.e. along tributaries within the swamp). The sites are situated along Tributary S, associated with Swamp 76, Tributary R associated with Swamp 77 and Tributary P associated with Swamp 92. Control swamps are located outside the Longwalls 311 to 316 35-degree angle of draw and 20 mm subsidence contour within Bee Creek, Swamp 106 and Swamp 76 (until a mining-related impact has been determine by subsidence and groundwater consultants). The locations of the Longwalls 311 to 316 amphibian monitoring sites are shown on Figure 15a.

The primary changes to the survey methodology include:

- A threatened species-specific monitoring program and TARP (considers the specific survey requirements for the Giant Burrowing Frog, Red-crowned Toadlet and Littlejohn's Tree Frog).
- 120 minute aural-visual surveys along transect (suitable to access/weather).
- Nocturnal aural-visual surveys along the monitoring transects (aligned with the NSW Threatened Frog Survey Guidelines).
- Year-on-year comparison between threatened species abundance along the transects.
- Consideration of potential groundwater and/or surface water level impacts when assessing performance against the Performance Indicator and comparison of threatened species abundance in the Large Swamps versus control sites.

Further detail of the methodology is provided in the BMP and Appendix J.

This 2025 Annual Review is the first iteration of this methodology and reporting.

The monitoring sites will be surveyed annually in spring/summer (i.e. November to February) targeting periods following rainfall to coincide with peak breeding and activity periods (subject to access and weather). The summer 2025/2026 survey was carried out in two separate surveys, the first across several days between 21 November and 19 December 2025 and second across 12 January to 17 February 2026.

6.3.5.1 Longwalls 20-27 and 301-310 Amphibian Monitoring

As described in Section 6.3, post-mining monitoring will continue for Longwalls 20-27 and 301-310. In consideration of the variation in amphibian monitoring methodology for Longwalls 311-316, Metropolitan Coal has engaged Niche to review the previous monitoring program created by Cenwest and develop a contemporary monitoring program to ensure the Longwalls 20-27 and 301-310 amphibian monitoring design aligns with relevant guidelines (namely the NSW Threatened Frog Survey Guide) as well as to ensure consistency with the Longwalls 311-316 amphibian monitoring.

In consideration of the revision to methodology from quadrat sites to transects in line with the NSW Threatened Frog Survey Guide, a detailed review of the historical monitoring sites has been undertaken. Further, updated statistical analyses have been required to be undertaken to transform the available historical data to a representative state. It is also noted several catchment closures occurred across the Summer 2025/2026 period, delaying surveys.

In consideration of the above, the results of the 2025 Longwalls 20-27 and 301-310 Amphibian Monitoring will be provided separately.

6.3.5.2 Longwalls 311-316 Amphibian Monitoring

Extraction of Longwall 311 was completed in June 2025 and extraction of Longwall 312 commenced on 1 August 2025 and continued through the remainder of 2025. Accordingly, all longwall monitored sites were considered potentially at susceptible to mining-related impacts and results were assessed against the TARP. However, SLR considers there has been no changes to groundwater or swamp dynamics of the Large Swamps in the 2025 reporting period, thus this data was considered as baseline.

The summer 2025/2026 amphibian surveys recorded 3 Red-crowned Toadlet individuals along Tributary S (associated with Swamp 76) and 63 Littlejohn's Tree Frog individuals at Tributary P (associated with Swamp 92).

At control sites, 21 Littlejohn's Tree Frog individuals were recorded along Honeysuckle Creek, and a total of 200 Giant Burrowing Frogs were recorded in Bee Creek Swamp and Honeysuckle Creek.

Consideration into the habitat conditions and climate suitability for the breeding and activity of the threatened amphibian species was incorporated into the assessment. It was noted that control sites, particularly Honeysuckle Creek and Bee Creek supported the majority of threatened frog records. These sites contain well-defined creek channels with permanent or semi-permanent pools, bedrock and sandy substrates. Such features are recognised as optimal breeding habitat for both Littlejohn's Tree Frog and the Giant Burrowing Frog.

In contrast, several of the potential impact sites are swamp-dominated with a greater reliance on groundwater seepage rather than open flowing streams. This habitat is more aligned with habitat suitable for the Red-crowned Toadlet.

The presence of non-threatened amphibian species was also recorded to inform the analysis and gain a broader understanding of the amphibian population dynamics.

6.3.5.3 Statistical Analysis of Amphibian Monitoring Results

Linear mixed-effects models were fitted to test for differences in abundance between survey periods (2025 [baseline] and summer 2025/2026), site group (control vs potential impact) and their interaction. Site was included as a random effect to account for repeated sampling at the same locations. The primary term of interest was the Year x Site Group interaction, which directly tests whether temporal trends at potential impact sites differ from those at control sites.

To assess whether amphibian assemblage composition changed through time at potential impact sites relative to control sites, Bray–Curtis resemblance matrices were constructed from square-root transformed abundance data. Non-metric multidimensional scaling (NMDS) was used to visualise assemblage patterns, and PERMANOVA was used to formally test for differences in assemblage structure.

As with the univariate analysis, the primary term of interest was the Year cross Site Group interaction, which tests whether assemblage trends at potential impact sites differ significantly from those observed at control sites.

Relative abundance was calculated to assess spatial and temporal variation in overall amphibian diversity.

The univariate analysis found no significant interaction between year and site group for threatened amphibian abundance, indicating that temporal changes at potential impact sites were not detectable different from those at control sites.

NMDS ordination of the entire frog assemblage showed considerable overlap between control and potential impact sites, with no clear separation by year. Both 2025 (baseline) and 2026 samples were broadly interspersed, indicating stable community composition across the monitoring period.

PERMANOVA results indicated no significant effect of year, site group, or their interaction on overall frog assemblage composition. Tests for homogeneity of multivariate dispersion were not significant, confirming that the PERMANOVA results were not driven by unequal variability among groups.

Multivariate analyses detected no mining-related impact shifts in assemblage composition for either threatened frog species or the broader amphibian community. Similarly, univariate models showed no evidence that threatened amphibian abundance changed differently over time at potential impact sites compared with control sites. Observed variability among sites is consistent with natural spatial and temporal fluctuations typical of amphibian populations, as well as pre-existing habitat availability.

Therefore, assessment against the Longwalls 311-316 amphibian monitoring Performance Indicator '*The threatened amphibian abundance is not expected to experience a decline compared to previous years, due to groundwater substrate or pool water level impacts, significantly different to the threatened amphibian abundance trends at control sites'* has not been exceeded for Summer 2025/2026.

6.3.6 Giant Dragonfly Surveys

Since the identification of the *Petalura gigantea* (Giant Dragonfly) species within the Longwalls 311-316 area downstream of Swamp 14 (via eDNA analysis), Metropolitan Coal engaged Niche with the assistance of species expert Stephanie Clarke to conduct targeted baseline surveys of the Giant Dragonfly within Swamps 76, 77 and 92 and develop a Giant Dragonfly monitoring program (Figure 15b). In summer 2024/2025, Niche collected one year of survey data during the baseline surveys.

The objective of the Giant Dragonfly monitoring program is to test the Performance Indicator developed below:

> *The Giant Dragonfly population is not expected to experience a decline in abundance due to subsidence-related changes to groundwater levels in the swamp substrate of the Large Swamps when compared to control swamps or natural seasonal variations.*

Due to the lack of pre-mining baseline data, a further objective of the monitoring program is to establish consistent monitoring effort across years and sites to allow for the broad comparison of detection patters, noting limitations with seasonal and emergence variability and to determine the viability of control swamps. Groundwater monitoring results are also considered to determine potential impacts to swamp substrate levels.

Giant Dragonfly field surveys are to be conducted annually, with two rounds of survey to be completed (subject to access and weather) for the first two survey periods (2025/2026 and 2026/2027) before assessing if sufficient data has been collected to return to one round of surveys per year.

Survey methodology comprises Random Meander Surveys through suitable habitat to search for active adult dragonflies and exuviae on vegetation or ground surveys, Surveys are conducted for four hours commencing mid-to late morning to target peak flight activity. Additionally, to improve detection of exuviae particularly where random searches are less effective, two to three transects are established per site. All ground-layer vegetation, inter-tussock spaces and low shrubs along the transect are carefully searched for exuviae. Further detail of the monitoring methodology is provided in the Longwalls 311-316 BMP and Appendix O.

The summer 2025/2026 surveys is the first iteration of the monitoring program.

6.3.6.1 Longwalls 311-316 Giant Dragonfly Monitoring

Consistent with the BMP, the summer 2025/2026 surveys comprised two survey campaigns. The first campaign occurred in late November and early December 2025, and the second in late January and early February 2026. Survey timing was selected to coincide with the known adult flight period and emergence patterns to maximise detection of both adults and exuviae.

During field surveys, Giant Dragonfly individuals were detected at all control sites (i.e. Woronora Swamp 1-1, Bee Creek Swamp and Swamp 14), as well as potential impact sites Swamp 77 and Swamp 92. No Giant Dragonflies were detected at potential impact site Swamp 76 (noting the absence of detections is consistent with the results of the baseline surveys conducted in summer 2024/2025).

Further consideration was given into the Giant Dragonfly habitat suitability of Swamp 76 during the assessment of the 2025 monitoring program results. Habitat assessments completed during the 2025/2026 surveys indicate Swamp 76 predominantly contains Banksia thicket vegetation with limited areas of sedgeland or open swamp habitat typically associated with Giant Dragonfly breeding environments.

Detection of the Giant Dragonfly at all control sites during both survey campaigns confirmed the suitability of the control swamps for the monitoring program.

6.3.6.2 Statistical Analysis of Giant Dragonfly Monitoring Results

As described in the Giant Dragonfly TARP within the Longwalls 311-316 BMP, an additional season may be added to the baseline record at some sites where subsidence and groundwater experts conclude there has been no impact to substrate groundwater levels.

In consideration that Giant Dragonfly detections were recorded at all control sites and two of the three potential impact sites and no changes in habitat condition or substrate groundwater levels due to mining were observed, the dataset collected have been considered as baseline monitoring.

6.4 LAND MANAGEMENT

The Metropolitan Coal Longwalls 311-316 Land Management Plan was prepared to manage the potential environmental consequences of Longwalls 311-316 extraction on cliffs, overhangs, steep slopes and land in general in accordance with Condition 6, Schedule 3 of the Project Approval.

The Longwalls 311-316 Land Management Plan includes post-mining monitoring and management of potential subsidence impacts and environmental consequences associated with Longwalls 20-27, Longwalls 301-303, Longwall 304, Longwalls 305-307, Longwalls 308-310 and Longwalls 311-316.

Sections 6.4.1 and 6.4.2 provide a summary of the land assessments for the reporting period. Section 6.7 provides a summary of the assessments against the cliffs and overhangs, steep slopes and land in general subsidence impact performance indicators and measures for the reporting period.

6.4.1 Cliffs and Overhangs

Visual inspections of cliffs and overhangs were conducted monthly when mining of Longwalls 20-22 and/or Longwalls 23-27 were within 400 m of sites COH1, COH2, COH3, COH4, COH5, COH6, COH6A, COH7, COH8, COH9, COH10, COH14, COH15 and COH16 (Figure 16) and following the completion of each longwall to record evidence of subsidence impacts. A vertical tension crack (approximately 50 mm wide and 15 m long) on the cliff face and a small rock fall (approximately 1.5 m long, 0.5 m wide and 0.5 cubic metres) were recorded at site COH2 (Figure 16) in December 2013 during the mining of Longwall 22. No additional subsidence impacts at the cliff or overhang sites were recorded following the completion of Longwall 27.

Visual inspections of sites COH9, COH10, COH11, COH12, COH13 and COH16 were conducted monthly when mining of Longwall 308-310 were within 450 m of the site and following the completion of Longwall 308-310. No subsidence impacts at any of the sites were identified during the reporting period.

Visual inspections for subsidence impacts have been conducted monthly at sites COH10, COH11, COH12, COH13, COH18 and COH19 during and after the extraction of Longwall 311 and 312, in accordance with the Longwalls 311-316 Land Management Plan.

The Project EA, Preferred Project Report and Metropolitan Coal Land Management Plans predicted that the length of potential cliff instabilities would be expected to be less than 3% of the lengths of the cliffs. The total length of cliffs and associated overhangs within the Project underground mining area is approximately 1,069 m. Less than 3% of the total length of cliffs (and associated overhangs) within the mining area have experienced mining-induced rock fall.

6.4.2 Steep Slopes and Land in General

Visual inspections for subsidence impacts on steep slopes and land in general are conducted by Metropolitan Coal and its contractors as part of routine works conducted in the catchment.

No subsidence impacts on steep slopes or land in general were identified by Metropolitan Coal or its contractors during the reporting period. No management measures were required to be implemented.

The recorded subsidence impacts are consistent with the potential subsidence impacts described in the Project EA, Preferred Project Report and Metropolitan Coal Land Management Plans. The size and extent of surface cracking at the steep slopes and land in general would be similar to that observed previously at Metropolitan Coal, and that the maximum predicted systematic strains would be of sufficient magnitude to result in the fracturing of sandstone and, hence, there is potential for rock falls, particularly where rock ledges are marginally stable.

6.5 HERITAGE MANAGEMENT

The Metropolitan Coal Longwalls 311-316 Heritage Management Plan was prepared to manage the potential environmental consequences of the Longwalls 311-316 Extraction Plan on Aboriginal heritage sites or values in accordance with Condition 6, Schedule 3 of the Project Approval.

The Longwalls 311-316 Heritage Management Plan includes post-mining monitoring and management of potential subsidence impacts and environmental consequences associated with Longwalls 20-22, Longwalls 23-27, Longwalls 301-303, Longwall 304, Longwalls 305-307, Longwalls 308-310 and Longwalls 311-316.

Sections 6.5.1 to 6.5.4 provide a summary of the heritage assessments for the reporting period. Section 6.7 provides a summary of the assessments against the Aboriginal heritage sites subsidence impact performance indicators and measures.

6.5.1 Longwalls 20-27, Longwalls 301-303 and Longwall 304

Aboriginal heritage monitoring programs have been implemented at Metropolitan Coal for Longwalls 20-22, Longwalls 23-27, Longwalls 301-303 and Longwall 304 to monitor the impacts and environmental consequences of Project related subsidence on Aboriginal heritage sites. The monitoring programs have been undertaken by a suitably qualified archaeologist (with experience in rock art recording and management) and representatives of the Aboriginal stakeholders.

Of the 77 Aboriginal heritage sites that have been subject to monitoring for Longwalls 20-22, Longwalls 23-27, Longwalls 301-303 and/or Longwall 304, 13 have been determined to have changes due to mining induced subsidence.

Five Aboriginal heritage sites (FRC 15, FRC 281, FRC 283, FRC 284 and MET 1) have been determined to have changes due to mining induced subsidence from Longwalls 20-22 (Figure 17). The observed impacts at each site were as follows:

- Site FRC 15 – vertical cracking, not coincident with any art.
- Site FRC 281 – multiple cracks running either through or adjacent to the motifs (although the majority of art showed no damage or changes).
- Site FRC 283 – cracking of the rear wall of the shelter, not coincident with any art.
- Site FRC 284 – fracturing of the rear wall of the shelter and exfoliation, not coincident with any art.
- Site MET 1 – two vertical cracks along the rear wall and ceiling of the shelter, not coincident with any art.

Seven Aboriginal heritage sites (FRC 28, FRC 29, FRC 34, FRC 60, FRC 176, FRC 275 and FRC 301) have been determined to have changes due to mining induced subsidence from Longwalls 23-27 (Figure 17). The observed impacts at each site were as follows:

- Site FRC 28 – vertical cracking of the rear shelter wall, opening of horizontal planes/joints and movement of the rock shelf that is part of the shelter floor, not coincident with any art.
- Site FRC 29 – horizontal crack along the back wall and a joining vertical crack, not coincident with any art.
- Site FRC 34 – horizontal cracking along the roof of the shelter and cracking over the most southern hand stencil on the back panel.
- Site FRC 60 – three vertical cracks along the back wall of the shelter, no art recorded at this shelter, the artefacts could not be relocated.
- Site FRC 176 – where vertical cracking along the northern and southern ends of the shelter was observed, not coincident with art.
- Site FRC 275 – opening of horizontal bedding plane at rear of the shelter, five vertical hairline cracks along the back wall of the shelter, not coincident with any art.
- Site FRC 301 – surface cracking on the rock platform, not coincident with the grinding grooves.

One Aboriginal heritage site, FRC 76, was determined to have changes due to mining induced subsidence from Longwalls 301-303. The observed impacts were as follows:

- Site FRC 76 – opening of the horizontal bedding plane along the back wall, not coincident with any art.

The Longwall 304 monitoring survey found there were no further changes from mining observed at FRC 76 and no subsidence related changes were observed at site FRC 77, FRC 78, FRC 86, FRC 90 and FRC 309.

Aboriginal heritage site monitoring results for Longwalls 20-27 and Longwalls 301-304 have been assessed against the Aboriginal heritage subsidence impact performance measure:

> *Less than 10% of Aboriginal heritage sites within the mining area are affected by subsidence impacts.*

For the purpose of measuring performance against the Aboriginal heritage subsidence impact performance measure, sites are considered to be “affected by subsidence impacts” if they exhibit one or more of the following consequences that cannot be attributed to natural weathering or deterioration:

- overhang collapse;
- cracking of sandstone that coincides with Aboriginal art or grinding grooves; and
- rock fall that damages Aboriginal art.

The mining area is defined by the Project Approval and is shown on Figure 1 of this report (labelled as Project Underground Mining Area Longwalls 20-27 and 301-317). There are 189 Aboriginal heritage sites within the mining area.

Of the sites at which changes due to mining induced subsidence have occurred, sites FRC 34 and FRC 281 have been affected by subsidence impacts as a result of cracking of sandstone that coincides with Aboriginal art. This means that less than 2% of sites within the mining area have been affected by subsidence impacts. In addition to the changes recorded as a result of mining induced subsidence, natural weathering processes can also result in changes/deterioration of Aboriginal heritage sites.

Metropolitan Coal acknowledges that all Aboriginal heritage sites are considered to be culturally significant to the Aboriginal people who have a traditional connection to Country.

The Aboriginal heritage monitoring results are consistent with the potential subsidence impacts and environmental consequences described in the Project EA, Preferred Project Report and Metropolitan Coal Heritage Management Plans, including the potential for open sites and overhang sites to be impacted by the cracking of sandstone resulting from mine subsidence. The observed rate of subsidence effects at the time of the Project EA and Preferred Project Report was that up to 10% of sites experienced an effect such as cracking, accelerated weathering or blockfall. It was expected that the majority of identified Aboriginal heritage sites would experience no significant change, particularly when compared to natural deteriorating processes unrelated to mining.

6.5.2 Longwalls 305-307

In accordance with the Metropolitan Coal Longwalls 305-307 Heritage Management Plan, monitoring of Aboriginal heritage sites FRC 67, FRC 68, FRC 70, FRC 71, FRC 76, FRC 77, FRC 78, FRC 85, FRC 86, FRC 87, FRC 90, FRC 91, FRC 93, FRC 117, FRC 309, FRC 310 and FRC 325 was undertaken within three months of the completion of Longwall 305.

The Longwall 305 monitoring survey found there were no further changes from mining observed at FRC 76 and no subsidence related changes were observed at sites FRC 67, FRC 68, FRC 70, FRC 71, FRC 77, FRC 78, FRC 85, FRC 86, FRC 87, FRC 90, FRC 91, FRC 93, FRC 117, FRC 309, FRC 310 and FRC 325.

In accordance with the Metropolitan Coal Longwalls 305-307 Heritage Management Plan, monitoring of Aboriginal heritage sites FRC 67, FRC 68, FRC 70, FRC 71, FRC 76, FRC 77, FRC 78, FRC 85, FRC 86, FRC 87, FRC 90, FRC 91, FRC 93, FRC 117, FRC 309, FRC 310, FRC 325, FRC 97, FRC 101, FRC 180, FRC 254, FRC 311, FRC 316, FRC 320, FRC 321, and FRC 325 was undertaken for Longwall 306 in August 2022 after delays due to ongoing heavy rainfall events between January and July 2022 and resultant catchment closures enforced by WaterNSW.

The Longwall 306 Aboriginal Cultural Heritage Monitoring Report found that no mining related changes were recorded at sites FRC 67, FRC 68, FRC 70, FRC 71, FRC 76, FRC 77, FRC 78, FRC 85, FRC 86, FRC 87, FRC 90, FRC 91, FRC 93, FRC 117, FRC 309, FRC 310, FRC 325, FRC 97, FRC 101, FRC 180, FRC 254, FRC 311, FRC 316, FRC 320, FRC 321, and FRC 325.

6.5.3 Longwalls 308-310

In accordance with the Metropolitan Coal Longwalls 308-310 Heritage Management Plan, monitoring of Aboriginal heritage sites FRC 67, FRC 68, FRC 70, FRC 71, FRC 87, FRC 93, FRC 94, FRC 97, FRC 101, FRC 180, FRC 184, FRC 185, FRC 186, FRC 187, FRC189, FRC 191, FRC 194, FRC 195, FRC 198, FRC 199, FRC 254, FRC 310, FRC 311, FRC 313, FRC 316, FRC 323, FRC 324, FRC 340, FRC 344, FRC 345 and MET 6 was undertaken within three months of the completion of Longwall 308. None of the Aboriginal sites were observed to display changes or mining related impacts.

The Longwall 309 monitoring surveys found there were no subsidence related changes observed at sites FRC 67, FRC 68, FRC 70, FRC 71, FRC 87, FRC 93, FRC 94, FRC, 95, FRC 97, FRC 101, FRC 164, FRC 180, FRC 184, FRC 185, FRC 186, FRC 187, FRC 189, FRC 191, FRC 194, FRC 195, FRC 198, FRC 199, FRC 254, FRC 310, FRC 311, FRC 312, FRC 313, FRC 314, FRC 315, FRC 316, FRC 317, FRC 323, FRC 324, FRC 340, FRC 344, FRC 345, NEW 1, NEW 2, NEW 10, NEW 22, NT 33, NT 34, NT 35 and MET 6.

The Longwall 310 monitoring surveys found there were no subsidence related changes observed at site FRC 62, FRC 67, FRC 68, FRC 70, FRC 71, FRC 87, FRC 93, FRC 94, FRC, 95, FRC 97, FRC 101, FRC 164, FRC 180, FRC 184, FRC 185, FRC 186, FRC 187, FRC 189, FRC 191, FRC 194, FRC 195, FRC 198, FRC 199, FRC 254, FRC 310, FRC 311, FRC 312, FRC 313, FRC 314, FRC 315, FRC 316, FRC 317, FRC 323, FRC 324, FRC 340, FRC 344, FRC 345, NEW 1, NEW 2, NEW 10, NEW 22, NT 11, NT 33, NT 34, NT 35, NT 78, NT 79, MET 7 and MET 8.

6.5.4 Longwalls 311-316

In accordance with the Metropolitan Coal Longwalls 311-316 Heritage Management Plan, monitoring of Aboriginal heritage sites FRC 62, FRC 97, FRC 164, FRC 185, FRC 186, FRC 187, FRC 189, FRC 191, FRC 193, FRC 194, FRC 196, FRC 198, FRC 199, FRC 340, FRC 344, FRC 345, NT 11, NT 33, NT 34, NT 35, NT 78, NT 79 and MET12was undertaken within three months of the completion of Longwall 311. None of the Aboriginal sites were observed to display changes or mining related impacts.
Aboriginal heritage site monitoring results for Longwalls 20-27 and 301-316 have been assessed against the Aboriginal heritage subsidence impact performance measure:

> *Less than 10% of Aboriginal heritage sites within the mining area are affected by subsidence impacts.*

For the purpose of measuring performance against the Aboriginal heritage subsidence impact performance measure, sites are considered to be “affected by subsidence impacts” if they exhibit one or more of the following consequences that cannot be attributed to natural weathering or deterioration:

- overhang collapse;
- cracking of sandstone that coincides with Aboriginal art or grinding grooves; and
- rock fall that damages Aboriginal art.

The mining area is defined by the Project Approval and is shown on Figure 1 of this report (labelled as Project Underground Mining Area Longwalls 20-27 and 301-317). There are 189 Aboriginal heritage sites within the mining area.

Of the sites at which changes due to mining induced subsidence have occurred, sites FRC 34 and FRC 281 have been affected by subsidence impacts as a result of cracking of sandstone that coincides with Aboriginal art. This means that less than 2% of sites within the mining area have been affected by subsidence impacts. In addition to the changes recorded as a result of mining induced subsidence, natural weathering processes can also result in changes/deterioration of Aboriginal heritage sites.

Metropolitan Coal acknowledges that all Aboriginal heritage sites are considered to be culturally significant to the Aboriginal people who have a traditional connection to Country.

6.6 PUBLIC SAFETY MANAGEMENT

The Metropolitan Coal Longwalls 311-316 Public Safety Management Plans were prepared to manage the potential consequences of the Metropolitan Coal Longwalls 311-316 Extraction Plan on public safety within the underground mining areas in accordance with Condition 6, Schedule 3 of the Project Approval.

Monitoring of cliffs and overhangs, steep slopes and land in general has been conducted for subsidence impacts in accordance with the Metropolitan Coal Longwalls 311-316 and Longwalls 311-316 Land Management Plan. Monitoring of infrastructure items has been conducted in accordance with the Metropolitan Coal Built Features Management Plans. No subsidence impacts were identified during the reporting period that were considered to pose a risk to public safety.

Further, no subsidence safety incidents were reported by visitors, personnel or contractors to Metropolitan Coal in the underground mining area during the reporting period.

6.7 ASSESSMENT OF ENVIRONMENTAL PERFORMANCE

The subsidence impact performance indicators and performance measures in Table 10 were developed to address the predictions of subsidence impacts and environmental consequences on water resources, watercourses, biodiversity, land, heritage, built features and public safety included in the Project Environmental Assessment, Preferred Project Report, and Metropolitan Coal Longwalls 311-316 Extraction Plan.

Assessments against the subsidence impact performance indicators and performance measures have been conducted for the reporting period in Table 10.

Table 10
Assessment of Environmental Performance – Underground Mining Area and Surrounds

Performance Measure	Performance Indicator	Monitoring Site(s) Being Assessed	Parameters	Highest Significance Level/Trigger Recorded		Comments	Subsidence Impact Performance Indicator Exceeded?	Subsidence Impact Performance Measure Exceeded?
WATER MANAGEMENT								
Negligible Reduction to the Quantity of Water Resources Reaching the Woronora Reservoir								
Negligible reduction to the quantity of water resources reaching the Woronora Reservoir	*Changes in the quantity of water entering Woronora Reservoir are not significantly different post-mining compared to pre-mining, that are not also occurring in the control catchment(s)*	WaterNSW gauging station on Waratah Rivulet (GS 2132102). WaterNSW gauging station on O'Hares Creek at Wedderburn (GS 213200) (control site)	Surface water flow	Level 1	The median of the ratios does not fall below the 35th percentile of the baseline data.	Surface water flow was at Level 1 throughout the reporting period.	No	No
Negligible Reduction to the Quality of Water Resources Reaching the Woronora Reservoir								
Negligible reduction to the quality of water resources reaching the Woronora Reservoir	*Changes in the quality of water entering Woronora Reservoir are not significantly different post-mining compared to pre-mining concentrations that are not also occurring at control site WOWQ2*	Site WRWQ9 on the Waratah Rivulet	Iron (Fe) Manganese (Mn) Aluminium (Al) [Field filtered]	Level 1	Data analysis indicates no water quality parameter exceeds the adjusted baseline mean plus two standard deviations.	Dissolved iron, dissolved aluminium and dissolved manganese were at Level 1 throughout the reporting period.	No	No
		Site ETWQ AU on the Eastern Tributary	Iron (Fe) Manganese (Mn) Aluminium (Al) [Field filtered]	Level 2	Data analysis indicates any water quality parameter exceeds the adjusted baseline mean plus two standard deviations for one month.	Dissolved manganese was a Level 2 in April 2025.	No	No
				Level 1	Data analysis indicates any water quality parameter exceeds the adjusted baseline mean plus two standard deviations for one month.	Dissolved iron, dissolved aluminium and dissolved manganese were at Level 1 throughout the reporting period.	No	No
				Level 3	Data analysis indicates: • any water quality parameter exceeds the adjusted baseline mean plus two standard deviations for two consecutive months; or • over a three month period the water quality parameter exceeds the adjusted mean plus two standard deviations in the first month, the adjusted mean plus one standard deviation in the next month and the adjusted mean plus two standard deviations in the third month; or • the six month mean exceeds the adjusted baseline mean plus one standard deviation for two consecutive assessment periods (i.e. over two six monthly reports); and there was not a similar exceedance of the trigger at the control site.	Dissolved manganese was at Level 3 throughout the reporting period.	Yes	No Assessment conducted by Associate Professor Barry Noller (Appendix E).

Table 10 (Continued)
Assessment of Environmental Performance – Underground Mining Area and Surrounds

Performance Measure	Performance Indicator	Monitoring Site(s) Being Assessed	Parameters	Highest Significance Level/Trigger Recorded		Comments	Subsidence Impact Performance Indicator Exceeded?	Subsidence Impact Performance Measure Exceeded?
WATER MANAGEMENT (Continued)								
No Connective Cracking Between the Surface and the Mine and Negligible Leakage from Woronora Reservoir								
No connective cracking between the surface and the mine	*Visual inspection does not identify abnormal water flow from the goaf, geological structure, or the strata generally*	Underground	Inspections of development workings for water accumulation.	Level 1	Normal water flow identified from the goaf, geological structure, or the strata generally.	-	No	No
	The 20-day average mine water make does not exceed 1 ML/day	Underground	• Metered water reticulated into the mine (mine inflow). • Metered water reticulated out of the mine (mine outflow). • Moisture content into and out of the mine through the mine ventilation system (mine inflow and outflow). • In-situ moisture content of the coal (mine inflow). • Moisture content of ROM coal conveyed out of the mine at the drift portal (mine outflow).	Level 1	20-day average mine water make is less than or equal to 0.5 ML/day.	The 20-day average daily mine water make was approximately 0.32 ML/day during the reporting period.	No	No
	Significant departure from the predicted envelope of the vertical potentiometric head profile at Bore PM02 does not occur	Bore PM02	Groundwater pressures/levels	Level 1	PM02 Head Profile is consistent with the shape and magnitude of the predicted Model Curve.	-	No	No
	Significant departure from the predicted envelope of the vertical potentiometric head profile at Bore PM01 does not occur	Bore PM01	Groundwater pressures/levels	Level 1	PM01 Head Profile is consistent with the shape and magnitude of the predicted Model Curve.	-	No	No

Table 10 (Continued)
Assessment of Environmental Performance – Underground Mining Area and Surrounds

Performance Measure	Performance Indicator	Monitoring Site(s) Being Assessed	Parameters	Highest Significance Level/Trigger Recorded		Comments	Subsidence Impact Performance Indicator Exceeded?	Subsidence Impact Performance Measure Exceeded?
WATER MANAGEMENT (Continued)								
No Connective Cracking Between the Surface and the Mine and Negligible Leakage from Woronora Reservoir (Continued)								
No connective cracking between the surface and the mine **Negligible leakage from the Woronora Reservoir**	*The hydraulic gradient to the Woronora Reservoir at full supply level from Bore PHGW2A is reduced by no more than 40% from that measured to 30 June 2017.*	Bore PHGW2A (97.5 m)	Groundwater pressures/levels	Level 1	PHGW2A >= 186.92 m AHD.	-	No	No
	The hydraulic gradient to the Woronora Reservoir at full supply level from Bore 9EGW2A is reduced by no more than 40% from that measured to 30 June 2017.	Bore 9EGW2A (107.5 m)	Groundwater pressures/levels	Level 3	9EGW2A <= 179.35 m AHD	The water level at Bore 9EGW2A remained above Level 3 until 25 August 2025. It then dropped below Level 3 from August to October and November to December 2025. Ongoing monthly analysis is being conducted to provide insight into any further changes to water levels and long-term recovery.	Yes	No Discussion included in Groundwater Review by SLR (2026) (Appendix C)
	The hydraulic gradient to the Woronora Reservoir at full supply level from Bore PM02 is reduced by no more than 40% from that measured to 30 June 2017.	Bore PM02 (100 m)	Groundwater pressures/levels	Level 1	PM02 ≥ 183.86 m AHD.	-	No	No
	The hydraulic gradient from transect bore T5 to bore T2 does not reduce outside the range seen during the baseline period.	Bores T2 and T5	Groundwater levels	Level 1	T5 - T2 >= 7.82 m	-	No	No
	The hydraulic gradient from transect bore T2 to the Woronora Reservoir remains positive (towards the Reservoir).	Bore T2 and the Woronora Reservoir	Groundwater levels	Level 1	T2 - Woronora Reservoir Level > 0 m	-	No	No

Table 10 (Continued)
Assessment of Environmental Performance – Underground Mining Area and Surrounds

Performance Measure	Performance Indicator	Monitoring Site(s) Being Assessed	Parameters	Highest Significance Level/Trigger Recorded		Comments	Subsidence Impact Performance Indicator Exceeded?	Subsidence Impact Performance Measure Exceeded?
WATER MANAGEMENT (Continued)								
Negligible Reduction to the Quality of Water Resources in the Woronora Reservoir								
Negligible reduction in the water quality of Woronora Reservoir	*Changes in the quality of water in the Woronora Reservoir are not significantly different post-mining compared to pre-mining concentrations*	Woronora Reservoir (site DW01) (subject to data availability from WaterNSW)	Total Manganese (Mn)	Level 2	The current year's duration exceedance curve for a water quality parameter in Woronora Reservoir (total iron, total manganese and total aluminium) is above the baseline 10-year ARI but below the baseline 20-year ARI exceedance curve for any range of the duration percentages from 0% to 75%.	Total manganese was above the baseline 10-year ARI exceedance curve.	Yes	No Assessment against the performance measure conducted by ATC Williams (2026) (Appendix B).
			Total Aluminium (Al) Total Iron (Fe)	Level 3	The current year's duration exceedance curve for a water quality parameter in Woronora Reservoir (total iron, total manganese and total aluminium) is above the baseline 20-year ARI exceedance curve for any range of the duration percentages from 0% to 75%.	Total ion and aluminium were above the baseline 20-year ARI exceedance curve.		
Negligible Environmental Consequences on Waratah Rivulet								
Negligible environmental consequences (that is, no diversion of flows, no change in the natural drainage behaviour of pools, minimal iron staining, and minimal gas releases) on the Waratah Rivulet between the full supply level of the Woronora Reservoir and the maingate of Longwall 23 (upstream of Pool P)	***No Diversion of Flows, No Change in the Natural Drainage Behaviour***							
	No change to the natural drainage behaviour of Pools T, U, V and W	Pools P to W on Waratah Rivulet	Streambed cracking and drainage behaviour.	Level 1	No mine-induced surface cracking or impacts to natural drainage behaviour observed.	Pools P to W were at Level 1 throughout the reporting period.	No	No
	Analysis of water level data for Pools P, T, U, V and W indicates the water level is at or above the pool's previous minimum	Pools P, T, U, V and W on Waratah Rivulet	Pool water level	Level 1	The water level in Pools P, T, U, V or W has not been below the pool's previous minimum.	Pools P to W were at Level 1 throughout the reporting period.	No	No
	Analysis of water level data for Pools Q, R and S indicates the water levels are above that required to maintain water over the downstream rock bar	Pools Q, R and S on the Waratah Rivulet	Pool water level	Level 1	The water level in Pools Q, R or S has been above that required to maintain water over the downstream rock bar.	Pools Q, R and S were at Level 1 throughout the reporting period.	No	No
Negligible Environmental Consequences on Waratah Rivulet								
Negligible environmental consequences (that is, no diversion of flows, no change in the natural drainage behaviour of pools, minimal iron staining, and minimal gas releases) on the Waratah Rivulet between the full supply level of the Woronora Reservoir and the maingate of Longwall 23 (upstream of Pool P)	***Minimal Gas Releases***							
	Gas releases in Waratah Rivulet from Pool T to the full supply level of the Woronora Reservoir have not increased beyond those observed up to the commencement of Longwall 301 extraction	Waratah Rivulet, from Pool T to the full supply level of the Woronora Reservoir	Free Carbon Dioxide as CO_2 (mg/L) CH_4 (mg/L)	Level 1	Free carbon dioxide concentrations are equal to or less than 4 mg/L in Waratah Rivulet pools from Pool P to the full supply level of the Woronora Reservoir. Methane concentrations are equal to or less than 0.159 mg/L in Waratah Rivulet pools from Pool P to the full supply level of the Woronora Reservoir.	Both Pool P and Pool U were at Level 1 throughout the reporting period.	No	No

Table 10 (Continued)
Assessment of Environmental Performance – Underground Mining Area and Surrounds

Performance Measure	Performance Indicator	Monitoring Site(s) Being Assessed	Parameters	Highest Significance Level/Trigger Recorded		Comments	Subsidence Impact Performance Indicator Exceeded?	Subsidence Impact Performance Measure Exceeded?
WATER MANAGEMENT (Continued)								
Negligible Environmental Consequences on Eastern Tributary								
Negligible environmental consequences over at least 70% of the stream length (that is, no diversion of flows, no change in the natural drainage behaviour of pools, minimal iron staining, and minimal gas releases) on the Eastern Tributary between the full supply level of the Woronora Reservoir and the maingate of Longwall 26	***No Diversion of Flows, No Change in the Natural Drainage Behaviour***							
	No change to the natural drainage behaviour of Pools ETAS, ETAT and ETAU	Pools ETAS, ETAT and ETAU on the Eastern Tributary	Stream cracking and drainage behaviour	Level 1	No mine-induced surface cracking at Pool ETAS or Pool ETAT; no increase in previous cracking at Pool ETAU. No impacts to natural drainage behaviour observed.	Pools ETAS, ETAT and ETAU were at Level 1 throughout the reporting period.	No	No
	Analysis of water level data for Pool ETAS/ETAT and Pool ETAU indicates the water levels are above that required to maintain water over the downstream rock bar	Pools ETAS, ETAT and ETAU on the Eastern Tributary	Pool water level	Level 1	The water levels in Pool ETAS/ETAT and Pool ETAU have been above that required to maintain water over the downstream rock bar.	Pool ETAS/ETAT and Pool ETAU were at Level 1 throughout the reporting period.	No	No
	Minimal Iron Staining							
	N/A	Eastern Tributary between the full supply level of the Woronora Reservoir and the maingate of Longwall 26	Nature and extent of iron staining	On 14 October 2016, Metropolitan Coal reported the exceedance of the Eastern Tributary performance measure in relation to iron staining to the NSW Department of Planning and Environment (DP&E) (now DPHI) and other relevant agencies. Iron staining/flocculent is present at a number of stream features between the maingate of Longwall 26 and the full supply level of the Woronora Reservoir. Metropolitan Coal to monitor the nature and extent of iron staining on the Eastern Tributary during the mining of Longwalls 311-316 Metropolitan Coal to implement stream remediation in accordance with the Metropolitan Coal Stream Remediation Plan.		-	N/A	Yes
Negligible environmental consequences (that is, no diversion of flows, no change in the natural drainage behaviour of pools, minimal iron staining, and minimal gas releases) on the Waratah Rivulet between the full supply level of the Woronora Reservoir and the maingate of Longwall 23 (upstream of Pool P).	*Visual inspection of the Waratah Rivulet from Pool T to the full supply level of the Woronora Reservoir does not show significant changes in the extent or nature of iron staining that isn't also occurring in the Woronora River (control site).*	Waratah Rivulet, from Pool T to the full supply level of the Woronora Reservoir.	Nature and extent of iron staining	Level 1	The extent or nature of iron staining in the Waratah Rivulet from Pool T to the full supply level of the Woronora Reservoir has not changed.	-	No	No
Negligible environmental consequences over at least 70% of the stream length (that is, no diversion of flows, no change in the natural drainage behaviour of pools, minimal iron staining, and minimal gas releases) on the Eastern Tributary between the full supply level of the Woronora Reservoir and the maingate of Longwall 26	***Minimal Gas Releases***							
	Gas releases in Eastern Tributary between the full supply level of the Woronora Reservoir and the maingate of Longwall 26 have not increased beyond those observed up to the commencement of Longwall 301 extraction	Eastern Tributary between the full supply level of the Woronora Reservoir and the maingate of Longwall 26	Free Carbon Dioxide as CO_2 (mg/L) CH_4 (mg/L)	Level 1	Free carbon dioxide concentrations are equal to or less than 4 mg/L in Eastern Tributary pools between the full supply level of the Woronora Reservoir and the maingate of Longwall 26. Methane concentrations are equal to or less than 0.159 mg/L in Eastern Tributary pools between the full supply level of the Woronora Reservoir and the maingate of Longwall 26.	Pools ETAG, ETAH, ETAI, ETAJ, ETAL, ETAM, ETAN, ETAO, ETAP, ETAQ, ETAR, ETAS, ETAT, ETAU were at Level 1 throughout the reporting period.	No	No

Table 10 (Continued)
Assessment of Environmental Performance – Underground Mining Area and Surrounds

Performance Measure	Performance Indicator	Monitoring Site(s) Being Assessed	Parameters	Highest Significance Level/Trigger Recorded		Comments	Subsidence Impact Performance Indicator Exceeded?	Subsidence Impact Performance Measure Exceeded?
BIODIVERSITY MANAGEMENT								
Upland Swamp Vegetation Monitoring								
Negligible impact on Threatened Species, Populations, or Ecological Communities	*The vegetation in upland swamps is not expected to experience changes significantly different to vegetation in control swamps*	Swamps 16, 17, 18, 20, 24 and 25 overlying or adjacent to Longwalls 20-22 Swamps 19, 28, 30, 31, 32, 33, 34, 35, 36 and 94 overlying or adjacent to Longwalls 23-27 Swamps 40, 41, 47, 48, 49, 50, 53 and 58 overlying or adjacent to Longwalls 301-303 and Longwall 304 Swamp 72 within the 35° angle of draw and/or predicted 20 mm subsidence contour of Longwall 305-307 Swamps 61, 62, 63, 64, 78, 79, 80, 81, 82, 83, 88, 89, 90, 92SH and 92TTT overlying or adjacent to Longwalls 308-310 Control Swamps 101, 111a, 125, 135, 136, 137a, 137b, 138, Bee Creek Swamp, Woronora River 1, Woronora River south arm and Dahlia Swamp	Visual inspections Transect/ quadrat data Population monitoring of indicator species	Level 1	Data analysis indicates: • there is not a declining trend in the condition of longwall swamp vegetation; and • there are no significant changes in vegetation between the mined and control swamps.	Swamps 16, 17, 18, 19, 20, 24, 25, 30, 31, 32, 33, 34, 35, 36, 47, 49, 58, 61, 62, 63, 64, 72, 78, 80, 81, 82, 83, 88, 89, 90, 92SH, 92TTT and 94.	No	No
				Level 2	Data analysis indicates: • there is a declining trend in the condition of longwall swamp vegetation over time, however a similar trend is occurring in control swamp vegetation; and • there are significant differences in vegetation between the mined and control swamps, however, the data indicates longwall swamp vegetation is consistent with the baseline monitoring results.	<u>Swamp 28</u> The previous declining trend in vegetation condition of Tea Tree Thicket component of Swamp 28 with regard to understory species and decline in species richness continues to stabilise in Autumn 2025. Abundant regrowth of *Gleichenia microphylla* was observed within Swamp 28 with no dieback. Similar trends are apparent in the vegetation of some control sites. Continue close monitoring of trends in vegetation to assess contribution of climatic condition versus mine subsidence impacts. <u>Swamps 40, 41, 48, 50 and 53</u> Vegetation monitoring indicates a significant difference in vegetation condition between longwall (Swamps 40, 41, 48, 50 and 53) and control swamps in spring 2024, however swamp vegetation is consistent with the baseline monitoring results. Visual observations also indicate no significant difference in the vegetation condition between longwall and control swamps in Autumn 2025. Continue close monitoring of trends in vegetation to assess the contribution of dry climatic conditions versus mine subsidence impacts.	No	No

Table 10 (Continued)
Assessment of Environmental Performance – Underground Mining Area and Surrounds

Performance Measure	Performance Indicator	Monitoring Site(s) Being Assessed	Parameters	Highest Significance Level/Trigger Recorded		Comments	Subsidence Impact Performance Indicator Exceeded?	Subsidence Impact Performance Measure Exceeded?
BIODIVERSITY MANAGEMENT (Continued)								
Upland Swamp Groundwater Monitoring								
Negligible impact on Threatened Species, Populations, or Ecological Communities	*Subsidence impacts are not expected to result in measurable changes to swamp groundwater levels when compared to control swamps or seasonal variations in water levels experienced by upland swamps prior to mining.*	Swamp 20 Swamp 28	Groundwater levels	N/A	N/A	Previously assessed as being impacted by mine subsidence.	Yes	To be assessed every second year by relevant specialists
		• Swamps 40, 41, 46, 51, 52 and 53 overlying LW301-303. • Swamp 50 overlying LW304. • Swamps 71a and 72 adjacent to LW305-307. • Swamps 62 and 82 within the 35° angle of draw and/or predicted 20 mm subsidence contour of Longwalls 308-310. • Swamps 74, 75, 81, 89, 106, 113, 115 and 119 within the 35° angle of draw and/or predicted 20 mm subsidence contour of LW311-316. • Control Swamps 101, 137a, 137b, 106, 76, 14 and Bee Creek Swamp.		Level 1	Data analysis for Longwalls 301-316 swamps indicates: • The seven-day moving average for Swamps 40, 41, 46, 50, 51, 52, 53, 62, 71a, 72, 74, 75, 81, 82, 89, 106, 113, 115 and 119 is at or above the minimum established for the swamp's full length of record.	Swamps 40, 41, 46, 50, 51, 52, 53, 62, 71a, 72, 81, 82 and 89 were at Level 1 throughout the entire reporting period.	No	No
Large Swamp Substrate Monitoring								
Swamp 92: Negligible environmental consequences	*Subsidence impacts are not expected to result in measurable changes to swamp groundwater levels when compared to control swamps or seasonal variations in water levels experienced by upland swamps prior to mining.*	• Site 76-1, 76-2 and 76-3 in Swamp 76. • Site 77-1, 77-2 and 77-3 in Swamp 77. • Site 92-1, 92-2 and 92-3 in Swamp 92. • Control Swamps 101, 137a and 137b. • Control Swamps 76, 14, 106 and Bee Creek Swamp.	Groundwater levels	Level 1	• Data analysis indicates the seven-day moving average for Swamps 76, 77 and 92 is at or above the minimum established for the swamp's full length of record	Swamps 76-1, 76-3, 77-1, 77-2, 77-3, 92-1, 92-2 and 92-3 were at Level 1 throughout the entire reporting period.	No	No
Swamps 76 and 77: Negligible environmental consequences to Threatened Species, Populations, and Ecological Communities			Groundwater levels	Level 2	Data analysis indicates: • the seven-day moving average for Swamps 76, 77 and 92 is below the minimum established for the swamp's full length of record; and • semi-quantitative comparisons with control swamps and rainfall record indicates that dry swamp conditions are natural.	Swamp 76-2 is classified as TARP Level 2, as the seven-day average minimum substrate water level over the reporting period was at the BMP (baseline) minimum and the associated deep piezometer water level is below the 10th percentile of the baseline (further discussion in Appendix C).	No	No

Table 10 (Continued)
Assessment of Environmental Performance – Underground Mining Area and Surrounds

Performance Measure	Performance Indicator	Monitoring Site(s) Being Assessed	Parameters	Highest Significance Level/Trigger Recorded		Comments	Subsidence Impact Performance Indicator Exceeded?	Subsidence Impact Performance Measure Exceeded?
BIODIVERSITY MANAGEMENT (Continued)								
Large Swamp Deep Groundwater Monitoring								
Swamp 92: Negligible environmental consequences	*Subsidence impacts are not expected to result in measurable changes to groundwater levels in the Upper Hawkesbury Sandstone beneath the Large swamps when compared to beneath control swamps or seasonal variations in water levels experienced by swamps prior to mining.*	• Site 76-2 in Swamp 76. • Site 77-2 in Swamp 77. • Site 92-2 in Swamp 92. • Control Swamps 76, 14, 106 and Bee Creek Swamp.	Groundwater levels.	Level 1	Data analysis indicates the water level period for Swamps 76, 77 and 92 is: • at baseline minimum for the substrate and the associated deep piezometer is above the 10th percentile of the baseline; and • above baselines minimum for the substrate swamp.	-	No	No
Swamps 76 and 77: Negligible environmental consequences to Threatened Species. Populations, and Ecological Communities				Level 2	Data analysis indicates the water level period for Swamps 76, 77 and 92 is: • at baseline minimum for the substrate and the associated deep piezometer is below the 10th percentile of the baseline or below baseline minimum; and • semi-quantitative comparisons with control swamps and rainfall records indicates that dry swamp conditions are natural.	Swamp 76-2 observed a short period below trigger level, exceedance and recovery appear to be following climatic trends. Consider review of trigger levels.	No	No
Large Swamp Valley Closure								
Swamp 92: Negligible environmental consequences	*That the specified upland coastal swamps 76, 77 and 92 are not expected to experience valley closure greater than predicted for the Preferred Project Layout.* *S76 = 125 mm* *S77 = 325 mm* *S92 = 125 mm*	• GNSS Units 76-1-Est and 76-1-Wst across Swamp 76; • GNSS Units 77-1-Est and 77-1-Wst across Swamp 77; • GNSS Units 92-1-Nth and 92-1-Sth, across Swamp 92.	• Absolute 3D movement of paired GNSS units measuring total valley closure. • Visual inspections.	Level 1	Data analysis indicates the measured valley closure is no greater than (i.e. closure is less than what would be expected to cause cracking): • Swamp 76 - ≤50 mm. • Swamp 77 - ≤50 mm. • Swamp 92 - ≤50mm.	-	No	No
Swamps 76 and 77: Negligible environmental consequences to Threatened Species. Populations, and Ecological Communities								
Riparian Vegetation Monitoring								
Negligible impact on Threatened Species, Populations, or Ecological Communities	*Impacts to riparian vegetation are expected to be localised and limited in extent, similar to the impacts previously experienced at Metropolitan Coal*	Locations adjacent to riparian vegetation monitoring sites (MRIP01 to MRIP12) and areas traversed whilst accessing the monitoring sites: • sites MRIP01, MRIP02, MRIP05, MRIP06 and MRIP09 overlying Longwalls 20-22; • sites MRIP11 and MRIP12 overlying Longwalls 23-27; • sites MRIP03, MRIP04 and MRIP10 downstream of Longwall 23A; and • sites MRIP07 and MRIP08 downstream of Longwalls 23-27.	The extent of vegetation subject to vegetation dieback	Level 2	Vegetation monitoring: • does not identify an increase in the extent of vegetation dieback compared to that observed at site MRIP02 on the Waratah Rivulet and between sites MRIP05 and MRIP09 on the Eastern Tributary compared to observed up to and including the spring 2022 vegetation survey; and • does not identify vegetation dieback greater than 50 cm from the stream at sites MRIP01, MRIP03, MRIP04, MRIP06, MRIP07, MRIP08 or MRIP10, as a result of mine subsidence.	In spring 2024 and autumn 2025, Sites MRIP01, MRIP02, MRIP03, MRIP04, MRIP05, MRIP06, MRIP07, MRIP08, MRIP09, MRIP10, MRIP11 and MRIP12 were at Level 2. Scouring of the stream bank and erosion resulting from high water flows following heavy rain events. The extent of dieback at sites previously observed with riparian vegetation dieback (MRIP02, MRIP05, MRIP09 and MRIP12) had not increased in the current survey and vegetation recovery was apparent. Although impacts were still apparent, signs of vegetation recovery (resprouting and seedling growth) was present in all sites.	No	No

Table 10 (Continued)
Assessment of Environmental Performance – Underground Mining Area and Surrounds

Performance Measure	Performance Indicator	Monitoring Site(s) Being Assessed	Parameters	Highest Significance Level/Trigger Recorded		Comments	Subsidence Impact Performance Indicator Exceeded?	Subsidence Impact Performance Measure Exceeded?
BIODIVERSITY MANAGEMENT (Continued)								
Monitoring of Aquatic Biota, Stream Monitoring								
Negligible impact on Threatened Species, Populations, or Ecological Communities	*The aquatic macroinvertebrate and macrophyte assemblages in streams are not expected to experience long-term impacts as a result of mine subsidence.*	Two sampling sites (approximately 100 m in length) at the following locations: • Location WT3 on Waratah Rivulet, Locations ET1, ET3 and ET4 on the Eastern Tributary overlying Longwalls 20-27. • Location WT4 on the Waratah Rivulet, adjacent to Longwalls 20-27. • Location WT5 on the Waratah Rivulet and Location ET2 on the Eastern Tributary downstream of Longwalls 20-27. • Control Locations: WR1 on Woronora River; and OC on O'Hares Creek.	Aquatic macroinvertebrates Aquatic macrophytes	Level 1	Data analysis indicates no significant changes in relation to control places pre-mining compared to post-extraction occur in the aquatic macroinvertebrate and/or macrophyte assemblages at Locations WT3, WT4 or WT5 on the Waratah Rivulet or Locations ET1, ET2, ET3 or ET4 on the Eastern Tributary during the mining of Longwalls 308-310.	Locations WT4 and WT5 and ET3.	No	No
				Level 2	Data analysis indicates significant long-term changes[6] in relation to control places pre-mining compared to post-extraction occur in the aquatic macroinvertebrate and/or macrophyte assemblages at Locations WT3, WT4 or WT5 on the Waratah Rivulet or Locations ET1, ET2, ET3 or ET4 on the Eastern Tributary during the mining of Longwalls 308-310.	Location ET4: decreased numbers of Atyidae in autumn 2016, spring 2018, spring 2019 and autumn 2020, but not subsequently.	No	No
				Level 3	Data analysis indicates significant long-term changes in relation to control places pre-mining compared to post-extraction occur in the aquatic macroinvertebrate and/or macrophyte assemblages at Locations WT3, WT4 or WT5 on the Waratah Rivulet or Locations ET1, ET2, ET3 or ET4 on the Eastern Tributary during the mining of Longwalls 308-310.	Location ET1: significant decline in mean numbers of Atyidae during autumn and spring 2022, autumn and spring 2023 and autumn and spring 2024. Location WT3: altered diversity of macroinvertebrate taxa in spring 2016, autumn 2018 and subsequent surveys, including spring 2024. Location WT3: significant decline in mean numbers of Atyidae during spring 2021 and subsequent surveys, including spring 2024. Location ET2: significant change in assemblages of macroinvertebrates observed in spring 2019 and by subsequent surveys. Altered numbers of Atyidae between spring 2015 and autumn 2018, between autumn 2020 and autumn 2022, autumn 2023 and spring 2023, autumn 2024 and spring 2024. Location ET2: significant change to the assemblage of macrophytes during autumn 2021 and subsequent surveys. Location ET4: significant change to assemblage of macroinvertebrates detected between spring 2019 and autumn 2023 but not subsequently; altered patterns of diversity of macroinvertebrate taxa since autumn 2018; altered macrophyte assemblage since autumn 2018.	Yes	No Assessment conducted by Ecoplanning and Niche (Appendix I1 and I2) Assessment of ET1 to be completed separately.

Table 10 (Continued)
Assessment of Environmental Performance – Underground Mining Area and Surrounds

Performance Measure	Performance Indicator	Monitoring Site(s) Being Assessed	Parameters	Highest Significance Level/Trigger Recorded		Comments	Subsidence Impact Performance Indicator Exceeded?	Subsidence Impact Performance Measure Exceeded?
Amphibian Monitoring								
Swamp 92: Negligible environmental consequences **Swamps 76 and 77: Negligible environmental consequences to Threatened Species. Populations, and Ecological Communities**	*The threatened amphibian abundance is not expected to experience a decline compared to previous years, due to groundwater substrate or pool water level impacts, significantly different to the threatened amphibian abundance trends at control sites.*	• Transects Sites S76, S77 and S92. • Control Transects Sites S14, S106, Bee Creek Swamp, and S76.	• Threatened amphibian species relative abundance. • Non-threatened amphibian species relative abundance (for consideration in any performance measure assessment). • Species richness (diversity) to be monitored (for consideration in any performance measure assessment).	Level 1	Monitoring indicates threatened amphibian populations (relative abundance) are stable and habitat parameters are predominantly within a reasonable range of baseline data at impact sites and/or control sites (supported by multiple lines of evidence and statistical analyses).	Level 1 at Longwalls 311-316 monitoring sites. Niche is transforming previous data collected from Cenwest from historical monitoring (i.e. previously reported exceedance of Performance Indicator). The results of the Longwalls 20-27 and 301-310 amphibian monitoring sites will be provided separately.	No	No
LAND MANAGEMENT								
Cliffs and Overhangs, Steep Slopes and Land in General								
Less than 3% of the total length of cliffs (and associated overhangs) within the mining area experience mining-induced rock fall	*Cliff sites COH11, COH12, COH13, COH16 and/or COH17 experience cliff instabilities that do not require management measures to be implemented*	Cliff sites COH11, COH12, COH13, COH16 and COH17	Cliff instabilities	Level 1	No subsidence impacts (i.e. cliff instabilities) recorded.	No cliff instabilities were recorded at cliff sites COH9, COH10, COH11, COH12, COH13 and COH16.	No	No
	Cliff sites COH10, COH11, COH12, COH13, COH18 and/or COH19 experience cliff instabilities that do not require management measures to be implemented.	Cliff sites COH10, COH11, COH12, COH13, COH18 and COH19	Cliff instabilities	Level 1	No subsidence impacts (i.e. cliff instabilities) recorded.	No cliff instabilities were recorded at cliff sites COH10, COH11, COH12, COH13, COH18 and COH19.	No	No
	Steep slopes and land in general experience sandstone fracturing/cracking and rock falls that do not require management measures to be implemented	Steep slopes and land in general within 600 m of Longwalls 20-27 and Longwalls 301-316	Sandstone fracturing/cracking and rock falls	Level 1	No subsidence impacts (i.e. sandstone fracturing/cracking and rock falls) recorded on steep slopes or land in general not previously recorded within 600 m of LW20-27 or LW301-316 (after LW311 commencement).	No sandstone fracturing/cracking or rock falls were recorded on steep slopes or land in general.	No	No
HERITAGE MANAGEMENT								
Aboriginal Heritage Sites Monitoring								
Less than 10% of Aboriginal heritage sites within the mining area are affected by subsidence impacts	*Less than 7% of Aboriginal heritage sites within the mining area are affected by subsidence impacts*	Monitoring of Aboriginal heritage sites with the potential to be impacted by subsidence related to the extraction of Longwalls 308-316	Cracking of sandstone at open sites Cracking and/or exfoliation of sandstone, blockfall, displacement, breakage and/or collapse of sandstone overhang sites Damage or deterioration of art motifs	Level 1	Monitoring results indicate sites FRC 281 and FRC 34 have been affected by subsidence impacts.	No Aboriginal cultural heritage sites were recorded as having been affected by subsidence impacts by the post-Longwalls 311 and 312 monitoring surveys.	No	No

Table 10 (Continued)
Assessment of Environmental Performance – Underground Mining Area and Surrounds

Performance Measure	Performance Indicator	Monitoring Site(s) Being Assessed	Parameters	Highest Significance Level/Trigger Recorded		Subsidence Impact Performance Indicator Exceeded?	Subsidence Impact Performance Measure Exceeded?
PUBLIC SAFETY MANAGEMENT							
Safe, serviceable and repairable, unless the owner and the MSB agree otherwise in writing	*Public safety will be ensured in the event that any hazard to the general public arising from subsidence effects becomes evident.*	Cliffs and overhangs, steep slopes and land in general Built features	Public safety	Level 1	Expected subsidence conditions	No	No

Note: m AHD = metres Australian Height Datum; CO_2 = Carbon dioxide; CH_4= Methane

1 A detailed assessment of this performance indicator was undertaken for a previous six monthly period (when the Level 3 trigger was first identified) and concluded that it had not been exceeded (HEC, 2019). The performance indicator will be considered to be exceeded if the median falls below the 20th percentile and the same is not also occurring in the control catchment.

2 The no diversion of flows, no change in natural drainage behaviour component of this performance measure was exceeded during the mining of Longwalls 23-27, triggering contingency measures for the impacted pools. This TARP monitors pools not impacted during the mining of Longwalls 23-27.

3 The minimal iron staining component of this performance measure was exceeded during the mining of Longwalls 23-27, triggering contingency measures for the impacted pools. The nature and extent of iron staining on the Eastern Tributary will continue to be monitored during the mining of Longwalls 305-307.

4 Subsequent to the autumn 2017 baseline survey and prior to the spring 2017 survey, Swamp 46 and Swamp 51/52 were subject to WaterNSW hazard reduction burns.

5 This performance indicator has been exceeded at Swamp 20 since 2012 and at Swamp 28 since 2016. Swamp water levels at Swamp 20 and Swamp 28 will continue to be analysed on a six monthly basis and assessments against the performance measure will be conducted every second year.

6 The performance indicator *The aquatic macroinvertebrate and macrophyte assemblages in pools are not expected to experience long-term impacts as a result of mine subsidence* has not been exceeded at Pools ETAG, ETAH, ETAI and ETAK. In accordance with the Longwalls 305-307 Biodiversity Management Plan, assessment against the performance indicator at these pools will be undertaken after one year of the completion of stream remediation on the Eastern Tributary.

7 ENVIRONMENTAL PERFORMANCE – SURFACE FACILITIES AREA

This section provides a summary of the key environmental monitoring results for noise, air quality, traffic and waste at the surface facilities area, an assessment of environmental performance, and a description of the management measures implemented during the reporting period.

The environmental performance of surface facilities water management is described in Section 8.

Each section indicates which management plan contains details of the surface facilities management and monitoring. The Metropolitan Coal management plans are available on the Peabody website (http://www.peabodyenergy.com).

7.1 NOISE MANAGEMENT

The Metropolitan Coal Noise Management Plan has been prepared for the surface facilities area in accordance with Condition 8, Schedule 4 of the Project Approval.

Real-time Noise Monitoring

Real-time noise monitoring for the Project is undertaken using an unattended statistical noise logger located at the northern boundary of 16 Oxley Place (Figure 18). Real-time noise monitoring is used as an internal noise management tool and not for compliance purposes.

The real-time noise monitor records noise levels 24 hours a day, 7 days a week, and a graphical summary of the previous 24 hours of noise is sent to mine staff via email on a daily basis.

A real-time noise performance indicator, *The $L_{Aeq(5\ minute)}$ night-time noise level does not exceed 50 dB(A) for six consecutive 5 minute samples*, has been developed in consideration of façade reflection and as an alert to the potential exceedance of the noise acquisition criteria.

Real-time noise monitoring includes an audio function which allows the monitor to record audio of the noise signal and an 'alarm' function whereby noise data is processed and compared against the real-time noise performance indicator. The audio of these events can then be reviewed to see if the cause is Project related, allowing Metropolitan Coal to investigate the causes and potential controls for high Project related noise events.

The real-time noise performance indicator is considered to be exceeded if the $L_{Aeq(5\ minute)}$ night-time noise level exceeds 50 A-weighted decibels (dBA) for six consecutive 5 minute samples.

The real-time noise performance indicator was triggered 37 times during the reporting period, compared to 72 times in 2024, 157 times in 2023, 95 times in 2022, 36 times in 2021 and 55 times in 2020. Heavy rain and thunderstorms were the primary source of triggers during the reporting period, with wind and vehicles on the entrance road, also identified during the review.

Attended Noise Monitoring

Consistent with the Metropolitan Coal Noise Management Plan, attended noise monitoring for the Project has consisted of quarterly monitoring at 16 Oxley Place, 53 Parkes Street, 50 Parkes Street and 36 Old Station Road (sites representative of the nearest residences to the Project [Figure 18]) to quantify the intrusive noise emissions from the mine, including coal processing and transportation operations that contribute to the overall level of ambient noise.

Noise monitoring is conducted for 15 minute periods during the daytime, evening and night-time over two consecutive days and nights and compared to applicable Noise Impact Assessment Criteria, Noise Mitigation Criteria and Noise Acquisition Criteria (refer Section 7.4 and Appendix K).

The attended quarterly noise monitoring and compliance results for the reporting period are available in the quarterly monitoring reports prepared by SLR (Appendix K). A comparison of the quarterly attended monitoring results at each location for the period September 2010 to December 2025 is provided in Figures 19a to 19d.

In summary, during 2025, attended monitoring indicated exceedances of the noise criteria detailed in Conditions 1, 2 and 3, Schedule 4 of Project Approval (08_0149) as follows:

- Daytime (L_{Aeq}):
  - No exceedances of the Daytime Noise Impact Criterion (50 dBA), Noise Mitigation Criterion (53 dBA) or Noise Acquisition Criterion (55 dBA) were recorded.
- Evening (L_{Aeq}):
  - Monitoring at 16 Oxley Place in Quarter 1 measured a level of 48 dBA which was conditionally non-compliant with the Noise Impact Assessment Criterion (45 dBA).
  - No exceedances of the Evening Noise Mitigation Criterion (48 dBA) or Noise Acquisition Criterion (50 dBA) were recorded.
- Night-time (L_{Aeq}):
  - No exceedances of the Night-time Noise Impact Assessment Criterion (45 dBA), Noise Mitigation Criterion (48 dBA) or Noise Acquisition Criterion (50 dBA) were recorded.
- Night-time (L_{A1}):
  - Monitoring at 16 Oxley Place in Quarters 1 and 3 measured noise levels of 55 dBA and 53 dBA respectively, which were conditionally non-compliant with the Night-time L_{A1} Noise Impact Assessment Criterion (50 dBA).
  - Monitoring at 50 Parkes Street in Quarters 2 and 3 measured noise levels of 52 dBA and 54 dBA respectively, which were conditionally compliant (Quarter 2) and conditionally non-compliant (Quarter 3) with the Night-time L_{A1} Noise Impact Assessment Criterion (50 dBA).
  - Monitoring at 53 Parkes Street in Quarters 1 and 2 measured noise levels of 57 dBA and 52 dBA respectively, which were conditionally non-compliant (Quarter 1) and conditionally compliant (Quarter 2) with the Night-time L_{A1} Noise Impact Assessment Criterion (50 dBA).
  - Monitoring at 36 Old Station Road in Quarter 3 measured noise levels of 54 dBA, which was conditionally non-compliant with the Night-time L_{A1} Noise Impact Assessment Criterion (50 dBA).

Identification of Sustained Non-compliances – Attended Noise Monitoring

A conditional sustained non-compliance has been defined as two consecutive quarters of non-compliant noise monitoring results at the same representative attended noise monitoring location, coinciding with normal mine operations.

No sustained non-compliances with respect to the intrusive (L_{Aeq}) Noise Impact Assessment Criteria or the (L_{A1}) Noise Impact Assessment Criteria (Table 2; Condition 1, Schedule 4 of the Project Approval) have been identified during 2025.

Further details are provided in Section 7.4.

Noise Management

Operational noise levels from the Metropolitan Coal Mine were materially higher prior to the approval of the Metropolitan Coal Project in June 2009.

A range of operational noise control measures have been implemented since that time, in association with extensive upgrades of existing infrastructure at the surface facilities area, including the upgrade of the CHPP. Extensive noise reduction works have been implemented progressively and noise monitoring and modelling has been used to identify areas where additional reasonable and feasible noise attenuation measures could be implemented. The Metropolitan Coal 2010 to 2023 Annual Reviews describe the noise mitigation measures implemented prior to 2025.

The extensive and long running noise control program has reduced noise emissions at nearby residences. However, Metropolitan Coal has found the number of remaining, reasonable and feasible noise controls is diminishing.

During 2017, in consultation with the DP&E, Metropolitan Coal prepared a technical review of remaining available feasible noise mitigation measures and an associated evaluation of the reasonableness of these options (the Noise Mitigation Assessment) (SLR, 2017). This assessment was independently peer reviewed by Hatch. The reasonable and feasible contingency mitigation measures identified by Metropolitan Coal included:

- Ensuring all crusher tower and washery doors are closed at all times (except when being accessed).
- Progressively replacing the idlers on all surface conveyors with low noise idlers.

Following DP&E's review of the Noise Mitigation Assessment, Metropolitan Coal signed a Voluntary Undertaking which formalised the implementation of the mitigation measures identified by the 2017 Noise Mitigation Assessment. This included a timeframe for implementation of the identified mitigation measures (i.e. all existing conveyor idlers were replaced with low noise idlers by 31 December 2018), subsequent remodelling of noise levels and consultation with residents with predicted residual noise exceedances above the noise mitigation criteria who had not previously accepted noise mitigation was undertaken in 2019.

In accordance with the Voluntary Undertaking, Metropolitan Coal completed an assessment in 2018 of Metropolitan's noise levels under the Noise Policy for Industry (released in 2017) and provided to DP&E in April 2018.

In 2020 Metropolitan Coal met with the NSW Department of Planning, Industry and Environment (DPIE) to discuss the findings of the assessment of Metropolitan's noise levels under the Noise Policy for Industry. DPIE requested that Metropolitan Coal commission a peer review of all noise mitigation and monitoring to date which was completed by Recognition Research in June 2020. In 2021, Metropolitan Coal met with DPIE to discuss the findings of the peer review. Metropolitan will continue to purchase and install equipment with a lower noise profile as opportunities arise such as new equipment purchases and upgrades.

Metropolitan Coal will continue to implement noise monitoring, management and modelling in accordance with the Metropolitan Coal Noise Management Plan.

It is noted that Metropolitan Coal did not receive any requests for at-receiver noise mitigation in accordance with Condition 3, Schedule 4 of Project Approval (08_0149) in 2025. Metropolitan Coal has previously offered double glazing noise mitigation voluntarily to a number of the nearest private residences.

Operational Noise Complaints

During the reporting period, no complaints regarding noise were received.

7.2 AIR QUALITY AND GREENHOUSE GASES MANAGEMENT

The Metropolitan Coal Air Quality and Greenhouse Gas Management Plan has been prepared for the surface facilities area in accordance with Condition 13, Schedule 4 of the Project Approval.

Zephyr Environmental Pty Ltd has reviewed the environmental performance of the Project in relation to air quality for the reporting period. The report prepared in support of this Metropolitan Coal 2025 Annual Review is provided in Appendix M.

Dust Deposition

Metropolitan Coal monitors monthly dust deposition rates at ten dust gauges (DG1 to DG10; Figure 20), consistent with EPL No. 767 and the Metropolitan Coal Air Quality and Greenhouse Gas Management Plan.

Sampling during the reporting period was conducted at all monitoring points at the frequencies described in Conditions M2.1 and M2.2 of EPL No. 767. During 2025, almost all of the potential 120 samples (10 sites over 12 months) were deployed during the period with only one missing.

The results of the dust deposition monitoring are assessed against air quality performance indicators and air quality impact assessment criteria. The results of the assessment are provided in Section 7.4 and key aspects are summarised below.

The performance indicator for annual average deposited dust of 3 grams per square metre per month (g/m^2/month) was met at all the dust deposition gauges (D1 to D10) during the reporting period (Chart 87).

The annual average dust deposition rate at all dust gauges did not exceed 4 g/m^2/month. Compliance was thus achieved with the annual average performance criterion for dust deposition during the reporting period (Chart 88).

Annual average dust deposition rates at each gauge from 2014 to 2025 are shown in Chart 88. From 2014 to 2025, there were no clear trends in dust deposition rates; however, relatively higher dust deposition rates were recorded exceeding the annual average performance indicator of 3 g/m^2/month at DG3 in 20115 and 2019, and at DG4 in 2015. There were no exceedances of the annual average performance criterion of 4 g/m^2/month at DG3 in 2025. The annual average dust deposition rate at each gauge in 2025 was within or below the range previously recorded for the dust gauges.

The Project EA (modelling for Years 3 and 15) predicted that the annual average dust deposition due to the Project plus background would not be above the applicable 4 g/m^2/month amenity criterion at any receiver (modelling for Years 3 and 15). The air quality monitoring results are consistent with the Project EA predictions in relation to dust deposition.

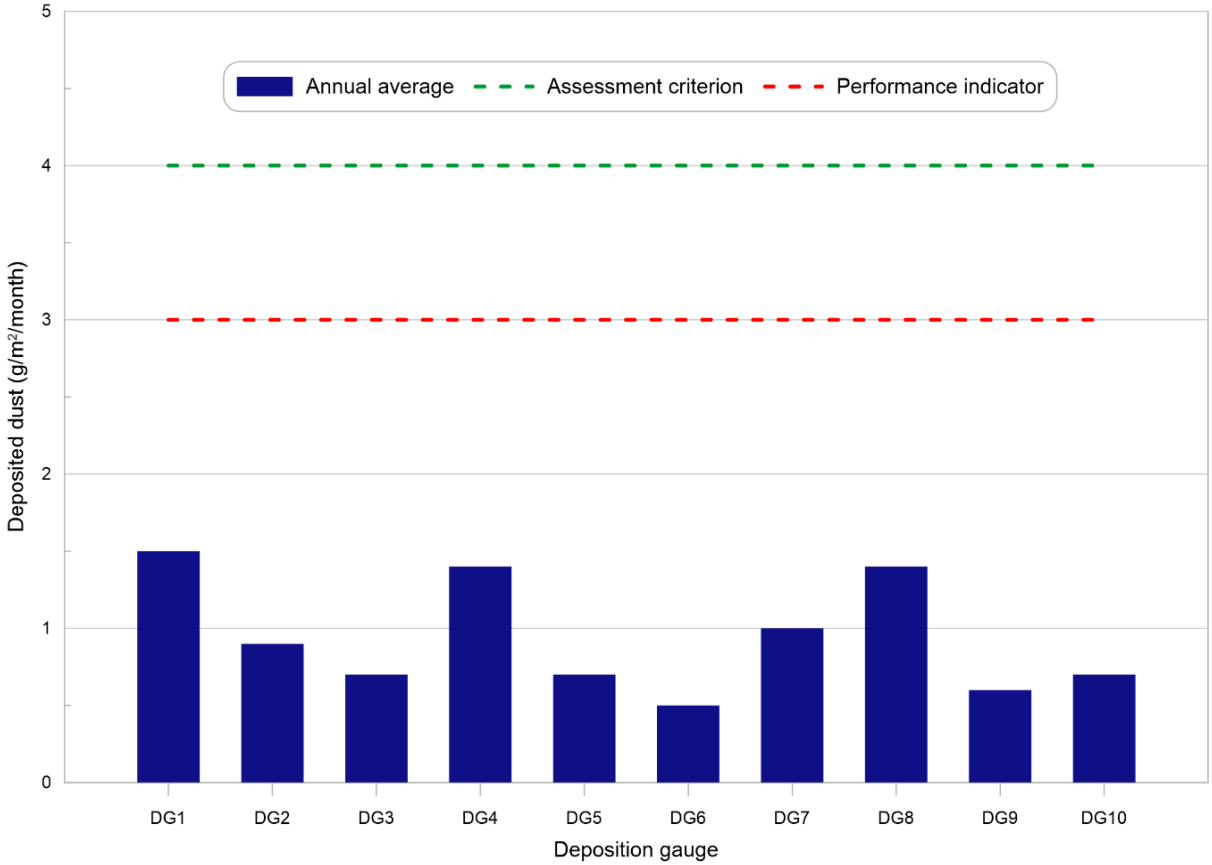


Chart 87 Annual Average Dust Deposition Rates Measured at Dust Gauges (DG1 to DG10)

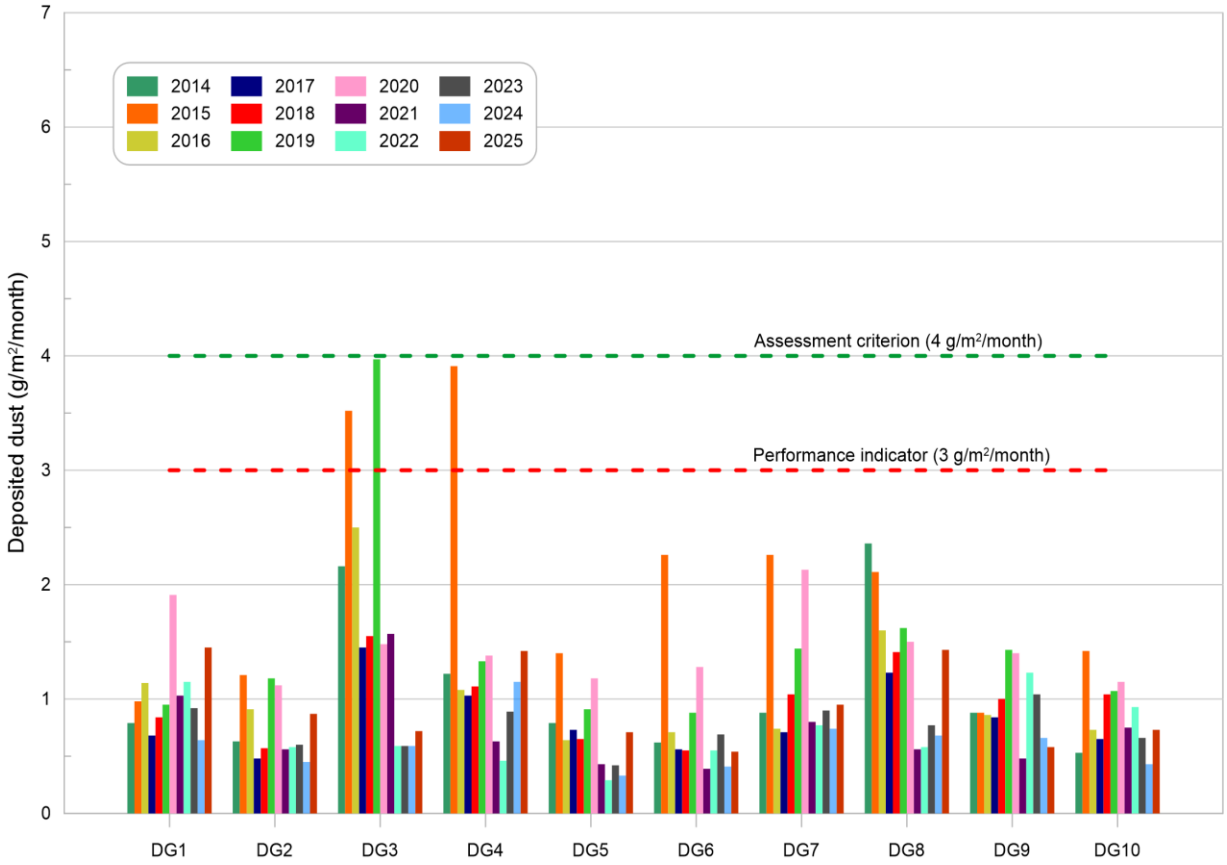


Chart 88 Annual Average Dust Deposition Rates at DG1 to DG10 from 2014 to 2025

Particulate Matter

One Tapered Element Oscillating Microbalance (TEOM) and one High Volume Air Sampler (HVAS) are located near the surface facilities area (Figure 20). The TEOM allows for continuous measurement of particulate matter less than 10 micrometres in diameter (PM_{10}) concentrations at ten-minute intervals, while the HVAS provides an average PM_{10} concentration for a specific 24-hour period, on a one-day-in-six cycle.

Sampling of PM_{10} during the reporting period was conducted at all monitoring points at the frequencies described in Conditions M2.1 and M2.2 of EPL No. 767. The results of the PM_{10} monitoring are assessed against air quality performance indicators and air quality impact assessment criteria. The results of the assessment are provided in Section 7.4 and key aspects are summarised below.

The annual average PM_{10} concentrations (measured by the HVAS) from 2007 to 2025 are shown on Chart 89. The annual average PM_{10} concentration measured at the HVAS for the reporting period was 12 micrograms per cubic metre (µg/m^3), which is lower than the annual average PM_{10} performance indicator of 25 µg/m^3 and well below the annual average PM_{10} air quality impact assessment criterion of 30 µg/m^3 (Chart 89).

There was one exceedance of the PM_{10} 24-hour average performance indicator concentration (37.5 µg/m^3) recorded by both the TEOM (Chart 90) and the HVAS (Chart 91) during 2025.

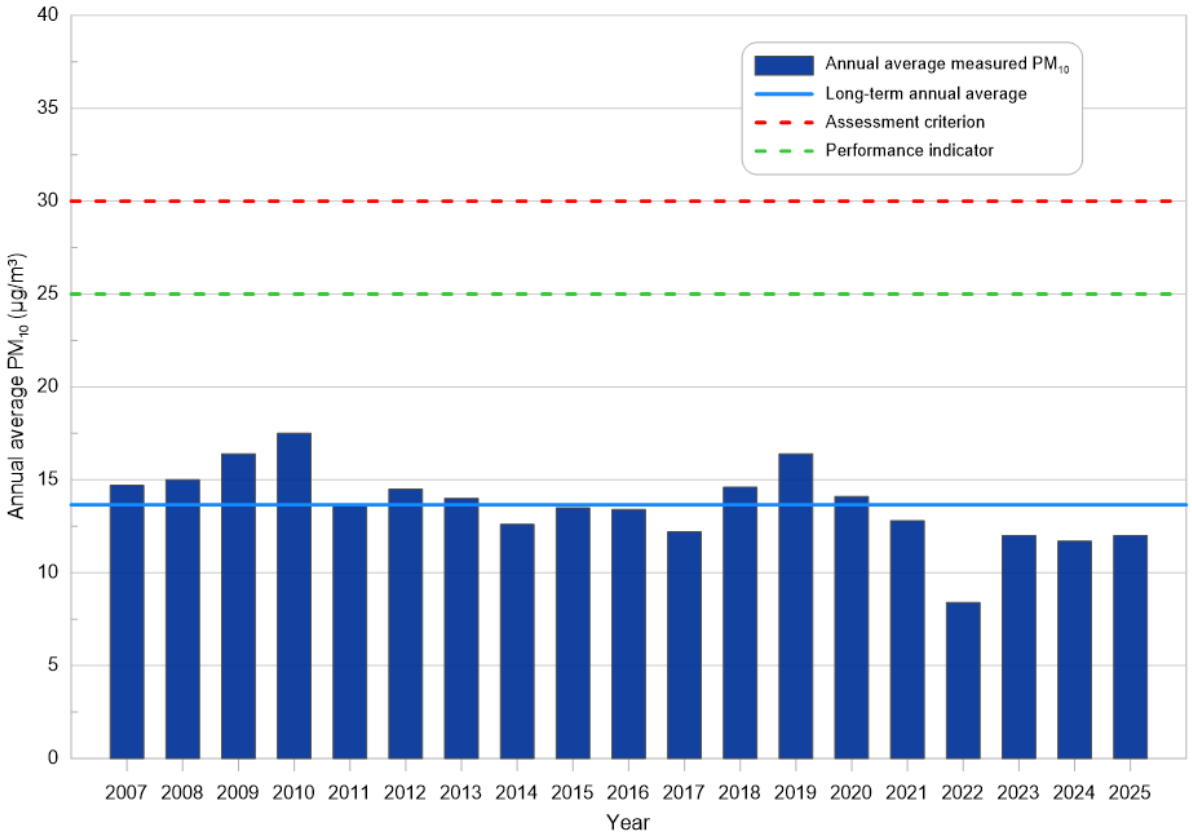


Chart 89 Annual Average PM_{10} Concentrations from 2007 to 2025 (measured by the HVAS)

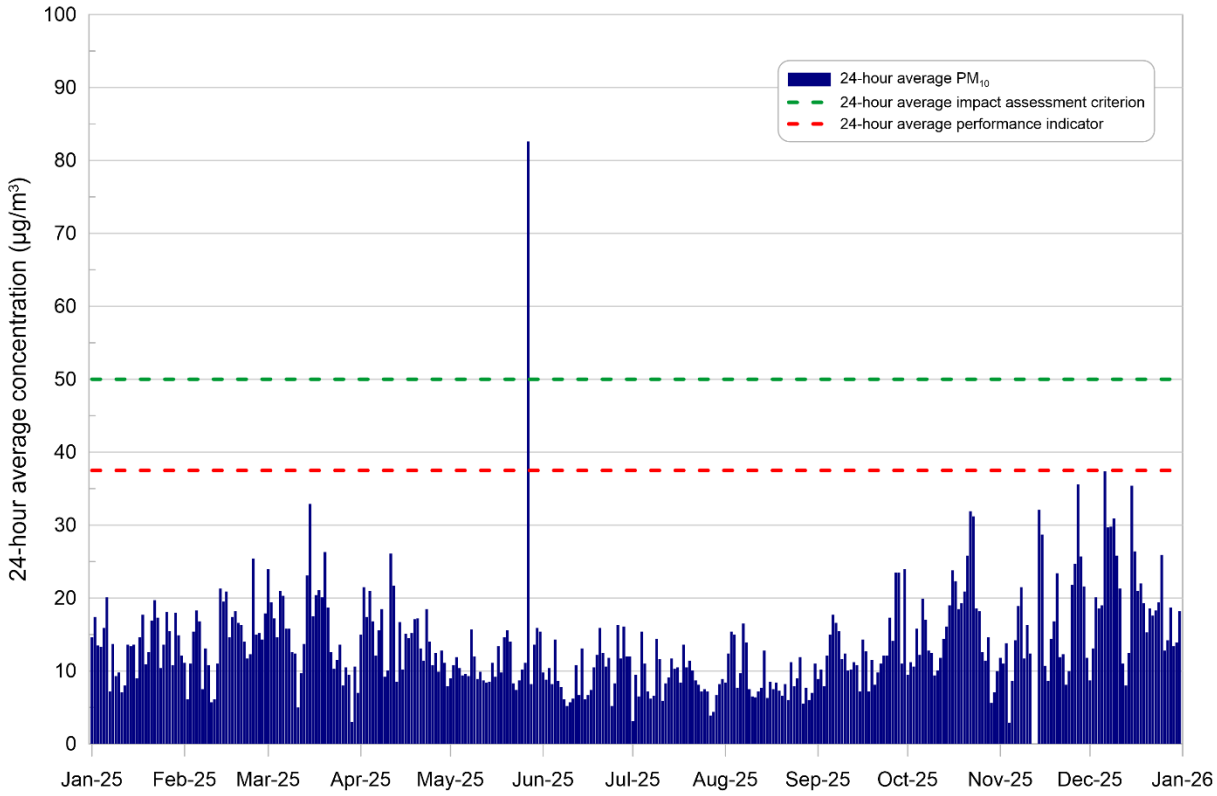


Chart 90 24-hour Average PM_{10} Concentrations (measured by the TEOM)

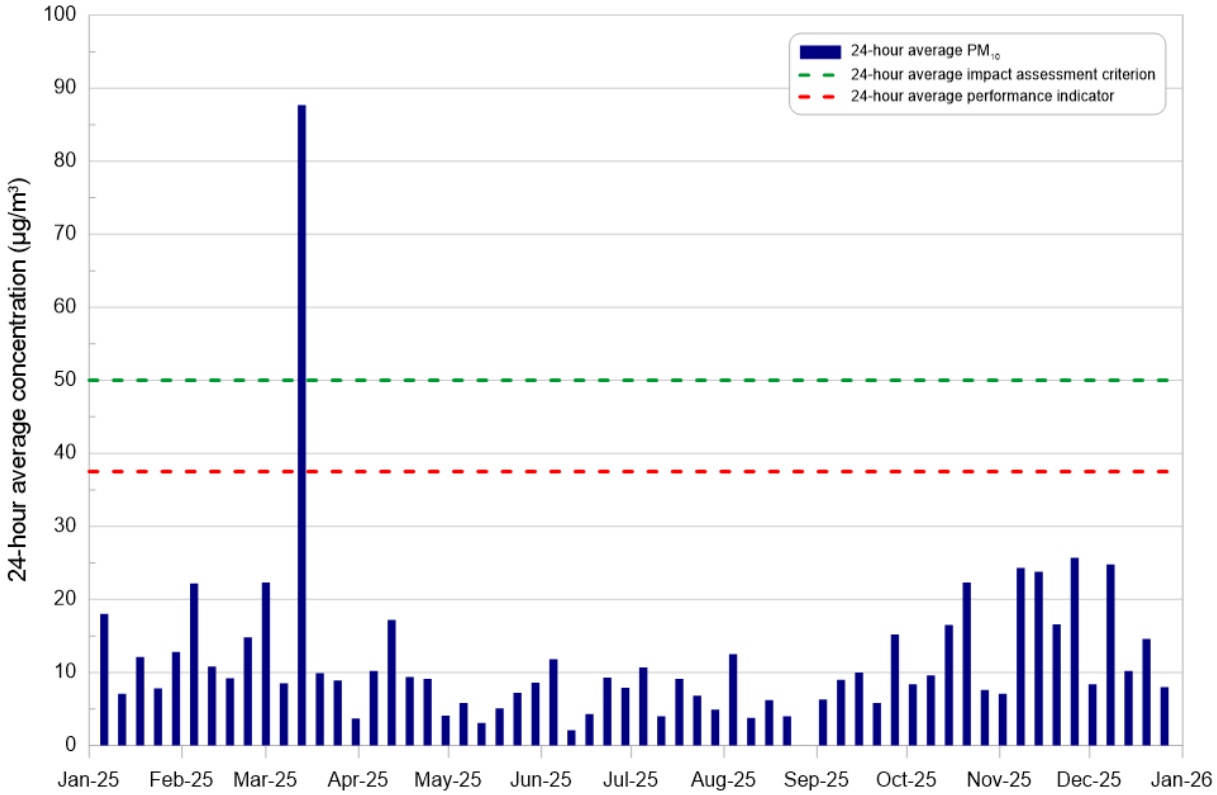


Chart 91 24-hour Average PM_{10} Concentrations (measured by the HVAS)

The highest 10-minute average PM_{10} concentration measured at the TEOM for the reporting period was 714 µg/m^3 on 27 May 2025 which was above the air quality performance indicator for the 10-minute average PM_{10} concentration of 150 µg/m^3.

The predicted annual average PM_{10} (Project plus background) concentrations modelled for Years 3 and 15 in the Project EA were not predicted to be above the 30 µg/m^3 assessment criterion at any receiver. The maximum 24-hour average PM_{10} concentrations modelled for Years 3 and 15 by the Project EA were not predicted to exceed the assessment criterion (Project only) of 50 µg/m^3 at any receiver. Residences located in close proximity to the major surface facilities area on Parkes Street were predicted to experience maximum 24-hour average PM_{10} concentrations close to the criteria (i.e. 49 µg/m^3) in Year 15 due to their close proximity to the coal stockpiles and train loading activities.

The monitoring results in 2025 are thus considered to be lower than the Project EA predictions in relation to particulate matter

Management Measures

A number of ongoing air quality management measures were implemented at Metropolitan Coal to manage and mitigate air quality impacts, as reported in previous Annual Reviews. Metropolitan Coal will continue to seek opportunities to manage and mitigate air quality impacts at the site.

7.3 WASTE MANAGEMENT

The Metropolitan Coal Waste Management Plan has been prepared for the surface facilities area in accordance with Condition 25, Schedule 4 of the Project Approval to identify waste streams and monitor the quantities generated, identify waste management measures to minimise waste generation, and ensure that waste generated by Metropolitan Coal is appropriately stored, handled and disposed.

Waste generated by Metropolitan Coal can include tyres, oil, sewage effluent, paint, lead acid batteries, coal rejects, waste rock, office waste (e.g. paper, plastics, and cardboard), scrap metal, general inert waste (e.g. concrete, timber, pipe, rope and rags), underground waste (e.g. packaging, cloths and pipe), oil/fuel filters, aerosol cans, absorbents (e.g. spent oil spill material) and food waste.

Metropolitan Coal monitors waste generated on a monthly basis through waste disposal receipts provided by Metropolitan Coal's waste contractors. Figure 21(a) shows the amount of general waste disposed of in 2025 compared with previous calendar years. Approximately 805,720 kilograms (kg) of general waste was disposed of at a licensed landfill facility in 2025.

Waste recycled by Metropolitan Coal during the reporting period included waste oil (30,800 kg), scrap metal (259,470 kg) and paper and cardboard (5,920 kg). Figure 21(b-e) shows the amount of waste oil, scrap metal and office waste recycled in 2025, respectively, compared with previous calendar years.

The coal reject backfill emplacement project continued in 2025 emplacing 33,365 t of coal reject underground.

An education program continued to be implemented during the reporting period to increase the awareness of mine site personnel in relation to waste management and measures to minimise the generation of waste. Metropolitan Coal will continue to seek opportunities for additional waste minimisation and for the recycling and re-use of materials at the site.

7.4 ASSESSMENT OF ENVIRONMENTAL PERFORMANCE

The performance indicators, impact assessment criteria and Project Approval conditions in Table 11 assess the performance of environmental management at the surface facilities area including those related to noise, air quality, greenhouse gases, odour, traffic, waste and visual impacts for the reporting period and reflect the predictions included in the Project EA, Preferred Project Report and the surface facilities management plans (Noise Management Plan, Air Quality and Greenhouse Gas Management Plan, Traffic Management Plan, Surface Facilities Water Management Plan and Waste Management Plan).

Table 11
Assessment of Environmental Performance – Surface Facilities Area

Monitoring Aspect	Performance Indicator, Impact Assessment Criteria and/or Project Approval Condition	Indicator, Criteria or Condition Met?	Comments
NOISE			
Real-time Noise Performance Indicator	*The $L_{Aeq(5\ minute)}$ night-time noise level does not exceed 50 dB(A) for six consecutive 5 minute samples.*	No	The Real Time Noise Performance Indicator was triggered 37 times during the reporting period. Heavy rain and thunder were the most common source.
Noise Impact Assessment Criteria (Project Approval Table 2, Condition 1, Schedule 4)	Day $L_{Aeq(15\ minute)}$ – 50 dBA	Yes	No exceedance of the Noise Impact Assessment Criterion was recorded during the reporting period (Appendix K). No sustained exceedances of the Daytime Noise Impact Assessment Criterion were identified by monitoring during the reporting period (Appendix K).
	Evening $L_{Aeq(15\ minute)}$ – 45 dBA	Yes	One non-compliance with respect to the Noise Impact Assessment Criterion was recorded at 16 Oxley Place during the reporting period (Appendix K) No sustained exceedances of the Evening Noise Impact Assessment Criterion were identified by monitoring during the reporting period (Appendix K).
	Night $L_{Aeq(15\ minute)}$ – 45 dBA	Yes	No exceedance of the Noise Impact Assessment Criterion was recorded during the reporting period (Appendix K). No sustained exceedances of the Night Noise Impact Assessment Criterion were identified by monitoring during the reporting period (Appendix K).
	Night $L_{A1(1\ minute)}$ – 50 dBA	No	Five conditionally non-compliant exceedances with respect to the night-time maximum Noise Impact Assessment Criterion were identified by noise monitoring at 16 Oxley Place, 50 Parkes Street, 53 Parkes Street and 36 Old Station Road during the reporting period (Appendix M). No sustained exceedances of the Night Noise Impact Assessment Criterion were identified by monitoring during the reporting period (Appendix K).

Table 11 (Continued)
Assessment of Environmental Performance – Surface Facilities Area

Monitoring Aspect	Performance Indicator, Impact Assessment Criteria and/or Project Approval Condition	Indicator, Criteria or Condition Met?	Comments
NOISE (Continued)			
Noise Mitigation Criteria (Project Approval Table 4, Condition 3, Schedule 4)	Day $L_{Aeq(15\ minute)}$ – 53 dBA	Yes	No sustained exceedances of the day Noise Mitigation Criterion were identified by monitoring during the reporting period (Appendix K).
	Evening $L_{Aeq(15\ minute)}$ – 48 dBA	Yes	No sustained exceedances of the evening Noise Mitigation Criterion were identified by monitoring during the reporting period (Appendix K).
	Night $L_{Aeq(15\ minute)}$ – 48 dBA	Yes	No sustained exceedances of the night Noise Mitigation Criterion were identified by monitoring during the reporting period (Appendix K).
Noise Acquisition Criteria (Project Approval Table 3, Condition 2, Schedule 4)	Day $L_{Aeq(15\ minute)}$ – 55 dBA	Yes	No sustained exceedances of the day, evening or night-time Noise Acquisition Criterion were identified by monitoring during the reporting period (Appendix K).
	Evening $L_{Aeq(15\ minute)}$ – 50 dBA	Yes	
	Night $L_{Aeq(15\ minute)}$ – 50 dBA	Yes	
Rail Noise (Project Approval Conditions 4, 5 and 6, Schedule 4)	4. *The Proponent shall only use locomotives that are approved to operate on the NSW rail network in accordance with noise limits L6.1 to L6.4 in RailCorp's EPL (No. 12208) and ARTC's EPL (No. 3142) or a Pollution Control Approval issued under the former Pollution Control Act 1970.*	Yes	All locomotives used by Metropolitan Coal are approved for operations in accordance with the noise limits in the relevant EPL.
	5. *The Proponent shall use its best endeavours to minimise night-time movements of rolling stock on the Metropolitan rail spur.*	Yes	Metropolitan Coal has endeavoured to minimise night-time movements of rolling stock on the Metropolitan rail spur.
	6. *In the event of any rail noise or vibration issues that may arise from the haulage of coal over the life of the Project, the Proponent shall liaise with the CCC and the rail service provider to facilitate resolution of these issues and implement additional noise reduction measures where appropriate.*	Yes	No issues with rail noise or vibration were identified during the reporting period.

Table 11 (Continued)
Assessment of Environmental Performance – Surface Facilities Area

Monitoring Aspect	Performance Indicator, Impact Assessment Criteria and/or Project Approval Condition	Indicator, Criteria or Condition Met?	Comments
NOISE (Continued)			
Notification of Landowners (Project Approval Condition 1, Schedule 5)	1. *If the results of the monitoring required in schedule 4 identify that impacts generated by the project are greater than the relevant impact assessment criteria in schedule 4, except where a negotiated agreement has been entered into in relation to that impact, then the Proponent shall, within 2 weeks of obtaining the monitoring results, notify the Executive Director Mineral Resources, the affected landowners and tenants (including tenants of mine owned properties) accordingly, and provide quarterly monitoring results to each of these parties until the results show that the project is complying with the criteria in schedule 4.*	Yes	No sustained non-compliance with the Noise Impact Assessment Criteria were identified in 2025.
AIR QUALITY			
Air Quality Performance Indicators [1,2]	PM_{10} indicator = 150 µg/m^3 (10-minute averaging period assessed using TEOM data)	Yes	There were exceedances of the 10-minute average PM_{10} performance indicator recorded at the TEOM. The mine was unlikely to be the cause of these exceedances.
	PM_{10} indicator = 37.5 µg/m^3 (24-hour averaging period assessed using TEOM data)	Yes	There was one exceedance of the 24-hour average performance indicator at the TEOM. The mine was unlikely to be the cause of the exceedance.
	PM_{10} indicator = 37.5 µg/m^3 (24-hour averaging period assessed using HVAS data)	Yes	There was one exceedance of the 24-hour average performance indicator at the HVAS. The mine was unlikely to be the cause of the exceedance.

Table 11 (Continued)
Assessment of Environmental Performance – Surface Facilities Area

Monitoring Aspect	Performance Indicator, Impact Assessment Criteria and/or Project Approval Condition	Indicator, Criteria or Condition Met?	Comments
AIR QUALITY (Continued)			
Air Quality Performance Indicators[1,2] (Continued)	PM_{10} indicator = 25 µg/m^3 (Annual averaging period assessed using HVAS data)	Yes	An annual average of PM_{10} concentration of 12 µg/m^3 was recorded by the HVAS.
	Maximum total deposited dust level = 3 g/m^2/month (Annual averaging period)[3]	Yes	The annual average dust deposition rates for each of the sites indicate that compliance with the deposited dust performance indicator was achieved at every one of the dust gauges during the reporting period.
Air Quality Impact Assessment Criteria (Project Approval Condition 11, Schedule 4)	TSP Criteria[4] = 90 µg/m^3 (Annual averaging period)	Yes	Based on the annual average PM_{10} concentrations recorded by the HVAS monitoring instrument, the annual average TSP is anticipated to be 30 µg/m^3; well below the TSP air quality impact assessment criterion of 90 µg/m^3.
	PM_{10} Criteria[4] = 30 µg/m^3 (Annual averaging period)	Yes	An annual average PM_{10} concentration of 12 µg/m^3 was recorded by the HVAS monitoring instrument.
	PM_{10} Criteria[4] = 50 µg/m^3 (24 hour averaging period)	Yes	There was one exceedance of the 24-hour average PM_{10} impact assessment criterion at both the TEOM and HVAS instruments. The mine was unlikely to be the cause of the exceedance.
	Maximum total deposited dust level = 4 g/m^2/month (Annual averaging period)	Yes	The annual average dust deposition rates were below 4 g/m^2/month during the reporting period at all dust gauges.
ODOUR			
Odour (Project Approval Condition 9, Schedule 4)	*9. The Proponent shall not cause or permit the emission of offensive odours from the site, as defined under Section 129 of the POEO Act.*	Yes	No odour complaints were received during the reporting period.
GREENHOUSE GASES			
Greenhouse Gas Emissions (Project Approval Condition 10, Schedule 4)	*10. The Proponent shall implement all reasonable and feasible measures to minimise:* *(a) energy use on site; and* *(b) the scope 1, 2 and 3 greenhouse gas emissions produced on site,* *to the satisfaction of the Director-General.*	Yes	Metropolitan Coal has implemented the viable energy saving measures contained within their Energy Savings Action Plan.

Table 11 (Continued)
Assessment of Environmental Performance – Surface Facilities Area

Monitoring Aspect	Performance Indicator, Impact Assessment Criteria and/or Project Approval Condition	Indicator, Criteria or Condition Met?	Comments
TRAFFIC			
Annual Road Maintenance Performance Indicators	*When annual road maintenance contribution negotiations are required, the negotiations should commence with the relevant councils and/or DP&I by 31 August.*	Yes	No negotiations with the Wollongong City Council, Campbelltown City Council and Wollondilly Shire Council were required during the reporting period.
	Annual road maintenance contributions to relevant councils are made by 30 November.	Yes	Metropolitan Coal did not transport any coal wash reject from the site by road in the 2025 calendar year.
Coal Transport Off-site Performance Indicators	*Coal transported off-site by road in a calendar year does not reach 150,000 tonnes prior to 31 October.*	Yes	Metropolitan Coal did not transport any product coal from the site by road in the 2025 calendar year.
Coal Transport Off-site Performance Indicators (Continued)	*Product coal truck movements to the Corrimal Cokeworks and Coalcliff Cokeworks do not exceed 22 and 27 movements respectively in any one day.*	Yes	Metropolitan Coal has ceased the transport of product coal to Corrimal Cokeworks and Coalcliff Cokeworks. No product coal was transported by road during the reporting period.
Limits on Approval (Project Approval Condition 6[b], Schedule 2)	*The Proponent shall not:* *(a) ...* *(b) transport more than 2.8 million tonnes of product coal from the site in a calendar year.*	Yes	Metropolitan Coal transported a total of 1,563,728 t of product coal and 621,458 t of coal wash reject from site by rail in the 2025 calendar year.
Transport (Project Approval Conditions 17, 18, 19, 20 and 21, Schedule 4)	*17. By the end of 2010, the Proponent shall:* *(a) undertake a road safety audit of the Parkes Street and Colliery Road intersection, in consultation with the RTA and WCC; and* *(b) implement any recommendations of this audit,* *to the satisfaction of the Director-General[5].*	Yes, the road safety audit has been undertaken. Further actions required in relation to the audit recommendations.	The Road Safety Audit of the Mine Access Road and Parkes Street intersection was conducted in September 2010 in accordance with Condition 17(a), Schedule 4 of the Project Approval. The Road Safety Audit recommended an upgrade of the Parkes Street and Colliery Road intersection. However, Metropolitan Coal was unable to address all of the recommended intersection upgrades due to the inability to obtain a mutually acceptable outcome with the Wollongong City Council. Metropolitan Coal engaged a road safety expert to review whether the works undertaken are sufficient to address the original risk identified, or whether alternative/additional actions can be undertaken to address the risk. The review indicated that the civil works associated with the full intersection upgrade were not achievable within the Colliery Road Crown Land lease area. Metropolitan Coal continues to consult further in relation to the intersection upgrade where opportunities arise.

Table 11 (Continued)
Assessment of Environmental Performance – Surface Facilities Area

Monitoring Aspect	Performance Indicator, Impact Assessment Criteria and/or Project Approval Condition	Indicator, Criteria or Condition Met?	Comments
TRAFFIC (Continued)			
Transport (Project Approval Conditions 17, 18, 19, 20 and 21, Schedule 4) (Continued)	*18. From the end of 2009, the Proponent shall make a suitable annual contribution to WCC, WSC, and CC for the maintenance of local roads that are used as haulage routes by the project. If there is any dispute over the amount of the contribution, the matter must be referred to the Director-General[5] for resolution.*	Yes	No haulage of CWR via Wollongong City Council, Campbelltown City Council or Wollondilly Shire Council roads was undertaken in 2025.
	19. The Proponent shall not: *(a) load coal or coal reject onto trucks, or transport it off site by road, outside the hours of 7am and 6pm Monday to Friday;* *(b) transport more than 170,000 tonnes of coal off site by road in a calendar year;* *(c) transport any coal off site to the Port Kembla Coal Terminal by road;* *(d) permit the departure of more than 25 trucks containing product coal for delivery to the Corrimal Cokeworks on any given day; or* *(e) permit the departure of more than 30 trucks containing product coal for delivery to the Coalcliff Cokeworks on any given day.*	Yes	No haulage of CWR via Wollongong City Council, Campbelltown City Council or Wollondilly Shire Council roads was undertaken in 2025
	20. During emergencies (such as the disruption of rail services) the Proponent may exceed the restrictions in condition 19 above with the written approval of the Director-General[5].	Yes	Metropolitan Coal did not transport product coal or CWR by road to PKCT during the reporting period.
	21. The Proponent shall monitor the amount of coal and coal reject transported from the site by road and rail each year, and report the results of this monitoring on its website every six months.	Yes	The results of coal and coal reject transport monitoring have been provided on Metropolitan Coal's website and updated every six months.

Table 11 (Continued)
Assessment of Environmental Performance – Surface Facilities Area

Monitoring Aspect	Performance Indicator, Impact Assessment Criteria and/or Project Approval Condition	Indicator, Criteria or Condition Met?	Comments
WASTE			
Waste Generation Performance Indicator	*Waste generation has been minimised, as evidenced by:* • *an increase in the amount or type of waste recycled;* • *a decrease in the amount of waste generated that is disposed of to licensed landfill facilities; and/or* • *no practicable opportunities for additional waste minimisation have been identified to those currently being implemented.*	Yes	Metropolitan Coal has minimised waste generation during the reporting period. The underground emplacement project reduced the off-site disposal of coal reject by approximately 33,365 t during the reporting period. No further practicable opportunities for waste minimisation were identified.
Storage of Waste Performance Indicator	*Waste has been separated and stored according to type in appropriate storage facilities (e.g. sealed containers for liquid waste).*	Yes	Waste on-site is adequately sorted and stored according to waste type prior to collection. Weekly site inspections are conducted by the Metropolitan Environment Department to ensure waste is separated and stored in accordance with the Metropolitan Coal Waste Management Plan.
Handling and Disposal of Waste Performance Indicator	*The transport of particular waste types has been tracked in accordance with NSW EPA waste tracking requirements.* *Metropolitan Coal's waste management contracts, where relevant, specify that the waste is to be transported by an appropriately licensed contractor and disposed of at an appropriately licensed facility.*	Yes	All transport of waste from the Metropolitan Coal site has been tracked in accordance with the EPA waste tracking requirements. Metropolitan Coal's waste management contracts specify waste is to be removed by an appropriately licensed contractor and disposed of at an appropriately licensed facility.
Waste Generation (Project Approval Condition 24, Schedule 4)	*24. The Proponent shall:* *(a) minimise the waste (including coal reject) generated by the project; and* *(b) ensure that the waste generated by the project is appropriately stored, handled, and disposed of,* *to the satisfaction of the Director-General.*	Yes	Metropolitan Coal has minimised waste (including coal reject) generated during the reporting period. The underground emplacement project had reduced the off-site transport of coal reject by approximately 33,365 t during the reporting period. Waste on-site is adequately sorted and stored according to waste type prior to collection. Weekly site inspections are conducted by the site Environment Department to ensure waste is separated and stored in accordance with the Metropolitan Coal Waste Management Plan. Metropolitan Coal's waste management contracts specify waste is to be removed by an appropriately licensed contractor and disposed of at an appropriately licensed facility.

Table 11 (Continued)
Assessment of Environmental Performance – Surface Facilities Area

Monitoring Aspect	Performance Indicator, Impact Assessment Criteria and/or Project Approval Condition	Indicator, Criteria or Condition Met?	Comments
VISUAL			
Visual Impacts (Project Approval Condition 23, Schedule 4)	23. *The Proponent shall minimise the visual impacts, and particularly the off-site lighting impacts, of the surface facilities area and two ventilation shaft sites to the satisfaction of the Director-General.*	Yes	N/A

Note: $L_{Aeq(15\ minute)}$ = intrusive equivalent noise level; $L_{A1(1\ minute)}$ = short-term noise level; dBA = A-weighted decibels; PM_{10} = Particulate matter less than 10 microns; HVAS1 = High Volume Air Sampler 1; TEOM1 = Tapered Element Oscillating Microbalance 1; $\mu g/m^3$ = micrograms per cubic metre; g/m^2/month = grams per square metre per month; TSP = total suspended particulate matter; t = tonnes; CWR = coal washery refuse; PKCT = Port Kembla Coal Terminal. .

1 Total measured level excluding extraordinary events such as bushfires, prescribed burning, dust storms, sea fog, fire incidents, illegal activities.

2 Background PM_{10} concentrations due to all other sources plus the incremental increase in PM_{10} concentrations due to the mine alone.

3 Dust deposition assessment criteria are to be measured using DG1 to DG10 excluding DG4, which is a control dust gauge that is located at the Helensburgh Golf Course some 2 km from the mine's surface facilities area.

4 PM_{10} air quality impact assessment criteria are to be measured using HVAS data.

8 WATER MANAGEMENT

A Metropolitan Coal Surface Facilities Water Management Plan has been prepared for the surface facilities area and ventilation shaft site in accordance with Condition 15, Schedule 4 of the Project Approval.

This section details the water use, licensed discharge and water quality monitoring results for the surface facilities area and the management measures implemented during the reporting period. The environmental performance of water management in the underground mining area and surrounds is described in Section 6.2.

The surface facilities area is located in a steep-sided valley adjacent to the town of Helensburgh and next to Camp Gully (Figure 2). The site water management system comprises a series of collection dams, sumps and treatment systems. The system is operated to avoid the mixing of clean water runoff and mine water, minimise off-site release of runoff, and to provide water supply requirements on-site.

Water Use

The main uses of water on-site are to supply underground mining operations, the coal washery and bathhouses. Metropolitan Coal draws its water from two main sources, namely the potable town water supply and water captured on-site.

Camp Gully runs adjacent to the southern edge of Metropolitan Coal's surface facilities area (Figure 22). In addition to the two sources listed above, Metropolitan Coal has a licence to extract water from Camp Gully Creek, which is specifically regulated by the Camp Creek Weir Surface Water Certificate of Title and more generally by the *Water Act 1912* and the *Water Management Act 2000*.

Metropolitan Coal's annual entitlement under the Camp Gully extraction licence is 130 megalitres (ML). A concrete weir was historically constructed on Camp Gully (approximately 1930s) to facilitate the extraction of water for the mine. Metropolitan Coal did not source any water from Camp Gully during the reporting period.

The use of potable water (sourced from Sydney Water) for mine purposes occurs when insufficient water is available from on-site harvesting. Potable water is sourced from two mains, one of which supplies the bathhouses and drinking water utilities and one that supplements water supplies for mining purposes. Metropolitan Coal used approximately 324 ML of potable town water (as recorded by the Sydney Water meters) during 2025 (a monthly average of approximately 27 ML), in comparison to 400 ML in 2024, 442 ML in 2023, 398 ML in 2022, 239 ML in 2021 and 301 ML in 2020.

The use of potable water per tonne of ROM coal produced is variable and is generally higher during periods of low rainfall (Chart 92). Ongoing site auditing during the reporting period has not identified incidences of potable water being used where there is a viable alternative. In 2025 potable water consumption continued to correlate well with ROM production throughout the year.

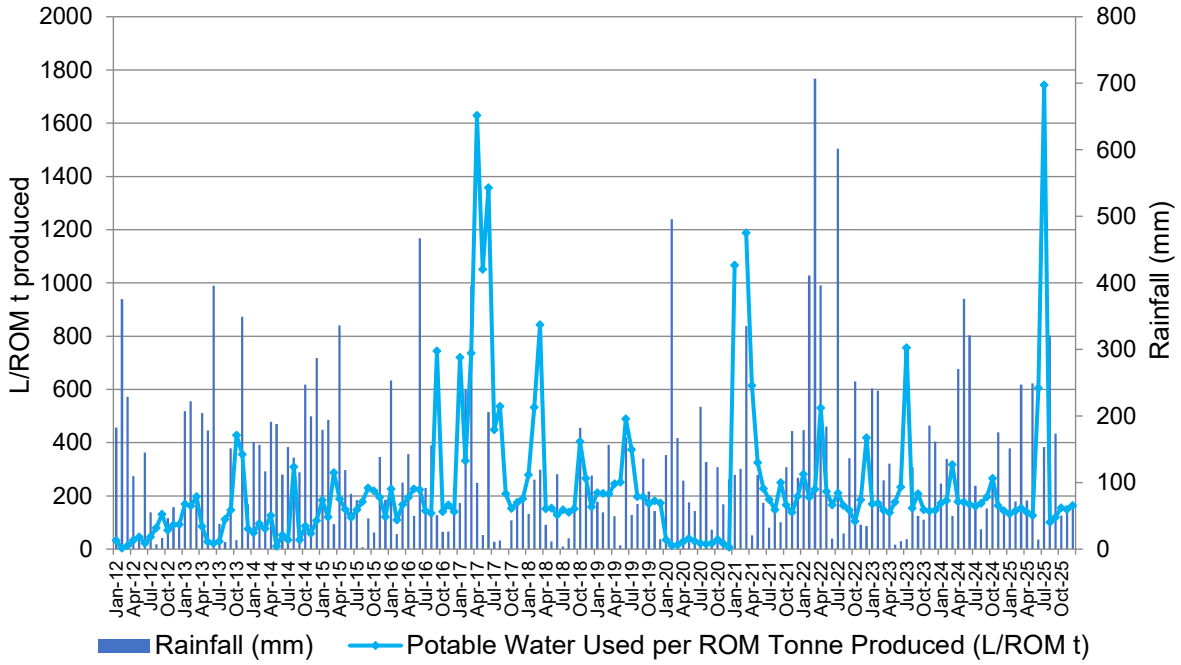


Chart 92 Potable Water Used per ROM Tonne Produced vs Rainfall

Licensed Discharge

Water discharged from the Water Treatment Plant to Camp Gully is monitored in accordance with EPL No. 767, which requires Metropolitan Coal to continuously monitor the volume (kilolitres per day) of water discharged from the clean water tank in the Water Treatment Plant to Camp Gully. The total amount of water discharged from the Water Treatment Plant to Camp Gully during the reporting period was approximately 21 ML, in comparison to 57 ML in 2024, 116 ML in 2023, 118 ML in 2022, 95 ML in 2021 and 120 ML in 2020.

Water Quality

Surface water quality monitoring of pH, oil and grease and total suspended solids is conducted at the Water Treatment Plant in accordance with EPL No. 767.

The water quality monitoring results indicate that pH levels (Mean of 8.38 pH) and total suspended solids (Mean of 8.0 mg/L) were within the water quality limits prescribed by EPL No. 767 (i.e. 6.5 to 8.5 pH and less than 30 mg/L for total suspended solids) during the reporting period. Similarly, no exceedances of the EPL No. 767 concentration limits were recorded by Metropolitan Coal in the 2011 to 2024 calendar years.

The Project EA predicted there would be no material effect to downstream water quality as a result of water releases from the major surface facilities area to Camp Gully (which are constrained by EPL No. 767). The monitoring results are consistent with the Project EA predictions in relation to water quality.

Overall System Integrity

Surface facilities water management items (such as pipelines and pumps, bunded areas, main water storages, signs of discharge of site runoff, upslope diversions and erosion control measures) are visually inspected by Metropolitan Coal and reported in accordance with the mine's maintenance system.

During the reporting period Metropolitan Coal continued to improve efficiency of desilting activities and completely desilted both the Turkeys Nest and Sediment Ponds dams. The site Water Treatment Plant was also modified to increase maximum capacity to > 45 litres per second.

Assessment of Environmental Performance

In accordance with the Metropolitan Coal Surface Facilities Water Management Plan, an assessment of the environmental performance of water management at the surface facilities area is provided in Table 12.

A summary of the water take during the water reporting period (1 July 2024 to 30 June 2025) is provided in Table 13.

Table 12
Assessment of Environmental Performance – Surface Facilities Water Management

Monitoring Aspect	Performance Indicator or Project Approval Condition	Indicator or Condition Met?	Comments
SURFACE FACILITIES WATER MANAGEMENT			
Water Use Performance Indicator	*The use of potable water (i.e. megalitres of town water used per tonne of coal produced) does not increase over time, after taking into consideration climatic conditions.* *Potable water has not been used in circumstances where there is a viable alternative.*	Yes	Ongoing site auditing during the reporting period has not identified incidences of potable water being used where there is a viable alternative.
Erosion Control Performance Indicator	*Inspections of the major surface facilities area and ventilation shaft(s) indicate the measures implemented are effectively controlling erosion.*	Yes	Weekly inspections of the surface facilities area and ventilation shaft(s) indicate that the erosion control measures implemented during the reporting period including sediment fencing and coir logs have effectively controlled erosion.
Containment of Contaminants Performance Indicator	*Effective containment and/or isolation measures are in place for potential contaminants on site.*	Yes	Weekly inspections have confirmed that effective containment and isolation measures have been in place for potential contaminants on-site.
Licensed Discharge Performance Indicator	*Surface water discharges comply with the requirements of EPL No. 767.*	Yes	All discharges through LDP7 were compliant with EPL No. 767.
System Integrity Performance Indicator	*Inspections of system components indicate the integrity of the system is not at risk of being compromised.*	Yes	Daily and weekly inspections of the water management system did not identify the need for maintenance of system components to reduce risk of compromise.
Discharges (Project Approval Condition 14, Schedule 4)	*14. The Proponent shall ensure that all surface water discharges from the site comply with the discharge limits (both volume and quality) set for the project in any EPL.*	Yes	All discharges through LDP7 were compliant with the EPL.

Table 13
Cumulative Water Take (1 July 2024 to 30 June 2025)

Water Licence #	Water Sharing Plan, Source and Management Zone (as applicable)	Entitlement (ML/year)	Passive take / inflows (ML/year)	Active Pumping (ML/year)
10BL603595	Greater Metropolitan Region Groundwater Sources 2023 Sydney Basin Central Groundwater Source	182.5	68.0	0.0

ML/Year = megalitres per year

9 CONSTRUCTION MANAGEMENT

A Metropolitan Coal Construction Management Plan has been prepared for surface construction works (excluding remediation or rehabilitation works) in the Woronora Special Area in accordance with Condition 11, Schedule 3 of the Project Approval.

As the requirement for surface construction works arise, Metropolitan Coal provide the specific details of the proposed surface construction works (in the form of a completed Surface Works Assessment Form [SWAF]) to the DPHI and WaterNSW for comment. The Surface Works Assessment Form details the specific management measures that will be implemented to minimise potential impacts associated with surface construction works, including management measures relevant to vegetation, Aboriginal heritage, erosion and sediment control, fuel and spill management, transport, waste, bushfire preparedness, pest management and site clean-up.

In 2025 Metropolitan Coal lodged a SWAF for the replacement of the No, 3 Shaft ventilation fans, as well as the installation of flaring units which will be used to combust methane extracted from the coal seam. After receiving approval from DPHI in December 2025, Metropolitan commenced construction activities.

No other construction activities in the underground mining area were conducted during the reporting period.

10 REHABILITATION

In August 2023, a Rehabilitation Management Plan was prepared by Metropolitan Coal in accordance with the new standard rehabilitation conditions on mining leases imposed through an amendment to the *Mining Regulation 2016* under the *Mining Act 1992*. The Rehabilitation Management Plan is available on the Peabody website and addresses the rehabilitation requirements prescribed in the conditions of ML 1610, ML 1702, CCL 703, CL 379, MPL 320 and Condition 4, Schedule 6 of the Project Approval (08_0149).

Rehabilitation activities at the Metropolitan Coal Mine are conducted in accordance with the Rehabilitation Management Plan.

In accordance with clauses 9 and 13 of Schedule 8A of *Mining Regulations 2016* and Part 1 of the NSW Resources Regulator Form and Way – *Annual Rehabilitation Report and Forward Program for Large Mines* (2021), Metropolitan Coal has prepared an Annual Rehabilitation Report for the 2025 reporting period. The 2025 Annual Rehabilitation Report describes the rehabilitation and disturbance activities undertaken at the Metropolitan Coal Mine between 1 January to 31 December 2025 (i.e. the Annual Review reporting period).

To ensure consistency between the reporting of rehabilitation activities required by Metropolitan Coal's mining leases and Project Approval (08_0149), the Metropolitan Coal Annual Rehabilitation Report has been provided in Appendix M and is available on the Peabody website.

10.1 ASSESSMENT OF ENVIRONMENTAL PERFORMANCE

An assessment of the environmental performance of rehabilitation management during the reporting period is provided in Table 14.

Table 14
Assessment of Environmental Performance – Rehabilitation

Monitoring Component		Performance Indicator, Rehabilitation Objective and/or Project Approval Condition	Indicator, Objective or Condition Met?	Comments
Other land affected by the Project Performance Indicator		*Redundant equipment/infrastructure items have been removed.* *The site is neat and tidy (i.e. it does not contain any rubbish).* *No weed management measures are required.* *No erosion or sediment control measures are required.* *Where appropriate, native vegetation is naturally regenerating or active revegetation is establishing.* *No further active revegetation measures are required.*	Not currently applicable	Not applicable during the reporting period as no rehabilitation of surface distribution areas in the underground mining area has been conducted. Once a surface disturbance area is no longer being utilised, Metropolitan Coal will use the Rehabilitation Management Plan – Surface Disturbance Register to monitor the performance of the measures implemented to rehabilitate surface disturbance areas.
Stream Remediation Performance Indicator		*Analysis of water level recession rates for a pool indicates a similar pool behaviour to that which existed prior to being impacted by subsidence.*	To be determined	While stream remediation activities have been conducted at Pools A, F and G on the Waratah Rivulet, assessment against the rehabilitation performance indicator has not been made to date. Assessment following the stream remediation works was delayed until a significant period of drier climatic conditions had been experienced and an updated Stream Remediation Management Plan including proposed pool remediation success assessment criteria, which was approved in November 2019.
Rehabilitation Objectives (Project Approval Table 11, Condition 1 Schedule 6)	*Surface Facilities Area*	*Set through condition 2 below.*	Yes	The rehabilitation objective for the surface facilities area is addressed in the Metropolitan Coal Rehabilitation Strategy.
	Waratah Rivulet, between the downstream edge of Flat Rock Swamp and the full supply level of the Woronora Reservoir	*Restore surface flow and pool holding capacity as soon as reasonably practicable.*	To be determined	Metropolitan Coal will assess surface flow and pool holding capacity using the results of the assessment of the stream remediation performance indicator for the completed stream remediation activities at Pools A, F and G once a significant period of drier climatic conditions has been experienced. Additional stream remediation activities were undertaken at Pool A during the review period.
	Eastern Tributary, between the maingate of Longwall 26 and the full supply level of the Woronora Reservoir		To be determined	Metropolitan Coal is currently collecting monitoring data to inform assessment of the stream remediation performance indicator.
	Cliffs	*Ensure that there is no safety hazard beyond that existing prior to mining.*	Yes	No safety hazard associated with cliffs was identified during the reporting period.

Table 14 (Continued)
Assessment of Environmental Performance – Rehabilitation

Monitoring Component		Performance Indicator, Rehabilitation Objective and/or Project Approval Condition	Indicator, Objective or Condition Met?	Comments
Rehabilitation Objectives (Project Approval Table 11, Condition 1 Schedule 6) (Continued)	*Other land affected by the Project*	*Restore ecosystem function, including maintaining or establishing self sustaining native ecosystems:* • *comprised of local native plant species; with* • *a landform consistent with the surrounding environment.*	Not currently applicable	The Rehabilitation Management Plan – Surface Disturbance Register will be used to manage the implementation of rehabilitation measures. The performance indicator for other land affected by the Project will be used to monitor the performance of rehabilitation measures being implemented.
	Community	*Minimise the adverse socio-economic effects associated with mine closure including the reduction in local and regional employment.*	Not currently applicable	The socio-economic effects associated with mine closure will be addressed in the Metropolitan Coal Mine Closure Plan and will be considered in consultation with the local community (through the Community Consultative Committee [CCC]) when determining the final land use option.
		Ensure public safety.	Yes	Assessed through the Metropolitan Coal Public Safety Management Plan for the underground mining area and in the Metropolitan Coal Rehabilitation Strategy for the surface facilities area.
Rehabilitation Strategy – Surface Facilities Area (Project Approval Condition 2, Schedule 6)		*2. By the end of October 2011, the Proponent shall prepare a Rehabilitation Strategy for the surface facilities area to the satisfaction of the Director-General. This strategy must:* *(a) be prepared by a team of suitably qualified and experienced experts whose appointment has been endorsed by the Director-General;* *(b) be prepared in consultation with relevant stakeholders, including the WCC and the CCC;* *(c) investigate options for the future use of the area upon the completion of mining;* *(d) describe and justify the proposed rehabilitation strategy for the area; and* *(e) define the rehabilitation objectives for the area, as well as the proposed completion criteria for this rehabilitation.*	Yes	-

Table 14 (Continued)
Assessment of Environmental Performance – Rehabilitation

Monitoring Component	Performance Indicator, Rehabilitation Objective and/or Project Approval Condition	Indicator, Objective or Condition Met?	Comments
Progressive Rehabilitation (Project Approval Condition 3, Schedule 6)	*3. To the extent that mining operations permit, the Proponent shall carry out rehabilitation progressively, that is, as soon as reasonably practicable following the disturbance.*	Yes	-
Rehabilitation Management Plan (Project Approval Condition 4, Schedule 6)	*4. The Proponent shall prepare and implement a Rehabilitation Management Plan for the project to the satisfaction of the Executive Director Mineral Resources. This plan must be prepared in consultation with the relevant stakeholders, and submitted to DRE for approval prior to carrying out any second workings in the mining area.* *Note: In accordance with condition 12 of schedule 2, the preparation and implementation of Rehabilitation Management Plans is likely to be staged, with each plan covering a defined area (or domain) for rehabilitation. In addition, while mining operations are being carried out, some of the proposed remediation or rehabilitation measures may be included in the detailed management plans that form part of the Extraction Plan. If this is the case, however, then the Proponent will be required to ensure that there is good cross-referencing between the various management plans.*	Yes	-
Catchment Improvement Works (Project Approval Condition 5, Schedule 6)	*5. The Proponent shall:* *(a) pay SCA $100,000 by the end of 2011 to carry out catchment improvement works within the Woronora catchment area; or* *(b) carry out catchment improvement works within this area that have an equivalent value to the satisfaction of SCA.*	Yes	-

Table 14 (Continued)
Assessment of Environmental Performance – Rehabilitation

Monitoring Component	Performance Indicator, Rehabilitation Objective and/or Project Approval Condition	Indicator, Objective or Condition Met?	Comments
Offsets (Project Approval Condition 6, Schedule 6)	*6. If the Proponent exceeds the performance measures in Table 1 of this approval, and either* *(a) The contingency measures implemented by the Proponent have failed to remediate the impact; or* *(b) The Director-General determines that it is not reasonable or feasible to remediate the impact,* *then the Proponent shall provide a suitable offset to compensate for the impact to the satisfaction of the Director-General.* *Note: Any offsets required under this condition must be proportionate with the significance of the impact.*	To be determined	In October 2016 Metropolitan Coal identified the subsidence impact performance measure for the Eastern Tributary, between the full supply level of the Woronora Reservoir and the Longwall 26 maingate in Table 1, Condition 1, Schedule 3 of the Project Approval had been exceeded in relation to iron staining. In early 2017 the same performance measure was identified as being exceeded in relation to pool drainage behaviour (refer to Sections 6.2 and 13.1). Metropolitan Coal proposed to conduct stream remediation measures on the Eastern Tributary in accordance with the Longwalls 23-27 Water Management Plan Contingency Plan. In 2018 Metropolitan submitted a Stream Remediation Plan to relevant stakeholders prior to commencement of any stream remediation. The plan was approved in November 2019 with remediation activities commencing in 2020.

11 COMMUNITY

Metropolitan Coal engages with the Helensburgh community and strives to maintain positive relationships with stakeholders given the extensive history shared between the mine and township. Generations of locals have worked at the mine and it is widely accepted that the operation is an integral component of the Helensburgh community.

The majority of workers reside in the local area or within 50 km of the mine. As far as practicable, the mine seeks to employ local contractors, supply companies and services during the course of its operations.

Metropolitan Coal has also continued to provide sponsorship and/or donations to the local community during the reporting period. Metropolitan Coal's proactive community engagement program aims to work in partnership with the community for mutually beneficial and sustainable outcomes achieving this through the development of specific community programs as discussed below.

11.1 COMMUNITY ENGAGEMENT ACTIVITIES AND INITIATIVES

Community Consultative Committee

Three CCC meetings were held during the reporting period (18 March, 15 July and 18 November 2025). These meetings facilitated Metropolitan Coal consultation and engagement with community members on matters of general business and the environmental performance of the operation. Discussions during the reporting period included the Longwalls 311-316 Extraction Plan, the Longwalls 317-318 project modification, monitoring and remediation of the Eastern Tributary, surface water management, upland swamp monitoring, Woronora Reservoir water quality, exploration licences, a future State Significant Development application, CWR management and community funding.

11.2 COMMUNITY CONTRIBUTIONS

In addition to the community engagement activities and initiatives discussed above, Metropolitan Coal has made a number of significant donations to support the community of Helensburgh and the greater Illawarra region throughout 2025. All donation requests were assessed on their individual merit and funding was distributed accordingly.

In total, community donations and sponsorship during 2025 amounted to over $190,000 and included the following:

- Donation to the Helensburgh Tigers Rugby League Club.
- Donation to the Helensburgh Tigers Junior Rugby League Club.
- Donation to Helensburgh Netball Club.
- Donation to Helensburgh Thistles Soccer Club.
- Ongoing sponsorship of the Helensburgh Public School and Holy Cross Primary School gardening and environment programs.
- Donation to Helensburgh Hope Church Community Pantry.
- Donation to the Illawarra Cycle Club.
- Donation to Helensburgh Mens Shed.
- Funding of "Carols in the Burgh" fireworks display.
- Donation to Helensburgh Lego Brick Fair.

- A three-year sponsorship of Symbio Wildlife Park to assist with the reintroduction of the Southern Stuttering Frog to parts of its former range on the NSW south coast including the Royal National Park.

11.3 COMMUNITY COMPLAINTS

A protocol for the management and reporting of complaints has been developed as a component of Metropolitan Coal's Environmental Management Strategy. A dedicated telephone number for the provision of comments or complaints is maintained by Metropolitan Coal (1800 115 003) and is displayed on signage at an entrance to the mine. Metropolitan Coal records and responds to all complaints and maintains a complaints register on its website.

During the reporting period, no complaints were received.

A summary of community complaints received since January 2006 is provided on Figure 23. Very few complaints have been received on an annual basis since the Project was approved in June 2009, and have typically related to noise, dust and/or traffic.

12 INDEPENDENT ENVIRONMENTAL AUDIT

In accordance with Condition 8, Schedule 7 of the Project Approval, an Independent Environmental Audit of the Project is to be commissioned by the end of December 2011, and every three years thereafter, and be conducted by a team of experienced and independent experts endorsed by the Director-General (now Secretary) of the DP&E (now DPHI).

Metropolitan Coal commissioned the 2023 Independent Environmental Audit by 31 December 2023. In accordance with Condition 9, Schedule 7 of the Project Approval, Metropolitan Coal provided a copy of the Independent Environmental Audit to DPHI with Metropolitan Coal's response to the Audit recommendations upon completion.

Five Independent Environmental Audits have been completed to date (as reported in previous Annual Reviews). The next Independent Environmental Audit is to be commissioned by December 2026.

13 INCIDENTS AND NON-COMPLIANCES DURING THE REPORTING PERIOD

In accordance with Condition 4, Schedule 7 of the Project Approval (08_0149), Metropolitan Coal reviews, and if necessary, revises the Metropolitan Coal Management Plans within three months of the submission of an incident report under Condition 6, Schedule 7 of the Project Approval (08_0149).

13.1 EASTERN TRIBUTARY PERFORMANCE MEASURE

The Metropolitan Coal Project Approval (08_0149) requires Metropolitan Coal not to exceed the subsidence impact performance measures outlined in Table 1 of Condition 1, Schedule 3.

The subsidence impact performance measure for the Eastern Tributary watercourse is:

> *Negligible environmental consequences over at least 70% of the stream length (that is no diversion of flows, no change in the natural drainage behaviour of pools, minimal iron staining and minimal gas releases)*

Monitoring conducted in accordance with the Metropolitan Coal Longwalls 23-27 Water Management Plan in 2016 identified that the Eastern Tributary watercourse performance measure for the Eastern Tributary between the full supply level of the Woronora Reservoir and the maingate of Longwall 26 was exceeded in relation to *minimal iron staining* in October 2016. The exceedance was reported to the Secretary of the DP&E and other relevant agencies on 14 October 2016 in accordance with Condition 6, Schedule 7 of the Project Approval and the Metropolitan Coal Longwalls 23-27 Water Management Plan Contingency Plan.

The *no diversion of flows, no change in the natural drainage behaviour of pools* component of the Eastern Tributary subsidence impact performance measure was exceeded in January 2017 and reported to the DP&E and other relevant agencies.

Since 2020 Metropolitan Coal has conducted stream remediation works in accordance with the Metropolitan Coal Stream Remediation Plan. PUR grout curtains to a depth of up to 10 m have been installed at pools ETAH, ETAK, ETAL, ETAM and ETAO with additional shallow pattern grouting to a depth of approximately 1 m also undertaken at Pools ETAQ and ETAR. Significant improvements in stream bed permeability and pool drainage behaviour have been noted, however an extended period of dry climatic conditions is needed to properly assess the efficacy of the remediation activities taken to date. Stream remediation activities will continue in 2026.

14 ACTIVITIES PROPOSED IN THE NEXT REPORTING PERIOD

In the next reporting period, Longwall 312 is expected to be completed in February 2026 and Longwall 313 is anticipated to commence in March 2026 and be completed in September, with Longwall 314 expected to commence in October and continue through the remainder of the reporting period (Figure 5).

In the next reporting period, the following activities will be conducted:

- Metropolitan Coal will continue to consult with stakeholders in relation to the next Extraction Plan.
- The coal reject backfill emplacement project will continue in 2026.
- Metropolitan Coal will continue works to vegetate the outer batters of the Turkey's Nest Dam and manage weeds on Camp Creek Gully.
- Metropolitan Coal will undertake additional stream remediation at Pool A on Waratah Rivulet and/or within the performance measure zone of Eastern Tributary.
- Installation of swamp groundwater and soil moisture monitoring equipment in the Woronora Special Area.
- Replacement of No. 3 Vent Shaft Fans and installation of flaring units at the Gas Drainage Plant to reduce greenhouse gas emissions.

15 ACTIONS FROM RECOMMENDATIONS OF THE INDEPENDENT ADVISORY EXPERT PANEL FOR MINING

In 2023, the then DP&E (now DPHI) requested advice from the IEAPM in regards to potential impacts of past and future underground mining on water quality and three large swamps overlying Longwalls 311-316. The IEAPM has prepared the following three reports in response to DPHI's request:

1. *Metropolitan Coal Mine: Independent review of environmental performance to 2022*.
2. *Water Quality Performance Measures for Metropolitan Coal Mine*.
3. *High Level Review - Large swamp environmental assessment requirements for the Extraction Plan for Longwalls 311 to 316.*

In July 2024, the DPHI requested the IEAPM provide advice in relation to the Longwalls 311-316 Extraction Plan. On 9 September 2024, the DPHI provided the IEAPM's Advice Report to Metropolitan Coal, which outlined 42 recommendations pertaining to Longwalls 311-312.

As part of the Longwalls 311-316 Extraction Plan, Metropolitan Coal provided the DPHI with a number of commitments to address the IEAPM's recommendations. A number of these recommendations were proposed to be included in the 2024 Annual Review, which was reported on last year.

Table 15 below provides a status update on the residual commitments that were described to be included in the 2025 Annual Review from the 2024 Annual Review.

Table 15
IEAPM Recommendations and Commitment Status Update

Recommendation	Metropolitan Coal Commitment	Relevant Annual Review Section / Commitment Update
Performance indicators and associated trigger levels for water reaching the Woronora Reservoir should be assessed using total Fe, Mn and Al where sufficient baseline data exist. Both total and dissolved Fe, Mn and Al concentrations should be reported in six month and annual reports.	Longwalls 311-316 Water Management Plan includes total iron, total manganese and total aluminium monitoring at a number of key sites. Future six-month and annual reporting against the Longwalls 311-316 Extraction Plan will include both dissolved and total Fe, Mn and Al concentrations.	Section 6.2.4, Section 6.2.5 and Appendix B.
An analysis of historical water quality trends in Woronora Reservoir and their relation to mining development should be included in the Metropolitan Coal 2024 Annual Review, and this should not be provisional on further suitable data becoming available.	An analysis of historical water quality trends in Woronora Reservoir and their relation to mining development is being undertaken by ATC Williams. These results would be presented in the 2025 Annual Review.	Section 6.2.5 and Appendix B.

Table 15 (Continued)
IEAPM Recommendations and Commitment Status Update

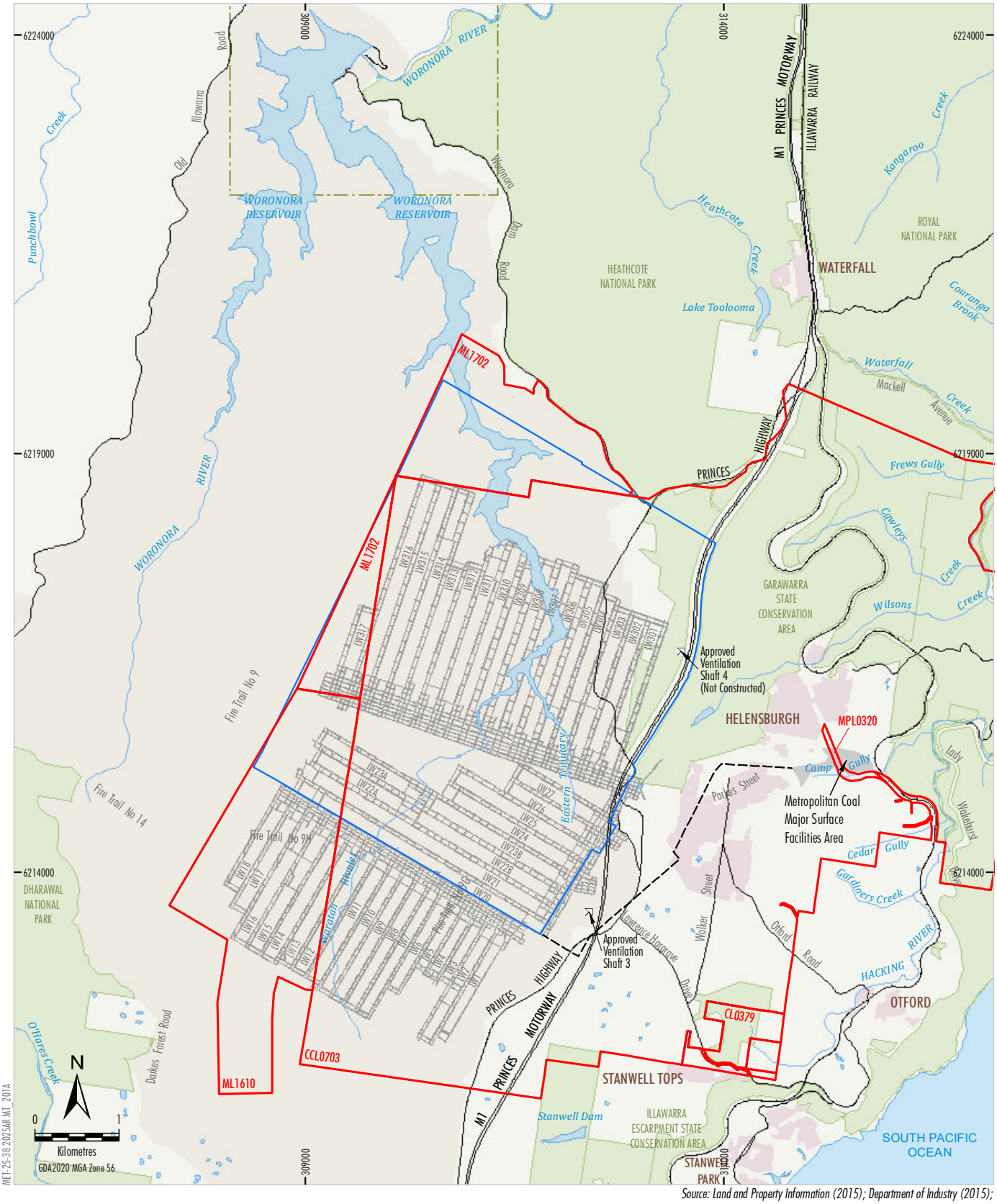
Recommendation	Metropolitan Coal Commitment	Relevant Annual Review Section / Commitment Update
Further baseline surveys are required for threatened frog species, using appropriate survey methods and effort, conducted at a suitable time of year with survey locations targeting breeding habitat through the upland swamps (where present) and along suitable reaches of Tributaries P, R and S.	Metropolitan Coal has engaged Niche and approved Biodiversity Expert for Littlejohn's Tree Frog (*Litoria littlejohni*), Giant Burrowing Frog (*Heleioporus australiacus*) and Red-crowned Toadlet (*Pseudophryne australis*), Ross Wellington, to undertake additional baseline amphibian surveys using appropriate survey methods and assist with developing an updated amphibian monitoring program for the three large swamps and associated control swamps.	In 2025, Niche completed the baseline surveys targeting the three threatened frog species. The first amphibian monitoring period using the revised monitoring program was completed in Summer 2025/2026. The results of this assessment, including consideration of the Performance Indicator is provided in Section 6.3.6 of this Annual Review and in Appendix J.
Additional surveys are required for Swamps 92, 77 and 76 using best practice methods. The Panel recommends the company engage with BCS in developing a suitable survey method.		
Peabody should procure sediment cores at selected locations downstream of the confluence of Waratah Rivulet and Eastern Tributary with the reservoir and at control sites in the reservoir in order to assess the possible impacts of mining on alterations to sediment composition (with implications to possible mobilisation of Fe and Mn should these sediments become anoxic).	Metropolitan Coal has consulted Associate Professor Barry Noller regarding the sampling and analysis of sediment cores.	An update on the collection of sediment cores is provided in Metropolitan Coal (2026).
Re-analysis of the flow data including the most recent data. This analysis should be of the nature of HEC (2022) but also consider the possibility of increased flows being related to high groundwater or reservoir levels or errors in the modified AWBM model (Australian Water Balance Model).	Metropolitan Coal has engaged ATC Williams to analyse the flow data and consider the possibility of increased flow being related to high groundwater or reservoir levels or errors in the modified AWBM model.	The outcomes of the investigation is provided in Appendix B.
Further reporting of the modelling in annual report appendices should contain details of the modified AWBM model and parameter values needed to allow independent assessment.	Following the re-analysis of flow data, ATC Williams will undertake further reporting of information relevant to the modified AWBM model.	The outcome of the report is provided in Appendix B.

Note: Metropolitan Coal (2026) *CONSOLIDATED RESPONSES TO AGENCY ADVICE ON THE SUBMISSIONS REPORT AND IESC ADVICE*.

Table 15 (Continued)
IEAPM Recommendations and Commitment Status Update

Recommendation	Metropolitan Coal Commitment	Relevant Annual Review Section / Commitment Update
Further reporting of the modelling in annual report appendices should contain details of the modified AWBM model and parameter values needed to allow independent assessment.	Following the re-analysis of flow data, ATC Williams will undertake further reporting of information relevant to the modified AWBM model.	The outcome of the investigation is provided in Appendix B.
Peabody should commit, subject to access permission, to monitoring the depth profiles of water quality of the Woronora Reservoir at WDFS1 or other suitable site including regular (at least bi-annual) sampling throughout the remaining mining period, plus sampling following level 3 triggers for water quality reaching the reservoir.	Metropolitan Coal has commenced water quality sampling and analysis for monitoring location WDFS1 (located at the confluence of Eastern Tributary and Waratah Rivulet). These results would be presented in the 2025 Annual Review in considered in relation to assessment of TARP *Negligible Reduction to the Quality of Water Resources Reaching the Woronora Reservoir*	The outcome of the investigation is provided in Appendix B.
Suitable methods for improving the extension of the Eastern Tributary rating curves to improve high flow measurement accuracy should be undertaken by Peabody. WaterNSW should review whether the extension of the rating curve at the Waratah Rivulet could be improved. Selected watercourses in future mining areas should have flow gauges installed with validated rating curves. Where it is impractical to extend rating curves to high flows, alternative methods of high flow estimation should be considered.	Metropolitan Coal has engaged ATC Williams to investigate suitable methods for improving the extension of the Eastern Tributary rating curve to improve high flow measure accuracy.	Metropolitan Coal continues to liaise with WaterNSW about expansion of water monitoring infrastructure in the catchment and potential updates to data analysis (e.g. extension of the rating curves).
It is recommended that an agreement be reached whereby a hydrodynamic and contaminant transport model set-up is designed to support assessments of potential mining impacts. Consideration should be given as to how the responsibility for the modelling is shared between WaterNSW and Peabody.	Metropolitan Coal has engaged ATC Williams to investigate suitable methods for improving the extension of the Eastern Tributary rating curve to improve high flow measure accuracy.	Metropolitan Coal continues to liaise with WaterNSW about expansion of water monitoring infrastructure in the catchment and potential updates to data analysis (e.g. extension of the rating curves).

FIGURES



Source: Land and Property Information (2015); Department of Industry (2015); Metropolitan Coal (2025); MSEC (2025)

LEGEND

- Mining Lease Boundary
- Project Underground Mining Area
  Longwalls 20-27 and 301-317
- Existing Underground Access Drive (Main Drift)
- Woronora Special Area
- NPWS Managed Land
- Railway
- Road
- Woronora Notification Area

Peabody

METROPOLITAN COAL

Metropolitan Coal Longwall Layout

Figure 1

MET-25-38 2025AR MT_001A

Source: Aerial Photography (2005)

LEGEND

Additional/Upgraded Project Infrastructure

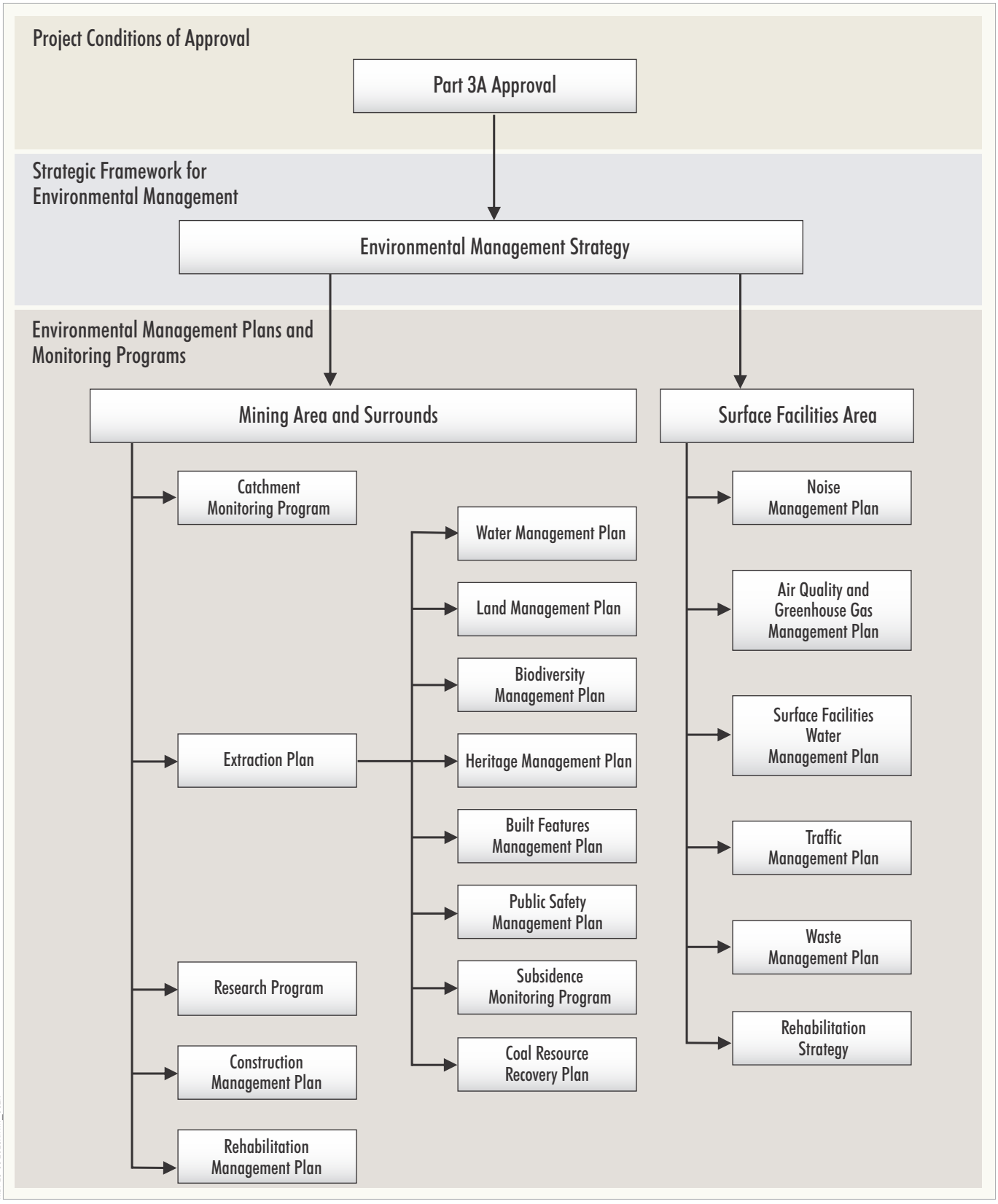
Approximate Extent of Major Surface Facilities Area

Peabody

METROPOLITAN COAL

General Arrangement of the Major Surface Facilities Area

Figure 2

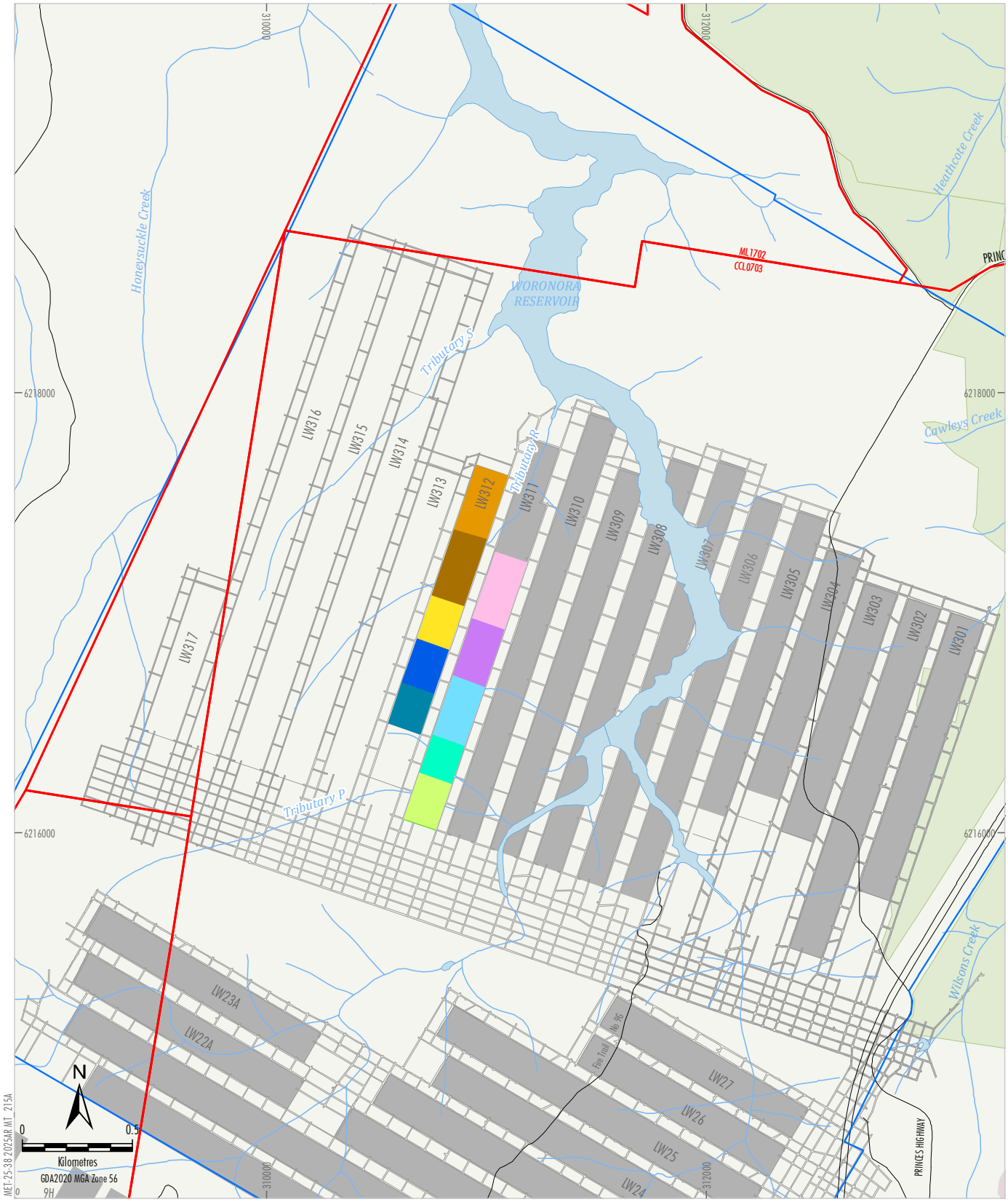


MET-25-38 2025AR MT_002A

Peabody
METROPOLITAN COAL

Environmental Management Structure

Figure 3



Source: Land and Property Information (2015); Department of Industry (2015); Metropolitan Coal (2026)

LEGEND

- Mining Lease Boundary
- Railway
- Project Underground Mining Area
- Longwalls 20-27 and 301-317
- Existing Underground Access Drive (Main Drift)
- Previous Extraction

Monthly Development 2025

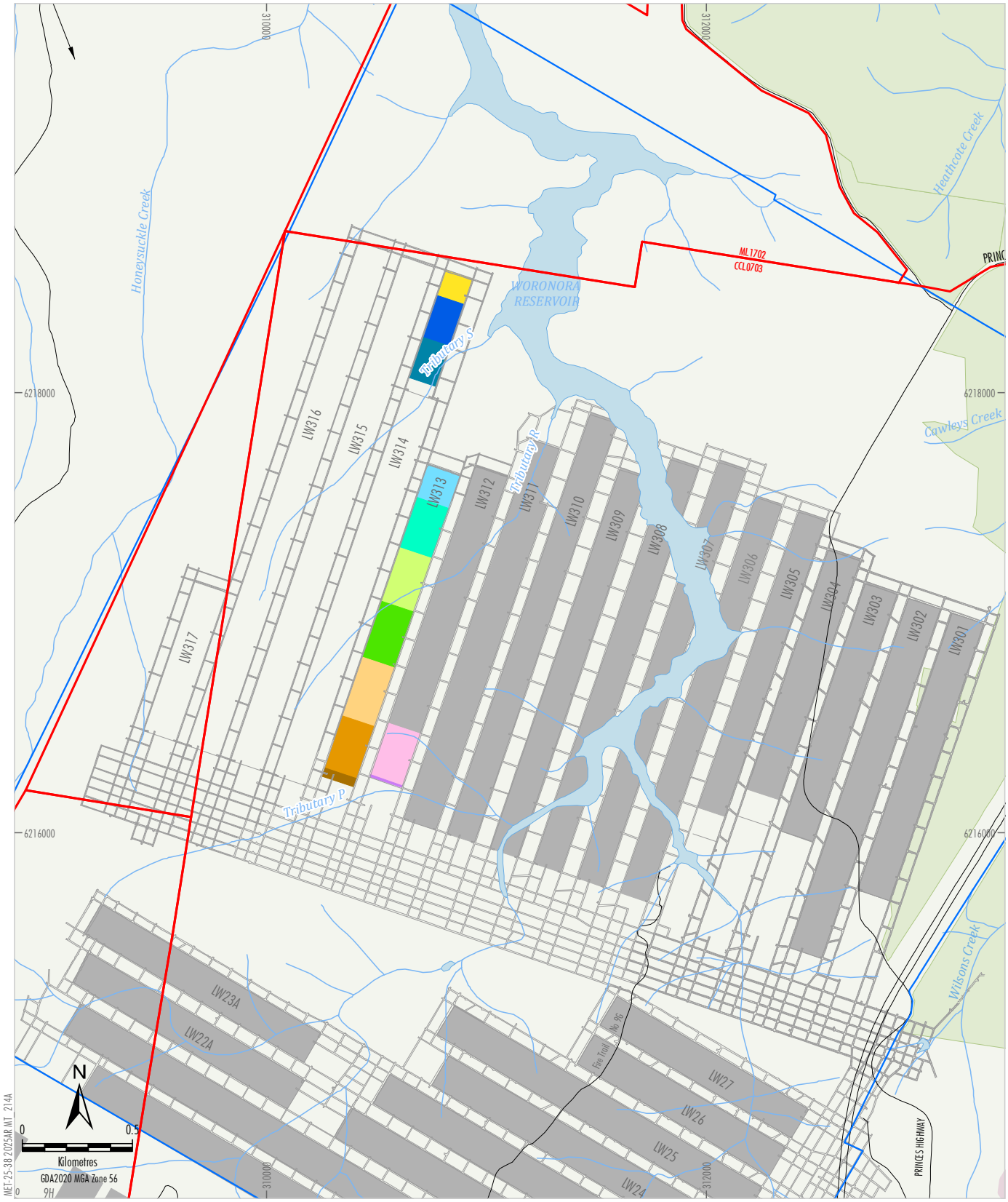
- January
- February
- March
- April
- May
- June
- August
- September
- October
- November
- December

Peabody

METROPOLITAN COAL

Monthly Production Plan
January to December 2025

Figure 4



LEGEND

- Mining Lease Boundary
- Railway
- Project Underground Mining Area
  Longwalls 20-27 and 301-317
- Existing Underground Access Drive (Main Drift)
- Previous Extraction

Production Forecast 2026

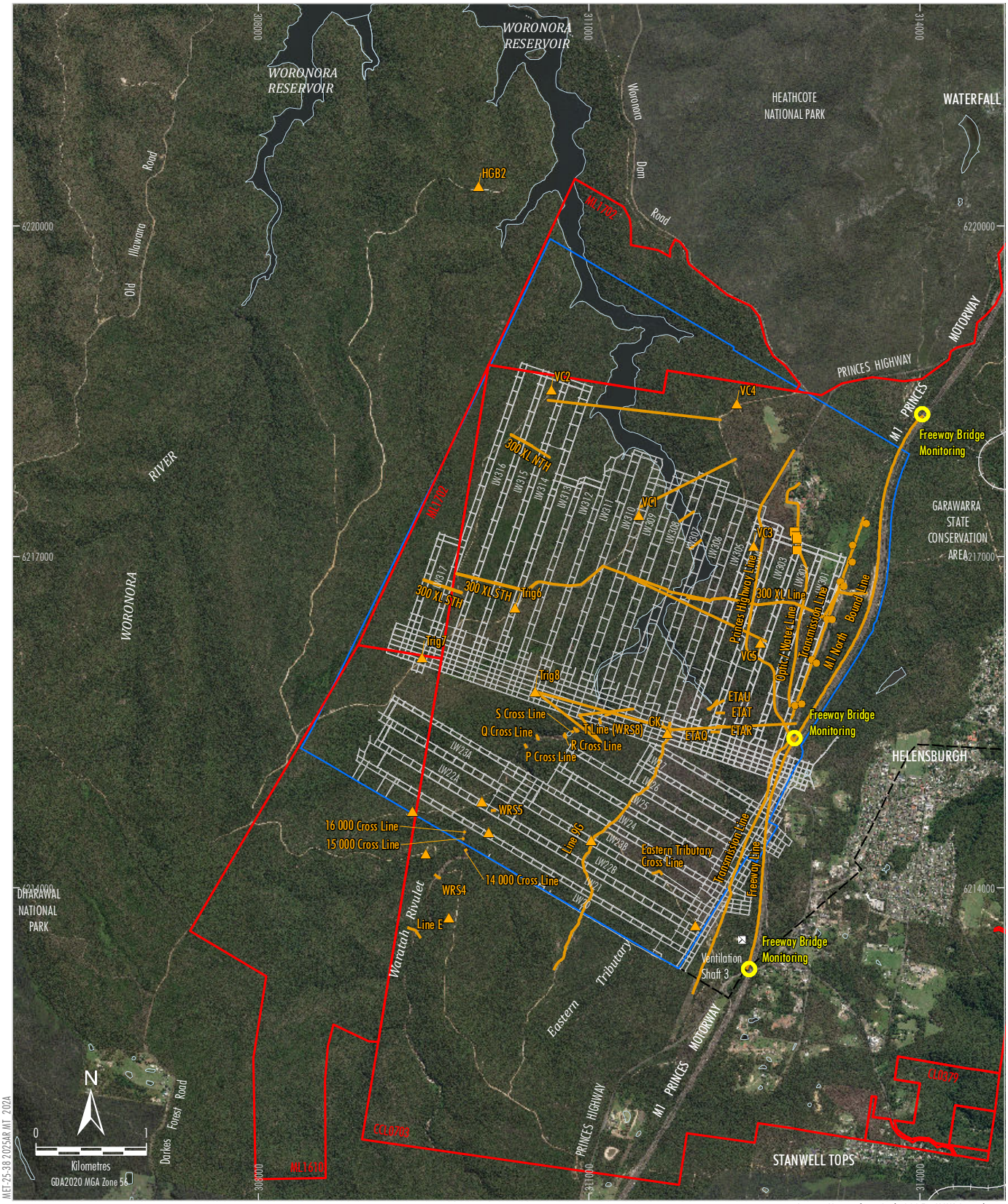
- January
- February
- March
- April
- May
- June
- July
- August
- September
- October
- November
- December

Source: Land and Property Information (2015); Department of Industry (2015); Metropolitan Coal (2026)

Peabody
METROPOLITAN COAL

Production Plan Forecast
January to December 2026

Figure 5



LEGEND

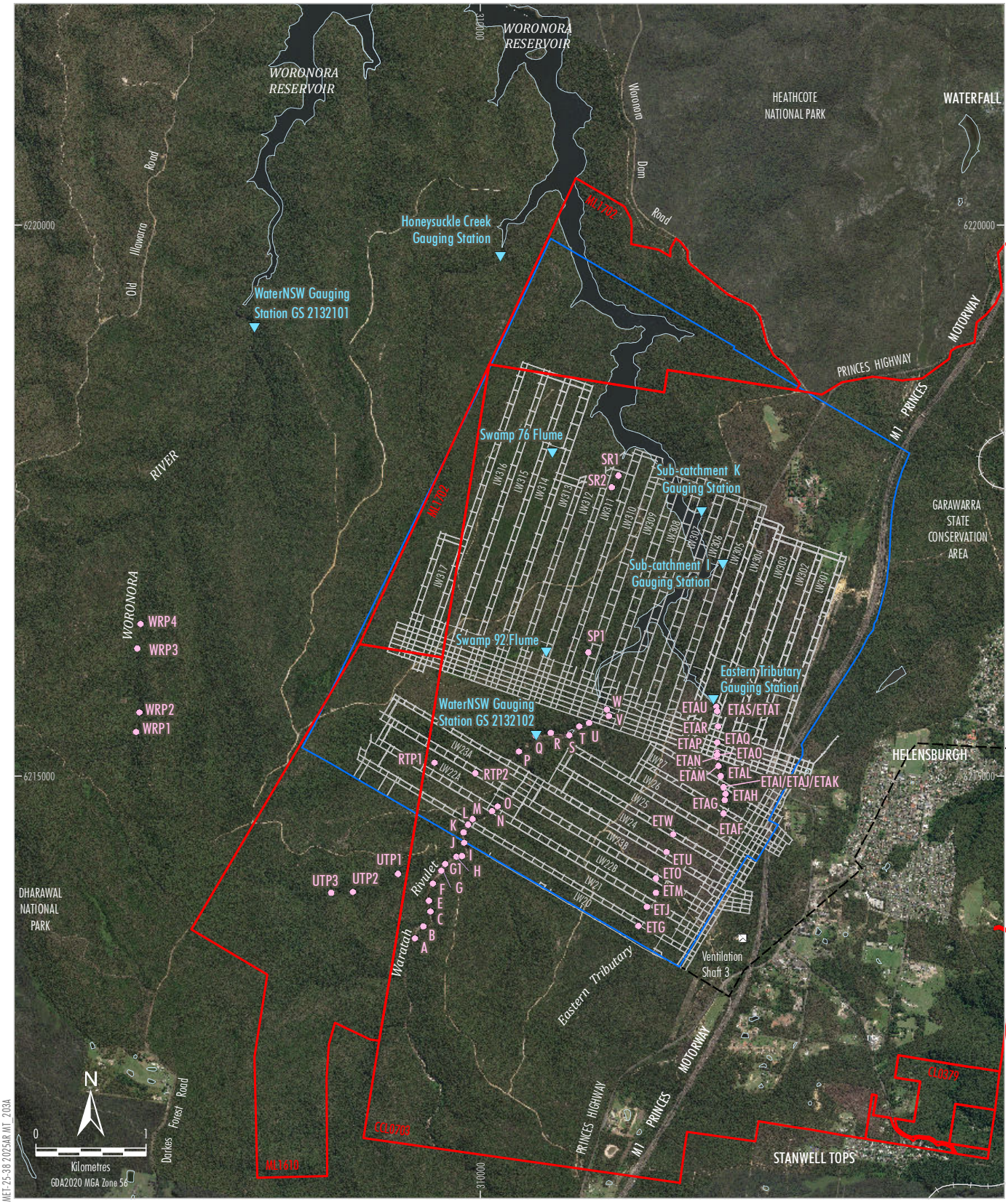
- Mining Lease Boundary
- Railway
- Project Underground Mining Area
  Longwalls 20-27 and 301-317
- Existing Underground Access Drive (Main Drift)
- Ridge Survey Point
- Subsidence Line
- Transmission Towers -
  Endeavour Energy and TransGrid
- Communications Towers
- Freeway Bridge Subsidence Monitoring

Source: Metropolitan Coal (2025); NSW Spatial Services (2025)
Orthophoto: Metropolitan Coal (2023); NSW Spatial Services (2020)

Peabody
METROPOLITAN COAL

Subsidence Monitoring Locations

Figure 6



LEGEND

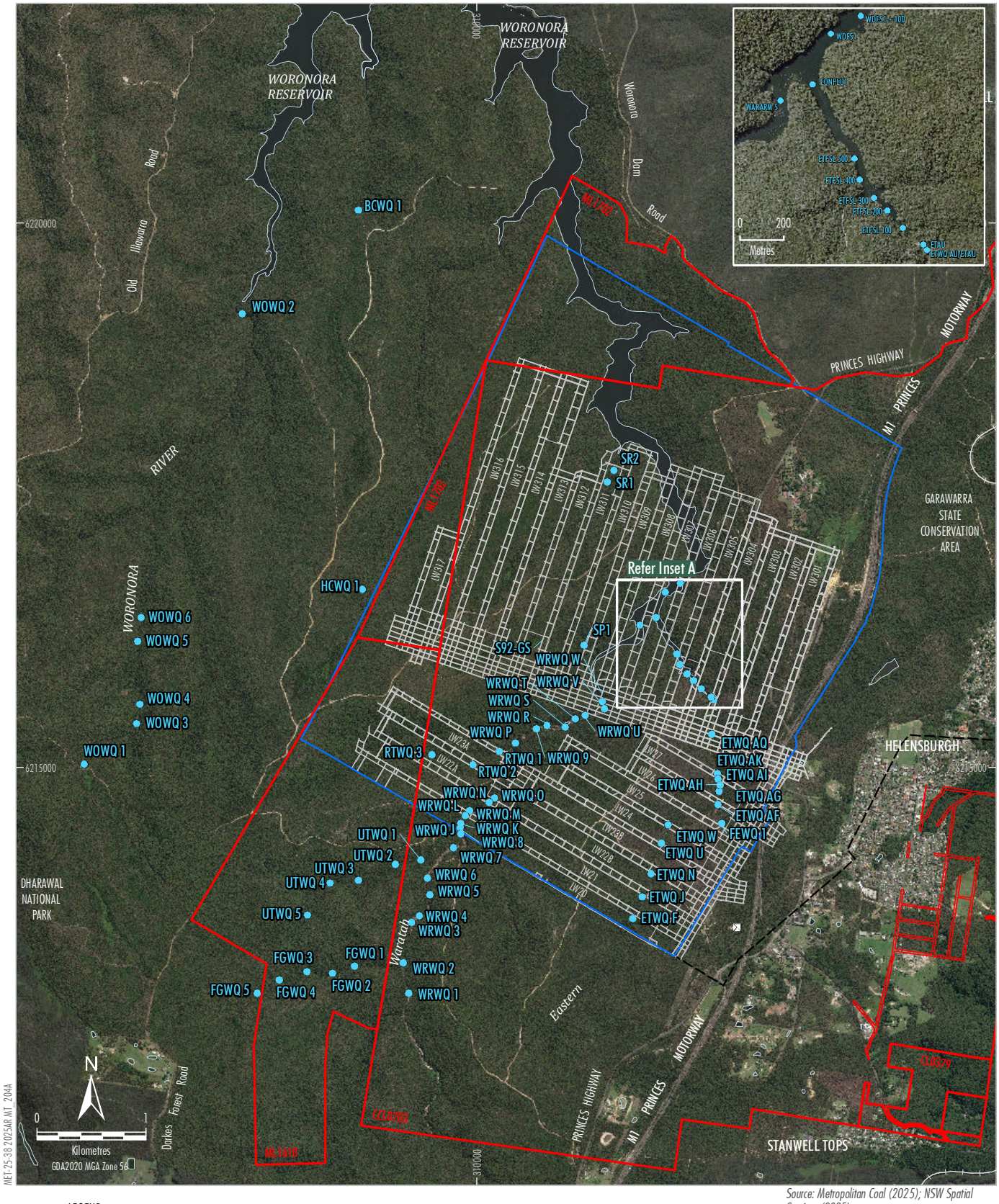
- Mining Lease Boundary
- Railway
- Project Underground Mining Area
- Longwalls 20-27 and 301-317
- Existing Underground Access Drive (Main Drift)
- Gauging Station
- Pool Water Level Site

Source: Metropolitan Coal (2025); NSW Spatial Services (2025)
Orthophoto: Metropolitan Coal (2023); NSW Spatial Services (2020)

Peabody
METROPOLITAN COAL

Surface Water Quantity Sites

Figure 7



LEGEND

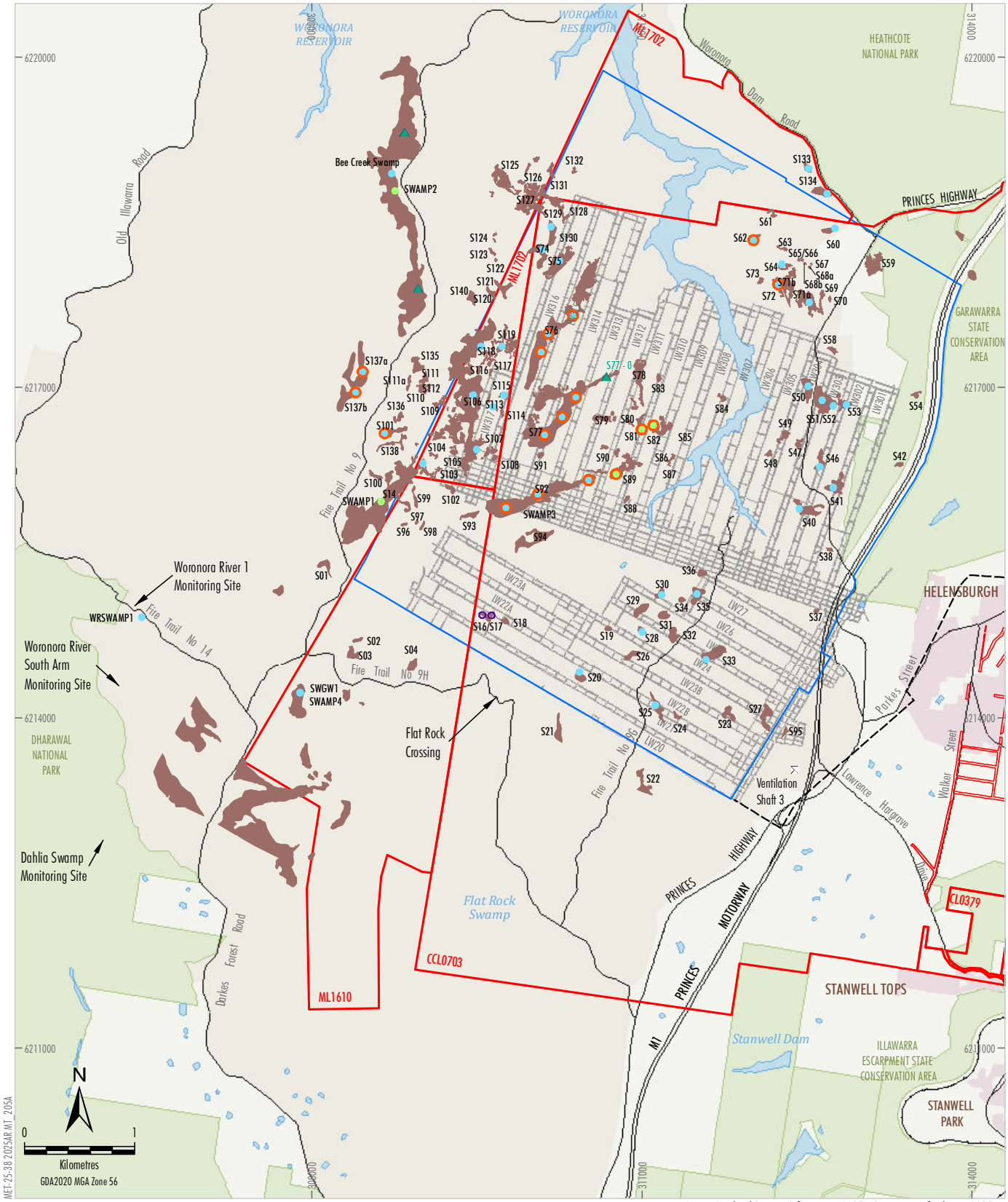
- Mining Lease Boundary
- Railway
- Project Underground Mining Area
  Longwalls 20-27 and 301-317
- Existing Underground Access Drive (Main Drift)
- Surface Water Quality Site

Source: Metropolitan Coal (2025); NSW Spatial Services (2025)
Orthophoto: Metropolitan Coal (2023); NSW Spatial Services (2020)

Peabody
METROPOLITAN COAL

Surface Water Quality Sites

Figure 8



LEGEND

- Mining Lease Boundary
- Woronora Special Area
- NPWS Managed Land
- Railway
- Project Underground Mining Area
- Longwalls 20-27 and 301-317
- Existing Underground Access Drive (Main Drift)
- Upland Swamp
- Swamp Substrate and Shallow Groundwater Piezometer
- Swamp Substrate Groundwater Piezometer
- Swamp Shallow Groundwater Piezometer
- Swamp Soil Moisture Probe
- Proposed Future Monitoring Sites

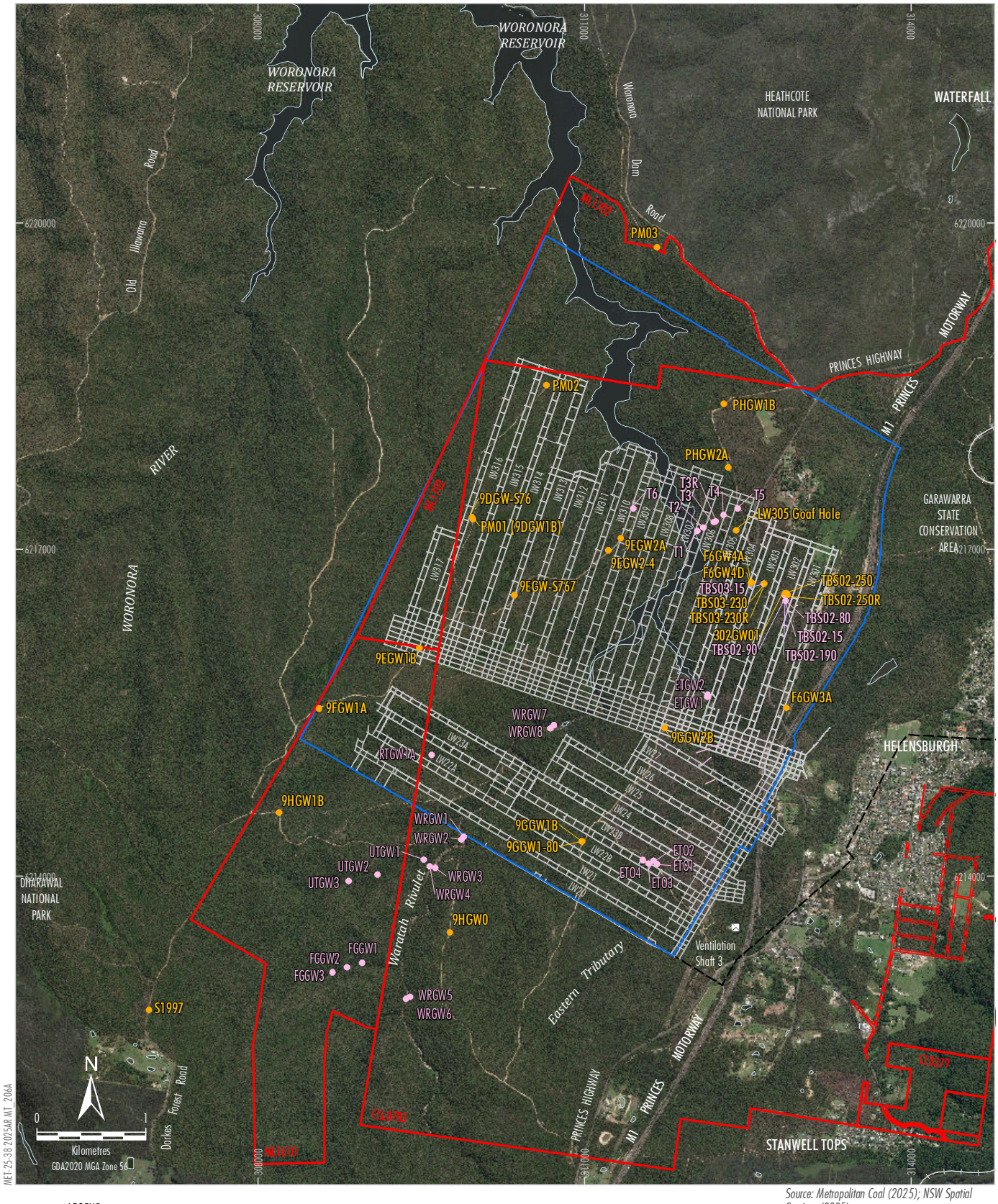
Source: Land and Property Information (2015); Department of Industry (2015); Metropolitan Coal (2025); MSEC (2025); Niche (2025); NPWS (2003), Bangalay Botanical Surveys (2008); Eco Logical Australia (2015; 2016; 2018) and Ecoplanning (2021; 2023)

Note: Shallow Groundwater Piezometers at swamp monitoring site 92-1 and site 92-3 are planned for installation.Installation would be subject to suitable weather conditions and access to the Woronora Special Area. The future monitoring site locations in Bee Creek are indicative only and subject to change based on site access and swamp field investigations.

Peabody
METROPOLITAN COAL

Upland Swamp Groundwater Piezometer Locations

Figure 9



MET-25-38 2025AR MT 206A

LEGEND

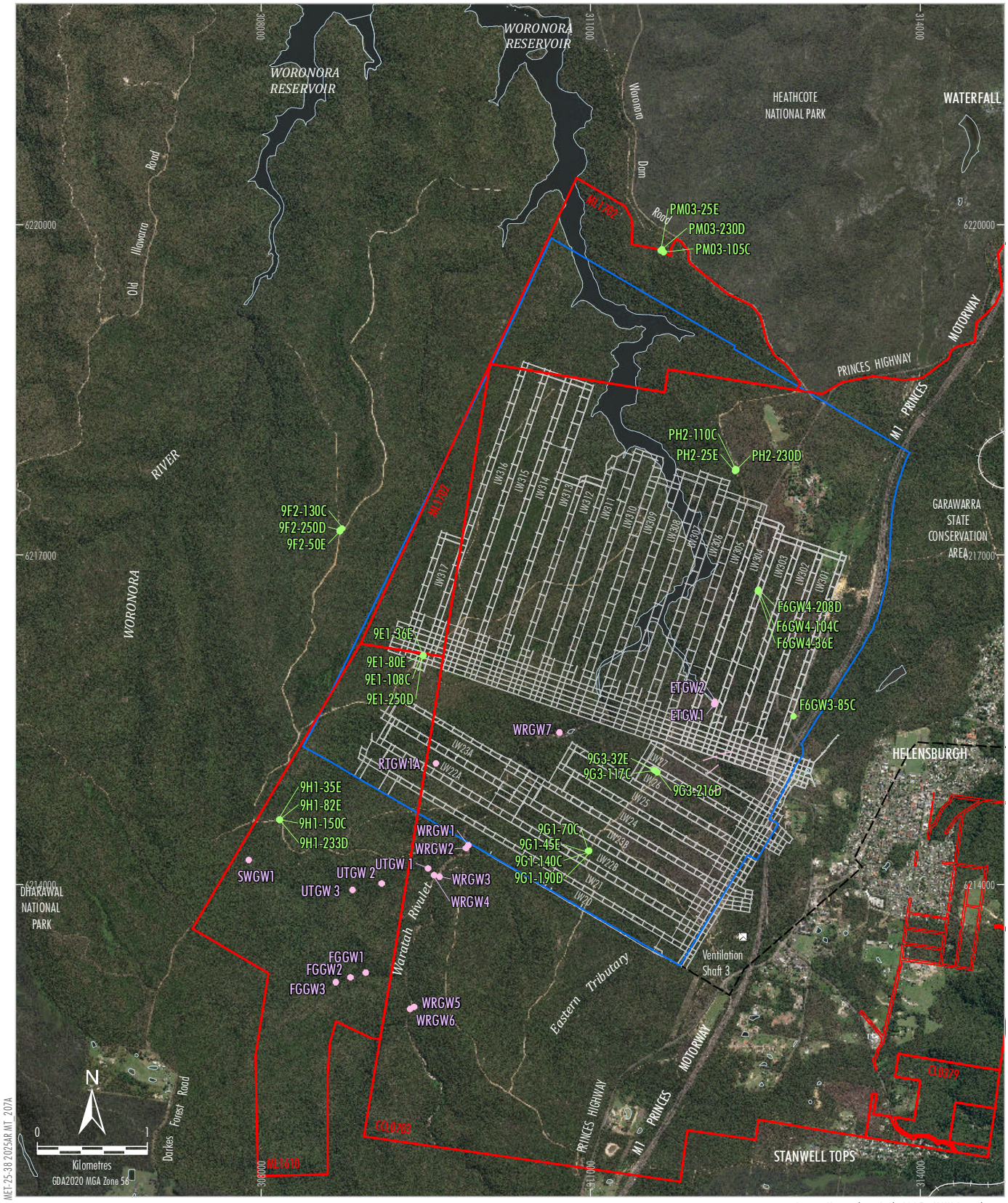
- Mining Lease Boundary
- Railway
- Project Underground Mining Area
  Longwalls 20-27 and 301-317
- Existing Underground Access Drive (Main Drift)
- Groundwater Level/Pressure Bore
- Groundwater Level Bore

Source: Metropolitan Coal (2025); NSW Spatial Services (2025)
Orthophoto: Metropolitan Coal (2023); NSW Spatial Services (2020)

Peabody
METROPOLITAN COAL

Groundwater Level and/or Pressure Bore Locations

Figure 10



LEGEND

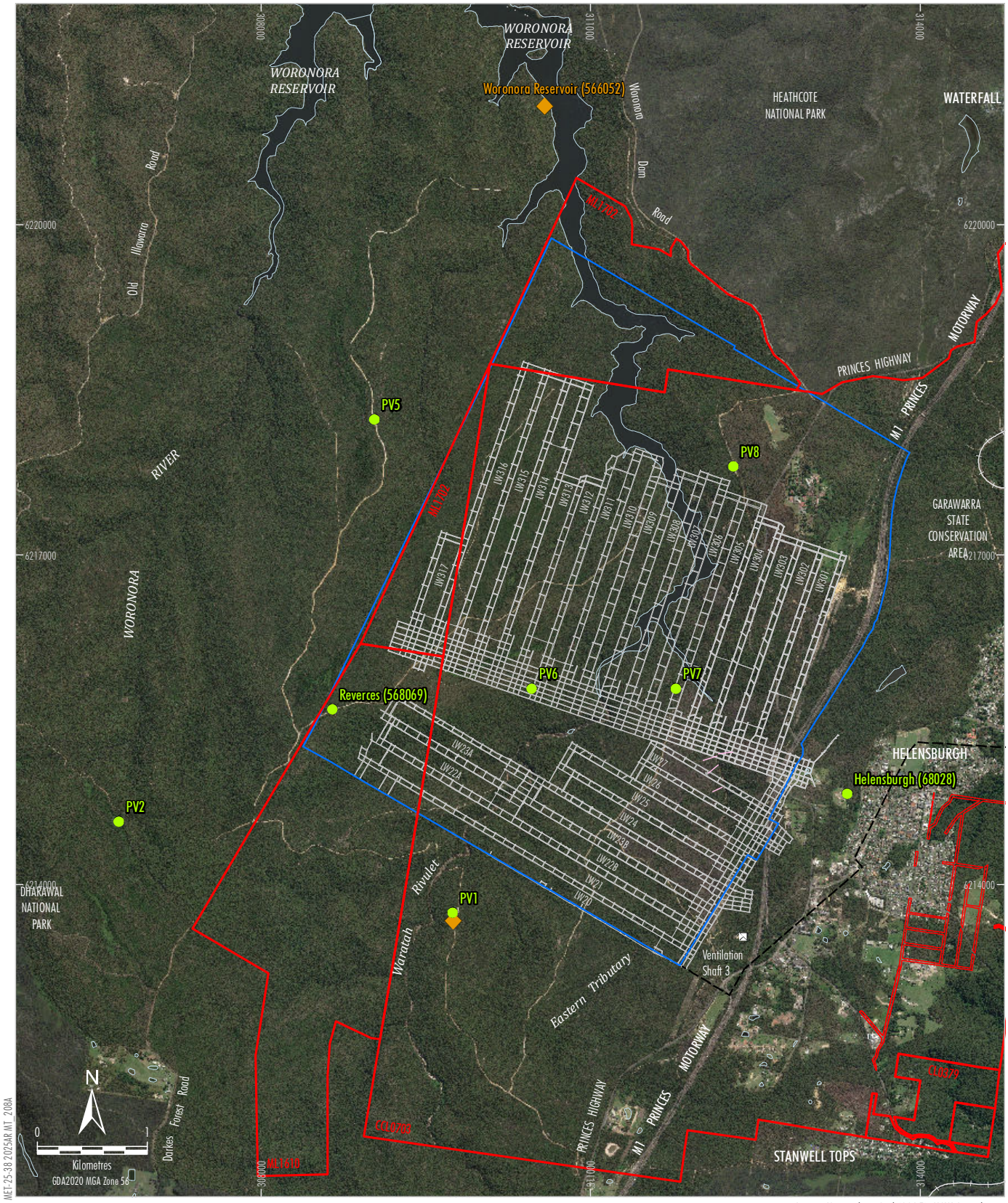
- Mining Lease Boundary
- Railway
- Project Underground Mining Area
- Longwalls 20-27 and 301-317
- Existing Underground Access Drive (Main Drift)
- Deep Groundwater Chemistry Monitoring Site
- Stream Shallow Groundwater Quality Monitoring Site

Source: Metropolitan Coal (2025); NSW Spatial Services (2025)
Orthophoto: Metropolitan Coal (2023); NSW Spatial Services (2020)

Peabody
METROPOLITAN COAL

Groundwater Quality Sites

Figure 11



LEGEND

- Mining Lease Boundary
- Railway
- Project Underground Mining Area
  Longwalls 20-27 and 301-317
- Existing Underground Access Drive (Main Drift)
- Evaporimeter
- Pluviometer

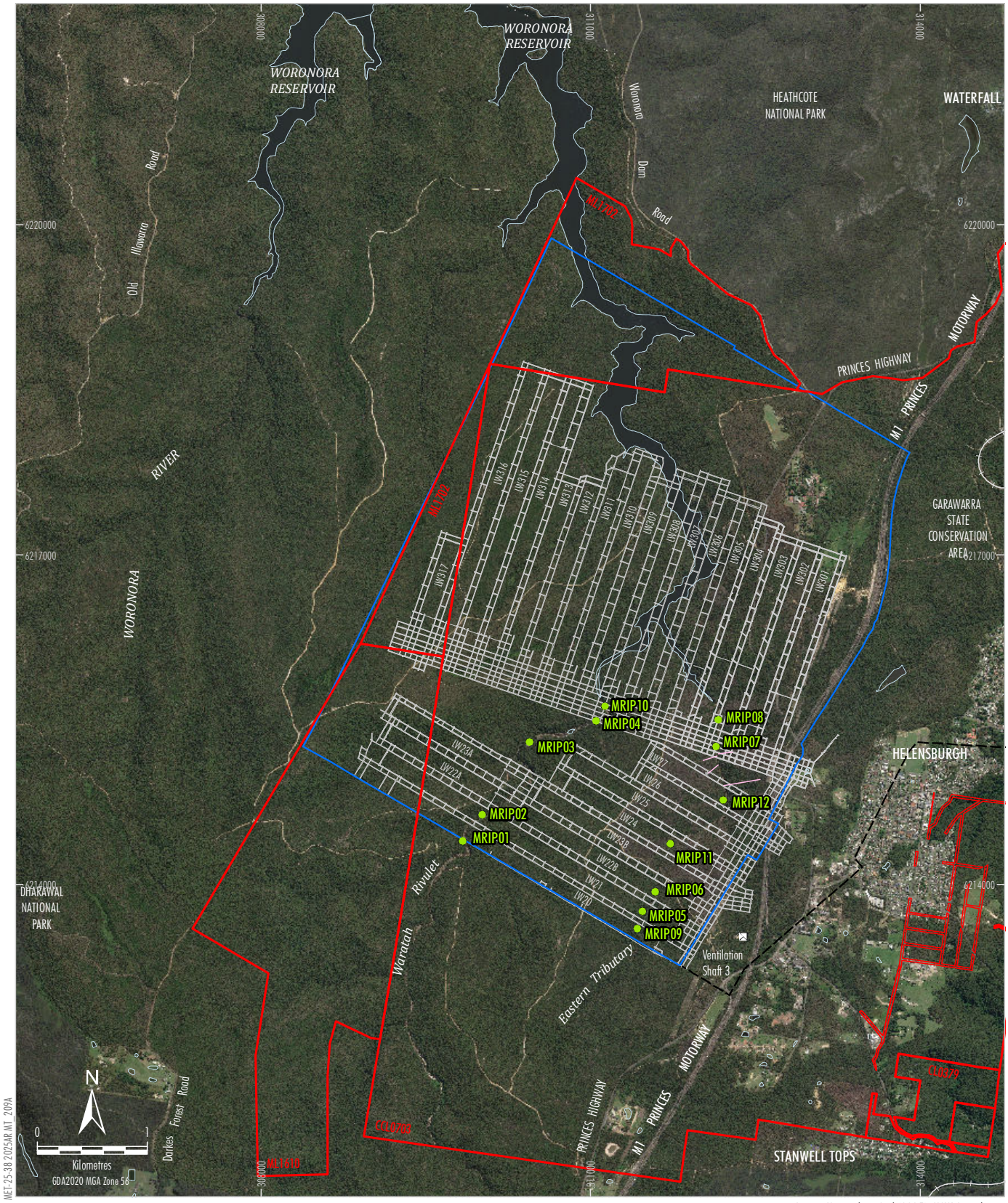
Notes:
1. The Bureau of Meteorology pluviometer at Darkes Forest (68024) is not shown. It is located approximately 3.75 km south of the Metropolitan Coal pluviometer (PV2).
2. The Bureau of Meteorology pluviometer at Lucas Heights (66078) is not shown. It is located approximately 12.5 km north of the Metropolitan Coal pluviometer (PV8).

Source: Metropolitan Coal (2025); NSW Spatial Services (2025)
Orthophoto: Metropolitan Coal (2023); NSW Spatial Services (2020)

Peabody
METROPOLITAN COAL

Meteorological Sites

Figure 12



LEGEND

- Mining Lease Boundary
- Railway
- Project Underground Mining Area
- Longwalls 20-27 and 301-317
- Existing Underground Access Drive (Main Drift)

Monitoring Site

- Riparian Vegetation Monitoring Site

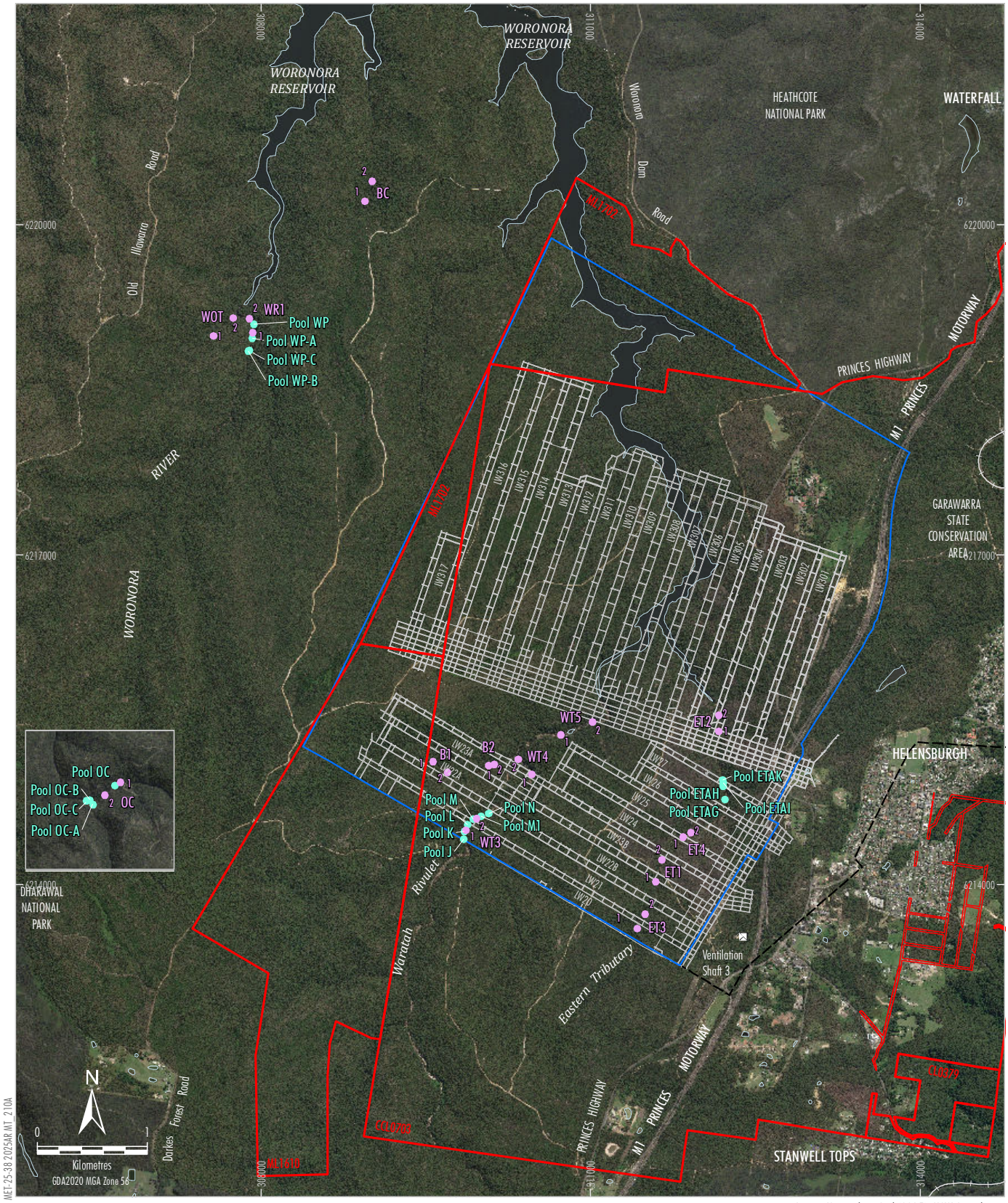
Source: Metropolitan Coal (2025); NSW Spatial Services (2025)
Orthophoto: Metropolitan Coal (2023); NSW Spatial Services (2020)

Peabody

METROPOLITAN COAL

Riparian Vegetation Monitoring Locations

Figure 13



MET-25-38 2025AR MT 210A

LEGEND

- Mining Lease Boundary
- Railway
- Project Underground Mining Area
  - Longwalls 20-27 and 301-317
- Existing Underground Access Drive (Main Drift)

Monitoring

- Pool Aquatic Ecology Sampling Site
- Stream Aquatic Ecology Sampling Site

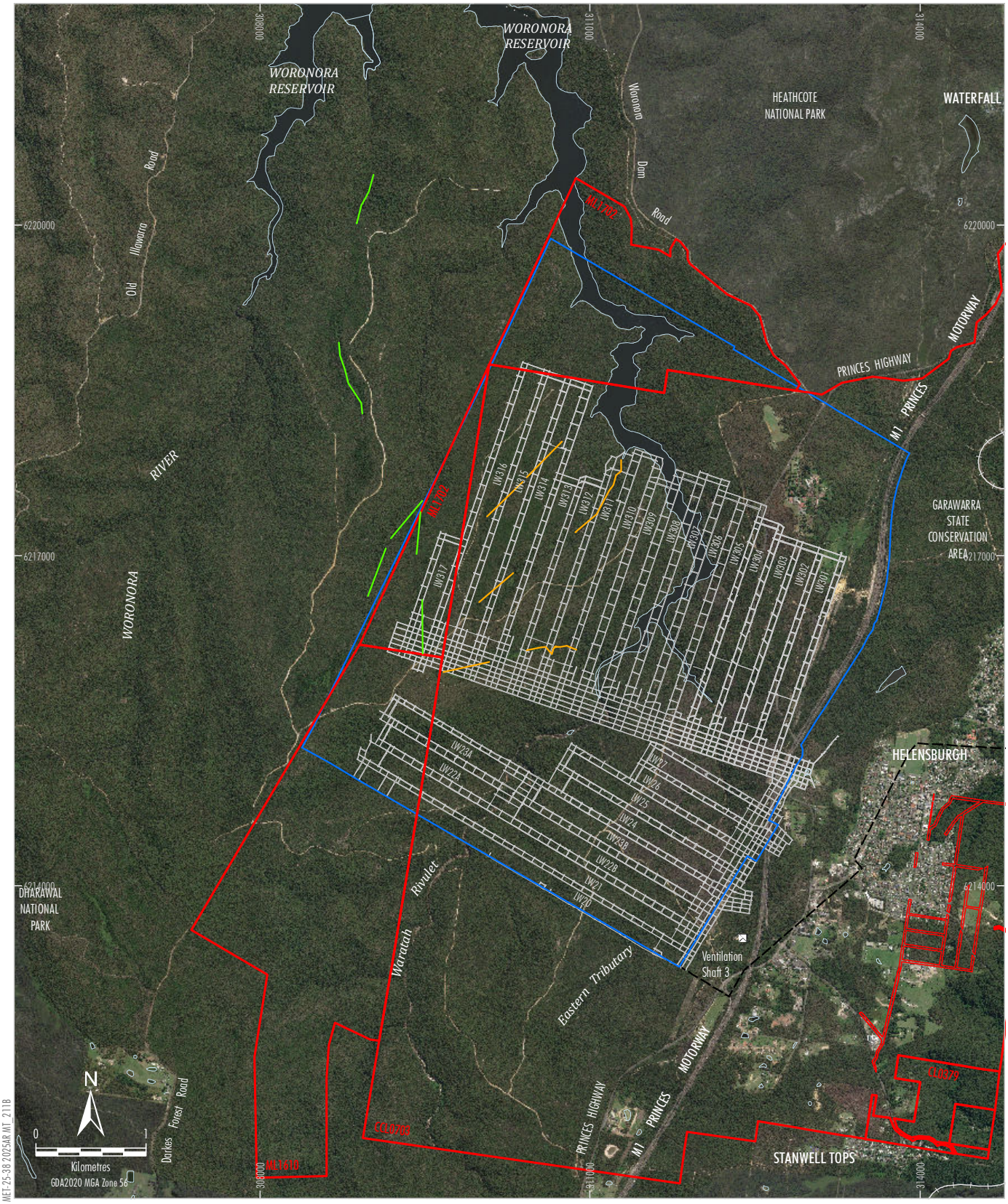
Source: Metropolitan Coal (2025); NSW Spatial Services (2025)
Orthophoto: Metropolitan Coal (2023); NSW Spatial Services (2020)

Peabody

METROPOLITAN COAL

Aquatic Ecology Monitoring Locations

Figure 14



LEGEND

- Mining Lease Boundary
- Railway
- Project Underground Mining Area
  Longwalls 20-27 and 301-317
- Existing Underground Access Drive (Main Drift)
  Longwalls 311-316 Monitoring Transects
- Control Site
- Potential Impact Site

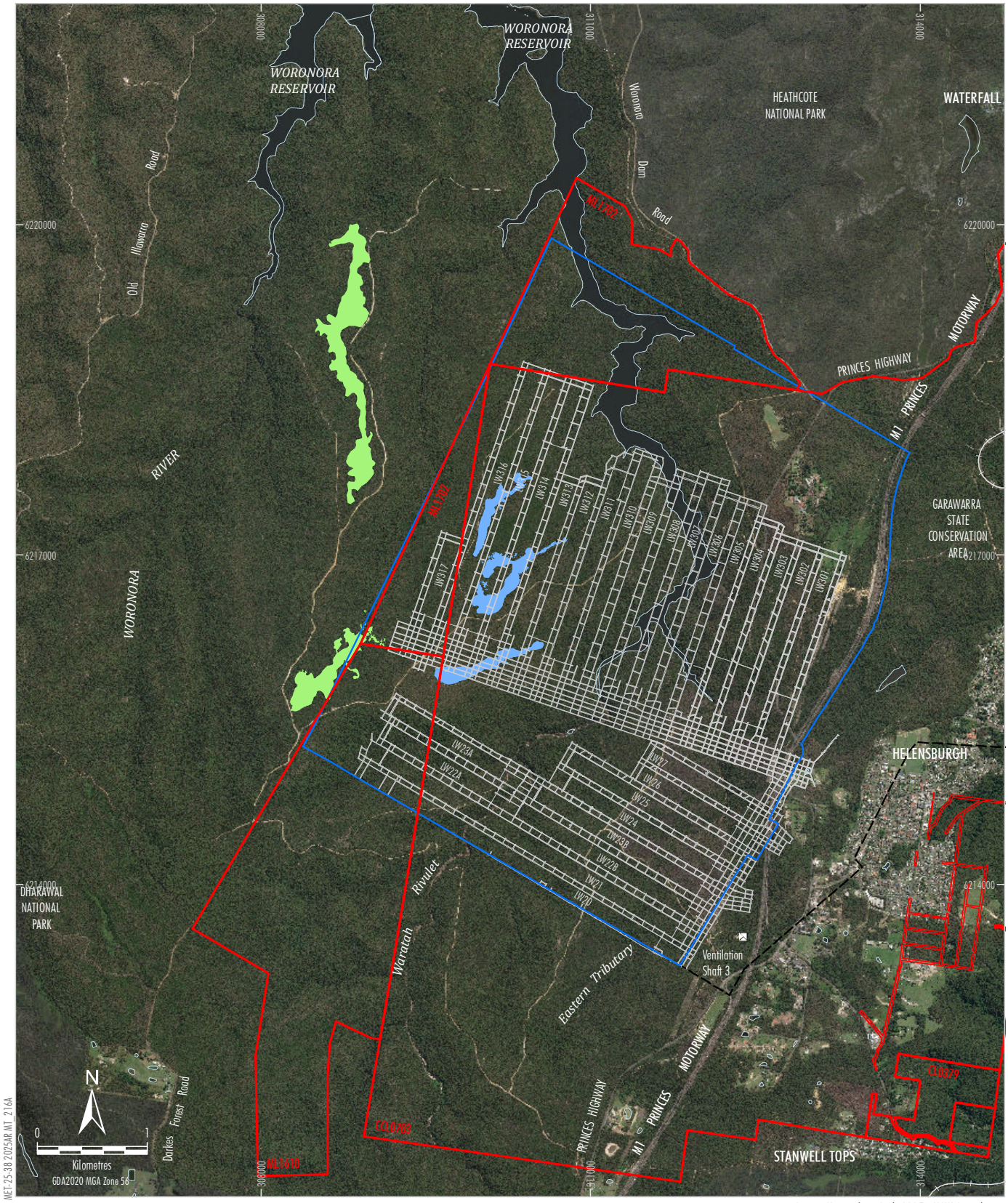
Source: Metropolitan Coal (2025); NSW Spatial Services (2025)
Orthophoto: Metropolitan Coal (2023); NSW Spatial Services (2020)

Peabody

METROPOLITAN COAL

Amphibian Monitoring Locations

Figure 15a



MET-25-38 2025AR MT 216A

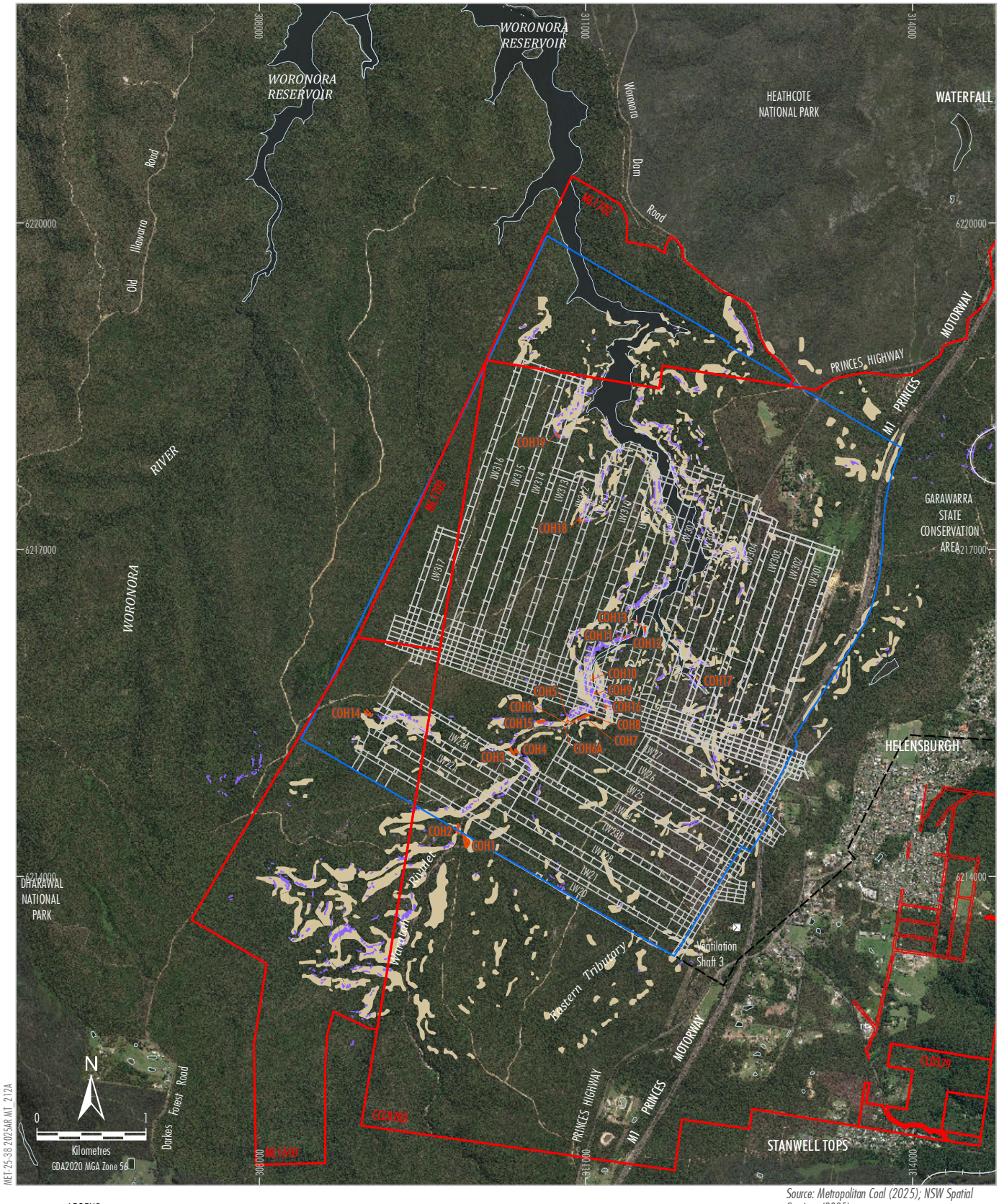
LEGEND
- Mining Lease Boundary
- Railway
- Project Underground Mining Area
  Longwalls 20-27 and 301-317
- Existing Underground Access Drive (Main Drift)
- Potential Impact Swamps
- Control Sites

Source: Metropolitan Coal (2025); NSW Spatial Services (2025)
Orthophoto: Metropolitan Coal (2023); NSW Spatial Services (2020)

Peabody
METROPOLITAN COAL

Giant Dragonfly Monitoring Locations

Figure 15b



LEGEND

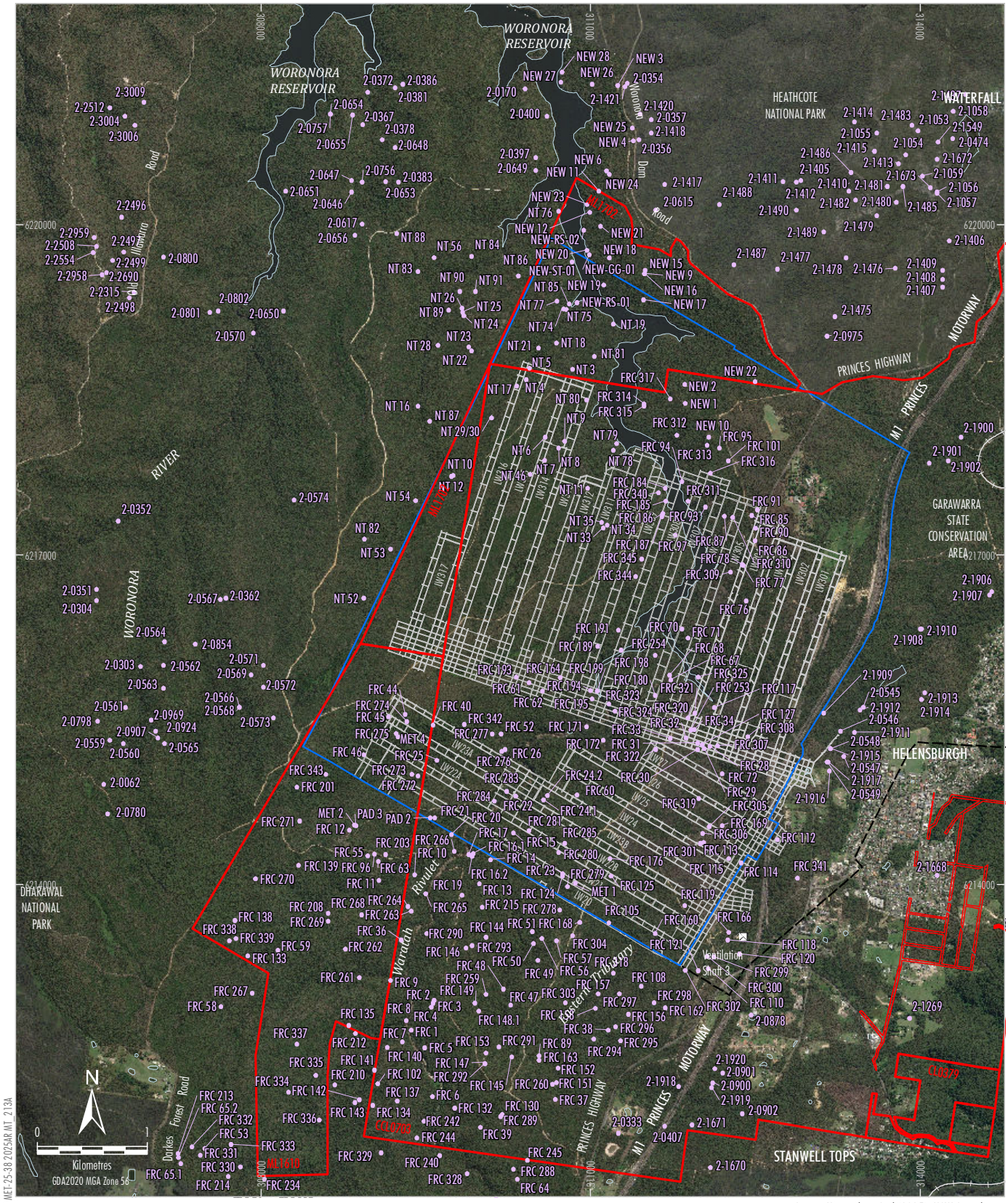
- Mining Lease Boundary
- Railway
- Project Underground Mining Area
  Longwalls 20-27 and 301-317
- Existing Underground Access Drive (Main Drift)
- Cliffs and Overhangs
- Steep Slopes (Project Approval)
- Steep Slopes (Project Environmental Assessment)

Source: Metropolitan Coal (2025); NSW Spatial Services (2025)
Orthophoto: Metropolitan Coal (2023); NSW Spatial Services (2020)

Peabody
METROPOLITAN COAL

Cliffs and Overhangs, Steep Slopes and Land in General within the Project Underground Mining Area and Surrounds

Figure 16



MET-25-38 2025AR MT 213A

LEGEND

- Mining Lease Boundary
- Railway
- Project Underground Mining Area
- Longwalls 20-27 and 301-317
- Existing Underground Access Drive (Main Drift)

Source: Metropolitan Coal (2025); NSW Spatial Services (2025)
Orthophoto: Metropolitan Coal (2023); NSW Spatial Services (2020)

Peabody
METROPOLITAN COAL

Known Aboriginal Heritage Sites Within Project Underground Mining Area and Surrounds

Figure 17

MET-25-38 2025AR MT_003A

Source: Aerial Photography 2005

LEGEND

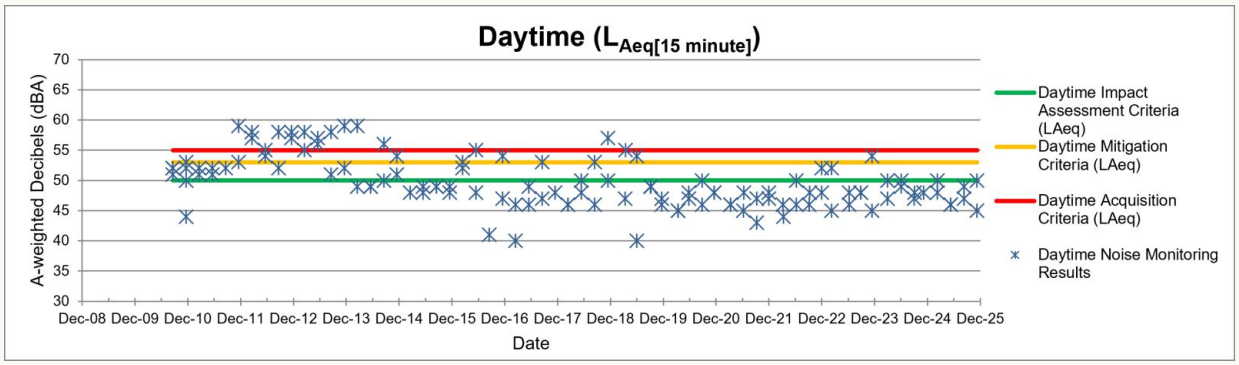
- P40 Receiver Location
- Approximate Extent of Major Surface Facilities Area
- Real-time Noise Monitoring Site
- Attended Noise Monitoring Site
- Automatic Weather Station

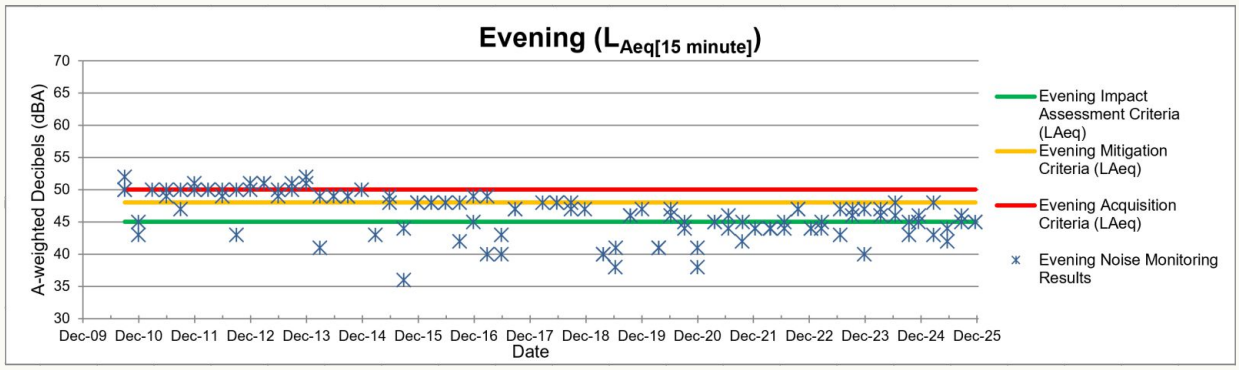
Peabody

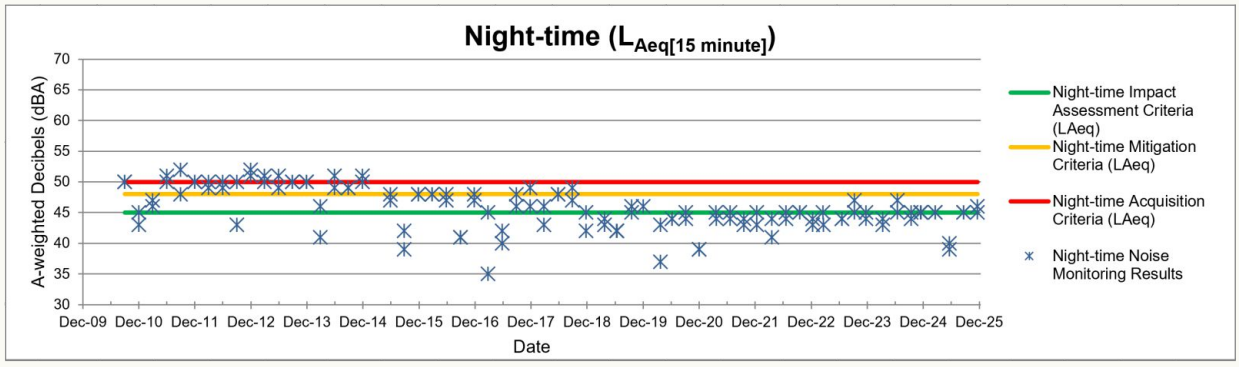
METROPOLITAN COAL

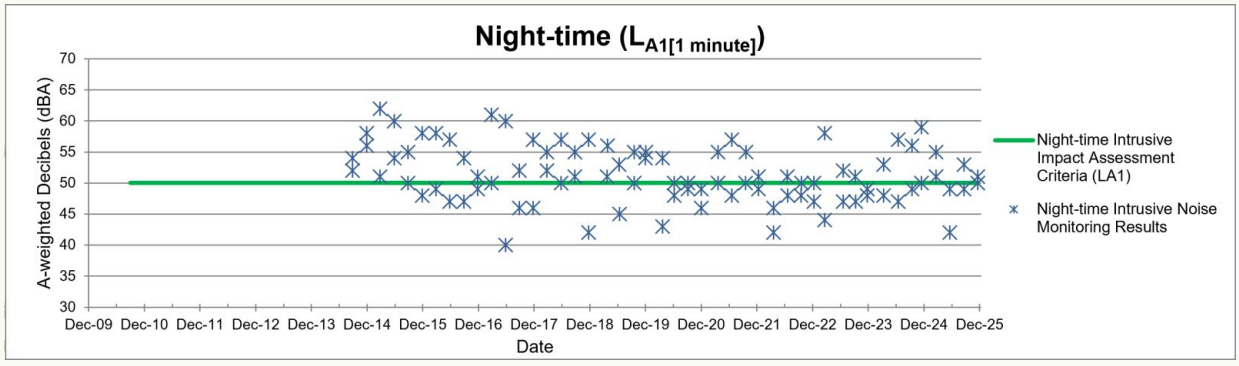
Noise Monitoring Locations

Figure 18









MET-25-38 2025AR M1_006A

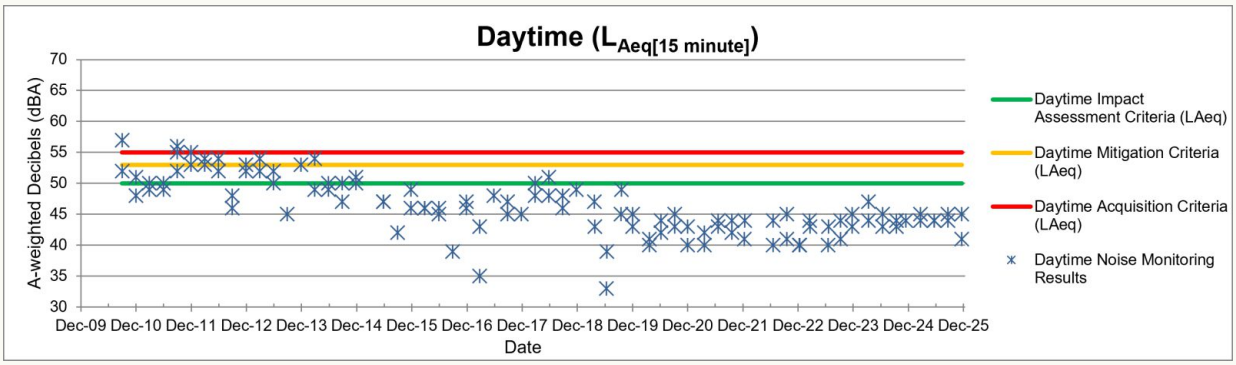
Note: In accordance with Conditions 1, 2 and 3, Schedule 4 of the Project Approval, the assessment, acquisition and mitigation criteria are only applicable from the end of 2014

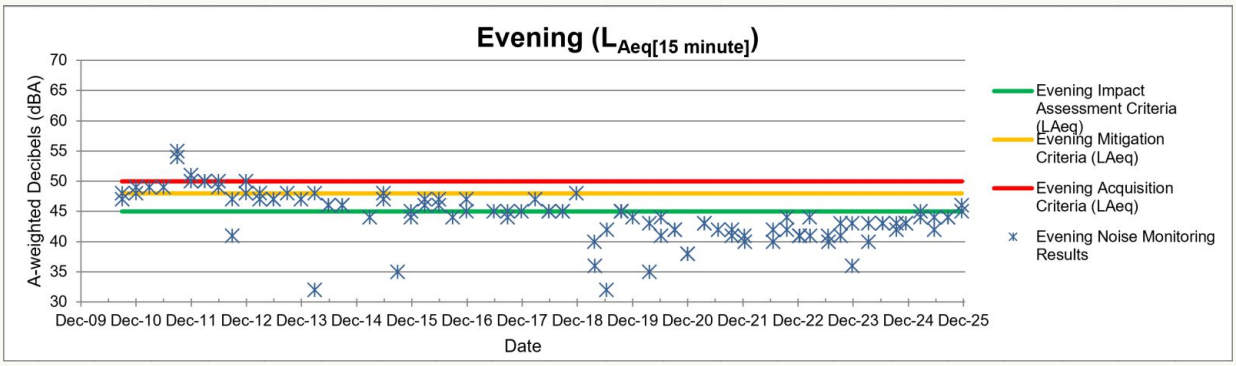
Peabody

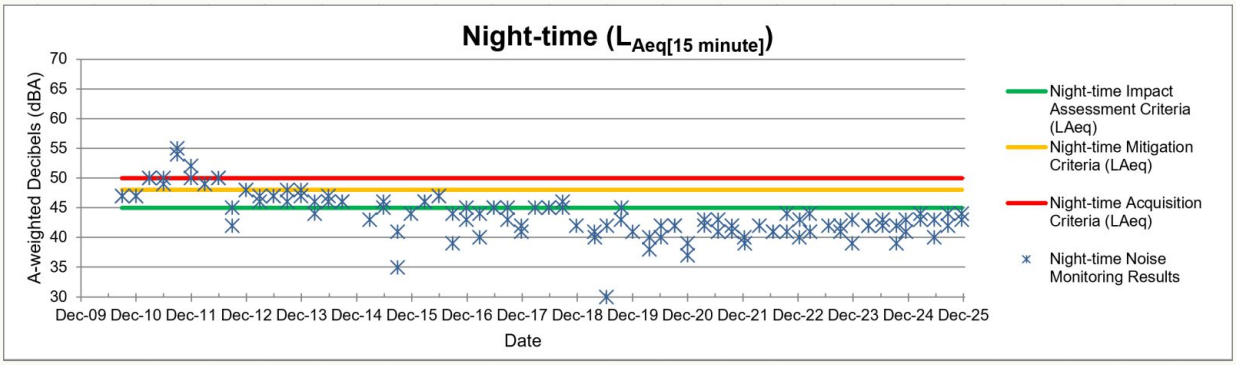
METROPOLITAN COAL

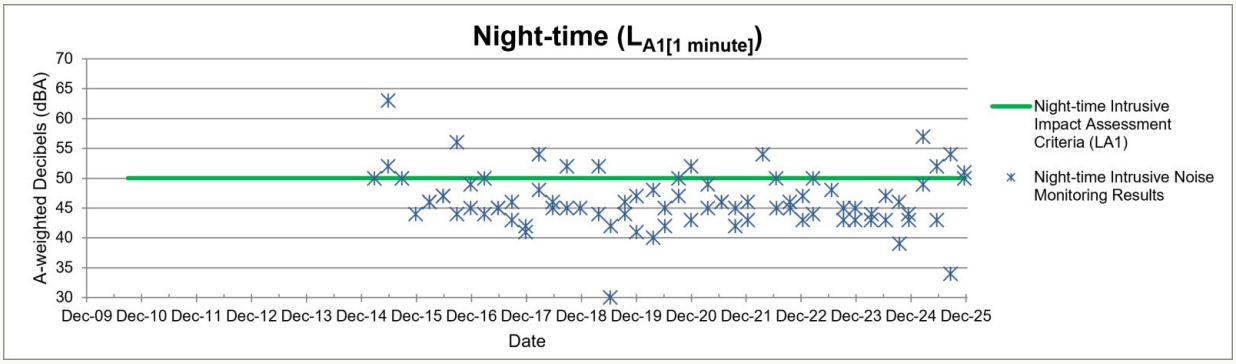
Quarterly Operator Attended Noise Monitoring Results at 16 Oxley Place (December 2010 to December 2025)

Figure 19a









MET-25-38 2025AR MT_007A

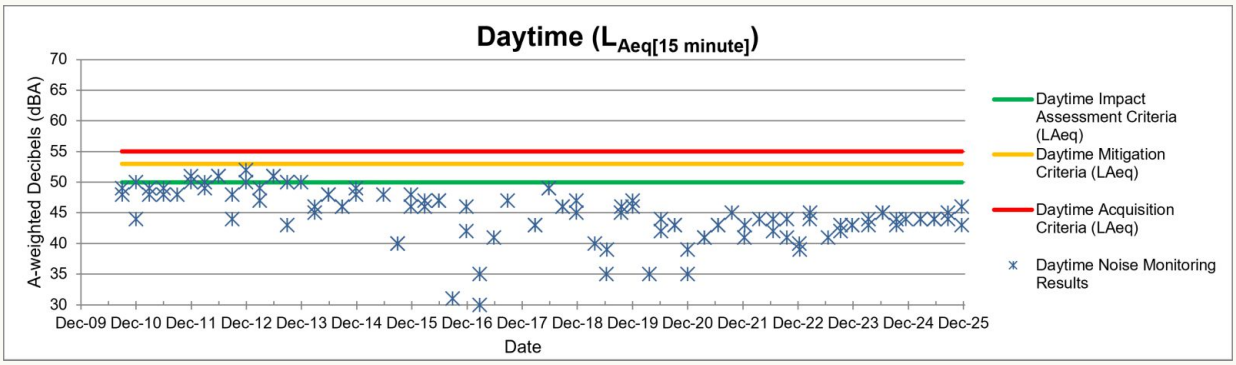
Note: In accordance with Conditions 1, 2 and 3, Schedule 4 of the Project Approval, the assessment, acquisition and mitigation criteria are only applicable from the end of 2014

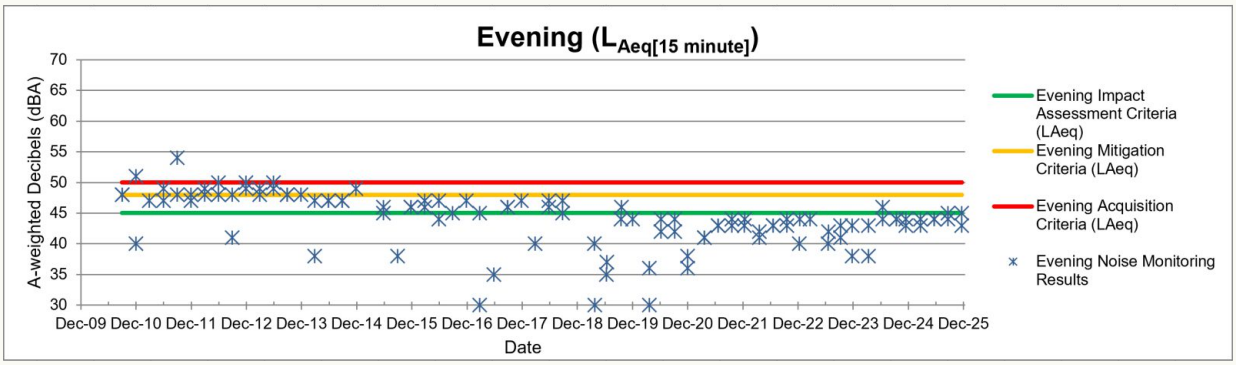
Peabody

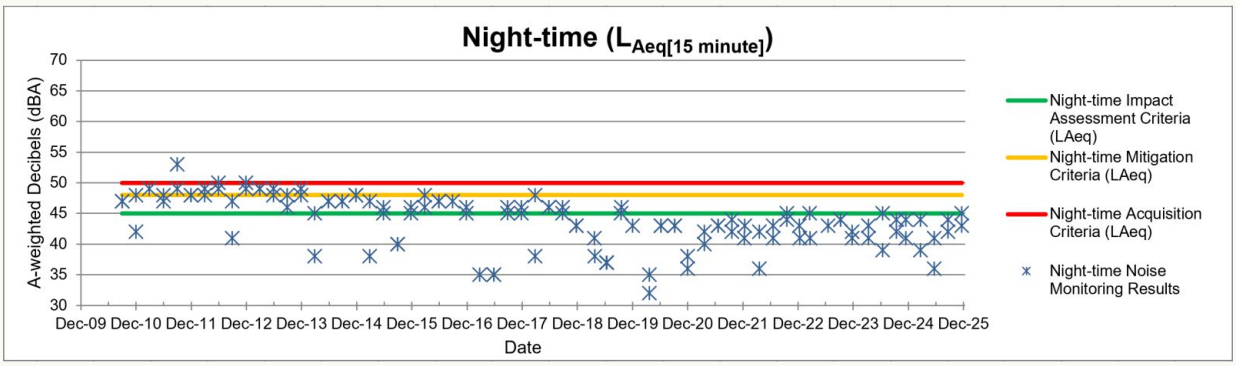
METROPOLITAN COAL

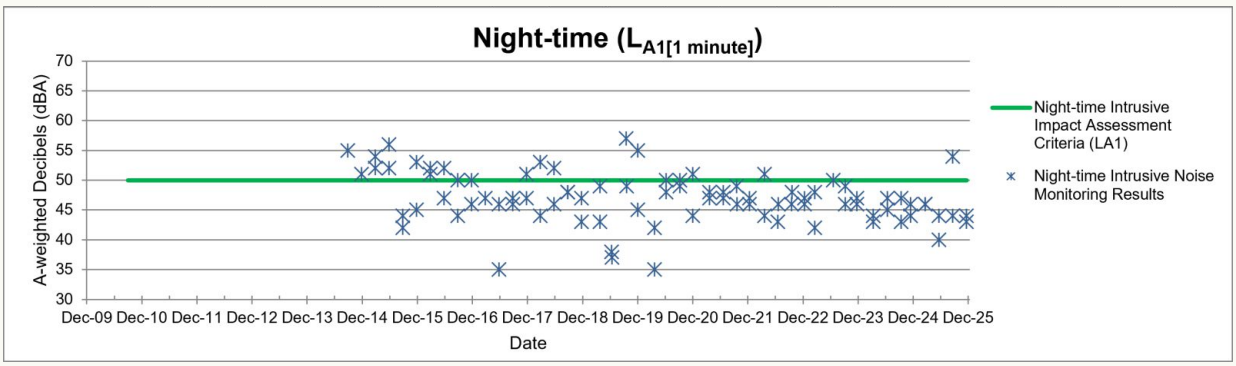
Quarterly Operator Attended Noise Monitoring Results at 53 Parkes Street (December 2010 to December 2025

Figure 19b









MET-25-38 2025AR MT_008A

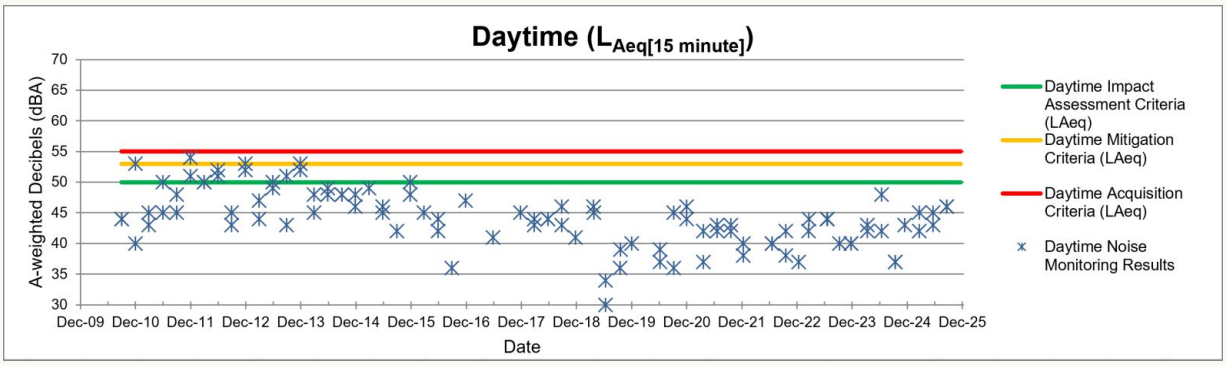
Note: In accordance with Conditions 1, 2 and 3, Schedule 4 of the Project Approval, the assessment, acquisition and mitigation criteria are only applicable from the end of 2014

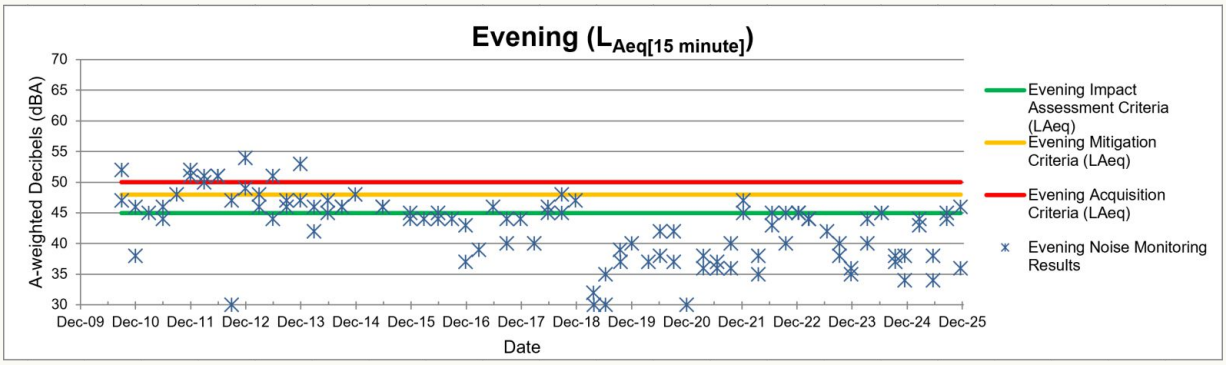
Peabody

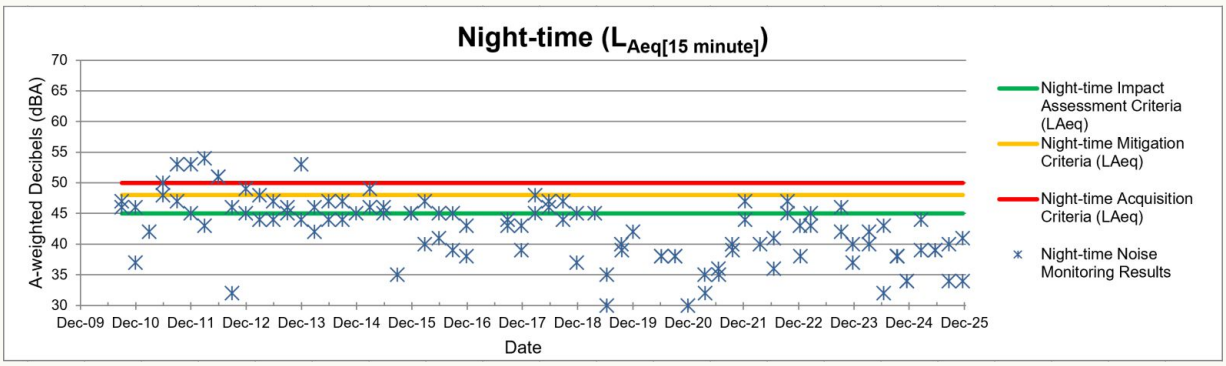
METROPOLITAN COAL

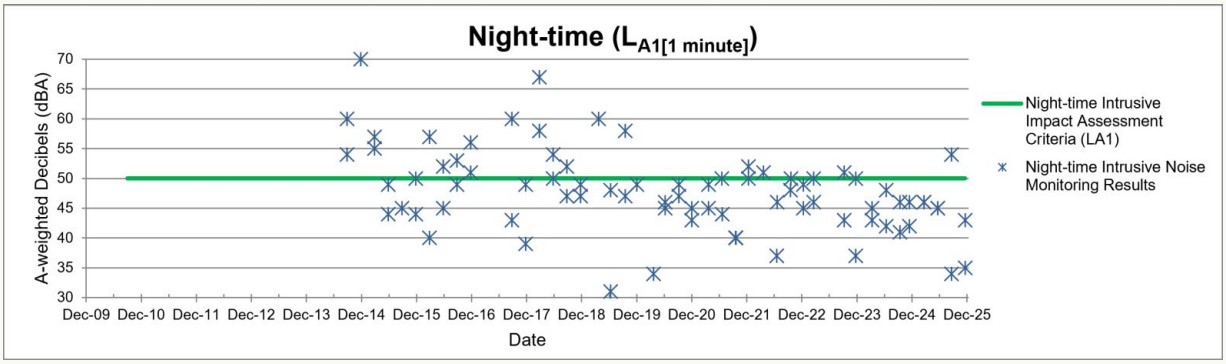
Quarterly Operator Attended Noise Monitoring Results at 50 Parkes Street (December 2010 to December 2025)

Figure 19c









MET-25-38 2025AR M1_009A

Note: In accordance with Conditions 1, 2 and 3, Schedule 4 of the Project Approval, the assessment, acquisition and mitigation criteria are only applicable from the end of 2014

Peabody

METROPOLITAN COAL

Quarterly Operator Attended Noise Monitoring Results at 36 Old Station Road (December 2010 to December 2025)

Figure 19d

MET-25-38 2025AR MT_004A

Source: Aerial Photography 2005

LEGEND

- Approximate Extent of Major Surface Facilities Area
- P40 Receiver Location
- EPA Licenced Dust Deposition Gauge
- Automatic Weather Station
- High Volume Air Sampler
- TEOM Real Time Dust Monitor

Peabody

METROPOLITAN COAL

Air Quality Monitoring Sites

Figure 20

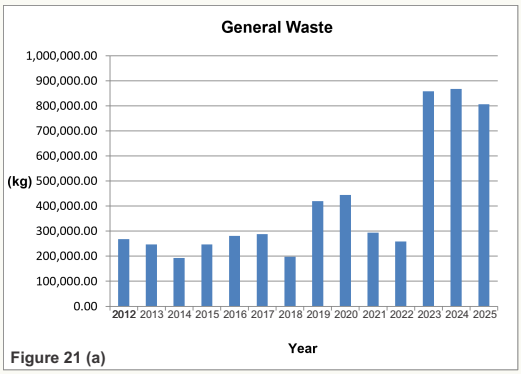


Figure 21 (a)

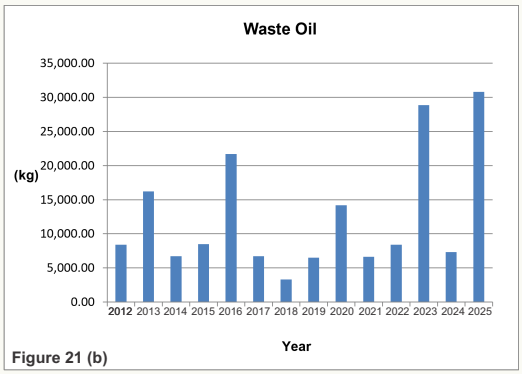


Figure 21 (b)

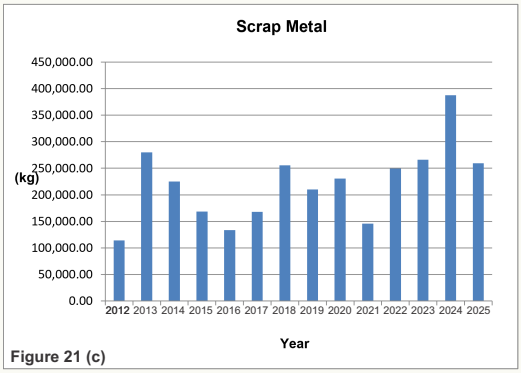


Figure 21 (c)

Figure 21 (d)

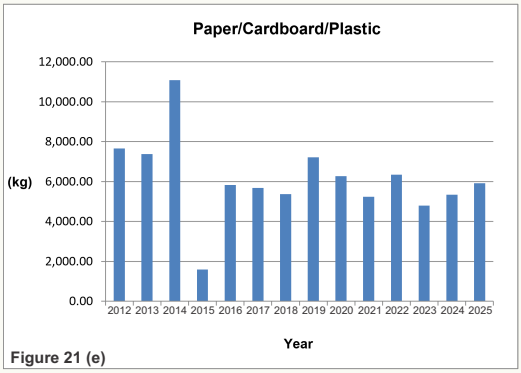


Figure 21 (e)

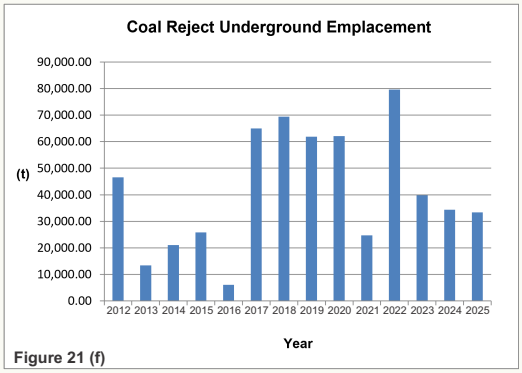


Figure 21 (f)

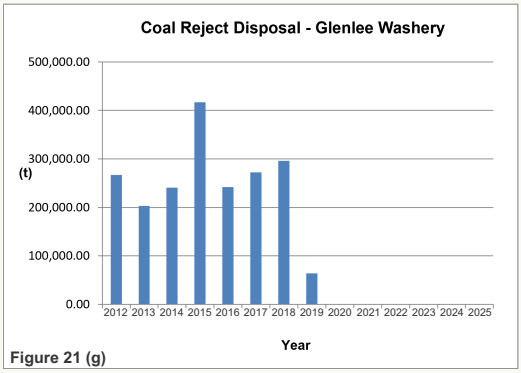


Figure 21 (g)

MET-25-38 2025AR MT_011A

Peabody

METROPOLITAN COAL

Comparison of Waste Generated and Recycled in 2025 with Previous Years

Figure 21

MET-25-38 2025AR MT_005A

LEGEND

- Water Pipeline
- Camp Gully Water Extraction Pipeline
- Licensed Discharge Point
- Water Quality Monitoring
- Volume Monitoring

Note: Site D is located approximately 2.3 km upstream of Site A

Source: Metropolitan Coal (2014) Date of Aerial Photography October 2014

Peabody
METROPOLITAN COAL

Surface Facilities Area
Water Monitoring Sites

Figure 22

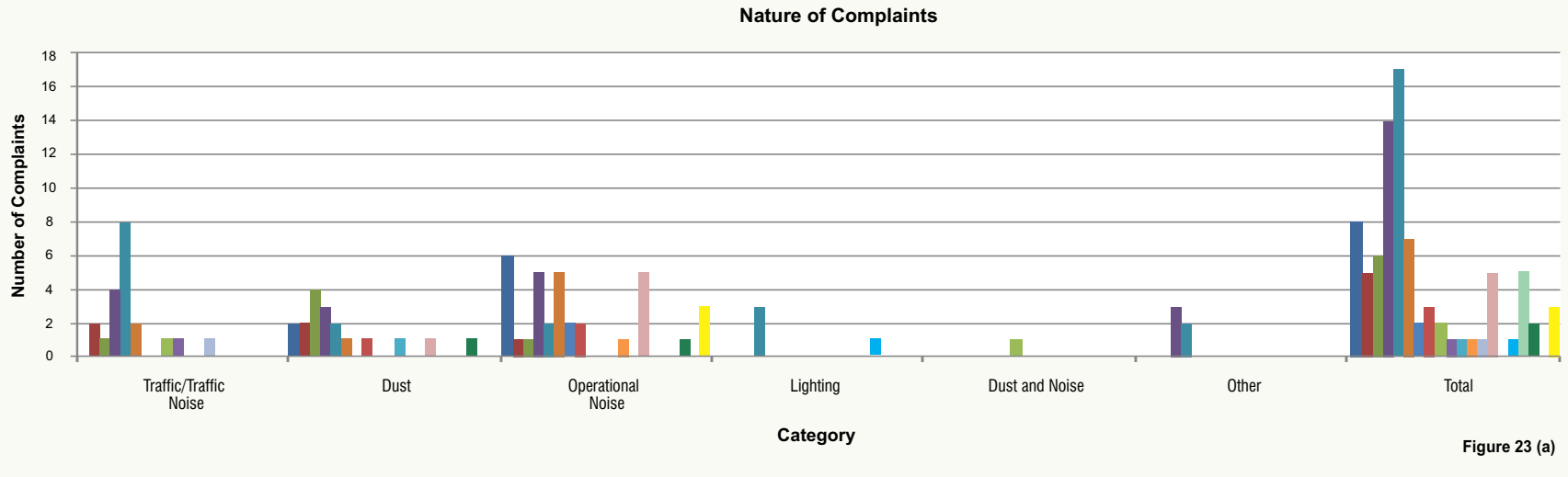
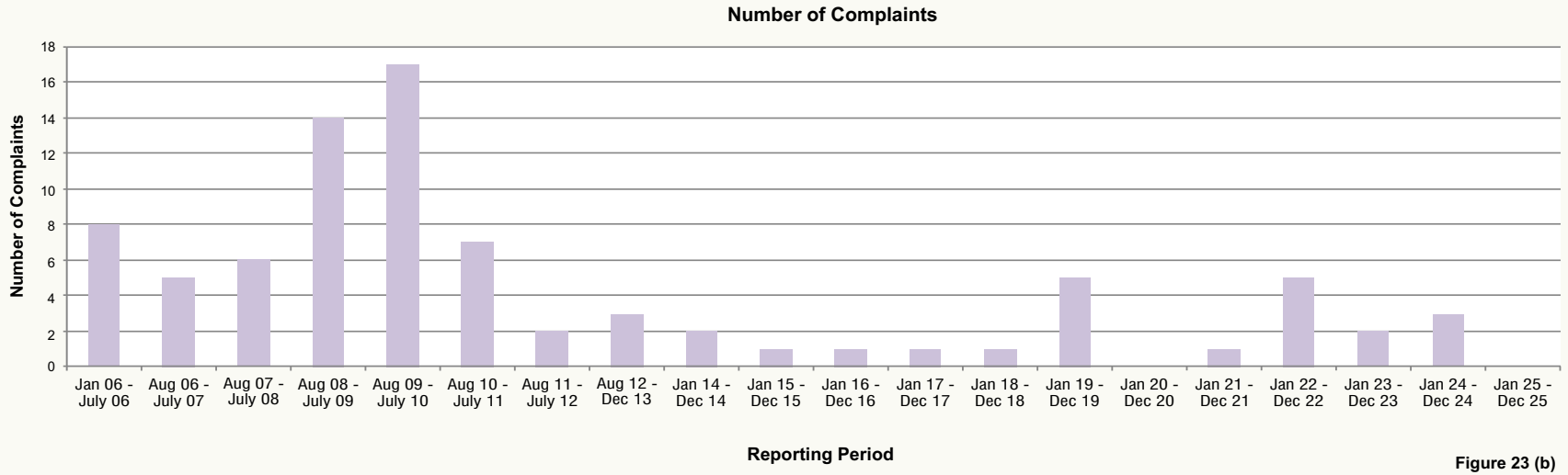


Figure 23 (a)



Note: No complaints in 2020, 2025

Figure 23 (b)

MET-25-38 2025AR MT_010A

Peabody
METROPOLITAN COAL

Summary of Complaints Recorded,
January 2006 to December 2025

Figure 23

APPENDICES

APPENDICES A TO P ARE AVAILABLE ON REQUEST (AS LISTED BELOW):

Appendix A	2025 Annual Review Subsidence Monitoring Results
Appendix B	Surface Water Review 1 January to 31 December 2025
Appendix C	Groundwater Review 1 July to 31 December 2025
Appendix D	Mapped Pool Locations on The Waratah Rivulet, Eastern Tributary, Tributary A and Tributary B
Appendix E	Assessments Against Water Quality Performance Measure – January to December 2025
Appendix F	Groundwater Performance Investigation October 2025 Bore 9EGW2A
Appendix G1	Longwalls 20-22 Spring 2024 Vegetation Monitoring Report
Appendix G2	Longwalls 20-22 Autumn 2025 Vegetation Monitoring Report
Appendix G3	Longwalls 23-27 Spring 2024 Vegetation Monitoring Report
Appendix G4	Longwalls 23-27 Autumn 2025 Vegetation Monitoring Report
Appendix G5	Longwalls 301-304 Spring 2024 Vegetation Monitoring Report
Appendix G6	Longwalls 301-304 Autumn 2025 Vegetation Monitoring Report
Appendix G7	Longwalls 305-307 Spring 2024 Vegetation Monitoring Report
Appendix G8	Longwalls 305-307 Autumn 2025 Vegetation Monitoring Report
Appendix G9	Longwalls 308-310 Spring 2024 Vegetation Monitoring Report
Appendix G10	Longwalls 308-310 Autumn 2025 Vegetation Monitoring Report
Appendix H1	Longwalls 20-27 Spring 2024 Aquatic Ecology Monitoring Report
Appendix H2	Longwalls 20-27 Autumn 2025 Aquatic Ecology Monitoring Report
Appendix I1	Eastern Tributary and Waratah Rivulet Threatened Flora Assessment
Appendix I2	Longwalls 20-27 and 301-310 Threatened Fauna Assessment – Aquatic TARP Investigation
Appendix J	Longwalls 311-316 Amphibian Monitoring 2025/2026
Appendix K	2025 Quarterly Attended Noise Monitoring Results
Appendix L	2025 Air Quality Monitoring and Environmental Performance Assessment Report
Appendix M	2025 Annual Rehabilitation Report
Appendix N	Large Swamp Hydrological and Hydrogeological Models
Appendix O	Longwalls 311-316 Giant Dragonfly Monitoring Program
Appendix P	Report on Depth Water Sampling at WDFS1 February and July 2025