

UNITED WAMBO

JOINT VENTURE

GLENCORE

2025 Annual Review

Number: 2025 Annual Review
Owner: Environment & Community Manager

Status: Final
Version: 1

Effective: 31/03/2026
Review: 01/01/2026

Name of Operation	United Wambo Open Cut Coal Mine
Name of Operator	United Collieries Pty Ltd
Development consent / project approval #	SSD 7142
Name of holder of development consent / project approval	United Collieries Pty Ltd
Mining lease #	A444, CCL743, CCL775, CL374, CL397, ML1572, ML1594, ML1824, ML1842, EL7211, EL8456, EL9460, Sublease 1, Sublease 2
Name of holder of mining lease	Mining and Energy Union, United Collieries Pty Ltd, Wambo Coal Pty Ltd
Water licence #	WAL 10541, WAL 18445, WAL 18549, WAL 41510
Name of holder of water licences	Mining and Energy Union, United Collieries Pty Ltd
Forward Program start date	1 January 2026
Forward Program end date	31 December 2028
Annual Review start date	1 January 2025
Annual Review end date	31 December 2025
I, Aislinn Farnon, Certify that this audit report is a true and accurate record of the compliance status of United Collieries for the period 1 January 2025 to 31 December 2025 and that I am authorised to make this statement on behalf of United Collieries Pty Ltd. Note. a) The Annual Review is an 'environmental audit' for the purposes of section 122B(2) of the Environmental Planning and Assessment Act 1979. Section 122E provides that a person must not include false or misleading information (or provide information for inclusion in) an audit report produced to the Minister in connection with an environmental audit if the person knows that the information is false or misleading in a material respect. The maximum penalty is, in the case of a corporation, \$1 million and for an individual, \$250,000. b) The Crimes Act 1900 contains other offences relating to false and misleading information: section 192G (Intention to defraud by false or misleading statement—maximum penalty 5 years imprisonment); sections 307A, 307B and 307C (False or misleading applications/information/documents—maximum penalty 2 years imprisonment or \$22,000, or both).	
Name of authorised reporting officer	Aislinn Farnon
Title of authorised reporting officer	Environment and Community Manager
Signature of authorised reporting officer	
Date	31/03/2026

Table of Contents

1.	Statement of Compliance	1
2.	Introduction	4
2.1	Site Contacts	4
3.	Approvals	6
4.	Operations Summary	9
4.1	Mining Operations	9
4.2	Other Operations	10
4.2.1	Hours of Operations	10
4.2.2	Reject and Tailings Management	10
4.2.3	Next Reporting Period	10
5.	Actions Required from Previous Annual Review	11
6.	Environmental Performance	11
6.1	Meteorological Data	14
6.2	Noise	14
6.2.1	Environmental Management	14
6.2.1.1	Management Measures	15
6.2.2	Key Environmental Performance	16
6.2.2.1	Attended Noise Monitoring	16
6.2.3	EIS Predictions	17
6.2.4	Improvements 2025	17
6.2.4.1	Improvement 2026	18
6.3	Blasting	18
6.3.1	Environmental Management	18
6.3.2	Management Measures	18
6.3.2.1	Approval Criteria	18
6.3.3	Key Environmental Performance	20
6.3.4	EIS Predictions	22
6.3.5	Improvements 2025	22
6.3.5.1	Proposed Improvements 2026	22
6.4	Air Quality	23
6.4.1	Environmental Management	23
6.4.2	Management Measures	23
6.4.3	Approval Criteria – SSD 7142	25
6.4.4	Key Environmental Performance	26
6.4.4.1	High Volume Air Samplers	26
6.4.4.2	Continuous Monitoring PM ₁₀	26
6.4.5	Long Term Trends	27
6.4.5.1	TSP	27

6.4.6	Reported Greenhouse Gas Emissions	28
6.4.6.1	EIS Predictions - Emissions	29
6.4.6.2	Continuous Improvement Measures - Energy Efficiency and Reduce GHG Emissions	29
6.4.7	Improvements 2025	29
6.4.7.1	Current Reporting Period	29
6.4.7.2	Next Reporting Period	29
6.5	Biodiversity	30
6.5.1	Biodiversity Offset Strategy	30
6.5.2	Key Environmental Performance	31
6.5.2.1	Disturbance	31
6.5.2.2	Weed and Pest Management	33
6.5.3	Management Measures	34
6.5.4	Improvements	35
6.6	Heritage	35
6.6.1	EIS Predictions	35
6.6.1.1	Aboriginal Heritage	35
6.6.1.2	European Heritage Sites	35
6.6.2	Key Environmental Performance	36
6.6.2.1	Aboriginal Heritage	36
6.6.2.2	Historic Heritage Sites	38
6.6.3	Management Measures	39
6.6.4	Improvements	39
6.6.4.1	Current reporting period	39
6.6.4.2	Next reporting period	39
6.7	Waste Management	40
6.7.1	General Waste and Recycling	40
6.7.2	Sewage Treatment and Disposal	40
6.7.3	Hydrocarbon Management	40
6.7.4	Summary of Waste Performance in 2025	40
6.7.5	Management Measures	43
6.7.6	Improvements	43
6.7.6.1	Current reporting period	43
6.7.6.2	Next reporting period	43
6.8	Visual and Lighting	43
6.8.1	Environmental Management	43
6.8.2	Environmental Performance	44
6.8.3	Improvements	44
6.8.3.1	Current Reporting Period	44
6.8.3.2	Next Reporting Period	44
7.	Water Management	44
7.1	Water Take and Licencing	44

7.2	Surface Water	47
7.2.1	Key Environmental Performance	47
7.2.1.1	Annual Surface Water Speciation Results.....	47
7.2.1.2	Routine Surface Water Monitoring Results	48
7.2.1.3	Watercourse Stability Monitoring	55
7.2.2	Long Term Trends.....	55
7.2.2.1	RC01	56
7.2.2.2	WB01.....	58
7.2.2.3	WB02.....	60
7.2.2.4	WB03.....	62
7.2.2.5	WB04.....	64
7.2.2.6	NWC03	66
7.2.3	Water Performance Measures	70
7.2.4	Water Balance and Salt Balance.....	72
7.2.5	Discharge Summary.....	73
7.2.6	Stage 3 Water Management – U1 Dam	73
7.2.7	Improvements	75
7.3	Groundwater	75
7.3.1	Management Measures	75
7.3.2	Groundwater Monitoring.....	75
7.3.3	Groundwater Monitoring Network Review	79
7.3.4	Long Term Groundwater Trends	79
7.3.5	Groundwater Monitoring Trigger Levels.....	79
7.3.6	Stygofauna Monitoring	80
7.3.7	GDE Tree Monitoring	81
7.3.8	Reporting Against Groundwater Performance	82
7.3.9	Recommendations	82
7.3.10	Improvements for the next reporting period	83
8.	Rehabilitation.....	84
8.1	Status of mining and rehabilitation.....	84
8.2	Rehabilitation performance	86
8.3	Maintenance activities undertaken	86
8.4	Rehabilitation monitoring	86
8.4.1	Native Open Woodland Rehabilitation	86
8.4.2	Ecological Rehabilitation	88
8.4.3	Agricultural Pasture Rehabilitation	88
8.4.4	Monitoring Summary and Recommendations	89
8.5	Trials, research and other initiatives.....	89
8.6	Actions for next reporting period	89
9.	Community	89
9.1	Community Engagement Activities	89

9.2	Community Contributions.....	90
9.3	Complaints	90
10.	Independent Environment Audit.....	91
11.	Incidents and Non-Compliances Within the Reporting Period.....	92
11.1	Summary of Incidents	92
11.2	Summary of Non-Compliances.....	92
12.	Activities to be Completed in Next Reporting Period	93
13.	References	94
	Appendix A - DPHI Feedback.....	95
	Appendix B - Annual Groundwater Review	96
	Appendix C - Summary of Complaints	97
	Appendix D - Waste Performance	99

1. Statement of Compliance

The compliance status of operations at United Wambo Joint Venture (United Wambo) against the relevant approval conditions during the reporting period is outlined in **Table 1-1**, **Table 1-2** and **Table 1-3**.

Table 1-1 Statement of Compliance

Were all conditions of the relevant approval(s) complied with?	
SSD 7142	No
Environment Protection Licence (3141)	No

Table 1-2 Compliance Status Categories

Risk Level	Colour Code	Description
High	Non-Compliant	Non-compliance with potential for significant environmental consequences, regardless of the likelihood of occurrence
Medium	Non-Compliant	Non-compliance with potential for serious environmental consequences, but is unlikely to occur; or potential for moderate environmental consequences, but is likely to occur
Low	Non-Compliant	Non-compliance with potential for moderate environmental consequences, but is unlikely to occur; or potential for low environmental consequences, but is likely to occur
Administrative non-compliance	Non-Compliant	Non-compliance which does not result in any risk of environmental harm

Table 1-3 Non-Compliance Status – United Wambo

Relevant Approval	Condition/Legislative Reference	Condition Description (Summary)	Compliance Status	Details of Non-compliance	Corrective Action/s	Where Addressed in Annual Review
EPL 3141	Condition M2.3	Air Quality Monitoring (PM ₁₀)	Non-Compliant	United Wambo are required to monitor air quality (PM₁₀) on a continuous basis with TEOMS at four locations. As per AS3580.19:2020, there is a requirement for >75% data availability for a valid 24 hour average to be calculated. On several occasions, TEOMs failed to collect >75% of the daily data required due to: - storms and power outages - software and logger issues - planned maintenance/calibration - Instrument failure The days of incomplete data collection at each monitor in 2025 included: <u>AQ1 PM₁₀</u>: 30/1, 09-10/04, 01/05, 25/07, 26/09 <u>AQ2 PM₁₀</u>: 15-16/01, 28/01, 11-12/02, 30/09-01/10, 18/10, 26/11 <u>AQ03 PM₁₀</u>: 17-18/01, 02/03, 24-26/05, 10/06 <u>AQ4 PM₁₀</u>: 01/08	The real time monitoring network is monitored remotely each day, with routine maintenance conducted monthly by an external technical contractor, to minimise the downtime of any real time monitoring units. Upon notification of a breakdown of equipment, efforts are made to address the issue remotely. If the issue continues, maintenance is scheduled for repair of the unit within 48 hours.	Section 6.4.4 & 11.2
SSD 7142	Condition A30					

Relevant Approval	Condition/ Legislative Reference	Condition Description (Summary)	Compliance Status	Details of Non-compliance	Corrective Action/s	Where Addressed in Annual Review
EPL 3141	Condition M2.3	Air Quality Monitoring (TSP)	Non-Compliant	United Wambo are required to monitor TSP every 6 days. Data is not available for the following dates during the reporting period: <u>HVAS01 TSP</u> : 12/04, 18/04 <u>HVAS02 TSP</u> : 11/02, 24/05 Valid data was not available due to: • Sample contamination • <75% capture • Power failure from tripped RCD	These monitors are owned and operated by Hunter Valley Operations (HVO). The data from HVAS01, 02 for TSP is shared between HVO and United Wambo. UWJV has no operational control over the sampling procedure and upkeep of these monitors. All possible support will be extended to HVO for the best possible monitoring outcome.	<i>Section 6.4.4 & 11.2</i>
SSD 7142	Condition A30					

2. Introduction

United Wambo Open Cut Coal Mine (United Wambo) is situated approximately 15 kilometres west of Singleton, near the village of Warkworth, New South Wales (**Figure 2-1**). United Wambo is a 50:50 joint venture between United Collieries Pty Limited (United) and Wambo Coal Pty Limited (Wambo). United is owned 95 per cent by Abelshore Pty Limited, a wholly owned subsidiary of Glencore Coal Pty Limited (Glencore) and five per cent by the Mining and Energy Union (MEU). Wambo is a subsidiary of Peabody Energy Australia Pty Limited.

United Wambo is managed by Glencore and has approval to extract up to 10 million tonnes per annum (mtpa) of Run of Mine (ROM) coal up until 31 August 2042. ROM coal is processed through the Wambo Coal Handling and Preparation Plant (CHPP) and transported by rail from Wambo to the Port of Newcastle for export.

2.1 Site Contacts

Table 2-1 Contact Details for Key Mine Personnel

Name	Role	Telephone	Email
Nick Slater	Operations Manager	02 6578 9500	Nick.Slater@glencore.com.au
Aislinn Farnon	Environment and Community Manager	02 6578 9506	Aislinn.farnon@glencore.com.au
Community Complaints and Enquiries		1800 801 440	
Website	https://www.glencore.com.au/operations-and-projects/coal/current-operations/united-wambo-open-cut		

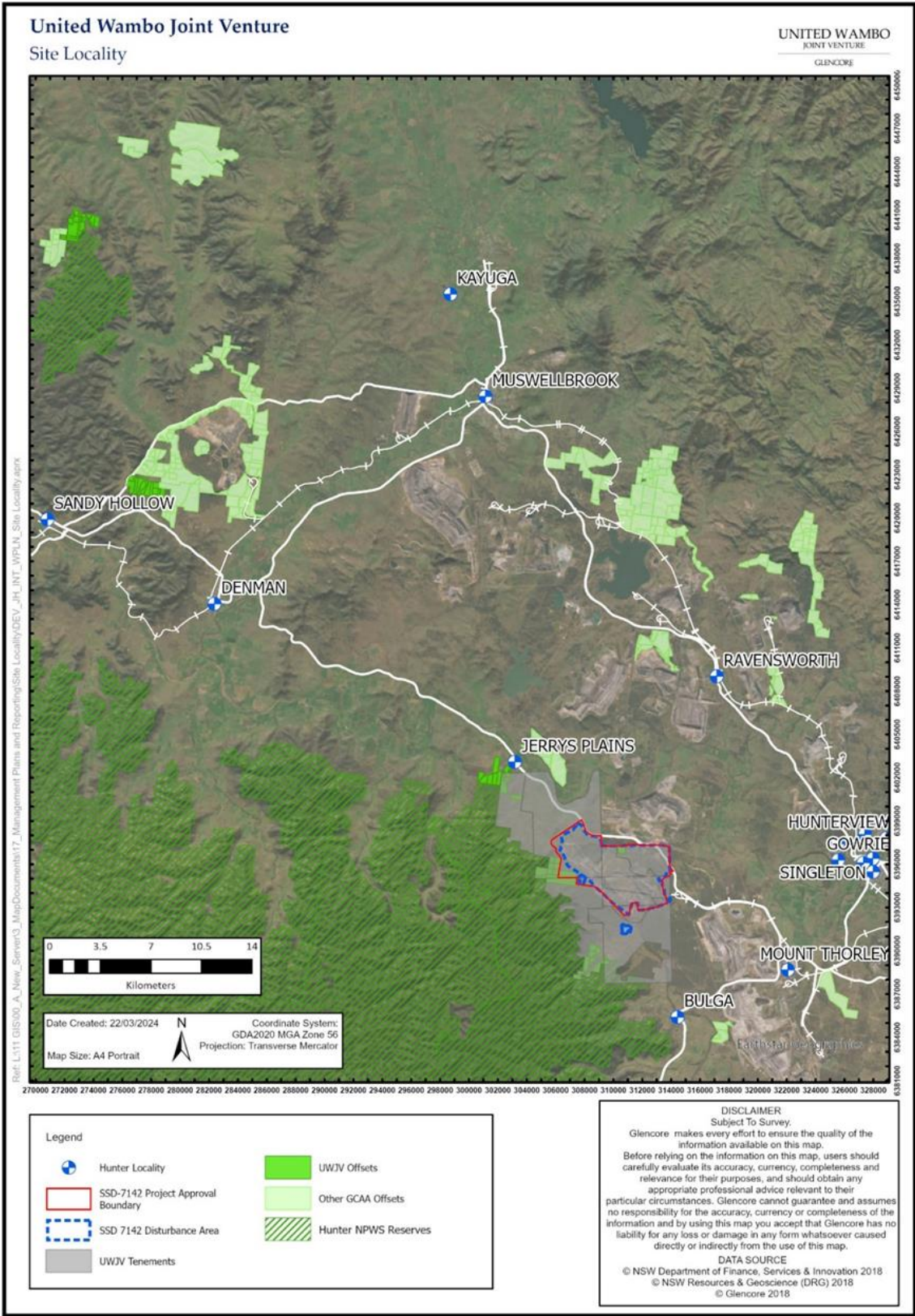


Figure 2-1 Regional Location Plan

3. Approvals

United Wambo operates in accordance with approvals/licences of the following legislation:

- Environmental Planning and Assessment Act (1979)
- Protection of the Environment Operations Act (1997)
- Environmental Protection and Biodiversity Conservation Act (1999)
- Mining Act (1992)
- Water Management Act (2000)

These approvals and licences are summarised in **Table 3-1**, with the exception of operational water licences which are summarised in **Table 7-2**. **Figure 3-1** shows the United Wambo project approval area, disturbance boundary, Environment Protection Licence (EPL) 3141 boundary and mine lease boundaries.

Table 3-1 Approvals relating to United Wambo

Instrument	Date of Issue	Expiry Date	Comment
State Significant Development (SSD) 7142 MOD 1	29 August 2019	1 August 2042	Modified during 2021 to allow for changes to ROM stockpiling arrangements.
Environment Protection Licence (EPL) 3141	30 November 1999	Anniversary Date: 30 November	Variation Notice No. 1650190 received 13 August 2025.
Environmental Protection and Biodiversity Conservation (EPBC) 2015/7600	6 December 2019	31 December 2052	Variation of conditions of approval received 7 July 2025
CCL 743	9 March 1990	14 August 2043	
CCL 775	2 September 1992	2 March 2033	
CL 374	6 December 1991	6 December 2046	Renewed 25 June 2025 (REN-2025-63)
CL 397	4 June 1992	4 June 2034	
ML 1572	21 December 2005	21 December 2026	Renewal submitted 12 December 2025
ML 1594	1 May 2007	30 April 2028	
ML 1824	29 November 2021	29 November 2042	
ML 1842	3 December 2022	3 December 2043	
Sublease 1	21 June 2023	14 August 2043	
Sublease 2	10 September 2021	17 December 2044	
A 444	4 October 2007	16 May 2027	
EL 7211	29 September 2008	29 September 2026	

Instrument	Date of Issue	Expiry Date	Comment
EL 8456	8 August 2016	8 August 2025	Security Deposit returned.
EL 9460	13 September 2022	13 September 2028	
S87 Care and Control Permit #3062	24 December 2021		AHIP/AHIMS Permit #: 1091346/2997
S85 Care and Control Permit #5315	23 October 2024	31 August 2042	Artefacts moved to Minimbah Keeping Place
4094/2010	3 May 2010	30 June 2024	North MIA Office Administration – decommissioned.
ST 15.2020.39	14 January 2021	30 June 2024	South MIA Admin Building – in operation

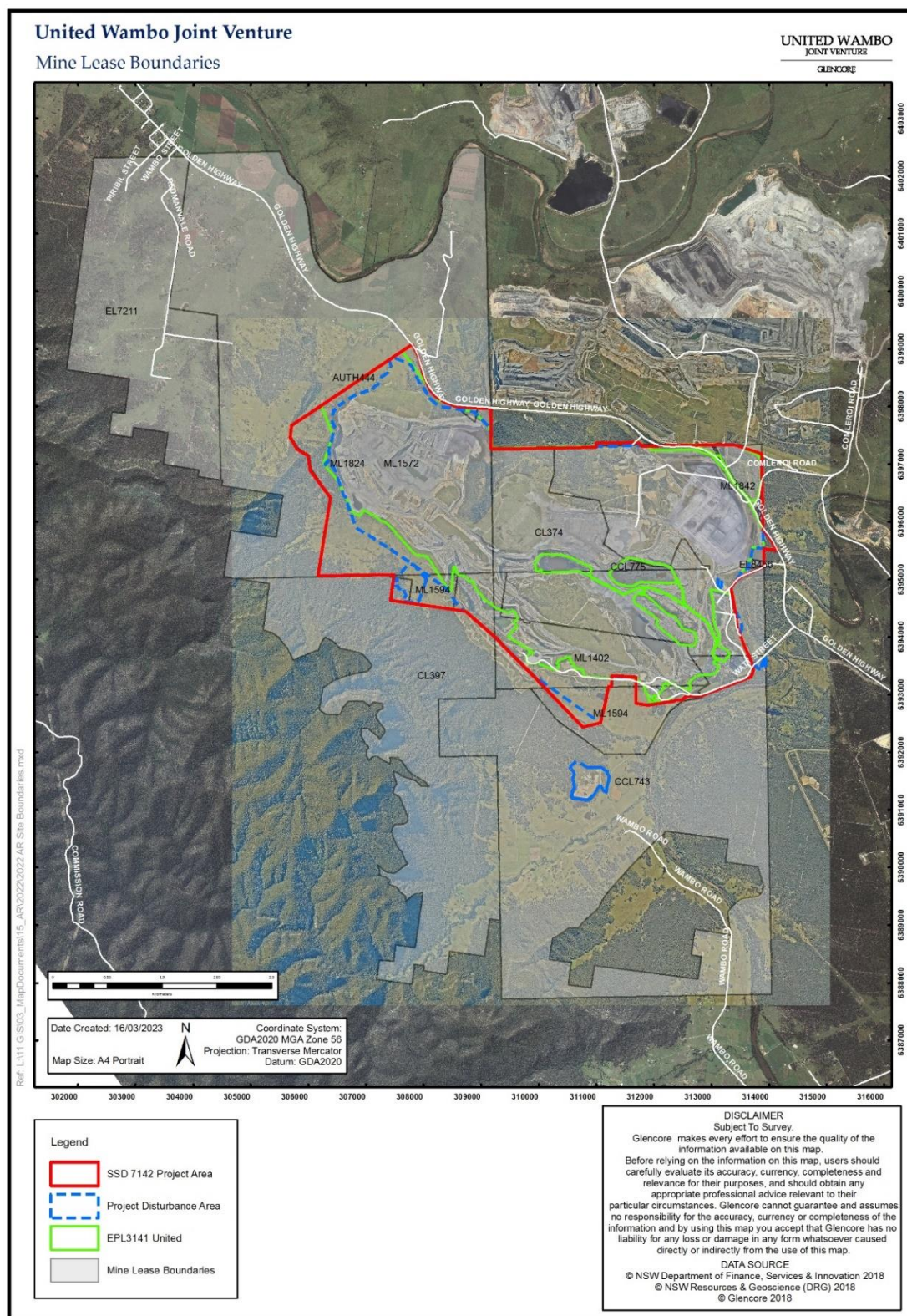


Figure 3-1 United Wambo Coal Mine Boundaries

4. Operations Summary

4.1 Mining Operations

This Annual Review is required to report on the production operations of the mine. These are summarised in **Table 4-1**.

Table 4-1 Production Summary

Material	Unit	Approved Limit	Previous reporting period (actual)	This reporting period (actual)	Next reporting period (forecast)
Waste Rock/Overburden	BCM ¹	NA	42.10	45.08	44.27
ROM Coal/Ore	Mt ²	10Mt / year ³	9.66	9.61	9.16
Coarse Reject	Mt	NA	3.04	2.72	2.70
Fine Reject (Tailings)	Mt	NA	0.76	0.68	0.67
Saleable Product	Mt	14.7Mt transported from the Complex	5.87	6.18	4.84

Note: CHPP operated by Wambo and includes processing of Wambo Underground ROM

1. BCM – Bank cubic metre
2. Mt = Million tonnes
3. From SSD 7142

Production rates remained similar to the previous reporting period, with no significant changes to operation or production during the reporting period. The forecasted values for the next reporting period are expected to be comparable to the results of this reporting period.

Figure 4-1 shows the United Open Cut Pit mining operations in December 2025.



Figure 4-1 United Open Cut operations in December 2025

4.2 Other Operations

4.2.1 Hours of Operations

The site operates 24-hours per day, 7-days a week.

4.2.2 Reject and Tailings Management

ROM coal mined from the United and Montrose Pits is hauled to the ROM pad located near the CHPP. Coal is either placed directly into the ROM bin or onto the ROM coal stockpile area. ROM coal is crushed and washed at the CHPP and product coal stockpiled prior to reclaim for train loading and transport off site. The Wambo CHPP is managed by Wambo under **DA 305-7-2003 MOD 19**.

Tailings produced by the washing of open cut coal are managed by Wambo Underground Mine. A summary of the tailing's storage facilities used to store rejects produced by washing United Wambo ROM are shown in **Table 4-2**.

Table 4-2 Active Tailings storage facilities (TSF) at United Wambo

Item No	Tailings Storage Facility	Type	Status	Comment
1	Homestead Inpit	Void with embankment	Active	Active deposit of United Wambo tailings by Wambo Underground.
2	Hunter Pit	Void with embankment	Active	Periodic deposit of United Wambo tailings by Wambo Underground to assist with consolidation and preparation for capping.

Coarse rejects from coal preparation are transported by truck to overburden emplacement areas for subsequent covering by overburden material.

4.2.3 Next Reporting Period

Table 4-3 outlines the forecast operations for the next reporting period.

Table 4-3 Forecast Operations for the Next Reporting Period

Aspect	Forecast for Next Reporting Period
Pit expansion areas	Mining will continue in United Pit and Montrose Pit. Overburden waste material will be hauled to in-pit/out-of-pit emplacements at Montrose and to in-pit/out-of-pit emplacements at United.
Infrastructure development/upgrades	Complete decommissioning of United Collieries North Mine Infrastructure Area (NMIA). Decommission mine water dam (Dam U2) near United Pit and commissioning new mine water dam (Dam U1), as part of Stage 3 water management.

5. Actions Required from Previous Annual Review

The actions required as an outcome of the previous **Annual Review (2024)**, and their current status, are detailed in **Table 5-1**. These actions were commitments from United Wambo.

Table 5-1 2024 Annual Review Actions and Feedback

Proposed Action	Action Detail	Comments
Dust	Commissioning of four new Komatsu 785 water carts.	All equipment has been commissioned.
Waste	Removal of legacy waste at United Wambo, including commencement of demolition at the North MIA.	Demolition progressing well. Areas completed include: Administration building, core shed, western hard stand, pumpers shed, underground reclaim tunnel, flare plant, 11kV substation, truck trays, and equipment.
Water Management	Stage 3 Water Management construction commencement, allowing mining further to the west.	Construction of new mine water dam (Dam U1) commenced 2025. Dam U1 and associated diversion drains and infrastructure will be completed and commissioned in 2026. Once Dam U1 is commissioned, Dam U2 will be decommissioned.
	Update of the groundwater model commenced in 2024 and is scheduled to be completed in 2025.	GW model updated in 2025. Currently undergoing independent peer review.
Approvals	Retire biodiversity credits for Stage 2 and 3.	All biodiversity credits retired.
Rehabilitation	94 hectares of rehabilitation will be undertaken.	Complete
	Targeted weed control onsite and offset properties.	Completed throughout year.
	Update of the UWJV Rehabilitation Strategy	Extension to 2026 as final landform has been refined during the reporting period.

6. Environmental Performance

The **Annual Review Guideline (DPE 2015)** requires a summary of the outcomes achieved during the reporting period for key environmental aspects.

It should be noted that the 2025 Annual Review includes EIS predictions from:

- United Wambo Open Cut Coal Mine Project – Environmental Impact Statement (**Umwelt, 2016**).
- United Wambo Open Cut Coal Project – Response to Submissions Part A (**Umwelt, 2017**).
- United Wambo Open Cut Coal Project – Response to Submissions Part B (**Umwelt, 2017a**).
- United Wambo Open Cut Coal Project – Response to Independent Planning Commission Recommendations (**Umwelt, 2018**).

All monitoring locations for United Wambo are shown in **Figure 6-1** and **Figure 6-2**.

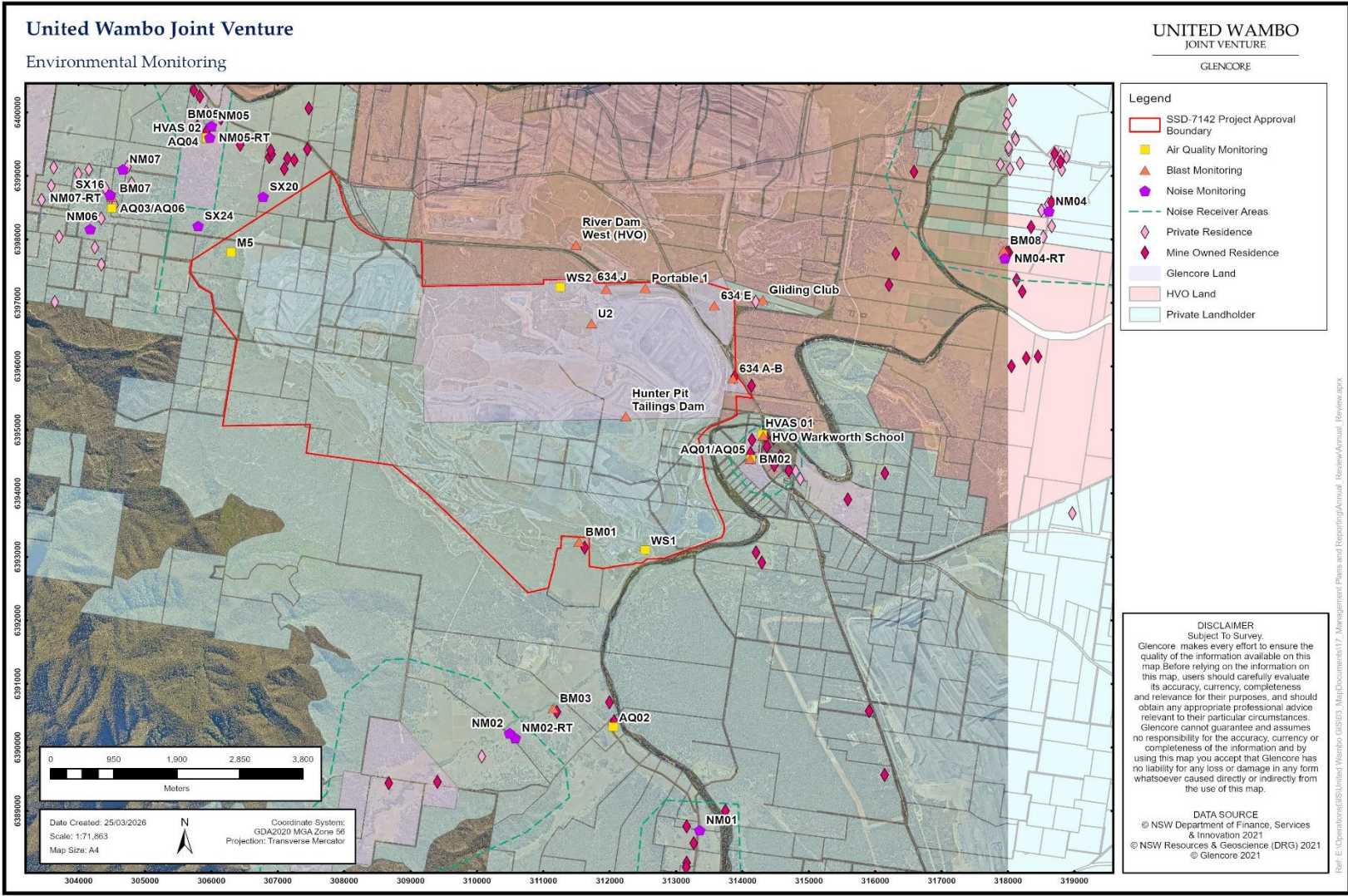


Figure 6-1 United Wambo Air Quality, Noise and Blast Monitoring Locations

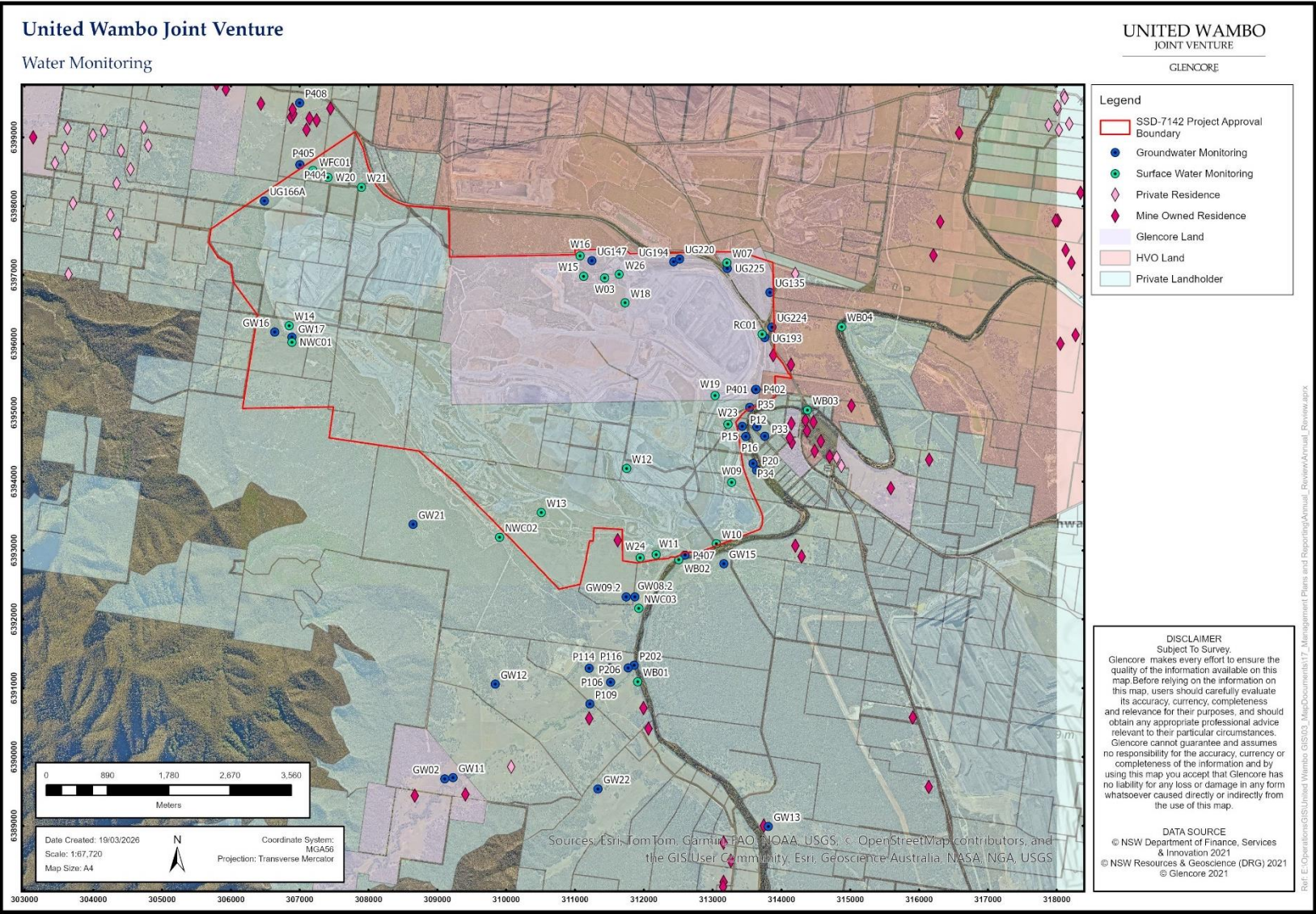


Figure 6-2 United Wambo Surface Water and Groundwater Monitoring Locations

6.1 Meteorological Data

Meteorological monitoring was undertaken at the United Wambo meteorological station (WS2) located just north of the United North Mine Infrastructure Area (NMIA) as shown in **Figure 6-1**. A summary of the 2025 meteorological data is provided in **Table 6-1**.

Table 6-1 Yearly Summary of 2025 Meteorological Data

Month	Temperature °C			Windspeed m/s			Rainfall mm	No. of Rain Days >1mm
	Min	Av.	Max	Min	Av.	Max	Total: 829.2	
January	18.5	23.6	30.1	0.2	1.6	3.7	119.4	22
February	18.4	23.4	28.0	0.1	1.2	2.6	67.6	6
March	19.3	22.8	29.3	0.2	1.7	3.3	119.4	8
April	15.7	18.9	21.1	0.1	1.4	2.4	50.6	4
May	11.7	15.4	18.1	0.2	1.5	3.3	146.4	10
June	6.8	10.5	14.4	0.3	1.9	4.7	15.0	2
July	8.3	11.2	13.8	0.1	2.3	5.0	40.2	4
August	9.7	12.4	16.5	0.1	1.8	4.7	135.8	8
September	11.9	16.3	20.9	0.0	2.0	3.8	38.8	3
October	12.2	20.2	26.7	0.2	1.9	3.9	46.8	4
November	17.5	22.3	26.3	0.4	1.9	4.3	34.8	6
December	16.6	23.6	32.9	0.1	1.7	3.8	14.4	5

The maximum 24hr average temperature, recorded in 2025 is 23.6 degrees Celsius (°C) during the months of January and December. Total rainfall recorded during this reporting period is 829.2mm, 70.6mm higher than the 758.6mm of rainfall received last year. This is due to natural rainfall fluctuations. Rainfall exceeding 1mm was recorded on 82 days over last year.

Annual average wind speeds recorded in 2025 also saw increase to 1.74 m/s from 1.64 m/s recorded during the last reporting period.

6.2 Noise

6.2.1 Environmental Management

Noise monitoring is undertaken in accordance with the **Noise Management Plan (NMP)**.

The location of noise monitoring sites is shown on **Figure 6-1**. The monitoring program includes:

- Monthly attended night-time monitoring at six sites.
- Real time noise monitoring at four sites.
- Additional monitoring as initiated by alarms or in response to community concerns.

The real-time monitoring network assists with the management of noise impacts from mining operations. Monitors are operated at locations representative of Redmanvale, Jerrys Plains, Maison Dieu and South Wambo. Data is recorded continuously and reported real-time to the United Wambo control room via an internal website.

A fleet monitoring system that records the location and activity of all major equipment in real time is operated onsite. The fleet monitoring system in combination with the real time noise monitoring program facilitates the implementation of appropriate noise mitigation measures. Should DPHI or the EPA request data relating to equipment use, United Wambo will provide the required data within 72 hours of receiving the request.

6.2.1.1 Management Measures

United Wambo implements noise management measures in accordance with the **NMP**. The management measures are summarised below:

- Reasonable and feasible noise attenuation measures are undertaken on new plant and equipment that has the potential to contribute to the site's noise level.
- Reasonable and feasible noise attenuation measures are undertaken on key items of plant and equipment that is reused from the current Wambo Open Cut operations or other controls achieving the same overall noise outcome.
- 'Silent horns' are used to communicate with trucks and smart broadband 'Quacker' reversing alarms.
- Bunds constructed in strategic locations along haul roads are implemented to shield trucks and equipment on exposed sections of the haul road ramps where possible.
- The drop height of the first load into truck bodies is managed to minimise impact noise from the material.
- Noise management training is provided for key employees to facilitate effective noise management.
- Regular inspection and maintenance of noise attenuation systems are undertaken.
- Implementation of an automated real-time noise monitoring and notification system, SiteEye. The system enables access to live noise data (including directional noise data), issues alarms to relevant site personnel and tracks responses to noise alarms to assist with operational changes and compliance 24 hours a day.
- In the event real time noise monitoring indicates potential noise impact, operational equipment can be relocated from elevated locations or progressively stood down under adverse meteorological conditions.

Approved operational noise criteria (**SSD 7142**) are summarised in Table 6-2.

Table 6-2 SSD 7142 Operational Noise Criteria

Noise Assessment Group	Noise Assessment Location	Day	Evening	Night	Night
		L _{Aeq} (15 min)	L _{Aeq} (15 min)	L _{Aeq} (15 min)	L _{A1} (1 min)
Area 1 - North Bulga	R007, R379	36	35	35	45
	All other privately-owned residences	35	35	35	45
Area 2 - South Wambo	R025	39	38	38	48

Noise Assessment Group	Noise Assessment Location	Day	Evening	Night	Night
		L _{Aeq} (15 min)	L _{Aeq} (15 min)	L _{Aeq} (15 min)	L _{A1} (1 min)
	All other privately-owned residences	35	35	35	45
Area 3 - Warkworth Village	All privately-owned residences	44	44	43	53
Area 4 - Maison Dieu	All privately-owned residences	42	42	41	51
Area 5 - Moses Crossing	R050C	41	41	41	51
	R050A	41	40	40	50
	R044	41	40	39	49
	All other privately-owned residences	41	40	38	48
Area 6 - Redmanvale	R320	40	40	40	50
	R033, R343	40	40	39	49
	R042	40	40	38	48
	R029, R345	40	40	37	47
	R048	39	39	39	49
	R030, R049, R163	39	39	38	48
	R075	39	39	37	47
	R041B	38	38	38	48
	R344, R346	38	38	37	47
	R348	38	38	36	46
	R041A	37	37	37	47
	All other privately-owned residences	35	35	35	45
Area 7 - Jerrys Plains	All privately-owned residences	40	40	36	46
All other areas	All privately-owned residences	35	35	35	45

6.2.2 Key Environmental Performance

6.2.2.1 Attended Noise Monitoring

United Wambo engaged an acoustic consultant to undertake monthly attended noise monitoring during the reporting period. Attended noise monitoring results include locations required by the **NMP** and **EPL3141**. Attended noise monitoring was completed once per month during the reporting period. United Wambo complied with relevant noise criteria for all measurements recorded in 2025.

Table 6-3 is a summary of attended noise monitoring for 2025. Results are presented as the maximum noise levels recorded from United Wambo at each location during the reporting period and have been compared to relevant noise criteria specified under **SSD 7142** and **EPL3141**.

Detailed monitoring results are provided in Monthly Noise Monitoring Reports available on the United Wambo website.

Table 6-3 Summary of Attended Noise Monitoring Data – 2025 (January - December)

Location	NAG	United Wambo Noise Monitoring Results - dBA (Max)		United Wambo Project Specific Noise Criteria - dBA		EIS Predictions – dBA (Year 6)
		L _{Aeq} (15 min)	L _{A1} (1 min)	L _{Aeq} (15 min)	L _{A1} (1 min)	L _{Aeq} Winter (15 min)
NM01	1	34	41	36	46	34
NM02	2	38	41	38	48	37
NM04	4	28	29	41	51	39
NM05	5	38	48	46	56	42
NM06	6	30	36	37	47	39
NM07	7	32	42	39	49	34

6.2.3 EIS Predictions

The United Wambo Open Cut Coal Mine Project (August 2016) modelled operation scenarios for years 2, 6, 11 and 16 of the **Conceptual Mine Plan**.

The noise criteria detailed in the **SSD 7142** and **EPL3141** were based on the noise impact predictions provided in the EIS.

In 2025 (Year 5 of operations), attended noise monitoring results complied with the applicable noise criteria at all monitoring locations. In comparison to the EIS prediction for Year 6, all monitoring sites except for NM02, recorded noise levels below the predicted values, site NM02 differed from the Year 6 EIS prediction by 1db. Refer to **Table 6-3** for comparison of noise monitoring results, noise criteria and EIS predictions for Year 6.

Noise management will be undertaken as per the **NMP** which has been approved by DPHI under Condition B5 of **SSD 7142**.

6.2.4 Improvements 2025

During the reporting period, several improvements were undertaken:

- Impact mitigation works were completed at a resident's home to help minimise noise levels. These works included the removal and replacement of cladding and insulation to improve the insulation of the exterior walls, replacement of single-pane glass with double-glazed windows, and sealing of gaps where the existing sealant had deteriorated.
- Alarm responses are reviewed regularly to ensure all alarms are appropriately assessed, and any resulting operational changes are documented. Any shortfalls are addressed and communicated to the operations team to support continuous improvement and enhance response quality.

6.2.4.1 Improvement 2026

United Wambo will continue to review mine design and utilise lower dumps in times of peak inversion (meteorological conditions enabling elevated noise) and continue to monitor and review alarm responses.

6.3 Blasting

6.3.1 Environmental Management

Blasting is undertaken in accordance with the **Blast Management Plan (BMP)** to ensure blast related impacts, including ground vibration, airblast overpressure, flyrock, fume, dust and misfire are minimised on the local community, infrastructure and heritage sites to the extent required by **SSD 7142** and **EPL 3141**.

6.3.2 Management Measures

United Wambo implements blast management measures in accordance with **Table 4-1** of the **BMP**. The management measures are summarised below:

- Develop a detailed blast design and loading specification to be undertaken for each blast to meet the required criteria and minimise impact on the environment.
- Use a modified blast design when appropriate, for example, around identified geological features (including geological faults, series of joints, dykes, etc), to avoid potential flyrock incident or when blasting through old underground workings.
- Implement the **Pre-Blast Assessment Protocol**, including various meteorological assessments and notification procedures.
- Implement the **Road Closure Management Plan** where blasting is to occur within 500 m of a public road.
- Coordinate blast times between the United Wambo pits and HVO to avoid concurrent blasting.
- Detailed liaison and risk management between United Wambo, Wambo UG and HVO when blasting will occur within 500m boundary or when potentially affected by flyrock, fumes, dust or other areas beyond the 500m zone (e.g. equipment movement).
- Reviewing weather conditions regularly to ensure wind speed and wind direction are in line with model predictions to minimise impact of potential overpressure, fume and dust impact caused by blasting.
- Implementation of a safe management system for location and handling of misfires.

6.3.2.1 Approval Criteria

Condition B8 of Part B in **SSD 7142** and Condition L4 of Section 3 in **EPL 3141** outline the blasting criteria adopted for airblast overpressure and ground vibration. This criterion is in place for human comfort for residences on privately owned land, the prevention of structural damage of heritage sites and infrastructure, and to minimise ground vibration at public infrastructure. The monitoring locations and criteria are summarised in **Table 6-4** to **Table 6-8**.

Table 6-4 Residence on Privately Owned Land Monitoring Locations and Criteria

Monitoring Locations	Airblast overpressure (dB Lin Peak)	Ground Vibration (mm/s)	Allowable exceedance
South Wambo BM03 / EPA ID 19	115	5	5% of the total number of blasts over a calendar year
Moses Crossing BM05 / EPA ID 20			
Redmanvale BM07 / EPA ID 21	120	10	0% of the total number of blasts over a calendar year
Maison Dieu BM08 / EPA ID 22			

Table 6-5 Heritage Blasting Monitoring Locations and Criteria

Monitoring Locations	Airblast overpressure (dB Lin Peak)	Ground Vibration (mm/s)	Allowable exceedance
St Phillips Church BM02	N/A	5	0%
Wambo Homestead BM01	120	5	0%
All other heritage items ¹ BM02	133	5	0%

¹ beyond those predicated in SSD 7142 and generally in accordance with the EIS. Includes the Former, Piggery and Butcher's Hut, former Queen Victoria Inn, and Springwood Homestead. For the Warkworth Public School, Montrose property and Shearing Shed, and Dog-leg Fence see section 3.3 of the BMP.

Table 6-6 Infrastructure Monitoring Locations and Criteria

Monitoring Locations	Airblast overpressure (dB Lin Peak)	Ground Vibration (mm/s)	Allowable exceedance
Hunter Valley Gliding Club Glider Club ¹	133	25	0%
Warkworth Shooting Complex BM02 ²			
HVO Infrastructure - occupied BM02 ²			
HVO surface infrastructure – unoccupied ³	133	100	0%

¹ This monitor is the representative monitoring location.

² Monitor installed 9 June 2020.

³ No specific sites monitored under this consent condition. Monitoring locations committed to in the BMP are considered representative. Note United Wambo monitors other infrastructure (i.e. transmission towers) closer to the pit with lower criteria.

Table 6-7 Public Infrastructure Monitoring Locations and Criteria

Monitoring Locations	Ground Vibration (mm/s)	Allowable exceedance
Transmission suspension towers ¹	100	0%
Transmission tension towers ¹	50	
Prescribed dams ²	50 (unless otherwise directed by the DS NSW)	0%
Public Roads ³	100	0%
Telecommunication infrastructure and cables ³		
All other public infrastructure ³	50 (or a limit determined by the structural design methodology AS 2187.2 – 2006, or its latest version, or other alternative limit for public infrastructure, to the satisfaction of the Planning Secretary)	0%

¹ Transmission suspension and tension towers were monitored as per SSD consent conditions using representative sites and/or portable monitors when blasting was in close proximity.

² Prescribed dams were monitored as per SSD 7142 consent conditions. This includes Wambo Tailings Dam (Northeast Tailings Dam), HVO Riverview Void In-pit Water Storage 2, and Wambo Hunter Pit Tailings Dam (HPTD). These prescribed dams were monitored all year round.

³ No specific sites monitored under this consent condition. Monitoring locations committed to in the BMP (**Glencore 2020e**) are considered representative.

Table 6-8 Offensive Blast Fumes

Condition	Details
Condition L4.5 of Section 3 in EPL 3141	Offensive blast fume must not be emitted from the premises. Definition: Offensive blast fume means post-blast gases from the detonation of explosives at the premises that by reason of their nature, duration, character or quality, or the time at which they are emitted, or any other circumstances: are harmful to (or likely to be harmful to) a person that is outside the premises from which it is emitted, or; interferes unreasonably with (or is likely to interfere unreasonably with) the comfort or repose of a person who is outside the premises from which it is emitted.

6.3.3 Key Environmental Performance

United Wambo Open Cut monitored 160 blasts during 2025. As per Condition B10 and B11 of **SSD 7142**, all blasting on site was between 9am and 5pm (Monday to Saturday inclusive) and there were less than three single blast events a day and less than 15 single blast events a week, averaged over a calendar year.

Monitoring data was collected at all locations outlined in the **SSD 7142** and **EPL 3141** consent conditions. The approved monitoring locations BM01, BM02, BM03, BM05, BM07 and BM08 (as shown in **Figure 6-1**) are reported on in this Annual Review, as committed to in the **BMP**. Summarised monitoring data for these locations are provided in **Table 6-9** to

Table 6-11.

As per the blasting criteria outlined in **SSD 7142** consent conditions, there were no blasting exceedances for airblast overpressure or ground vibration for residences on privately owned land during the 2025 calendar year, as shown in **Table 6-9**.

Table 6-9 Blast Monitoring Data for Residences on Privately Owned Land

Monitoring Location		Airblast Overpressure Level dBL (Lin Peak)				Ground Vibration ppv (mm/s)			
Name	Monitor	Average	Max	Results >115 dBL	Results >120 dBL	Average	Max	Results >5 mm/s	Results >10 mm/s
South Wambo (EPA ID 19)	BM03	89.4	109.8	0%	0%	0.10	0.97	0%	0%
Moses Crossing (EPA ID 20)	BM05	93.7	116.7	0.6%	0%	0.10	0.54	0%	0%
Redmanvale (EPA ID 21)	BM07	89.9	107.4	0%	0%	0.09	0.64	0%	0%
Maison Dieu (EPA ID 22)	BM08	97.3	116.5	1.25%	0%	0.11	0.51	0%	0%

There were no blasting exceedances in airblast overpressure or ground vibration for heritage locations during the 2025 calendar year, as seen in **Table 6-10**.

Table 6-10 Heritage Monitoring Data

Monitoring Location		Airblast Overpressure Level dBL (Lin Peak)				Ground Vibration ppv (mm/s)		
Name	Monitor	Average	Max	Results >120 dBL	Results >133 dBL	Average	Max	Results >5 mm/s
St Phillips Church ¹	BM02	99.5	121.8	N/A	0%	0.49	2.33	0%
Wambo Homestead	BM01	96.0	113.4	0%	0%	0.16	0.75	0%
All other heritage items	BM02	99.5	121.8	N/A	0%	0.49	2.33	0%

¹ St Phillips Church is 500m further away from United Wambo than BM02, modelling shows vibration level at St Phillips Church <5mm/s.

United Wambo monitored blasting criteria at several locations considered to be representative of infrastructure surrounding the mine site. During the 2025 reporting period, there was no airblast overpressure or ground vibration exceedances recorded as seen in

Table 6-11 below.

Table 6-11 Infrastructure Monitoring Data

Monitoring Location		Airblast Overpressure Level dBL (Lin Peak)			Ground Vibration ppv (mm/s)		
Name	Monitor	Average	Max	Results >133 dBL	Average	Max	Results > Criteria mm/s
Hunter Valley Gliding Club	Glider Club	101.4	118.9	0%	0.49	5.75	0%
Warkworth Shooting Complex	BM02	99.5	121.8	0%	0.49	2.33	0%
HVO Infrastructure - occupied	BM02	99.5	121.8	0%	0.49	2.33	0%
Transmission suspension tower	Portable 1	N/A	N/A	N/A	4.89	35.76	0%
Transmission tension tower	Tower 634 E and Tower 634 A-B, 634 J	N/A	N/A	N/A	1.42	37.39	0%
Prescribed dams	HPTD, HVO Riverview West	N/A	N/A	N/A	1.04	12.13	0%
Public Roads ¹ Telecommunication infrastructure and cables	Portable 1, 634 A-B, 634 E, 634 J	N/A	N/A	N/A	2.57	37.39	0%

¹ Monitors located adjacent to transmission suspension towers located between the approved pit shell and the Golden Highway are considered representative of public roads, telecommunication infrastructure.

6.3.4 EIS Predictions

A ground vibration predictive model and an airblast overpressure predictive model was developed to determine potential blasting impacts for the EIS. A range of blast scenarios were modelled. The results of the blasting impact assessment indicate that ground vibration and air blast overpressure levels can be managed to meet relevant blast emission criteria at all sensitive receiver locations through appropriate blast design. All results from blasting in 2025 were compliant with criteria, and consistent with predictions.

6.3.5 Improvements 2025

Additional blast monitors have been sourced this reporting period and will be deployed in the next reporting period as required to improve the blast monitoring network.

6.3.5.1 Proposed Improvements 2026

Additional blast monitors will be installed as required to enhance the monitoring of vibration and overpressure in line with the progression of mining activities.

6.4 Air Quality

6.4.1 Environmental Management

Air Quality monitoring is undertaken in accordance with the ***Air Quality and Greenhouse Gas Management Plan (AQGHGMP)***.

The location of air quality monitoring sites is shown on ***Figure 6-1***. The monitoring program includes:

- Continuous monitoring of PM₁₀ at four sites.
- High Volume Air Sampler (HVAS) monitoring every six days (continuously for 24 hours) at two sites.
- Continuous meteorological monitoring at two sites.

Each real time air quality monitoring unit is connected to web-based software that is fitted with alarming capabilities. The alarming capabilities can advise mining personnel that air quality at the monitor has reached the trigger levels. Alarms are sent via SMS and email to relevant United Wambo staff to notify that air quality is reaching, or has reached, the predetermined limit. In such an event, action can then be taken to modify operations where practical as per the United Wambo Dust TARP.

Note: HVAS 01 and HVAS 02 are owned and operated by HVO, with results forwarded to United Wambo monthly.

6.4.2 Management Measures

The principal sources of atmospheric dust emissions from activities at United Wambo during operation are associated with:

- Disturbance from mining, exploration and drilling works.
- Wind-blown dust from exposed surfaces.
- Vehicle movements on the internal unsealed hardstand areas, haul roads or access roads around the site.

United Wambo implements dust and greenhouse gas management measures in accordance with the ***AQGHGMP***. The management measures are summarised in ***Table 6-12***.

Table 6-12 Greenhouse Gas Mitigation Measures

Mitigation Measure	Application at United Wambo	Status During Reporting Period
Limiting the length of material haulage routes to reduce diesel usage and associated emissions	Length of haulage routes has been optimised to minimise dust, noise, fuel use and improve operating efficiency.	Ongoing as part of mine planning processes.
Optimising ramp gradients to reduce diesel usage and associated emissions	Ramp gradients have been optimised according to pit geometry parameters and mobile equipment performance characteristics.	Ongoing as part of mine planning processes.

Mitigation Measure	Application at United Wambo	Status During Reporting Period
Continually improve the fuel efficiency of haul trucks operating at the mine to reduce diesel usage and associated emissions	Where new trucks are purchased during the life of the Project, fuel/energy efficiency will be considered in the selection criteria. Haul road design parameters such as gradient and haul length are optimised resulting in the efficient haulage of overburden per unit of fuel consumed.	Ongoing as part of mine planning processes.
Payload management to reduce diesel usage and associated emissions	Payload will be constantly monitored and actively managed to maintain efficiency over time, reducing overall diesel consumption of the mine and, thereby, reducing GHG emissions.	Ongoing. Payload targets were set for all trucks at United Wambo and are fitted with an onboard management system to optimise payload size. United Wambo have been following the Excavator Operator Guideline (developed in 2021) to consider payload management.
Increasing haul truck payload to reduce the number of truck loads required and consequently reduce diesel usage and associated emissions	Truck tray capacity will be reviewed as part of the efficient management of the operation, including the option of fitting custom-built trays to maximise payloads. Payload will also be maximised by blasting strategies that optimise material size characteristics.	Payload study completed to optimise new 930E-4 tray designs.
Improving rolling resistance of haul roads to reduce diesel usage and associated emissions	Haul roads are planned to be constructed on solid rock rather than on soil or subsoil material where practical.	Ongoing as part of the mine planning processes and maintenance strategies.
Reducing idling times to reduce diesel usage and associated emissions	Reducing idle times will be an ongoing performance measure. Initiatives to reduce idle times will continue to be introduced over the life of the Project. A reduction in idle times will improve fuel consumption rates per volume of material moved.	United Wambo has implemented a fleet management system to reduce queue time. In addition, multiple dumps are operated simultaneously (where practical) to reduce queue time.
Scheduling activities so that equipment operation is optimised to reduce energy usage and associated emissions	Scheduling activities to optimise equipment operation will be a routine activity. United will prepare long, medium- and short-term plans to optimise production. Over time this will reduce the overall diesel consumption of the mine and, thereby, reduce greenhouse gas emissions.	Ongoing as part of mine planning processes.
Seek to continually improve the fuel efficiency and diesel emissions of mine equipment during the purchase of new equipment	Where new equipment is purchased during the life of the Project; fuel/energy efficiency and reasonable and feasible diesel emissions reduction technology will be considered in the selection criteria.	All trucks have been fitted to Tier 4 emission standards, fitted with fuel/energy efficiency technology.
Blasting strategies to improve extraction and processing energy use efficiency and reduce associated emissions	Blast management practices will be employed to size material for optimum payloads and minimise the need for secondary treatment of waste material.	Blasts during 2025 were designed to minimise rehandling of material. During the reporting period secondary treatment of blasted material was not required.

Mitigation Measure	Application at United Wambo	Status During Reporting Period
Maximising resource recovery efficiency to maximise energy use efficiency and reduce associated emissions	Long, medium and short term operational plans will be developed to optimise the recovery of approved resources.	Ongoing as part of mine planning processes.
Working machines to their upper design performance to optimise energy usage and associated emissions	Glencore's business objectives support and promote effective equipment utilisation and performance rates, resulting in improved fuel consumption rates per volume of material moved.	Ongoing as part of mine planning processes.
Preventing unnecessary water ingress to reduce pump energy usage and associated emissions	The surface water management system is designed to maximise separation of clean and dirty water systems. Clean water will be diverted away from mining areas, consistent with the mine water management system design outlined in the EIS.	Ongoing as part of water system processes/management of water.
In-pit servicing to reduce diesel usage associated with transporting equipment	Equipment will be serviced in pit, where practical, reducing unnecessary unproductive travel time and energy use.	In-pit servicing is completed where practical. In-pit refueling station continues to be used and maintained.
High efficiency workshop lighting	Workshop areas will use high efficiency lighting, reducing energy use.	Energy efficient LED lighting continues to be used throughout operation
High efficiency heating, ventilation, and cooling (HVAC) systems for administrative buildings	Administration buildings will use high efficiency HVAC systems to reduce energy use.	HVAC systems installed are still providing energy efficiencies to the administration building.

6.4.3 Approval Criteria – SSD 7142

Air quality criteria is included as Condition B25 of **SSD 7142** and is reproduced in **Table 6-13**.

Table 6-13 Air Quality Criteria

Pollutant	Averaging period	Criterion (µg/m ³)
Particulate Matter <10 mm (PM ₁₀)	Annual	^{a,c} 25
	24 hour	^b 50
Particulate Matter <2.5 mm (PM _{2.5})	Annual	^{a,c} 8
	24 hour	^b 25
Total suspended particulate (TSP) matter	Annual	^{a,c} 90

^a Total impact (i.e. incremental increase in concentrations due to the development plus background concentrations due to all other sources).

^b Incremental impact (i.e. incremental increase in concentrations due to the development on its own).

^c Excludes extraordinary events such as bushfires, prescribed burning, dust storms, fire incidents, or any other activity agreed by the Planning Secretary.

6.4.4 Key Environmental Performance

A list of air quality monitoring sites, parameters and frequencies are provided in **Table 6-14**.

Table 6-14 Air Quality Monitoring Sites

Monitoring site (s)	Indicator (s)	Equipment Type	Frequency
HVAS 01 and HVAS 02	TSP	HVAS	Six-day cycle
AQ02 and AQ04	PM ₁₀	TEOM	Continuous
AQ01 and AQ03	PM ₁₀ , PM _{2.5}	TEOM	Continuous
WS1 and WS2	Meteorology	Met Station	Continuous

6.4.4.1 High Volume Air Samplers

Table 6-15 presents a summary of HVAS monitoring results and compares annual averages for TSP against consent criteria.

Table 6-15 HVAS Results for 2025

Gauge	Maximum TSP (µg/m ³)	Annual Average TSP ¹ (µg/m ³)
Consent Criteria	-	90.0
HVAS 01 (Warkworth)	330	^a 130.3
HVAS 02 (Kilburnie South)	146	54.5

^a Criteria does not apply to Warkworth area, as it is mine-owned land.

As shown in **Table 6-15** Annual TSP averages were within criteria limits of 90 µg/m³ for monitoring site HVAS 02. HVAS 01 recorded an annual average TSP above the criteria limit, however consent criteria no longer applies due to no private land ownership. As part of the action response a notification was made in accordance with Condition B27(a) of **SSD 7142** and Condition D6 and D7 of the **SSD 7142**.

6.4.4.2 Continuous Monitoring PM₁₀

A summary of the recorded PM₁₀ levels at the TEOM units is presented in **Table 6-16**. The number of days that exceeded the consent criterion is also shown. During the reporting period, TEOM units failed to collect valid data on several occasions for varying lengths of time. As a result, <75% of the daily data was not collected. During these occurrences, a valid 24-hour average could not be calculated. For additional details please see **Section 1** and **Section 11.2**.

Table 6-16 provides a summary of the annual average and maximum 24-hour PM₁₀ and 24-hour PM_{2.5} averages recorded at TEOM units in 2025.

The annual average PM₁₀ concentrations were below the relevant criterion of 25µg/m³ at all TEOMs in 2025. PM₁₀ concentration exceeded the 24-hour average on one occasion at monitoring site AQ01. However, criteria do not apply to monitoring site AQ01, as it is mine-owned land. A contribution calculation was undertaken to evaluate the projects contribution and relevant notifications were provided as per condition B27(a), D6 and D7 of the **SSD 7142**.

Additionally, the annual average PM_{2.5} concentrations were below the relevant criterion of 8µg/m³ at AQ01 and AQ03 in 2025. Although a maximum PM_{2.5} 24-hour average concentration of 27.1 µg/m³ was recorded at site AQ01, the project's contribution was below the criteria limit of 25µg/m³.

As presented in **Table 6-16**, the maximum 24-hour average PM₁₀ concentrations did not exceed the relevant criterion of 50µg/m³ for applicable sites.

As presented in **Table 6-16**, the maximum 24-hour average PM_{2.5} concentrations did not exceed the relevant criterion of 25µg/m³.

Table 6-16 Summary of TEOM Sampling Results – Maximum 24-Hr Average

Annual average			Maximum 24-hour averages			
Gauge	PM _{2.5} (µg/m ³)	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	Number of days exceeding criterion	PM ₁₀ (µg/m ³)	Number of days exceeding criterion
Consent Criteria	8	25.0	25	0	50.0	0
AQ01	5.7	20.9	27.1	^b 0	85.2	^a 0
AQ02	-	14.8	-	0	41.8	0
AQ03	5	10.4	21.4	0	41.2	0
AQ04	-	18.6	-	0	56.0	^b 0

a Criteria does not apply to Warkworth area, as it is mine-owned land.

b Contribution calculations completed, below criteria. This recalculation considers wind speed and wind direction.

6.4.5 Long Term Trends

6.4.5.1 TSP

Long- term annual average HVAS results for TSP at United Wambo in 2025 are shown in **Table 6-17**.

Table 6-17 Long-Term High Volume Air Sampler TSP Results

Year	Kilburnie South (HVAS 02)			Warkworth (EPA ID 8) (HVAS 01)		
	Min	Max	Avg	Min	Max	Avg
2010	-	-	-	13.2	82.7	40.7
2011	-	-	-	13.0	140.0	49.8
2012	-	-	-	8.0	143.0	50.7
2013	-	-	-	8.0	141.0	55.7
2014	-	-	-	13.0	147.0	53.9
2015	-	-	-	10.0	166.0	51.8
2016	-	-	-	8.0	132.0	50.1
2017	-	-	-	19.0	159.0	65.0
2018	-	-	-	22.0	186.0	79.9
2019 (All Data)	-	-	-	12.0	214.0	80.0
2019 (Extraordinary removed)	-	-	-	12.0	196.0	74.0
2020 (All Data)	5.0	322.0	83.0	24.0	214.0	75.6
2020 (Extraordinary removed) ¹	5.0	214.0	70.3	24.0	144.0	70.8

Year	Kilburnie South (HVAS 02)			Warkworth (EPA ID 8) (HVAS 01)		
	Min	Max	Avg	Min	Max	Avg
2021 (All Data) ¹	2.1	125.0	36.4	14.4	447.0	94.6
2022 (All Data) ¹	2.9	117.0	37.7	15.4	254.0	72.3
2023	7.4	221.0	66.8	22.2	362.0	130.9
2024	4.5	145	54.6	19.9	673.0	137.5
2025	4.5	146	54.5	22	330	130.3

¹ PM10 results were calculated using 0.4 multiplied by the corresponding TSP result for HVAS 01 and HVAS 02

The long-term TSP dataset for site HVAS01 (Warkworth) shows substantially greater variability compared with HVAS02 (Kilburnie South). HVAS01 recorded relatively stable TSP levels between 2010 and 2017. From 2022 onwards, annual average TSP concentrations at HVAS01 increased to above 130 µg/m³ and have remained above that level. A moderate reduction was observed in this reporting period compared to previous reporting period, with the annual average recorded at 130.3 µg/m³. In contrast, annual average for TSP concentrations at HVAS02 have remained consistently stable year on year.

The United Wambo Open Cut Coal Mine Project (August 2016) modelled operation scenarios for years 2, 6, 11 and 16 of the **Conceptual Mine Plan**. A comparison of air quality monitoring results and those predicted in the EIS for Year 6 is summarised below.

The EIS predicted that the project only annual average PM₁₀ and PM_{2.5} criteria would not be exceeded at any surrounding private residences. However, exceedance of the 24-hour PM₁₀ criterion was predicted to occur on at least 13 days per year at one residential receiver located in Warkworth Village. However, since the EIS was submitted, this property has been purchased and is no longer privately owned. Monitoring results for 2025 identified that the maximum 24-hour average PM₁₀ concentration was exceeded twice at this site attributable to United Wambo. Relevant notifications were provided in accordance with Condition B27(a) of **SSD 7142** and Condition D6 and D7 of the **SSD 7142**. There were no exceedances of PM_{2.5} annual average or average 24-hour concentration attributable to United Wambo throughout 2025.

The EIS did not predict any exceedance of TSP at any private residences. Monitoring results show that there have been no exceedances of the TSP criteria at any private residence.

6.4.6 Reported Greenhouse Gas Emissions

United Wambo reports greenhouse gas emissions (GHG) in accordance with **National Energy and Greenhouse Gases (NGER) legislation**. Each financial year, United Wambo is required to submit to the Federal Government the emissions from their NGERs registered facility. Also, because United Wambo emits over 100kt of CO₂e- each year, it is registered as a Safeguard facility and, therefore, also has a Safeguard baseline. Emissions above the baseline for that year need to be offset by retiring Australian Carbon Credit Units (ACCUs).

The NGERs reporting year is based on a financial year, not a calendar year, such as this Annual Review. To prevent incompatible public reporting, the values in this report also cover a financial year. The following table contains the Scope 1 (direct emissions from the mining activities during the year), and Scope 2 emissions (electricity consumption by the mine during the year). Scope 1 and Scope 2 emissions predicted in the EIS are LOM estimates. The actual emission varies based on the production. The significant increase in production during the previous reporting period and the current reporting

period, combined with mining activities occurring in areas with higher gas content, have contributed to the observed increase in scope 1 and scope 2 emissions.

Table 6-18 2025 Direct Emissions and Electricity Consumption

Site	Scope 1 CO ₂ -e	Scope 2 CO ₂ -e
United Wambo Joint Venture	488,260 tonnes	1,577 tonnes

6.4.6.1 EIS Predictions - Emissions

The EIS estimated the operation to produce 5,801,423 t CO₂-e Scope 1 and 796,755 t CO₂-e Scope 2 emissions during the 23-year LOM, averaging approximately 253,000 t CO₂-e Scope 1 emissions and approximately 35,000 t CO₂-e of Scope 2 emissions per annum. The EIS Scope 2 predictions included the electricity used for operation of the CHPP. Wambo own, manage and operate the CHPP and are responsible for reporting Scope 2 emissions for that facility. During the LOM, resource extraction can vary depending on the mining plan and various other factors and therefore the actual annual scope 1 and 2 emissions may vary depending on production.

6.4.6.2 Continuous Improvement Measures - Energy Efficiency and Reduce GHG Emissions

United Wambo is a part of the wider coal assets held by Glencore across Australia. Glencore Coal Assets Australia (GCAA) are themselves a part of the global Glencore mining portfolio. In line with the ambitions of the 1.5°C scenarios set out by the IPCC, Glencore target a short-term reduction of 15% by 2026 and a medium-term 50% reduction of our total (Scope 1, 2 and 3) emissions by 2035 on 2019 levels. Post 2035, Glencore's ambition is to achieve, with a supportive policy environment, net zero total emissions by 2050. As published in Glencore's **2025 Annual Report**, Glencore is on track to meet the 2026 Group industrial emissions reduction target of 15%, against a 2019 baseline (Glencore, 2025).

Glencore incorporates energy costs and our carbon footprint into our annual planning process. Commodity departments, such as Glencore Coal Assets Australia, are required to provide energy and GHG emissions forecasts for each asset over the forward planning period and provide details of emissions reduction projects.

In the case of United Wambo, this includes involvement with GCAA when considering available GHG abatement technology and mine planning to optimise efficiency (which usually translates into reduced fuel consumption) see **Table 6-12** for United Wambo's greenhouse gas mitigation measures.

6.4.7 Improvements 2025

6.4.7.1 Current Reporting Period

United Wambo replaced four water trucks with new Komatsu HD785-7 models. This improved the dust suppression capability.

6.4.7.2 Next Reporting Period

United Wambo will undertake an assessment of integrating emerging dust suppression technologies into current operations.

6.5 Biodiversity

6.5.1 Biodiversity Offset Strategy

United Wambo had approval to retire biodiversity credits progressively based on the staging of native vegetation disturbance in line with the progressive development of the mine. The three stages of disturbance are approximately seven-year stages, and are referred to as Stage 1, Stage 2 and Stage 3. An overview of the Stage 1, Stage 2 and Stage 3 credit requirements, as outlined in **SSD 7142**, are provided in **Table 6-19**.

Table 6-19 Staged Offsetting Requirements

Impacted Feature	STAGE 1 Credits Required	STAGE 2 Credits Required	STAGE 3 Credits Required	Total
Central Hunter Valley Eucalypt Forest and Woodland CEEC under the EPBC Act	11,287	2,570	620	14,477
Hunter Floodplain Red Gum Woodland EEC under the BC Act	0	20	0	20
Central Hunter Ironbark - Spotted Gum - Grey Box Forest EEC under the BC Act	1,424	0	0	1,424
Central Hunter Grey Box - Ironbark Woodland EEC under the BC Act	356	101	0	457
HU905 - Narrow-leaved Ironbark - Grey Box grassy Woodland of the Central and Upper Hunter	3,562	1,344	1	4,907
HU906 - Bull Oak Grassy Woodland of the Central Hunter Valley	2,973	0	0	2,973
HU945 - Swamp Oak - Weeping Grass Grassy Riparian Forest of the Hunter Valley	1,844	281	0	2,125
Southern Myotis (<i>Myotis Macropus</i>)	15	547	0	562
TOTAL ECOSYSTEM CREDITS	21,446	4,316	621	26,383
TOTAL SPECIES CREDITS	15	547	0	562

A Biodiversity Offset Strategy (BOS) was subsequently developed and included in the **Biodiversity Management Plan** (BioMP), which outlines the proposed method of retiring these credits.

Stage 1 Credits

The proposed retirement method for Stage 1 credits was the establishment of Biodiversity Stewardship Agreements (BSA's), ensuring in-perpetuity conservation and reporting consistent with the NSW Biodiversity Offset Scheme (NSW BOS). The BSA's established to satisfy the Stage 1 requirements include:

- Brosi
- Highfields
- Jerrys Plains
- Mangrove

- Wambo
- South Wambo

The six biodiversity offset sites, combined with the Ecological Mine Rehabilitation satisfied 100 per cent of the required offset credits for Stage 1 (except for the Southern Myotis credits). United Wambo has retired all Stage 1 credits and obtained correspondence from DPHI confirming the Stage 1 credit obligations have been met. Evidence of retirement is provided in **Appendix K of the BioMP**.

Stage 2 and 3 Credits

During 2023, United Wambo applied for a 'Reasonable Equivalence Assessment' to convert the BBAM credits listed for stages 2 and 3 in **Condition B55 (Table 5)** of **SSD7142** to BAM credits which are the currently supported credits by the NSW Biodiversity Offset Scheme.

Credits associated with Stage 2 and Stage 3 offsetting were retired in full on 9 April 2025. United Wambo met its Stage 2 and 3 credit requirements through a combination of the retirement of existing credits held within the South Wambo BSA, the purchase and retirement of additional credits and payments into the Biodiversity Conservation Fund (BCF) in accordance with **Section 6.33** of the **Biodiversity Conservation Act 2016**. Credit Retirement reports and evidence of BCF payments are provided in **Appendix K of BioMP**.

6.5.2 Key Environmental Performance

6.5.2.1 Disturbance

A total of 21.1 hectares of new disturbance was undertaken for the development of the open cut mining areas, infrastructure areas and overburden emplacement areas. A comparison of the total actual disturbance to date for each offset stage is provided in **Table 6-20**.

Table 6-20 Proposed Stage 1 vs Actual to Date Disturbance

Impacted Feature	Stage 1 Proposed Disturbance (ha)	Stage 1 Total Disturbance to Date (ha)	Stage 2 Proposed Disturbance (ha)	Stage 2 Total Disturbance to Date (ha)	Stage 3 Proposed Disturbance (ha)	Stage 3 Total Disturbance to Date (ha)
<i>Central Hunter Valley Eucalypt Forest and Woodland CEEC under the EPBC Act</i>	195.54	136.54	41.55	13.60	9.68	0
<i>Hunter Floodplain Red Gum Woodland EEC under the BC Act</i>	0	0	0.29	0	0	0
<i>Central Hunter Ironbark - Spotted Gum - Grey Box Forest EEC under the BC Act</i>	28.25	28.25	0	0	0	0
<i>Central Hunter Grey Box - Ironbark Woodland EEC under the BC Act</i>	6.28	4.03	1.57	1.06	0	0
HU905 - Narrow-leaved Ironbark - Grey Box grassy Woodland of the Central and Upper Hunter	120.34	97.32	40.63	19.19	0.01	0
HU906 - Bull Oak Grassy Woodland of the Central Hunter Valley	51.05	48.12	0	0	0	0
HU945 - Swamp Oak - Weeping Grass Grassy Riparian Forest of the Hunter Valley	27.33	26.70	4.17	2.53	0	0

6.5.2.2 Weed and Pest Management

United Wambo focused weed management within areas scheduled for future clearing, rehabilitation areas and vegetation surrounding key infrastructure across both Offset and Operational areas. Detailed weed mapping was undertaken across the four BSA areas and mapping outputs were provided in December 2025.

Weed control methods were applied consistently across these locations and included foliar spraying, cut and paint treatment, hand removal and herbicide treatment, as appropriate for the target species and site conditions. Management activities were timed to maximise effectiveness, with different species targeted at specific times of the year, predominantly during Autumn and Spring.

Target weed species managed during 2025 are summarised in **Table 6-21**.

Table 6-21 Weed Species Management in 2025

Offset Areas	Operational Areas
Highfields: - Saffron Thistle (<i>Carthamus lanatus</i>) - Prickly Pear (<i>Opuntia stricta</i>) - Fire weed (<i>Senecio madagascariensis</i>) - Spiny Rush (<i>Juncus acutus</i>) - Scotch Thistle (<i>Onopordum acanthium</i>) Mangrove: - African Boxthorn (<i>Lycium ferocissimum</i>) – Weed of National Significance (WONS). - Prickly Pear (<i>Opuntia stricta</i>) - Tiger Pear (<i>Opuntia aurantiaca</i>) - Fire weed (<i>Senecio madagascariensis</i>) - Galenia (<i>Galenia pubescens</i>) - Saffron Thistle (<i>Carthamus lanatus</i>) - Spear Thistle (<i>Cirsium vulgare</i>) - Mustard Weed (<i>Hirschfeldia incana</i>) - Italian Cocklebur (<i>Xanthium italicum</i>) - Willow (<i>Salix</i> species) - Spiny Rush (<i>Juncus acutus</i>) - Purpletop (<i>Verbena Verbenaceae</i>) - Blue Heliotrope (<i>Heliotropium amplexicaule</i>) - Scotch Thistle (<i>Onopordum acanthium</i>) Brosi: - Prickly Pear (<i>Opuntia stricta</i>) - Blue Heliotrope (<i>Heliotropium amplexicaule</i>) - Fire weed (<i>Senecio madagascariensis</i>) - Silverleaf nightshade (<i>Solanum elaeagnifolium</i>) - African Boxthorn (<i>Lycium ferocissimum</i>) – Weed of National Significance (WONS). - Lantana (<i>Lantana</i> species) – Weed of National Significance (WONS) - Tree of heaven - Ink weed	- Golden Wreath Wattle (<i>Acacia Saligna</i>) - African Boxthorn (<i>Lycium ferocissimum</i>) – Weed of National Significance (WONS). - African Olive (<i>Olea europaea</i> subsp. <i>cuspidata</i>) - Blue Heliotrope (<i>Heliotropium amplexicaule</i>) - Cat's Claw Creeper (<i>Dolichandra unguis-cati</i>) - Fleabane (<i>Conyza</i> species) - Galenia (<i>Galenia pubescens</i>) - Lantana (<i>Lantana</i> species) – Weed of National Significance (WONS) - Silverleaf nightshade (<i>Solanum elaeagnifolium</i>) - Exotic Grasses (African Love Grass, African Pigeon Grass, Coolatai Grass, Giant Reed, Kikuyu Grass, Panic Grass, Red Natal Grass, Rhodes Grass) - Giant Reed (<i>Arundo donax</i>) - Mother-of-Millions (<i>Byrophyllum delagoense</i>) – Noxious Weed Class 3. - African Turnip Weed (<i>Sisymbrium thellungii</i>) - Cotton Bush (<i>Gomphocarpus fruticosus</i>) - General Woody Weeds (African Turnip Weed, Cotton Bush). - Prickly Pear (<i>Cylindropuntia</i> species) - Fire weed (<i>Senecio madagascariensis</i>) - Green Cestrum (<i>Cestrum parquai</i>) - Spiny Rush (<i>Juncus acutus</i>) - Maltese Cockspur (<i>Centaurea melitensis</i>) - Noogoora Burr (<i>Xanthium occidentale</i>) - Pattersons Curse (<i>Echium plantagineum</i>) - Paddy's Lucerne (<i>Sida rhombifolia</i>) - Scotch Thistle (<i>Onopordum acanthium</i>) - Saffron Thistle (<i>Carthamus lanatus</i>) - Tree Tobacco (<i>Nicotiana glauca</i>) - Purpletop (<i>Verbena Verbenaceae</i>)

• Peppercorn tree • African Lovegrass (<i>Eragrostis curvula</i>) • Scotch Thistle (<i>Onopordum acanthium</i>) Jerrys Plains: • Mother-of-Millions (<i>Byrophyllum delagoense</i>) – Noxious Weed Class 3. • African Boxthorn (<i>Lycium ferocissimum</i>) – Weed of National Significance (WONS). • Prickly Pear (<i>Opuntia stricta</i>), • Creeping Pear (<i>Opuntia humifusa</i>) • Tiger Pear (<i>Opuntia aurantiaca</i>) • Silver nightshade (<i>Solanum Elaeagnifolium</i>) • Fire weed (<i>Senecio madagascariensis</i>) • Scotch Thistle (<i>Onopordum acanthium</i>) • African Lovegrass (<i>Eragrostis curvula</i>) • Century Plant (<i>Agave americana</i>)	
---	--

Buffer Land Areas

Weed infestations vary across the buffer properties, with the highest densities generally occurring along riparian corridors, creek flats, and disturbed areas. The Hunter River Elbourn Buffer Land similarly has high densities of weeds with best treatment being herbicide treatment due to it being an active cropping paddock. No weed management is currently active in the Kelly Buffer Land.

Pest Management

United Wambo complete two pest control campaigns across all land management areas. Baiting programs were conducted in Autumn and Spring, along with non-routine pig trapping when the species was observed. Two nights of targeted shooting were completed at Brosi and Jerrys Plains Offsets in October and Highfields and Mangrove in August. Free-feeding rabbit stations were installed in July 2025 however no activity was recorded. Species targeted in vertebrate pest management activities included:

- Red Fox (*Vulpes vulpes*)
- Wild Dogs (*Canis familiaris*)
- Feral Pigs

6.5.3 Management Measures

Measures to Minimise Direct Impacts on Biodiversity

As per the approved **BioMP**, the management measures are described in **Table 6-22**.

Table 6-22 Biodiversity Management Measures

Action	2025 Measures
Minimise the impacts of the development on biodiversity	Suitably experienced personnel undertook pre-clearance surveys and tree-felling supervision for all clearing areas. Suitable biological resources, including topsoil and fallen trees, were salvaged from clearing areas prior to removal of vegetation. All vegetation is mulched and incorporated into the topsoil. Dog baiting and pig trapping was undertaken as per above.
Manage the remnant vegetation and fauna habitat at the site	Clear delineation of the clearing disturbance footprints to avoid accidental clearance beyond the areas approved for disturbance Weed and pest management as per above.
Employee Education and Training	All employees and contractors are provided with an awareness of biodiversity values of United Wambo and requirements of the BioMP in relation to site operations through the site induction process.

6.5.4 Improvements

There are no improvements noted for biodiversity management. Active management of the biodiversity offsets continued in 2025.

Where possible any improvements will be reviewed and actioned.

6.6 Heritage

6.6.1 EIS Predictions

6.6.1.1 Aboriginal Heritage

The United Wambo Open Cut Coal Mine Project EIS provided details of the survey undertaken for the cultural heritage assessment in 2015. The Aboriginal heritage surface survey recorded 25 new artefact scatters, 20 extensions to previously recorded sites and 34 isolated finds. This surface survey was followed by eight test excavations, with surprisingly sparse results. One hundred and ninety-two artefacts were recovered, with an average of 1.25 artefacts per excavation square, which is an extremely low density of artefacts.

6.6.1.2 European Heritage Sites

A detailed heritage impact statement was conducted in 2016 for the proposed United Wambo Joint Venture Project (Umwelt, 2016). In consultation with Enviro Strata (the Blasting Impact Assessment consultant), it was determined that items further than 2 kilometres from the Project Area would not be affected by blasts. As such, the search for this assessment was limited to a conservative distance of 3 kilometres. Three Listed Heritage items were identified as being within the vicinity of the Project (within 3 kilometres), but outside the Project Area. These are Wambo Homestead, St Philips Church Warkworth and the Former Queen Victoria Inn (ruins). A number of potential historical heritage sites/items with no statutory listing were identified during the Assessment. Two items of historic interest were present within the Project Area - the Dog- leg Fence and the former House Site and six within the vicinity of the Project Area, including - Springwood Homestead, Montrose Property, the former Warkworth Public School and the Piggery and Butcher's Hut.

6.6.2 Key Environmental Performance

6.6.2.1 Aboriginal Heritage

Existing and ongoing management measures

Figure 6-3 illustrates the current status of Aboriginal heritage sites in the United Wambo area. United Wambo will continue to ensure cultural heritage sites are not impacted through the implementation of the Ground Disturbance Permit process and due diligence practices onsite.

An annual RAPs meeting was held in December 2025 to communicate updates and changes to the operation.

Cultural Program Funding

No applications aligned with the criteria were received in 2025 for the Cultural Program Funding outlined in the ***Aboriginal Cultural Heritage Management Plan (ACHMP), Section 4.3***, United Wambo continued and will continue to seek projects within the community for potential support.



Figure 6-3 Aboriginal Heritage Sites

6.6.2.2 Historic Heritage Sites

Salvage of partial section of Dog Leg fence

During July 2025, sections of the 'Dog-Leg Fence' were disturbed and salvaged as detailed in the *Heritage Interpretation Strategy for the 'Dog-Leg Fence' (Umwelt, 2021) - Section 9.1 proposed methodology*. A summary of 2025 disturbance and salvage works associated with the Dog-Leg Fence are detailed in **Table 6-23** and images of the salvage program are provided in Figure 6-4. These materials/sections were chosen as they were assessed as having adequate structural integrity to enable the reinterpretation of >15m of fence.

Table 6-23 Summary of works associated with the Dog-Leg Fence disturbance and salvage in 2025

Section	Heritage Interpretation Strategy for the 'Dog-Leg Fence' comment (Umwelt, 2021)	Length disturbed in 2025 (m)	Salvage details
Section 1	"no timber elements remain in this section and only sandstone blocks are present"	~130	No salvage undertaken – only sandstone blocks present
Section 2	"Section 2 is currently in poor condition with widespread damage to the remnant timber features. The distinct dog-leg posts are still evident along portions of Section 2, however relatively few are intact" "For large portions of the fence alignment, the sandstone blocks represent the only remaining physical feature."	~350	6 x sandstone blocks 6 x "dog-legs" 2 x "rails"



Figure 6-4 Photos taken throughout the process of the dog-leg fence salvage, including the salvaged pieces, a section of the dog leg fence in-situ marked for salvage and the process for the salvage of 6 sandstone blocks.

Inspection of Former Warkworth Public School

During November 2025, a visual inspection was completed for the former Warkworth Public School, located at 100 High Road, Warkworth. The assessment of the former school found that the building remains in good condition and is considered stable. The dwelling does not appear to have experienced any impact from blasting, and there were no major defects observed. The continued monitoring of the paint blistering on the internal walls will be completed, and repairs to the external timber weather boards, timber window trims, box gutter, flashings and skylight will be considered.

Blasting assessment Wambo Homestead

During May 2025, a structural assessment and review of ground vibrations records for Wambo Homestead was conducted by a structural engineer. Mining operations are located further than 2 kilometres away and therefore no blasting was completed within 2 kilometres of the Homestead. Advice provided from the assessment confirmed that blasting carried out at United Wambo within the previous 12 months would not have any material impact.

6.6.3 Management Measures

United Wambo will continue to monitor Aboriginal heritage sites in accordance with the **ACHMP**, as required by condition B79 of **SSD 7142**. For management measures and salvage methods refer to **Table 4-1** and **Section 4.3** of the **ACHMP** respectively.

United Wambo will continue to manage all European heritage items in accordance with **the United Wambo Historical Heritage Management Plan (HHMP)**, which is required by condition B82 of **SSD 7142**. For mitigation and management measures refer to **Table 4-1** and **Section 4.3** of the **HHMP**.

6.6.4 Improvements

6.6.4.1 Current reporting period

There were no significant improvements made to Cultural or Historic Heritage in 2025.

6.6.4.2 Next reporting period

United Wambo JV propose to continue to actively seek appropriate cultural programs for funding and development in the community.

6.7 Waste Management

Waste management practices at United Wambo are based on the waste management hierarchy of reduce, reuse, recycle and as a last resort, dispose.

The overall aim of the waste management system at United Wambo is to minimise waste being disposed from the site, but also to maximise resource use where possible. Waste is managed, tracked if necessary and records kept for reporting purposes.

6.7.1 General Waste and Recycling

Paper, cardboard and scrap steel are all recycled. United Wambo currently has a total waste management system which includes training, segregation, disposal and reporting.

6.7.2 Sewage Treatment and Disposal

United Wambo currently have a certified sewerage treatment system which services the main pit top facilities including the administration area, stores, and bathhouse. The sewage system is serviced on a regular basis by licensed contractors. Sewerage from temporary buildings, is pumped out by a licenced waste contractor and managed offsite in accordance with council and legislative requirements – **SSD 142 (Condition. B91(c))**.

6.7.3 Hydrocarbon Management

In 2025, United Wambo continued to remove and manage unwanted materials produced by undertakings onsite. All maintenance areas and refuelling bays have appropriate spill response equipment placed in accessible locations. Employees have been trained, and will continue to be trained, in the correct maintenance and use of spill-response equipment.

6.7.4 Summary of Waste Performance in 2025

United Wambo tracks all waste generated by mining activities. In 2025, the operation generated 2,678,784 kg of waste requiring removal from site. This total included 329,423 kg of waste disposed of offsite, with the remainder directed to recycling. Total offsite disposal decreased by 4.6% compared to the previous reporting period, primarily due to reduction in mixed solid waste, hydraulic hoses and oily rags/absorbents. Recycling increased by 8.9% over the same period, largely driven by the higher volumes of ferrous scrap associated with the North MIA demolition works. A summary of total waste generation from the project is provided in **Table 6-24** Table 6-24 Waste Type and quantity and variance.

North MIA demolition alone accounted for 201,000 kg of ferrous scrap, 1640kg of asbestos, 1000 kg of tyre and 107,000 kg of mixed solid waste during this reporting period out of the total waste generated on site. Asbestos and mixed solid waste were disposed, and ferrous scrap was recycled offsite.

Table 6-24 Waste Type and quantity and variance

Waste Type	2025 (kg)	Variance %	Comment
Total Recycled Hazardous	1,115,189	-3.1%	All hazardous recycled came from operational activities. The decrease in waste came from less: waste oil, oily water, nicad batteries, oil filters and empty drums.
Total Recycled Non-Hazardous	1,234,172	22.7%	Non-hazardous recycled waste was generated from both operational activities and the NMIA demolition (specifically scrap steel). The increase in waste was due to the additional waste generated from North MIA demolition and increase in effluent generated on site.
Total Disposed Hazardous	24,273	-32%	Hazardous disposed waste was generated by both operational activities and NMIA demolition. The main reduction was from oily rags/absorbents and hydraulic hoses.
Total Disposed Non-Hazardous	305,150	-1.4%	Non-hazardous disposed waste was generated by both operational activities and NMIA demolition. There was a 7% reduction in general waste, while treated timber waste increased during this period resulting in a net reduction of 1.4%
Total Offsite Waste (kg)	2,678,784	7.1%	Total waste managed offsite increased by 7.1%, largely driven by the increase in scrap steel recycled from the North MIA demolition.
Total Offsite Waste Disposed (kg)	329,423	-4.6%	Reduction in mixed solid waste, hydraulic hoses and oily rags/ absorbents contributed to the reduction
Total Offsite Waste Recycling (kg)	2,349,361	8.9%	Offsite recycling increased as result of increase in ferrous scrap from the North MIA demolition.

A detailed breakdown of offsite waste disposal is contained within **Appendix D -Waste Performance**.

United Wambo will continue to investigate measures to reduce the volume of waste produced across site. **Section 6.7.6** outlines improvements which United Wambo plan to implement in 2026.



Figure 6-5 North MIA demolition in progress. Ferrous waste separated from others to be sent for offsite recycling.



Figure 6-6 North MIA demolished and waste being prepared for disposal/recycling.

6.7.5 Management Measures

United Wambo undertook waste management in accordance with waste criteria under conditions B91 and B92 of **SSD 7142** during 2025.

Management measures included:

- Weekly removal of general waste, including scrap by a licenced contractor.
- Weekly and monthly inspections are undertaken to monitor the implementation of the **Waste Management Plan (WasMP)**.
- Additional training of relevant personnel highlighting any waste management issues.
- Assessment and appropriate management of specific wastes such as contaminated wastes.
- The weekly and monthly inspections showing general site compliance indicates the current waste management measures applied at United Wambo are effective.

6.7.6 Improvements

6.7.6.1 Current reporting period

A plan for site waste management was developed in 2022, with waste removal continuing throughout 2025 and will continue through operations including the implementation of further improvements such as additional waste bins for waste segregation and awareness training of operational staff in waste segregation requirements. A desktop study was completed during this reporting period to map legacy heavy plant tyres on site.

6.7.6.2 Next reporting period

As United Wambo continues operations, the legacy waste associated with past operations will be identified and targeted for onsite or offsite disposal as feasible. This project will focus on the management of heavy plant tyres which have been placed in laydown areas across site, then all redundant equipment will be assessed for sale or removal.

United Wambo will continue to implement the current management measures to ensure effectiveness of the waste management system. This includes, but is not limited to:

- Providing waste management training to site personnel.
- Reviewing site waste management and looking for options to reduce waste and increase recycling opportunities.

6.8 Visual and Lighting

6.8.1 Environmental Management

Control strategies are implemented to reduce potential visual and light related impacts associated with mining operations. Management is undertaken in accordance with the **United Wambo Lighting Management Procedure**.

Visual and lighting impacts are assessed through monitoring and inspection regimes. Onsite monitoring includes assessments of lighting impacts, compliance with development consent conditions and the angle at which light is emitted from lamps and luminaries, glare, spill and sky glow.

6.8.2 Environmental Performance

Potential lighting impacts are assessed as part of the overburden dump design process. Dumps are orientated, where practicable, and windrows or bunds are designed and constructed to mitigate lighting impacts.

A sensitive lighting receiver map is updated and communicated to mining personnel prior to commencing exposed dumps that have the potential to cause lighting impacts offsite.

6.8.3 Improvements

6.8.3.1 Current Reporting Period

During 2025 there was continued focus on dump designs, utilising daytime and night-time dumps where practicable, precise lighting plant placement in exposed areas and offsite monitoring to confirm the direction of the lighting plant is not obtrusive to the community. In-pit dumping increased during this reporting period, resulting in reduced lighting requirement.

6.8.3.2 Next Reporting Period

United Wambo will continue to utilise the current strategies as detailed above.

7. Water Management

7.1 Water Take and Licencing

Condition B40 of United Wambo's Development Consent (**SSD 7142**) requires water extracted from the site each year, both directly and indirectly, is reported in the Annual Review.

As described in the **United Wambo Water Management Plan (WMP)**, water sharing occurs between United Wambo and Wambo Underground, as part of the "Wambo Complex Water Management System". This system facilitates sharing of licences for the complex.

Table 7-1 shows the predicted annual groundwater volumes required to be licensed for the Wambo Complex (Wambo Underground and United Wambo Open Cut). These values are from the groundwater model which incorporate as mined and proposed future UWOC mining.

Table 7-1- Groundwater Licencing Summary for United Wambo OC and Wambo

Water Source	Licensed Entitlement (ML/year)	Predicted Maximum Water Take (ML/year) ¹²	Predicted Take for 2025 (ML) ²
Hunter Regulated WSP	2,414	0	0
Hunter Unregulated and Alluvial Water Source	736.9 ³	Av. 135 Max. 209	48 ⁵
North Coast Fractured and Porous Rock Groundwater Sources	1,947 ⁴	Av. 714 Max. 1,110	572

¹Includes inflows to existing and historical workings at United and Wambo.

²Based on predictions from the SLR (2022) model

³Licence No. WAL23897, WAL18437, WAL18455, WAL18549.

⁴Licence No. WAL42373, WAL41532, WAL41510.

⁵It is noted that predicted take from the Lower Wollombi Brook Water Source in the updated model does not exceed 70 ML (provided in WAL23897) until after 2028.

It is noted that United Wambo is currently responding to comments from the DCCEEW Water Group regarding water licencing. Any changes to the presentation of predicted annual water volumes requiring licencing will be reflected in an updated **GWMP** and next year's Annual Review.

Table 7-2 outlines the water take across the complex (i.e. United Wambo Open Cut and Wambo Underground) against all relevant licences, in accordance with the requirement of the **Annual Review Guideline (DPE 2015)**.

Table 7-2- Water Take against Water Licences for United OC and Wambo UG

Licence Number ¹	WAL Reference Number	Description	Nominated Water Supply Work Approval	Works Approval Expiry Date	Purpose	License Holder	Entitlement (Units)	Passive Take / Inflows (ML)	Active Take / Pumping (ML)	Total
Hunter Regulated River Water Source										
WAL 718	20AL200631	Hunter River Pump	20WA200632	30/06/2027	E Industrial	Wambo Coal Pty Ltd	1000	0	572 ⁴	572
WAL 8599	20AL201457	Hunter River Pump	20CA201459	25/09/2028	I Irrigation K Farming	Wambo Coal Pty Ltd	6	0	0	0
WAL 8600	20AL201458	Hunter River Pump	20CA201459	25/09/2028		Wambo Coal Pty Ltd	868	0	0	0
WAL 8604	20AL203044	TBC (extraction via Hunter River Pump)	-	-		Wambo Coal Pty Ltd	240	0	0	0
WAL 10541	20AL200927	Hunter River Pump	20WA200928	30/06/2027	Industrial	Maher Anthony John & Kelly Grahame Patrick	300	0	0	0
Hunter Unregulated and Alluvial Water Sources (Lower Wollombi Brook Water Source)										
WAL 23897	20AL211371	Well No. 2	20WA211372	31/07/2032	Industrial	Wambo Coal Pty Ltd	70	0	0	0
WAL 18437	20AL208641	Wollombi Brook Pump	20WA208642	31/07/2032	E Industrial	Wambo Coal Pty Ltd	366.9	0	0	0
WAL 18445	20AL208713	Bywash Dam	20WA208714	13/03/2033	Industrial	Maher Anthony John & Kelly Grahame Patrick	200	0	0	0
WAL 18549	20AL208705	Other Pump	20WA208706	18/11/2032	Industrial	Maher Anthony John & Kelly Grahame Patrick	100		0	
North Coast Fractured and Porous Rock Groundwater Sources (Sydney Basin - North Coast Groundwater Source)										
WAL 42373²	20AL219997	-	20MW065010	-	H Mining	Wambo Coal Pty Ltd	1549	636 ³	0	636
WAL 41532	20AL218994	Dewatering	20MW065010	-	H Mining	Wambo Coal Pty Ltd	98	0	0	0
WAL 41510	20AL217075	Dewatering	20MW065011	-	H Mining	United Collieries Pty Ltd	300	0	0	0

¹All water licences (WALs) are in perpetuity, i.e. no expiry date.

² WAL 42373 was issued in 2019 to consolidate six of WCPL's previous WALs under the North Coast Fractured and Porous Rock groundwater Sources (Sydney Basin – North Coast Groundwater Source) including WAL 39735, WAL 39738, WAL 39803, WAL 41494, WAL 41528 and WAL 41520.

³ Value derived from the Wambo Complex Numerical Groundwater Model (SLR 2022), Complex modelled groundwater inflow for 2025

⁴ Extraction at Hunter River pump against WAL 718 for 2025

⁶ WAL18445 is inactive as of 23/02/2026

7.2 Surface Water

7.2.1 Key Environmental Performance

United Wambo implements surface water monitoring in accordance with the **WMP** and the **United Wambo Surface Water Management Plan (SWMP)**.

7.2.1.1 Annual Surface Water Speciation Results

Annual surface water speciation results for 2025 are presented in **Table 7-3**. The annual sampling was scheduled for December on a calendar year, to capture seasonal consistency in the dataset. During the sampling round, only WB03 and WB04 contained water and were sampled. All other sites were dry due to the ephemeral nature of the watercourses.

There were no exceedances of ANZECCC criteria for the 2025 annual speciation monitoring. Most metals and nutrients were at very low levels.

The last time NWC03 had running water for sampling was April 2024. RC01 is generally dry however it was able to be sampled five times during 2025.

Table 7-3 Annual Speciation Results

Site ID	ANZECCC Criteria (mg/L)	WB03	WB04	NWC03	RC01	WFC01
Date sampled	-	1/12/2025	1/12/2025	No sample available for testing ¹	No sample available for testing ¹	No sample available for testing ¹
Aluminium (Al)	0.055	0.05	0.05			
Arsenic (As)	0.024	<0.001	<0.001			
Cobalt (Co)	N/A	<0.001	<0.001			
Copper (Cu)	0.0014	0.001	<0.001			
Iron (Fe)	N/A	0.58	0.62			
Manganese (Mn)	1.9	0.418	0.341			
Nickel (Ni)	0.011	<0.001	<0.001			
Selenium (Se)	0.011	<0.010	<0.010			
Zinc (Zn)	0.008	<0.005	<0.005			
Mercury (Hg)	0.0006	<0.0001	<0.001			
Lead (Pb)	0.0034	<0.001	<0.001			
Potassium (K)	N/A	5	5			
Silver (Ag)	0.00005	<0.001	<0.001			
Fluoride (F)	N/A	0.2	0.1			
Boron (B)	0.37	<0.05	<0.05			
Calcium (Ca)	N/A	14	15			
Barium (Ba)	N/A	0.05	0.049			
Magnesium (Mg)	N/A	16	17			

Site ID	ANZECC Criteria (mg/L)	WB03	WB04	NWC03	RC01	WFC01
Cadmium (Cd)	0.0002	14	15			
Sodium (Na)	N/A	104	105			
Total phosphorous (P)	N/A	<0.01	<0.01			
Nitrite	N/A	<0.01	<0.01			
Nitrate	N/A	<0.01	0.01			
Total Kjeldahl Nitrogen (TKN)	N/A	0.3	0.3			
Total nitrogen (Total N)	N/A	0.3	0.3			
Ions - Chloride (Cl)	N/A	178	179			
Bicarbonate (CaCO ₃)	N/A	91	92			
Sulphate (SO ₄)	N/A	10	9			

¹ No sample available for testing due to ephemeral nature at time of sampling. Sample will be taken at next opportunity when water is available.

7.2.1.2 Routine Surface Water Monitoring Results

Table 7-4 summarises the water monitoring results at on-site water storages and creeks for the reporting period. The on-site locations do not have quality criteria but are used to support overall understanding and modelling of water migration on site.

It is noted that sites W09, W10, W11 are all Wambo-managed storages that were included in Version 6 of the **United Wambo SWMP**. These Wambo-managed storages were removed from Version 7 of the **SWMP**, which was approved by DPHI on 23 December 2025. Water quality data for Wambo-managed storage dams is presented and discussed in the Annual Review for the Wambo Mine.

Table 7-5 summarises the water monitoring results at offsite locations, compared to criteria in the **United Wambo SWMP**.

Table 7-4 Summary of surface water monitoring results for 2025

Sample site	Sample Description	2025 Count	Lab pH (pH unit)			Lab EC (µg/cm)			Lab TSS (mg/L)			Lab TDS (mg/L)		
			Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max
W03	United UG Boxcut	9	8.54	8.69	8.88	1280	1741	1960	<5	56.56	269	953	1091.44	1170
W07	Dam 14	11	6.82	7.77	9.34	152	320.64	546	<5	25.45	74	119	231.73	392
W12	Homestead Pit	10	8.46	8.66	8.99	3020	4727	5990	<5	12.90	60	1880	2979	3760
W13	West Cut Dam	12	8.26	8.78	9.03	1700	4629.17	6390	<5	27.25	79	1140	3060.83	4210
W14	Montrose Pit Inflows	12	8.58	8.81	9.06	1100	2650.83	4330	<5	22.67	69	824	1727.83	2830
W15	Dam 7	12	7.28	8.24	9.5	183	476.83	746	<5	7.08	27	194	344.58	497
W16	Dam 15	9	6.92	7.51	7.95	103	234.22	375	<5	31.30	227	119	197.44	280
W18	U2	12	8.78	9.11	9.33	2110	3960	6030	<5	51.33	169	1520	2655	4240
W19	U3	12	8.91	9.11	9.35	2290	4240	6370	9	114.42	428	1480	2808.33	3960
W20	Montrose ME1 Sed Dam	6	7.48	7.74	8.47	328	448.17	615	<5	7.33	15	287	368	494
W21	Montrose ME2 Sed Dam	6	7.48	7.96	8.68	247	477.17	846	<5	38.17	99	268	380	576
W23	Plover Dam	7	8.79	8.91	9.07	452	1822.57	3410	7	2016.57	8670	1140	3084.29	8090
W24	MIA Sediment Dam	10	8.5	8.84	9.05	462	958.70	1470	24	242.60	682	578	930.90	1420
W25^	United Pit	0	-	-	-	-	-	-	-	-	-	-	-	-
W26	Turkeys Nest Dam	12	8.5	8.80	9.14	899	2152	4200	87	719.92	2780	986	1696.33	2600
RC01	Redbank Creek - Downstream	5	6.99	7.55	7.84	190	351.20	397	<5	11.20	36	286	315.40	358
WB01	Wollombi Brook - Upstream	9	6.94	7.27	7.6	177	515.44	835	5	18.71	49	149	294.5	452

Sample site	Sample Description	2025 Count	Lab pH (pH unit)			Lab EC (µg/cm)			Lab TSS (mg/L)			Lab TDS (mg/L)		
			Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max
WB02	Wollombi Brook - Pumps	12	6.77	7.42	8.04	244	630.33	1790	15	6.97	18	180	364.92	974
WB03	Wollombi Brook - Warkworth	12	6.82	7.49	8.06	285	576.50	852	<5	5.08	6	191	324.58	464
WB04	Wollombi Brook - Downstream	12	6.87	7.57	8.08	290	591.58	906	<5	5.67	12	198	331.75	486
WFC01	Waterfall Creek	2	7.02	7.14	7.26	114	156	198	60	121	182	379	401.50	424
NWC01	North Wambo Creek - Upstream	1	-	6.99	-	-	240	-	-	<5	-	-	-	-
NWC02	North Wambo Creek - Midstream	2	7.45	7.485	7.52	300	320.5	341	43	84	125	350	384	418
NWC03	North Wambo Creek - Downstream	2	6.79	6.87	6.94	124	149.5	175	47	105	163	-	-	-

Note: W02, W22 and W25 have been mined through and are unable to be monitored. W09, W10, WB01, NWC01, NWC02 and NWC03 are monitored and reported by Wambo.

**Where TSS were undetectable (<5.00 mg/L), a value of 2.5 mg/L was used to calculate the average

^W25 was included as a sampling location in Version 6 of the **SWMP**, although this site was mined through and was not available for sampling during the reporting period. W25 was removed from Version 7 of the **SWMP**.

Table 7-5 Surface water monitoring results compared to site criteria

Site	Date	pH Criteria		Field pH	EC Criteria ($\mu\text{S}/\text{cm}$)	EC ($\mu\text{S}/\text{cm}$)	TSS Criteria (mg/L)		TSS (mg/L)	TDS Criteria (mg/L)	TDS (mg/L)	Comment
		Low	High				Low	High				
NWC01^	8/04/25	-	-	7.2	-	240	-	-	<5	-	-	-
	All other months in 2025	-	-	-	-	-	-	-	-	-	-	Dry, no flow.
NWC02^	8/04/25	-	-	6.7	-	341	-	-	43	-	418	
	9/10/25	-	-	7.5	-	300	-	-	125	-	350	
	All other months in 2025	-	-	-	-	-	-	-	-	-	-	No Flow Detected, Site was Dry.
NWC03	All other months 2025	7.30	8	-	2350	-	53	1110	-	1270	-	Site was dry / stagnant pool / too low to sample during every monthly sampling event and ad hoc post rainfall checks.
RC01	07/04/25	7.90	8.3	7.8	8456	397	26	NC	<5.0	NC	286	-
	08/05/25			6.99					<5.0		334	-
	26/06/25			7.84					<5.0		308	-
	25/07/25			7.55					<5.0		358	-
	10/09/25			7.58					36		291	-
	All other months in 2025			-					-		-	Site was dry / stagnant pool / too low to sample during every monthly sampling event and adhoc post rainfall checks.

Site	Date	pH Criteria		Field pH	EC Criteria ($\mu\text{S/cm}$)	EC ($\mu\text{S/cm}$)	TSS Criteria (mg/L)		TSS (mg/L)	TDS Criteria (mg/L)	TDS (mg/L)	Comment
		Low	High				Low	High				
WB01^	25/02/25	-	-	7.1	-	835	-	-	7	-	434	New sample location
	24/03/25	-	-	7.5	-	791	-	-	<5	-	452	
	31/03/25	-	-	7.1	-	640	-	-	12	-	305	
	20/05/25	-	-	7.6	-	399	-	-	<5	-	230	
	30/06/25	-	-	7	-	514	-	-	8	-	288	
	29/07/25	-	-	7.4	-	509	-	-	5	-	304	
	04/08/25	-	-	6.6	-	203	-	-	49	-	194	
	10/09/25	-	-	7	-	177	-	-	38	-	149	
	26/11/25	-	-	7.2	-	604	-	-	12	-	-	
	All other months in 2025	-	-	-	-	-	-	-	-	-	-	No Flow
WB03	14/01/25	7.4	8.1	7.56	1974	852	17	308	6	NC	464	-
	12/02/25			7.5		765			<5.0		416	-
	10/03/25			7.52		631			<5.0		342	-
	07/04/25			7.8		650			<5.0		340	-
	08/05/25			6.82		285			<5.0		191	-
	26/06/25			7.5		472			<5.0		292	-
	25/07/25			7.31		507			<5.0		314	-

Site	Date	pH Criteria		Field pH	EC Criteria ($\mu S/cm$)	EC ($\mu S/cm$)	TSS Criteria (mg/L)		TSS (mg/L)	TDS Criteria (mg/L)	TDS (mg/L)	Comment
		Low	High				Low	High				
	13/08/25			7.52		397			<5.0		266	-
	10/09/25			7.27		391			<5.0		250	-
	30/10/25			7.48		591			<5.0		314	-
	21/11/25			7.56		692			<5.0		358	-
	01/12/25			8.06		685			<5.0		348	-
WB04	14/01/25	6.50	8.5	8.04	2200	906	50	NC	12	NC	486	-
	12/02/25			7.58		780			<5.0		425	-
	10/03/25			7.55		681			<5.0		384	-
	07/04/25			7.86		731			<5.0		370	-
	08/05/25			6.87		290			<5.0		198	-
	26/06/25			7.53		467			<5.0		288	-
	25/07/25			7.34		503			<5.0		324	-
	13/08/25			7.54		393			<5.0		246	-
	10/09/25			7.29		385			<5.0		238	-
	30/10/25			7.53		584			<5.0		316	-
	21/11/25			7.68		685			6		356	-
	01/12/25			8.08		694			<5.0		350	-

Site	Date	pH Criteria		Field pH	EC Criteria ($\mu\text{S}/\text{cm}$)	EC ($\mu\text{S}/\text{cm}$)	TSS Criteria (mg/L)		TSS (mg/L)	TDS Criteria (mg/L)	TDS (mg/L)	Comment
		Low	High				Low	High				
WFC01	12/08/25	7.30	7.9	7.02	435	198	582	1922	60	646	424	-
	10/09/25			7.26		114			182		379	-
	All other months in 2025			-		-			-		-	Site was dry /stagnant pool/too low to sample during every monthly sampling event and ad hoc post rainfall checks.

NC No Criteria in **SWMP**

^ Wambo sample this site. Removed from UWJV **SWMP** in Version 7 (approved 23 December 2025)

The long term annual average rainfall for Singleton is 654.2 mm. The total rainfall measured at the United Wambo meteorologic station during the reporting period was 829.2 mm.

Wollombi Brook is a major tributary which sustained flow throughout the reporting period (WB02, WB03 and WB04). Samples were successfully collected for each month of required monitoring.

Redbank Creek (RC01) and Waterfall Creek (WFC01) are all ephemeral creeks, which is reflected in the number of samples taken during the reporting period.

Five surface water sites at United Wambo have quality criteria: NWC03, RC01, WFC01, WB03 and WB04. Comparison of results against criteria are shown in **Table 7-5**. As per the **SWMP**, results exceeding the criteria for three consecutive monitoring rounds require detailed investigation to establish if the cause and whether the mine is causing adverse impacts.

RC01 was affected by dry conditions, with only five samples collected in May – July, and September 2025. There were no exceedances triggered for electrical conductivity, total suspended solids, or total dissolved solids. The results for pH in April (6.99), May (7.84), June (7.55) and July (7.58) were below the Redbank Creek historic range and trigger values (7.9 – 8.3). United Wambo will review the pH trigger for RC01 during the next reporting period, as the pH results are consistently below the lower trigger at this location when samples are able to be collected and analysed.

Long-term trends are discussed in **Section 7.2.2**; the catchment has changed significantly since the commencement of mining in United Pit and results for other water quality parameters have also changed. The results did not drop below neutral and are indicative of rainwater quality parameters, which are typically more acidic than the creek's historic values.

Based on surface water quality monitoring data and site observations during various routine inspections throughout the reporting period, there were no indications of offsite impacts to surface waters at United Wambo caused by open cut mining activities.

7.2.1.3 Watercourse Stability Monitoring

Watercourse stability monitoring was completed during the reporting period at Wollombi Brook, Redbank Creek and Waterfall Creek to identify changes in the upstream/downstream conditions. The findings were:

- Banks were stable and highly vegetated at all monitoring locations.
- Wollombi Brook site W27 (upstream) had an increased abundance of vegetation from the previous year, and water flow was slow and clear. W28 (downstream 1) and W29 (downstream 2) had low water levels with no flow, like previous year. Evidence of flooding in previous years was still apparent including debris.
- Redbank creek sites (W30, W31) and Waterfall Creek (W32, W33) were all dry at the time of inspection with similar observations to 2024.

7.2.2 Long Term Trends

United Wambo has long term data from several surface water monitoring locations since 2004. Water quality parameters include pH, electrical conductivity (EC), Total Suspended Solids (TSS) and Total Dissolved Solids (TDS). Two sample sites do not have a specific trigger criteria including WB01 and WB02, and therefore the ANZECC criteria will be used.

Overall, water quality results during the 2025 reporting period were consistent with historical trends, except for those sites with variable flow.

Total suspended solids (TSS) at the long-term monitoring sites vary throughout the historic sampling period. More recent peaks in the datasets correspond to flooding conditions across Hunter River catchments in 2021 – 2022. TSS levels are expected to remain low (typically less than 50 mg/L).

Surface water monitoring results for pH remained within the typical long-term trends during the reporting period at most sites, except for a decrease in pH at RC01.

Electrical conductivity (EC) has remained generally stable over the last 20 years at monitoring sites, with most experiencing minor increasing trends. Surface water monitoring results for electrical conductivity remained within the typical long-term trends for the 2025 reporting period.

7.2.2.1 RC01

RC01 results were consistently received through to 2017, after which the site has had limited flow (due to the mine development). With the installation of the clean water drain, more water can travel through to RC01 in high rainfall events.

With limited data availability, it can be interpreted that the water quality parameters have decreasing trends. TSS and EC remain under baseline trigger values, while pH has results lower than baseline values, but closer to a neutral pH.

No TDS graph has been included due to a limited number of recorded results.

Long term trends for TSS, pH and EC are presented in the figures below.

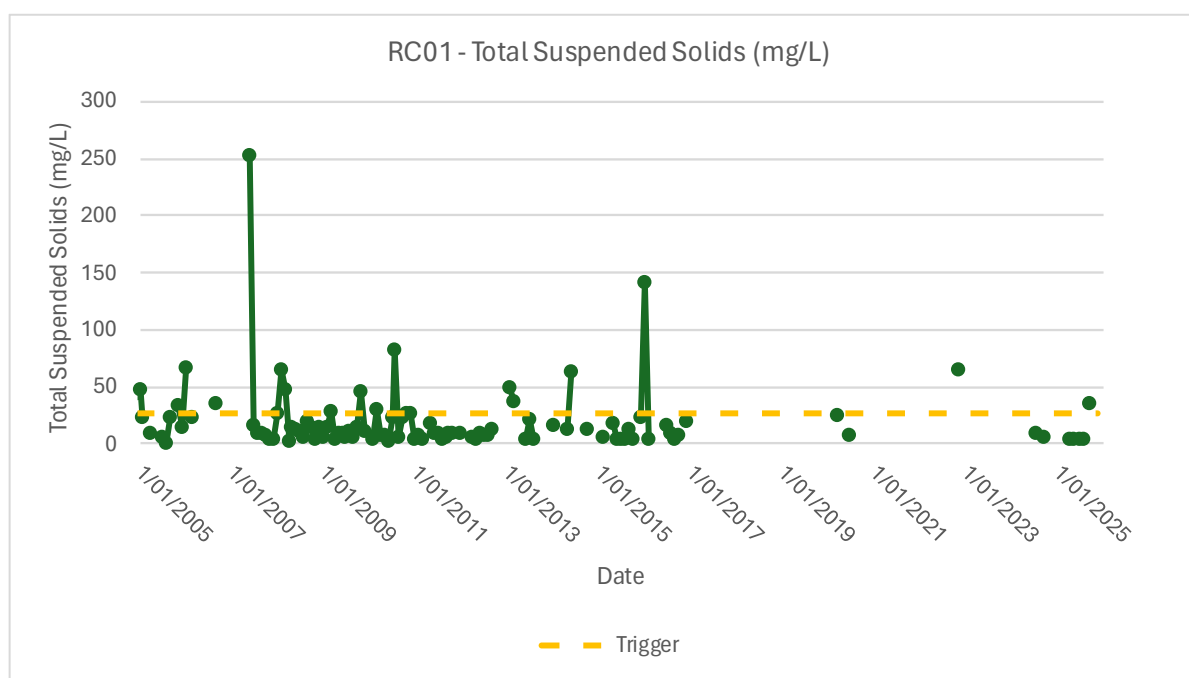


Figure 7-1: RC01 Long-term Surface Water Quality Trends for TSS at United Wambo

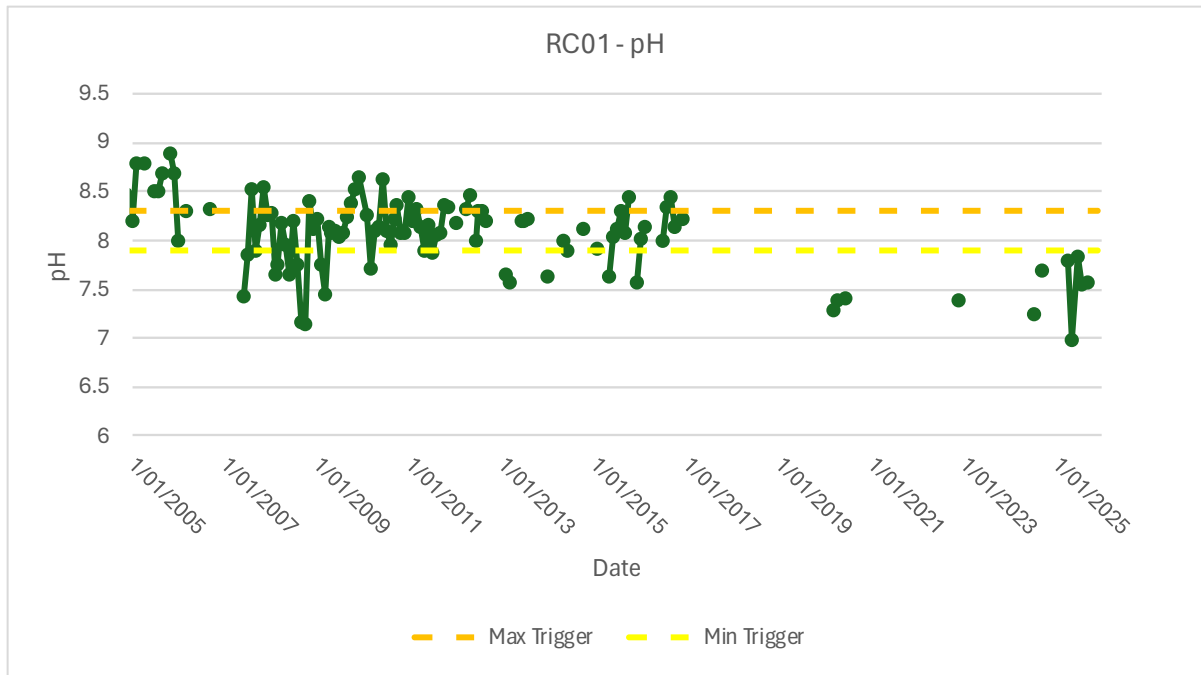


Figure 7-2: RC01 Long-term Surface Water Quality Trends for pH at United Wambo

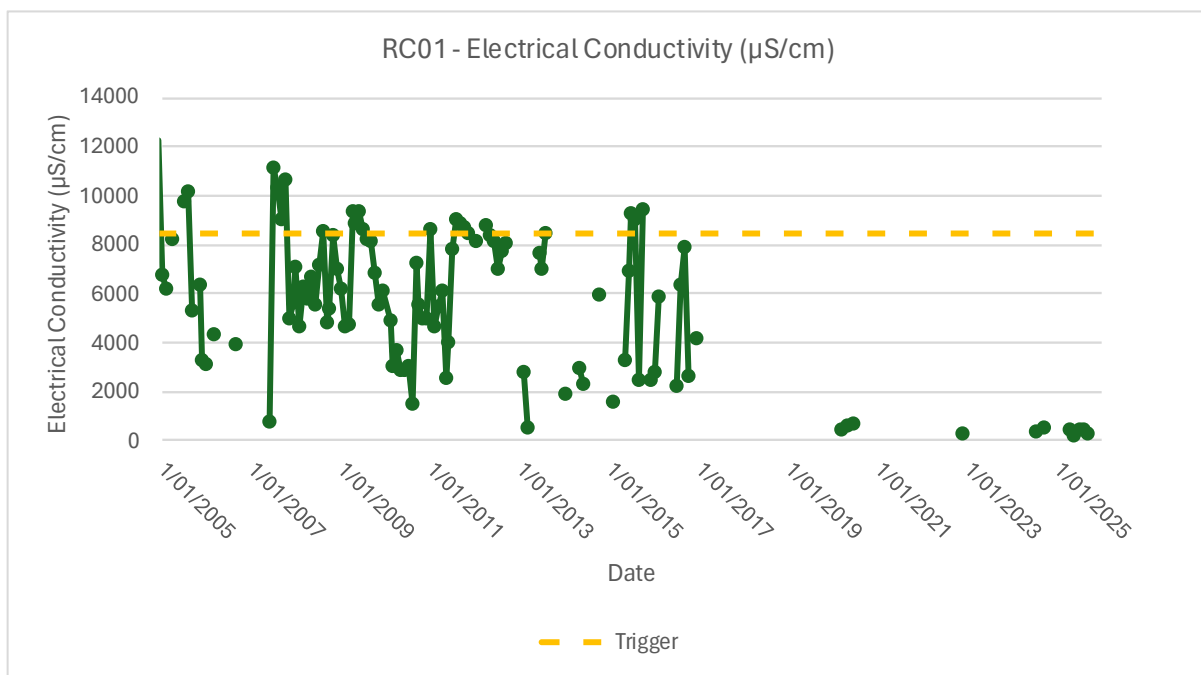


Figure 7-3: RC01 Long-Term Surface Water Quality Trends for EC at United Wambo

7.2.2.2 WB01

Limited data is available for WB01 prior to 2019. The long-term trend graphs therefore start from 2019. There are no baseline trigger criteria for WB01.

WB01 water quality parameters remain relatively stable throughout the long-term period. TSS results were higher through 2021 to 2023. This can be attributed to the flooding conditions over this period. All parameters show a slight increasing trend. Long term trends for TSS, pH and EC are presented in the figures below. It is noted that Wambo monitor WB01 and that this site has been removed from Version 7 of the UWJV **SWMP**.

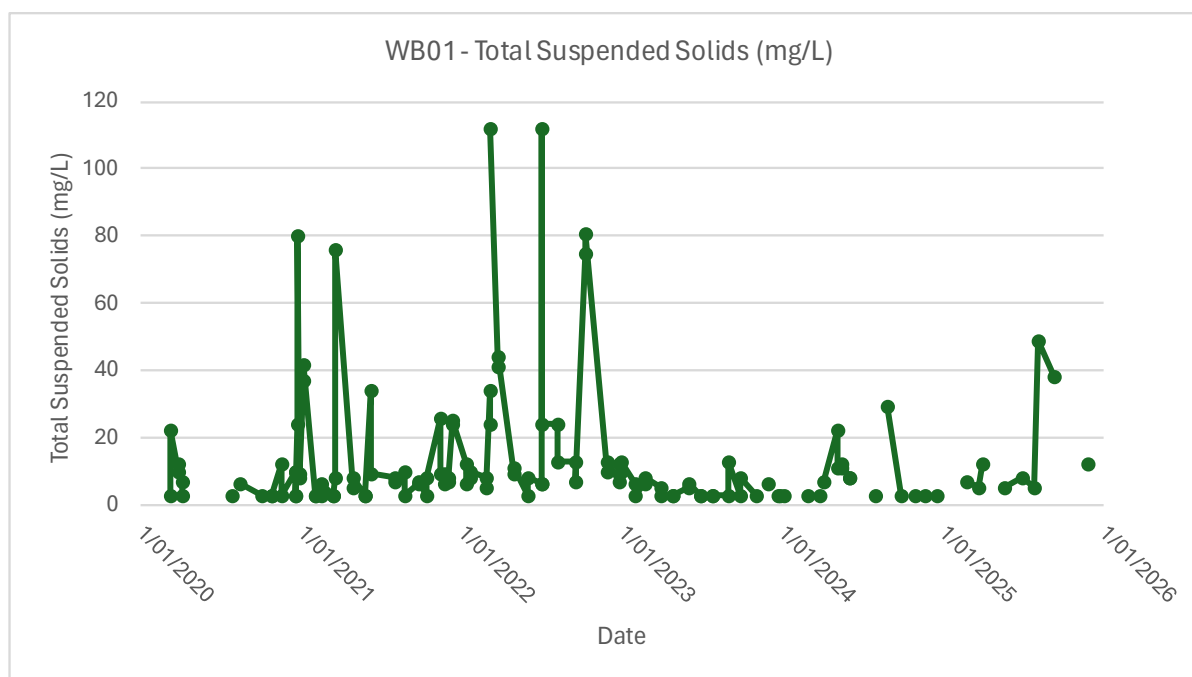


Figure 7-4: WB01 Long-Term Surface Water Quality Trends for TSS at United Wambo

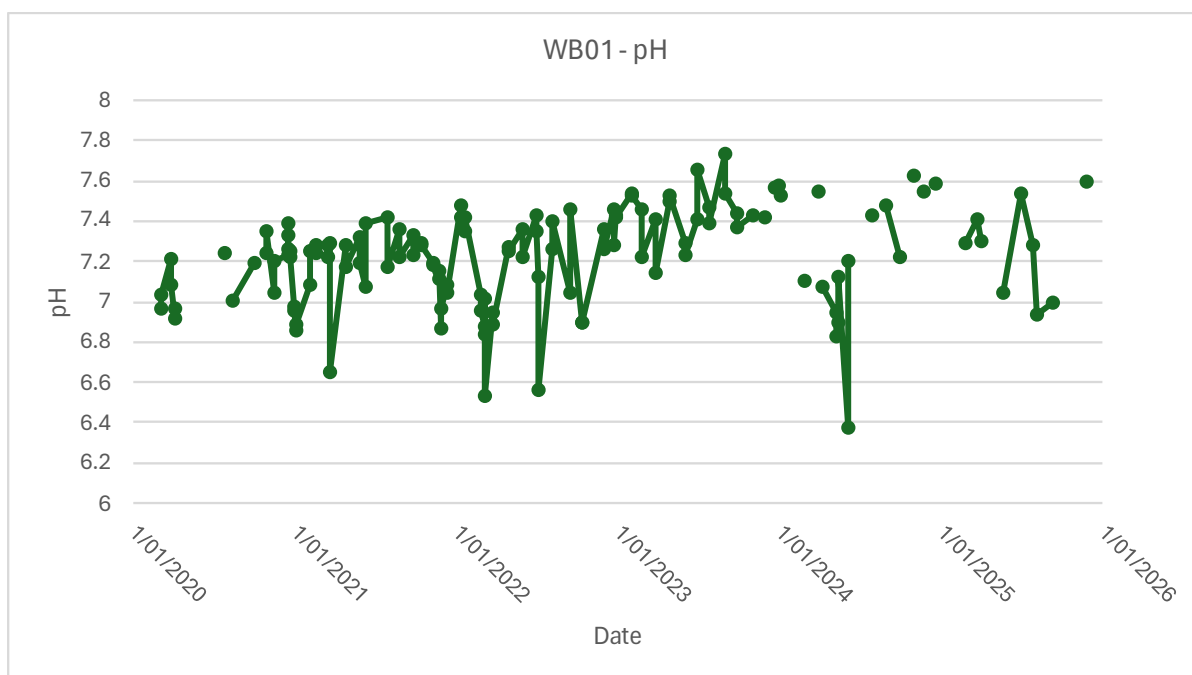


Figure 7-5: WB01 Long-Term Surface Water Quality Trends for pH at United Wambo

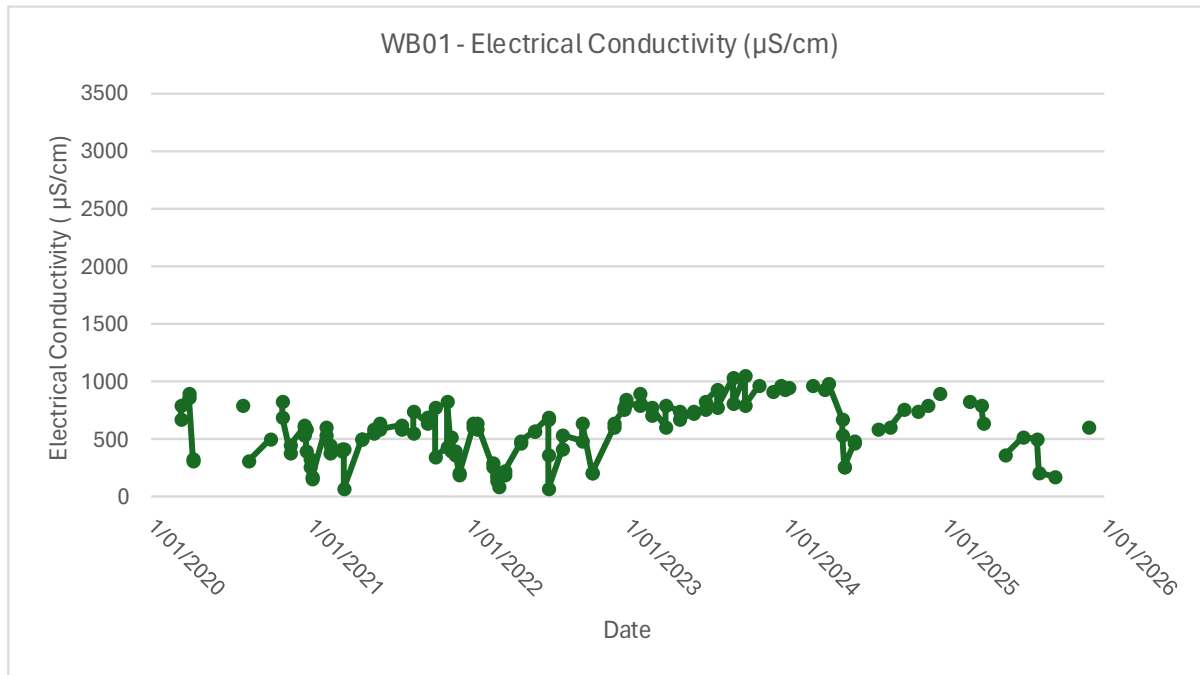


Figure 7-6: WB01 Long-Term Surface Water Quality Trends for EC at United Wambo

7.2.2.3 WB02

WB02 on Wollombi Brook is upstream of United Wambo, with a catchment area dominated by agricultural uses and bushland.

No baseline trigger criteria have been set for WB02.

Throughout the long-term data period, results have fluctuated more than other sites, especially for EC and TSS. Overall, though, the site remains consistent over the period, with normal or decreasing trends.

Long term trends for TSS, pH, EC and TDS are presented in the figures below.

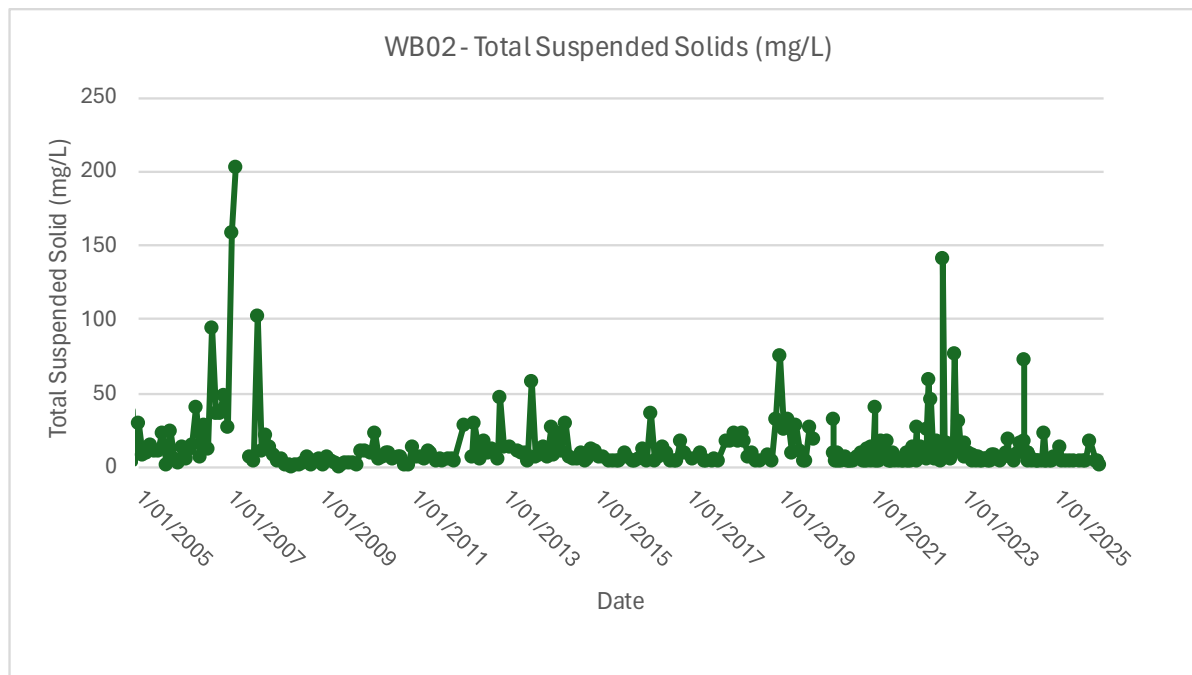


Figure 7-7: WB02 Long-Term Surface Water Quality Trends for TSS at United Wambo

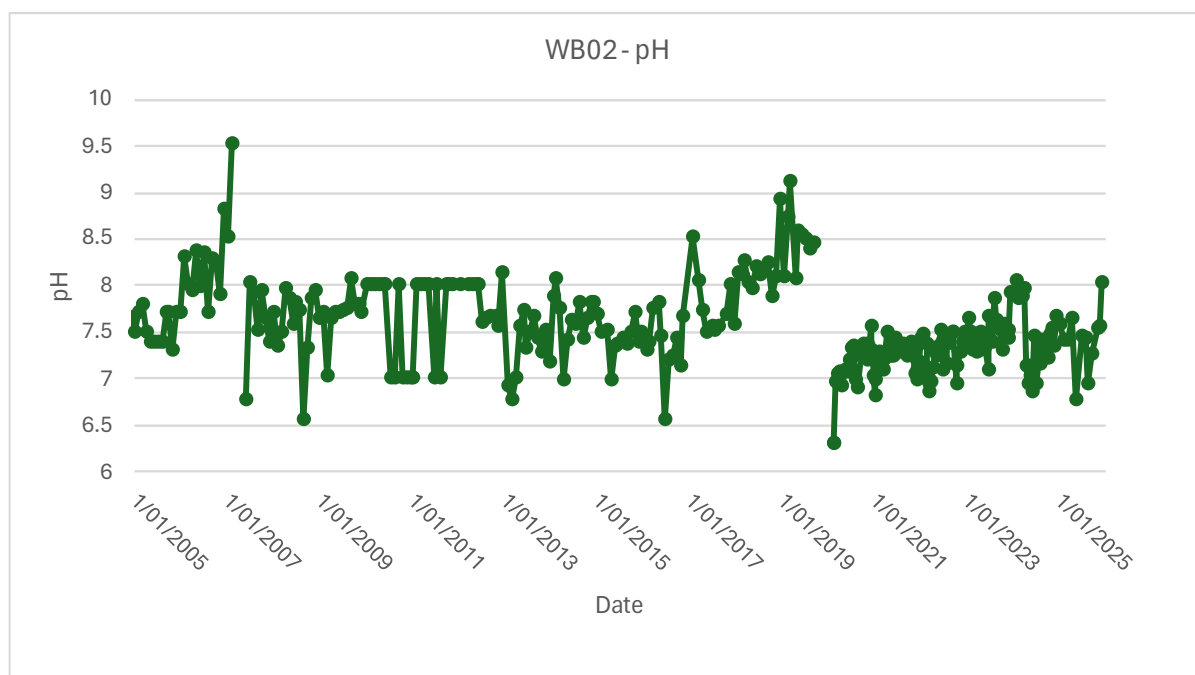


Figure 7-8: WB02 Long-Term Surface Water Quality Trends for pH at United Wambo

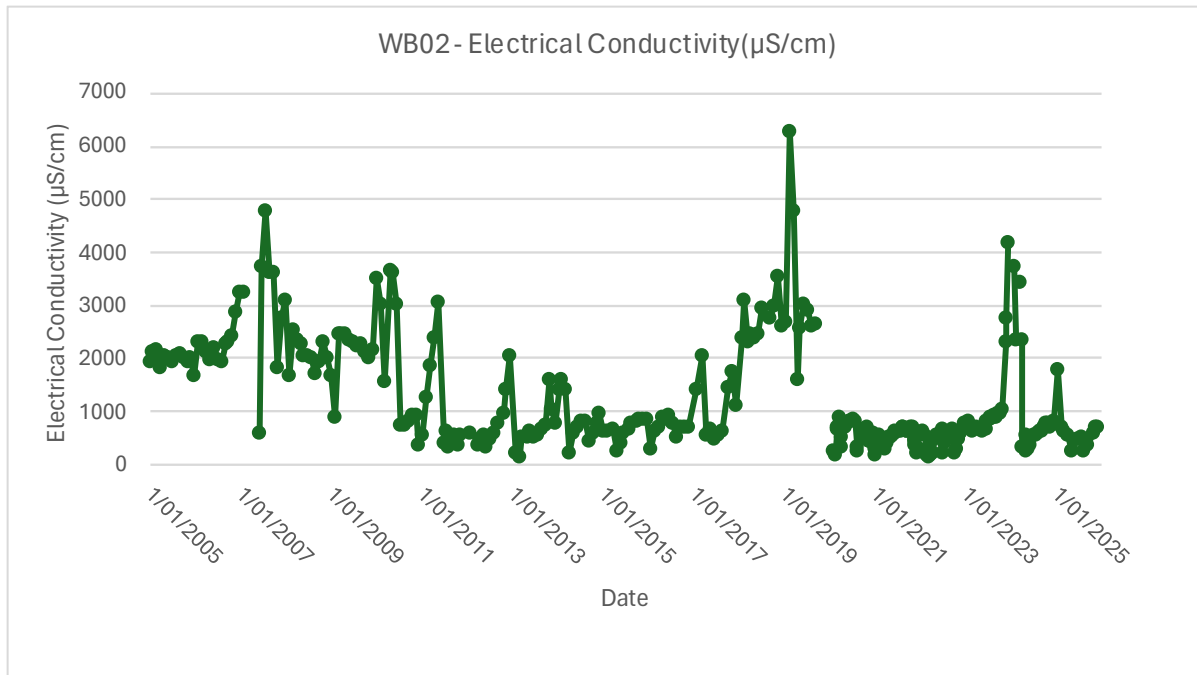


Figure 7-9: WB02 Long-Term Surface Water Quality Trends for EC at United Wambo

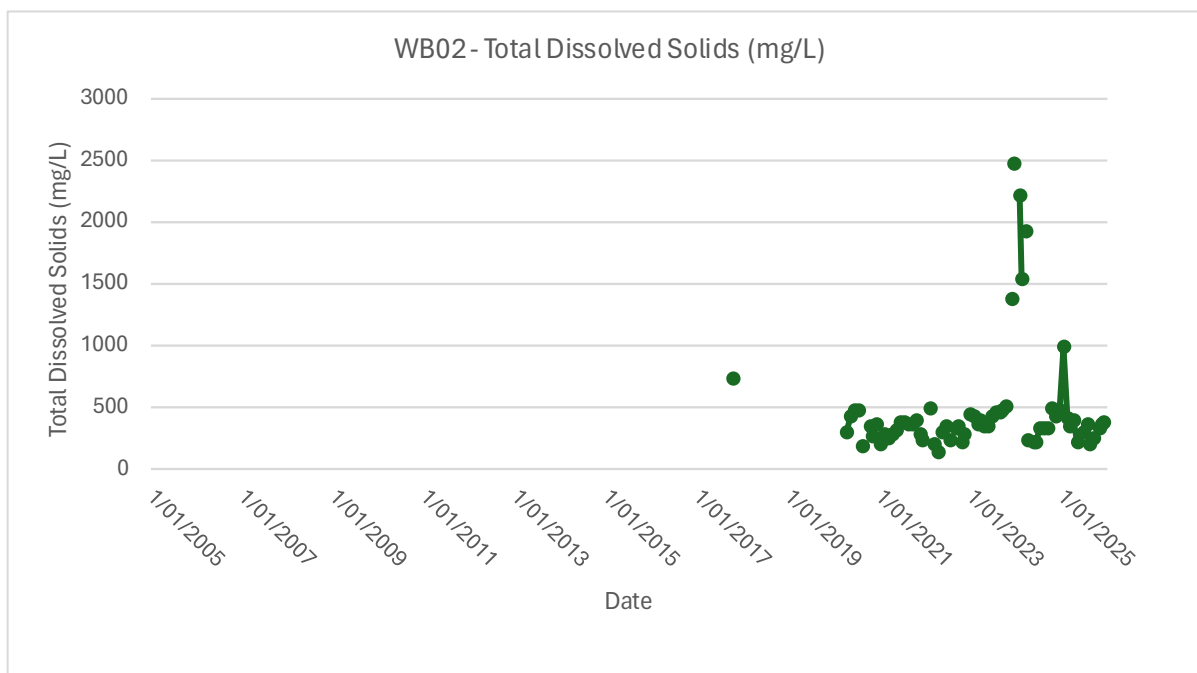


Figure 7-10: WB02 Long-Term Surface Water Quality Trends for TDS at United Wambo

7.2.2.4 WB03

WB03 on Wollombi Brook is downstream of United Wambo.

Throughout the long-term data period, WB03 has remained relatively consistent, with minor fluctuations in recorded water quality parameters. pH and EC displayed notable drops in 2019, however have remained stable or increased to baseline ranges in recent years. All water quality trends are normal or slightly increasing. All results have remained under the site baseline trigger points over 2025.

Long term trends for TSS, pH, EC and TDS are presented in the figures below.

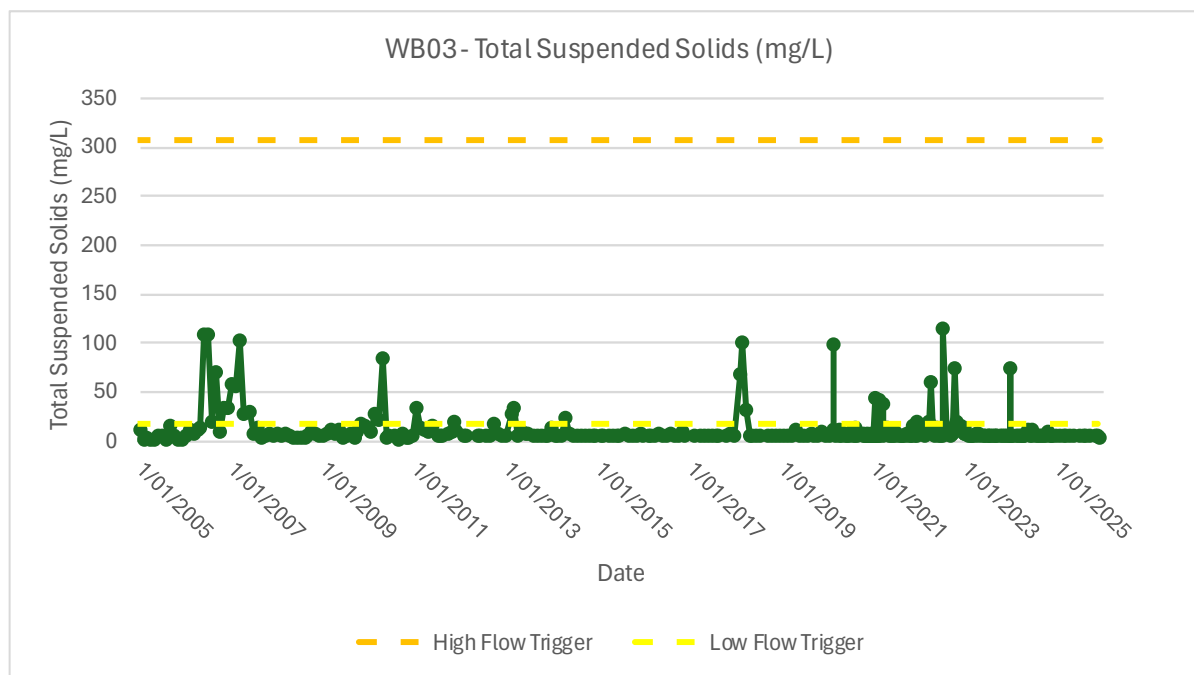


Figure 7-11: WB03 Long-Term Surface Water Quality Trends for TSS at United Wambo

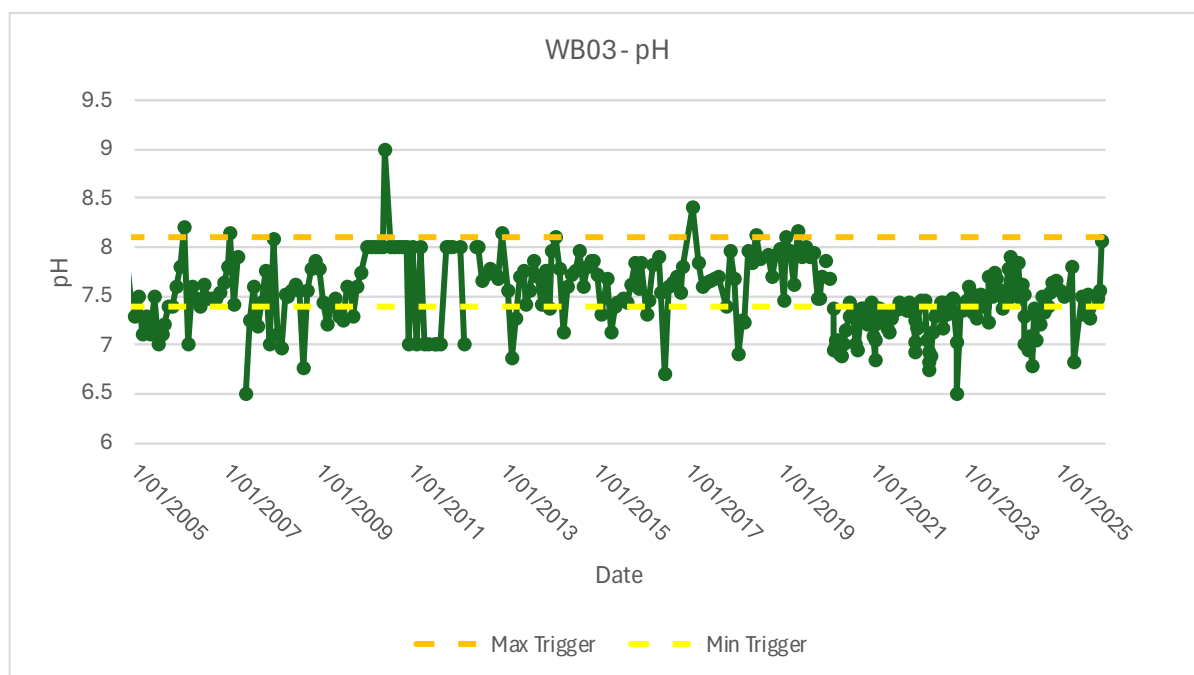


Figure 7-12: WB03 Long-Term Surface Water Quality Trends for pH at United Wambo

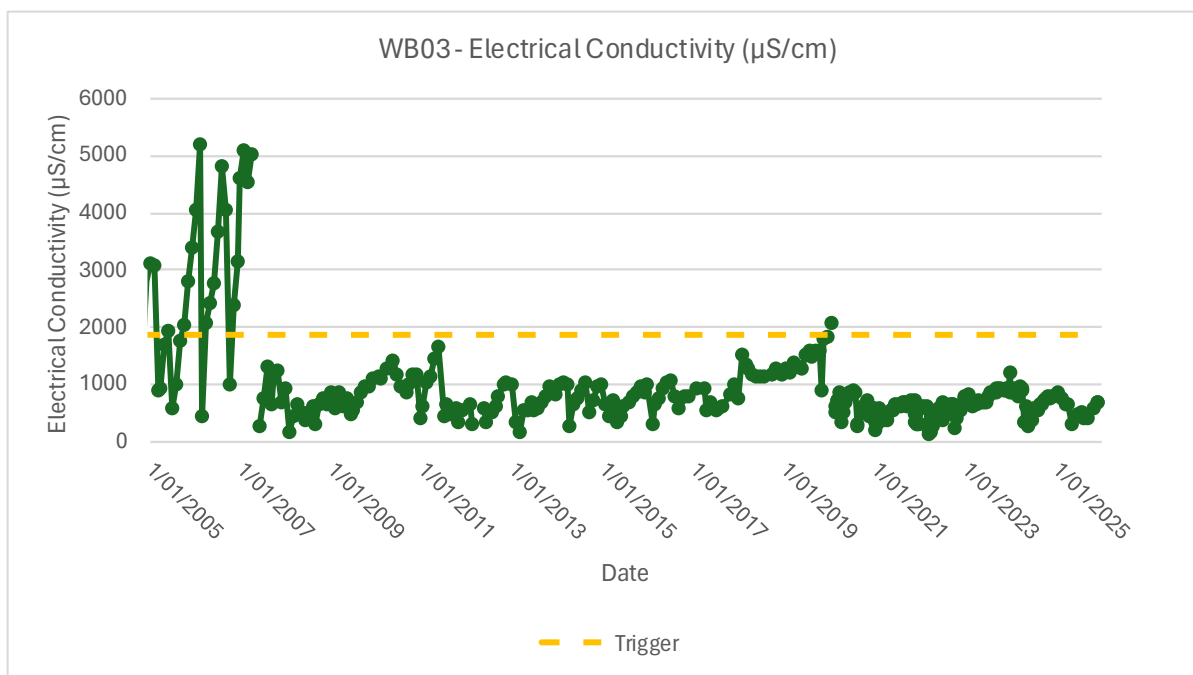


Figure 7-13: WB03 Long-Term Surface Water Quality Trends for EC at United Wambo

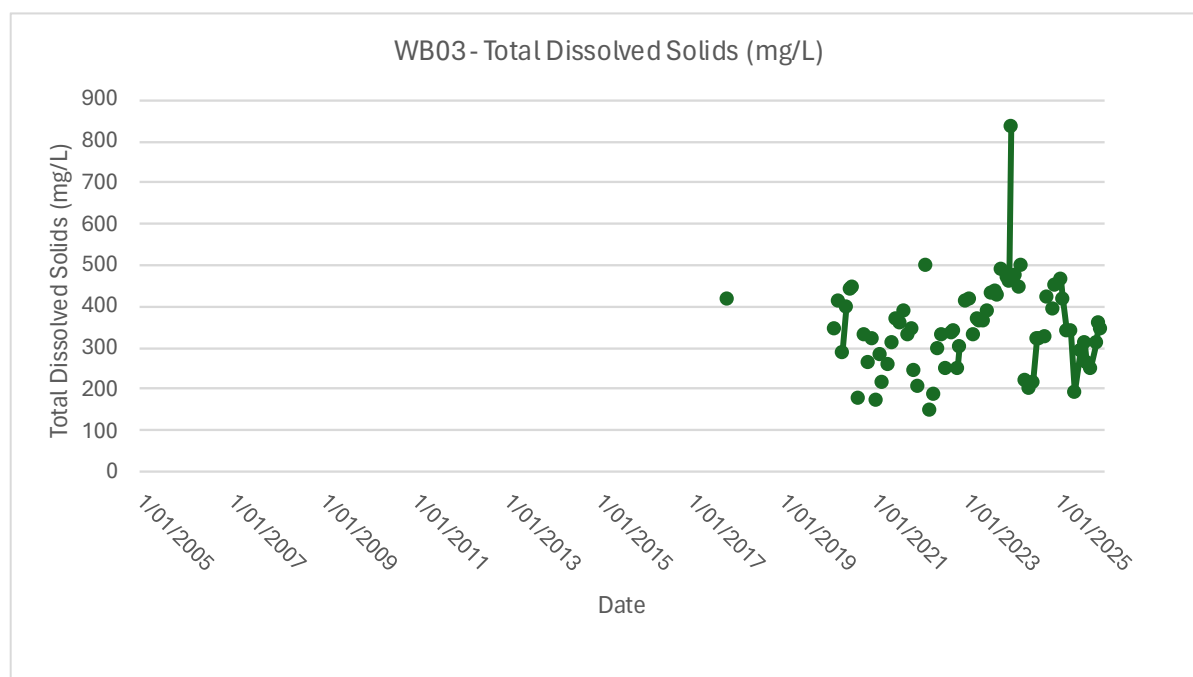


Figure 7-14: WB03 Long-Term Surface Water Quality Trends for TDS at United Wambo

7.2.2.5 WB04

WB04 is located on Wollombi Brook, downstream of WB03. WB04 was established in 2020.

Throughout the long-term data period, WB04 has remained consistent, with minor fluctuations in recorded water quality parameters. All water quality trends are normal or slightly increasing. All results have remained under the site baseline trigger points.

Long term trends for TSS, pH, EC and TDS are presented in the figures below.

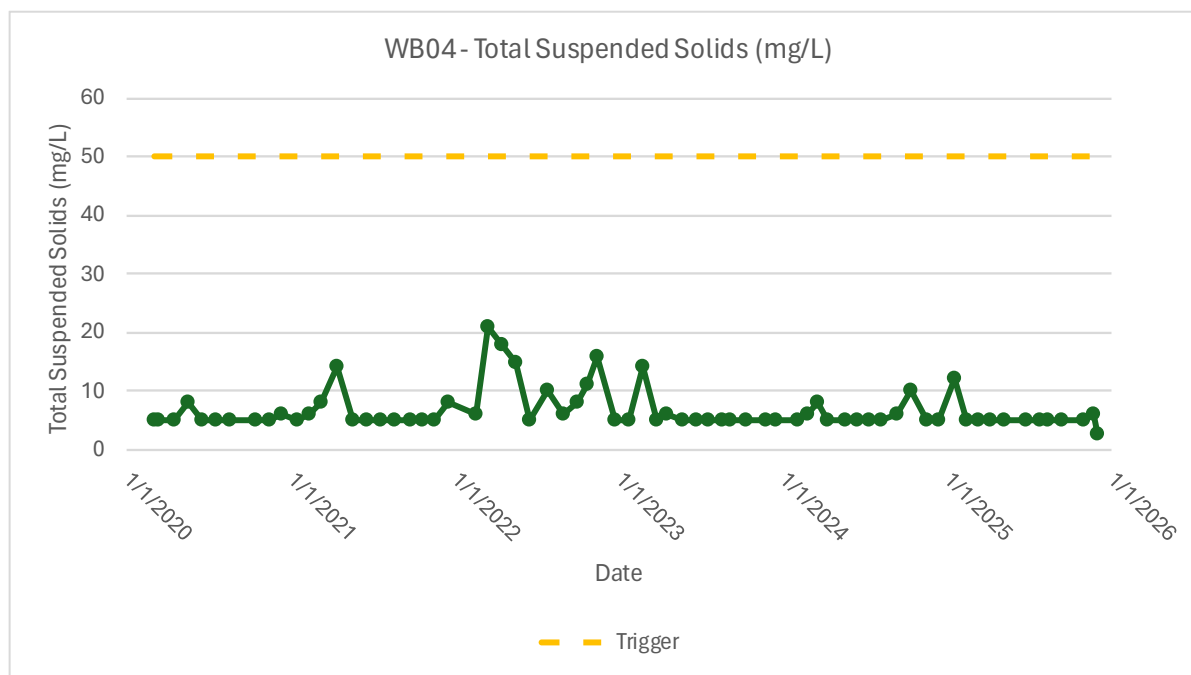


Figure 7-15: WB04 Long-Term Surface Water Quality Trends for TSS at United Wambo

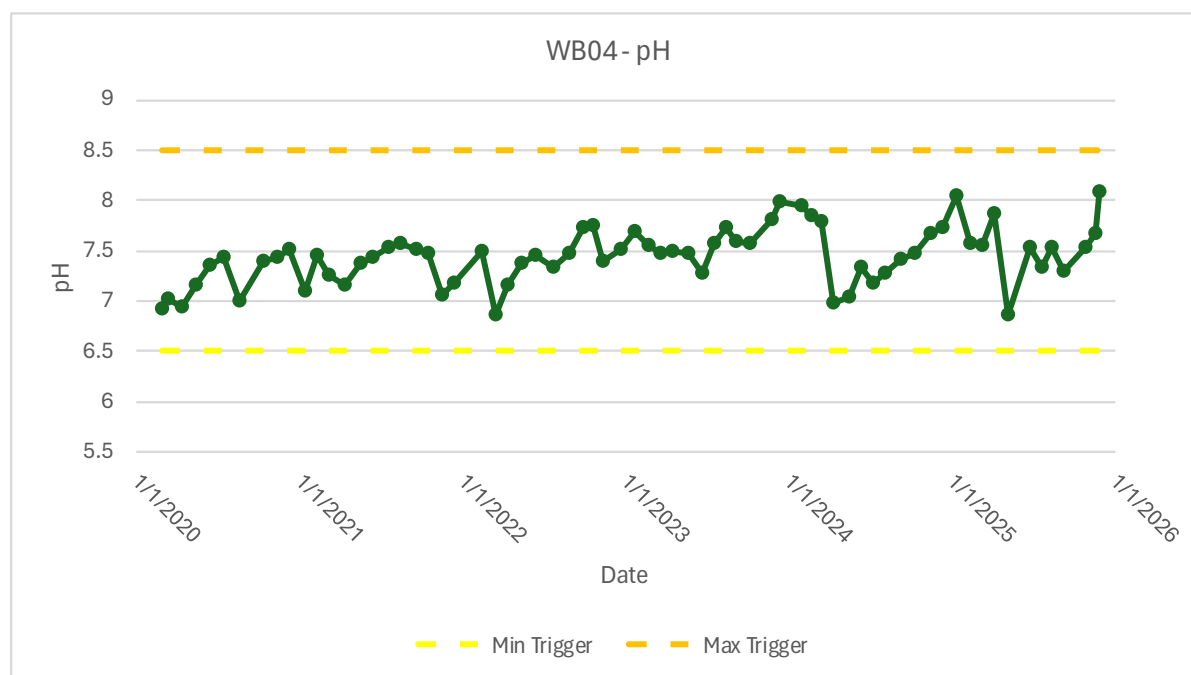


Figure 7-16: WB04 Long-Term Surface Water Quality Trends for pH at United Wambo

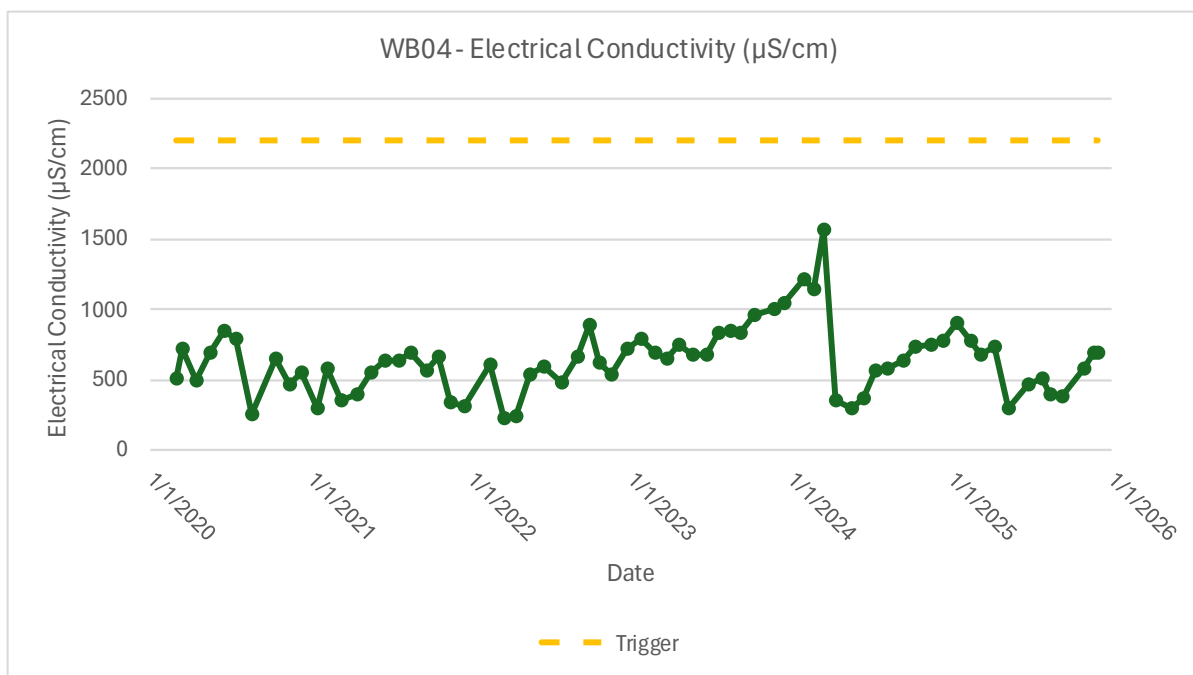


Figure 7-17: WB04 Long-Term Surface Water Quality Trends for EC at United Wambo

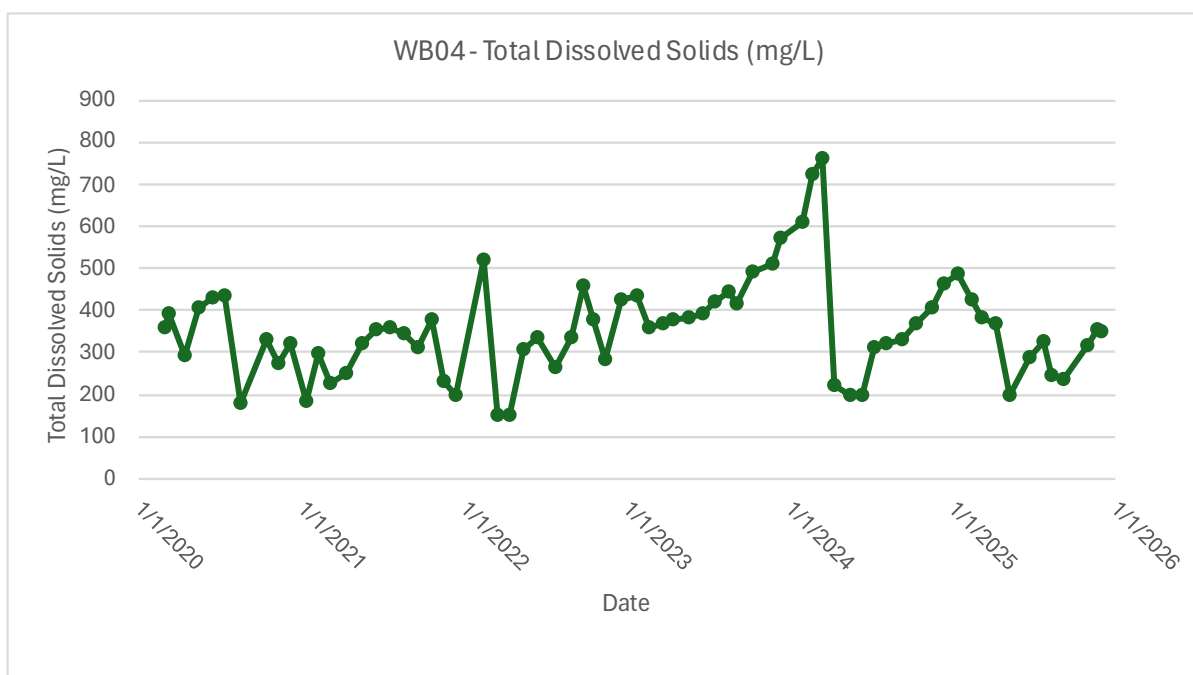


Figure 7-18: WB04 Long-Term Surface Water Quality Trends for TDS at United Wambo

7.2.2.6 NWC03

NWC03 has varied results, which limit the interpretation of trends over time. Earlier years in the long-term trend graphs show consistency of results. Post 2012, results are infrequent and at times outside baseline trigger criteria levels. The variability in results could be attributed to fluctuations in flow through the site.

Long term trends for TSS, pH and EC are presented in the figures below.

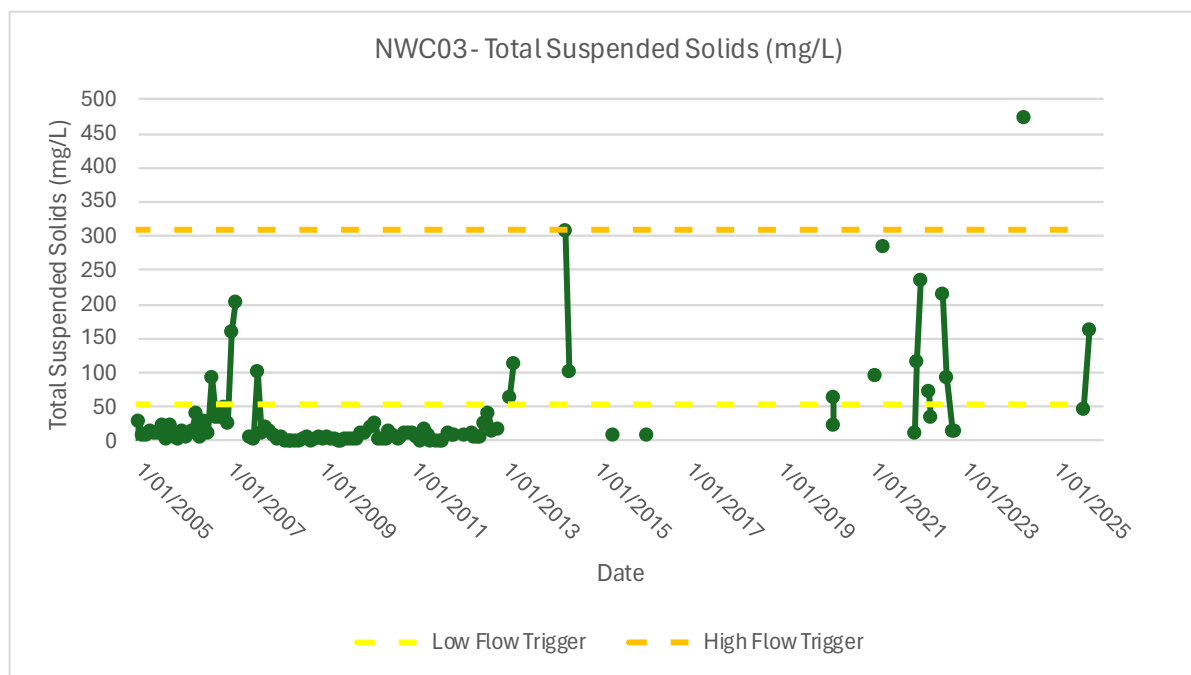


Figure 7-19: NWC03 Long-Term Surface Water Quality Trends for TSS at United Wambo

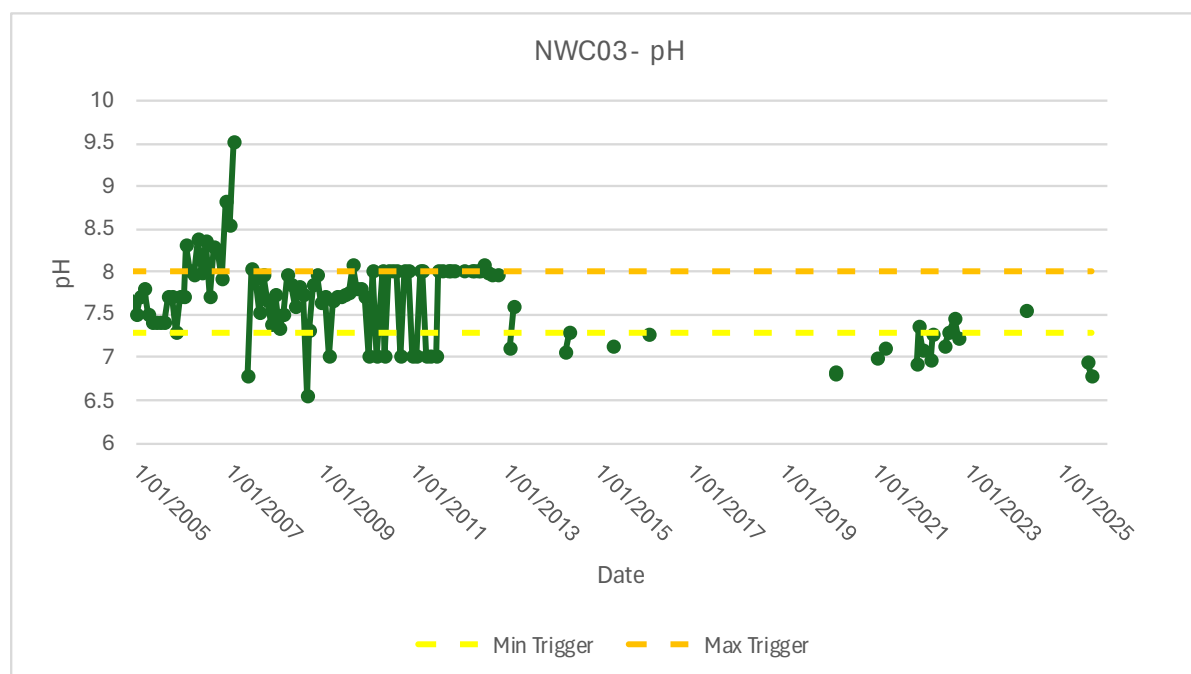


Figure 7-20: NWC03 Long-Term Surface Water Quality Trends for pH at United Wambo

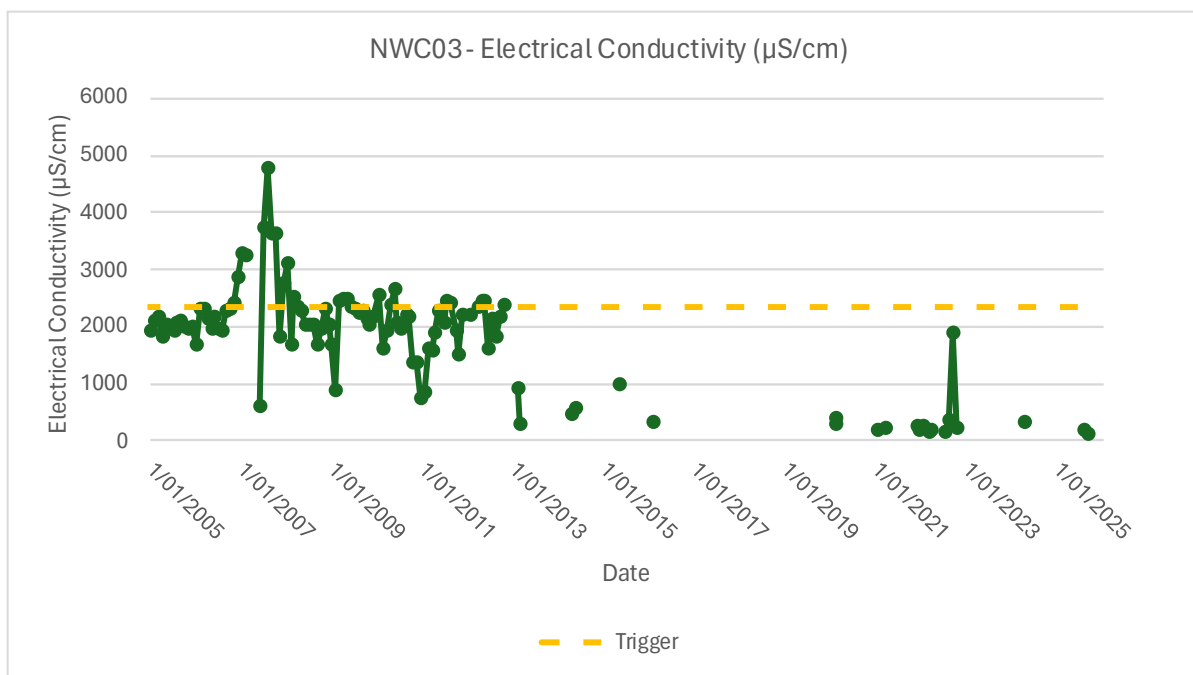


Figure 7-21: NWC03 Long-Term Surface Water Quality Trends for EC at United Wambo

7.2.2.7 WFC01

Data records for WFC01 commence from 2019. WFC01 is an ephemeral creek and therefore does not receive constant flow. This is visually represented across the long-term trend graphs, with a high count of non-sample days. Due to the variability of results, accurate trend analysis is limited. Results have been recorded outside baseline trigger criteria in previous years, including in 2025 for pH. United Wambo will review the pH trigger for WFC01 during the next reporting period.

Long term trends for TSS, pH, EC and TDS are presented in the figures below.

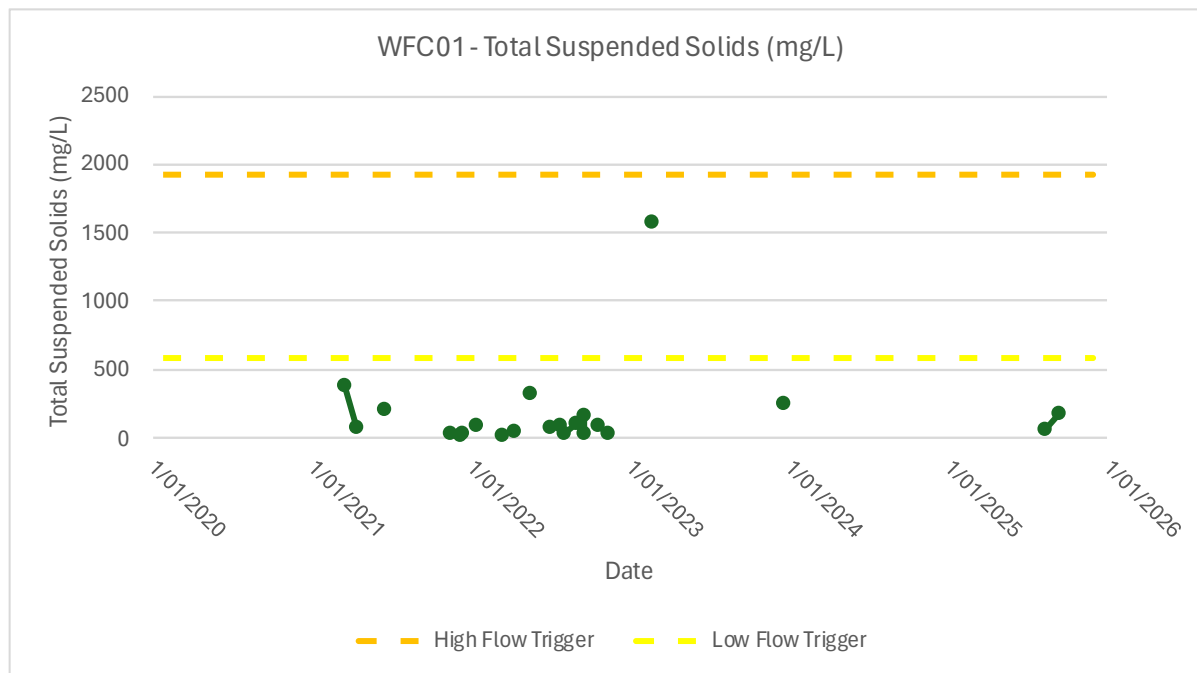


Figure 7-22: WFC01 Long-Term Surface Water Quality Trends for TSS at United Wambo

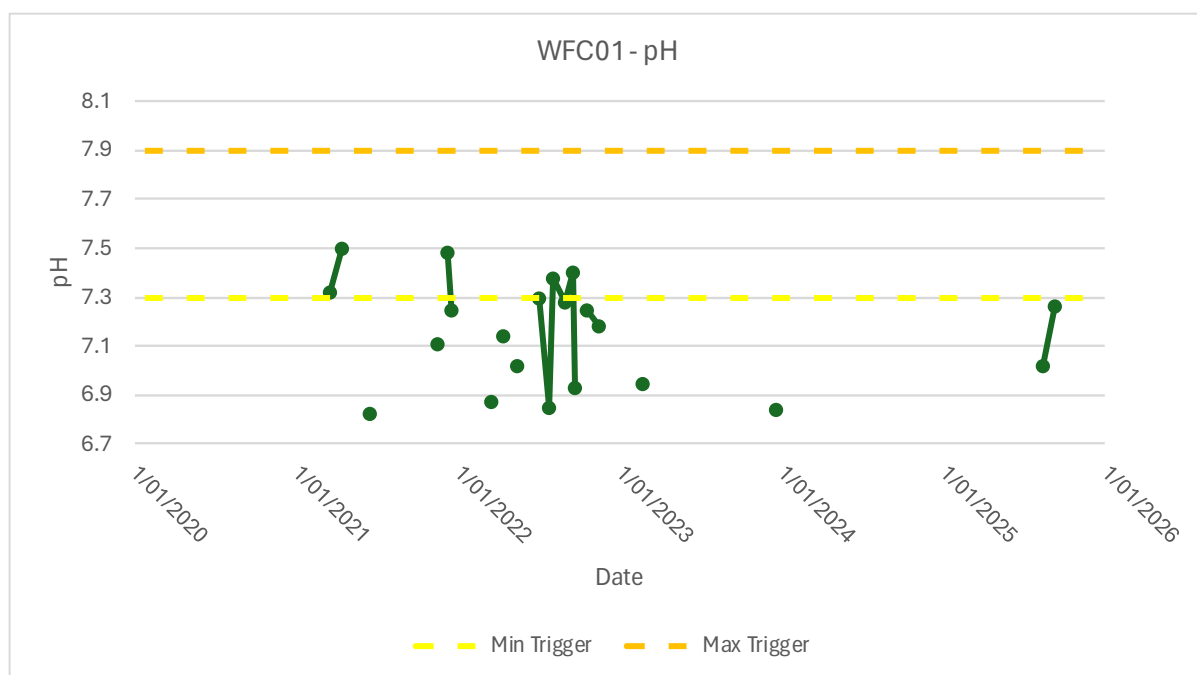


Figure 7-23: WFC01 Long-Term Surface Water Quality Trends for pH at United Wambo

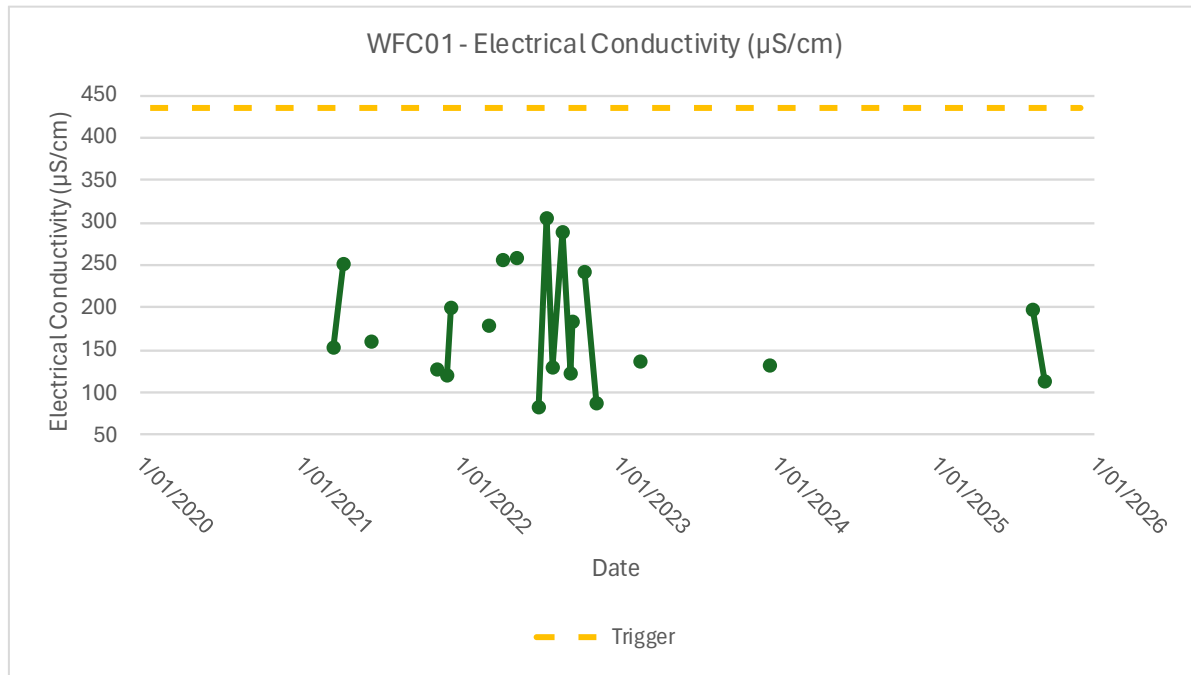


Figure 7-24: WFC01 Long-Term Surface Water Quality Trends for EC at United Wambo

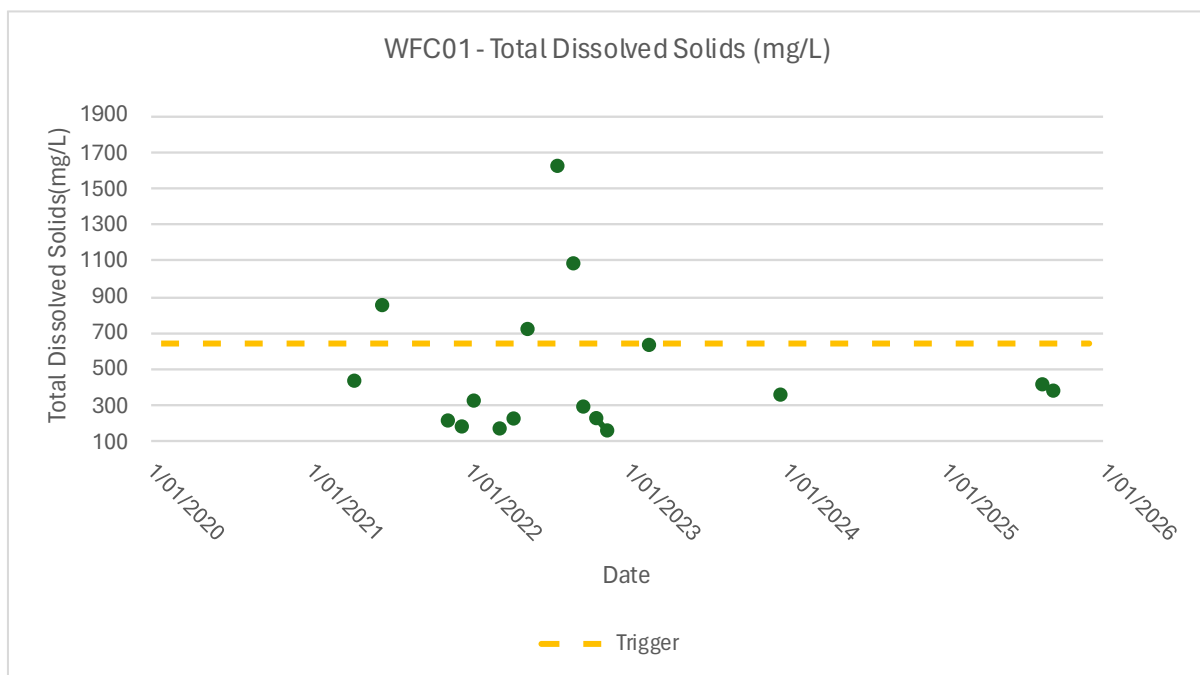


Figure 7-25: WFC01 Long-Term Surface Water Quality Trends for TDS at United Wambo

7.2.3 Water Performance Measures

A comparison of United Wambo compliance with the water performance measures in Condition B49 of **SSD 7142** is provided in **Table 7-6**.

Table 7-6: Water Management Performance Measures

Feature	Performance Measure	Compliance Status	Comment
Water management – General	Maintain separation between clean, dirty and mine water Minimise the use of clean and potable water Maximise water recycling, reuse and sharing opportunities Minimise the use of make-up water from external sources Design, install, operate and maintain water management infrastructure in a proper and efficient manner	Compliant	Water types separated in accordance with the <i>WMP</i>. The majority of United Wambo water usage was for dust suppression, sourced from mine water dams. Raw water is only used for supplying the South MIA. Potable water for the site is sourced from a private supplier. Water infrastructure used as intended.
Alluvial aquifers (including Wollombi Brook alluvium)	Negligible impacts to the alluvial aquifer beyond those predicted in the document/s listed in condition A2(c), including: - negligible change in groundwater levels; and - negligible impact to other groundwater users including, - maintain appropriate setbacks in accordance with the Aquifer Interference Policy (DPI, 2012)	Compliant	Negligible impacts to alluvial aquifer beyond groundwater model predictions.
Erosion and sediment control works	Design, install and maintain erosion and sediment controls in accordance with the guidance series 'Managing Urban Stormwater: Soils and Construction' – Volume 1 (Landcom, 2004) and '2E Mines and Quarries' (DECC, 2008) Design, install and maintain any infrastructure within 40 metres of watercourses in accordance with the guidance series for 'Controlled Activities on Waterfront Land' (DPI Water, 2012) Design, install and maintain any creek crossings generally in accordance with the Fisheries NSW 'Policy and Guidelines for Fish Habitat Conservation and Management' (DPI, 2013) and 'Why do fish need to cross the road? Fish passage requirements for waterway Crossings' (NSW Fisheries, 2003).	Compliant	Erosion and sediment control measures in line with the <i>Erosion and Sediment Control Management Plan</i>. No works have occurred within 40 metres of existing watercourses, outside of the mining pit footprint. No new creek crossings were installed in the reporting period.
Clean water diversions and storage infrastructure	Design, install and maintain the clean water system to capture and convey the 100-year ARI flood event Maximise, as far as reasonable, the diversion of clean water around disturbed areas on the site, except where clean water is captured for use on the site	Compliant	No new clean water diversions, flood levees or water storages were installed in the reporting period. The Northern Clean Water Drain constructed in 2020 remains in place.

Feature	Performance Measure	Compliance Status	Comment
Flood Levees	Design, install and maintain appropriate flood levees to protect mining areas from a 1,000-year ARI flood event and to ensure no adverse effect on roads or privately-owned land	Compliant	No new flood levees constructed in the reporting period. The Wollombi Brook flood levee (constructed to account for 1,000-year ARI flood event) remains in place.
Sediment dams	Design, install and maintain sediment dams in accordance with the guidance series Managing Urban Stormwater: Soils and Construction – Volume 1 (Landcom, 2004) and 2E Mines and Quarries (DECC, 2008) and the requirements under the POEO Act or Protection of the Environment Operations (Hunter River Salinity Trading Scheme) Regulation 2002	Compliant	No new sediment dams were constructed in the reporting period. Existing sediment dams have been maintained to comply with the Blue Book and POEO Act requirements.
Above-ground mine water storages	Design, install and maintain mine water storage infrastructure to avoid unlicensed or uncontrolled discharge of mine water Designed to contain the 100-year ARI storm event and minimise permeability	Compliant	All mine water dams managed by United Wambo spill into the open cut pit rather than discharge offsite. United Wambo commenced the construction of a new mine water storage during the reporting period (U1 Dam). Commissioning of the U1 Dam will be completed in the next reporting period. All mine water storages at United Wambo were designed to capture the 100-year ARI.
Tailings storages	Design and maintain tailings storage areas to encapsulate and prevent the release of tailings seepage/leachate	Compliant	Tailings management is undertaken by Wambo on behalf of the United Wambo JV. United Wambo does not manage any active tailings dams.
Overburden emplacements	Design, install and maintain emplacements to encapsulate and prevent migration of tailings, acid forming and potentially acid forming materials, and saline and sodic material Design, install and maintain out-of-pit emplacements to prevent and/or manage long term saline seepage	Compliant	Overburden emplacement areas at United Wambo contain all run off and seepage within dams or open cut voids.
Chemical and hydrocarbon storage	Chemical and hydrocarbon products to be stored in bunded areas in accordance with the relevant Australian Standard	Compliant	Hydrocarbon storage areas are bunded in accordance with Australian Standards and are subject to regular inspection and management.
Creek diversion and restoration works	Diverted creek lines are hydraulically and geomorphologically stable Incorporate erosion control measures based on vegetation and engineering revetments Incorporate persistent/permanent pools for aquatic habitat Revegetate with suitable native species	Compliant	No creek diversion or restoration works were undertaken during the reporting period.

Feature	Performance Measure	Compliance Status	Comment
Aquatic, riparian and groundwater dependent ecosystems	Negligible environmental consequences beyond those predicted in the document/s listed in condition A2(c) Maintain or improve baseline channel stability Develop site-specific in-stream water quality objectives in accordance with the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC & ARMCANZ, 2000) and Using the ANZECC Guidelines and Water Quality Objectives in NSW (DEC, 2006)	Compliant	Negligible impacts to aquatic, riparian and GDEs beyond groundwater model predictions.

There have been no instances of mine water discharge, sediment dam overflow or tailings spillage affecting downstream water quality in the reporting period.

7.2.4 Water Balance and Salt Balance

The United Wambo Complex water balance and salt balance were updated for the reporting period. The water and salt balance summaries showing annual average volumes of inputs and outputs is shown in **Table 7-7** and **Table 7-8**.

Table 7-7: United Wambo JV Water Balance for the reporting period

Water Balance	Volume (ML)
Water Sources	
Transfer from Wambo Underground	653
Potable supply	6
Rainfall/Runoff	2,576
Open Cut Seepage	357
Total Water Inputs (I)	3,592
Water Usage	
Dust Suppression	1,289
Transfer to Wambo Underground	2,083
Potable	6
Total Water Usage (U)	3,379
Water Loss	
Evaporation – Mine Water	351
Seepage	0
Total Losses (L)	351
Change in Storage (United Wambo)	
Initial	256
Final	227

Water Balance	Volume (ML)
Change in Storage (S)	-29

Table 7-8: United Wambo JV Salt Balance for the reporting period

Site Salt Balance	Salt (t)
Inputs	
Runoff	4,459
Groundwater (ROM coal)	2,015
Groundwater (Seepage)	2,278
Transfer from Wambo	1,552
Total	10,304
Outputs	
Dust suppression	1,996
Transfer to Wambo	3,908
Groundwater (ROM coal)	4,284
Total	10,158
Balance	146

7.2.5 Discharge Summary

There were no discharges from United Wambo in the reporting period.

United Wambo is part of the Hunter River Salinity Trading Scheme (HRSTS) however the site does not have any Hunter River Salinity Trading Scheme Credits, and there is no licensed discharge point.

7.2.6 Stage 3 Water Management – U1 Dam

During 2025 United Wambo commenced the construction of the U1 Dam as part of the Stage 3 Water Management. The U1 Dam will replace the existing U2 dam in 2026, to allow the progression of mining in the United Pit. Activities undertaken during the period included excavation of the new U1 dam using mining fleet. The U1 Dam construction will be completed in the next reporting period and the dam commissioned. The U2 Dam will be decommissioned once U1 is commissioned.

Figure 7-26 and **Figure 7-27** are drone photos taken of the U1 Dam during construction. **Figure 7-26** shows the area during clearing and topsoil stripping activities. **Figure 7-27** shows the mined dam area.

Vegetation from the U1 Dam area was mulched and stripped along with topsoil and stockpiled adjacent to the dam area. Habitat trees were salvaged during the clearing and stripping phase, and a portion of the dog leg fence was also retrieved (refer **Section 6.6.2.2** for more detail). Approximately 633,000 bcm of material was excavated for the new dam.



Figure 7-26 U1 Dam during construction – clearing and stripping



Figure 7-27 U1 Dam during construction – mining

7.2.7 Improvements

The following improvements are proposed for the next reporting period:

- Review SW triggers (and update if sufficient data available).

7.3 Groundwater

7.3.1 Management Measures

United Wambo implements groundwater management measures in accordance with the **Groundwater Management Plan (GWMP)**, version 6). A summary of management measures include:

- Design, install and maintain above-ground mine water storage infrastructure to avoid unlicensed or uncontrolled discharge of mine water to the offsite environment.
- Above-ground mine water storages designed to contain the 100-year ARI storm event and minimise permeability.
- Operate underground water storages in a manner that minimises impacts.
- New tailings storage areas will be designed and maintained to encapsulate and prevent the release of tailings seepage/leachate.
- Design, install and maintain new emplacements to encapsulate and prevent migration of tailings, acid forming and potentially acid forming materials, and saline and sodic material.
- Design, install and maintain new out-of-pit emplacements to prevent and/or manage long term saline seepage.
- Chemical and hydrocarbon products is stored in bunded areas in accordance with the relevant Australian Standard.
- Maintain or improve baseline channel stability.
- Generic training on the aspects of the **GWMP** is provided to all employees and contractors through the GCAA Generic Surface Induction and the Site Familiarisation process.
- Regular workforce communication days and toolbox talks allow for discussion of the objectives and requirements of this and any other relevant plans.
- Selected site personnel, whose duties directly involve the management of water at United Wambo, undertake specific training with respect to site Operational Procedures which incorporate water management measures.

7.3.2 Groundwater Monitoring

Groundwater monitoring is conducted at United Wambo in accordance with the **GWMP** (version 6). The purpose of groundwater monitoring at United Wambo is to monitor groundwater quality and levels to detect potential impacts on surrounding groundwater users, consumptive or environmental, and assess the performance of the mine against the performance indicators to ensure that relevant legislative and policy requirements are met.

United Wambo engaged a groundwater specialist to review the annual monitoring results for the reporting period, which is contained in **Appendix B -Annual Groundwater Review. Table 7-9** is a summary of groundwater observations extracted from the report (Umwelt, 2026).

Table 7-9 Groundwater observations in 2025

Aspect	Performance Measure	Performance Indicator/Trigger	2025 Observations (Umwelt, 2026)	Overall Compliance
Alluvial Aquifers	Negligible change in groundwater levels (compared to predicted impacts ¹)	90th percentile (and not related to seasonal variability) over three consecutive months.	Groundwater levels declined below the 90th percentile depth to water trigger in bore GW13 over 2025. The bore is outside the area of predicted impacts. The bore should be purged and the condition checked with a downhole camera to assess if the bore is providing representative data. Exceedances are unlikely to be related to United Wambo mining impacts. Groundwater levels in bore GW17 declined below the 90th percentile depth to water trigger in three consecutive readings during 2025. It is recommended that, the lithology should be updated in the draft GWMP to reflect the screened lithology. Exceedances unlikely to be related to United Wambo mining impacts.	Compliant
Alluvial Aquifers	Negligible change in groundwater quality	Groundwater quality concentrations outside of adopted trigger values for at least one parameter for more than three consecutive months.	Bore P12 recorded six consecutive readings below the pH trigger level, a continuing trend since 2018. It is recommended a review of the pH trigger level be undertaken to incorporate all baseline data back to 2005 to derive a more appropriate trigger level. Exceedances unlikely to be related to United Wambo mining impacts.	Compliant
Bedrock Aquifers	Negligible change in groundwater levels (compared to predicted impacts ¹)	90th percentile (and not related to seasonal variability) over three consecutive months. No trigger adopted for monitoring sites within the project area.	Groundwater levels in P206 were below the 90th percentile trigger level over 2025, a continuing trend since 2022. Groundwater level trends are not consistent with historical trends and no longer follow climate trends. Subsidence due to the underground workings may be influencing groundwater levels. However, it is noted that there are no active mining operations near the bore and that underground mining was completed in 2015. The bore was purged in 2024, and it was noted that recharge was slow and produced black water. It is recommended the condition of the bore is checked with a downhole camera. If the bore is found to be in good condition, an investigation into other potential causes of the changes in water levels should be undertaken.	Compliant

Aspect	Performance Measure	Performance Indicator/Trigger	2025 Observations (Umwelt, 2026)	Overall Compliance
Bedrock Aquifers	Negligible change in groundwater quality	pH of 6.5 to 8.5 EC < 17,500 µS/cm	Bore GW22 recorded three consecutive pH readings outside the upper and lower trigger Levels. The bore should be purged and the condition of the bore checked to confirm the data collected is representative of the aquifer. Sampling techniques should also be reviewed to ensure the bore is adequately purged before water quality samples are collected. If water quality exceedances continue and no issues with the condition of the bore are found, an investigation into the cause of the water quality changes should be undertaken.	Compliant
Groundwater Inflows to Mining Pits	Groundwater inflows to mining pits consistent with groundwater model predictions and all take is covered by relevant licences.	Groundwater inflows to mining pits are >10% higher than predicted for three consecutive months, without logical reason (i.e. changes to mine plan or wetter than average climate conditions).	Groundwater modelling ¹ predicted groundwater inflows to United Wambo in 2025 to be 572 ML from the North Coast Fractured and Porous Rock Groundwater Source. Licence entitlement from this source is 1,947 ML/yr. The site water balance model simulated: • 2575.6 ML of rainfall and runoff reporting to water storages • 350.9 ML evaporated from water storages • 26.4 ML of external spills • 357.0 ML of groundwater inflows • 626.8 ML from Montrose Pit to mine water storages • 1,376.2 ML from United Pit to mine water storages A total of 171.1 ML was stored in Montrose pit voids during December 2025. Groundwater inflows are consistent with model predictions and take is within WALs.	Compliant
Seepage/ Leachate	Negligible seepage/ leachate from water storages.	Visual inspections of water storages (as per the United Wambo Erosion and Sediment Control Plan Checklists) show seepage zones, and reporting water balance indicates seepage is greater than negligible (i.e. >5% of inflows to water storage)	Mine water storages were inspected monthly. Seepage was observed at the toe of Duck Pond and the toe of the U3 dam. No flow monitoring of the seepage is available. As such, it cannot be confirmed that seepage is <5% of inflows to water storage or defined as negligible. It is recommended that seepage be quantified and estimated to determine if seepage from water storages is compliant. It is noted that seepage is also not estimated in the site water balance model. A geotechnical investigation commenced in 2025 by PSM (2026) to determine the source and quantity of the seepage as required by Section 9.10 of the WMP. Groundwater quality data from bores P12, P15, and P16, near the toe of the U3 dam, show pH ranged between 6.75 and 8.23 and the maximum EC level was 5,030 µS/cm.	Unconfirmed. Insufficient data is available to confirm seepage is <5% of inflows to water storage.

Aspect	Performance Measure	Performance Indicator/Trigger	2025 Observations (Umwelt, 2026)	Overall Compliance
Seepage/Leachate	All seepage/leachate from emplacement areas is captured in water management system.	Visual inspections (as per the United Wambo's Erosion and Sediment Control Plan Checklists) indicates seepage areas and confirms location of drainage pathways outside of water management system	Seepage from the emplacement areas was inspected monthly. Seepage was recorded at the dump toe near Plover Dam in March 2025. Seepage observed during the reporting period is generally captured by the water management system.	Compliant
Seepage/Leachate	Negligible impacts of seepage/ leachate impacts from backfilled voids on regional groundwater quality.	No increasing trends in water quality parameters in monitoring bores down dip of backfilled voids. An increasing trend would be indicated by three consecutive water quality readings showing continual increases in analyte concentrations.	Groundwater monitoring results do not indicate changes to water quality due to seepage/leachate impacts from backfilled voids in 2025.	Compliant
Seepage/Leachate	Seepage/leachate impacts from final voids are consistent with predictions in relevant environmental impact statements for the two approved final voids (United and Wambo Open Cuts).	Measures to be developed as part of United Wambo Closure Plan (at least 5 years prior to completion mining)	-	Not applicable to the reporting period.

Notes to table:

1. Predicted impact as determined in the numerical groundwater model (SLR, 2022)

7.3.3 Groundwater Monitoring Network Review

During 2025 United Wambo undertook a review of the groundwater monitoring network, in consultation with Wambo (Peabody) and SLR Consulting (SLR, 2025). The United Wambo **GWMP** was updated following this review and submitted to DPHI for approval during the reporting period. Further information on the review and a copy of the SLR memo (summarising the proposed monitoring program changes) is included in the Annual Groundwater Report contained in **Appendix B -Annual Groundwater Review**.

7.3.4 Long Term Groundwater Trends

Long-term hydrographs and time-series data for each monitored bore is provided in **Appendix B -Annual Groundwater Review**.

7.3.5 Groundwater Monitoring Trigger Levels

Trigger levels specified in the **GWMP** are based on statistical analysis of pre-mining baseline monitoring data. The trigger levels are used to initiate investigations into groundwater levels or quality at where there are unexpected changes potentially caused by mining impacts.

A response is triggered for groundwater levels when the depth to groundwater:

- Increases above the 90th percentile.
- Decreases below the 10th percentile.
- Occurs over three consecutive bi-monthly observations.
- Is not related to seasonal variability.

Triggers for water quality occur when electrical conductivity (EC) or pH:

- Exceed the specified trigger level (90th percentile).
- Occurs over three consecutive bimonthly observations (i.e. over a 6-month period).

A summary of trigger exceedances recorded for the site monitoring network during the reporting period are summarised in **Table 7-10**. Further discussion on causes and impacts is detailed in **Appendix B -Annual Groundwater Review**.

Table 7-10 Summary of groundwater monitoring trigger exceedances in the reporting period

Bore ID	Screened Lithology	Depth to Water (mbTOC)		pH		EC (µS/cm)	
		Number of Obs	No of readings above trigger	Number of Obs	No of readings above trigger	No of Obs	No of readings above trigger
GW02	Wambo Creek Alluvium	5*	0	5	1	5	0
GW11	Wambo Creek Alluvium	6	0	6	2	6	0
GW13	Wollombi Brook Alluvium	6	6	6	0	6	0
GW15	Wollombi Brook Alluvium (East)	6	0	6	3	6	0
GW16	North Wambo Creek Alluvium	6	2	6	1	6	0
GW17	North Wambo Creek Alluvium	6	3	6	4	6	0
GW22	Overburden	6	0	6	4	6	0
P12	Wollombi Brook Alluvium (East)	6	0	6	6	6	0
P206	Overburden	6	6	6	0	6	3

Notes to table:

* Not monitored in Feb 2025

7.3.6 Stygofauna Monitoring

A stygofauna survey was undertaken in September 2025 by **StygoEcologia (2025)**. This was the fifth survey conducted on site, with the first survey undertaken in 2015. The survey was to include 18 sites (15 bores and three wells) within the shallow alluvial aquifers across Wollombi Brook, North Wambo Creek, the Wambo Creek alluvium and the Hunter River alluvium. Bore P120 was found to be blocked and could not be sampled.

The survey reported that groundwater levels ranged from 0.9 mbgl to 14 mbgl within the 17 sites. During the survey, 172 specimens were collected from 12 sites, and 11 bores recorded with stygofauna present. The specimens included ten invertebrate families consisting of six stygofauna families and four edaphobites (soil species). The stygofauna were collected from the North Wambo Creek alluvium, Wollombi Brook alluvium and Wambo Creek alluvium to the south of United Wambo. No stygofauna were recorded in the Hunter River alluvium (**StygoEcologia, 2025**).

The 2025 results were consistent with records of stygofauna within the alluvial aquifers compared to the results from 2015 to 2022. The results indicate alluvial aquifer connectivity. The occurrence and diversity of fauna indicate consistency in water levels and quality that is beneficial for stygofauna communities leading to an increase in fauna recorded in the 2025 survey (**StygoEcologia, 2025**). **StygoEcologia (2025)** assessed the North Wambo, Wollombi Brook and Wambo Creek alluvium aquifers as having a high ecological value and assigned them a Class A ranking, indicating high value

and low risk. The survey indicated there has been no detrimental impacts from mining operations. **StygoEcologia (2025)** made the following recommendations:

- More frequent temporal surveys be conducted with a preference for at least annual stygofauna surveys completed between September and November to align with previous surveys.
- Monthly surveys of water levels and water quality.
- Upgrade all bores used for stygofauna sampling with bore IDs, caps on top of the bore casing to eliminate contamination and install water level loggers.

United Wambo have considered the recommendations from the 2025 report and updated the stygofauna monitoring program in consultation with Peter Serov from StygoEcologica. The revised program has been included in Version 7 of the **GWMP** and includes:

- Monitoring of six (6) representative bores on an annual basis, for stygofauna. These sites are GW16, GW17, P110, GW08.2, P12 and P407. These 6 sites will also be monitored for water quality and standing water level on a 2 monthly basis.
- The above monitoring program will be reviewed after three (3) years.

7.3.7 GDE Tree Monitoring

EcoLogical Australia (2025) was engaged by United Wambo to collect baseline data for condition monitoring of GDE vegetation along Wollombi Creek at Warkworth, near United Wambo.

The purpose of the monitoring is to record the condition of vegetation over time and provide data to assess any potential impacts to GDEs in conjunction with additional performance measures including groundwater level, surface water quality, and stygofauna. Data collected during 2025 will be used as baseline data for future monitoring.

Key outcomes of the **EcoLogical Australia (2025)** GDE Tree Monitoring baseline investigation include:

- 20 sampled trees at GDE1 were all in good condition and showed no stress indicators.
- No previous data was collected for the river red gum populations at GDE1. As such, data collected as part of this study is considered baseline data for future comparison. Monitoring should occur annually in Spring and if stress indicators occur, a review of groundwater triggers should be undertaken.
- In 2024, pH exceeded the minimum pH level six times between February and December 2024 (**SLR 2025b**) in bore P12. Despite these results, GDE1 does not appear to have been significantly impacted. It is recommended that ongoing monitoring occur to identify any potential delayed response.

Figure 7-28 was taken during the 2025 GDE tree monitoring program. It shows a mature tree (G01) on the lower bank of the Wollombi Brook.



Figure 7-28 2025 GDE tree monitoring program

The following recommendations were made:

- Trigger values for alluvium bores GW08.2, GW09.2 and P407 be prescribed as soon as possible using sufficient baseline data.
- Ongoing monitoring of the 20 River Red Gum trees every three years during spring.
- Sampling of tree condition if there are three consecutive exceedances in triggers where exceedances are unexpected or not climate related.
- Comparison of each survey to the previous monitoring round. Any decline in condition should be investigated.

United Wambo will continue to monitor groundwater in bores adjacent to the GDE's and respond in accordance with the TARPs in the **GWMP**.

7.3.8 Reporting Against Groundwater Performance

Assessment of compliance against the **GWMP** Groundwater Performance Measures for the reporting period is shown in **Appendix B -Annual Groundwater Review**.

7.3.9 Recommendations

Proposed recommendations based on the review of groundwater monitoring results for the reporting period include:

-
- a) Finalise the **GWMP** version 7 in consultation with the Department of Planning, Housing and Infrastructure and NSW Department of Climate Change, Energy, the Environment and Water, including changes to:
 - b) Groundwater monitoring network.
 - c) Revised water level and quality triggers, including the revision of baseline periods.
 - d) Investigate sensors in selected VWPs to determine if data can be improved.
 - e) Conduct ongoing VWP maintenance.
 - f) Ongoing monitoring of stygofauna and GDEs.

7.3.10 Improvements for the next reporting period

The following improvements are proposed for the next reporting period:

- Finalise the **GWMP** version 7 in consultation with the Department of Planning, Housing and Infrastructure and NSW Department of Climate Change, Environment and Water.
- Review GW triggers (and update if sufficient data available).
- Upgrade VWPs near Hunter River to allow collection of data through Ontoto online portal.
- Finalise installation of new VWP P403 and monitoring bore P403a (in overburden) between United and HVO.
- Implement the revised groundwater monitoring program proposed in Version 7 of the **GWMP**.
- Investigate sensors in selected VWPs to determine if data can be improved.
- Conduct ongoing VWP maintenance.

8. Rehabilitation

8.1 Status of mining and rehabilitation

Mining operations continued throughout the reporting year and required some disturbance of natural woodland areas and former rehabilitation (see **Table 8-1**). Progressive rehabilitation was also completed and annual targets achieved. Key rehabilitation performance indicators are shown in **Table 8-1**.

Table 8-1 Rehabilitation Status

Mine Area Type ¹	Previous Reporting Period (Actual)	This Reporting Period (Actual)	Next Reporting Period (Forecast)
	2024 (ha)	2025 (ha)	2026 (ha)
A. Total Mine Footprint / Surface Disturbance Footprint	2,172*	2,387	2395
B. Total Active Disturbance	1,462	1,983	1936
C. Land Being Prepared for Rehabilitation	59	0	0
D. Land Under Active Rehabilitation	651	404	459
E. Completed Rehabilitation	-	-	-
Other Areas	-	-	-

¹ Definitions of mine area type as per the NSW Government Annual Review Guideline (2015).

*2024 data was reported incorrectly in the previous Annual Review, actual was 2382ha surface disturbance footprint.

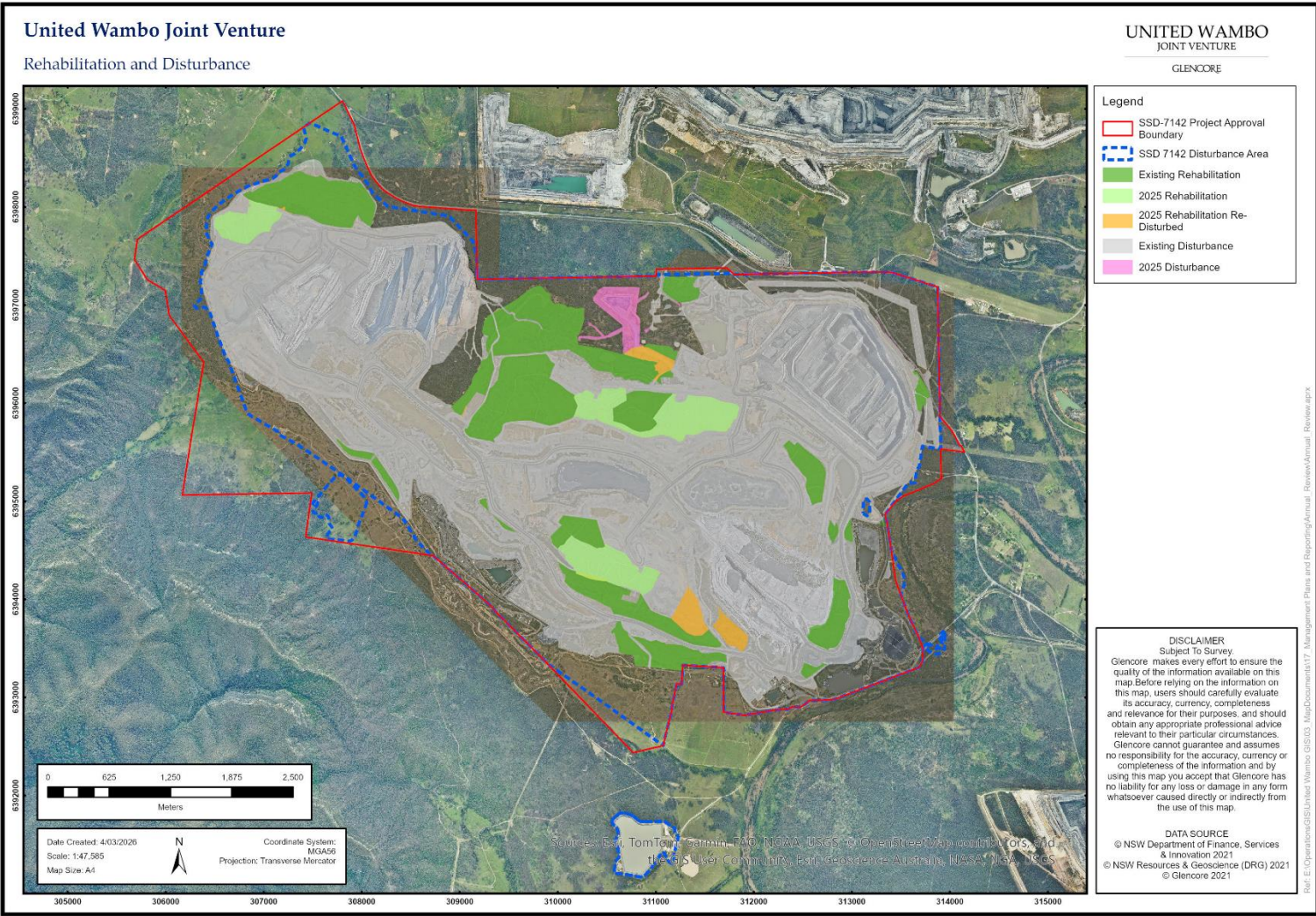


Figure 8-1 Status of Mining and Rehabilitation

8.2 Rehabilitation performance

As shown in **Table 8-1** and **Figure 8 1**, the site completed 94.68 hectares of rehabilitation in the reporting period. The rehabilitation was seeded with native species consistent with the approved final land uses described in the **Rehabilitation Strategy**:

- PCT 1691 Narrow-leaved Ironbark - Grey Box grassy woodland of the central and upper Hunter.
- Open Woodland.

No rehabilitation at United Wambo has received sign-off by the Resources Regulator for having successfully met the rehabilitation objectives and completion criteria.

No renovation or removal of buildings was conducted in the reporting period.

No other rehabilitation was conducted on exploration areas, infrastructure, shafts, adits, dams. There were some minor fencing maintenance and construction, however it was completed for the purposes of improved site security rather than rehabilitation preservation.

Construction of a new water management system to the west of the United Pit, revised increased footprint and additional clean water drains for the main dam structure resulted in increased disturbance for 2025.

8.3 Maintenance activities undertaken

Rehabilitation maintenance was undertaken generally in accordance with the site's detailed rehabilitation maintenance plan. Activities undertaken include:

- Spraying of weeds within the 2017, 2018, 2019, 2021, 2022, 2023, 2024 and 2025 rehabilitation areas.
- Slashing and boom spraying of exotic grasses and *galenia* on the Montrose rehabilitation area in preparation for future re-seeding.
- Cut and paint for African olive and *acacia saligna* in mature rehabilitation areas.
- Erosion repairs in the West United rehabilitation areas.
- Topsoil stockpile material management, weed management and seeding.
- Dog baiting and pig trapping within rehabilitation areas.

8.4 Rehabilitation monitoring

As described in the **Rehabilitation Management Plan (RMP)**, UWJV undertake long term ecological monitoring and an annual rehabilitation walkover to determine how the rehabilitation is tracking towards the completion criteria. It also identifies the key issues affecting rehabilitation and informs the maintenance strategy.

8.4.1 Native Open Woodland Rehabilitation

Initial monitoring of UWJ-NSNV-96 recorded strong ground cover (94%), providing a solid foundation for recovery, with some gully erosion identified for targeted management. Native species diversity is encouraging (25.7 species per 400 m²; 41 total species), indicating good ecological development. Tree density (185 stems/ha), currently dominated by Cooba with limited canopy eucalypts, presents a clear opportunity for enhancement as the site continues to progress.

Blocks UWJ-NSNV-94 and UWJ-NSNV-138, originally established for pasture, are transitioning toward woodland criteria. Current species richness and structure reflect this starting point but highlight opportunities for improvement. With targeted inputs to increase shrub cover, tree density, and canopy species, these areas show potential to align with native open woodland objectives over time. A comparison against draft completion criteria is provided in **Table 8-2**.

Table 8-2 Progress against completion criteria (long-term monitoring blocks)

Objective	Completion criteria	Monitoring Block	
		UWJ-NSNV-94	UWJ-NSNV-138
Land Contamination	No residual waste material or soil contamination that would pose a threat of environmental harm or constrain the final land use.	Compliant (acceptable)	Compliant (acceptable)
Landform Stability	Areas of active erosion are within the parameters of safe and stable landform	Compliant (acceptable)	Compliant (acceptable)
Vegetation composition	Flora species assemblages in each Growth Form are characteristic of the target native vegetation communities	Not compliant (maintenance)	Not compliant (maintenance)
	Minimum tree/shrub densities for seeded areas to be 400 stems per hectare	Not compliant (maintenance)	Not compliant (maintenance)
The rehabilitation is self-sustainable	Evidence of flowering and seeds or second-generation juveniles for trees and shrubs or likely to be.	Not compliant (maintenance)	Not compliant (maintenance)
Habitat features incorporated	Habitat features (e.g. logs, rocks and nest boxes), are incorporated at required densities	Not compliant (maintenance)	Not compliant (maintenance)
	Native rehabilitation areas provide a range of structural features (e.g. trees, shrubs, ground cover, developing litter layer etc.).	Not compliant (maintenance)	Not compliant (maintenance)
Connectivity established	Habitat corridors are established and consistent with target vegetation community compositions.	Not compliant (maintenance)	Not compliant (maintenance)
Target fauna assemblages	Monitoring confirms target native fauna species are recorded utilising rehabilitation areas.	Not applicable ²	Not applicable ²

¹Criteria only assessed against tree densities (i.e. excluding shrubs).

²Criteria not assessed under the scope of the annual monitoring program

8.4.2 Ecological Rehabilitation

Monitoring of UWJ-TNV-190 recorded 55% ground cover two years post-seeding, providing a developing base for stability, with some erosion areas identified for ongoing management. Vegetation is predominantly native (68% cover), supporting ecological recovery.

Species performance is strong, with 37.8 species per 400 m² (64 total), and most species aligned with the target GBIW community, demonstrating positive trajectory toward desired outcomes. Weed cover remains moderate (14.5%) and relatively stable, indicating manageable levels with routine control.

No sites reached LTM stage in 2025; however, results indicate positive early-stage development trending toward rehabilitation objectives.

8.4.3 Agricultural Pasture Rehabilitation

The UWJ-PS-93 block demonstrated excellent ground cover (99%), supporting strong soil stability. Pasture diversity is well established, with a good range of grasses, legumes, and other species (15.6 suitable species per plot).

Productivity is within target (1,560 kg DM/ha), indicating effective pasture function. Weed cover is low (8.9%) and has decreased since the previous assessment, reflecting successful management.

Overall, the site is performing well and trending toward meeting the draft rehabilitation completion criteria (Table 8-3). A comparison of these blocks against the draft rehabilitation completion criteria is shown in **Table 8-3**.

Table 8-3 Progress against completion criteria (long-term monitoring blocks)

Objective	Completion criteria	Monitoring Block
		UWJ-PS-93
Land contamination	No residual waste material or soil contamination that would pose a threat of environmental harm or constrain the final land use.	Compliant (acceptable)
Landform stability	Areas of active erosion are within the parameters of safe and stable landform	Compliant (acceptable)
Land capability	Land and soil capability criteria met.	Partially compliant (Investigate)
Pasture composition	Rehabilitation areas comprise palatable grasses and legumes appropriate to the district and suitable for cattle grazing.	Compliant (acceptable)
	Weed presence does not present a risk to the intended final land use.	Trending (routine maintenance)
Pasture productivity	Pasture establishment is in good health and provides adequate cover.	Compliant (acceptable)
	Pasture yields from rehabilitated areas are similar to adjacent cropping land.	Compliant (acceptable)
	Ground cover (vegetation, leaf litter, mulch) is greater than 70%.	Compliant (acceptable)
Water / shade provisions	Appropriate and reliable access to water for livestock.	N/A ¹
	Appropriate shade and shelter for livestock (i.e. wooded/treed areas) during extreme weather conditions.	N/A ¹

¹Criteria not assessed under the scope of the annual monitoring program

8.4.4 Monitoring Summary and Recommendations

United Wambo Joint Venture has set a target of 55 hectares of woodland rehabilitation for the next reporting period, supported by a proactive maintenance program including ongoing weed control, targeted erosion across recent rehabilitation areas, selective management of woody weeds (including African olive and *Acacia saligna*), and implementation of a pest control program.

8.5 Trials, research and other initiatives

No trials, research or other initiatives were undertaken during the reporting period.

8.6 Actions for next reporting period

United Wambo have set an annual target of 55 hectares of woodland rehabilitation in the next reporting period. The rehabilitation maintenance schedule for the next reporting period includes:

- Continued spot spraying for weeds in woodland and pasture areas.
- Slumping repairs in 2021 rehabilitation block.
- Erosion repairs in 2022, 2023, 2024 and 2025 rehabilitation blocks.
- Cut and paint African olive and *acacia saligna* in mature rehabilitation blocks.
- Pest control program.

9. Community

9.1 Community Engagement Activities

The following community engagements were undertaken in 2025. During these engagements feedback is received either verbally or formally through surveys which is used to evaluate United Wambo's social performance.

- Voluntary Planning Agreement (VPA) committee was established with Singleton Council and community members. Meetings were held February, May, August and November 2025.
- United Wambo operates a Community Consultative Committee (CCC) in accordance with Schedule 2, Condition A19 of the United Wambo **SSD 7142**. During 2025, United Wambo provided information to the community through the United Wambo CCC to provide updates on the operation. The United Wambo CCC will also be provided the completed 2025 Annual Review. CCC meetings were held 25 February, 6 May, 5 August and 11 November 2025.
- Community Newsletters were distributed June and December 2025.
- Community Information Nights were held June and December 2025. Community Information Nights were well received.
- Tank cleaning and inspection program for residents.
- Air conditioning maintenance program for residents.

Various consultation meetings with nearby residents regarding mitigation works at their properties, exploration and locations of noise monitors.

9.2 Community Contributions

Community contributions for 2025 are provided in **Table 9-1**.

Table 9-1 Community contributions for 2025

Organisation	Purpose
Business Singleton	Implementation of small business workshops
Business Singleton	International Women's Day luncheon
Branxton Greta Soccer Club	Upgrade of payment facilities for canteen
Singleton PCYC	Provide safer driver training to learner drivers including disadvantaged young persons
Bulga Community Hall	Mental health first aid refresher training
Howes Valley Community Association	Purchase of new drinks fridge for community hall
Carries Place	Renovation of premises for community laundry
Warkworth Hall	Kitchen refurbishment
Singleton Theatrical Society	2026 production of the Boy from Oz
Singleton District Hospital Auxiliary	Funding for updated ward beds
Singleton Rotary on Hunter	2026 Singleton Art Prize
Singleton Neighbourhood Centre	Assist with implementation of strategic plan
Singleton Family Support	Art therapy support program for youth
Singleton Family Support	Art therapy support program for women
Singleton Fire Brigade Social Club	2025 Christmas lolly run in Singleton
Branxton Fire Service	2025 Christmas lolly run in Branxton

9.3 Complaints

Nine complaints were received during the reporting period (see **Figure 9-1 Chart of Community Complaints**). The largest complaint category for 2025 was noise, with a total of eight. One dust complaint was received during this reporting period. There were no complaints regarding lighting, blasting or traffic impacts. Over the course of the year, United Wambo have been implementing targeted management measures to prevent impacts. A detailed summary of the United Wambo complaints for 2025 can be found in **Appendix C -Summary of Complaints**

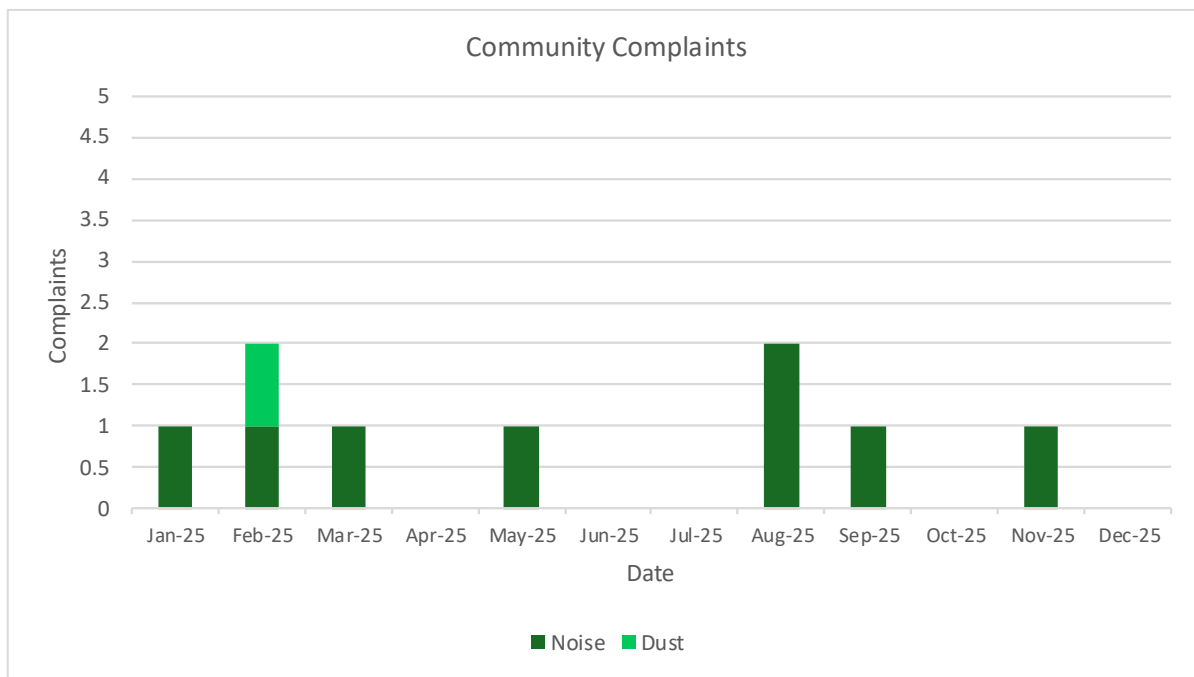


Figure 9-1 Chart of Community Complaints

All complaints were addressed with the appropriate actions including modifying operations where required.

United Wambo received 5 complaints in 2024, 7 complaints in 2023, 16 complaints in 2022, 48 complaints in 2021, and 3 complaints in 2020.

United Wambo will continue to monitor complaint trends. United Wambo operates a 24-hour Community Complaints and Enquiries Hotline to ensure that any community concerns can be recorded and responded to as soon as possible.

The community information line number is **1800 801 440**.

The number is advertised in community newsletters, in the local newspaper and on the United Wambo website at <https://www.glencore.com.au/operations-and-projects/coal/current-operations/united-wambo-open-cut>.

10. Independent Environment Audit

An Independent Environmental Audit was last undertaken in 2023 in accordance with Schedule 2, Part E, Condition E12 of **SSD 7142**. For a summary of the audit findings, refer to the **United Wambo 2023 Annual Review**.

The next audit is due in 2026.

11. Incidents and Non-Compliances Within the Reporting Period

11.1 Summary of Incidents

There were no significant or reportable incidents in 2025.

11.2 Summary of Non-Compliances

Table 11-1 below details the non-compliances of the reporting period due to missing data.

Table 11-1 Summary of missing air quality data for the reporting period

Monitor	Date(s)	Cause
AQ01 PM ₁₀	30/01/2025	Unexplained power outage at 12:40pm and 5:50pm.
	09/04/2025 – 10/04/2025	Zero noise filter overnight
	01/05/2025	Corrective maintenance conducted
	25/07/2025	Unexplained power outage at 9am
	26/09/2025	Unexplained power outage at 4:40am
AQ02 PM ₁₀	15/01/2025 – 16/01/2025	TEOM stopped due to disruption in the supply of local mains power caused by a fallen tree
	28/01/2025	TEOM stopped and restarted due to elevated enclosure internal temperature
	11/02/2025 – 12/02/2025	UPS failure
	30/09/2025 – 01/10/2025	12M PM with zero noise filter
	18/10/2025	Unexplained power outage. Operation restored at 1:20pm
	26/11/2025	Power outage at 8:00pm
AQ03 PM ₁₀	17/01/2025 – 18/01/2025	Unexplained power outages at 3:20pm and 1130pm with power returning 350am
	02/03/2025	Power outage at 2:10pm
	24/05/2025 – 26/05/2025	Power outage at 1:20am
	10/06/2025	Power outage at 13:50
AQ04 PM ₁₀	01/08/2025	12M PM with zero noise filter
HVAS01	12/04/2025	Grass clippings on filter paper A0345306. TSP results 603ug/m ³ . Analysis by Todoroski Air Solutions deemed the result contaminated. Results have been excluded from ARA.
	18/04/2025	<75% capture on the day
HVAS02	11/02/2025	<75% capture on the day due to power outage
	24/05/2025	Machine off on arrival. Short run. No analysis carried out as per client's request

Real Time Monitoring - <75% daily data collection

The dates specified for AQ01, AQ02, AQ03 and AQ04, TEOMs failed to obtain a valid sample for varying lengths of time. The failure to obtain the samples was a result of varying causes, including unplanned power outages, mechanical and software issues, and planned maintenance. As a result of the missing data, a sample capture percentage of <75% for the day occurred on each of the dates identified, therefore a valid 24-hour average could not be calculated.

12. Activities to be Completed in Next Reporting Period

Table 12-1 outlines the key proposed activities during 2026.

Table 12-1 Proposed Actions for 2026

Proposed Action	Timeline	Comments
Dust Management	2026	Feasibility of incorporating emerging dust suppression technologies into current operations
Waste	2026	Development of plan for the removal of legacy waste at United Wambo
Water Management	2026	U1 Dam commissioning, U2 Dam decommissioning
		Complete GW model independent peer review/validation
Approvals	2026	Renewal of ML1572, EL7211 and relinquishment of EL8456.
Biodiversity	2026 - Ongoing	Targeted weed control onsite and offset properties.
Rehabilitation	2026	55 hectares of rehabilitation will be undertaken.
		Commencement of erosion repairs
		Targeted weed control on Rehabilitation blocks
		Update of the UWJV Rehabilitation Strategy.

13. References

The **United Wambo Open Cut Coal Mine Project EIS** and Assessment documentation is available on the United Wambo public website. All United Wambo and Wambo Mine Environmental Management System documents including Management Plans are available on the public website of each company:

[United Wambo Joint Venture Open Cut \(glencore.com.au\)](https://www.glencore.com.au)

<https://www.glencore.com.au/operations-and-projects/coal/current-operations/united-wambo-open-cut>

[Peabody - Wambo Underground Mine \(peabodyenergy.com\)](https://www.peabodyenergy.com)

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

Other documents referenced in this annual review are summarised in **Table 13-1** below.

Table 13-1 References

Reference	Document Description
Umwelt, 2026	United Wambo Open Cut Coal Mine 2025 Groundwater Annual Review Final March 2026 (Report No. 21033/R14)
StygoEcologica, 2025	United Wambo Open Cut Coal Mine Project Stygofauna Assessment 5, September 2025
Ecological Australia, 2025	Groundwater Dependant Ecosystem Tree Monitoring Baseline monitoring report 2025 United Wambo Joint Venture - Glencore
SLR, 2022	Wambo Coal Mine Longwalls 24-26 Modification Groundwater Assessment SLR Ref: 665.10008.00815-R01 Version No: -v4.0 prepared for Wambo Coal Pty Ltd, July 2022.
SLR, 2025	SLR, 2025. Groundwater Monitoring Network Review, Wambo Complex Wambo Coal Pty Ltd & United Collieries Pty Ltd, Project No.: 665.v10008.02035, 18 November 2025.
SLR, 2025b	SLR, 2025b. 2024 Annual Review – Groundwater, United Wambo Joint Venture, Project No.: 660.v30030.00404, 28 March 2025
Glencore, 2025	Glencore's 2025 Annual Report - <u>Glencore 2025 Annual Report</u>

Appendix A - DPHI Feedback

This section may be updated with feedback from the NSW Department of Planning, Housing and Infrastructure upon their review of the United Wambo Joint Venture 2025 Annual Review.

Appendix B - Annual Groundwater Review



United Wambo Open Cut Coal Mine

2025 Groundwater Annual Review

Final

March 2026



United Wambo Open Cut Coal Mine

2025 Groundwater Annual Review

Final

Prepared by
Umwelt (Australia) Pty Limited

On behalf of
United Wambo Joint Venture

Project Director: Kirsty Cooksey
Project Manager: Deni Hourihan
Report No.: 21033 / R14
Date: March 2026



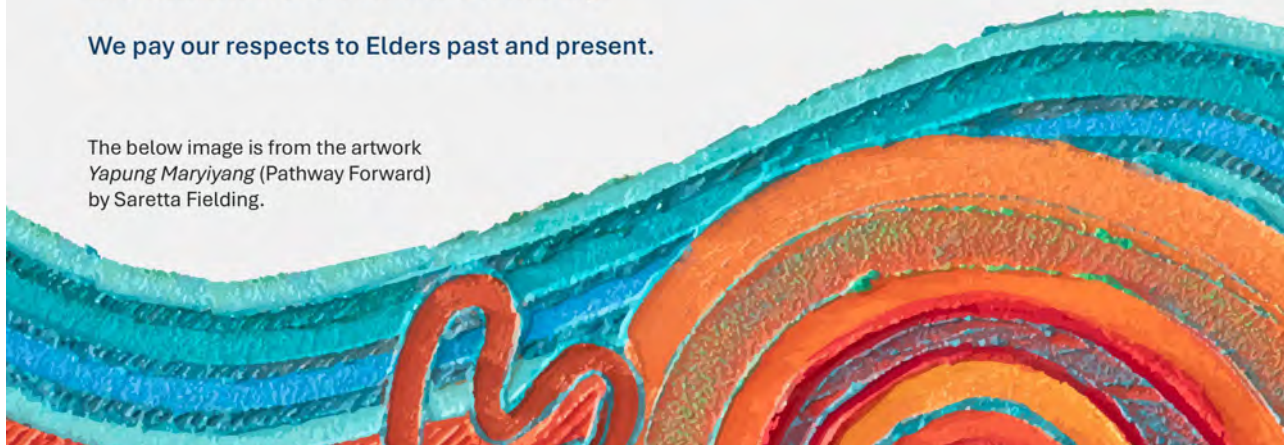
This report was prepared using
Umwelt's ISO 9001 certified
Quality Management System.

Acknowledgement of Country

Umwelt acknowledges the Traditional Owners of Country throughout Australia and their continuing values, culture and connection to the land, waters and sky.

We pay our respects to Elders past and present.

The below image is from the artwork *Yapung Maryiyang* (Pathway Forward) by Saretta Fielding.



Disclaimer

This document has been prepared for the sole use of the authorised recipient and this document may not be used, copied or reproduced in whole or part for any purpose other than that for which it was supplied by Umwelt (Australia) Pty Ltd (Umwelt). No other party should rely on this document without the prior written consent of Umwelt.

Umwelt undertakes no duty, nor accepts any responsibility, to any third party who may rely upon or use this document. Umwelt assumes no liability to a third party for any inaccuracies in or omissions to that information. Where this document indicates that information has been provided by third parties, Umwelt has made no independent verification of this information except as expressly stated.

©Umwelt (Australia) Pty Ltd

Document Status

Rev No.	Reviewer Name	Date	Approved for Issue Name	Date
V1	D Hourihan	07/03/2026	K Cooksey	08/03/2026
V2	D Hourihan	19/03/2026	K Cooksey	20/03/2026
V3	D Hourihan	26/03/2026	K Cooksey	26/03/2026

Contents

1.0	Introduction	1
1.1	Approved Mine Operations	1
1.2	Groundwater Impact Predictions	5
1.2.1	Groundwater Level Impacts	5
1.2.2	Groundwater Quality Impacts	5
1.3	Model Verification	6
1.4	Water Licenses and Predicted Take	6
1.5	Groundwater Conditions	8
2.0	Environment	11
2.1	Climate	11
2.2	Terrain and Drainage	12
2.3	Geology	14
2.4	Hydrogeology	17
2.4.1	Quaternary Alluvium	17
2.4.2	Permian Coal Measures	17
2.5	Groundwater Dependent Ecosystems	17
2.5.1	Terrestrial Ecosystems	17
2.5.2	Subterranean Ecosystems	18
3.0	Groundwater Monitoring Network	19
3.1	Groundwater Monitoring Program	19
3.2	Network Updates and Maintenance	20
3.3	Groundwater Monitoring Network Review	20
3.4	Groundwater Performance Criteria and Trigger Levels	22
3.5	GDE Monitoring and Performance Assessment	26
3.5.1	Performance Criteria	26
3.5.2	Stygofauna	27
4.0	Groundwater Monitoring Results	28
4.1	Data Recovery	28
4.2	Water Level and Quality Summary Data	29
4.3	Groundwater Trends	32

4.3.1	North Wambo Creek Alluvium	32
4.3.2	Wambo Creek Alluvium	34
4.3.3	Wollombi Brook Alluvium	36
4.3.4	Stony Creek Alluvium	41
4.3.5	Hunter River Alluvium	43
4.3.6	Shallow Weathered Permian (Regolith)	45
4.3.7	Permian Coal Measures	47
4.4	Vibrating Wire Piezometers	50
4.5	Trigger Exceedances	53
4.6	Groundwater Dependent Ecosystems Monitoring and Compliance	57
4.6.1	Stygofauna Study	57
4.6.2	Tree Monitoring	57
4.6.3	GDE Compliance	59
5.0	Groundwater Take	61
6.0	Compliance with Groundwater Performance Criteria	62
7.0	Summary and Recommendations	67
7.1	Summary	67
7.2	Recommendations	68
8.0	References	70

Figures

Figure 1.1	Site Layout	4
Figure 2.1	Monthly SILO Rainfall and Cumulative Rainfall Departure	12
Figure 2.2	Wollombi Brook Water Levels versus Rainfall	13
Figure 2.3	Wollombi Brook Discharge vs Electrical Conductivity	14
Figure 2.4	Surface Geology	16
Figure 3.1	Groundwater Monitoring Network	21
Figure 4.1	North Wambo Creek Alluvium – Water Level	33
Figure 4.2	North Wambo Creek Alluvium – pH	33
Figure 4.3	North Wambo Creek Alluvium – EC	34
Figure 4.4	Wambo Creek Alluvium – Water Level	35

Figure 4.5	Wambo Creek Alluvium – pH	35
Figure 4.6	Wambo Creek Alluvium – EC	36
Figure 4.7	Wollombi Brook Alluvium – Water Level	37
Figure 4.8	Wollombi Brook Alluvium – pH	38
Figure 4.9	Wollombi Brook Alluvium – EC	38
Figure 4.10	GDE Bores – EC	39
Figure 4.11	GDE Bores – Water Levels – All Bores	39
Figure 4.12	GDE Bores – Water Levels – Alluvium	40
Figure 4.13	GDE Bores – Water Levels – Permian and Overburden	40
Figure 4.14	GDE Bores – Sulphate	41
Figure 4.15	Stony Creek Alluvium – Water Levels	42
Figure 4.16	Stony Creek Alluvium – pH	42
Figure 4.17	Stony Creek Alluvium – EC	43
Figure 4.18	Hunter River Alluvium – Water Levels	44
Figure 4.19	Hunter River Alluvium – pH	44
Figure 4.20	Hunter River Alluvium - EC	45
Figure 4.21	Wambo Creek Regolith – Water Levels	46
Figure 4.22	Wambo Creek Regolith - pH	46
Figure 4.23	Wambo Creek Regolith - EC	47
Figure 4.24	Permian Coal Measures – Water Levels	48
Figure 4.25	Permian Coal Measures - pH	49
Figure 4.26	Permian Coal Measures – EC	49

Tables

Table 1.1	United Wambo Mine Activities	2
Table 1.2	Surrounding Mines	3
Table 1.3	Groundwater and Surface Water Licenses and Predicted Water Take	7
Table 1.4	Groundwater Management and Monitoring Plan Commitments	8
Table 2.1	Rainfall Data (mm)	11
Table 2.2	Generalised Stratigraphy of United Wambo	15
Table 3.1	2025 Groundwater Monitoring Network Updates and Maintenance	20
Table 3.2	Groundwater Performance Criteria	22

Table 3.3	Trigger Values	24
Table 3.3	Proposed GDE Triggers (Umwelt, 2021)	26
Table 3.4	Groundwater Performance Measures – GDE	27
Table 4.1	Groundwater Monitoring Data Recovery	28
Table 4.2	Groundwater Level and Groundwater Quality Results Summary from January to December 2025	30
Table 4.3	Permian Coal Measures VWP Summary	50
Table 4.4	2025 Trigger Exceedances	54
Table 4.5	2025 Trigger Exceedance Discussion	55
Table 4.6	2025 GDE Performance Assessment	59
Table 4.7	Assessment of Compliance Against Proposed GDE Triggers	60
Table 5.1	Predicted Groundwater Take	61
Table 6.1	Groundwater Performance Criteria	63
Table 7.1	Summary of Recommendations	69

Appendices

Appendix A	Groundwater Monitoring Network
Appendix B	VWP Hydrographs
Appendix C	Groundwater Level and Quality Graphs
Appendix D	Groundwater Monitoring Network Review

1.0 Introduction

The United Wambo Open Cut Coal Mine (United Wambo) is situated approximately 16 km northwest of Singleton, New South Wales (NSW). United Wambo is a joint venture between United Collieries Pty Ltd (Glencore and Mining Energy Union (MEU)) and Wambo Coal Pty Limited (a subsidiary of Peabody Energy Australia Pty Limited) (UWJV).

United Wambo comprises open cut mining operations which were approved under Development Consent State Significant Development (SSD) 7142 in August 2019. This includes the United Pit to be mined down to the Vaux Seam of the Wittingham Coal Measures, and the Montrose Pit (former Wambo Pit) to be mined down to the Warkworth Seam of the Wittingham Coal Measures. The open cut operations are located adjacent to Wambo underground operations. United Wambo (open cut) and Wambo (underground) share water licences as well as several groundwater monitoring locations within their respective monitoring networks (SLR, 2025). Both United Wambo and Wambo operations utilise the CHPP, and rail load out facility which are administered by Wambo under DA 305-7-2003.

A consolidated Groundwater Management Plan (GWMP) (Version 6, document number UWOC-1689771511-370) (Glencore, 2022) came into effect in September 2022. The GWMP (V6) (Glencore, 2022) applies to all activities at United Wambo and addresses approval commitments under SSD 7142 conditions of consent. The GWMP (V6) (Glencore, 2022) also forms part of the Environmental Management System for United Wambo.

Umwelt (Australia) Pty Ltd (Umwelt) have been engaged to undertake the annual review of the groundwater monitoring results collected from 1 January to 31 December 2025 (the reporting period). This report has been prepared in accordance with the reporting requirements outlined in the GWMP (V6) (Glencore, 2022).

1.1 Approved Mine Operations

The open cut operations at United Wambo commenced in January 2020 and is comprised of existing open cut operations at Wambo with a new open cut mine at United. The combined open cut mine is forecast to produce 10 million tonnes of thermal and metallurgical coal annually until predicted closure in 2042 (SLR, 2025). The United Wambo mine areas are shown in **Figure 1.1**.

Activities conducted at site over the reporting period that are relevant to groundwater are listed in **Table 1.1**. United Wambo is surrounded by mining operations that are also mining the Whittingham Coal Measures.

Table 1.2 provides a summary of mine operations around United Wambo including the adjacent Wambo underground workings.

Table 1.1 United Wambo Mine Activities

Site	Type	Status 2025	Comment
Montrose Pit (former Wambo Open Cut)	Open Cut	Active	To be mined in 2021-2039, down to the Warkworth Seam.
United Open Cut	Open Cut	Active	To be mined in 2021-2039, down to the Vaux Seam
Historical Open Cut Pits	Open Cut	Inactive	Includes Hunter Pit, Wombat Pit, Homestead Pit, South Bates Pit, Eastern Pit, Western Pit, North Bates Pit, Ridge Pit, North East Pit, Whynot Pit, Wollemi Boxcut, Wambo Pit and Montrose Pit. Mined from 1969 to 2020 targeting the Whynot, Whybrow and Wambo seams.
United Colliery Underground	Underground	Inactive	Mined the Arrowfield Seam and Woodlands Hill Seam from 1992 to 2010. United underground box cut sealed in 2025. United underground sealing project progressed – 118/137 boreholes drilled and old workings filled with grout to roof, 18/26 barriers grouted.
Wambo Underground	Underground	Inactive	Wambo underground mining ceased in 2025. Portals have been sealed.
Tailings Dam 1 (Hunter Pit)	Tailings Storage	Inactive	Previously used for tailings deposition from 2003. Capping works commenced in 2020 and were completed in 2022 and fully incorporated into the overburden dump system in 2023.
U1 Dam	Water Storage	Active	New U1 dam mined in 2025.
Tailings Dam 2	Tailings Storage	Inactive	Previously used for tailings deposition from 2003. Capping works commenced in 2020 and were completed in 2022 and fully incorporated into the overburden dump system in 2023.
Homestead Inpit TSF	Tailings Storage	Active	Commenced from 2021 and in use during 2025.
North East Tailings Dam	Tailings Storage	Inactive	Wambo storage.
North Wambo UG Old InPit	Tailings Storage	Inactive	Wambo storage.
Montrose Water Storage	Mine Water Dam	Active	Wambo storage.
South Wambo Dam	Mine Water Dam	Active	Wambo mine water storage. Recommissioning commenced in 2023 and recommenced use as an operational water storage in May 2024.
West Cut Water Dam	Mine Water Dam	Active	Wambo storage. Decant water from Homestead Pit transferred to West Cut Water Dam.
Eagles Nest Dam	Process Water Dam	Active	Wambo storage.
Gordons Below Franklin	CHPP Dams	Active	Wambo storages. 4 x dams.

Site	Type	Status 2025	Comment
Bates South Open Cut	Dam	Active	Wambo storage. South Bates Underground mine sump.
Tailings Storage	Tailings Storage	Active	Wambo storage. Located next to Wollombi Brook. Chitter Dam had a capacity of 980 ML mine water and tailings sump water (Hunter and North East Tailings) and operated from 2010 to 2016. Was mined out as Glen Munro Pit in 2017 to access South Wambo Underground.

Table 1.2 Surrounding Mines

Site	Type	Comment
North Wambo Underground (NWU)	Underground	Longwall mining at south-east end of site, active from 2007 to 2015 and mined the Wambo Seam.
South Bates Underground (SBU)	Underground	Longwall mining at south end of site, active from 2016 to 2018 and mined the Wambo and Whybrow seams.
South Bates Underground Extension (SBE)	Underground	Longwall mining at south end of site near North Wambo Creek. Active from 2018 to 2025 and mined the Whybrow Seam.
Wambo	Open Cut and Underground	Historical – Within site area, underground longwall workings on the eastern and southern side of site. Underground mining ceased in September 2025. Portals have been sealed.
Hunter Valley Operations (HVO)	Open Cut and historical underground	Historical Lemington Underground immediately east of site, included board and pillar mining of the Bowfield Seam. As well as open cut mining immediately north of site.
Mt Thorley Warkworth (MTW)	Open Cut	Open cut operations located on the eastern side of Wollombi Brook.

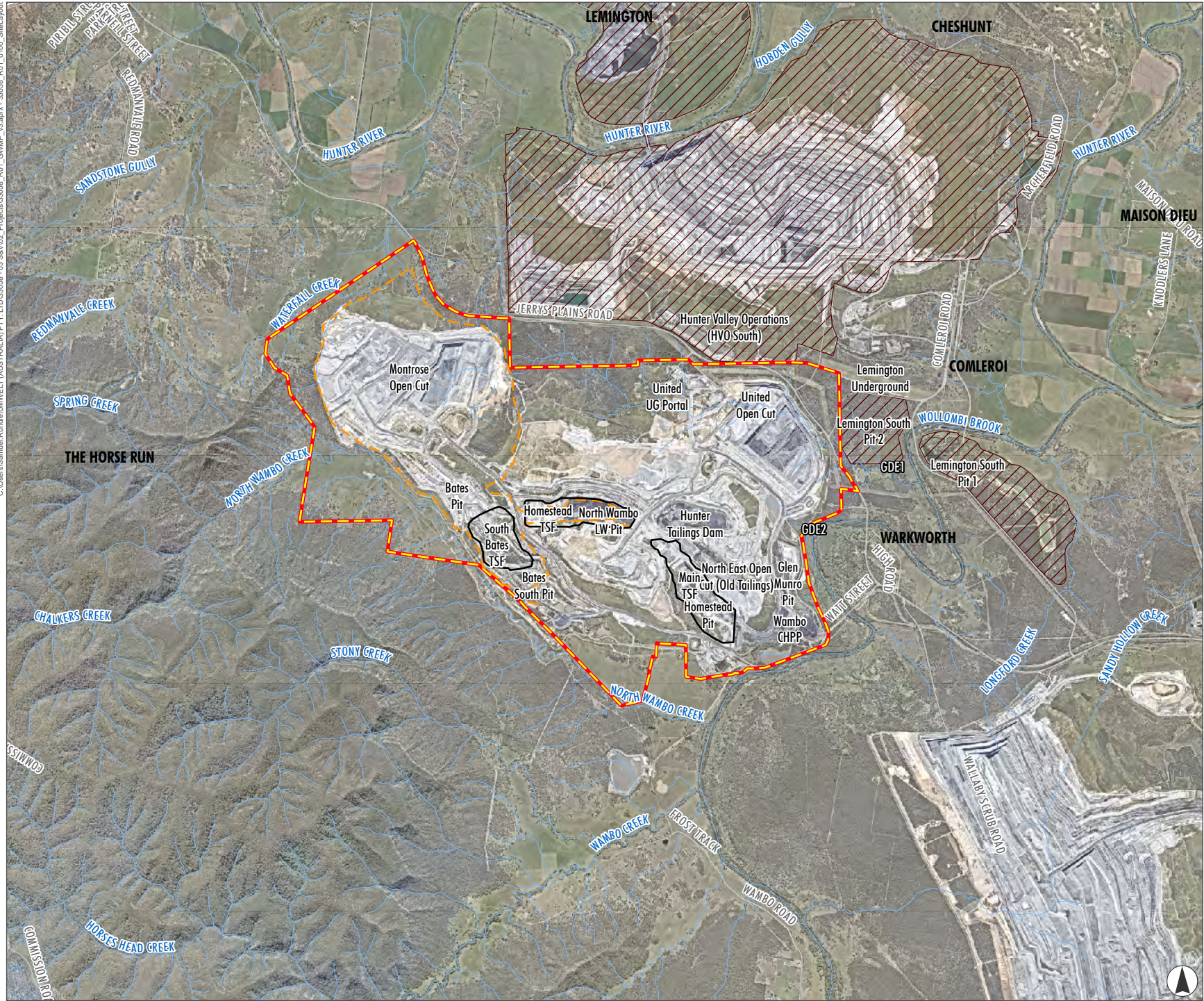


FIGURE 1.1
Site Layout

- Legend**
- Project Area
 - Montrose Open Cut
 - United Open Cut
 - Surrounding Open Cut Mines
 - Tailings Storage Facility
 - Road
 - Watercourse



Scale 1:75,000 at A4
GDA2020 MGA Zone 56



This document and the information are subject to Terms and Conditions and Umwelt (Australia) Pty Ltd ("Umwelt") Copyright in the drawings, information and data recorded ("the information") is the property of Umwelt. This document and the information are solely for the use of the authorized recipient and this document may not be used, copied or reproduced in whole or part for any purpose other than that which it was supplied by Umwelt. Umwelt makes no representation, undertakes no duty and accepts no responsibility to any third party who may use or rely upon this document or the information.

APPROVED FOR AND ON BEHALF OF Umwelt

1.2 Groundwater Impact Predictions

Groundwater impact predictions for United Wambo are summarised in the GWMP (V6) (Glencore, 2022) and presented in the groundwater impact assessment by AGE (2016).

In 2022, SLR rebuilt and recalibrated the Wambo Complex numerical groundwater model for Wambo as part of their groundwater impact assessment for the South Bates Extension for Longwalls 24 to 26 Modification 19 (SLR, 2022). The model included United Wambo open cut and Wambo underground mining. The model was calibrated up to December 2020 and peer reviewed by HydroAlgorithmics (2022). The report presents the cumulative impacts for the Wambo Modification 19 and United Wambo operations. In 2024, SLR summarised the predicted impacts relevant to United Wambo operations only, based on the predictions from the SLR (2022) groundwater model.

The predicted impacts are summarised in the sections below.

1.2.1 Groundwater Level Impacts

The mine operations at United Wambo target the Permian coal measures and extend below the groundwater table. Due to this, there is a direct interception of groundwater within the open cut pits that result in localised depressurisation of the Permian coal measures. The zone of depressurisation combines with depressurisation from surrounding open cut and underground operations (cumulative impacts). These include Wambo, Hunter Valley Operations (HVO) South and Mount Thorley Warkworth (MTW).

Modelling by AGE (2016) predicted depressurisation in the coal measures due to mining by United Wambo would extend up to 2 km to 3.5 km from the active mine area. Drawdown in the alluvium was predicted to occur in a localised area along the Hunter River alluvium up to 3 km north of Montrose Pit (former Wambo Open Cut). It was also predicted to occur in the Wollombi Brook alluvium up to 2 km east of the United Pit. This included areas of identified potential GDEs referred to as GDE1 and GDE2.

An area of localised drawdown was also predicted where the original alignment of North Wambo Creek extended to Montrose Pit. The extent of drawdown in the alluvium is influenced by the extent of saturated alluvium and cumulative impacts from the existing operations at HVO near the Hunter River, Wambo below North Wambo Creek and Wambo, HVO and Warkworth along Wollombi Brook. Up to 6.1 m of groundwater drawdown was predicted at one private bore (GW060780) due to mining at United Wambo. Drawdown was also predicted at HVO bore (GW060750), and three bores on Glencore owned land (GW017799, GW017798 and GW017646) (**Figure 1.1**).

The modelling by SLR (2022) indicates changes in the predicted cumulative drawdown, with around 2 m to 5 m drawdown at private bore GW060780 and no drawdown predicted at GW060750. For the bores on Glencore owned land, over 20 m drawdown was predicted at GW017799, around 10 m drawdown at GW017798 and no drawdown at bore GW017646.

1.2.2 Groundwater Quality Impacts

As reported in the GWMP (V6) (Glencore, 2022), minimal changes to the baseline water quality in the alluvium and Permian coal measures were predicted by operations at United Wambo (AGE, 2016).

1.3 Model Verification

As specified in the GWMP (V6) (Glencore, 2022) the numerical groundwater model is required to be independently reviewed every three years to determine the validity of the model predictions. Observed monitoring results are compared to modelled predictions and if there is significant divergence the groundwater model will be updated to simulate future mining.

In 2023 it was identified that there were differences between the simulated and actual/planned mining progression at United Wambo open cut in the SLR (2022) model. The SLR (2022) model simulated the extent and depth of the open cut progression based on the AGE (2016) model. However, the actual and planned open cut mining progression will target a slightly smaller footprint with different timing compared to the AGE (2016) model (SLR, 2025b). The SLR (2022) model was updated to include the open cut mining progression, replacing the approved mine plan used by AGE (2016).

The review by SLR (2024) of the updated model found minor extensions of LW 25 and LW 26 may slightly increase groundwater drawdown to the west of United Wambo in the vicinity of North Wambo Creek. The findings included:

- Impact on GDEs are expected to be minor and localised.
- The Permian Coal measures will experience groundwater drawdown confined to areas near the mining activities.
- The alluvial groundwater system is anticipated to have no significant incremental impacts.
- Predicted impacts on private bores, and the risk to baseflow in nearby creeks is expected to decrease due to the reduced mining area and period.

In accordance with SSD 7142 condition B52e (v), in 2025 SLR undertook a review of the existing SLR (2022) groundwater model that covers United Wambo operations. As part of the process, SLR identified areas for improvement in the model, including incorporation of recent climatic conditions and actual mine progression. The model updates are still in progress and will be incorporated into the 2026 annual review. For this annual review, the previous SLR (2022) model predictions have been utilised.

1.4 Water Licenses and Predicted Take

Under the *Water Act 1912* and *Water Management Act 2000*, adequate water access licences (WALs) are required to supply water to mine developments. Groundwater WALs held under the Water Sharing Plan (WSP) for the North Coast Fractured and Porous Rock Groundwater Sources 2016 (Sydney Basin – north Coast Water Source) total 1,947 ML/year. The groundwater WALs held under the WSP for the Hunter Unregulated and Alluvial Water Sources 2009 (Lower Wollombi Brook Water Source) total 736.9 ML/year. Water licenses held by United and Wambo are outlined in **Table 1.3**.

Modelling by SLR (2022) predicted mine inflows to Montrose Pit and United Pit of up to 714 ML/year from the Permian coal measures, which fall within the North Coast Fractured and Porous Rock water sharing plan. SLR (2022) predicted an indirect additional take due to the Project, from alluvium along Wollombi Brook of 135 ML/year, on average, which falls under the Hunter Unregulated water sharing plan. No take is predicted as baseflow from rivers/creeks, which falls under the Hunter Regulated water sharing plan.

The water license and predicted water take are summarised in **Table 1.3**.

Table 1.3 Groundwater and Surface Water Licenses and Predicted Water Take

Licence No.	Holder	Entitlement*	Predicted Water Take (ML/year)**
Groundwater: Lower Wollombi Brook Water Source – Hunter Unregulated and Alluvial Water Source			
WAL18445	United	200 unit shares	135
WAL18549	United	100 unit shares	
WAL18437	Wambo	366.9 unit shares	
WAL23897	Wambo	70 unit shares	
Groundwater: North Coast Fractured and Porous Rock Groundwater Source			
WAL42373	Wambo	1549 unit shares	714
WAL41532	Wambo	98 unit shares	
WAL41510	United	300 unit shares	
Surface Water: Hunter Regulated Water Sharing Plan			
WAL718	Wambo	1000 unit shares	0
WAL8599	Wambo	6 unit shares	
WAL8600	Wambo	868 unit shares	
WAL8604	Wambo	240 unit shares	
WAL10541	United	300 unit shares	

Note: * One unit share is equivalent to 1 ML/year, unless reductions are in place via an annual available water determination

** Predicted average annual water take over life of mine based on the SLR (2022) model

1.5 Groundwater Conditions

Relevant groundwater requirements for the GWMP (V6) (Glencore, 2022), stipulated by the conditions of SSD 7142 are summarised in **Table 1.4**. This report is developed as per the reporting requirements outlined in the GWMP (V6) (Glencore, 2022).

Table 1.4 Groundwater Management and Monitoring Plan Commitments

Condition	Condition Details	Section Addressed
B49 Alluvial aquifers (including Wollombi Brook alluvium)	Negligible impacts to the alluvial aquifer beyond those predicted in the document/s listed in condition A2(c), including: - Negligible change in groundwater levels. - Negligible impact to other groundwater users. Maintain appropriate setbacks in accordance with the AIP (DPIE Water, 2012).	Discussion on results in Section 4.3 Refer to main Annual Review report.
B49 Aquatic, riparian and groundwater dependent ecosystems (including GDE1 and GDE2)	- Negligible environmental consequences beyond those predicted in the document/s listed in condition A2(c). - Maintain or improve baseline channel stability. - Develop site-specific in-stream water quality objectives in accordance with the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC & ARMCANZ, 2000) and Using the ANZECC Guidelines and Water Quality Objectives in NSW (Dec, 2006).	Discussion on results in Section 4.3 Refer to main Annual Review report. Refer Section 3.5
B51 Groundwater Dependent Ecosystem Study	Within 12 months of the commencement of development under this consent, the Applicant must undertake a Groundwater Dependent Ecosystem Study. This study must: - Be prepared by suitably qualified and experienced person/s. - Be developed in consultation with DPIE Water. - Assess the hydrological and hydrogeological settings of the site. - Be integrated with the similar studies being undertaken by nearby mines (where practicable). - Further characterise groundwater dependent ecosystems (vegetation and communities) potentially impacted by the development, including the Central Hunter Swamp Oak Forest EEC (GDE1), Hunter Valley River Oak Forest (GDE2) and individual River Red Gums (GDE1 and GDE2) identified along the riparian buffers of Redbank Creek and Wollombi Brook. - Detail the reliance of groundwater dependent ecosystems on surface and groundwater resources. - Identify the potential risks to groundwater dependent ecosystems from the development	GDE Study completed by Umwelt (2021). Details on proposed performance criteria in Section 3.5 and Section 4.6

Condition	Condition Details	Section Addressed
	and the Wambo Mining Complex, and other nearby mines (where practicable). Use the results of this study to develop performance criteria to achieve the performance measures in Table 4 and inform the Groundwater Management Plan in condition B52.	
B52 (e)(v) Water Management Plan – Groundwater Management Plan	The Water Management Plan must include a Groundwater Management Plan, which is consistent with Groundwater Monitoring and Modelling Plans – Introduction for prospective mining and petroleum activities (DPI Water, 2014) and the National Water Quality Management Strategy (DoEE, 2015) and includes: Detailed baseline data of groundwater levels, yield and quality for groundwater resources potentially impacted by the development, including groundwater supply for other water users and groundwater dependent ecosystems.	Baseline data used and presented where relevant in Section 4.3.
	- A detailed description of the groundwater management system. - Groundwater performance criteria, including trigger levels for identifying and investigating any potentially adverse groundwater impacts associated with the development, on: - Regional and local aquifers (alluvial and hardrock). - Groundwater supply for other water users such as privately-owned licensed groundwater bores. - Groundwater dependent ecosystems. Aquatic habitat and stygofauna. - A program to monitor and evaluate: - Compliance with the relevant performance measures listed in Table 4 (SSD 7142), and the performance criteria established above. - Water loss/seepage from water storages into the groundwater system. - Groundwater inflows, outflows and storage volumes to inform the Site Water Balance. - Any hydraulic connectivity between the alluvial and hard rock aquifers. - Impacts on groundwater supply for other water users. - Impacts on groundwater dependent ecosystems. - The effectiveness of the groundwater management systems. - Reporting procedures for the results of the monitoring program.	Refer to GWMP. Summary of hydrogeological setting in Section 2.4. Performance criteria and triggers presented in Section 3.4. Refer to GWMP. Details on the groundwater monitoring network in Section 3.0. Refer to GWMP. Surface water and site water balance details included in main Annual Review report.

Condition	Condition Details	Section Addressed
	• A plan to respond to any exceedances of the groundwater performance criteria, and repair, mitigate and/or offset any adverse groundwater impacts of the development. • A program to periodically validate the groundwater model for the development, including an independent review of the model every three years, and comparison of monitoring results with modelled predictions.	Annual reporting captured in this report and results discussed in Section 4.5 Groundwater model for the area updated and reported on by SLR (2022), final site specific model and results completed in 2024. Updates currently being peer reviewed (Section 1.3)

2.0 Environment

This section presents a summary of the environment at United Wambo and includes discussion on climate, terrain, drainage, geology, hydrogeology and groundwater dependent ecosystems.

2.1 Climate

Daily rainfall data at United Wambo was collected from the United Met 7 station with monthly rainfall totals for 2025 summarised in **Table 2.1**. Significant rainfall was recorded in January, March, May and August.

Daily rainfall data collected from the Bureau of Meteorology (BoM), Bulga-South Wambo Station (061191) over 2025 is also summarised in **Table 2.1**. This station is located approximately 3.6 km south of the United Wambo.

Climate data was also obtained from the Scientific Information for Land Owners (SILO) database of historical climate records for Australia hosted by the Department of Environment and Science (DES). This service interpolates raw rainfall and evaporation records obtained from the Bureau of Meteorology (BOM), with data gaps addressed through data processing in order to provide a spatially and temporally complete climate dataset.

Climate data was obtained for a SILO grid point (Latitude -32.5, longitude 151.00) at United Wambo between 01/01/1900 to 31/12/2025. A summary of rainfall data for SILO is presented in **Table 2.1**. The rainfall data indicates January, March, April, May, August and September recorded monthly rainfall totals above the long-term average. Based on the SILO dataset, the total recorded rainfall over 2025 was 785.6 mm, which is 140.9 mm above the long-term average annual rainfall. Over 2025, the total SILO rainfall data is 43.6 mm less than the total rainfall recorded at site at Met 7.

Comparison between the BoM Station 061191 data and the SILO data shows similar rainfall levels over the 2025 reporting period, with the stations recording annual rainfall values of 744.0 mm and 785.6 mm respectively. The SILO grid point is closer to The United Wambo and has a longer dataset and has been used to calculate the cumulative rainfall departure (CRD) used for comparison to groundwater levels in this report.

Table 2.1 Rainfall Data (mm)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
United Weather Station (Met 7) (2025)	119.4	67.6	119.4	50.6	146.4	15.0	40.2	135.8	38.8	46.8	34.8	14.4	829.2
BoM Station 061191 (2025)	68.4	59.8	124.1	57.9	100.9	19.0	35.2	117.5	67.8	42.6	27.0	23.8	744.0
SILO (2025)	75.9	56.9	126.9	61.3	125.6	21.3	37.2	125.0	65.1	38.2	26.5	25.7	785.6
SILO Long Term Average*	74.3	71.8	67.1	46.1	39.5	46.6	41.8	35.9	41.3	50.4	62.4	67.6	644.7

*SILO average over data from January 1900 to December 2025.

Long term climate trends in the SILO rainfall data from 1900 to present are displayed using a CRD rainfall plot in **Figure 2.1**. The CRD graphically shows trends in recorded rainfall compared to long-term averages and provides a historical record of relatively wet and dry periods. A rising trend in slope in the CRD graph indicates periods of above average rainfall, whilst a declining slope indicates periods when rainfall is below average. A level slope indicates average rainfall conditions. The area has

generally experienced below average rainfall from 2016 until the end of 2019, with above average rainfall recorded from January 2020 to September 2022. Over 2023 to January 2024 the area experienced below average rainfall. This was followed by periods of gradually above average until July 2025 which was then followed by below average rainfall.

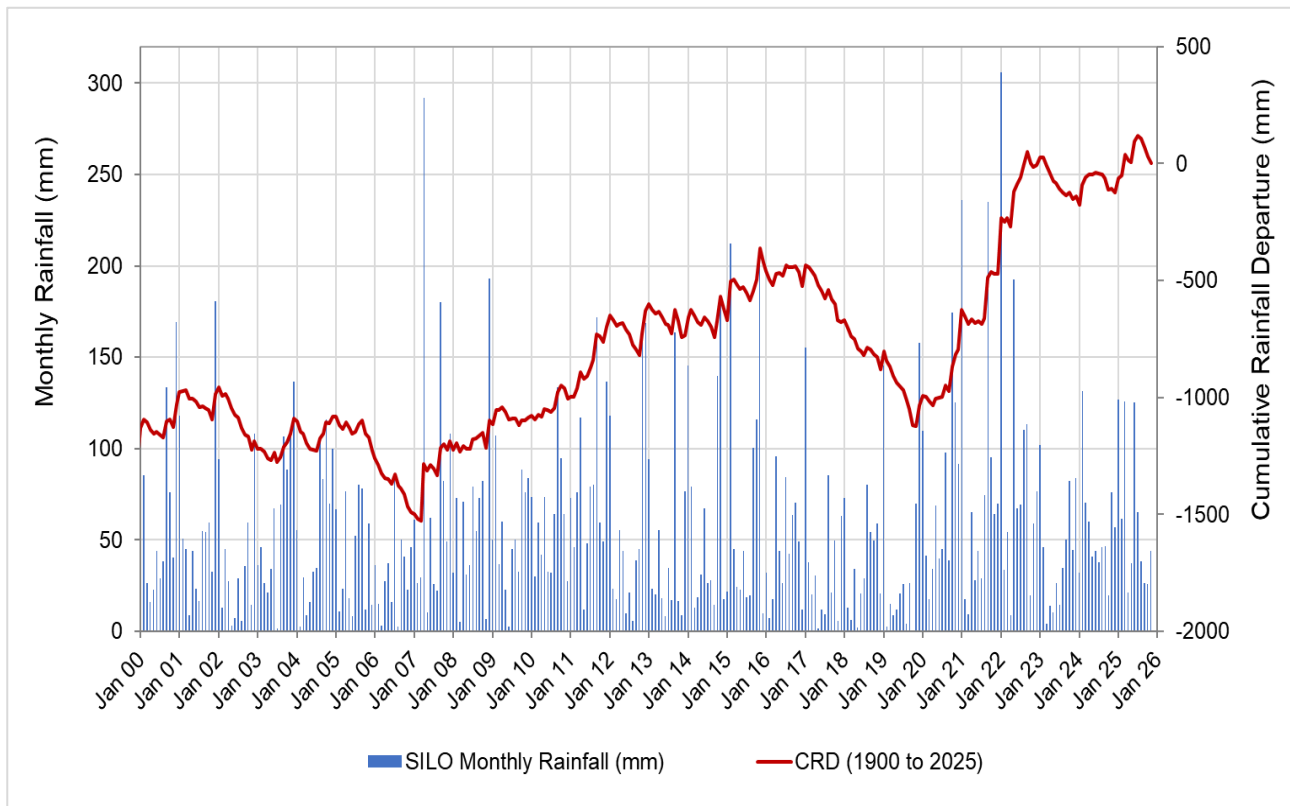


Figure 2.1 Monthly SILO Rainfall and Cumulative Rainfall Departure

2.2 Terrain and Drainage

United Wambo is located within the Upper Hunter Valley area, characterised by gently sloping floodplains and undulating foothills, ridges and escarpments of the Mount Royal Range and Great Dividing Range. Surface elevations range from 60 mAHD at Wollombi Brook to 400 mAHD near the hills to the southwest (SLR, 2025).

United Wambo is primarily drained by Wollombi Brook and its minor tributaries. Wollombi Brook flows in a general north to north-east direction to the confluence with the Hunter River. Tributaries of Wollombi Brook include North Wambo Creek, Stony Creek, Wambo Creek and Redbank Creek. Waterfall creek drains to the northeast directly to the Hunter River. Minor drainage lines around United Wambo are ephemeral in nature, with flows occurring in response to heavy rainfall events.

Streamflow analysis undertaken by AGE (2016) indicated Wollombi Brook and the Hunter River in this area largely recharge alluvium, but there is also potential for localised and temporal baseflow contributions from alluvium to surface water flows. AGE (2016) estimated up to 70 ML/day of alluvial groundwater contributes to the Wollombi Brook, and 231 ML/day of alluvial groundwater contributes to the Hunter River. The groundwater assessment by SLR (2024) state the baseflow in the Hunter River is likely to be less than estimated due to releases from the Glenbawn Dam that maintains a permanent flow for downstream users.

Surface water monitoring is conducted in NSW at various gauge station with telemetry systems. The closest gauging stations to the site along Wollombi Brook is station 210004 at Warkworth. The trends in water levels and water quality for the gauge station 210004 was considered as part of this annual review due to potential interactions with alluvial groundwater trends.

The monitored water levels compared with rainfall (SILO) are shown in **Figure 2.2** , while **Figure 2.3** compares field electrical conductivity (EC) with Wollombi Brook discharge. The data shows increase in flow at 210004 in February, May and August, with river levels rising to approximately 2.65 m in May and 2.6 m in August 2025. EC reduced from around 532 $\mu\text{S}/\text{cm}$ down to 273 $\mu\text{S}/\text{cm}$ in conjunction with water level increase in May. EC also reduced in August by 193 $\mu\text{S}/\text{cm}$ due to the increase in stream water level causing dilution. This rapid rise and decline in the river levels coincide with high rainfall in May and August 2025. **Figure 2.3** shows an immediate decline in EC after rainfall events, but subsequent recovery and rise in EC within approximately two months of the peak flow events.

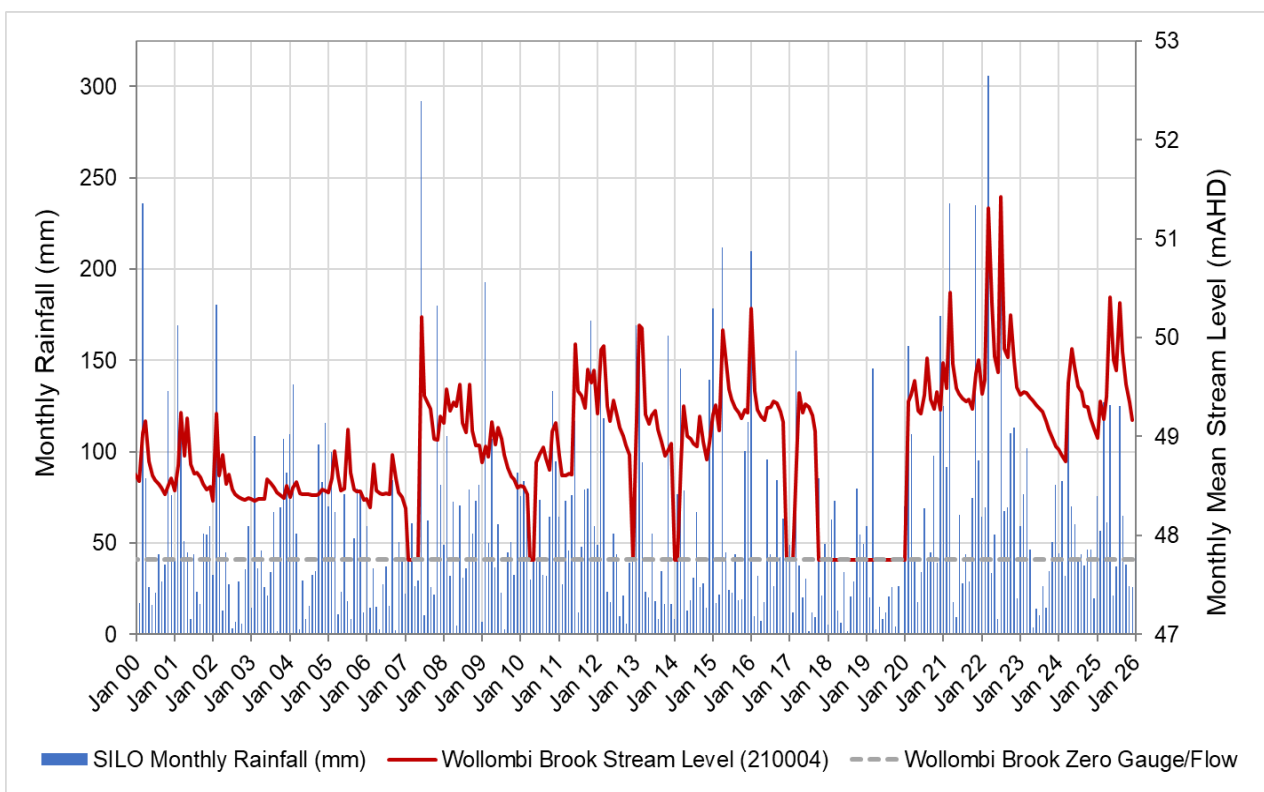


Figure 2.2 Wollombi Brook Water Levels versus Rainfall

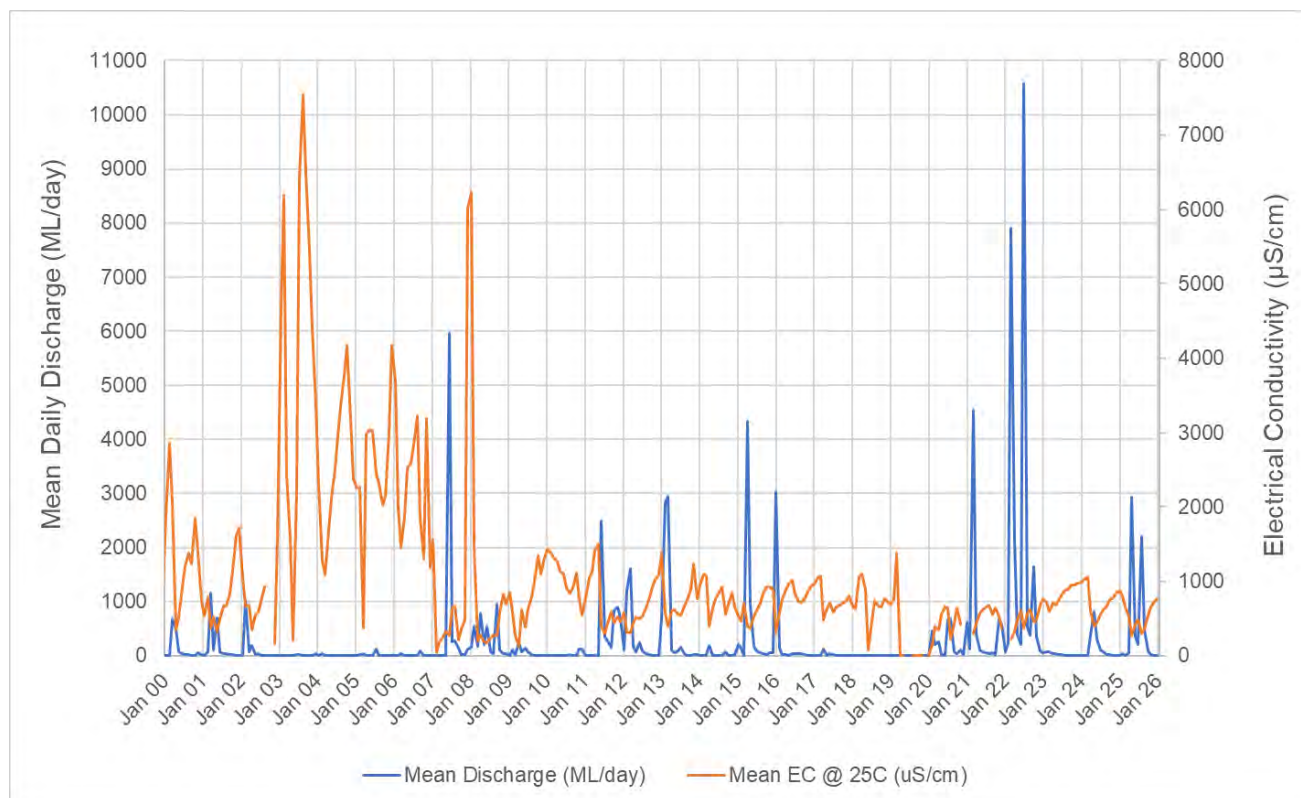


Figure 2.3 Wollombi Brook Discharge vs Electrical Conductivity

2.3 Geology

United Wambo is located within the Hunter Coalfield subdivision of the Sydney Basin. Mining at United Wambo targets economic coal seams within the Permian Wittingham Coal Measures, which also comprises overburden and interburden consisting of sandstone, siltstone, tuffaceous mudstone, and conglomerate. The coal measures occur as stratified (layered) sequences that generally dip to the south-west and occur at outcrop to the north and east. The coal measures are overlain by the Newcastle Coal Measures on the southern end of site, which in turn is overlain by the Triassic Narrabeen Group.

The coal measures are also unconformably overlain by Quaternary alluvium, which occurs localised along watercourses such as Wollombi Brook and the Hunter River. The alluvium includes deposits of silt, sand and gravel. A thin sequence of aeolian sands, known as the Warkworth Sands Formation, is also mapped to the east of Wollombi Brook. **Table 2.2** presents a summary of site stratigraphy and **Figure 2.4** presents a map of the geology of United Wambo and surrounds.

Table 2.2 Generalised Stratigraphy of United Wambo

Age	Stratigraphic Unit	Sub-unit	Description
Cainozoic	Quaternary sediments – alluvium (Qa)	Surficial alluvium (Qhb)	Shallow sequences of clay, silt and sand.
		Productive basal sands/gravel (Qha)	Basal sands and gravels along major watercourses (i.e. Hunter River).
	Silicified weathering profile (Czas)		Silcrete.
	Alluvial terraces (Cza)		Silt, sand and gravel.
Jurassic	Volcanics (Jv)		Flows, sills and dykes.
Triassic	Narabben Group (Rn)		Sandstones, Interbedded sandstone and siltstone, claystone - localised at Wollemi National Park.
Permian	Newcastle Coal Measures	Doyles Creek Sub-Group/Apple Tree Flat Sub Group	Coal seams, claystone (tuffaceous), siltstone, sandstone and conglomerate.
		Watts Sandstone	Medium to coarse-grained sandstone.
	Whittingham Coal Measures	Jerrys Plains Sub-group (Pswj)	Coal bearing sequence interbedded with sandstone and siltstone. Coal seams (youngest to oldest) include Whybrow Seam, Redbank Creek Seam, Wambo Seam, Whynot Seam, Blakefield Seam, Glen Munro Seam, Woodlands Hill Seam, Arrowfield Seam, Bowfield Seam, Warkworth Seam, Mt Arthur Seam, Piercefield Seam, Vaux Seam, Broonie Seam/Ravensworth Seam and Bayswater Seam.
		Archerfield Sandstone	Lithic sandstone marker bed.
		Vane Sub-group (Pswv)	Coal bearing sequences interbedded with sandstone and siltstone. Coal seams (youngest to oldest) include Lemington Seam, Pikes Gully Seam, Arties Seam, Liddell Seam, Barrett Seam and Hebden Seam.
		Saltwater Creek Formation (Pswc)	Sandstone and siltstone, minor coaly bands, siltstone towards base.
	Maitland Group	Branxton Formation (Pmtb)	Conglomerate and sandstone towards base, siltstone becoming more common towards top.



2.4 Hydrogeology

The two primary groundwater bearing units at United Wambo are:

- Quaternary alluvium
- Permian coal measures.

These units are discussed in detail in the sections below.

2.4.1 Quaternary Alluvium

Quaternary alluvium at United Wambo is an unconfined groundwater unit, localised along the Wollombi Brook and parts of its tributaries. The groundwater flow within this unit follows the natural topography, from north to north-east, towards the Hunter River. Recharge to this unit occurs via rainfall, and through losses from the stream bed. Recharge to this unit also occurs through upward leakage from underlying Permian bedrock.

2.4.2 Permian Coal Measures

The Wittingham Coal Measures comprise stratified sequences of siltstone, sandstone, shale (collectively referred to as interburden) and coal. Groundwater occurrence is largely associated with the coal seams, with groundwater storage and movement via secondary porosity (fractures and cleats). The interburden exhibit lower permeabilities compared to the coal seams, with groundwater transmission dependent on the occurrence and frequency of fractures and joints. This results in a higher horizontal hydraulic conductivity within the coal measures. Recharge to the coal measures occurs via rainfall recharge where the unit occurs at outcrop approximately 8 km to the north and east of United Wambo, as well as downward leakage from overlying strata. Groundwater within the coal measures is unconfined at outcrop becoming confined as the coal measures dip towards the southwest.

Groundwater flow within the Wittingham Coal measures is influenced by geomorphology, structural geology and ongoing mining within the area. Vertical hydraulic conductivity is likely significantly lower than horizontal hydraulic conductivity due to the layering of the coal measures. Permeability is higher within the coal seams where groundwater predominantly flows via cleats and potentially fault related fracturing (SLR, 2025b).

2.5 Groundwater Dependent Ecosystems

Groundwater Dependent Ecosystems (GDEs) are located adjacent to United Wambo and can be categorised into terrestrial and subterranean ecosystems, as discussed below.

2.5.1 Terrestrial Ecosystems

Terrestrial ecosystems are deep rooting systems that tap into fresh groundwater such as alluvial aquifers which are present at Wollombi Brook Creek and its tributaries. These are primary GDEs that could be impacted by water table drawdown associated with mining. AGE (2016) identified potential GDEs in the vicinity of United Wambo.

The terrestrial ecosystems are:

- Warkworth Sands Woodland (unlikely to be dependent on regional groundwater, but may rely periodically on perched local groundwater)
- Central Hunter Swamp Oak Forest (likely to be periodically dependent on regional groundwater)
- Hunter Floodplain Red Gum Woodland Complex (uncertain groundwater dependency, but likely)
- Hunter Valley River Oak Forest (uncertain groundwater dependency, but likely)
- River Flat Eucalypt Forest (uncertain groundwater dependency, but likely)
- Stands of individual River Red Gum trees (groundwater dependent).

The River Red Gums are considered to be potentially high priority GDE areas and are the focus for the GWMP (V6) (Glencore, 2022).

2.5.2 Subterranean Ecosystems

Subterranean ecosystems consist of aquatic animals known as stygofauna which are present within the groundwater aquifer. An assessment was completed by Umwelt (2016) showing that stygofauna exist in small, isolated areas around Wollombi Brook and North Wambo Creek alluvium.

3.0 Groundwater Monitoring Network

3.1 Groundwater Monitoring Program

The groundwater monitoring network at United Wambo, as outlined in the current GWMP (V6) (Glencore, 2022), includes 23 monitoring bores and 14 vibrating wire piezometers (VWPs), with sensors targeting the Permian coal measures (**Figure 3.1**). In addition, the GWMP (V6) (Glencore, 2022) notes seven proposed bores and two proposed VWPs to be included in the monitoring network. The seven proposed bores have now been installed. It is noted that in the draft GWMP (V7), which is awaiting approval, moved the location of proposed VWP P403 onto the HVO lease with an adjacent monitoring bore (P403a). VWP P406, near Waterfall Creek, is no longer planned to be installed.

Details on the monitoring bores is also included in **Appendix A**.

As outlined in the GWMP (V6) (Glencore, 2022), monitoring is conducted every two months for groundwater levels and quality, which includes pH and EC. The VWPs monitor pressure heads on a daily frequency. As per the GWMP (V6) (Glencore, 2022), a full suite of water quality analysis is conducted on an annual basis for the following analytes:

- Physio-chemical indicators – pH, EC, total dissolved solids (TDS).
- Major ions – calcium, fluoride, magnesium, potassium, sodium, chloride, sulphate.
- Total alkalinity as CaCO_3 , HCO_3 , CO_3 .
- Dissolved and total metals – aluminium, arsenic, barium, boron, beryllium, cadmium, chromium, cobalt, copper, iron, lead, manganese, mercury, molybdenum, nickel, selenium, strontium, silver, vanadium, and zinc.

The monitoring methodology outlined in the GWMP (V6) includes:

- Assessment of groundwater levels via manual measurements and downloading data loggers.
- Groundwater sampling using purging or low flow sampling techniques.

Groundwater quality sampling is undertaken quarterly by external contractor CBased Environmental Ltd (CBased) in accordance with AS 5667.1-1998, *Guidance on the Sampling of Groundwater's*. Field sheets, detailing the sample location, date, time, field EC, field pH and water level below top of casing are completed by CBased during each monitoring round. The field sheets compiled by CBased and data provided by Glencore have been reviewed by Umwelt for this report.

3.2 Network Updates and Maintenance

A summary of groundwater related site work undertaken at United Wambo during 2025 is provided in **Table 3.1**.

Table 3.1 2025 Groundwater Monitoring Network Updates and Maintenance

Description	Detail of Works Completed
Data Loggers Replaced	In bores P33, P34, UG166A and P402
Logger Batteries Replaced	In VWP UG135, UG220 and UG147
New VWP Hole Drilled	P403 – Exploration hole on HVO lease, reamed out to 125 mm awaiting VWP installation
General Updates	Bore P402 has an elevated gas content and is a potential health and safety hazard
	SLR reviewed and updated Ontoto templates

3.3 Groundwater Monitoring Network Review

In 2025 a groundwater monitoring network review was completed by SLR (2025a) in consultation with United Wambo and Wambo (Peabody). The proposed groundwater monitoring programme has been refined to ensure clear objectives and monitoring targets correctly assess impacts of mining. Key changes to the programme are presented in SLR (2025a), which is contained in **Appendix D**. The results of the monitoring network review have been used to update the GWMP.

In December 2025 United Wambo submitted the updated GWMP (V7) to the Department of Climate Change, energy, the Environment and Water (DCCEEW) and Department of Planning, Housing and Infrastructure (DPHI). Comments regarding V7 of the GWMP were received from DCCEEW on 5 February 2026. The comments included issues with the water licences, provision of the groundwater modelling report (SLR, 2025) and the independent peer review report. United Wambo is working with SLR and Wambo (Peabody) on the water licences, in consultation with WaterNSW.

3.4 Groundwater Performance Criteria and Trigger Levels

The groundwater performance criteria for the alluvial and hard rock aquifers, groundwater inflows to mining pits and seepage/leachate at United Wambo is outlined in **Table 3.2**.

Groundwater levels and quality trigger levels have been developed for United Wambo and are presented in **Table 3.3**. The water level trigger criteria for United Wambo bores are based on the 90th percentile of the recorded depth to groundwater in the historical dataset (2008 to 2018) plus 1 m allowing for seasonal variations. As per the GWMP (V6), an investigation will be triggered if the 90th percentile is exceeded on three consecutive bi-monthly (every two months) monitoring events and is not related to seasonal variability.

Water quality triggers were derived using the 10th and 90th percentile values observed in the historical data (2008 to 2018). As per the GWMP (V6), an investigation will be triggered if three consecutive bi-monthly (every two months) monitoring events record values outside the trigger values:

- pH has an upper and lower trigger value:
 - Lower trigger value derived from historical 10th percentile values.
 - Upper trigger value derived from historical 90th values.
- EC has an upper trigger value derived from historical 90th percentile values.

Table 3.2 Groundwater Performance Criteria

Aspect	Performance Measure	Performance Indicator/Trigger	Response
Alluvial Aquifers	Negligible change in groundwater level (compared to predicted impacts ¹).	90 th percentile (and not related to seasonal variability) over three consecutive bi-monthly events.	TARP – Groundwater Level.
	Negligible change in groundwater quality.	Groundwater quality concentrations outside of adopted trigger values (GWMP) for at least one parameter for more than three consecutive bi-monthly events.	TARP – Groundwater Quality.
Bedrock Aquifers	Negligible change in groundwater level (compared to predicted impacts ¹).	90 th percentile (and not related to seasonal variability) over three consecutive bi-monthly events. No trigger adopted for monitoring sites within the project area.	TARP – Groundwater Level.
	Negligible change in groundwater quality.	pH of 6.5 to 8.5 EC < 17,500 µS/cm.	TARP - Groundwater Quality.
Groundwater Inflows to Mining Pits	Groundwater inflows to mining pits consistent with groundwater model predictions and all take is covered by relevant licences.	Groundwater inflows to mining pits is >10% higher than predicted for three consecutive bi-monthly events, without logical reason (i.e. changes to mine plan or wetter than average climate conditions).	TARP – Groundwater Inflows.

Aspect	Performance Measure	Performance Indicator/Trigger	Response
Seepage/ Leachate	Negligible seepage/leachate from water storages.	Visual inspections of water storages (as per the United Wambo Erosion and Sediment Control Plan Checklists) show seepage zones and reporting water balance indicates seepage is greater than negligible (i.e., >5% of inflows to water storage).	The water storage integrity will be reviewed by a specialist. Other actions as per Unforeseen Impacts Protocol (GWMP Section 9.10).
	All seepage/leachate from emplacement areas is captured in water management system.	Visual inspections (as per the United Wambo's Erosion and Sediment Control Plan Checklists) indicates seepage areas and confirms location of drainage pathways outside of water management system.	Seepage/leachate area to be investigated, including water quality, source of seepage. Works to be undertaken to determine any potential downstream impacts and to ensure seepage is ceased or diverted to water management system. Other actions as per Unforeseen Impacts Protocol (GWMP Section 9.10).
	Negligible impacts of seepage/leachate impacts from backfilled voids on regional groundwater quality.	No increasing trends in water quality parameters in monitoring bores down dip of backfilled voids. An increasing trend would be indicated by three consecutive water quality readings showing continual increases in analyte concentrations.	Other actions as per Unforeseen Impacts Protocol (GWMP Section 9.10).
	Seepage/leachate impacts from final voids are consistent with predictions in relevant environmental impact statements for the two approved final voids (United and Wambo Open Cuts).	Measures to be development as part of United Wambo Closure Plan (at least 5 years prior to completion mining).	TBA as part of United Wambo Closure Plan.

Note: 1 predicted impact as determined in the numerical groundwater model (AGE 2016)

Table 3.3 Trigger Values

Bore ID	Target Unit	Minimum DTW (mbTOC) (10 th %tile)	Minimum DTW (mAHD) (10 th %tile)	Maximum DTW (mbTOC) (90 th %tile)	Maximum DTW (mAHD) (90 th %tile)	EC Trigger (µS/cm) Max. (90 th %tile)	pH min. (10 th %tile)	pH max. (90 th %tile)
Alluvial monitoring bores								
GW02	Wambo Creek Alluvium	5.7	74.1	8.4	71.4	657	6.7	7.4
GW08⁴	North Wambo Creek Alluvium	3.3	57.2	7.0	53.5	1,980	6.8	8.0
GW09³	North Wambo Creek Alluvium	Dry Since 2016	-	Dry Since 2016	-	-	-	-
GW11	Wambo Creek Alluvium	4.0	75.3	6.7	72.6	626	6.8	7.5
GW13	Wollombi Brook Alluvium	4.9	63.9	6.3	61.5	4,447	6.9	7.1
GW15	Wollombi Brook (east) Alluvium	10.2	50.5	11.4	49.3	726	6.7	7.2
GW16¹	North Wambo Creek Alluvium	5.0	105.6	10.9	99.7	1,145	7.2	11.2
GW17¹	North Wambo Creek Alluvium	8.2	101.3	12.1	97.4	5,542	7.0	7.2
P12	Wollombi Brook (east) Alluvium	6.3	48.9	7.7	47.5	1,002	7.3	7.7
P16	Wollombi Brook (west) Alluvium	7.0	49.8	8.6	48.2	10,510	7.0	7.7
P20	Wollombi Brook (west) Alluvium	7.2	50.2	8.3	49.1	10,364	7.2	7.6
P106	Wambo Creek Alluvium	6.6	53.4	9.6	50.4	674	6.7	7.9
P109	Wambo Creek Alluvium	4.4	57.7	6.2	55.9	801	6.5	7.9
P114	Wambo Creek Alluvium	5.4	56.6	7.3	54.6	7,096	6.5	7.8
P116	Wambo Creek Alluvium/ Permian	4.8	59.6	6.8	57.6	2,076	6.6	7.4
P407²	Wollombi Brook (west) Alluvium	ND	ND	ND	ND	ND	ND	ND

Bore ID	Target Unit	Minimum DTW (mbTOC) (10 th %tile)	Minimum DTW (mAHD) (10 th %tile)	Maximum DTW (mbTOC) (90 th %tile)	Maximum DTW (mAHD) (90 th %tile)	EC Trigger (µS/cm) Max. (90 th %tile)	pH min. (10 th %tile)	pH max. (90 th %tile)
Offsite bedrock monitoring bores								
GW21²	Overburden	36.3	83.1	36.6	82.8	ND	ND	ND
GW22	Overburden	34.9	56.4	36.7	54.6	7,028	8.2	8.4
P11	Interburden	30.4	41.4	32.0	39.8	ND	ND	ND
P202	Overburden	7.6	51.6	9.0	50.2	8,368	6.7	7.7
P206	Overburden	15.8	43.2	20.6	38.4	2,372	7.3	8.1
P401²	Overburden	ND	ND	ND	ND	ND	ND	ND
P402²	Arrowfield Seam	ND	ND	ND	ND	ND	ND	ND
P404²	Overburden	ND	ND	ND	ND	ND	ND	ND
P405²	Arrowfield Seam	ND	ND	ND	ND	ND	ND	ND

Note: 1 GW16 and GW17 are located upstream of the North Wambo Creek Diversion and in close proximity to the approved open cut. To obtain trigger value add one metre to the 90th percentile depth to groundwater value.

2 ND – Insufficient historical water quality data to determine triggers. Trigger will be developed as soon as there is sufficient data.

3 Specific trigger levels for GW09 have not been established however if GW09 does not recover within 12 months of the cessation of dewatering pumping, installation of replacement bores that allow monitoring of the alluvium and underlying interburden material may be considered. GW09 has been replaced by GW9.2.

4 GW08 has been replaced by GW8.2.

mbTOC = metres below top of casing.

3.5 GDE Monitoring and Performance Assessment

3.5.1 Performance Criteria

Performance criteria were proposed by Umwelt (2021) for GDE1 and GDE2 in accordance with Condition B51 of SSD 7142. Consistent with the approved groundwater management plan, the trigger value for water level is based on the 90th percentile of the recorded depth to groundwater in the historical dataset, plus 1 m allowing for seasonal variations.

Water quality triggers are also determined based on the 90th percentile of baseline data to 2018 for EC, and 10th and 90th percentile for pH. For the purposes of the GDE monitoring programme, it is also proposed that triggers also be established for sulphate, based on the 90th percentile of baseline data, to assist with identification of potential mine related impacts. There is now sufficient data for bores P401 and P402 to develop the 90th percentile trigger for depth of groundwater.

The proposed monitoring program and trigger criteria are outlined in **Table 3.3**. Performance criteria, developed by Umwelt (2021) in line with the existing approved GWMP (V6) (Glencore, 2022), are outlined in **Table 3.3** and **Table 3.4**.

The trigger levels for EC and pH have been included in **Table 3.3** based on current available baseline data, with 38 readings of EC and pH recorded since 2020. Twenty four months of sulphate data has been collected from bores P401 and P402, therefore, the 90th percentile trigger levels can be developed. All GDE bores were compliant and below the proposed triggers detailed in **Table 3.3** over 2025.

Table 3.4 Proposed GDE Triggers (Umwelt, 2021)

Bore ID	Geology	Frequency	Depth of Groundwater 90 th (mbTOC)	EC 90 th %tile (µS/cm)	pH 10 th Percentile to 90 th %tile	Sulphate 90 th %tile (mg/L)
P12	Alluvium	SWL and WQ 2 month Full suite 6 monthly	7.7 + 1 m	1,002	6.3–7.7	48
P15	Colluvium	SWL and WQ bi- monthly Full suite 6 monthly	7.8+ 1 m	10,880	7.2–7.9	1,456
P16	Colluvium	SWL and WQ 2 month Full suite 6 monthly	8.6+ 1 m	10,510	7.0–7.7	1,350
BH1	Tertiary alluvium	SWL and WQ 2 month Full suite quarterly	TBC	TBC	TBC	TBC
P401	Shallow overburden	SWL and WQ 2 month Full suite quarterly	TBC	12,750	7.0 – Upper and lower bounds to be developed	TBC
P402	Arrowfield Seam	SWL and WQ 2 month Full suite quarterly	TBC	11,810	7.6 – Upper and lower bounds to be developed	TBC

Table 3.5 Groundwater Performance Measures – GDE

Aspect	Performance Measures	Performance Indicator/Trigger	Response
Alluvial Aquifer	Negligible change in groundwater level (compared to predicted impacts)	90 th percentile (and not related to seasonal variability) over three consecutive months	TARP – Groundwater Level
	Negligible change in groundwater quality that could impact on GDE health	90 th percentile for EC 10 th to 90 th percentile for pH 90 th percentile for sulphate For at least one parameter for more than three consecutive months	TARP – Groundwater Quality

3.5.2 Stygofauna

Requirements for routine monitoring of stygofauna are also outlined in the GWMP (V6) (Glencore, 2022). United Wambo has committed to undertake stygofauna sampling every three years in bores within or near alluvial aquifers where there is drawdown predicted. If groundwater monitoring indicates impacts are greater than predicted within the alluvial aquifers, more regular stygofauna sampling will be undertaken (Glencore, 2022). Stygofauna sampling is to be undertaken at the following sites:

- Wollombi Brook Alluvium: P12, P16, P407
- North Wambo Creek Alluvium: GW08, GW16, GW17
- Hunter River Alluvium: P408
- Wambo Creek Alluvium/Permian: P116.

It is noted that StygoEcologica recommended sampling of additional bores. As such, the following sites were sampled in 2025 were:

- Hunter River Alluvium: Well A /P409
- North Wambo Creek Alluvium: GW23
- North Wambo Creek Weathered: GW36b
- Wambo Creek Alluvium: P104, P110, GW02, GW316a, GW37a.

4.0 Groundwater Monitoring Results

4.1 Data Recovery

As detailed in the GWMP (V6) (Glencore, 2022), monitoring of the groundwater network is to be conducted every two months for groundwater levels and quality, which includes pH and EC. In addition, a full suite of water quality analyses is to be conducted annually.

Review of the monitoring data indicates most bores were monitored at the specified frequency and sampled for the analytes detailed in the GWMP (V6) (Glencore, 2022), over the reporting period. Exceptions to these are detailed in **Table 4.1** below.

VWP data were collected at site in accordance with the GWMP (V6) (Glencore, 2022). Data recovery from the VWPs is discussed in **Section 4.4**.

Table 4.1 Groundwater Monitoring Data Recovery

Bore ID	Comment
GW02	Groundwater levels and water quality were not measured in February and June 2025 due to access restrictions. The creek crossing was too high to cross in June 2025.
GW08.2	Water quality was not measured in February 2025.
GW11	Groundwater levels and water quality were not measured in June 2025 due to access restrictions (the creek crossing was too high to cross).
GW21	Groundwater levels and water quality sampling were not measured in 2025 as the bore was dry.
GW37A	Groundwater levels and water quality sampling were not measured in February and April 2025 due to insufficient water.
P402	Groundwater levels were not measured in February and June and water quality samples were not collected in February, June and December 2025 as hydrogen sulphide, carbon monoxide and methane gas was detected resulting in a health and safety hazard.
P407	Groundwater levels were not measured in March and April 2025 as the bore was dry. Water quality was not sampled in February, March, April, June, September, October and December 2025 due to insufficient water for sampling.
GW14	Dry since 2011 and removed from scope in 2013.
P106	Not monitored in 2025, replaced by new bore GW37a in 2023.
P109	Not monitored in 2025, replaced by new bore GW37b in 2023.
P114	Not monitored over 2025. Bores are in the current GWMP (V6) but were recommended to be removed. Bores screened across both alluvial and Permian strata, inconsistent with <i>Minimum Construction Requirements for Water Bores in Australia</i> (NUDLC 2020). Bores removed from monitoring network and replaced by new bore P316.
P116	
P402	Not sampled in February and October 2025 due to safety concerns.
BH1	Groundwater levels and water quality were not measured in 2025 as the bore was dry.
GW12	The bore was dry over 2025. Bore is within the current GWMP (V6), but was recommended to be removed. Bore constructed within shallow/weathered Permian strata after the commencement of NWU mining. Length of baseline period not suitable for development of trigger. Bore removed from monitoring network. New bore P315 to provide supplementary data for Stony Creek alluvium.

4.2 Water Level and Quality Summary Data

Water level and water quality (pH and EC) data was collected over the 2025 reporting period and compared to the trigger values outlined in the GWMP (V6) (Glencore, 2022) and compared to rainfall and streamflow, where relevant.

Groundwater level and water quality data collected over 2025 for bores listed in the consolidated groundwater monitoring programme in Table 7-1 of the GWMP (V6) (Glencore, 2022), and four new bores, is summarised in **Table 4.2**. Refer to **Table 4.1** where data collected in 2025. Groundwater level and groundwater quality graphs for each groundwater unit are provided in **Section 4.3**. Graphs showing the groundwater level, pH and EC for each bore, compared to trigger levels, are provided in **Appendix C**.

Table 4.2 Groundwater Level and Groundwater Quality Results Summary from January to December 2025

Sites	Target Unit	Depth to water (mbTOC)				pH				EC (µS/cm)				Comments
		Obs.~	Min	Median	Max	Obs.~	Min	Median	Max	Obs.~	Min	Median	Max	
GW02	Wambo Creek Alluvium	4	5.57	5.71	6.95	4	6.5	6.9	7.4	4	383	410	461	No access February and June 2025.
GW08.2^	North Wambo Creek Alluvium	6	3.23	3.39	3.48	4	6.9	7.0	7.6	4	2190	2340	3060	
GW09.2^	North Wambo Creek Alluvium	6	6.07	6.55	7.00	3	6.8	7.0	7.0	3	2020	2020	2070	No pH and EC samples collected in August, October and December 2025.
GW11	Wambo Creek Alluvium	5	3.75	4.16	5.31	5	6.5	6.8	7.3	5	421	433	441	No access in June 2025.
GW13	Wollombi Brook Alluvium	6	6.67	7.02	7.17	6	6.9	7.0	7.1	6	4370	4370	4370	
GW15	Wollombi Brook (east) Alluvium	6	10.01	10.29	10.79	6	6.3	6.7	7.1	6	260	373	450	
GW16	North Wambo Creek Alluvium	6	4.59	8.34	11.86	6	7.0	7.2	7.7	6	401	717	1117	
GW17	North Wambo Creek Alluvium	6	8.57	11.38	13.02	6	7.2	7.3	7.4	6	3040	3210	3490	
GW21	Overburden	6	-	-	-	-	-	-	-	-	-	-	-	Bore dry over 2025.
GW22	Overburden	6	34.05	34.23	34.27	6	7.8	8.4	8.6	6	6700	6910	7010	
GW37a^	Wambo Creek Alluvium	6	4.23	5.01	7.41	4	6.7	7.0	7.1	4	475	498	603	
GW37b^	Wambo Creek Shallow Weathered Permian	6	6.37	7.10	10.05	6	6.8	7.1	7.4	6	474	568	1204	
P12	Wollombi Brook (east) Alluvium	6	5.88	6.67	7.50	6	6.2	6.5	6.6	6	96.6	195	338.5	
P15	West Wollombi Brook Colluvium	6	7.10	7.57	7.96	6	7.2	7.3	7.5	6	4500	5890	7350	
P16	Wollombi Brook (west) Alluvium	6	7.66	8.31	8.56	6	7.3	7.5	7.5	6	1360	1555	1810	
P20	Wollombi Brook (west) Alluvium	6	6.75	7.53	7.79	6	7.2	7.3	7.4	6	2630	2995	3300	
P202	Overburden	6	6.35	7.34	7.55	6	7.2	7.3	7.4	6	5900	6635	7920	
P206	Overburden	6	31.89	33.56	33.90	6	7.5	7.8	8.0	6	2220	2370	2490	
P301	Stoney Creek Alluvium/ Overburden	6	6.87	7.54	10.50	6	6.4	6.4	6.8	6	572	641	1106	

Sites	Target Unit	Depth to water (mbTOC)				pH				EC (µS/cm)				Comments
		Obs.~	Min	Median	Max	Obs.~	Min	Median	Max	Obs.~	Min	Median	Max	
P315	Stony Creek Alluvium/Regolith	6	3.41	5.23	7.69	6	6.0	6.4	6.9	6	532	839	1130	
P316a^	Wambo Creek Alluvium	6	4.96	5.55	5.86	6	6.8	6.9	7.2	6	689	1148	1680	
P316b^	Wambo Creek Shallow Permian	6	5.33	7.38	8.57	6	7.2	7.3	7.5	3	820	855	1785	No EC sample in August, October and December 2025.
P401	Overburden	8	28.21	28.61	29.10	8	6.9	7.0	7.2	8	7270	8750	9100	
P402#	Arrowfield Seam	7	92.10	94.18	95.08	4	7.5	7.5	7.6	4	8430	9110	9390	Bore produces gas. No sampling in February, June and December 2025.
P404*	Overburden	6	13.75	13.94	14.01	6	11.7	12.0	12.2	6	3430	4590	5070	
P405*^	Arrowfield Seam	6	12.21	12.41	12.45	6	6.7	6.8	7.3	6	3280	3955	4180	
P407*^	Wollombi Brook (west) Alluvium	6	8.85	9.15	9.88	1	7.1	7.1	7.1	1	12300	12300	12300	EC and pH sampled in August 2025. SWL could not be sampled in March and April 2025.
P408	Hunter River Alluvium	6	11.45	11.77	11.95	6	7.0	7.1	7.4	6	340	6565	7660	

Note: Obs. - Number of Observations

mbTOC – metres below top of casing

* The current status of this bore is “Proposed” in the current GWMP (V6)

^ Bore installed after current GWMP (V6) issued

~ Refer to Table 4.1 where data has not been collected

Sampling not undertaken in all months due to safety concerns

4.3 Groundwater Trends

A summary of groundwater trends within each water bearing unit are summarised in the sections below. Individual groundwater level and quality graphs are presented in **Appendix C**.

4.3.1 North Wambo Creek Alluvium

Within the North Wambo Creek alluvium, upstream of the North Wambo Creek Diversion (NWCD), groundwater levels ranged from 4.59 mbTOC (106.00 mAHD) to 11.86 mbTOC (98.73 mAHD) in GW16, and 8.57 mbTOC (100.90 mAHD) to 13.02 mbTOC (96.45 mAHD) in GW17 over 2025. Both bores recorded a gradual increase in groundwater levels until August (GW16) and October (GW17) 2025, followed by a decline, corresponding with climactic trends.

Bores GW16 and GW17 intersect alluvium and weathered Permian coal measures and are located near Montrose Pit and the NWCD. Bore GW16 intersects around 7 m of silty, clayey sand overlying extremely weathered sandstone, while GW17 is constructed within highly weathered sandstone overlying siltstone, with only 2 m of alluvium present at surface. SLR (2025b) recommended that based on the screened lithology these bores should be updated in the revised GWMP (V6) (Glencore, 2022).

Bores GW08.2 and GW09.2 were drilled in 2020 to replace bores GW08 and GW09, as they were too shallow to intersect the saturated alluvium. The two bores are not currently included in the GWMP (V6) (Glencore, 2022) but are monitored by Wambo. Bores GW08.2 and GW09.2 are located down-gradient of the NWCD, near the confluence of Wollombi Brook.

Bore GW08.2 is shallow with a depth of 3 m, screened within the North Wambo Creek alluvium. All water levels in 2025 were near the base of the screen indicating the bore was almost dry. By June there was sufficient water to collect water quality samples. The pH and EC measurements gradually declined in subsequent monitoring rounds following the highest readings from the June sampling round.

Bore GW09.2 is 7.4 m deep screened within North Wambo Creek alluvium. Over 2025 groundwater levels ranged from 6.07 mbTOC (52.93 mAHD) to 7.00 mbTOC (52.00 mAHD), with a neutral pH ranging from 6.8 to 7.0 and a relatively stable EC concentration, ranging from 2020 $\mu\text{S}/\text{cm}$ to 2070 $\mu\text{S}/\text{cm}$. Water levels were stable at GW08.2 during 2025. GW09.2 showed a gradual increase in water level by 0.93 m reaching a maximum water level in October 2025 which corresponded to above average rainfall over the same period.

The trends between the bores are similar, with slightly higher groundwater elevations at upgradient bore GW16. Over 2025 pH remained relatively stable, with a near-neutral pH of around 6.8 to 7.7 for all bores. EC declined in bores GW16 and GW17 until August in conjunction with increasing water levels causing dilution of EC. From September EC began gradually increasing as water levels decreased.

A hydrograph showing long-term groundwater levels is shown in **Figure 4.1**, with trends in pH and EC shown in **Figure 4.2** and **Figure 4.3**, respectively.

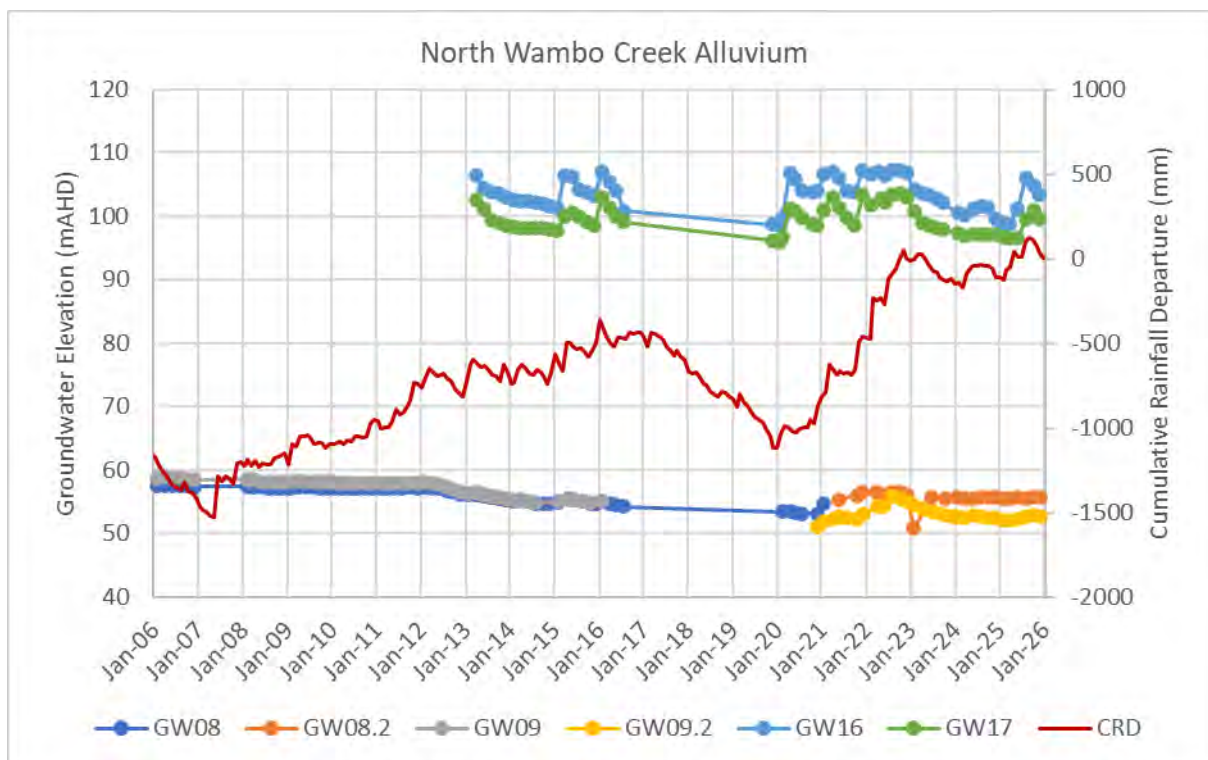


Figure 4.1 North Wambo Creek Alluvium – Water Level

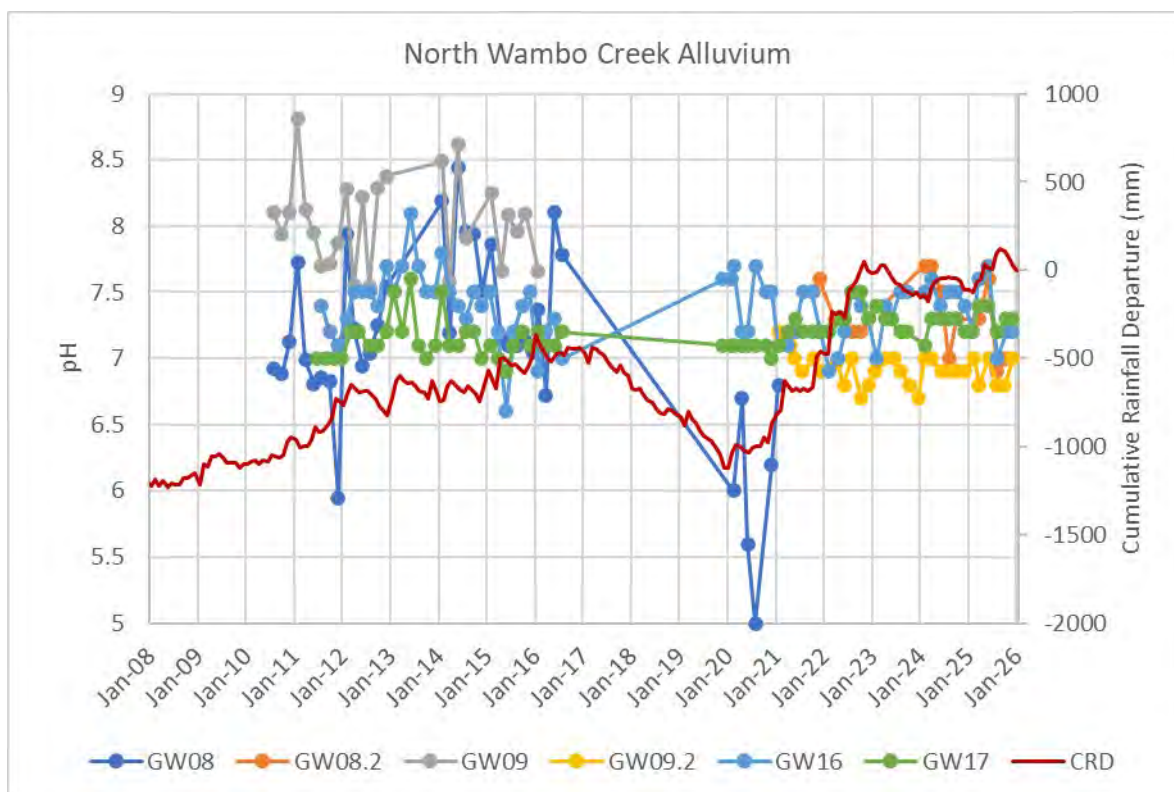


Figure 4.2 North Wambo Creek Alluvium – pH

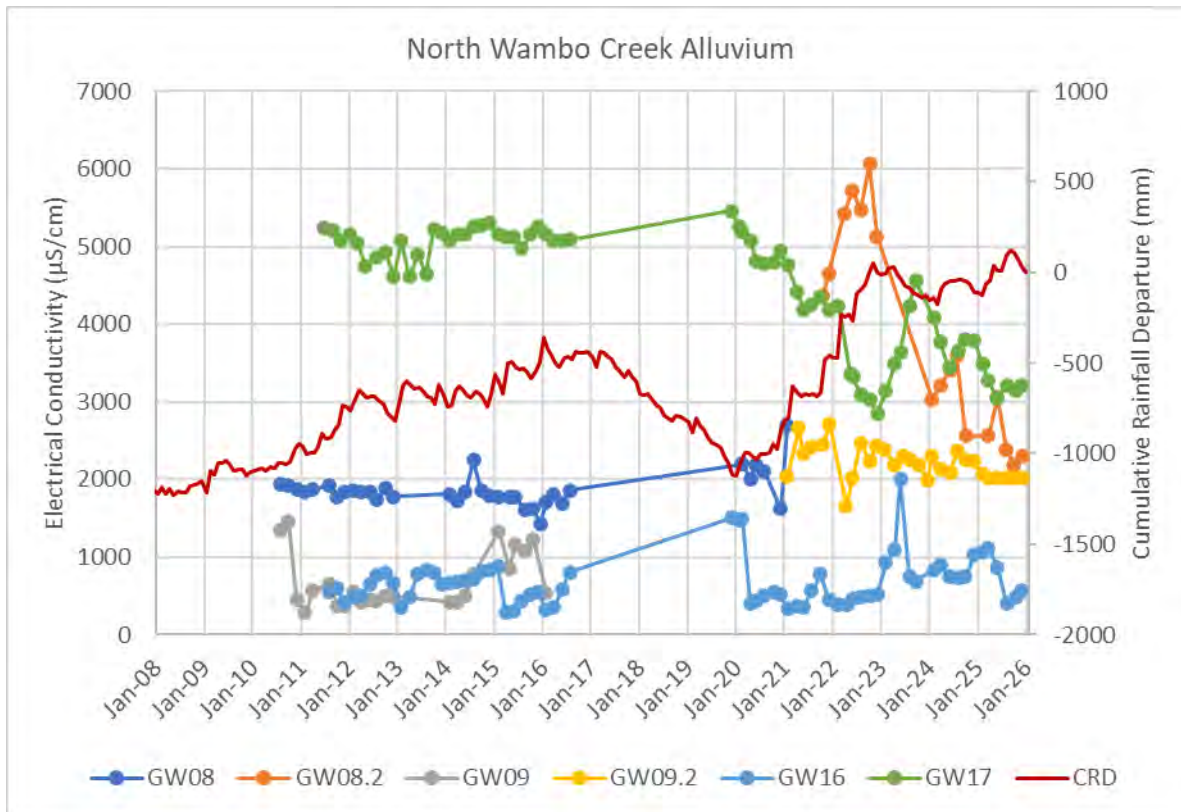


Figure 4.3 North Wambo Creek Alluvium – EC

4.3.2 Wambo Creek Alluvium

Groundwater monitoring bores within the Wambo Creek alluvium include GW02 and GW11 which are constructed within the upper reach at the Fenwick property.

Bores P106, P109, P114 and P116 were removed from the monitoring network as they were screened across multiple aquifers. In 2024, replacement bores were installed:

- GW37a replaced P106
- GW37b replaced P109
- P316a, P316b, P316c replaced bores P114 and P116.

It is noted that bores GW37b and P316b are screened within regolith and are discussed further in **Section 4.3.6**.

In 2025, groundwater levels in the upgradient Wambo Creek alluvial bores GW02 and GW11 ranged between 3.75 mbTOC (75.57 mAHD) and 6.95 mbTOC (72.84 mAHD). Groundwater levels increased correlating to above average rainfall over the same period. Water quality was relatively stable over 2025 with EC levels at GW02 and GW11 ranging between 383 µS/cm and 461 µS/cm and pH ranging from 6.5 to 7.4.

A hydrograph showing long-term groundwater levels are shown in **Figure 4.4**, pH trends are shown in **Figure 4.5** and EC trends are shown in **Figure 4.6**.

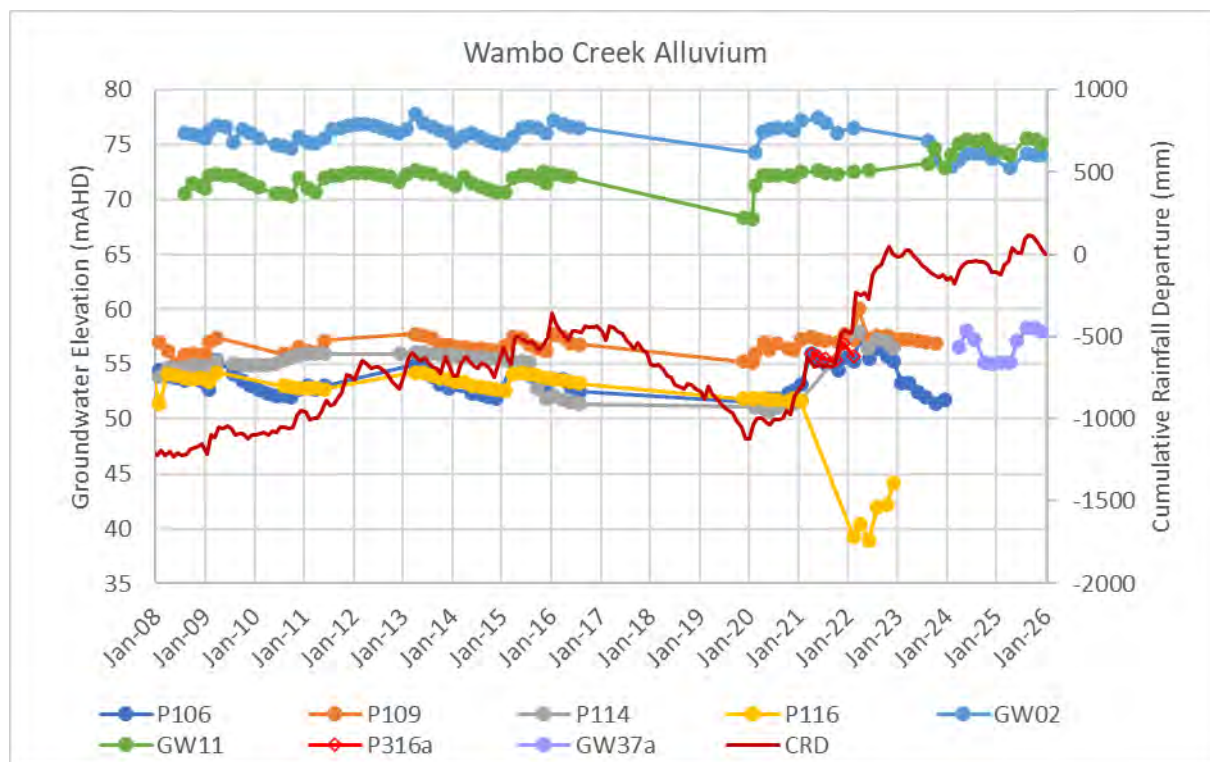


Figure 4.4 Wambo Creek Alluvium – Water Level

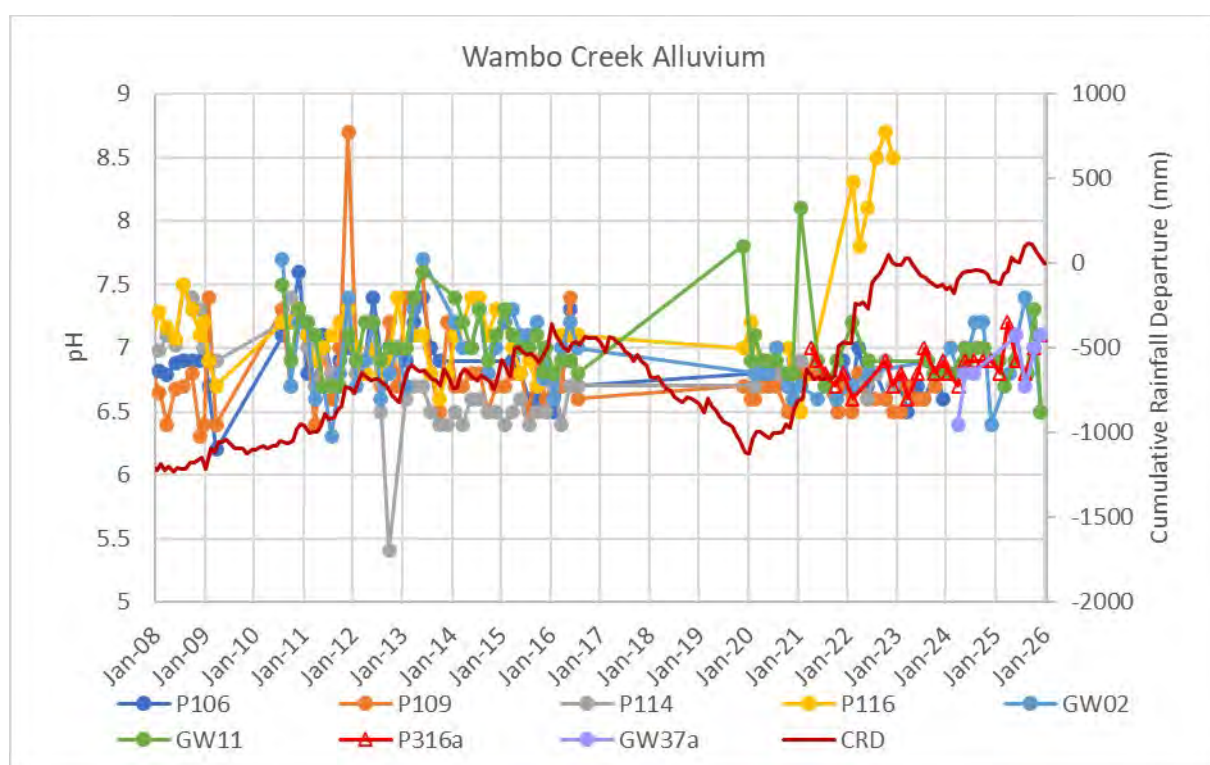


Figure 4.5 Wambo Creek Alluvium – pH

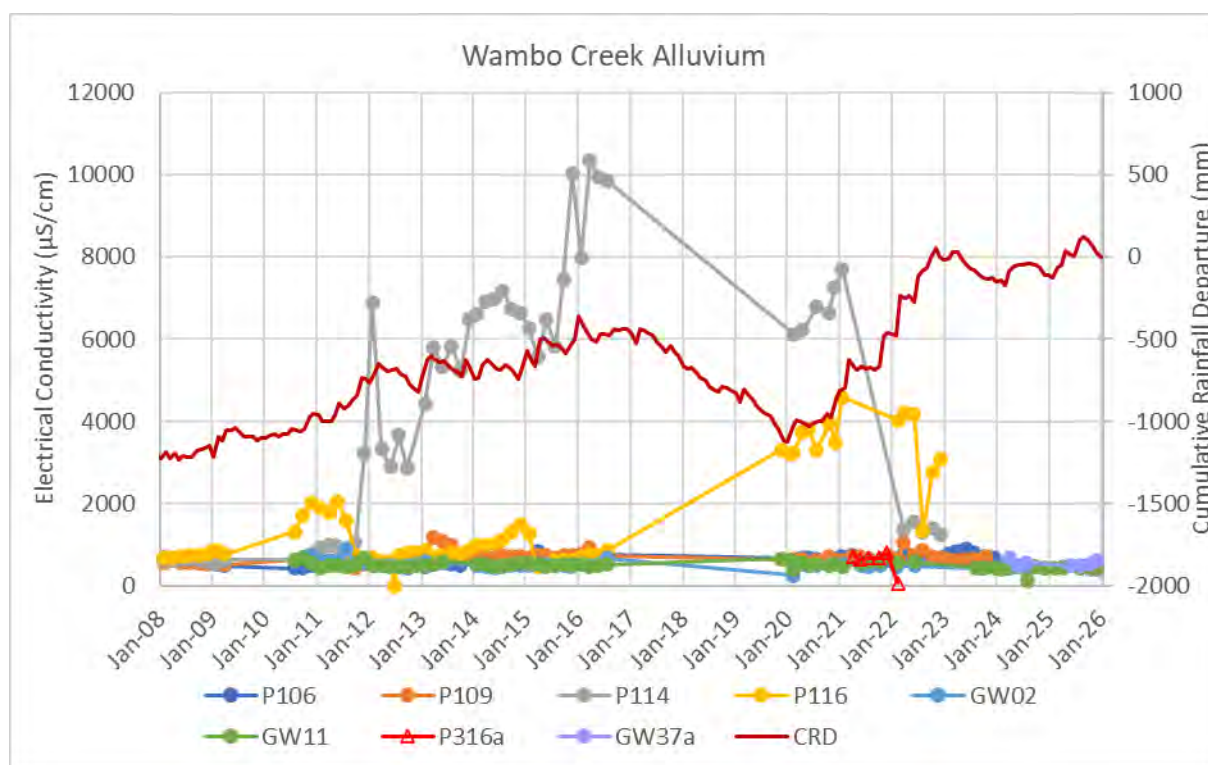


Figure 4.6 Wambo Creek Alluvium – EC

4.3.3 Wollombi Brook Alluvium

The monitoring bores that are screened in the Wollombi Brook alluvium are GW13, GW15, P12, P20 and P407 are screened within the Wollombi Brook alluvium. Bore BH1 is screened with the deeper alluvium. Bores P15 and P16 intersect colluvial sediments between the mine and mapped GDEs (refer **Section 3.5**). Bores GW13, GW14, GW15 and P12 are located in the eastern side of Wollombi Brook, whereas P15, P16 and P20 are located on the western side. It is understood that the bore log for GW13 indicates it is screened in unconsolidated material and intersects minor coal seams and not representative of the Wollombi Brook alluvium.

Groundwater levels in the alluvium generally increased over the reporting period, corresponding with above average rainfall and increased streamflow in Wollombi Brook.

Over 2025 groundwater levels in the alluvium generally increased corresponding with above average rainfall and increased streamflow in Wollombi Brook. Water levels ranged from 5.88 mbTOC (49.32 mAHD) to 10.79 mbTOC (49.92 mAHD). **Figure 4.7** shows that groundwater levels in P12 and P16 closely follow Wollombi Brook water levels. In contrast, the bore (GW15) further from the creek shows a gradual rise in water levels from June to August corresponding to rainfall trends. The groundwater elevations are also higher in GW15 indicating a slight gradient of flow towards the creek and possible baseflow gaining conditions. It is also noted that BH1, screened within the deeper alluvium, was dry over 2025.

Over the reporting period pH remained relatively stable, ranging between 6.17 (P12) and 7.55 (P16) as shown in **Figure 4.8**. EC ranged between 96.6 µS/cm (P12) and 7350 µS/cm (P15). EC levels at GW13 and P16 increased over 2025 following a declining trend in 2024, as shown in **Figure 4.9**.

Bores P15 and P16 are located above the United Colliery underground, east of the Glen Munro Boxcut and south-east of Sediment Dam 3. Both bores recorded a general rise in groundwater levels from

January to August 2025 of 0.90 m (P16) and 0.86 m (P15), followed by a slight decline, in response to climatic conditions. Bore P16 and P15 have historically recorded elevated EC with levels reaching over 12,000 $\mu\text{S}/\text{cm}$ in 2007. Similar EC levels are recorded in nearby bores P401 and P402 which are screened within the Permian coal measures as shown in **Figure 4.10**. As shown in **Figure 4.11**, the groundwater within the underlying Permian coal measures is depressurised with mining, indicating the high salinity is unlikely to be due to upward seepage from the Permian coal measures.

Daily groundwater level logger data for the alluvium GDE bores are shown in **Figure 4.12** and Permian coal measures and overburden GDE bores shown in **Figure 4.13**.

In previous annual reviews it was noted that elevated sulphate concentrations were recorded at P15 (up to 1,930 mg/L in December 2008) and P16 (up to 1,910 mg/L in December 2004). Sulphate levels in P15 and P16 have declined since the peak levels in 2008, to 94 mg/L and 705 mg/L, respectively, by December 2025 (refer **Figure 4.14**).

A hydrograph showing long-term groundwater levels are shown in **Figure 4.7**, trends in pH in **Figure 4.8** and trends in EC shown in **Figure 4.9**.

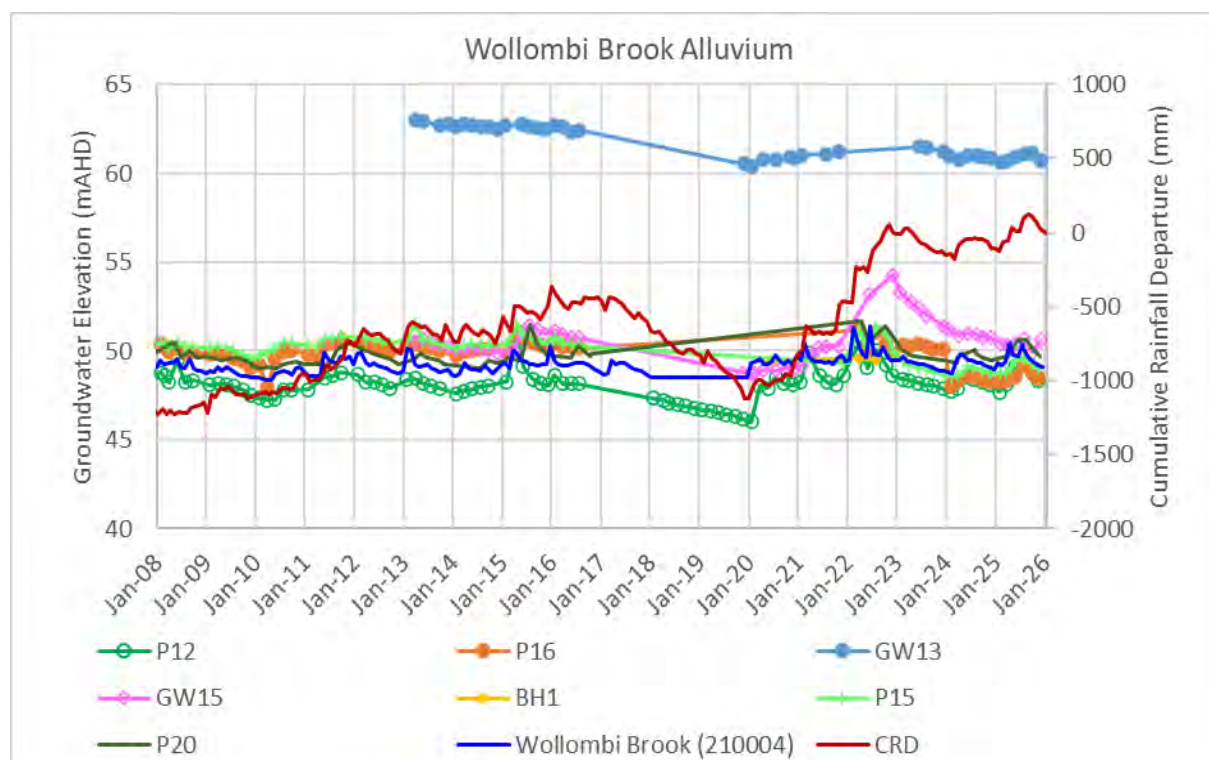


Figure 4.7 Wollombi Brook Alluvium – Water Level

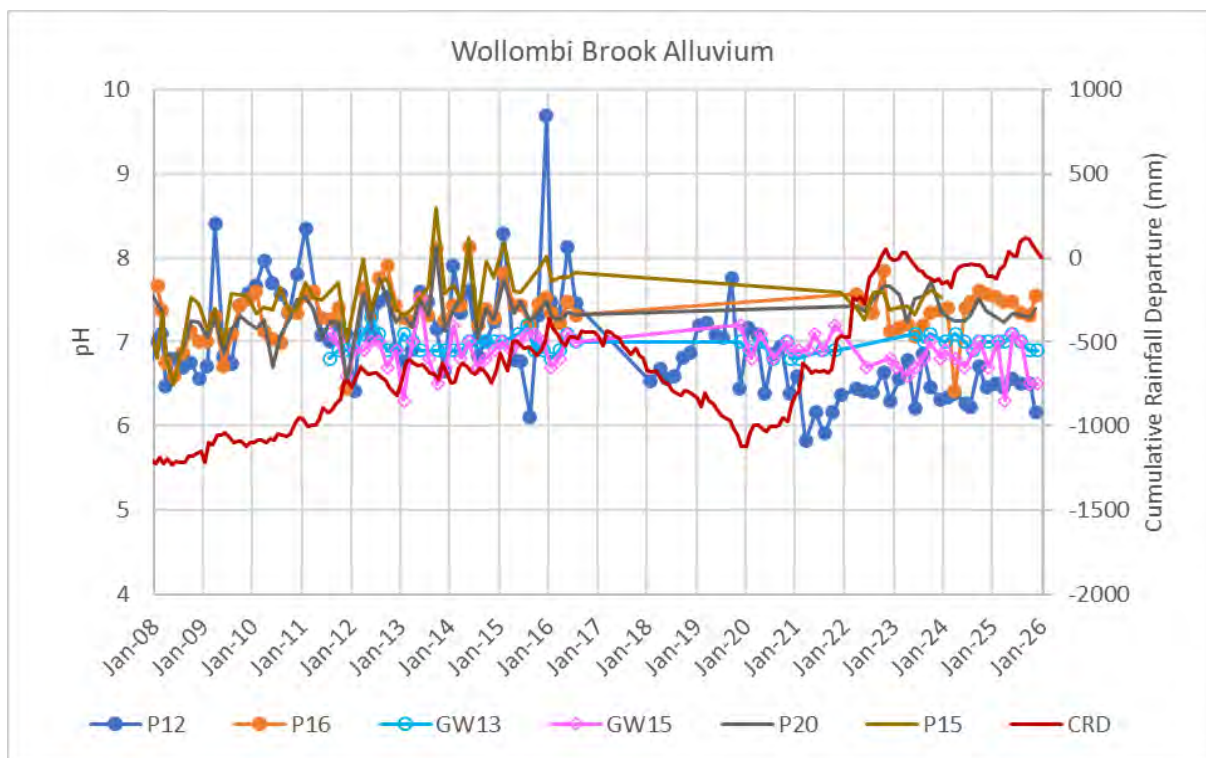


Figure 4.8 Wollombi Brook Alluvium – pH

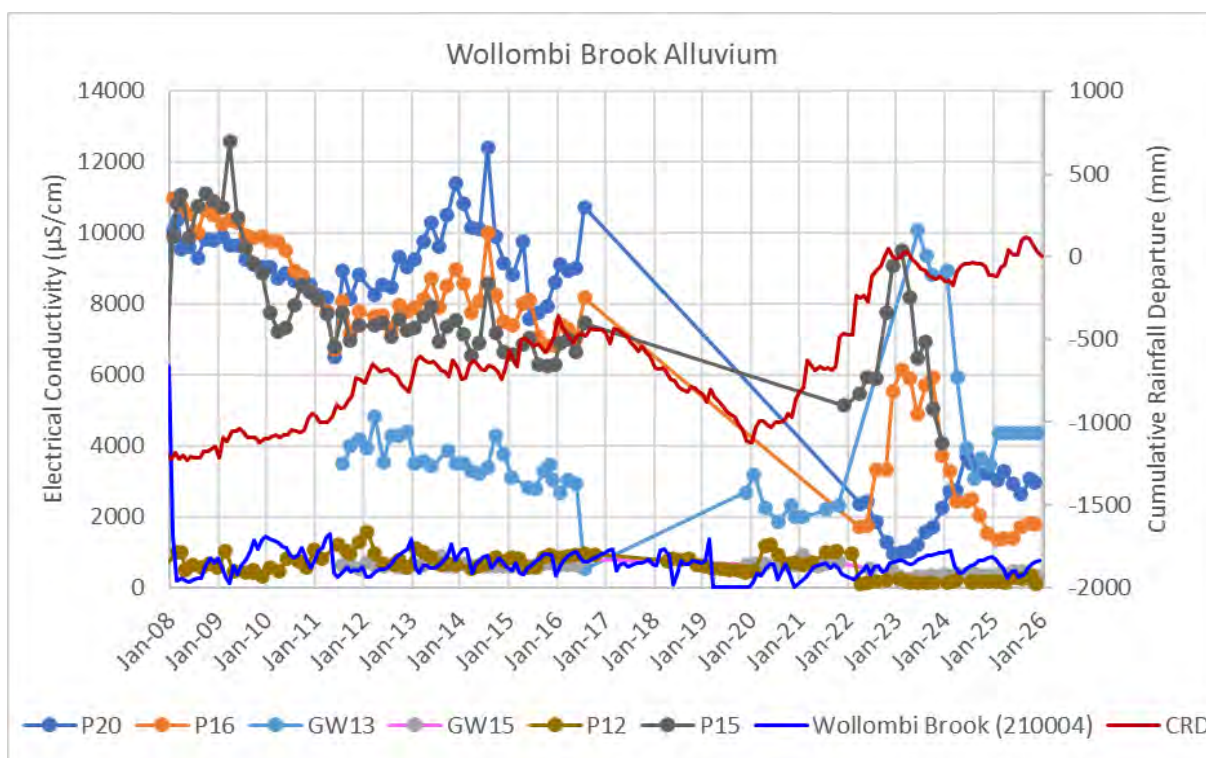


Figure 4.9 Wollombi Brook Alluvium – EC

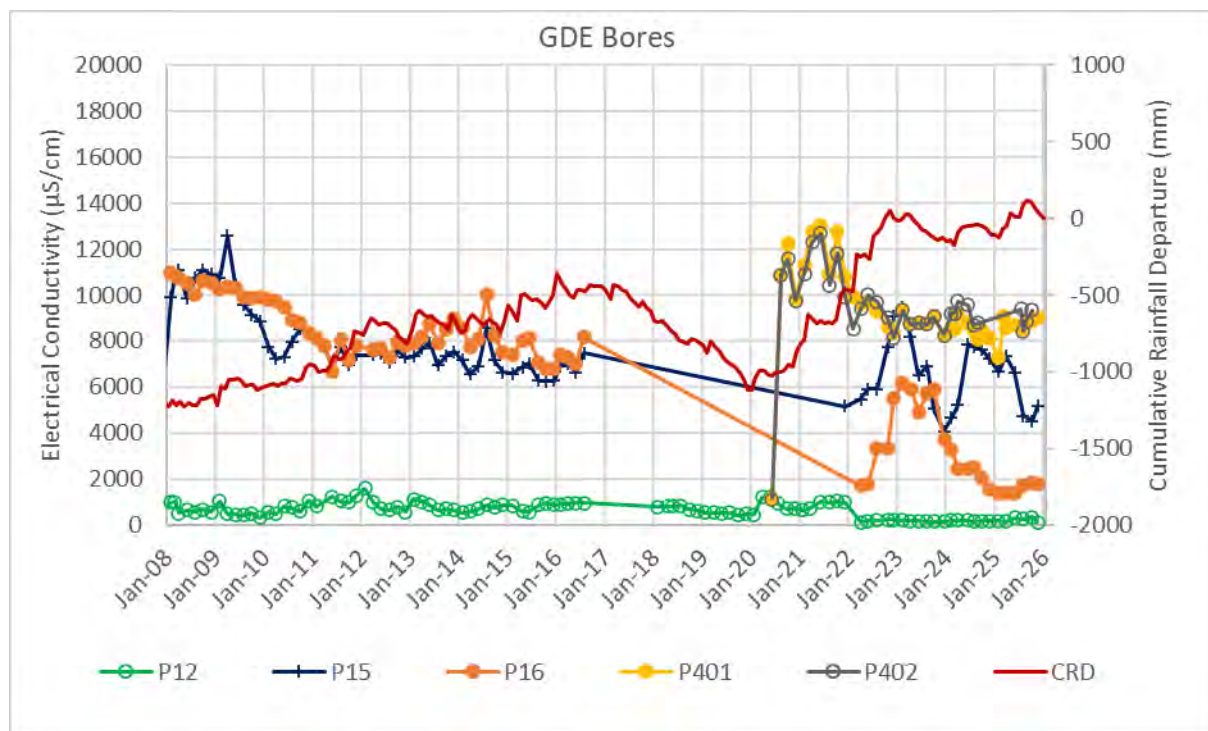


Figure 4.10 GDE Bores – EC

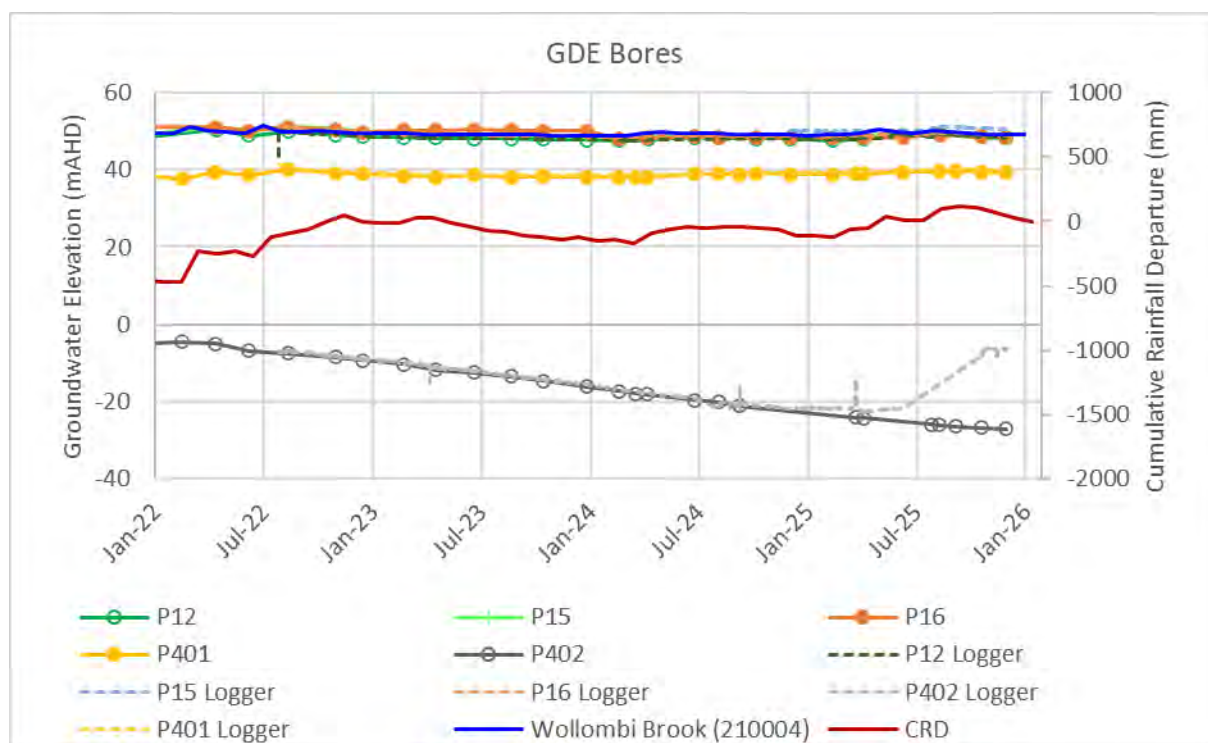


Figure 4.11 GDE Bores – Water Levels – All Bores

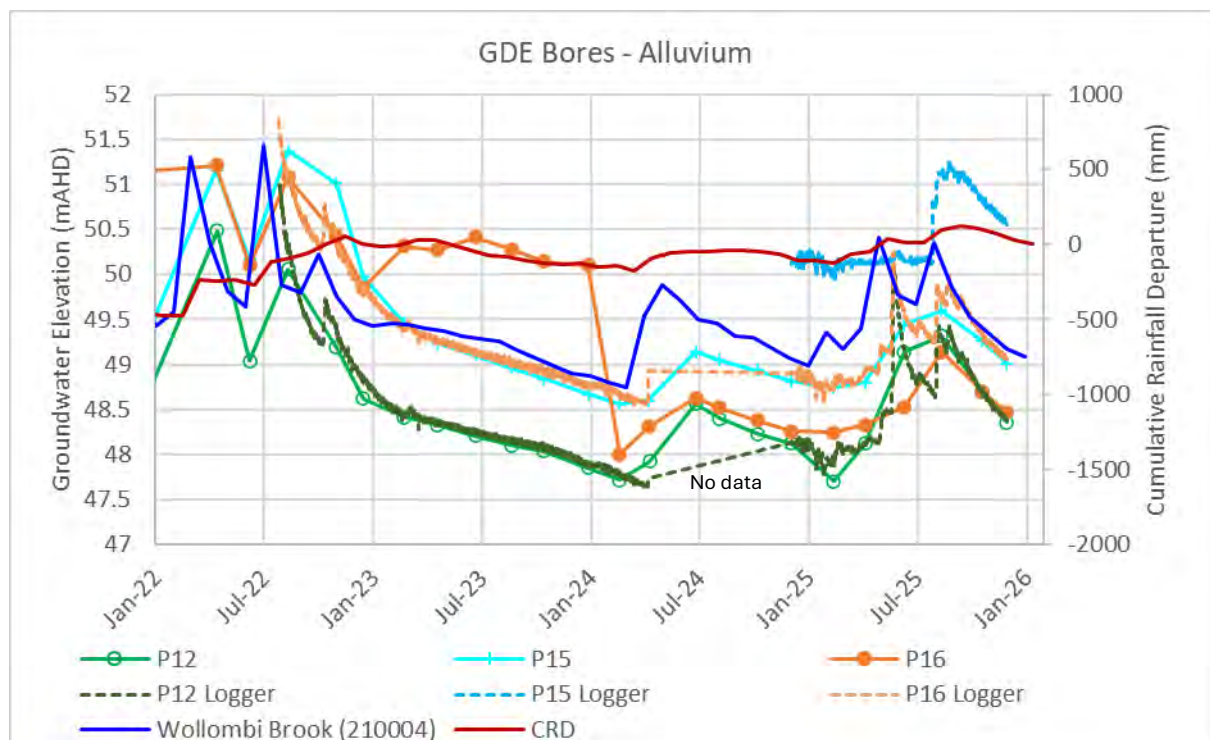


Figure 4.12 GDE Bores – Water Levels – Alluvium

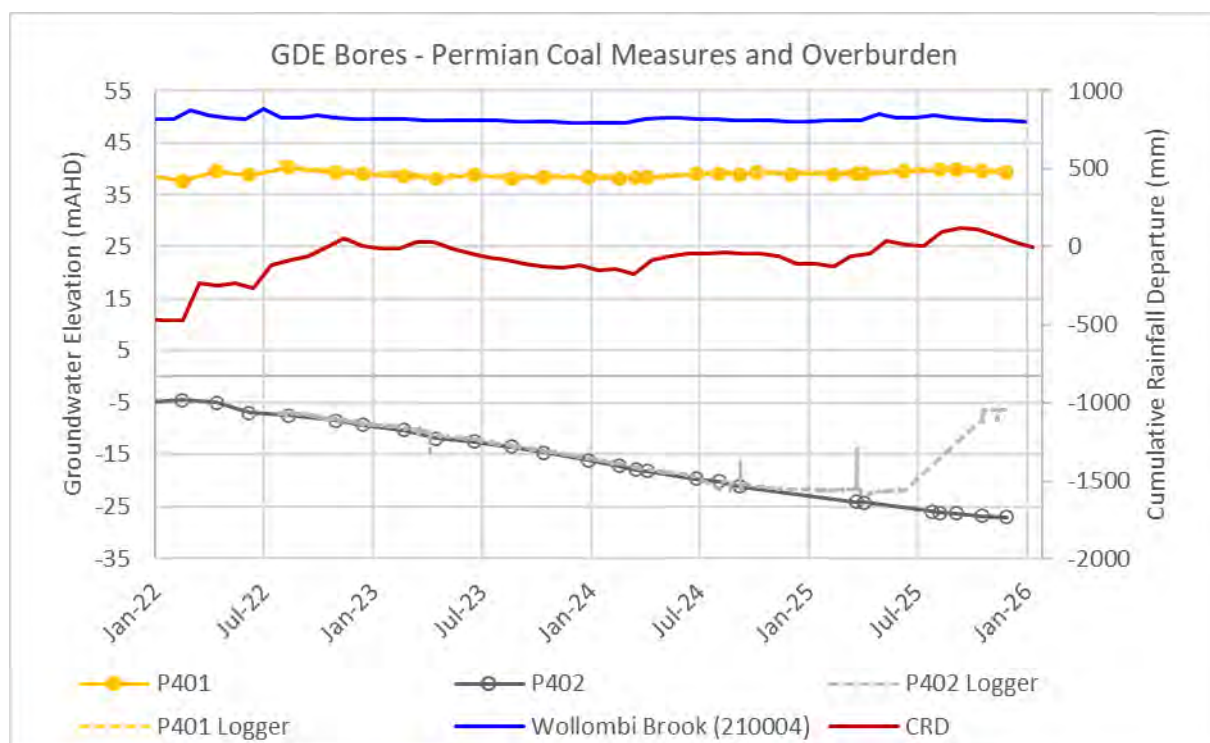


Figure 4.13 GDE Bores – Water Levels – Permian and Overburden

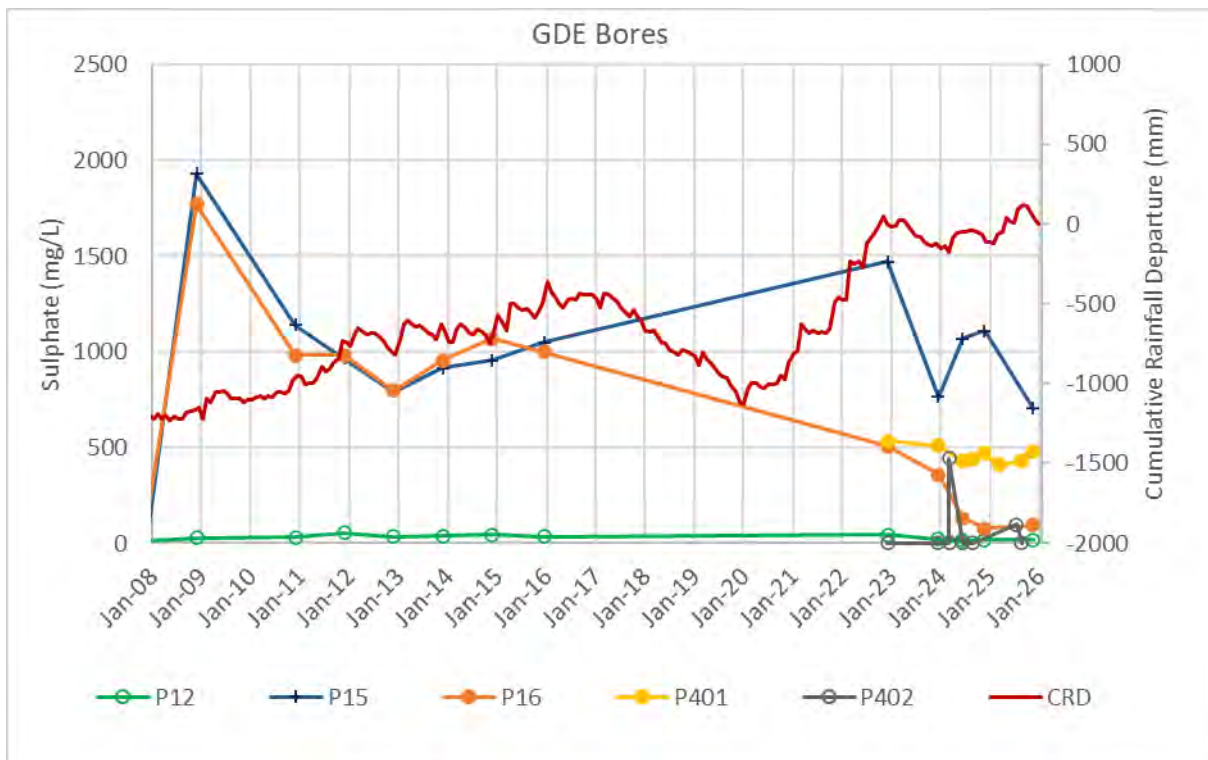


Figure 4.14 GDE Bores – Sulphate

4.3.4 Stony Creek Alluvium

Stony Creek flows in a south-easterly direction and is located to the south-west of United Wambo. The Stony Creek alluvium is monitored by bores GW12, P301 and P315.

GW12 was recorded as dry from 2019 to 2021. Monitoring ceased in 2021 as it was confirmed the bore was actually screened in shallow Permian coal measures. However, the bore is still included within the Stony Creek alluvium in the GWMP (V6) (Glencore, 2022). It is recommended that the bore is moved to the overburden group in the updated GWMP and the bore is checked to confirm if it is still dry given above average rainfall over 2025. SLR (2025b) noted bore P301 is also most likely installed in weathered Permian strata below the Stony Creek alluvium and the bore should be reclassified as a regolith/ shallow Permian bore in future updates to the GWMP.

Groundwater levels in P301 and P315 ranged from 3.41 mbTOC (94.95 mAHD) in P315 to 10.50 mbTOC (77.68 mAHD) in P301 over 2025. Levels in the two bores correlated well to each other, increasing until October 2025 followed by a decline, in response to climatic trends. pH ranged from 6.0 to 6.9, remaining stable over 2025. EC ranged from 532 to 1,130 $\mu\text{S}/\text{cm}$, fluctuating over 2025 in response to groundwater levels.

A hydrograph showing long-term groundwater levels are shown in **Figure 4.15**, trends in pH in **Figure 4.16** and trends in EC shown in **Figure 4.17**.

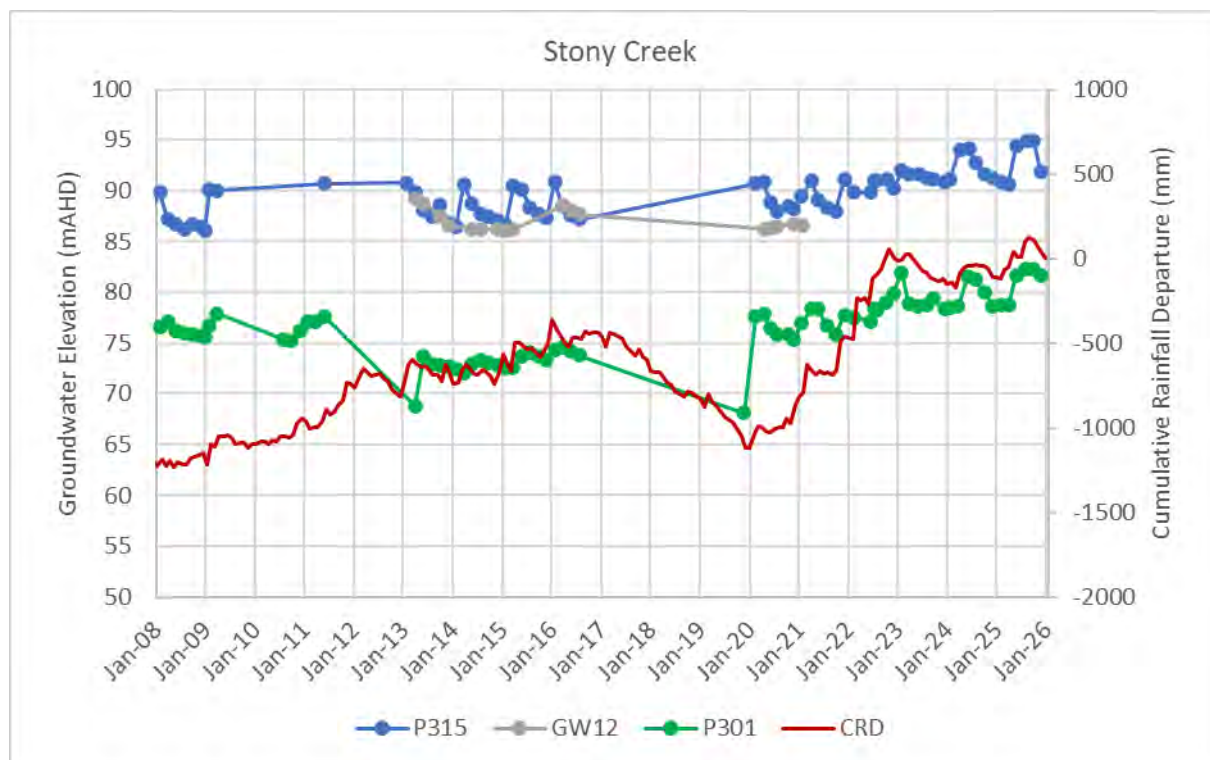


Figure 4.15 Stony Creek Alluvium – Water Levels

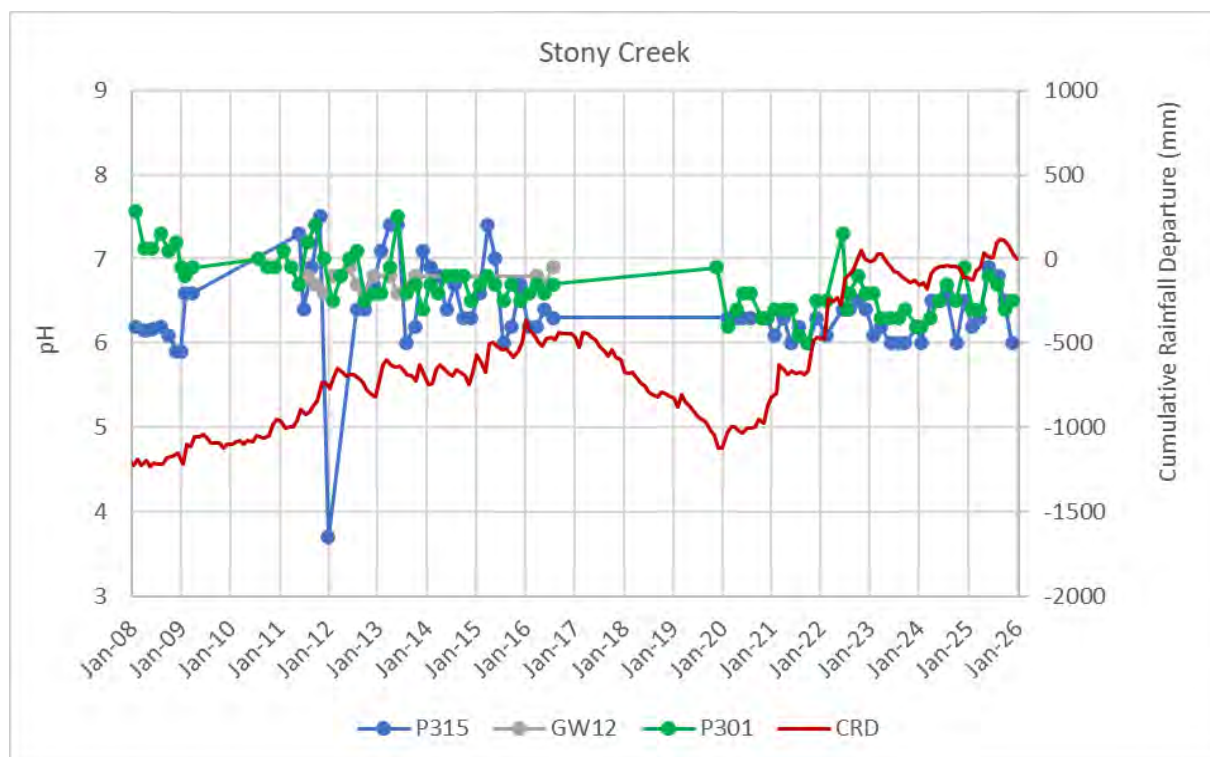


Figure 4.16 Stony Creek Alluvium – pH

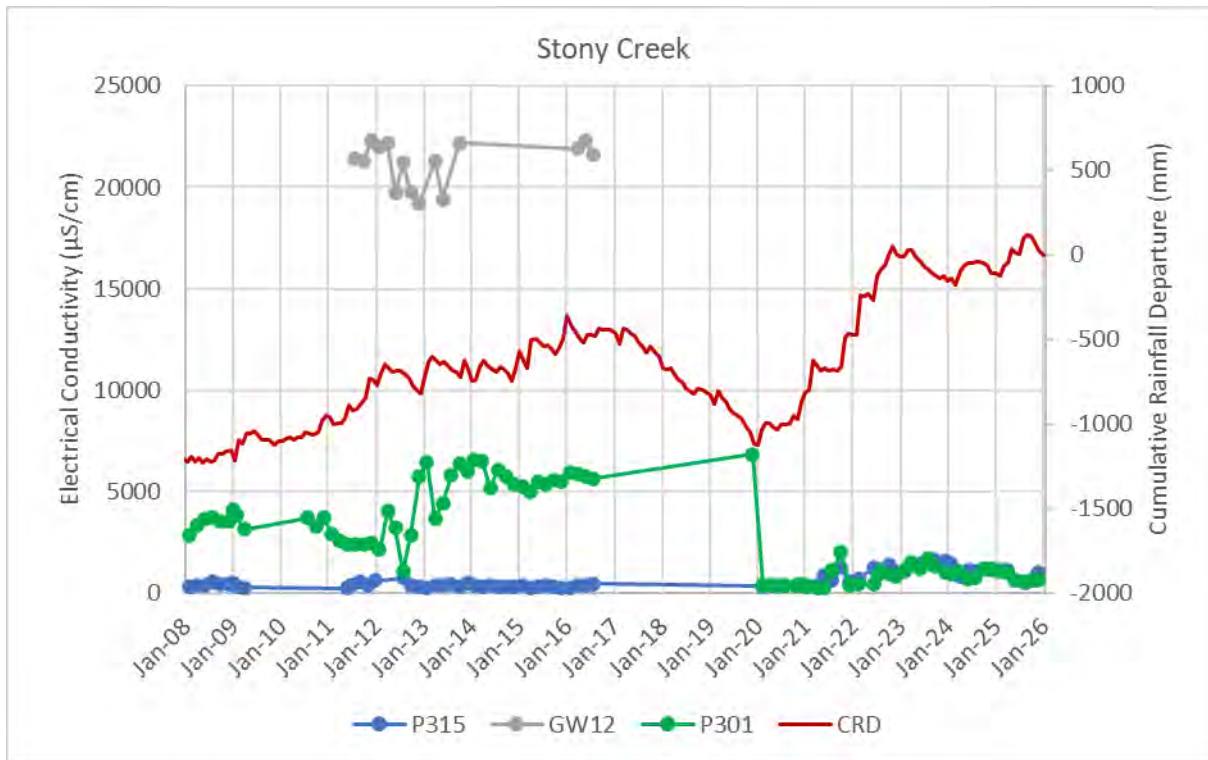


Figure 4.17 Stony Creek Alluvium – EC

4.3.5 Hunter River Alluvium

The Hunter River flows in a southerly direction, over 4 km to the east of United Wambo. The Hunter River alluvium is monitored by bore P408, which was installed in December 2021.

Groundwater levels in P408 peaked in December 2022, before declining to 11.95 mbTOC (62.05 mAHD) by April 2025. Levels increased slightly from April onwards to 11.45 mbTOC (62.55 mAHD) by December. Over 2025, pH remained neutral ranging from 7.05 to 7.37. EC responded to increasing water levels ranging from 5,630 $\mu\text{S}/\text{cm}$ to 7,660 $\mu\text{S}/\text{cm}$. It is noted that an EC level of 340 $\mu\text{S}/\text{cm}$ was recorded in August 2025 and appears to be an anomalous reading. The field sheet has been checked, and the reading has likely been recorded incorrectly. EC levels recorded at P408 are relatively high for alluvium and the condition of the bore should be checked to confirm the water quality data collected is representative of the Hunter River alluvium.

A hydrograph showing long-term groundwater levels are shown in **Figure 4.18**, trends in pH in **Figure 4.19** and trends in EC shown in **Figure 4.20**.

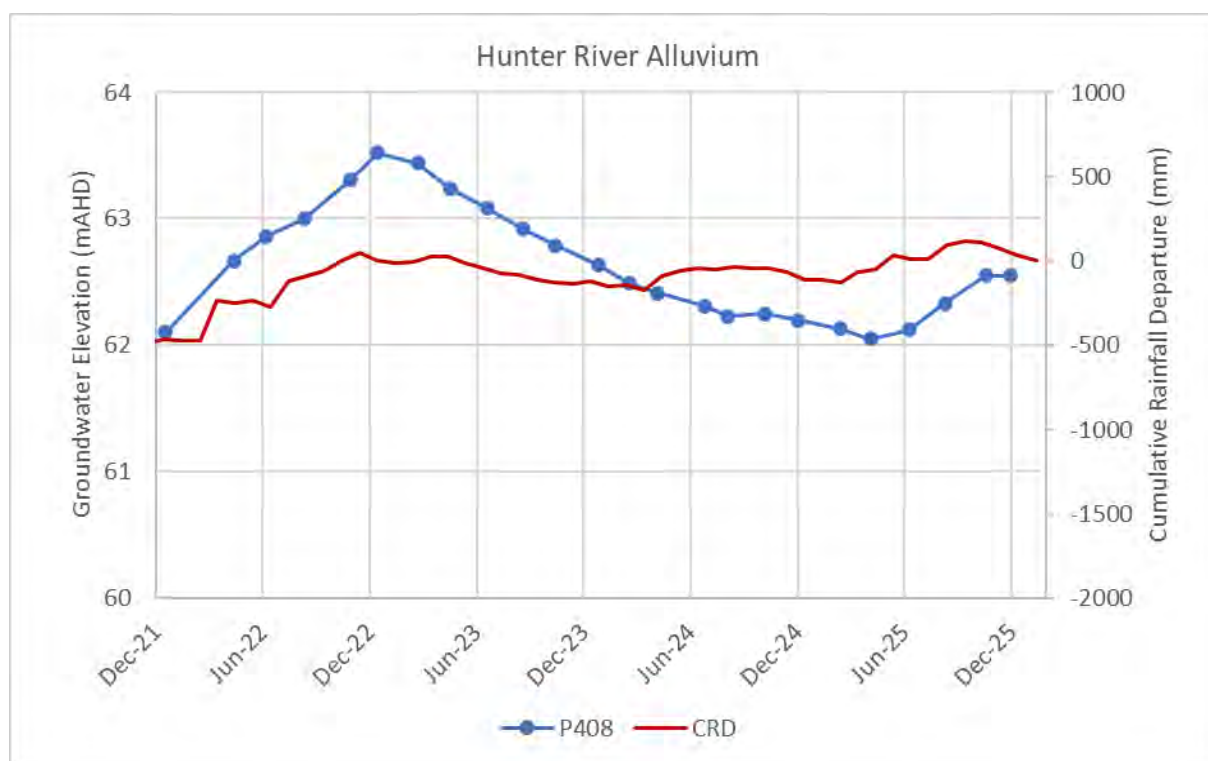


Figure 4.18 Hunter River Alluvium – Water Levels

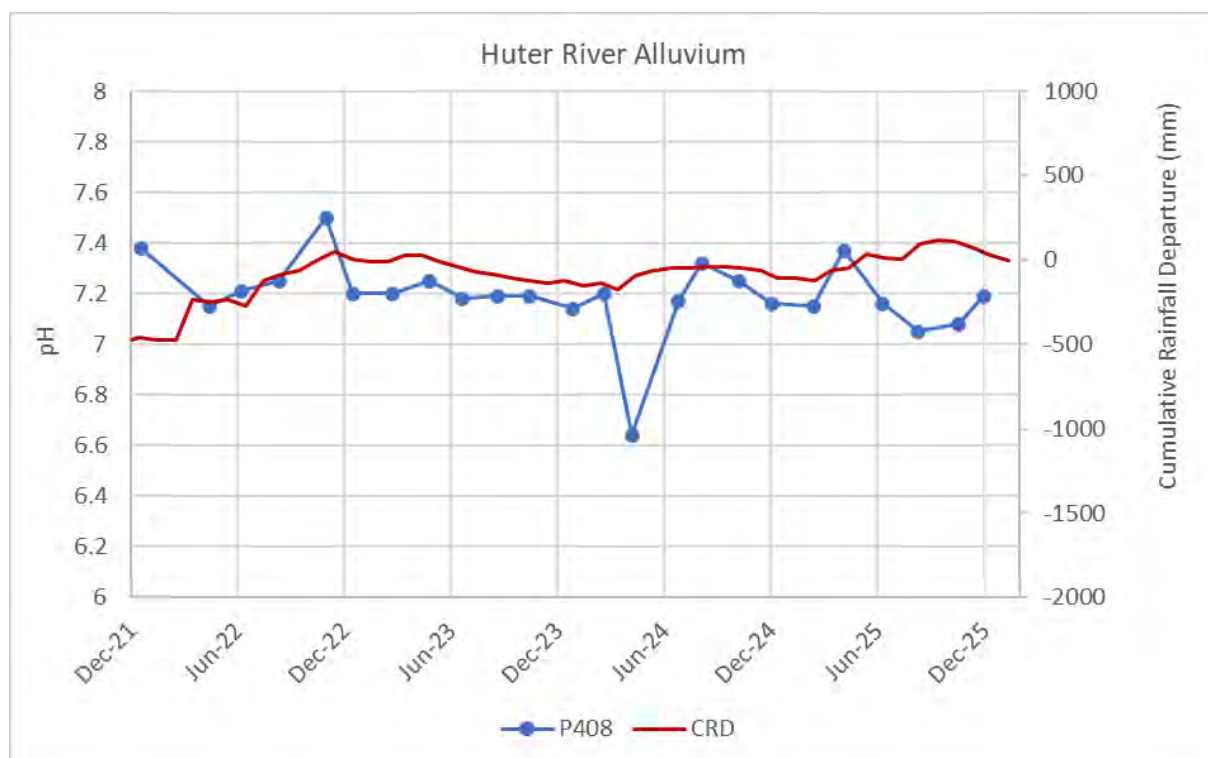


Figure 4.19 Hunter River Alluvium – pH

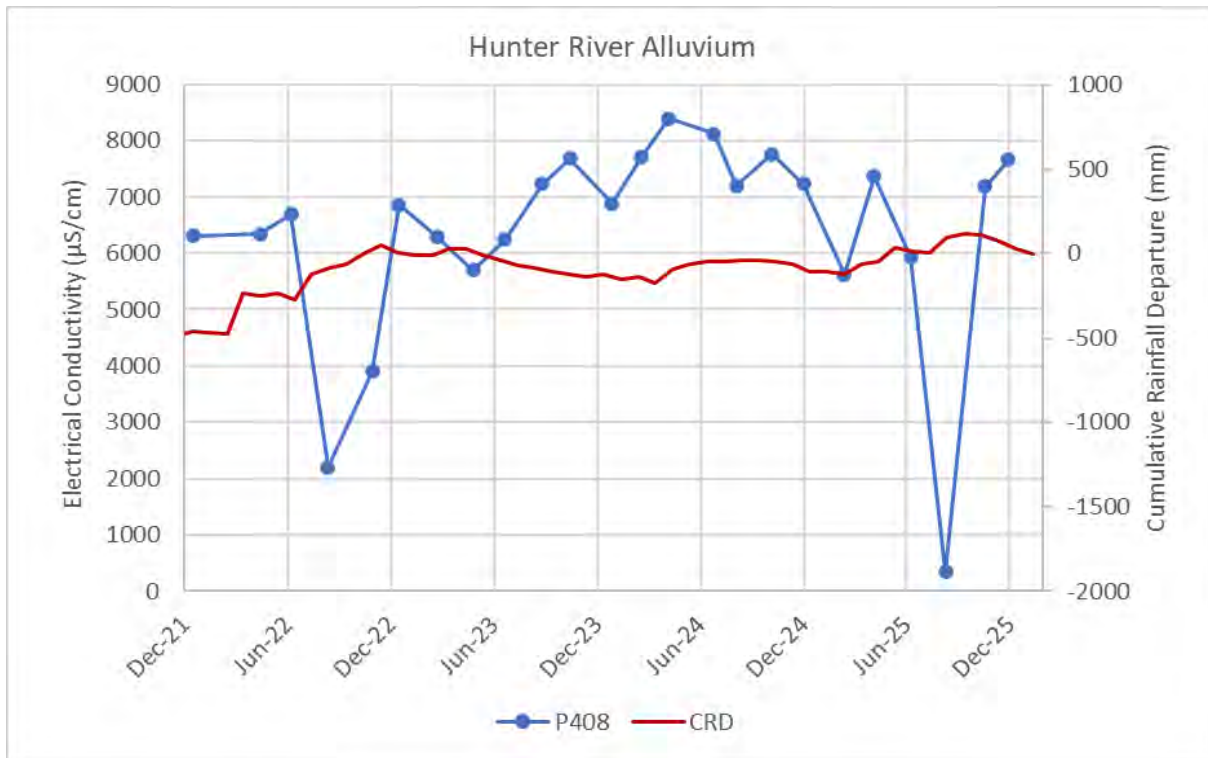


Figure 4.20 Hunter River Alluvium - EC

4.3.6 Shallow Weathered Permian (Regolith)

Groundwater within the regolith in the Wambo Creek area is monitored by bores P316b (bore replaced P114 and P116) and GW37b (bore replaced P109).

Groundwater levels ranged from 5.33 mbTOC (55.58 mAHD) in P316b to 10.05 mbTOC (52.45 mAHD) in GW37b. Levels generally increased from April 2025 onwards in response to above average rainfall.

Over 2025, pH fluctuated, ranging from 6.8 (GW37b) to 7.5 (P316b). EC declined in response to increasing water levels, above average rainfall and proximity to Wambo Creek, ranging from 474 µS/cm (GW37b) to 1,785 µS/cm (P316b).

A hydrograph showing long-term groundwater levels are shown in **Figure 4.21**, trends in pH in **Figure 4.22** and trends in EC shown in **Figure 4.23**.

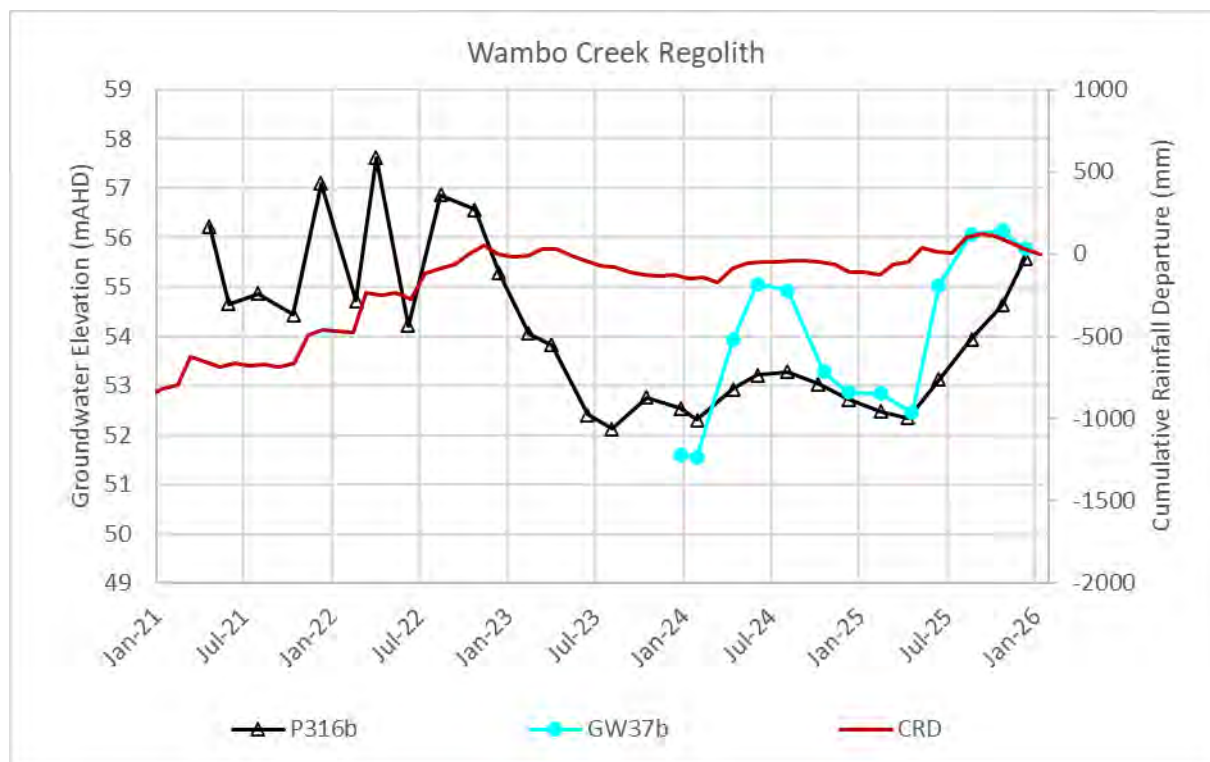


Figure 4.21 Wambo Creek Regolith – Water Levels

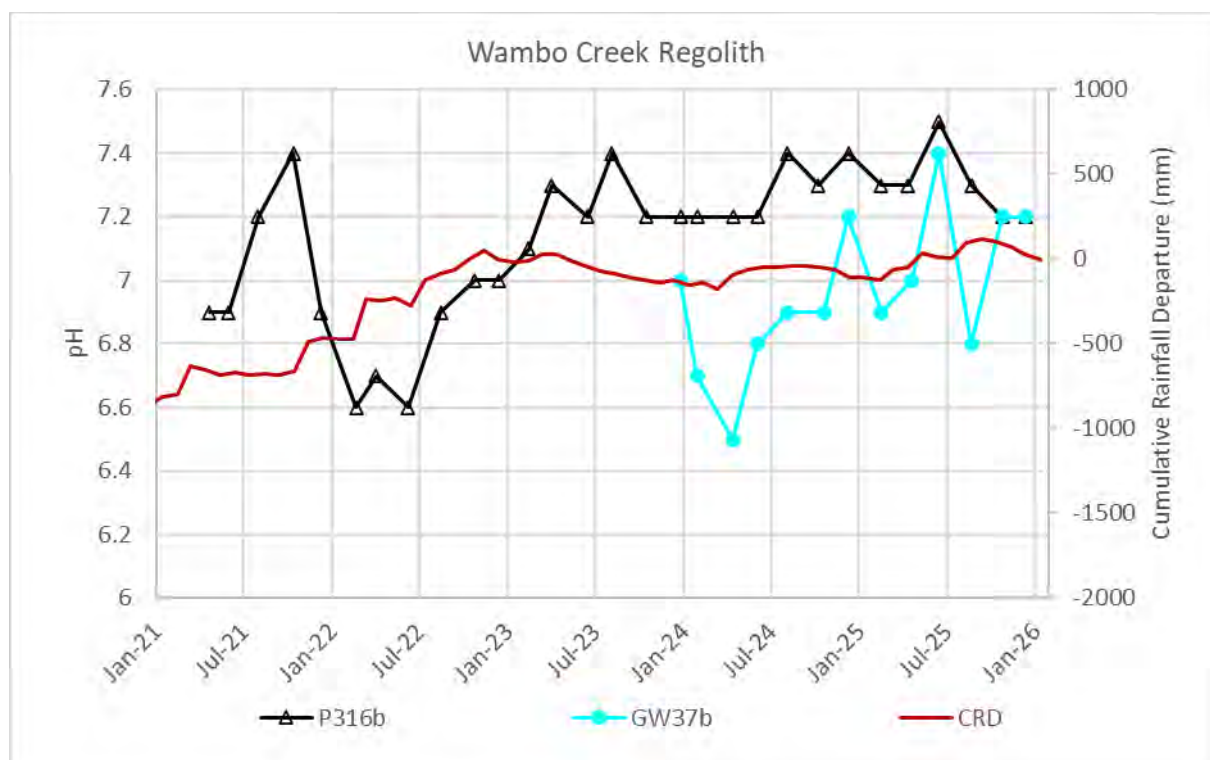


Figure 4.22 Wambo Creek Regolith - pH

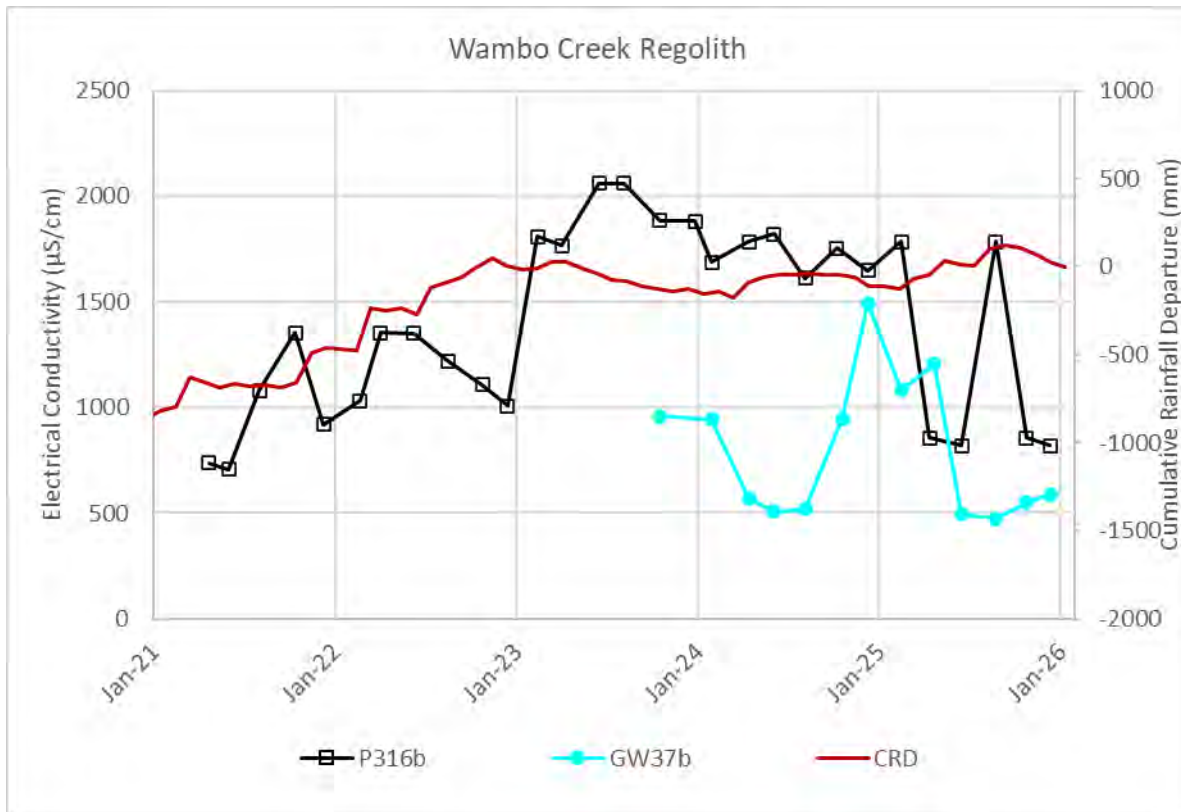


Figure 4.23 Wambo Creek Regolith - EC

4.3.7 Permian Coal Measures

Nine bores monitor the Permian coal measures at various locations at United Wambo. These include:

- Wambo Creek catchment – P202 (interburden) and P206 (interburden)
- Wollombi Brook catchment – GW22 (interburden), P401 (interburden), P402 (Arrowfield Seam)
- North Wambo Creek catchment – GW21 (interburden)
- Waterfall Creek catchment – P404 (overburden), P405 (Arrowfield Seam).

Bores P202 and P206 intersect the shallow Permian coal measures to the south of South Wambo Dam and above inactive multi-seam underground mine operates at Wambo. Over 2025 groundwater levels ranged from 6.35 mbTOC (52.83 mAHD) in P202 to 33.90 mbTOC (25.06 mAHD) in P206. As noted in SLR (2025b) groundwater levels remained relatively comparative between the two bores until 2021. Groundwater levels in P202 have remained relatively stable since monitoring began. However, levels in P206 declined by 30 m until August 2024. Groundwater levels increased slightly over 2025; however, have not returned to pre-2021 levels. It is unknown if the decline in water levels is due to site activity and it is recommended that this is investigated further.

Further south, groundwater levels in bores GW22, P401 and P402 ranged from 28.21 mbTOC (39.79 mAHD) in P401 to 95.08 mbTOC (-27.08 mAHD) in P402. Groundwater levels remained relatively stable in GW22 and P401 while P402 water levels have declined by over 22 m since 2022. Bores P401 and P402 are within 500 m east of the United open cut pit where mining commenced in December 2020. The declining trend observed in P402 is due to depressurisation of the Arrowfield Seam with the progression of mining. This is consistent with predicted impacts.

It is noted that the logger installed in bore P402 did not record data between June and October 2025. Manual water level dip data indicates there was a decrease of in water level of 0.87 m during this period. The P402 data logger levels continue to increase to the end of 2025 while the manual data shows a continuing declining trend. A 20 m offset between the data logger and the manual water level reading was recorded in December 2025 (refer **Figure 4.13**). The condition and functionality of the logger in P402 should be checked to ensure water levels are being recorded accurately. It is noted that the original data logger was lost in 2025 and replaced in October 2025. SLR (2025b) also noted that gas was detected in P402 in 2024 and recommended the bore be replaced or fully remote monitoring should be undertaken in future monitoring rounds. In 2025 the groundwater monitoring JSA was updated to include the monitoring of gas during sampling.

Bore GW21 has been dry, or nearly dry, since 2010. SLR (2025b) note that the depth of the bore is insufficient to detect changes to groundwater in the area. The network review by SLR (2025a) recommend removing the bore from the network and decommissioning the bore.

Bores P404 and P405 commenced monitoring groundwater in December 2024 and show similar water level trends. Over 2025 groundwater levels ranged from 12.21 mbTOC (84.79 mAHD) in P405 to 14.00 mbTOC (83.00 mAHD) in P404. Levels in both bores remained stable over 2025.

Over 2025 pH remained relatively stable and ranged between 6.7 (P405) and 12.2 (P404). The highly alkaline pH levels in P404 should be investigated further and is potentially connected to the gas detected in the bore in 2024. EC remained relatively stable over 2025 and ranged between 2,220 $\mu\text{S}/\text{cm}$ (P206) and 9,390 $\mu\text{S}/\text{cm}$ (P402).

A hydrograph showing long-term groundwater levels are shown in **Figure 4.24**, trends in pH in **Figure 4.25** and trends in EC shown in **Figure 4.26**.

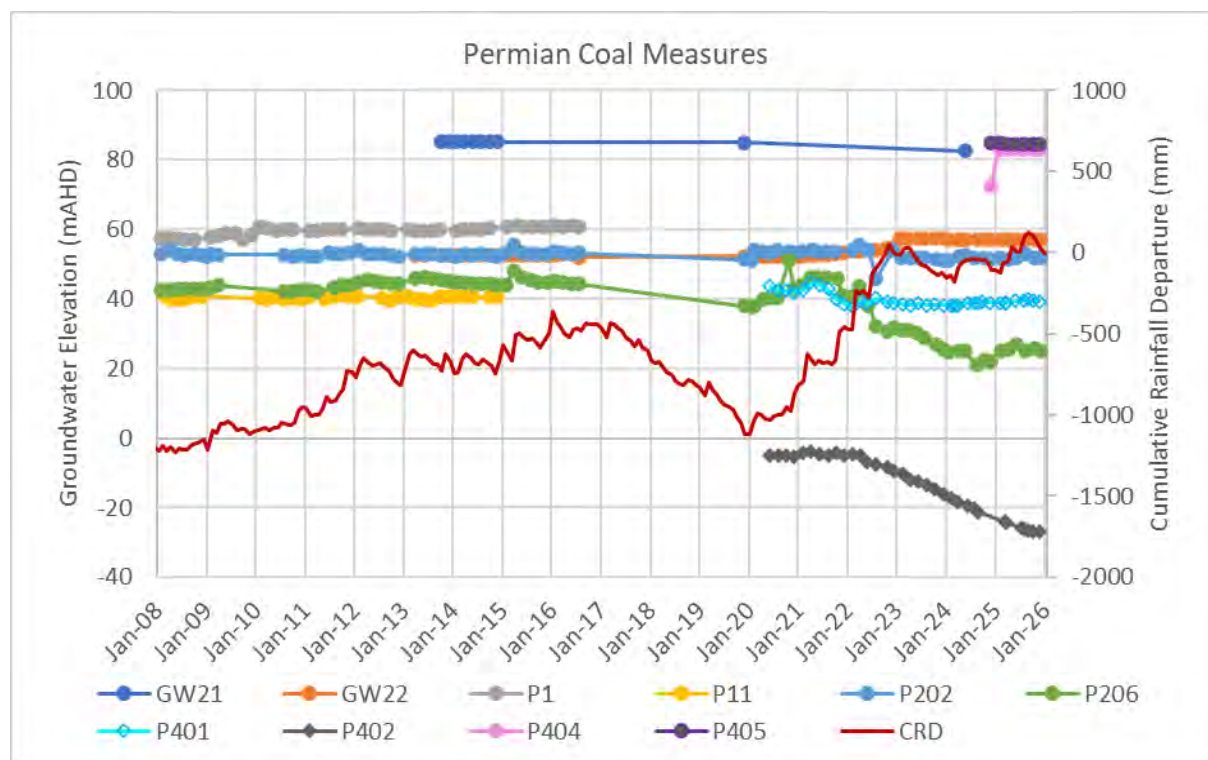


Figure 4.24 Permian Coal Measures – Water Levels

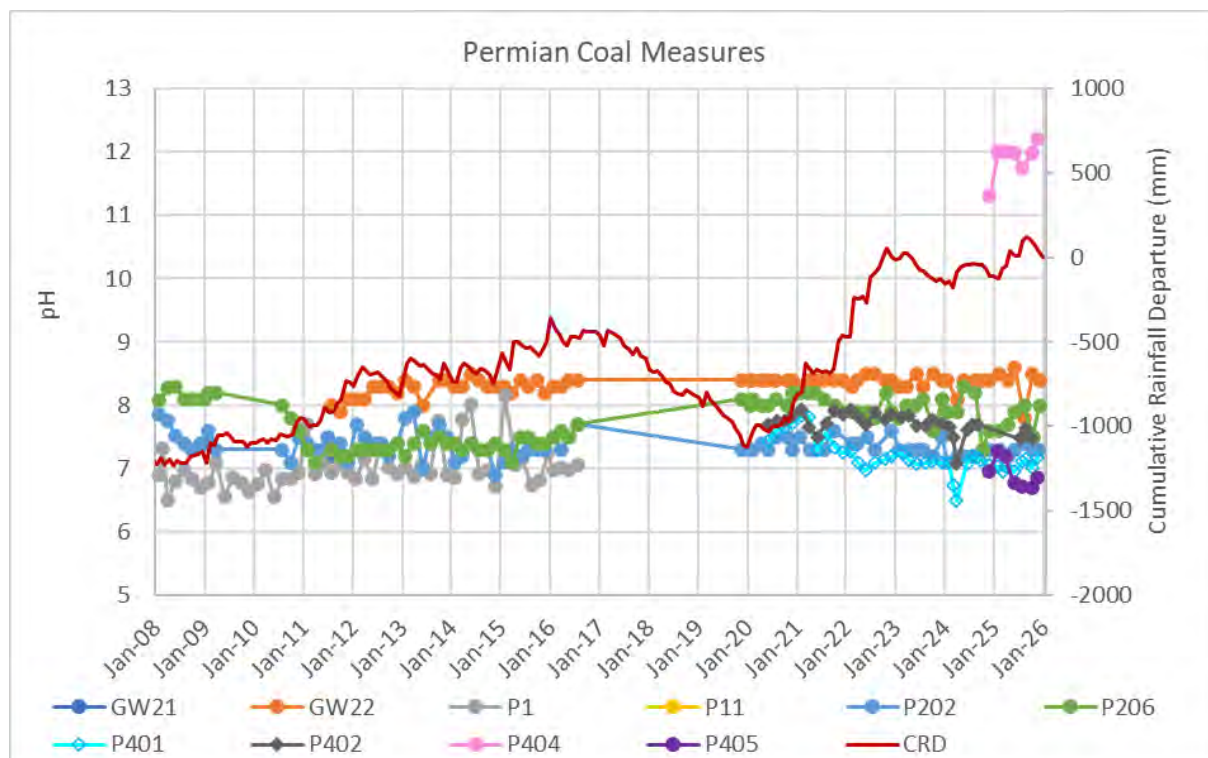


Figure 4.25 Permian Coal Measures - pH

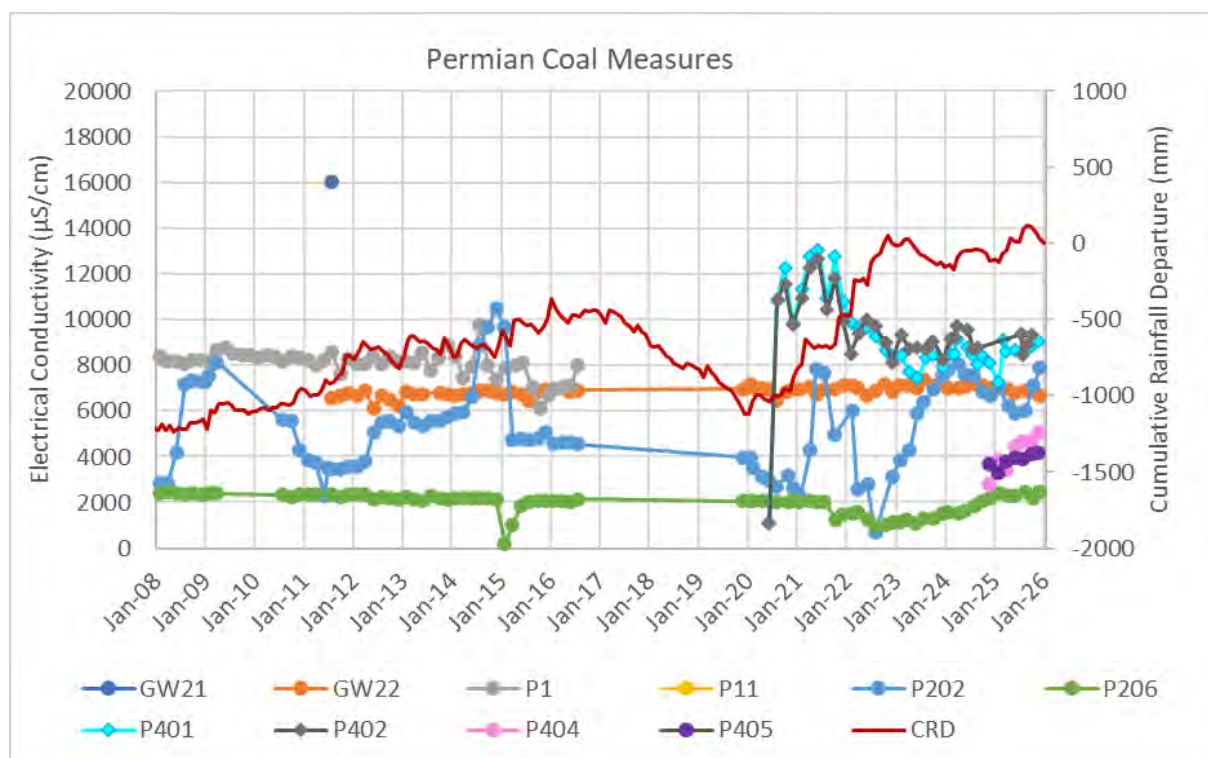


Figure 4.26 Permian Coal Measures – EC

4.4 Vibrating Wire Piezometers

The VWP's measure the groundwater head pressure above the sensor within multiple depths at one location. Groundwater level trends for VWP's are presented in **Appendix B**.

There are 14 existing and two proposed VWPS in the GWMP (V6) (Glencore, 2022), all of which are within the Permian coal measures. An updated GWMP has been submitted to DPHI for approval which includes changes to the VWP network. Reference to GWMP (V7) should be undertaken upon approval.

There are currently 11 VWP's recording groundwater levels, of which six have at least one sensor which appears to be erroneous. VWP rectification works were undertaken in 2025 (refer **Section 3.2**) and included:

- Replacement of logger units and batteries.
- Review and update of Ontoto templates.

A summary of VWP 2025 monitoring outcomes in relation to the GWMP (V6) is presented in **Table 4.3**.

Table 4.3 Permian Coal Measures VWP Summary

VWP	Status	Sensor Lithologies	Comment	Water Level Trends
P33	Active	1: Unnamed C Seam 2: Unnamed D Seam 3: Unnamed E Seam 4: Blackfield Seam 5: Arrowfield Seam	VWP destroyed in 2022 floods. All sensors replaced in August 2025. Sensors are functional.	Groundwater levels were recorded from August to December 2025. Water levels for all sensors were stable with little variation recorded. Trends were also consistent prior to sensor failure from August 2025 to June 2022.
P34	Active	1: Glen Munro Seam 2: Blakefield Seam 3: Bowfield Seam	VWP destroyed in 2022 floods. Three sensors replaced in August 2025. Sensors are functional.	Groundwater levels were recorded from August to December 2025. Water levels in sensors 1 and 2 were stable in 2025. Sensor 3 recorded a general decline. Trends were also generally stable prior to sensor failure in June 2022 for sensors 1 and 2. Sensor 3 recorded a steep water level increase of approximately 1.7 m in March 2022 followed by a gradual decline.
P35 (UWJV P35)	Active	1: Interburden 2: Interburden 3: Blakefield Seam 4: Blakefield Seam 5: Arrowfield Seam	Continuous data set. Sensors are functional.	Continuous groundwater level data has collected since installation in October 2020. Sensor 1 has recorded a general decline since installation until September 2025 where water levels continued to rise to December by 0.55 m. Sensor 2 recorded generally stable water levels with a slight increase over 2025. Sensors 3, 4 and 5 correlate well, with sensor 5 recording more significant changes in water level compared to sensors 3 and 4.

VWP	Status	Sensor Lithologies	Comment	Water Level Trends
				Water levels in all sensors have been variable since installation, with an overall increase in water level recorded throughout 2025.
UG131/ UG147	Active	1: Glen Munro Seam 2: Interburden 3: Mt Arthur Seam 4: Piercefield Seam* 5: Vaux Seam* 6: Broonie Seam* 7: ?*	New batteries installed 2025. Sensor 7 appears erroneous.	Groundwater levels were continually recorded since installation in October 2020. Sensors 1 to 6 recorded generally stable water levels since 2020. The data recorded by sensor 7 appears to be erroneous and should be investigated further.
UG134	Terminated	-	Removed.	Damaged beyond repair in 2020. Removed in draft GWMP (V7).
UG135	Active	1: Interburden 2: Warkworth Seam 3: Mt. Arthur Seam 4: Piercefield Seam 5: Vaux Seam 6: Broonie Seam	New batteries installed 2025. Sensors 3 and 5 appear erroneous.	Groundwater levels were continually recorded since installation in October 2020. Sensors 1, 2, 4 and 6 have recorded stable water levels since installation. Sensor 3 recorded relatively stable water levels from October 2020 to January 2024. Following this time, water levels appear to be erroneous. Investigation should be undertaken to determine the cause of the erroneous data. Sensor 5 appears to have been erroneous since installation and should be removed from the GWMP.
UG139	Terminated	-	Removed.	Mined through. Removed in draft GWMP (V7).
UG166A	Active	1: Unnamed D Seam 2: Unnamed E Seam 3: Blakefield Seam 4: Glen Munro Seam 5: Arrowfield Seam 6: Bowfield Seam 7: Bowfield Seam	Added to Ontoto telemetry in 2025. Sensor 5 appears erroneous.	Loggers were replaced in August 2025. Sensor 5 appears to be erroneous and has recorded the exact same water level since the logger was replaced. It is recommended that an investigation be undertaken to determine the cause of the erroneous data. All other sensors recorded stable water levels from August to December 2025.
UG193R	Active	1: Glen Munro Seam 2: Arrowfield Seam 3: Bowfield Seam 4: Warkworth Seam 5: Piercefield Seam 6: Broonie Seam	Sensors 1 and 3 appear erroneous.	Data was recorded for a short period from April 2021 to June 2021. It is unclear why the sensors stopped recording. Groundwater levels were then recorded continuously from July 2022 to December 2025. Sensor 1 appears erroneous since 2022. Sensor 3 recorded generally stable water levels from 2022 to January 2024. A linear rise in groundwater level

VWP	Status	Sensor Lithologies	Comment	Water Level Trends
				was recorded since then, which indicates sensor 3 is now recording erroneous data. Investigations should be undertaken to determine if sensors 1 and 3 can be rectified. If not, they should be removed from the monitoring program. Sensor 4 and sensor 5 have been slightly declining since 2022. Sensor 6 has recorded stable water levels since 2022.
UG194	Active	1: Blakefield Seam 2: Interburden 3: Blakefield Seam 4: Interburden 5: Interburden 6: Vaux Seam	Sensor 1 appears erroneous.	Groundwater levels were continually recorded since installation in October 2020. Stable groundwater levels were recorded since installation through to December 2025. However, it appears that sensor 1 began reporting erroneous results around 10 December 2025. Investigations should be undertaken to determine if sensors 1 can be rectified. If not, it should be removed from the monitoring program.
UG196	Terminated	-	Removed.	Removed for construction purposes. Removed in draft GWMP (V7).
UG220	Active	1: Overburden 2: Arrowfield Seam 3: Interburden 4: Interburden 5: Warkworth Seam 6: Mt. Arthur Seam 7: Vaux Seam	New batteries installed 2025. Sensors 1 to 5 appear erroneous.	Groundwater levels were continually recorded since installation in October 2020. Sensor 6 and sensor 7 have recorded generally stable water levels since 2020. Sensor 3 recorded consistent water levels until recordings became erroneous in August 2025. Sensors 1, 2, 4 and 5 have recorded erroneous results since recording began. Investigations should be undertaken to determine if erroneous sensors can be rectified. If not, they should be removed from the monitoring program.
UG224	Active	1: Piercefield Seam 2: Interburden 3: Vaux Seam	Sensors appear to be functional.	Groundwater levels were continually recorded since installation in October 2020. Sensor 1 recorded a decline in water levels since 2020 until 2025 followed by a slight increase in water levels. Sensor 2 recorded a decline in water levels since 2020. Sensor 3 recorded a general rise in groundwater levels to mid 2023. Water levels then remained stable until June 2024, followed by a slight rise, then a

VWP	Status	Sensor Lithologies	Comment	Water Level Trends
				decline in water levels to December 2025.
UG225	Active	1: Overburden 2: Arrowfield Seam 3: Bowfield Seam 4: Interburden 5: Mt. Arthur Seam 6: Vaux Seam	Sensor 5 appears erroneous.	Groundwater levels were continually recorded since installation in October 2020. Sensors 1, 2 and 4 recorded a slight decline in water level since 2020. Sensor 3 recorded a general decline since 2020. However, recorded an increase in water level in late November 2025. Sensor 5 recorded a general decline in water levels since recording began until December 2023. Data appears erroneous after this date. An investigation should be undertaken to determine if sensor 5 can be rectified. If not, it should be removed from the monitoring program. Sensor 6 recorded stable water levels since 2022.

Note: *The target lithology is not specified or confirmed in GWMP (V6).

4.5 Trigger Exceedances

The trigger levels and criteria specified in Section 7.3 of the GWMP (V6) (Glencore, 2022) for groundwater level, EC, and pH are outlined in **Section 3.4**. Where groundwater levels fall below the water level trigger for three or more consecutive readings (a six month period), an exceedance has occurred. Where water quality results are outside the trigger level for three or more consecutive readings (a six month period) an exceedance has occurred, and the response protocol specified in Section 9.8 of the GWMP (V6) (Glencore, 2022) is triggered.

A summary of the trigger exceedances recorded over 2025 requiring a management response under the trigger criteria in the GWMP (V6) are summaries in **Table 4.4**. Discussion of the exceedances are provided in **Table 4.5** with graphs for individual bores showing trigger levels provided in **Appendix C**.

As noted by SLR (2025a), four of the five bores with exceedances will become part of the Wambo (Peabody) updated GWMP, which is currently with DPHI for approval. United Wambo will continue to monitor bore P12 and will review triggers for this bore in 2026.

Table 4.4 2025 Trigger Exceedances

Bore ID	Screened Lithology	Depth to Water (mbTOC)		pH	EC (µS/cm)		
		Number of Obs.	No. of Readings Above Trigger		No. of Readings Outside Triggers	No. of Obs.	No. of Readings Above Trigger
GW02	Wambo Creek Alluvium	5*	0	5	1	5	0
GW11	Wambo Creek Alluvium	6	0	6	2	6	0
GW13	Wollombi Brook Alluvium	6	6	6	0	6	0
GW15	Wollombi Brook Alluvium (east)	6	0	6	3	6	0
GW16	North Wambo Creek Alluvium	6	2	6	1	6	0
GW17	North Wambo Creek Alluvium	6	3	6	4	6	0
GW22	Overburden	6	0	6	4	6	0
P12	Wollombi Brook Alluvium (east)	6	0	6	6	6	0
P206	Overburden	6	6	6	0	6	3

Note: * Not monitored in February 2025 due to access restrictions.

 Yellow shading indicates three or more readings exceeding the trigger level and requires a management response

Table 4.5 2025 Trigger Exceedance Discussion

Bore ID	Exceedance	Screened Lithology / Location	Comment	Recommendation
GW13	Water Level	Wollombi Brook Alluvium	GW13 is 15 m deep. It is understood that the bore log indicates it is screened in unconsolidated material and intersects minor coal seams and is not representative of the Wollombi Brook alluvium.	The bore should be purged and the condition checked with a downhole camera to assess if the bore is providing representative data, as recommended previously by SLR (2025b).
		Eastern side of Wollombi Brook, approximately 4.5 km to the south of mining operations at United Wambo.	Over 2025, GW13 recorded six consecutive water level readings below the 90 th percentile trigger of 6.3 mbTOC, a continuing trend since June 2023. Groundwater levels have been relatively stable since monitoring began with an overall decline of approximately 2 m over the last 12 years. The bore is located outside the extent of predicted drawdown due to cumulative United Wambo operations. Bore GW13 is distant from United Wambo and trends in the bore are likely to reflect natural conditions and influence from neighbouring site activities located closer to the bore. SLR (2025b) note the bore is approximately 15 years old and was potentially flooded during high rainfall events in 2022.	
GW17	Water Level	North Wambo Creek Alluvium	GW17 is 14 m deep and intersects alluvium and weathered Permian coal measures. It is constructed within highly weathered sandstone overlying siltstone, with only 2 m of alluvium present at surface.	SLR (2025b) recommended that based on the screened lithology the bore should be updated in the draft GWMP. It was also recommended that the pH trigger be reviewed.
		Located near Montrose Pit and the NWCD.	Over 2025, GW17 recorded three consecutive water level readings (February, April and June) below the 90 th percentile trigger of 12.1 mbTOC, a continuing trend since February 2024. Groundwater levels have declined from October 2022 to June 2025, followed by a sharp increase of 4 m by October 2025. Similar trends were observed in nearby bore GW16. In addition, four pH readings over 2025 were above the pH trigger of 7.2; however, they were not consecutive and therefore did not trigger an exceedance. Prior to 2025 the pH trigger level has been exceeded on numerous occasions and SLR (2025b) recommended a review of the pH trigger level.	
GW22	Water Quality - pH	Overburden Approximately 1 km southwest of Wollombi Brook	GW22 is 54 m deep, screened within the Whybrow interburden, although the GWMP notes the bore intersects overburden. Over 2025, three consecutive pH readings (June, August, October) were outside the upper and lower trigger levels (8.2 and 8.4). More frequent water quality exceedances, both pH and EC, have been recorded since June 2022.	The bore should be purged and the condition of the bore checked to confirm the data collected is representative of the aquifer, as recommended previously by SLR (2025b). Sampling techniques should

Bore ID	Exceedance	Screened Lithology / Location	Comment	Recommendation
		above the South Wambo underground workings, approximately 5 km south of United Wambo open cut	It is noted that groundwater levels increased from April 2020 until April 2023 in response to above average rainfall over the same period. Levels declined slightly over 2023 and 2024 before increasing again over 2025. The groundwater levels were above the 10th percentile trigger level; however, it is noted that the GWMP (V6) criteria does not require a response to this trigger. Bore GW22 is distant from United Wambo and trends in the bore likely reflect natural conditions and influence from neighbouring site activities located closer to the bore.	also be reviewed to ensure the bore is adequately purged before water quality samples are collected. If water quality exceedances continue and no issues with the condition of the bore are found, an investigation into the cause of the water quality changes should be undertaken.
P12	Water Quality – pH	Wollombi Brook Alluvium (east) Eastern side of Wollombi Brook, approximately 1 km from site operations	P12 is 15 m deep, screened within Wollombi Brook alluvium. Over 2025, six consecutive pH readings below the lower pH trigger level of 7.3 were recorded. This is a continuing trend since monitoring began in 2011 and exceedances have been consecutive since February 2018. Groundwater levels at P12 closely correspond to water levels within nearby Wollombi Brook. Bore P12 is distant from United Wambo and trends in the bore likely reflect natural conditions and influence from neighbouring site activities located closer to the bore.	SLR (2025b) recommended a review of the pH trigger level to incorporate all baseline data back to 2005 to derive a more appropriate trigger level.
P206	Water Level	Overburden Located 750 m east of South Wambo Dam and above inactive, historical multi-seam underground mine operations at Wambo. Near the confluence of Wambo Creek and Wollombi Brook.	P206 is 50 m deep and screened within the Whybrow interburden, although the GWMP (V6) notes it is in overburden. Over 2025, P206 recorded six consecutive water level readings below the 90th percentile trigger of 20.6 mbTOC, a continuing trend since June 2022. Groundwater levels declined from November 2020 to August 2024, followed by an increase to June 2025. Groundwater level trends are not consistent with historical trends and no longer follow climate trends. However, it is noted that there are no active mining operations near the bore and that underground mining was completed in 2015. SLR (2025b) note the bore was purged in 2024 and it was noted that recharge was slow and produced black water. Subsidence due to the underground workings may have influenced groundwater levels in the area and this should be investigated further.	It is recommended the condition of the bore is checked with a downhole camera. If the bore is found to be in good condition, an investigation into other potential causes of the changes in water levels should be undertaken.

4.6 Groundwater Dependent Ecosystems Monitoring and Compliance

GDE monitoring was undertaken at United Wambo over 2025 via a stygofauna survey, tree monitoring and groundwater monitoring within specified GDE bores. The monitoring undertaken is summarised in the sections below.

4.6.1 Stygofauna Study

A stygofauna survey was undertaken in September 2025 by StygoEcologia (2025). This was the fifth survey conducted on site, with the first survey undertaken in 2015. The survey was to include 18 sites (15 bores and three wells) within the shallow alluvial aquifers across Wollombi Brook, North Wambo Creek, the Wambo Creek alluvium and the Hunter River alluvium. Bore P120 was found to be blocked and could not be sampled.

The survey reported that groundwater levels ranged from 0.9 mbgl to 14 mbgl within the 17 sites. During the survey, 172 specimens were collected from 12 sites, and 11 bores recorded with stygofauna present. The specimens included ten invertebrate families consisting of six stygofauna families and four edaphobites (soil species). The stygofauna were collected from the North Wambo Creek alluvium, Wollombi Brook alluvium and Wambo Creek alluvium to the south of United Wambo. No stygofauna were recorded in the Hunter River alluvium (StygoEcologia, 2025).

The 2025 results were consistent with records of stygofauna within the alluvial aquifers compared to the results from 2015 to 2022. The results indicate alluvial aquifer connectivity. The occurrence and diversity of fauna indicate consistency in water levels and quality that is beneficial for stygofauna communities leading to an increase in fauna recorded in the 2025 survey (StygoEcologia, 2025).

StygoEcologia (2025) assessed the North Wambo, Wollombi Brook and Wambo Creek alluvium aquifers as having a high ecological value and assigned them a Class A ranking, indicating high value and low risk. The survey indicated there has been no detrimental impacts from mining operations.

StygoEcologia (2025) made the following recommendations:

- More frequent temporal surveys be conducted with a preference for at least annual stygofauna surveys completed between September and November to align with previous surveys.
- Monthly surveys of water levels and water quality.
- Upgrade all bores used for stygofauna sampling with bore IDs, caps on top of the bore casing to eliminate contamination and instal water level loggers.

4.6.2 Tree Monitoring

EcoLogical (2025) was engaged by UMJV to collect baseline data for condition monitoring of GDE vegetation along Wollombi Creek at Warkworth, near United Wambo.

The purpose of the monitoring is to record the condition of vegetation over time and provide data to assess any potential impacts to GDEs in conjunction with additional performance measures including groundwater level, surface water quality, and stygofauna. Data collected during 2025 will be used as baseline data for future monitoring.

The Development Consent – United Wambo Open Cut Coal Mine (SSD-7142) and the GWMP specify GDE monitoring requirements. The consent also specifies that a GDE assessment occur within 12 months of commencement (refer **Section 3.5**). This requirement was met when Umwelt completed a GDE assessment in 2021 (Umwelt, 2021). The 2021 investigation identified five vegetation communities and one endangered plant population (*Eucalyptus camaldulensis*) that has potential to be impacted by the development due to their dependence on alluvial groundwater.

Key outcomes of the EcoLogical (2025) GDE Tree Monitoring baseline investigation include:

- 20 sampled trees at GDE1 were all in good condition and showed no stress indicators.
- No previous data was collected for the river red gum populations at GDE1. As such, data collected as part of this study is considered baseline data for future comparison. Monitoring should occur annually in Spring and if stress indicators occur, a review of groundwater triggers should be undertaken.
- In 2024, pH exceeded the minimum pH level six times between February and December 2024 (SLR 2025b) in bore P12. Despite these results, GDE1 does not appear to have been significantly impacted. It is recommended that ongoing monitoring occur to identify any potential delayed response.

The following recommendations were made:

- Trigger values for alluvium bores GW08.2, GW09.2 and P407 be prescribed as soon as possible using sufficient baseline data.
- Ongoing sampling of tree condition of the 20 River Red Gum tree every three years during spring.
- Sampling of tree condition if there are three consecutive exceedances in triggers where exceedances are unexpected or not climate related.
- Ongoing annual groundwater level and water quality monitoring in Spring. Any unexpected signs of stress should prompt a review of groundwater levels and groundwater quality.
- Comparison of each survey to the previous monitoring round. Any decline in condition should be investigated.

As discussed in **Table 4.5**, P12 recorded six consecutive readings below the lower pH trigger during 2025. This continuation from the 2024 monitoring results should continue to be monitored to confirm there is no delayed impact to GDE1.

4.6.3 GDE Compliance

Groundwater monitoring results from United Wambo over 2025 have been evaluated against the GDE performance criteria and trigger levels outlined in **Section 3.5**. The evaluation against the performance indicators is summarised in **Table 4.6** and the details for individual trigger levels is summarised in **Table 4.7**. It is noted the collection of monitoring data was attempted at bore P402 in 2025. However, due to safety concerns due to gas levels data was unable to be collected in every monitoring round.

Table 4.6 2025 GDE Performance Assessment

Aspect	Performance Measure	Performance Indicator/Trigger	Compliance
Alluvial Aquifer	Negligible change in groundwater level (compared to predicted impacts)	All groundwater elevations remain within proposed triggers	Compliant
	Negligible change in groundwater quality	All water quality parameters remain within proposed trigger values	Compliant

Table 4.7 Assessment of Compliance Against Proposed GDE Triggers

Bore ID	Geology	Frequency		Depth of Groundwater 90 th Percentile (mbTOC)		EC 90 th Percentile (µS/cm)		pH 10 th Percentile to 90 th Percentile		Sulphate 90 th Percentile (mg/L)	
		Criteria	Compliant	Criteria	Compliant	Criteria	Compliant	Criteria	Compliant	Criteria	Compliant
P12	Alluvium	SWL + WQ Bi-Monthly Full Suite 6 Monthly	Y	7.7 + 1 m	Y Max DTW 7.50	1,002	Y Max EC 338.5	6.3-7.7	Y No consecutive obs. <6.3	48	Y Max SO4 18
P15	Colluvium		Y	7.8 + 1 m	Y Max DTW 7.96	10,880	Y Max EC 7,350	7.2-7.9	Y No consecutive obs. <7.2	1,456	Y Max SO4 705
P16	Colluvium		Y	8.6 + 1 m	Y Max DTW 8.56	10,510	Y Max EC 1,810	7.0-7.7	Y No consecutive obs. <7.0	1,350	Y Max SO4 94
BH1*	Tertiary Alluvium		ND								
P401	Shallow Overburden		Y	TBC	N/A Max DTW 29.10	12,750	Y Max EC 9,100	7.0	N/A – assessed once upper and lower trigger values are developed	TBC	N/A – assessed once trigger developed
P402	Arrowfield Seam		N (sampled 4 times)	TBC	N/A Max DTW 95.08	11,810	Y Max EC 9,390	7.6		TBC	

Note** * No data in 2025 as bore is consistently dry

5.0 Groundwater Take

As outlined in **Section 1.1** the approved site activities include the direct interception of groundwater from the Permian coal measures and direct and indirect interception of groundwater from alluvium. Take from groundwater aquifers is associated with the following water sharing plans:

- Wollombi Brook alluvium and its tributaries fall under the Hunter Unregulated and Alluvial Water Source Water Sharing Plan.
- Hunter River alluvium is within the Hunter Regulated Water Sharing Plan (for highly connected alluvium).
- Groundwater in the Permian coal measures is under the North Coast Fractured and Porous Rock Groundwater Source.

Numerical groundwater modelling was undertaken by SLR (2022), which included predicted groundwater take from various water sources. The project was approved in 2019, and site operations commenced in 2020. Therefore, it is inferred that results for model year 6 are reflective of activities for the 2025 reporting period.

Table 5.1 presents the relevant water sources and predicted take for the 2025 reporting period, based on the SLR (2022) model. The area experienced above average rainfall over the reporting period. As discussed in **Section 1.2**, there is potential for higher inflows to the Montrose Pit due to the above average rainfall. This likely occurred in localised areas where the saturated alluvium and regolith directly intersect the pit in the west.

Table 5.1 Predicted Groundwater Take

Water Source	Licensed Entitlement (ML/year)	Predicted Maximum Water Take (ML/year)*^	Predicted Take for 2025 (ML/year)^
Hunter Regulated WSP	2,414	0	0
Hunter Unregulated and Alluvial Water Source	736.9	209	48
North Coast Fractured and Porous Rock Groundwater Source	1,947	1,110	572

Note: * Includes inflows to existing and historical workings at United and historical and active workings at Wambo.

^Based on predictions from the SLR (2022) model

6.0 Compliance with Groundwater Performance Criteria

Groundwater monitoring undertaken at United Wambo over 2025 has been evaluated against the performance criteria defined in Section 7.3 of the GWMP (V6) (Glencore, 2022). This is shown in **Table 6.1**.

Table 6.1 Groundwater Performance Criteria

Aspect	Performance Measure*	Performance Indicator/Trigger	2025 Observations	Overall Compliance
Alluvial Aquifers	Negligible change in groundwater level (compared to predicted impacts ¹).	90 th percentile (and not related to seasonal variability) over three consecutive months.	Groundwater levels declined below the 90 th percentile depth to water trigger in bore GW13 over 2025 (refer Section 4.5). The bore is outside the area of predicted impacts. The bore should be purged and the condition checked with a downhole camera to assess if the bore is providing representative data. Exceedances are unlikely to be related to United Wambo mining impacts. Groundwater levels in bore GW17 declined below the 90 th percentile depth to water trigger in three consecutive readings during 2025 (refer Section 4.5). It is recommended that, the lithology should be updated in the draft GWMP to reflect the screened lithology. Exceedances unlikely to be related to United Wambo mining impacts.	Compliant
	Negligible change in groundwater quality.	Groundwater quality concentrations outside of adopted trigger values for at least one parameter for more than three consecutive months.	Bore P12 recorded six consecutive readings below the pH trigger level, a continuing trend since 2018 (refer Section 4.5). It is recommended a review of the pH trigger level be undertaken to incorporate all baseline data back to 2005 to derive a more appropriate trigger level. Exceedances unlikely to be related to United Wambo mining impacts.	Compliant
Bedrock Aquifers	Negligible change in groundwater level (compared to predicted impacts ¹).	90 th percentile (and not related to seasonal variability) over three consecutive months. No trigger adopted for monitoring sites within the project area.	Groundwater levels in P206 were below the 90 th percentile trigger level over 2025, a continuing trend since 2022 (refer Section 4.5). Groundwater level trends are not consistent with historical trends and no longer follow climate trends. Subsidence due to the underground workings may be influencing groundwater levels. However, it is noted that there are no active mining operations near the bore and that underground mining was completed in 2015. The bore was purged in 2024, and it was noted that recharge was slow and	Compliant

Aspect	Performance Measure*	Performance Indicator/Trigger	2025 Observations	Overall Compliance
			produced black water. It is recommended the condition of the bore is checked with a downhole camera. If the bore is found to be in good condition, an investigation into other potential causes of the changes in water levels should be undertaken.	
	Negligible change in groundwater quality.	pH of 6.5 to 8.5 EC < 17,500 µS/cm	Bore GW22 recorded three consecutive pH readings outside the upper and lower trigger levels (refer Section 4.5). The bore should be purged and the condition of the bore checked to confirm the data collected is representative of the aquifer. Sampling techniques should also be reviewed to ensure the bore is adequately purged before water quality samples are collected. If water quality exceedances continue and no issues with the condition of the bore are found, an investigation into the cause of the water quality changes should be undertaken.	Compliant
Groundwater Inflows to Mining Pits	Groundwater inflows to mining pits consistent with groundwater model predictions and all take is covered by relevant licences.	Groundwater inflows to mining pits is >10% higher than predicted for three consecutive months, without logical reason (i.e. changes to mine plan or wetter than average climate conditions).	Groundwater modelling ¹ predicted groundwater inflows to United Wambo in 2025 to be 572 ML from the North Coast Fractured and Porous Rock Groundwater Source. Licence entitlement from this source is 1,947 ML/yr. The site water balance model simulated: • 2575.6 ML of rainfall and runoff reporting to water storages • 350.9 ML evaporated from water storages • 26.4 ML of external spills • 357.0 ML of groundwater inflows • 626.8 ML from Montrose Pit to mine water storages • 1,376.2 ML from United Pit to mine water storages A total of 171.1 ML was stored in Montrose pit voids during December 2025. Groundwater inflows are	Compliant

Aspect	Performance Measure*	Performance Indicator/Trigger	2025 Observations	Overall Compliance
			consistent with model predictions and take is within WALs.	
Seepage/Leachate	Negligible seepage/leachate from water storages.	Visual inspections of water storages (as per the United Wambo Erosion and Sediment Control Plan Checklists) show seepage zones, and reporting water balance indicates seepage is greater than negligible (i.e. >5% of inflows to water storage)	Mine water storages were inspected monthly. Seepage was observed at the toe of Duck Pond and the toe of the U3 dam. No flow monitoring of the seepage is available. As such, it cannot be confirmed that seepage is <5% of inflows to water storage or defined as negligible. It is recommended that seepage be quantified and estimated to determine if seepage from water storages is compliant. It is noted that seepage is also not estimated in the site water balance model. A geotechnical investigation commenced in 2025 by PSM (2026) to determine the source and quantity of the seepage as required by Section 9.10 of the WMP. Groundwater quality data from bores P12, P15, and P16, near the toe of the U3 dam, show pH ranged between 6.75 and 8.23 and the maximum EC level was 5,030 $\mu\text{S}/\text{cm}$.	Unconfirmed. Insufficient data is available to confirm seepage is <5% of inflows to water storage.
	All seepage/leachate from emplacement areas is captured in water management system.	Visual inspections (as per the United Wambo's Erosion and Sediment Control Plan Checklists) indicates seepage areas and confirms location of drainage pathways outside of water management system	Seepage from the emplacement areas was inspected monthly. Seepage was recorded at the dump toe near Plover Dam in March 2025. Seepage observed during the reporting period is generally captured by the water management system.	Compliant
	Negligible impacts of seepage/leachate impacts from backfilled voids on regional groundwater quality.	No increasing trends in water quality parameters in monitoring bores down dip of backfilled voids. An increasing trend would be indicated by three consecutive water quality readings showing continual increases in analyte concentrations.	Groundwater monitoring results do not indicate changes to water quality due to seepage/leachate impacts from backfilled voids in 2025.	Compliant

Aspect	Performance Measure*	Performance Indicator/Trigger	2025 Observations	Overall Compliance
	Seepage/leachate impacts from final voids are consistent with predictions in relevant environmental impact statements for the two approved final voids (United and Wambo Open Cuts).	Measures to be development as part of United Wambo Closure Plan (at least 5 years prior to completion mining)	-	Not applicable to the reporting period.

Note: 1 Predicted impact as determined in the numerical groundwater model (SLR, 2022)

* Performance indicator/trigger detailed in Table 3.2

7.0 Summary and Recommendations

7.1 Summary

This report outlines the review of the groundwater monitoring results at United Wambo collected from 1 January 2025 to 31 December 2025. This groundwater annual review has been prepared in accordance with requirements outlined in the GWMP (V6) (Glencore, 2022). The findings from the review are listed below:

- Over the reporting period mining was progressed within Montrose Pit and United Pit. Tailings were also stored in Homestead Inpit TSF.
- Rainfall over 2025 was above average with stream flows increasing in response to rainfall events.
- A number of monitoring network updates and maintenance activities were undertaken over 2025.
- The groundwater monitoring network was reviewed by SLR (2025a), with recommendations made for include in the draft GWMP (V7).
- Groundwater monitoring was generally conducted in accordance with the current GWMP (V6) (Glencore, 2022). It is noted that some bores were not monitored over the reporting period, due to access restrictions including creek crossing being too high to cross, dry bores, insufficient water to sample and poisonous gases causing safety risk.
- Groundwater levels in alluvial and regolith bores generally responded to climate trends over 2025.
- Three bores (GW13, GW17 and P206) recorded groundwater level exceedances and two bores (GW22 and P12) recorded water quality exceedances. Bores GW13, GW22 and P12 are distant from United Wambo and trends in the bores likely reflect natural conditions and influence from neighbouring site activities located closer to the bores.
- Bore P402 was not sampled on a number of occasions over 2025 due to safety concerns with gas in the bore. Monitoring of this bore will continue subject to safe conditions during sampling.
- Monitoring of GDE monitoring sites continued to the east, between United Pit and Glen Munro Boxcut and Wollombi Brook. Groundwater levels for deep bore P402 showed depressurisation of the Arrowfield Seam with active mining in the area. Shallow bores P12, P15 and P16 recorded a slight increase in groundwater levels correlating to climate and streamflow. Groundwater level data also shows a gradient from P15 towards P16 towards the east, indicating potential for a gradient of flow from the mine area through the colluvium to the east towards Wollombi Brook.
- In 2025, a stygofauna survey was undertaken by StygoEcologic. The survey assessed the aquifers within the North Wambo, Wollombi Brook and Wambo Creek alluvium as having a Class A assessment ranking (high value/low risk). The survey indicated there has been no detrimental impacts from mining operations.
- In 2025, a tree monitoring was undertaken by EcoLogical. The results indicated sampled trees were all in good condition and showed no stress indicators. Groundwater level data for the Permian coal measures show depressurisation in the deep mined coal seams, consistent with impact predictions. Despite depressurisation in the coal measures near Wollombi Brook, bores monitoring the alluvium did not indicate any drawdown impacts due to operations at United Wambo.

- The three yearly independent review of the numerical groundwater model is currently in progress. In accordance with SSD 7142 condition B52e (v), in 2025 SLR undertook a review of the existing SLR (2022) groundwater model that covers United Wambo operations. As part of the process, areas for improvement in the model were identified, including incorporation of recent climatic conditions and actual mine progression. The model updates are still in progress and will be incorporated into the 2026 annual review. For this annual review, the previous SLR (2022) predictions were utilised.
- There is potential for higher inflows to the Montrose Pit due to above average rainfall. This likely occurred over 2025 in localised areas where the saturated alluvium and regolith directly intersect the pit in the west. Predicted take for regulated and unregulated alluvial sources totalled 448 ML and 900 ML for the North Coast Fractured and Porous Rock Groundwater Source, for 2025.
- Groundwater monitoring undertaken at United Wambo over 2025 was evaluated against the performance criteria defined in Section 7.3 of the GWMP (V6) (Glencore, 2022). Full compliance was achieved over 2025 for alluvial aquifers, bedrock aquifers and groundwater inflows to mining pits compliance groups.
- Seepage/leachate from water storages is not estimated or quantified. As such, it cannot be confirmed if seepage is <5% of inflows to water storage and classified as negligible. It is recommended that seepage be quantified to confirm that it is negligible. Consideration should also be given to including seepage estimates in the site water balance model based on quantified estimates.

7.2 Recommendations

Recommendations have been made following the 2025 annual review of groundwater data, summarised below:

- VWP data was reviewed and recommendations are listed in **Table 4.3**.
- Stygofauna sampling undertaken by StygoEcologia was undertaken in 2025. Their recommendations included:
 - More frequent temporal surveys are conducted with a preference for at least annual stygofauna surveys between September and November to align with previous surveys.
 - Monthly surveys of water levels and water quality.
 - Upgrade all bores used for stygofauna sampling with bore numbers, caps on top of the bore casing to eliminate contamination and instal water level loggers.
- Recommendations made by Ecological (2025) during the Tree Monitoring baseline investigation include:
 - Trigger values for alluvium bores GW08.2, GW09.2 and P407 be prescribed.
 - Ongoing monitoring of the 20 River Red Gum trees every three years during spring.
 - Sampling of tree condition if there are three consecutive exceedances in triggers where exceedances are unexpected or not climate related.
 - Comparison of each survey to the previous monitoring round. Any decline in condition should be investigated.

Recommendations for individual bores are summarised in **Table 7.1**.

Table 7.1 Summary of Recommendations

Bore ID	Recommendation
GW12	Check if the bore is still dry given above average rainfall over 2025. It is noted that Wambo will monitor this bore going forward once V7 of the GWMP is approved.
GW13	The bore should be purged and the condition checked with a downhole camera to assess if the bore is providing representative data, as recommended previously by SLR (2025b). It is noted that Wambo will monitor this bore going forward once V7 of the GWMP is approved.
GW17	Based on the screened lithology the bore should be updated. It is also recommended that the pH trigger be reviewed. It is noted that Wambo will monitor this bore going forward once V7 of the GWMP is approved.
GW22	The bore should be purged and the condition of the bore checked to confirm the data collected is representative of the aquifer. Sampling techniques should also be reviewed to ensure the bore is adequately purged before water quality samples are collected. If water quality exceedances continue and no issues with the condition of the bore are found, an investigation into the cause of the water quality changes should be investigated further. It is noted that Wambo will monitor this bore going forward once V7 of the GWMP is approved.
P12	Review of the pH trigger level to incorporate all baseline data back to 2005 to derive a more appropriate trigger level.
P206	The condition of the bore is checked with a downhole camera. If the bore is found to be in good condition, an investigation into other potential causes of the changes in water levels should be undertaken. It is noted that Wambo will monitor this bore going forward once V7 of the GWMP is approved.
P301	Most likely installed in weathered Permian strata below the Stony Creek alluvium. The bore should be reclassified as a regolith/ shallow Permian bore. It is noted that Wambo will monitor this bore going forward once V7 of the GWMP is approved.
P402	Check condition and functionality of the logger to ensure water levels are being recorded accurately. Gas was detected in P402 in 2024 and recommended the bore be replaced or fully remote monitoring should be undertaken in future monitoring rounds.
P404	The highly alkaline pH levels should be investigated further and are potentially connected to the gas detected in the bore in 2024.
P408	EC level of 340 μ S/cm recorded in August 2025 appears to be an anomalous reading and the data entry should be checked. The overall EC levels recorded are relatively high for a bore screened within alluvium. The condition of the bore should be checked to confirm the water quality data collected is representative of the Hunter River alluvium.
Seepage/Leachate	Quantify seepage flows from Dam U3 and Duck Pond. Collect seepage water quality samples for Dam U3.

8.0 References

- Australasian Groundwater and Environmental Consultants (AGE), 2016. Groundwater Impact Assessment. Report on United Wambo Open-Cut Coal Mine Project. Prepared for Umwelt Australia Pty Ltd, July 2016.
- EcoLogical Australia, 2025. Groundwater Dependant Ecosystem Tree Monitoring Report: United Wambo Joint Venture, Prepared for Glencore – United Wambo Joint Venture, November 2025.
- HydroAlgorithmics, 2022. Wambo Longwalls 24-26 Modification – Groundwater Peer Review Report. HA2022/11a. Prepared for Wambo Coal Pty Ltd, 30 July 2022.
- National Uniform Drillers Licensing Committee, 2020. Minimum Construction Requirements for Water Bores in Australia (4th ed.). Australian Drilling Association. ISBN 978-0-646-81881-8.
- Peabody Australia, 2020. Wambo Groundwater Management Plan. Document No. WA-ENV-MNP-509.1 version 2. Prepared by WCPL, November 2020.
- PSM, 2026. Dam U3 Pre-dam Topography and Seepage Investigation. United Wambo Joint Venture, PSM1148-496O, 17 March 2026.
- SLR, 2022. Wambo Coal Mine Longwalls 24-26 Modification Groundwater Assessment SLR Ref: 665.10008.00815-R01 Version No: -v4.0 prepared for Wambo Coal Pty Ltd, July 2022.
- SLR, 2024. Wambo Coal Mine Longwall 24 – 26 Updated Extraction Plan Groundwater Assessment Review, prepared for Wambo Coal Pty Ltd, October 2024.
- SLR, 2025a. Groundwater Monitoring Network Review, Wambo Complex Wambo Coal Pty Ltd & United Collieries Pty Ltd, Project No.: 665.v10008.02035, 18 November 2025.
- SLR, 2025b. 2024 Annual Review – Groundwater, United Wambo Joint Venture, Project No.: 660.v30030.00404, 28 March 2025.
- SLR, *in draft*. Groundwater Modelling Report, United Wambo, United Wambo Joint Venture, Project No.2: 660.V30030.00403.
- StygoEcologia, 2025. United Wambo Open Cut Coal Mine Project Stygofauna Assessment 5, September 2025.
- Umwelt Australia Pty Ltd (Umwelt), 2016. United Wambo Open Cut Coal Mine Project – Environmental Impact Statement.
- Umwelt Australia Pty Ltd (Umwelt), 2021. United Wambo Groundwater Dependent Ecosystem Study. Report 21033/R01, January 2021.
- Umwelt Australia Pty Ltd (Umwelt), 2023. United Wambo Annual Review. Report 21033/R04, March 2023.
- United Wambo Joint Venture, 2025. Response to DCCEEW recommendations, United Wambo – Water Management Plan and Groundwater Management Plan (Report: 20251218 EMS_DCCEEW_EXT_LTR GMP), December 2025.
- Wambo Coal and Resources Strategies, 2023. South Bates Extension Underground Mine, Extraction Plan, Longwalls 24 -26 Document No. 1163329, November, 2023.

Appendix A

Groundwater Monitoring Network



Bore ID*	Bore type	Current status	Easting	Northing	Surface (mAHD)	Bore depth (mbgl)	Targeted unit	Monitoring program
GW02	MB	A	309109	6389680	80	-	Wambo Creek Alluvium	SWL and WQ - 2m – full suite
GW08	MB	A	311793	6392266	61	6.3	North Wambo Creek Alluvium	SWL and WQ - 2m – full suite
GW09	MB	A	311643	6392563	62	6.2	North Wambo Creek Alluvium	SWL and WQ - 2m – full suite
GW11	MB	A	309228	6389699	79	-	Wambo Creek Alluvium	SWL and WQ - 2m – full suite
GW12	MB	B	309841	6391056	99	12.1	Stony Creek Alluvium/Whybrow Interburden	SWL and WQ - 2m – full suite
GW13	MB	A	313810	6388990	68	15	Wollombi Brook Alluvium	SWL and WQ - 2m – full suite
GW14	MB	B	312478	6391358	65	18	Regolith	SWL
GW15	MB	A	313164	6392807	61	17.4	Wollombi Brook (east) Alluvium	SWL and WQ - 2m – full suite
GW16	MB	A	306641	6396034	111	12.15	North Wambo Creek Alluvium/Regolith	SWL and WQ - 2m – full suite
GW17	MB	A	306895	6396048	110	14.0	North Wambo Creek Alluvium	SWL* and WQ – 2m – full suite ⁶
GW21	MB	A	308647	6393378	119	36.0	Overburden	SWL and WQ – 2m – full suite ⁶
GW22	MB	A	311335	6389535	91	54	Overburden	SWL and WQ - 2m – full suite
P12	MB	EX	313644	6394797	55	15	Wollombi Brook (east) Alluvium	SWL and WQ - 2m – full suite
P15	MB	A, C	313480	6394803	56.71	8.1	Wollombi Brook (west) Alluvium	SWL and WQ – 2m – full suite
P16	MB	A	313480	6394655	58	11.5	Wollombi Brook (west) Alluvium	SWL and WQ - 2m – full suite
P20	MB	A	313639	6394166	57	10.6	Wollombi Brook (west) Alluvium	SWL and WQ - 2m – full suite
P33	VWP	EX	313757	6394659	57	13	Unnamed C Seam	SWL
						19	Unnamed D Seam	
						46.5	Unnamed E Seam	
						58	Blakefield Seam	
						113	Arrowfield Seam	
P34	VWP	EX	313757	6393961	59	35	Glen Munro Seam	SWL
						68.5	Blakefield Seam	
						144	Bowfield Seam	
P35	VWP	EX	313611	6395196	59	16	Interburden	SWL
						19	Interburden	
						51	Blakefield Seam	

Bore ID*	Bore type	Current status	Easting	Northing	Surface (mAHD)	Bore depth (mbgl)	Targeted unit	Monitoring program
						60	Blakefield Seam	
						112	Arrowfield Seam	
P202	MB	A	311859	6391330	59	20	Overburden	SWL and WQ - 2m – full suite
P206	MB	A	311772	6391293	59	50	Overburden	SWL and WQ - 2m – full suite
P301	MB	A	309311	6391425	89	20	Stoney Creek Alluvium/ Overburden	SWL and WQ - 2m – full suite
P315	MB	A	309091	6391852	98	9.37	Stony Creek Alluvium/Regolith	SWL and WQ - 2m – full suite
P401	MB	EX	313660	6395336	68	40	Overburden	SWL and WQ - 2m – full suite
P402	MB	EX	313660	6395336	68	120	Arrowfield Seam	SWL and WQ - 2m – full suite
P403	VWP	Prop	308565	6397958	133	30	Overburden	SWL
						125	Arrowfield Seam	
						205	Warkworth Seam	
						260	Vaux Seam	
P404	MB	Prop	307023	6398634	97	40	Overburden	SWL and WQ - 2m – full suite
P405	MB	Prop	307025	6398634	97	110	Arrowfield Seam	SWL and WQ - 2m – full suite
P406	VWP	Prop						
P407	MB	Prop	312599	6392933	62	12	Wollombi Brook (west) Alluvium	SWL and WQ - 2m – full suite ⁶
P408	MB	Prop	307282	6399576	74	15	Hunter River Alluvium	SWL and WQ - 2m – full suite ⁶
UG135	VWP	EX	313831	6396748	65	50	Interburden	SWL
						110	Warkworth Seam	
						129	Mt. Arthur Seam	
						146	Piercefield Seam	
						176	Vaux Seam	
						186	Broonie Seam	
UG139	VWP	EX	306665	6395173	129	263	Unnamed D Seam	SWL
						281	Unnamed E Seam	
						319	Interburden	
						329	Glen Munro Seam	

Bore ID*	Bore type	Current status	Easting	Northing	Surface (mAHD)	Bore depth (mbgl)	Targeted unit	Monitoring program
						375	Interburden	
						382	Arrowfield Seam	
						402	Interburden	
UG147	VWP	EX	311245	6397207	108	90	Glen Munro Seam	SWL
						157	Interburden	
						209	Mt Arthur Seam	
						242	Piercefield Seam	
						249	Vaux Seam	
						260	Broonie Seam	
UG166A	VWP	EX	306488	6398076	142	130	Unnamed D Seam	SWL
						153	Unnamed E Seam	
						183	Blakefield Seam	
						200	Glen Munro Seam	
						238	Arrowfield Seam	
						254	Bowfield Seam	
						260	Bowfield Seam	
UG193	VWP	EX	313757	6396090	58	27	Glen Munro Seam	SWL
						61	Arrowfield Seam	
						85	Bowfield Seam	
						160	Warkworth Seam	
						179.5	Piercefield Seam	
						210	Broonie Seam	
UG194	VWP	EX	312436	6397191	82	20	Blakefield Seam	SWL
						60	Interburden	
						100	Blakefield Seam	
						150	Interburden	
						190	Interburden	
						210	Vaux Seam	
UG196								

Bore ID*	Bore type	Current status	Easting	Northing	Surface (mAHD)	Bore depth (mbgl)	Targeted unit	Monitoring program
UG220	VWP	EX	312522	6397233	82	52.5	Overburden	SWL
						77	Arrowfield Seam	
						106	Interburden	
						110	Interburden	
						136	Warkworth Seam	
						152	Mt. Arthur Seam	
						207	Vaux Seam	
UG224	VWP	EX	313860	6396243	59	163	Piercefield Seam	SWL
						172	Interburden	
						191	Vaux Seam	
UG225	VWP	EX	313214	6397095	69	23	Overburden	SWL
						58.5	Arrowfield Seam	
						93.2	Bowfield Seam	
						100.5	Interburden	
						128	Mt. Arthur Seam	
						178	Vaux Seam	

Notes:

* Bores included in GWMP (V6) (Glencore, 2024)

Coordinates are in MGA94 Zone 56

VWP Vibrating wire piezometer

MB Monitoring bore

A Bore currently monitored under existing GWMP, with individual trigger level for SWL, pH and EC

B Bore currently monitored under existing GWMP, individual trigger to be established once sufficient data has been collected

EX Existing monitoring bore with baseline data available

Prop Bore proposed to be installed and included in the monitoring network

2m Monitoring frequency every two months, measuring water level, field pH and EC (as is currently in GWMP)

3m Monitoring frequency every two months, measuring water level, field pH and EC (as is currently in GWMP)

Full suite Conduct water quality testing annually for revised full water quality suite (see Section 7.1.2.3 in the GWMP)

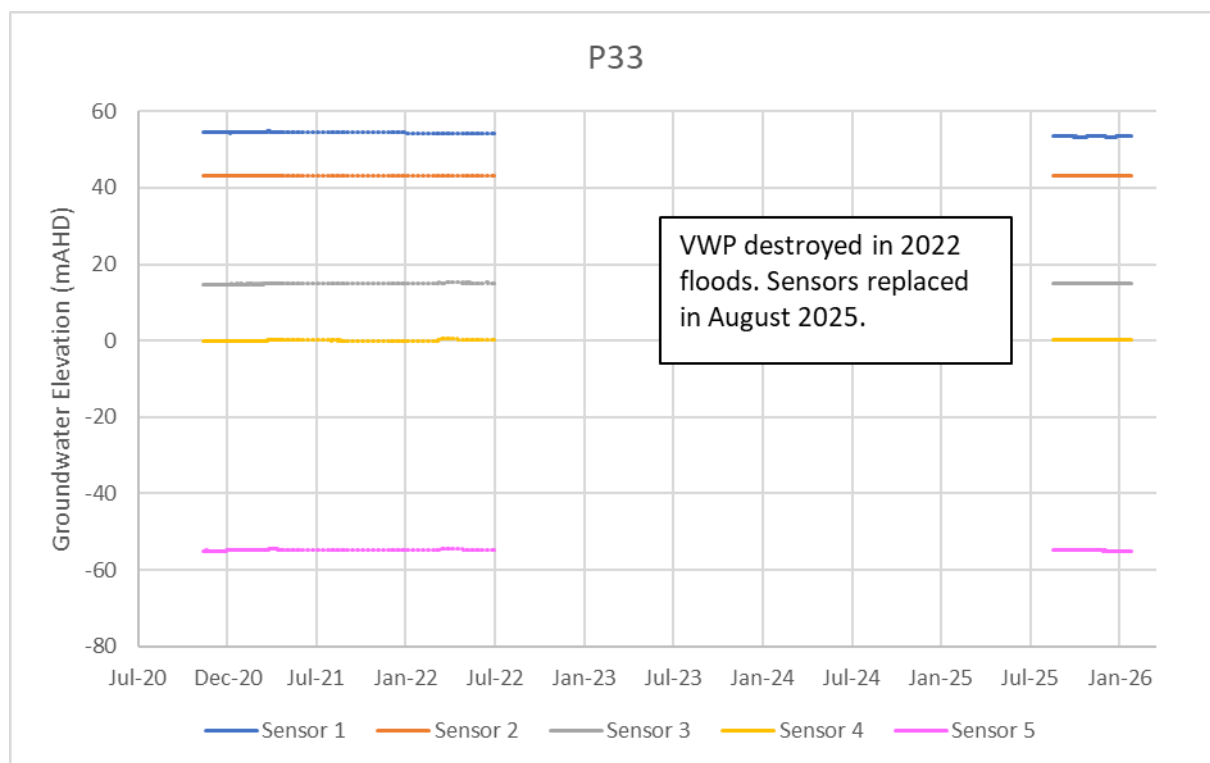
SWL Static water level – VWP sensors record daily pressure (converted to SWL) – download results every six months

Appendix B

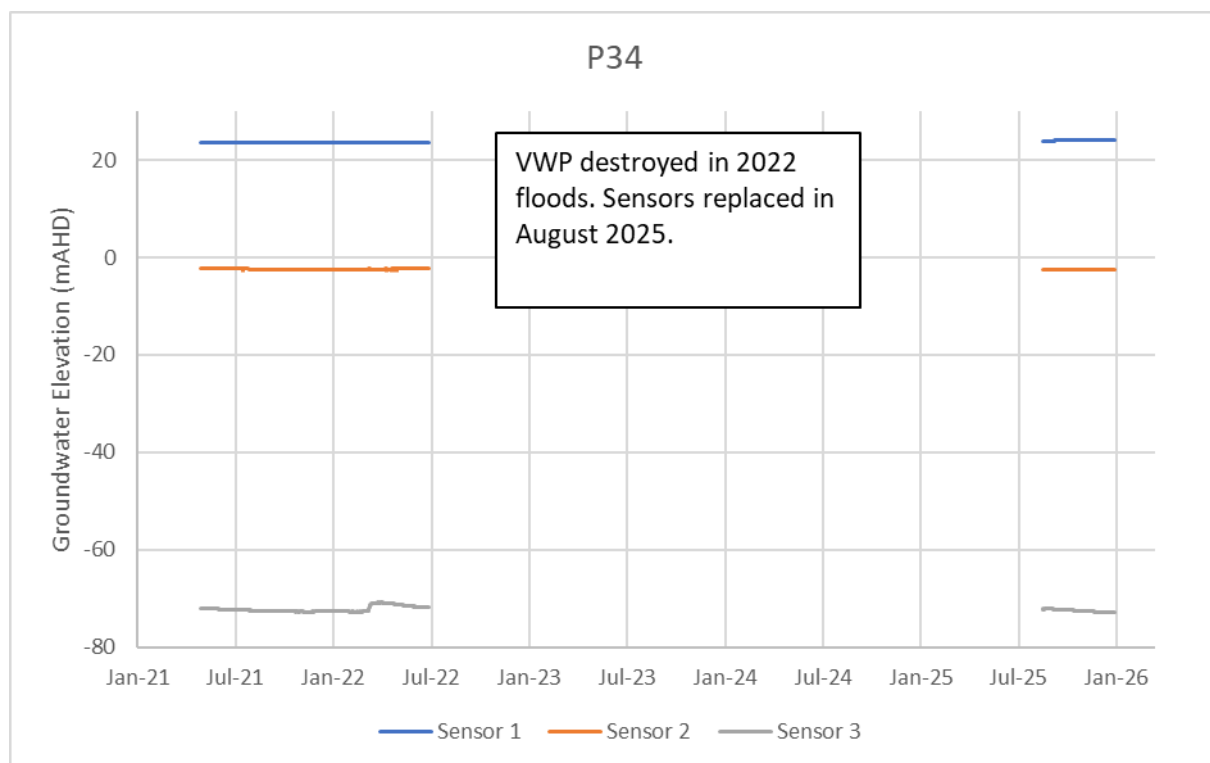
VWP Hydrographs



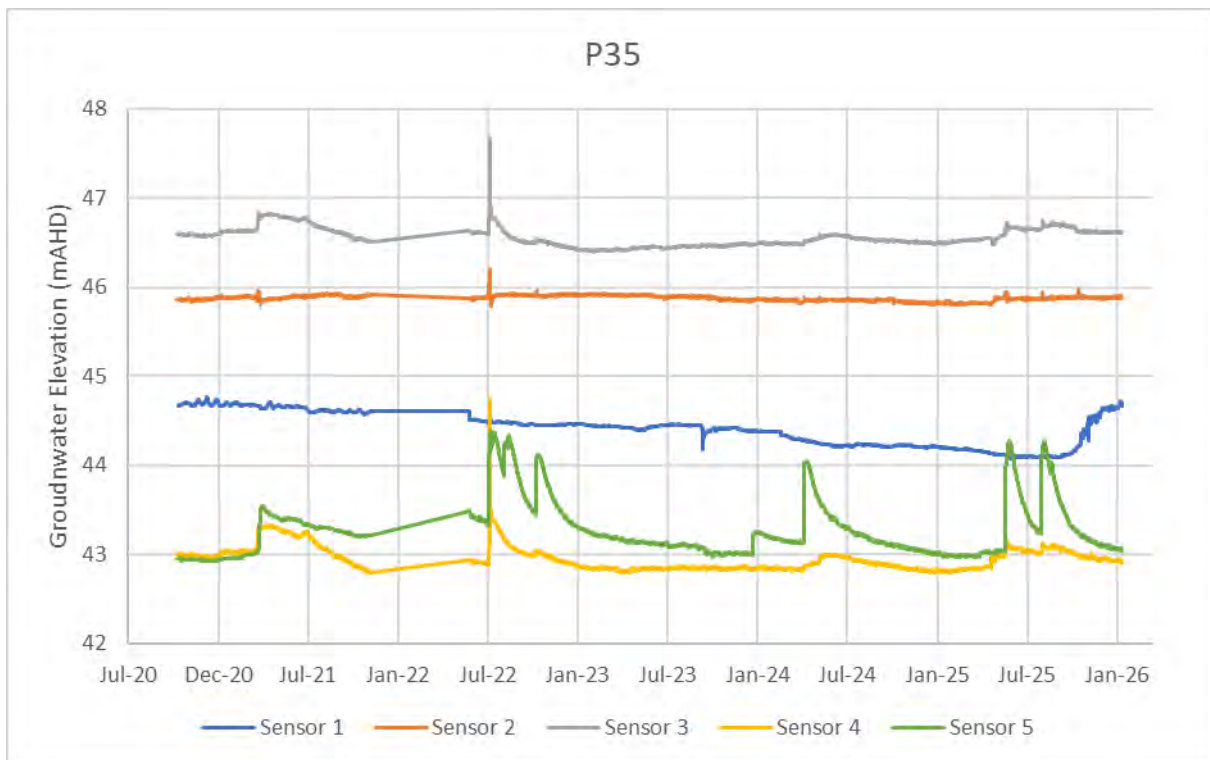
P33



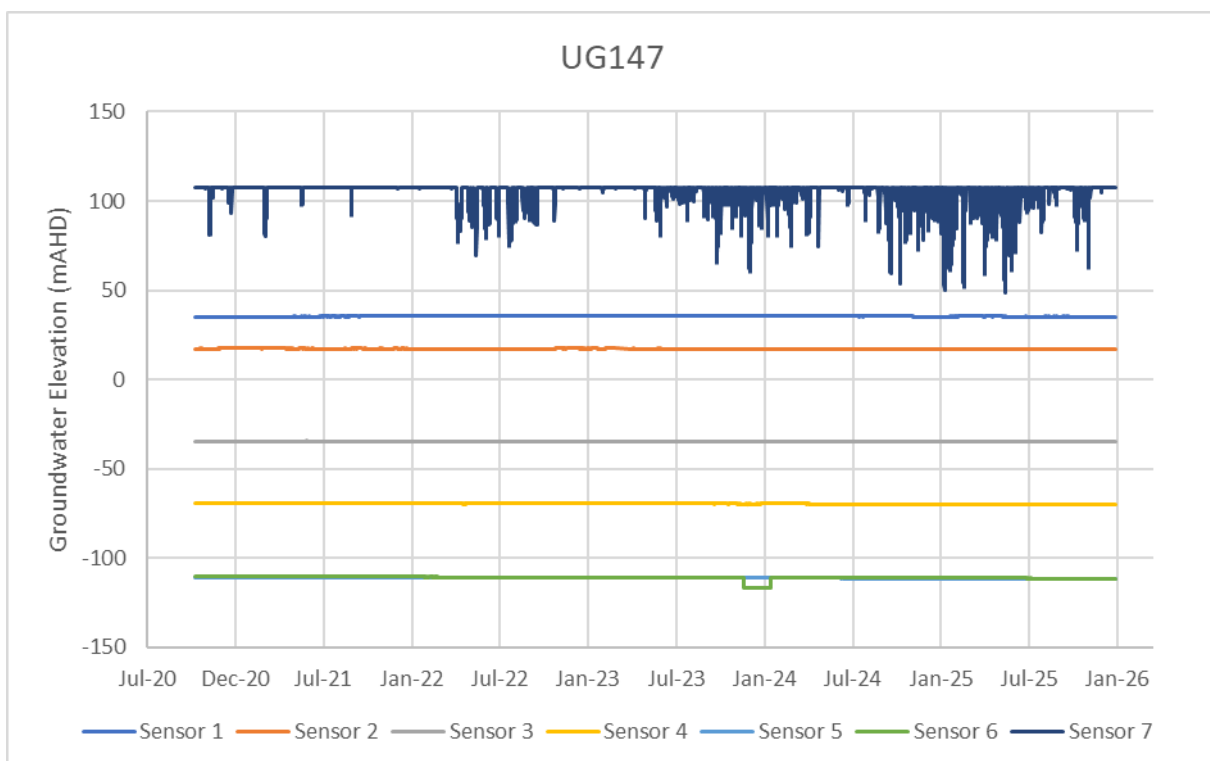
P34



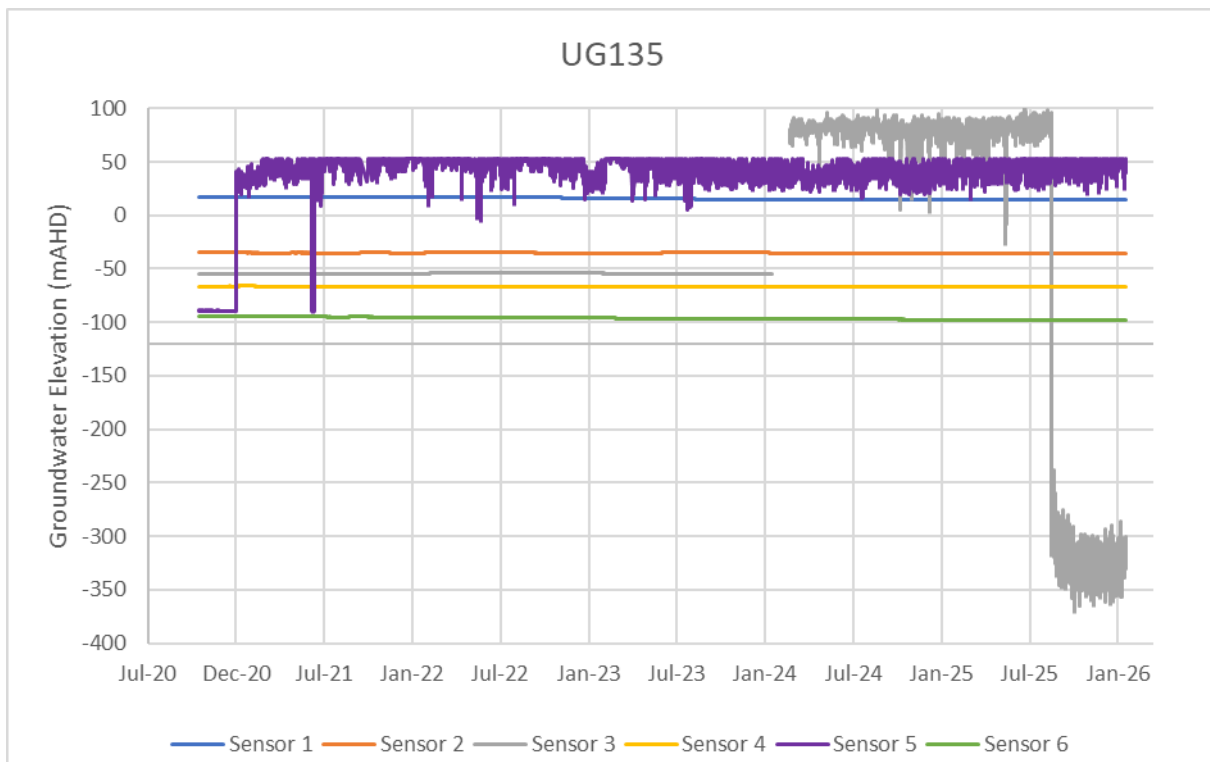
P35



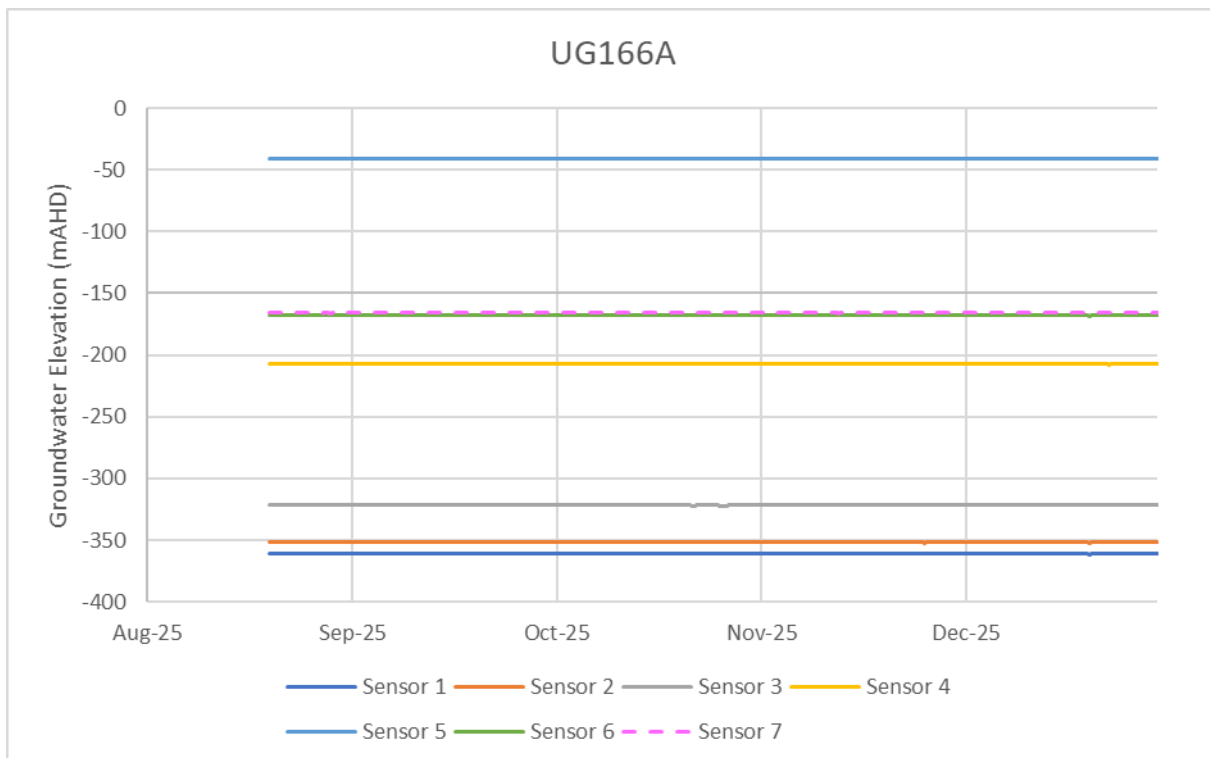
UG147



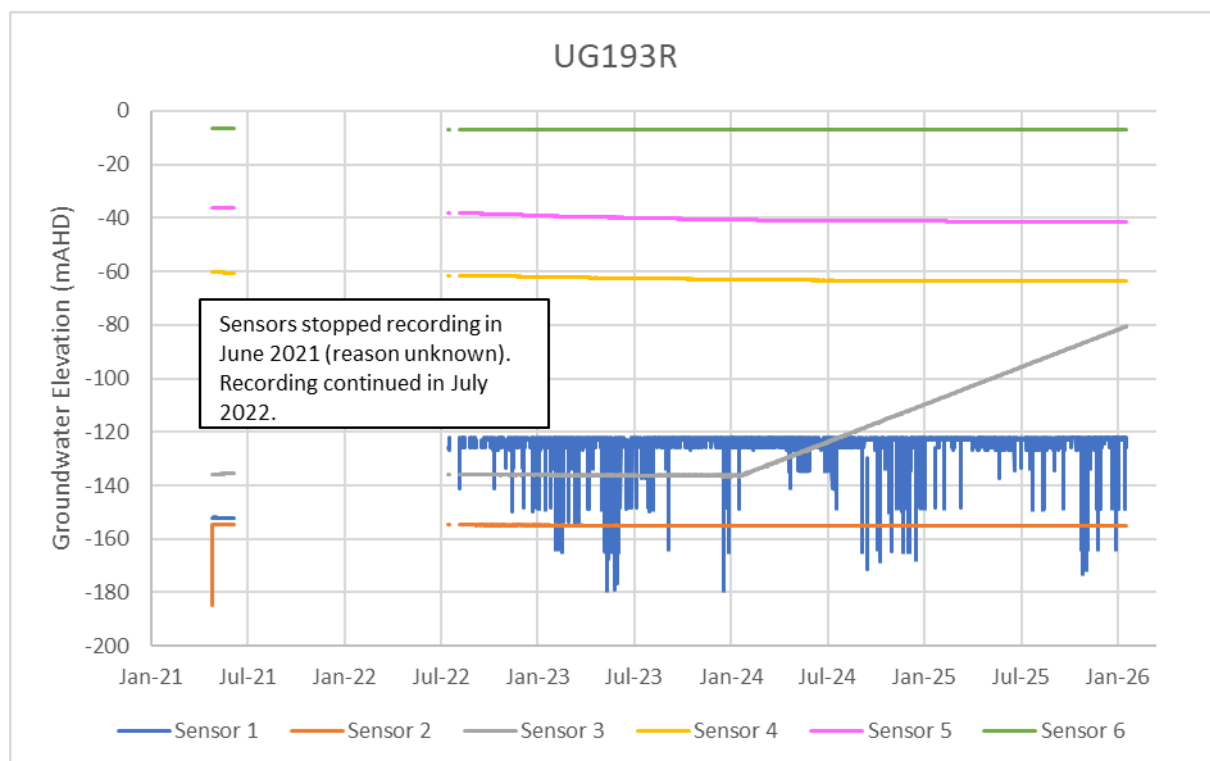
UG135



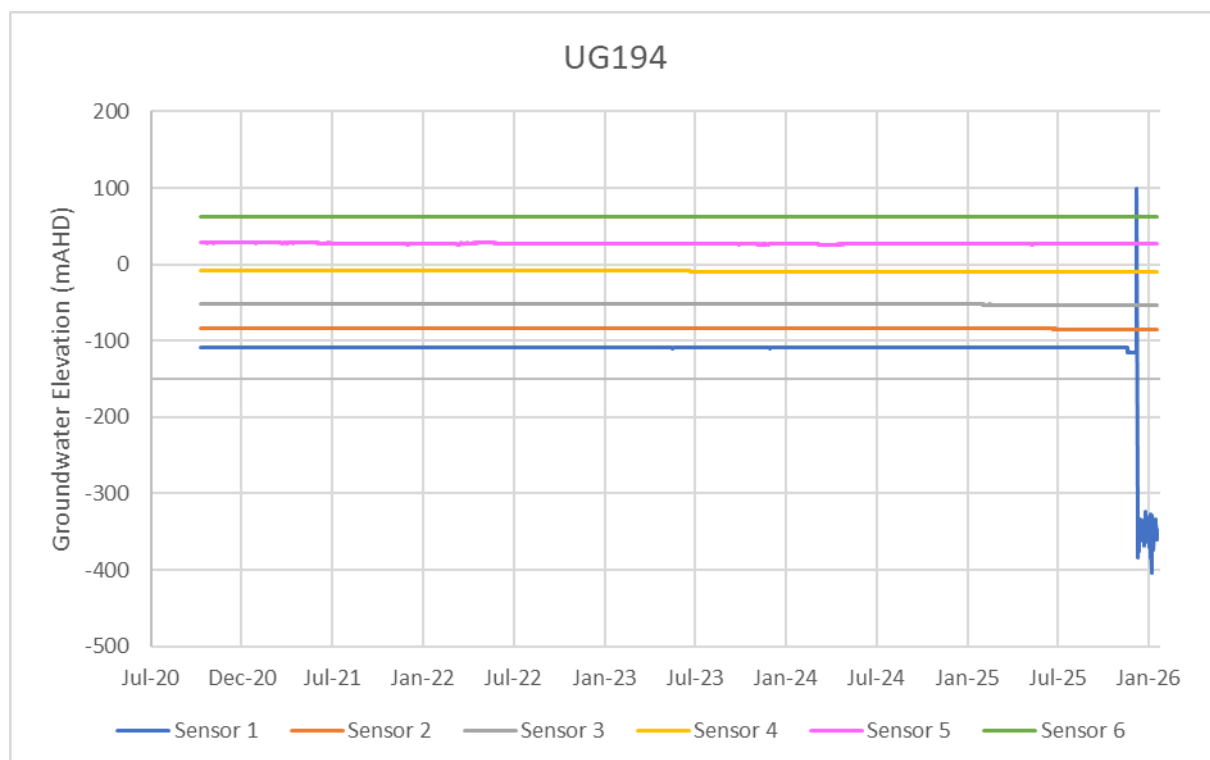
UG166A



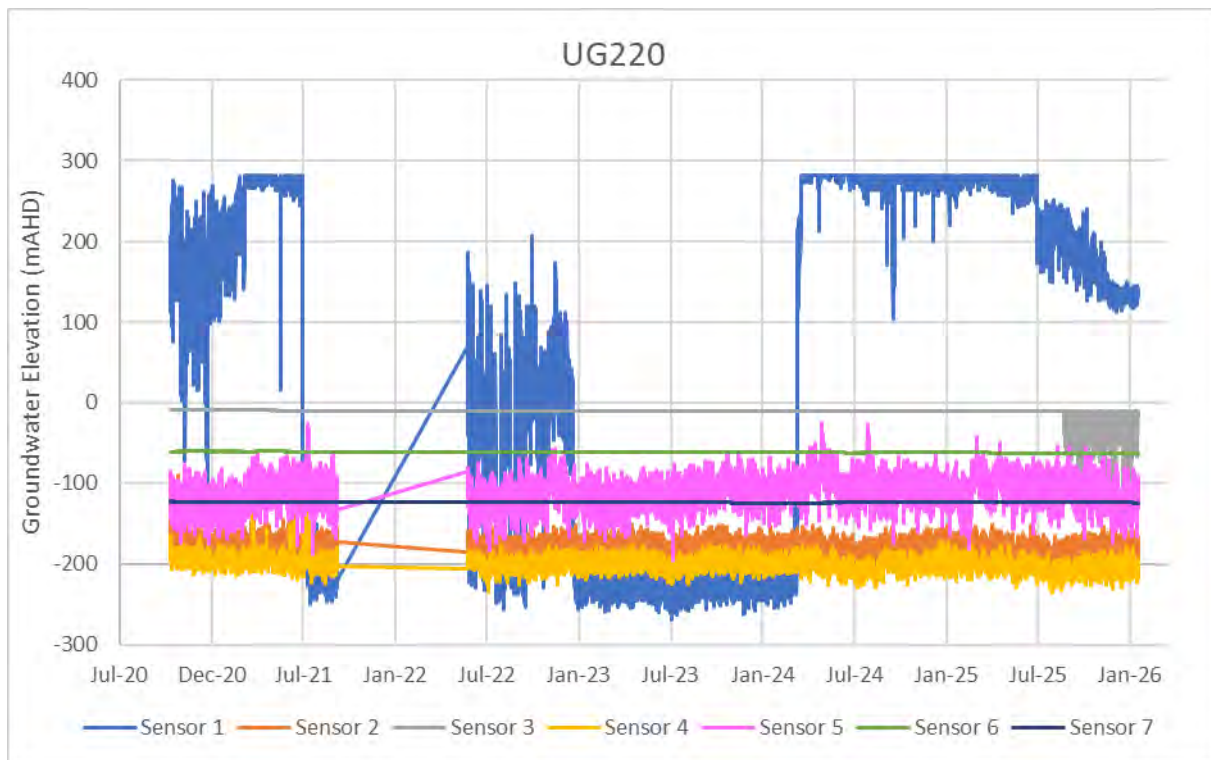
UG193R



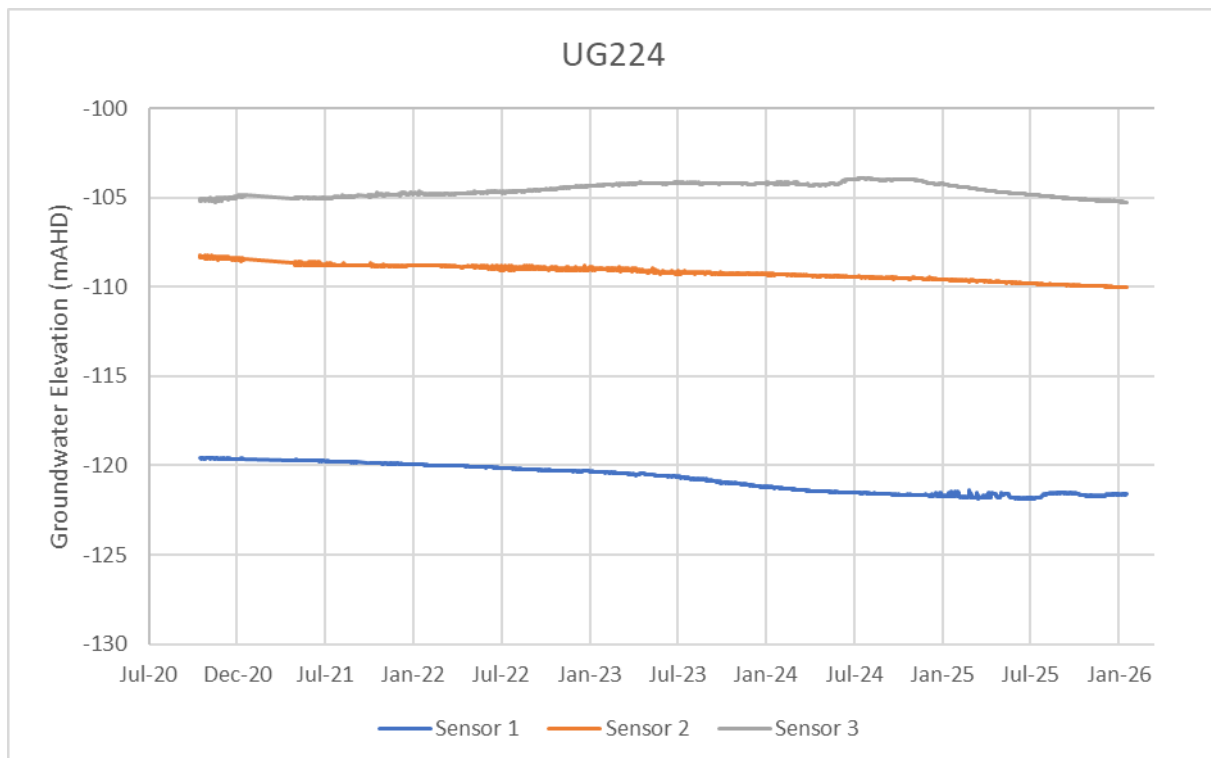
UG194



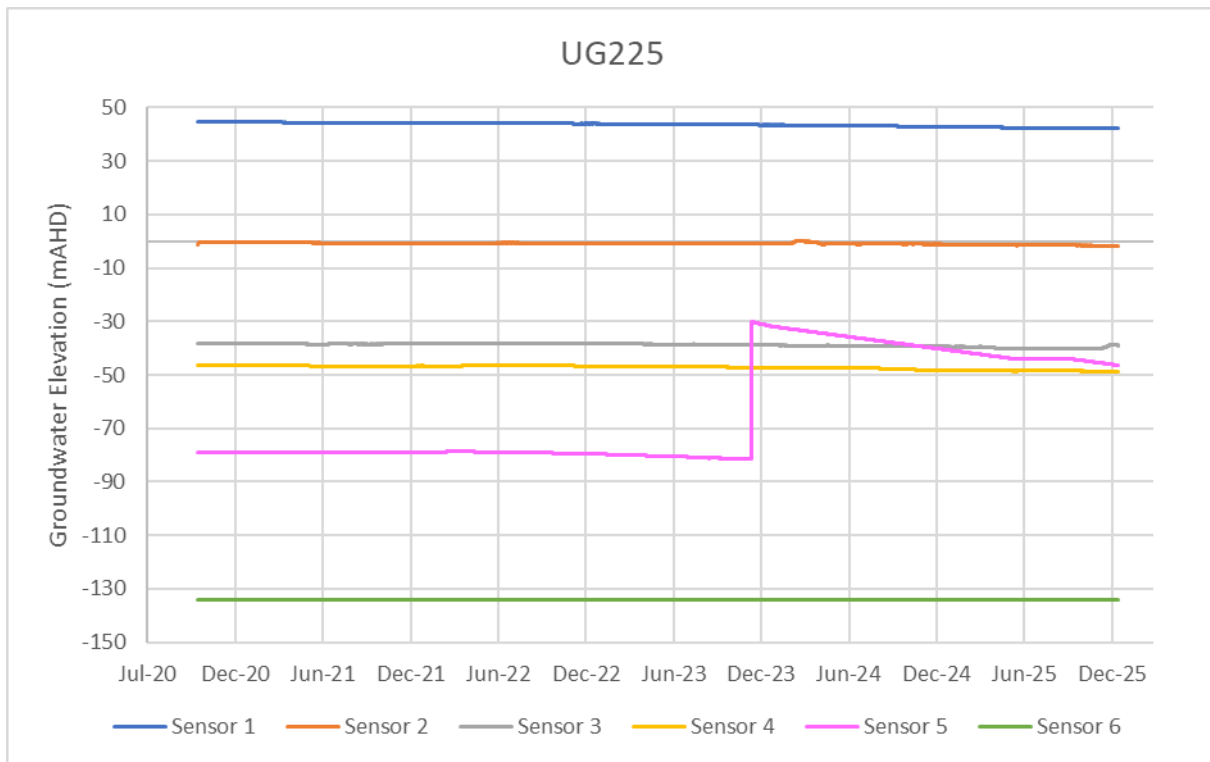
UG220



UG224



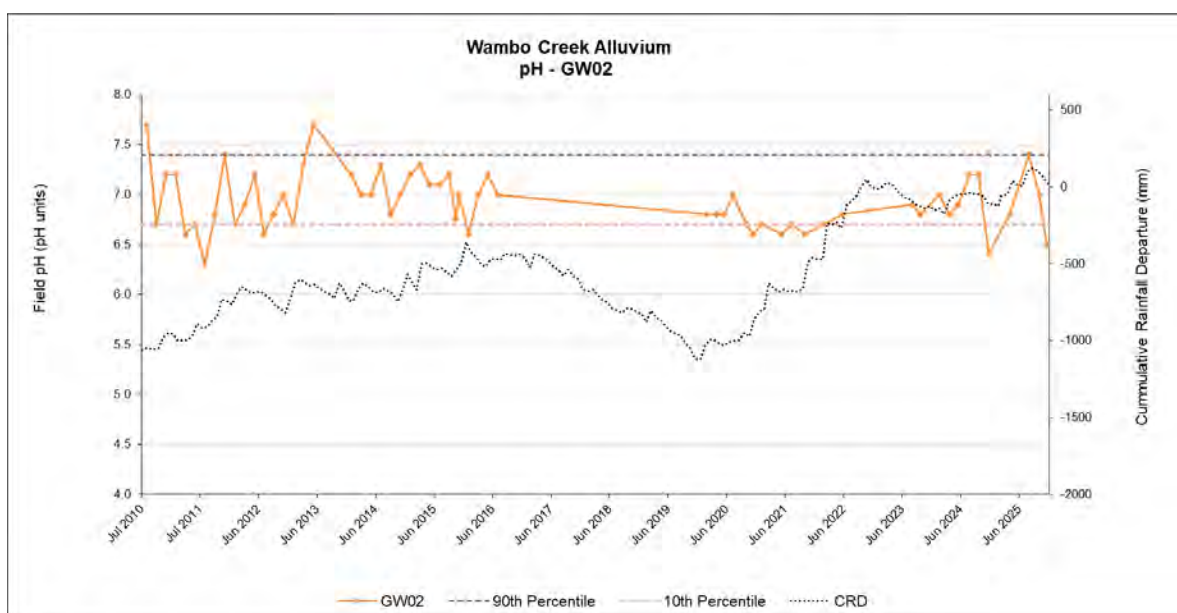
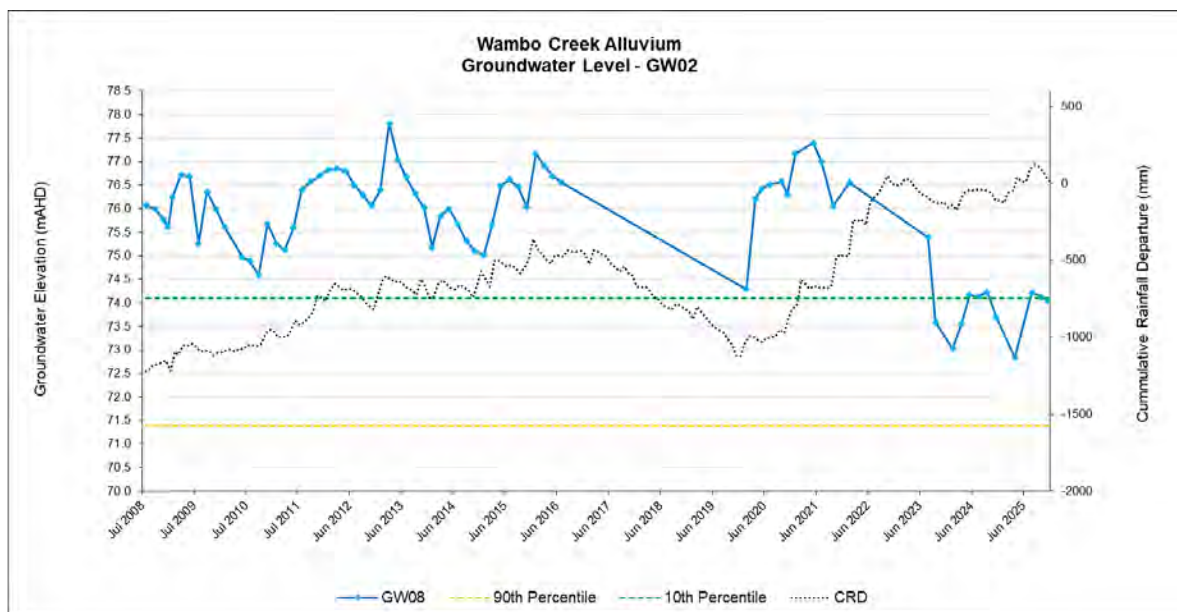
UG225

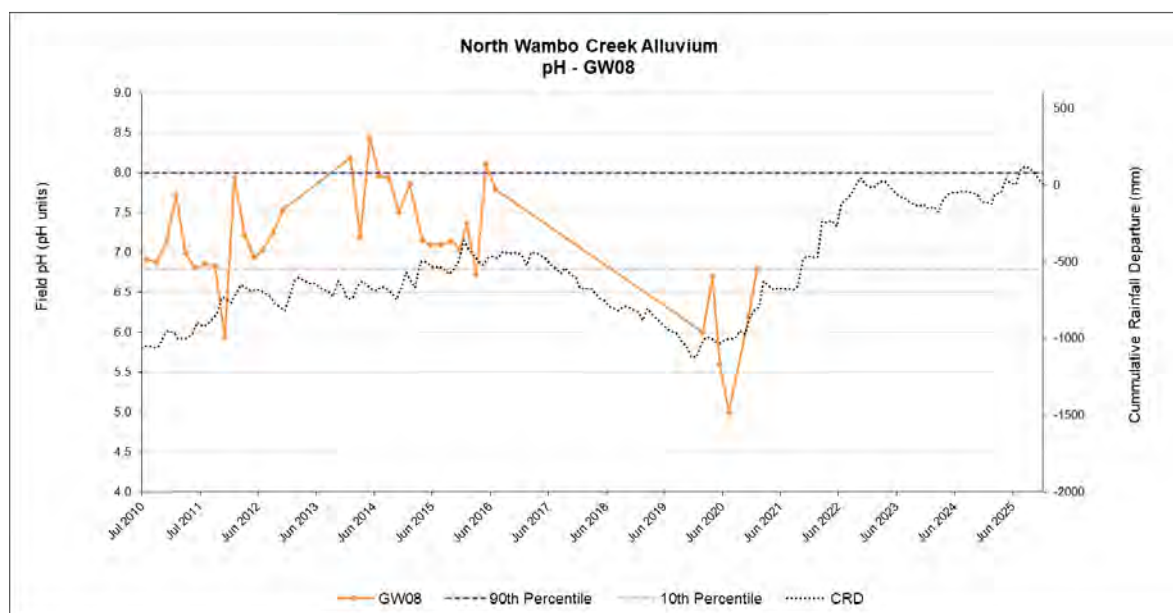
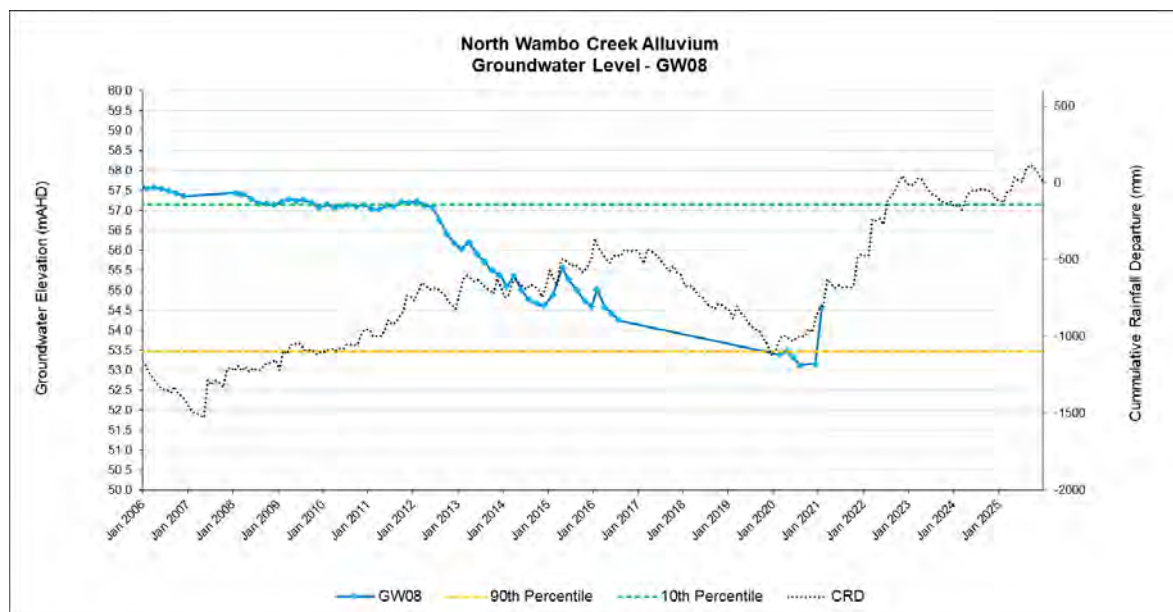


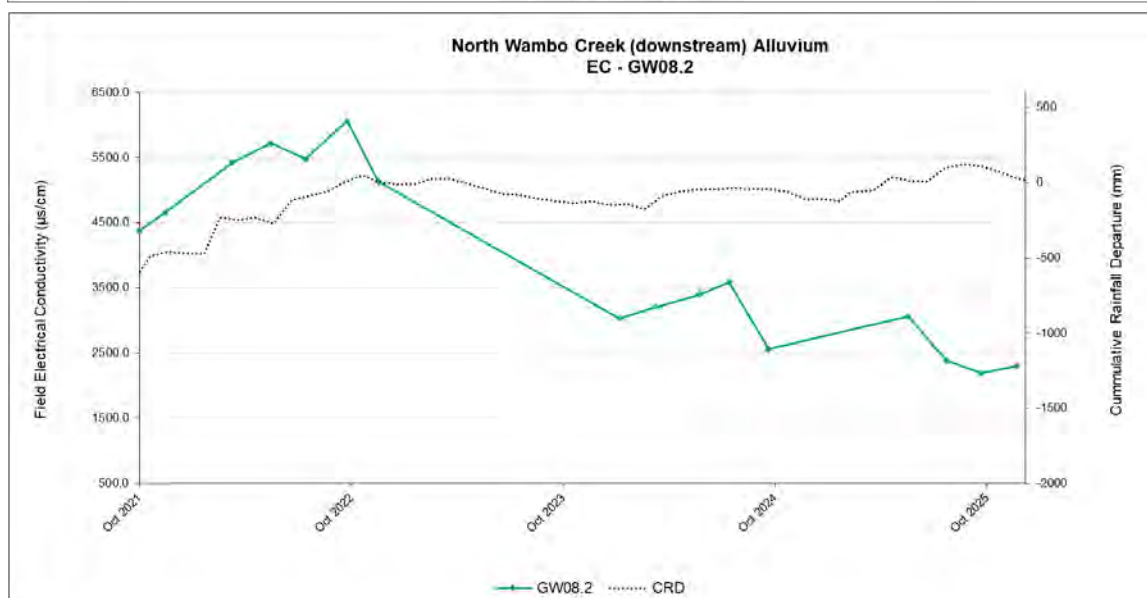
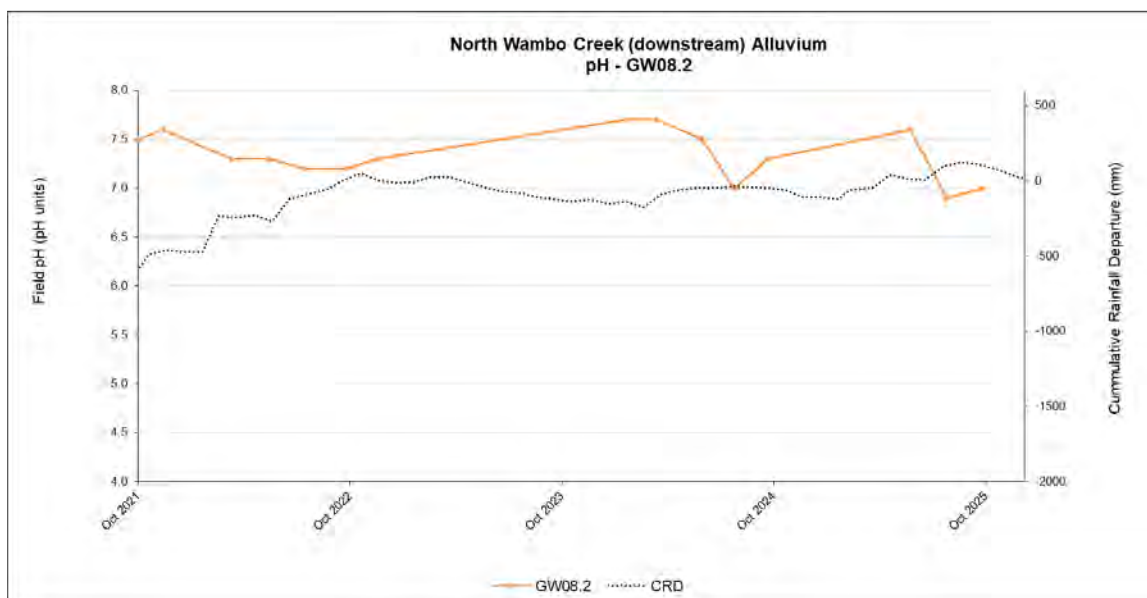
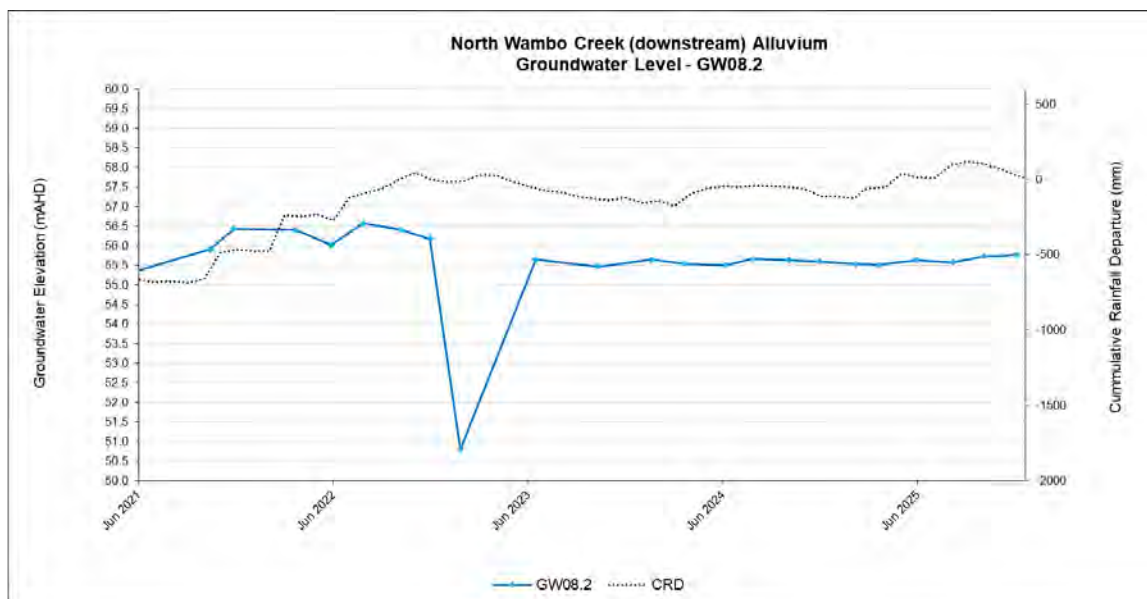
Appendix C

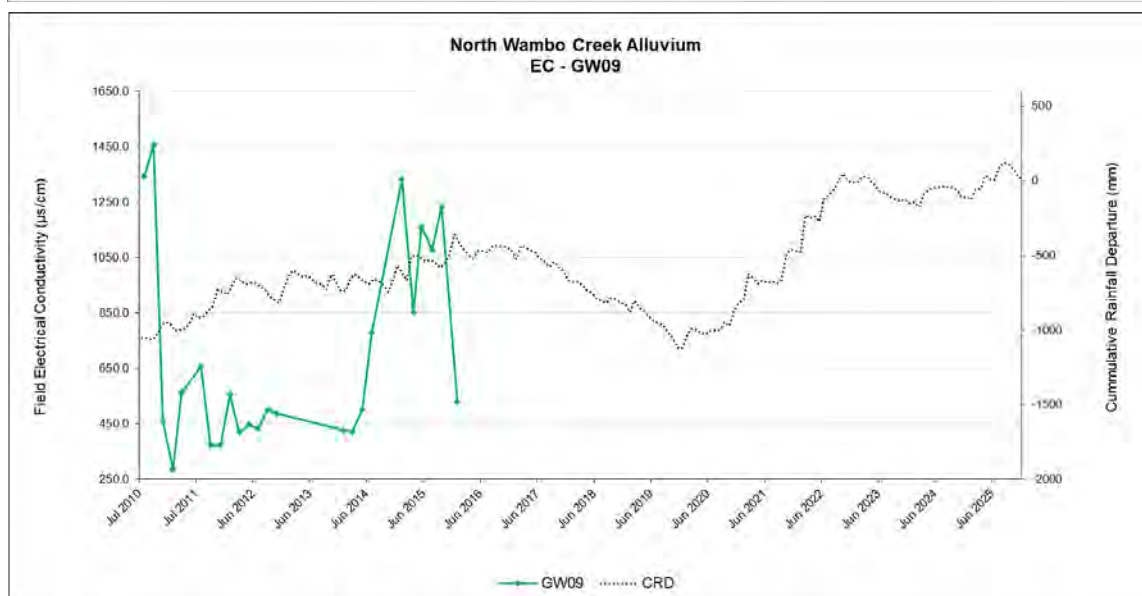
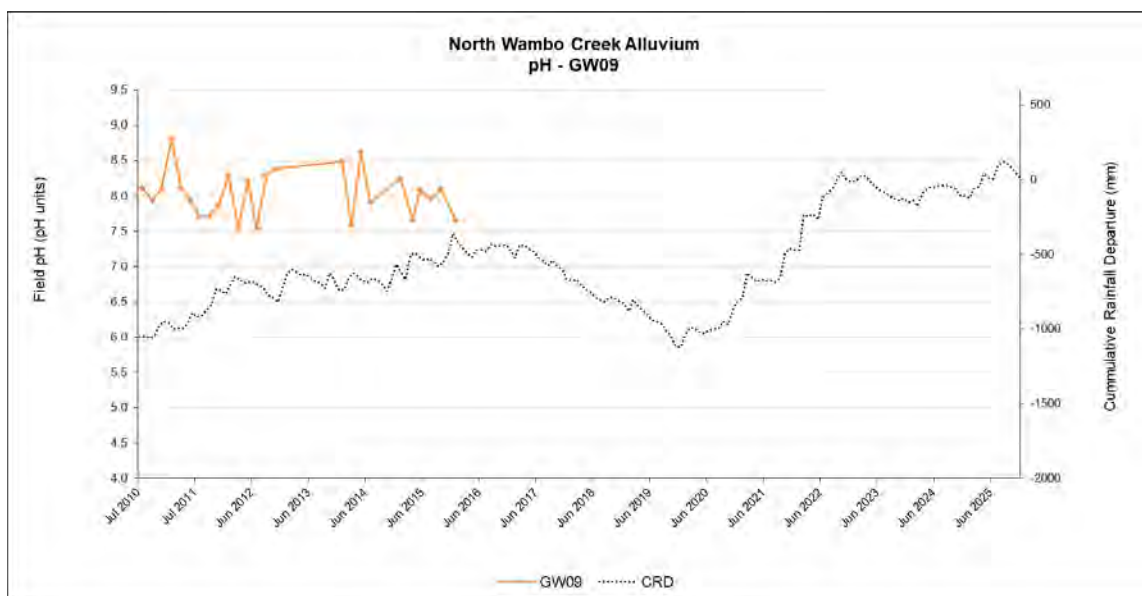
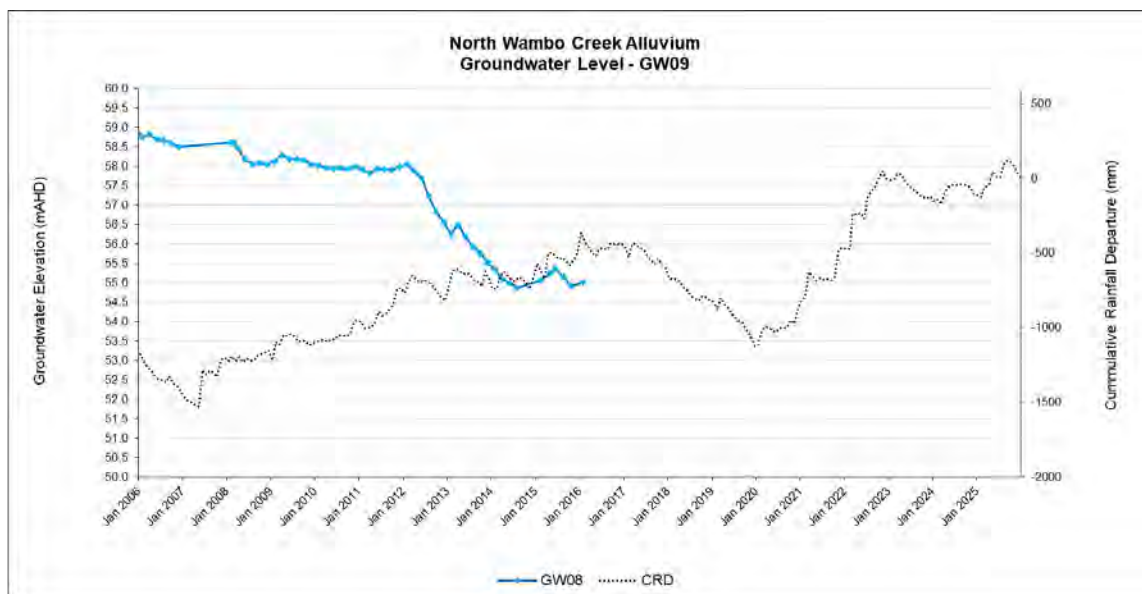
Groundwater Level and Quality Graphs

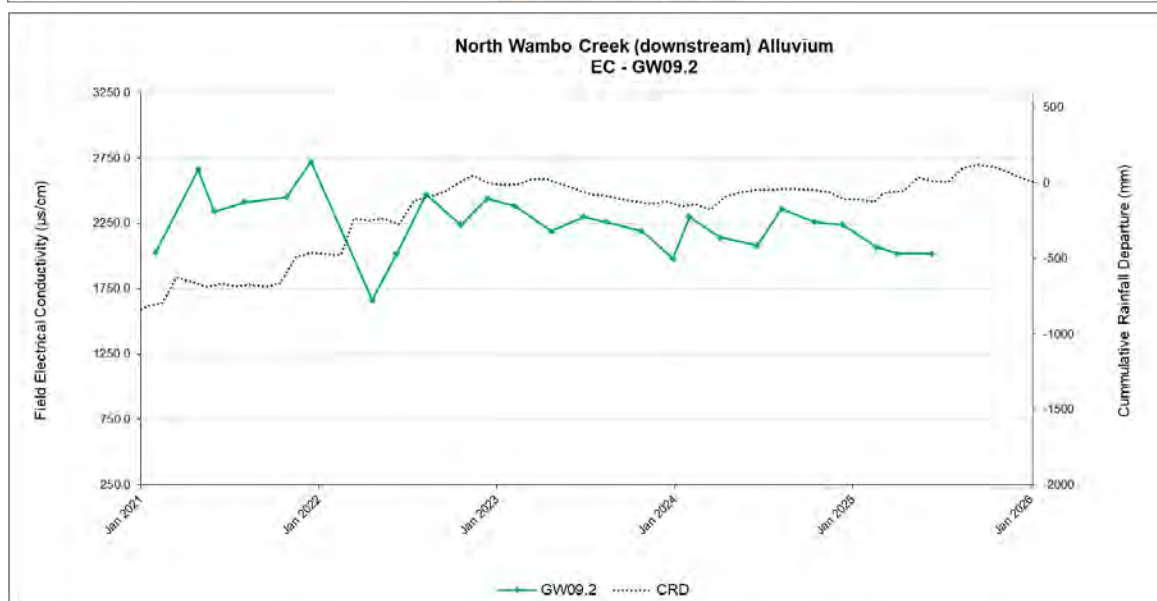
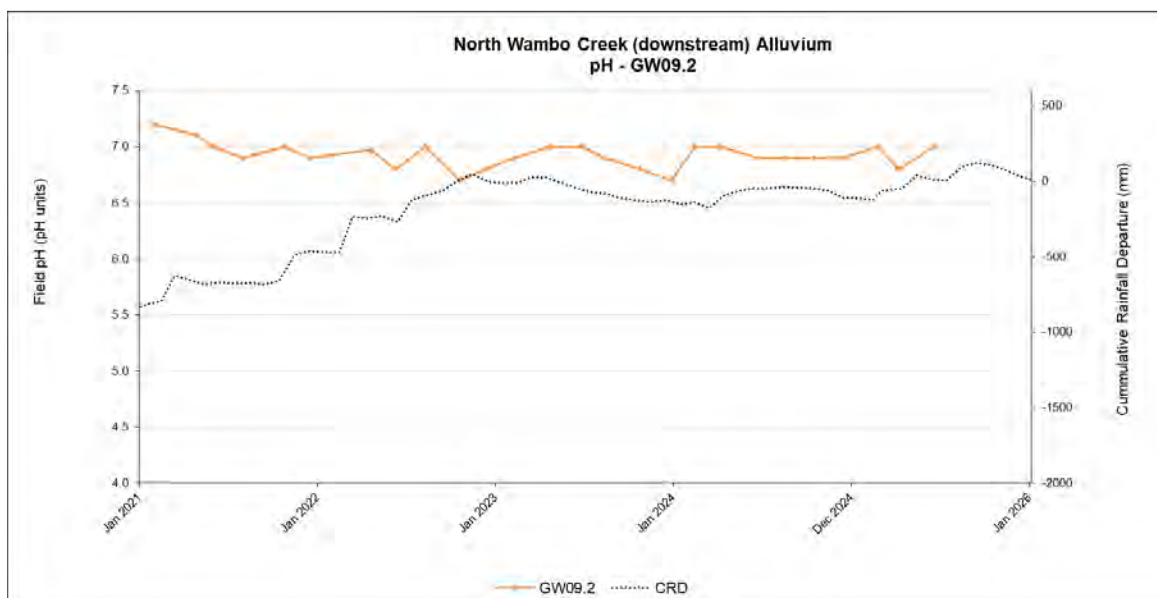
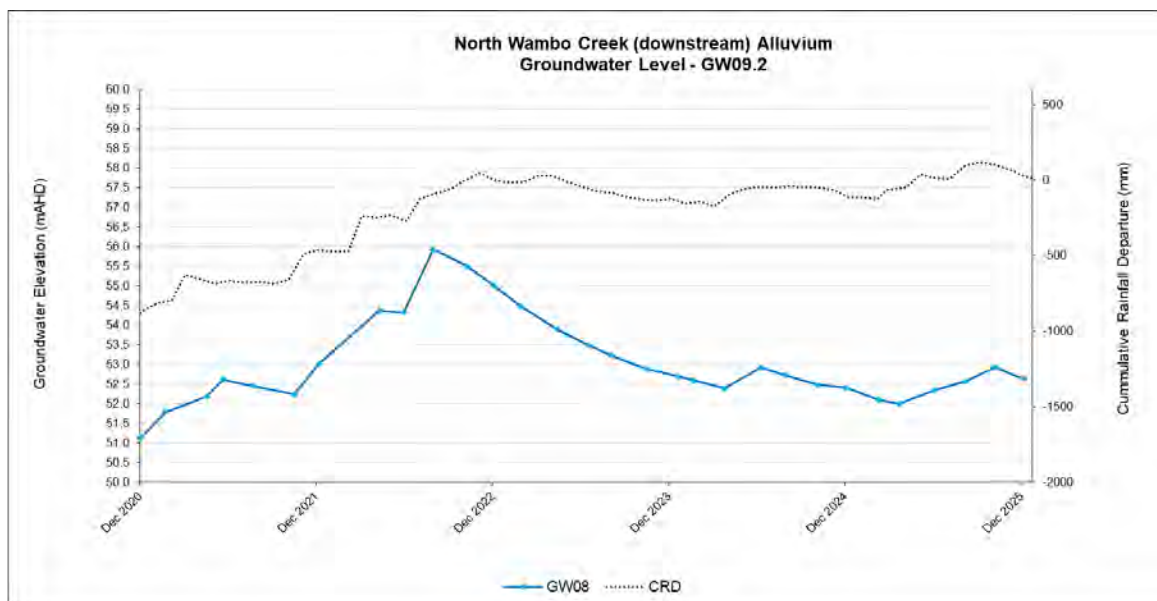


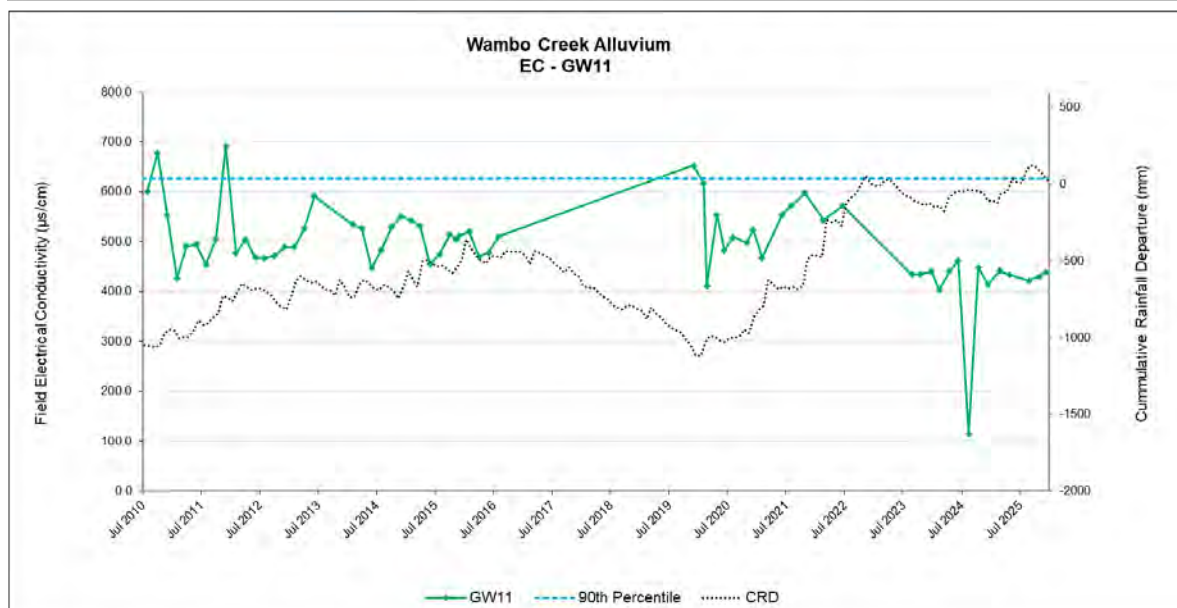
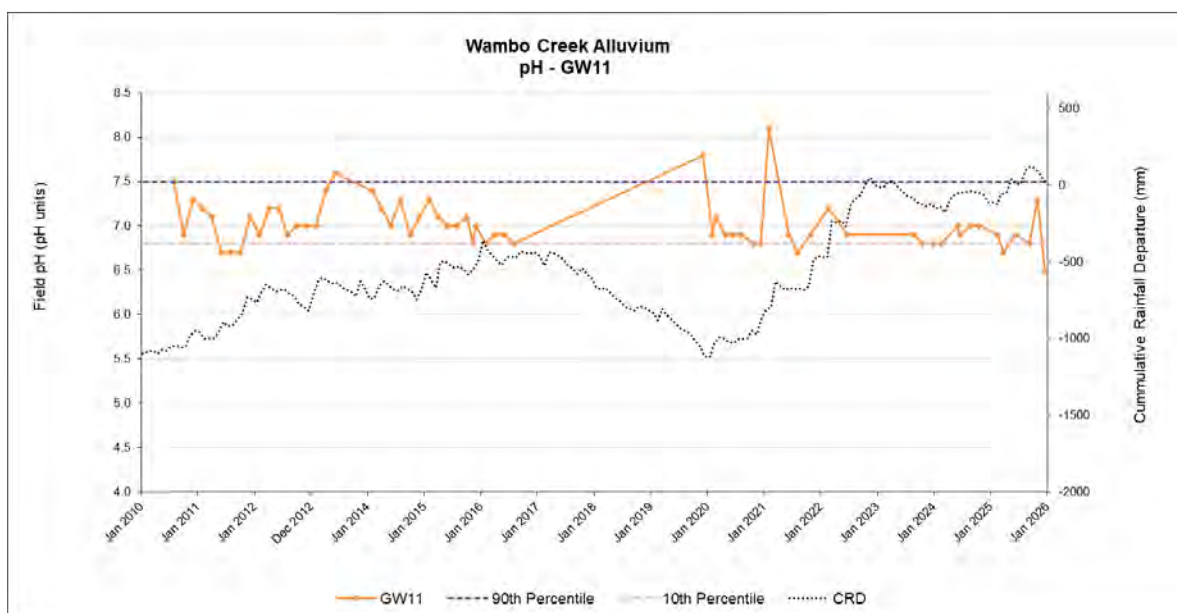
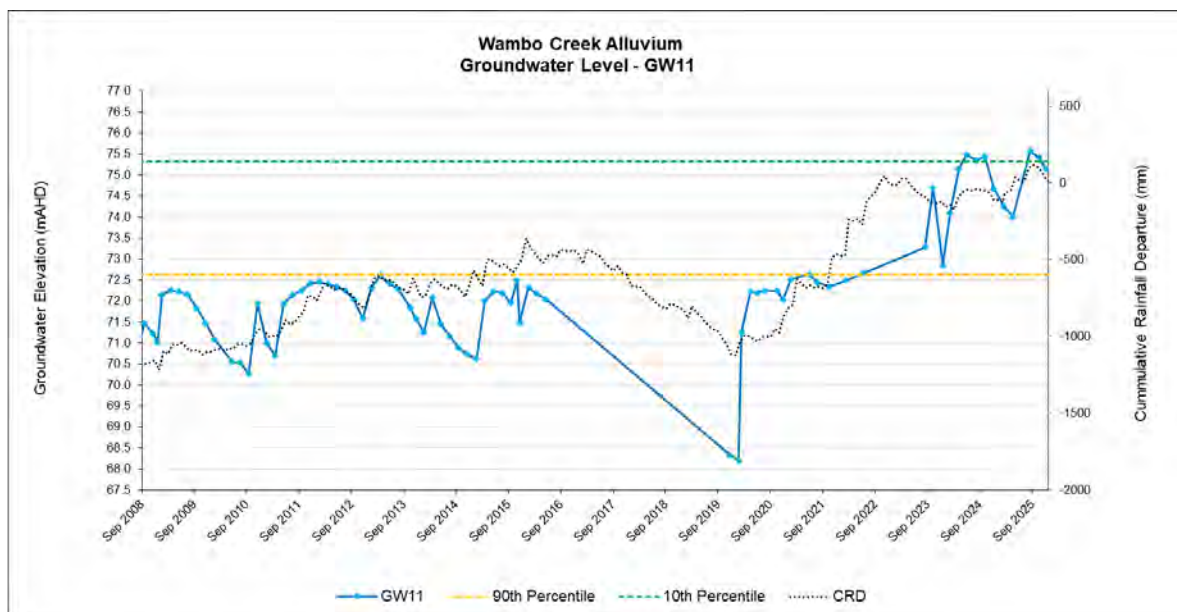


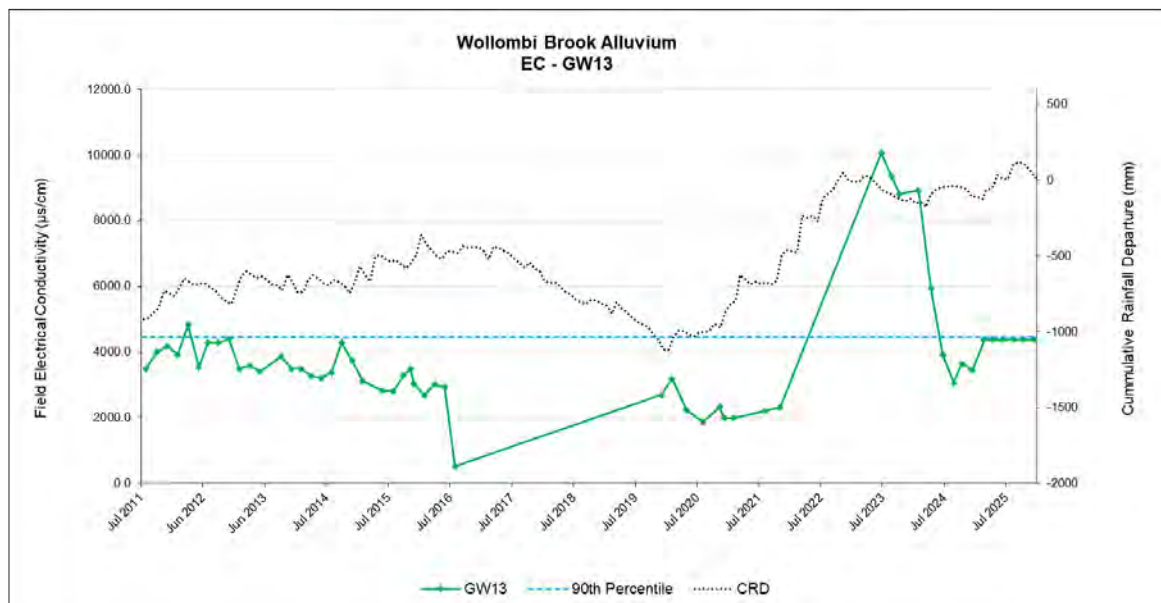
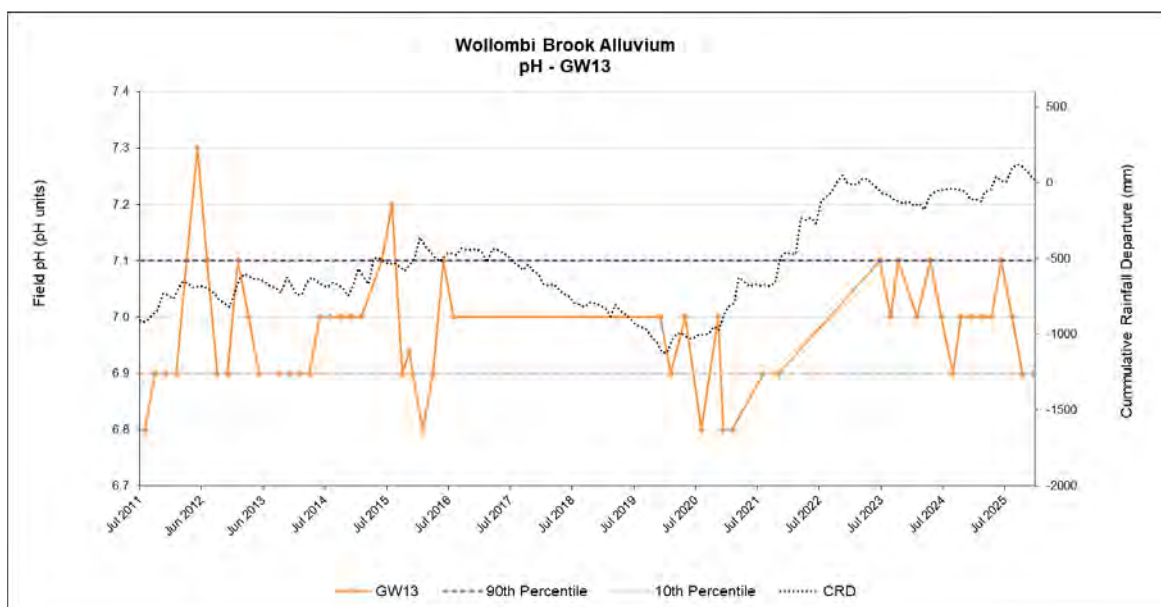
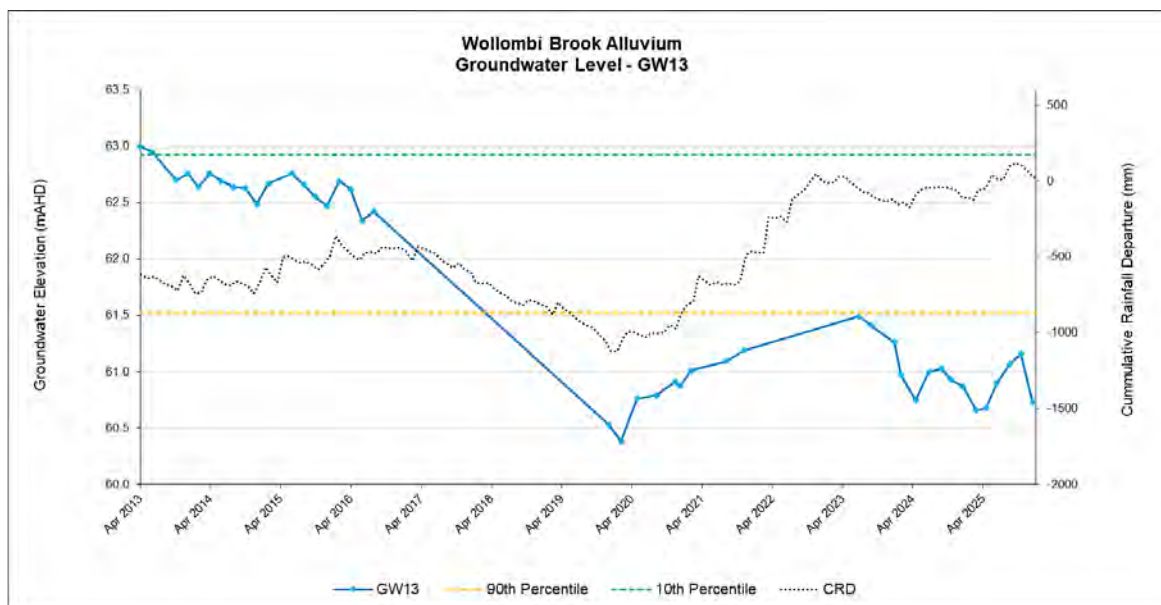


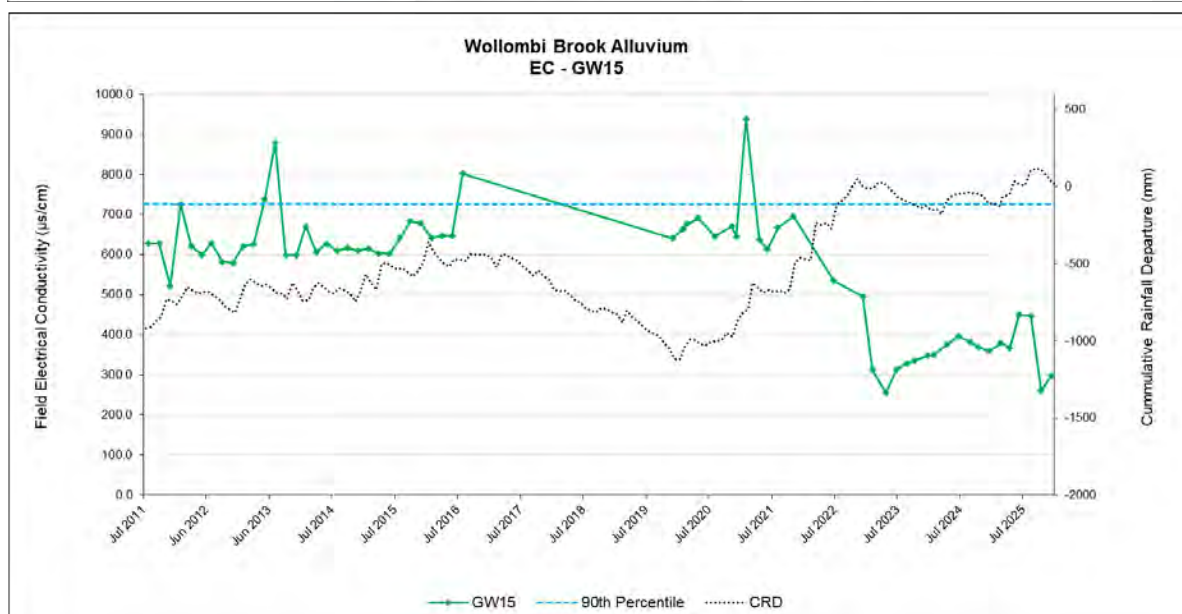
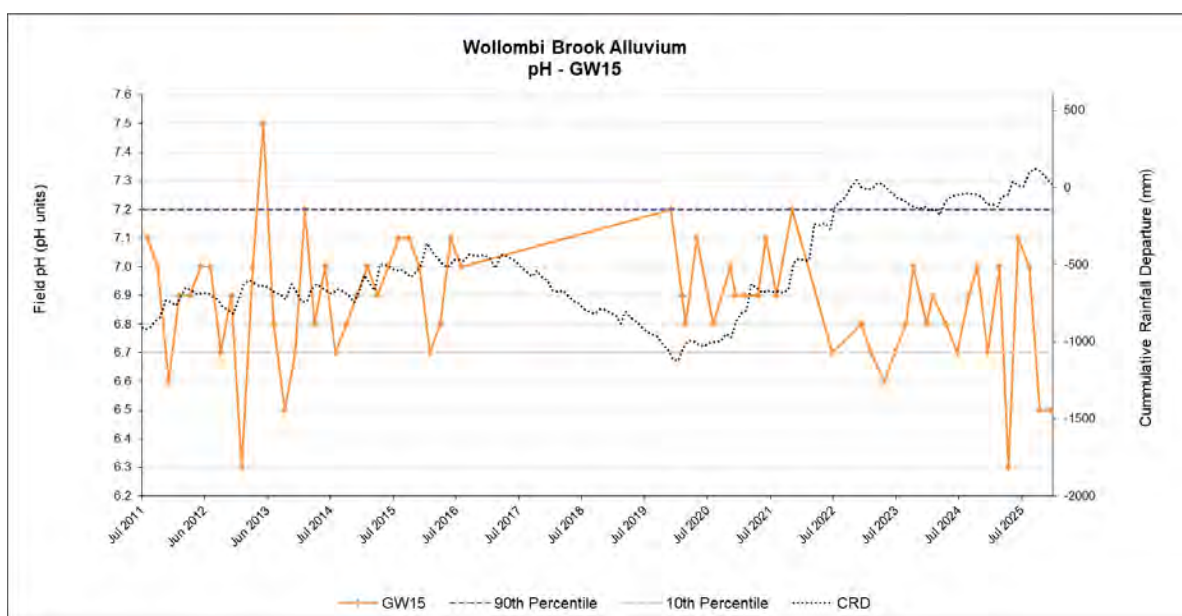
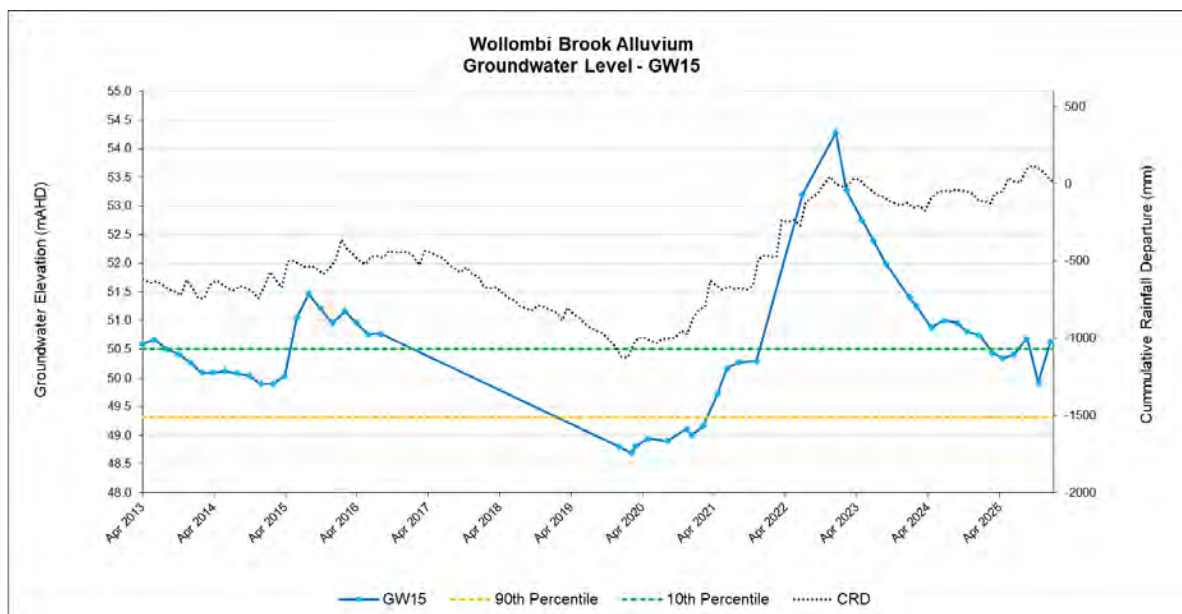


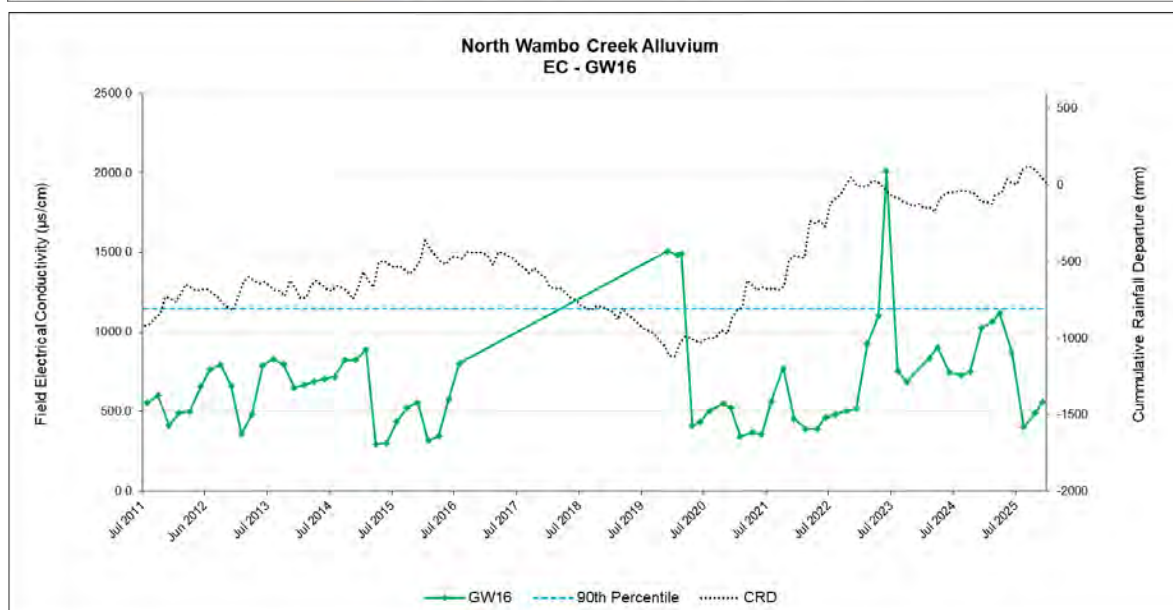
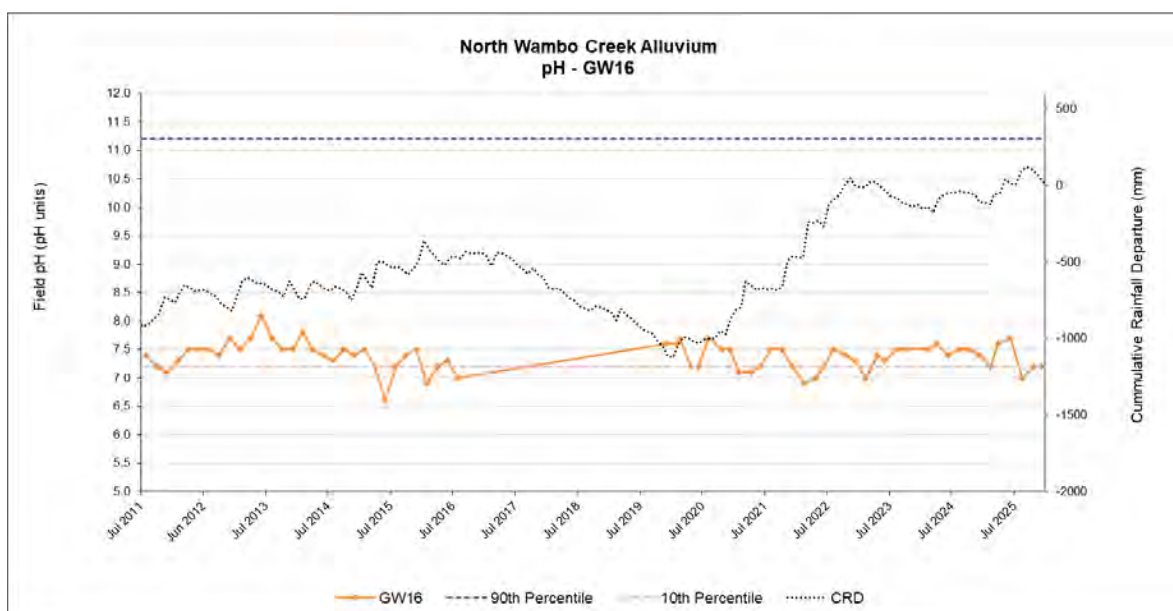
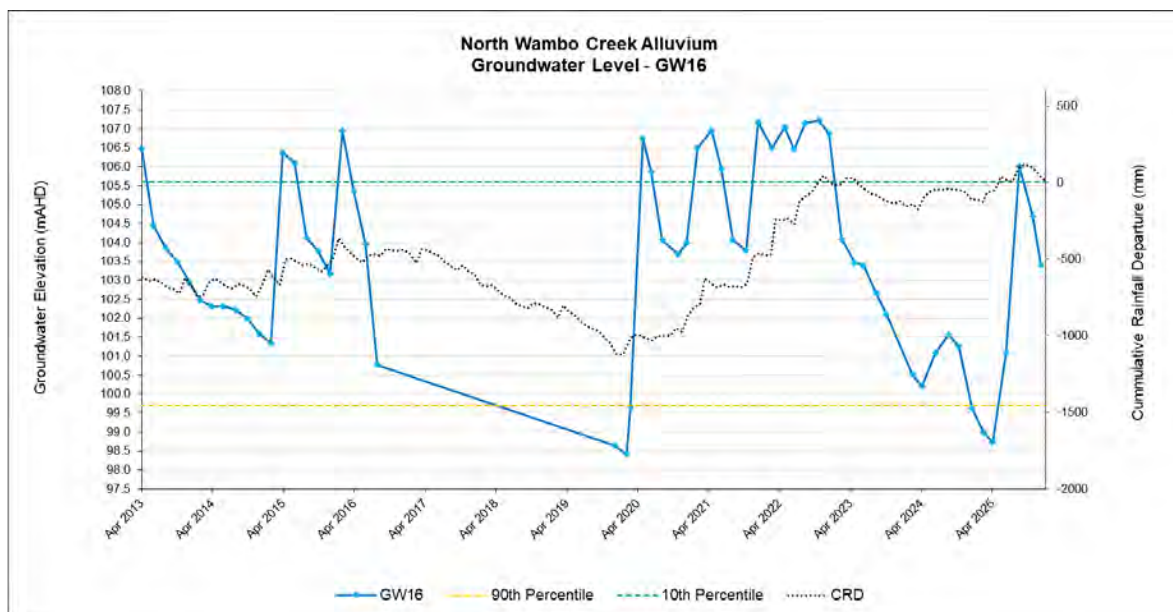


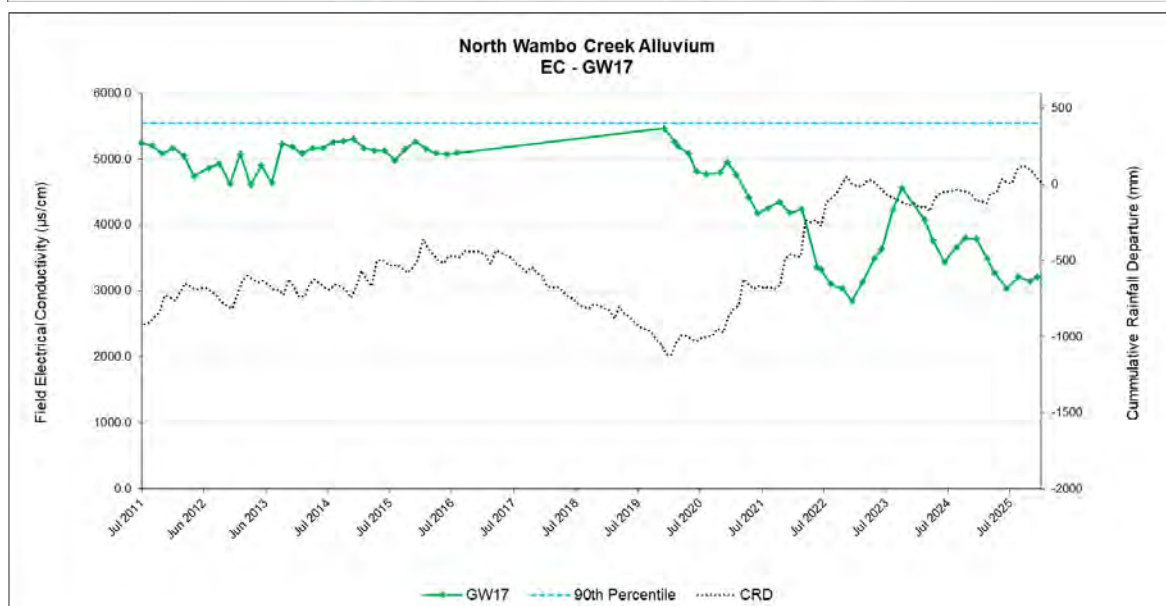
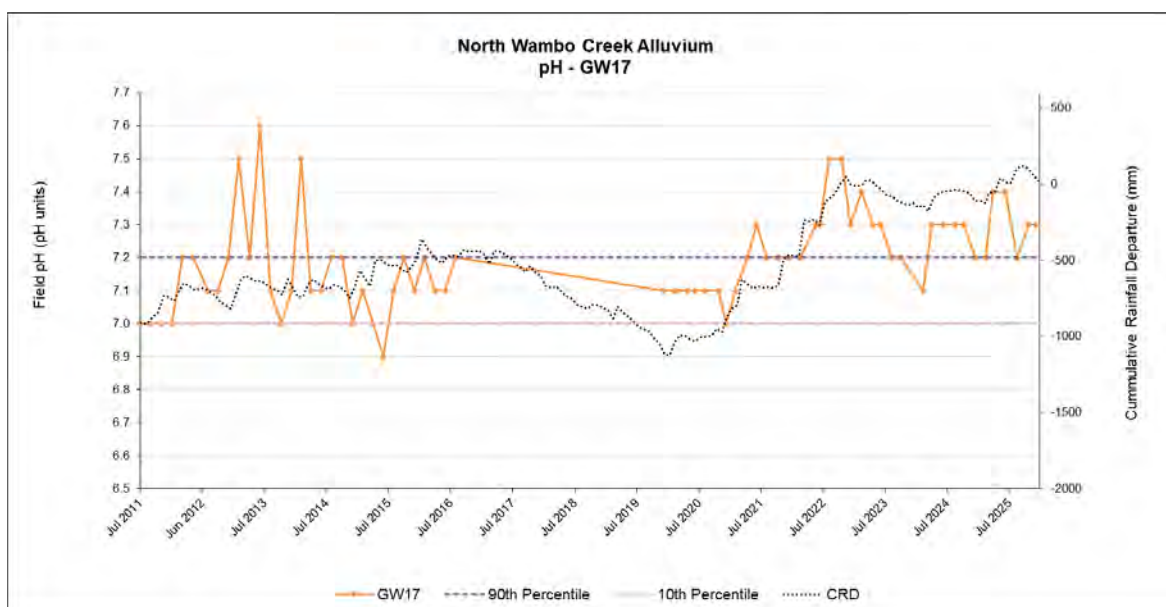
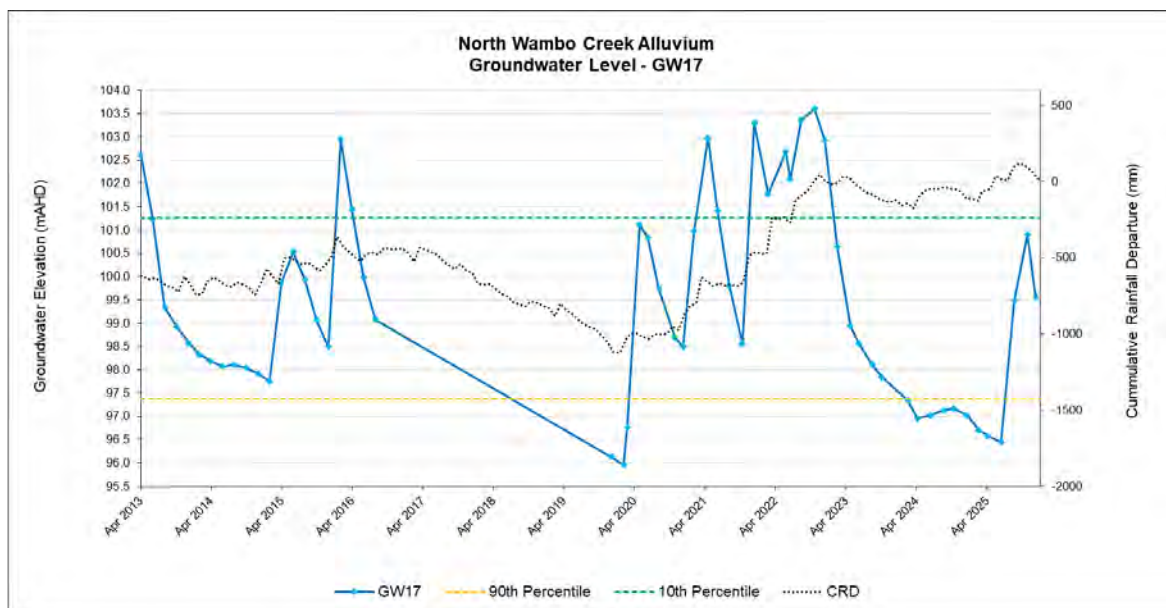


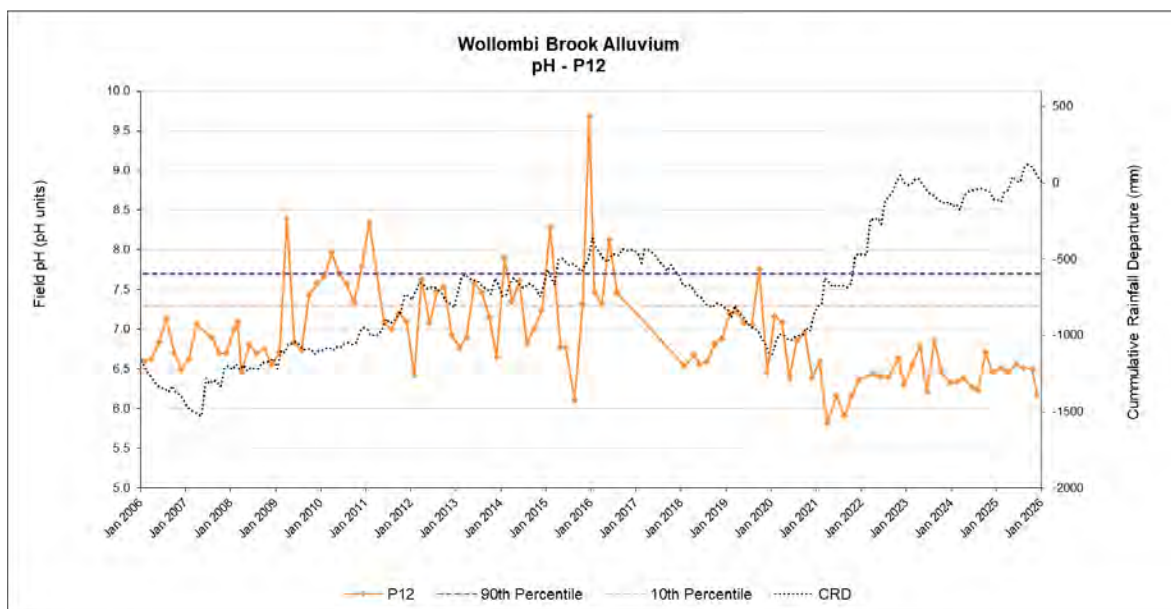
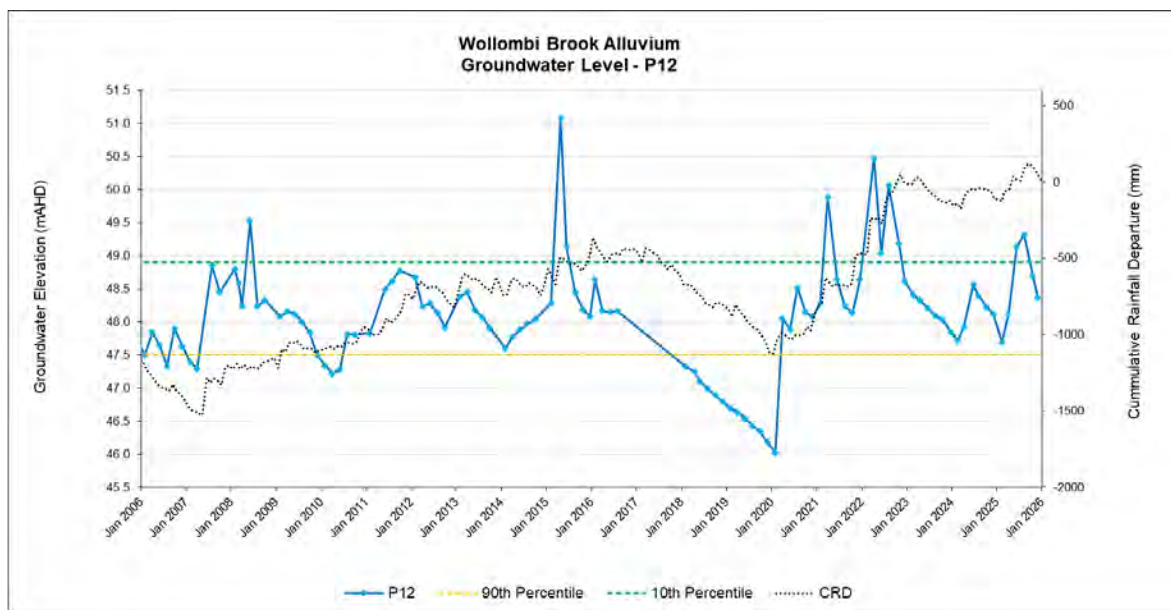


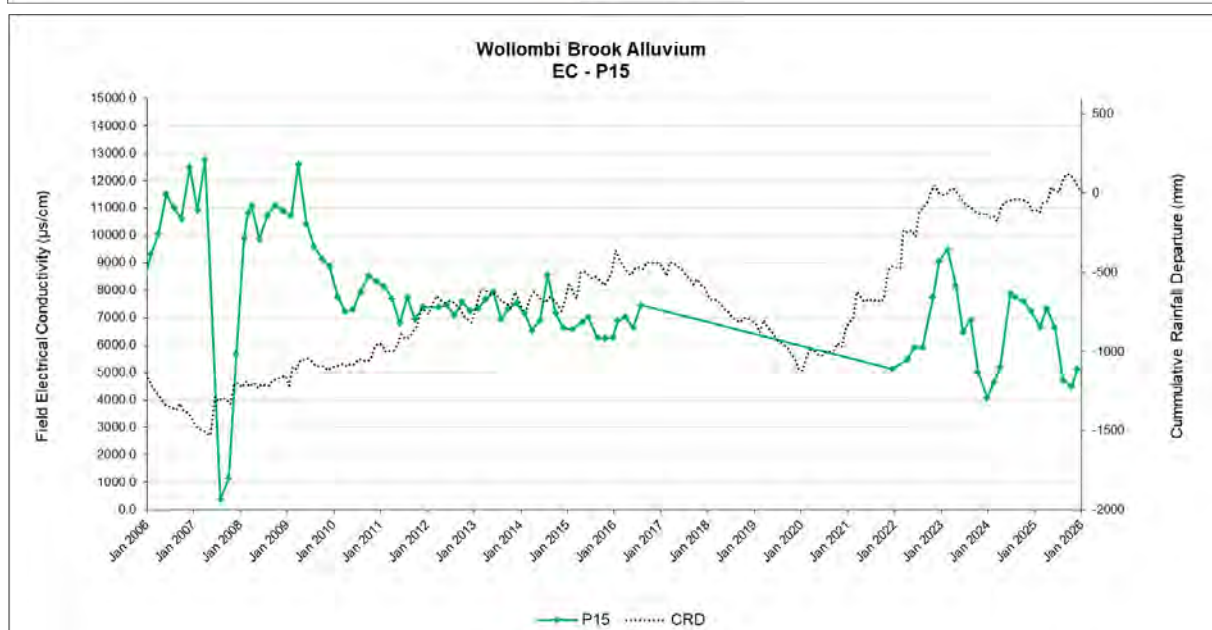
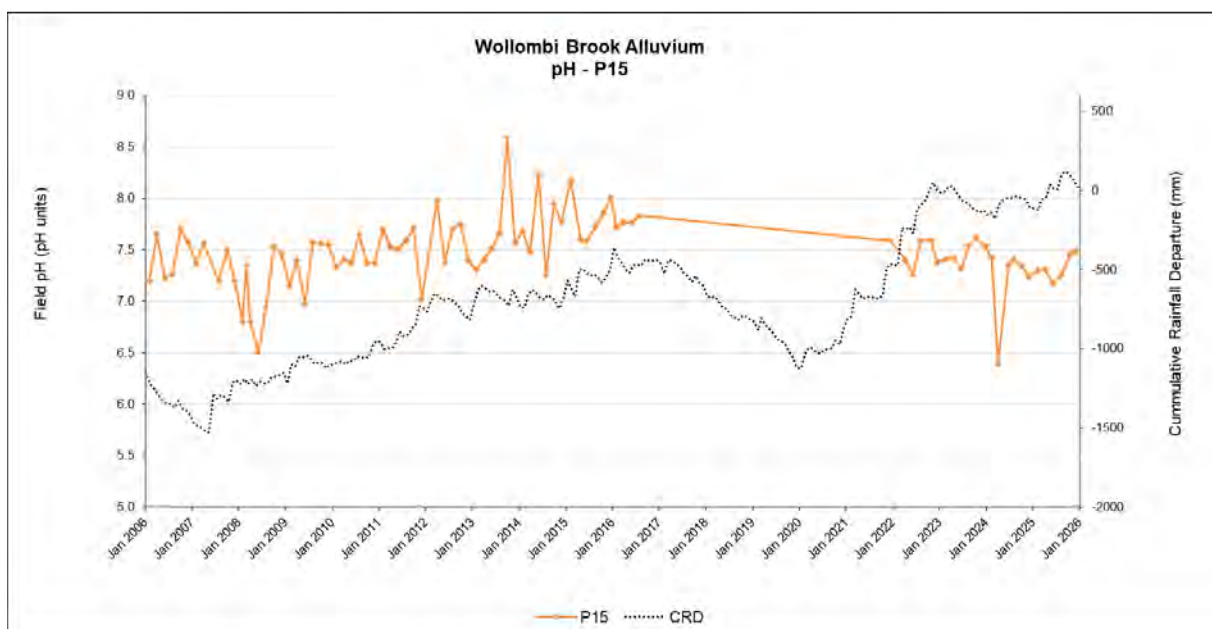
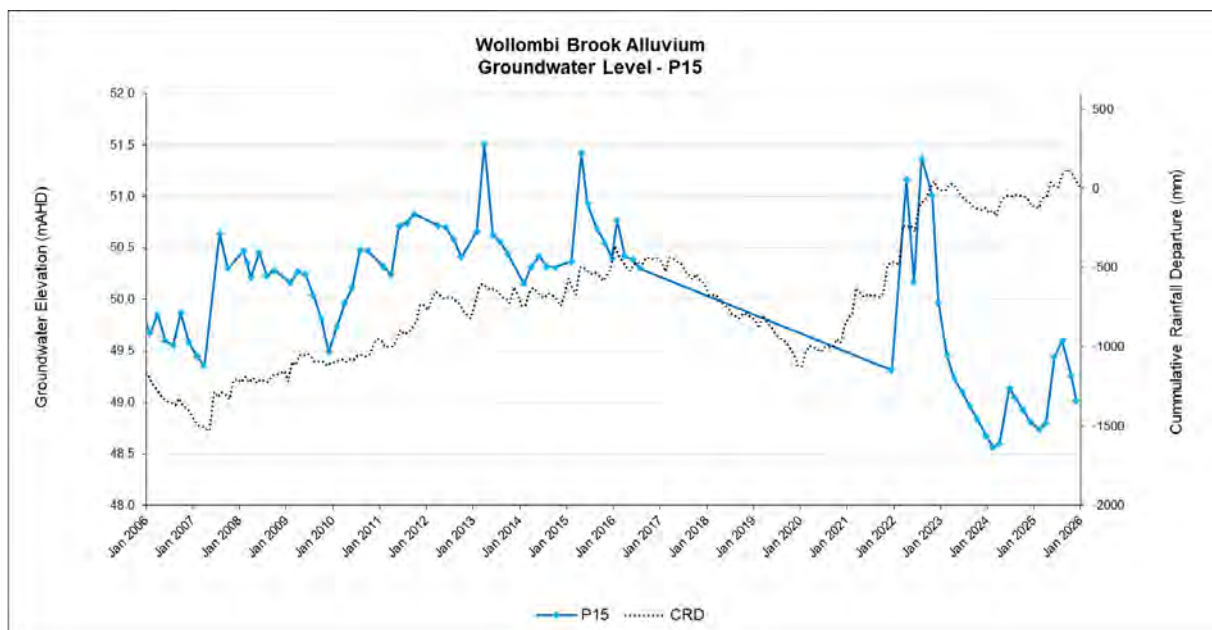


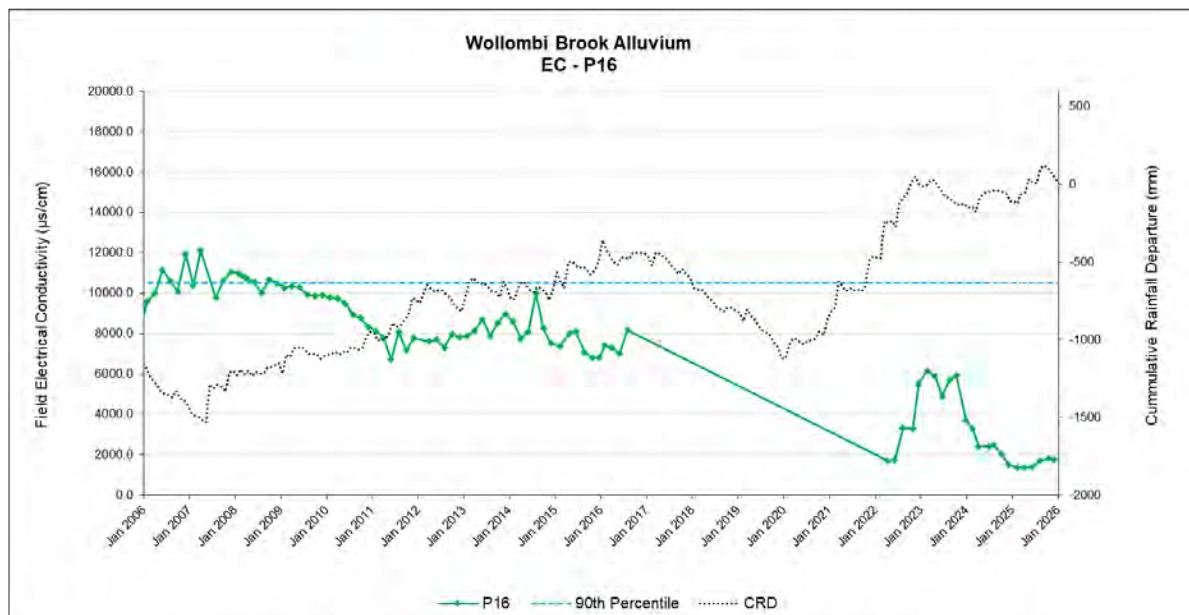
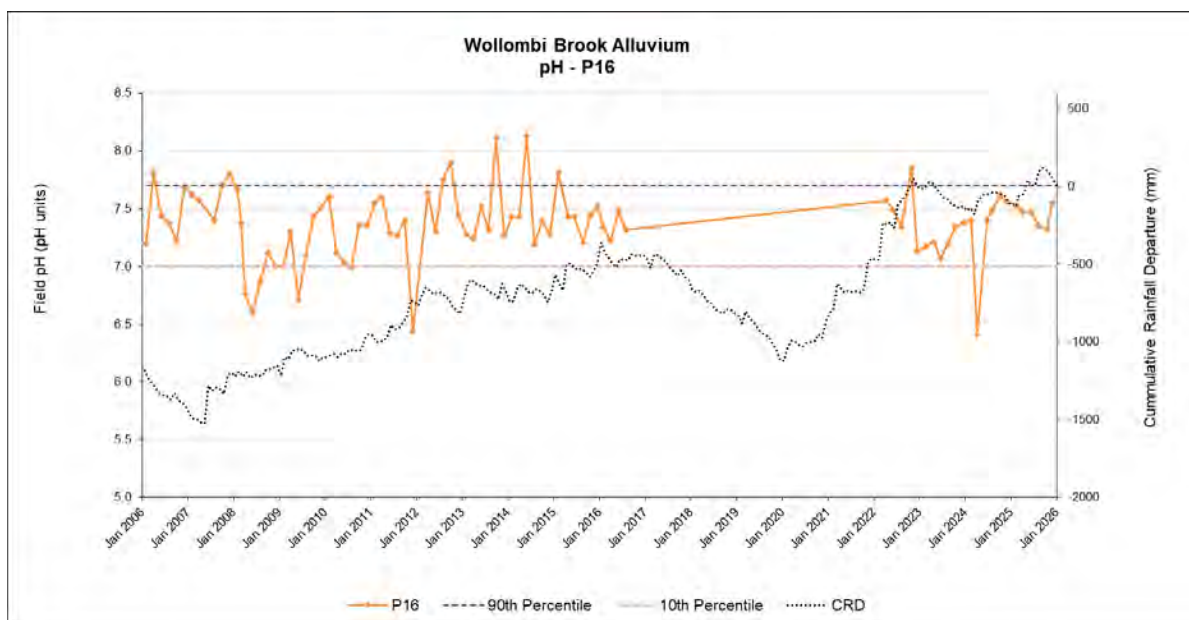
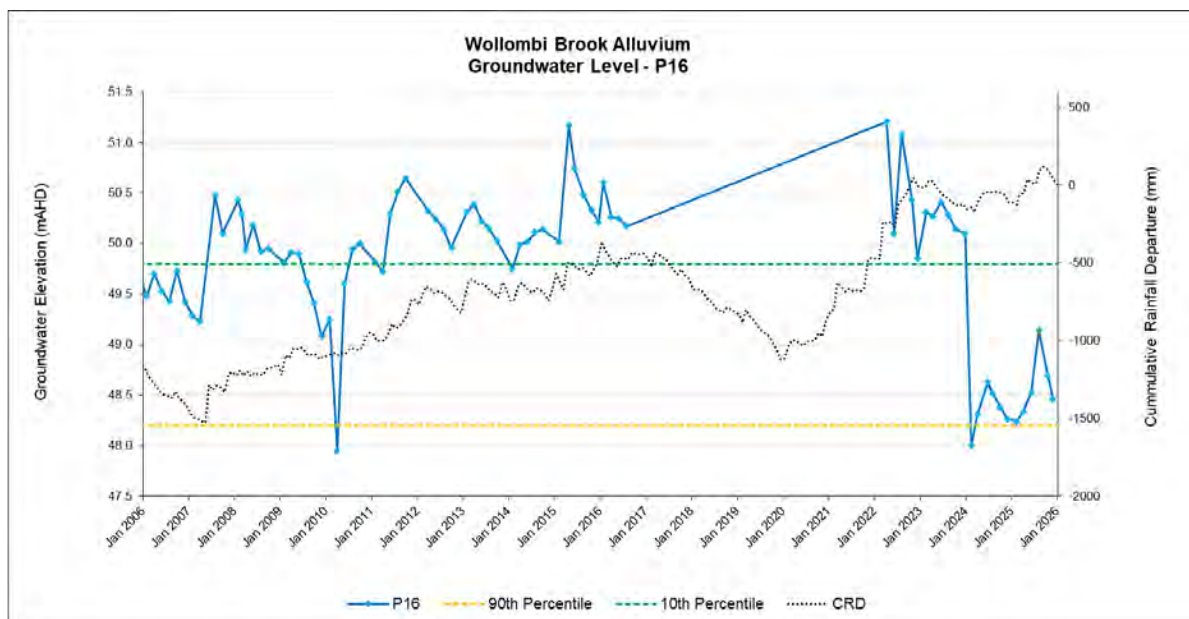


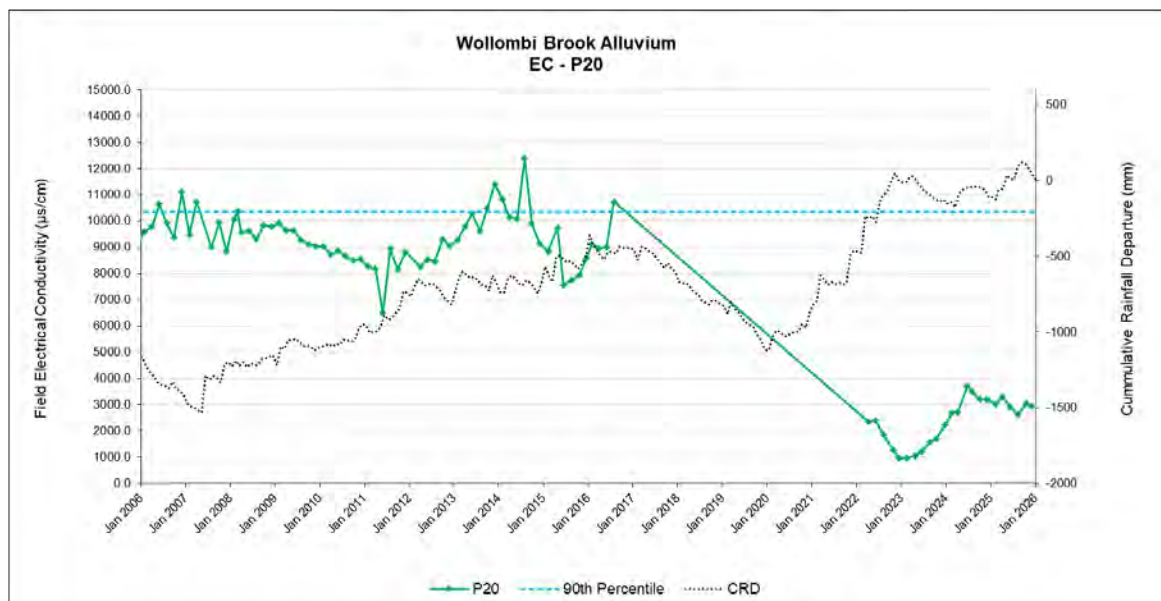
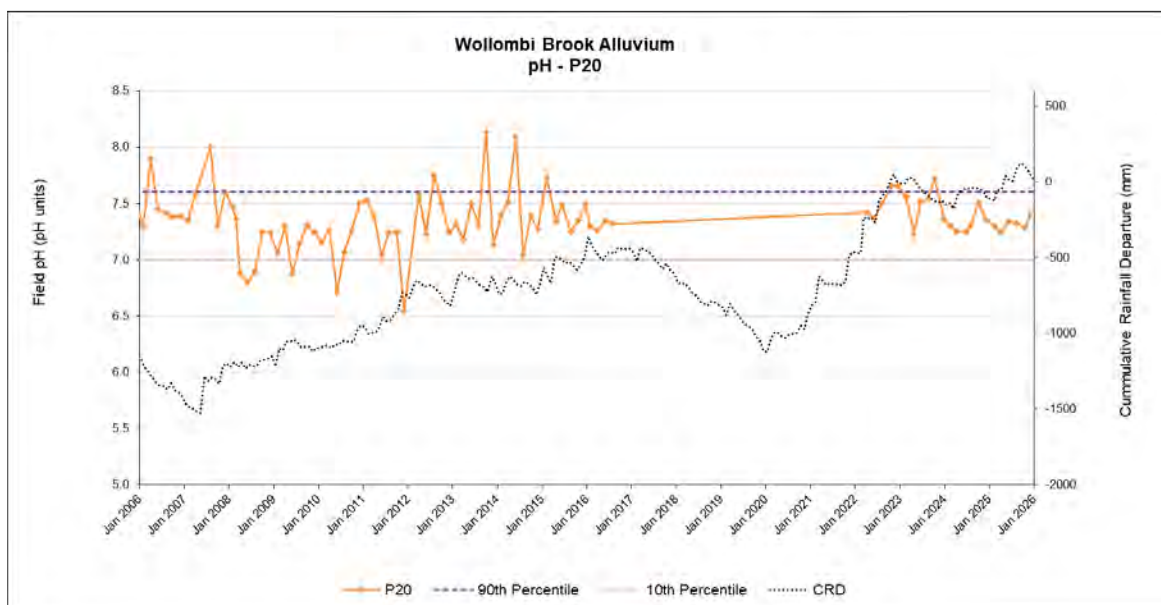
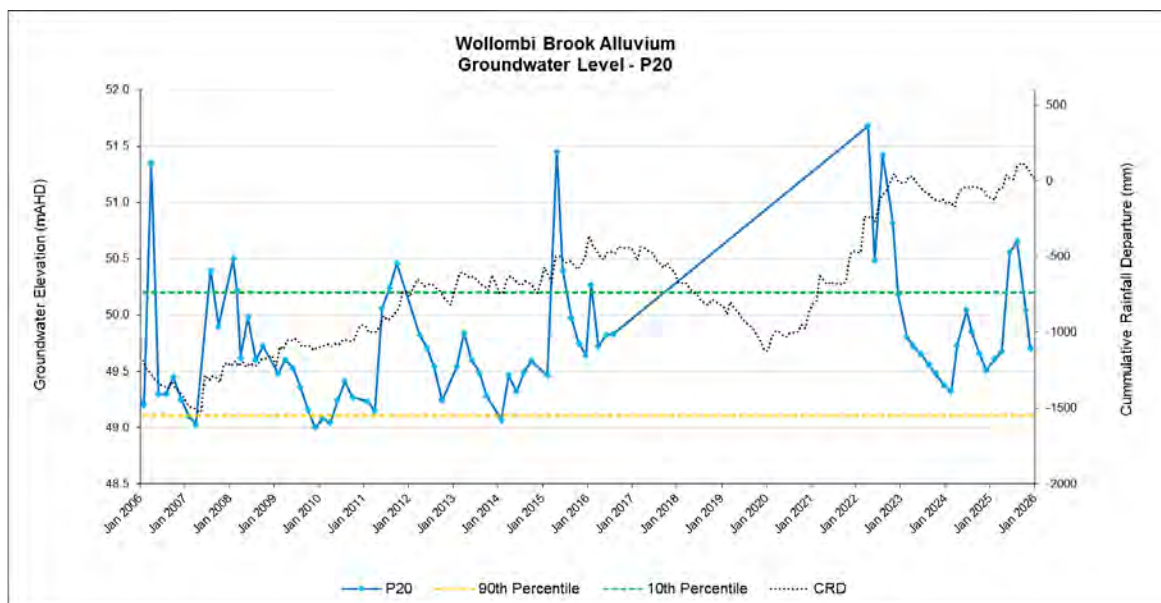


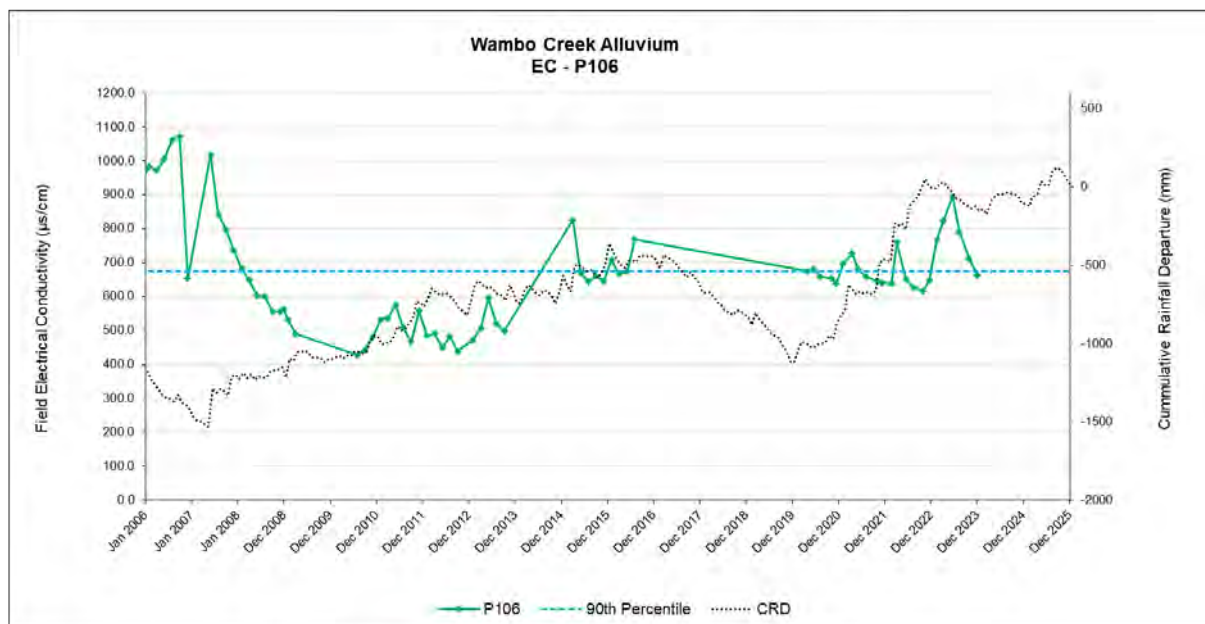
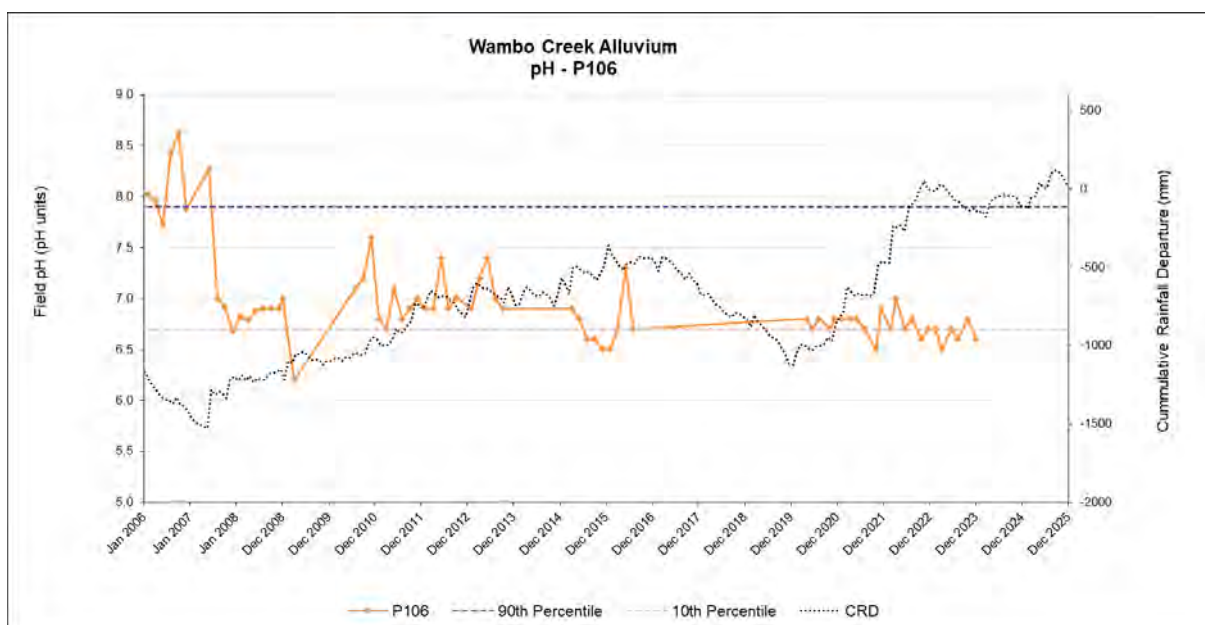
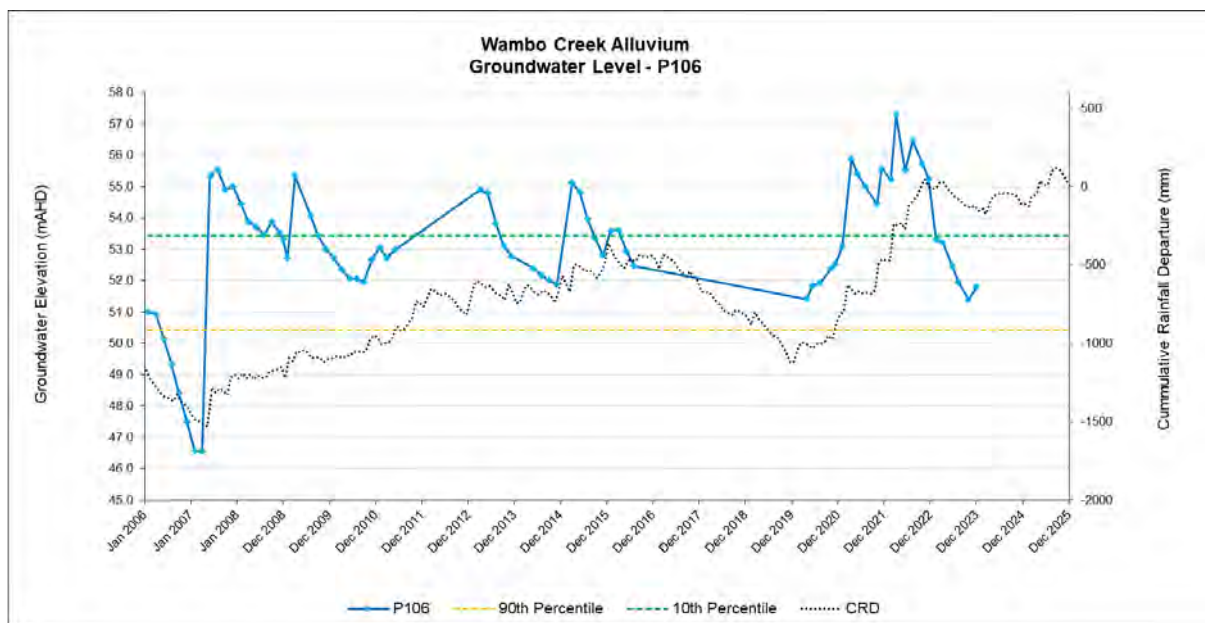


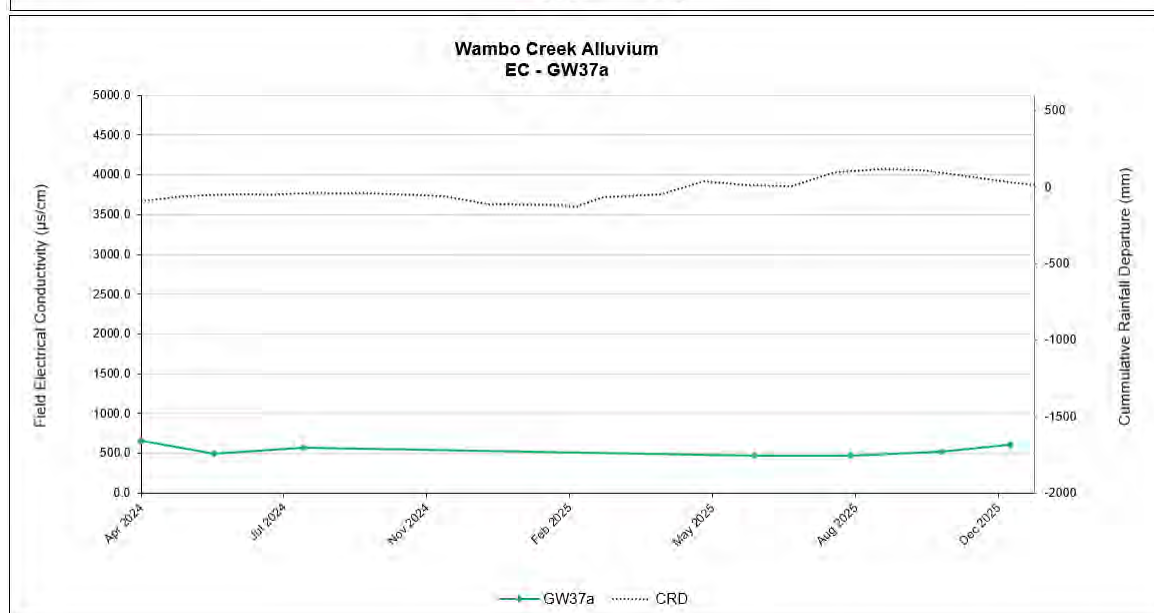
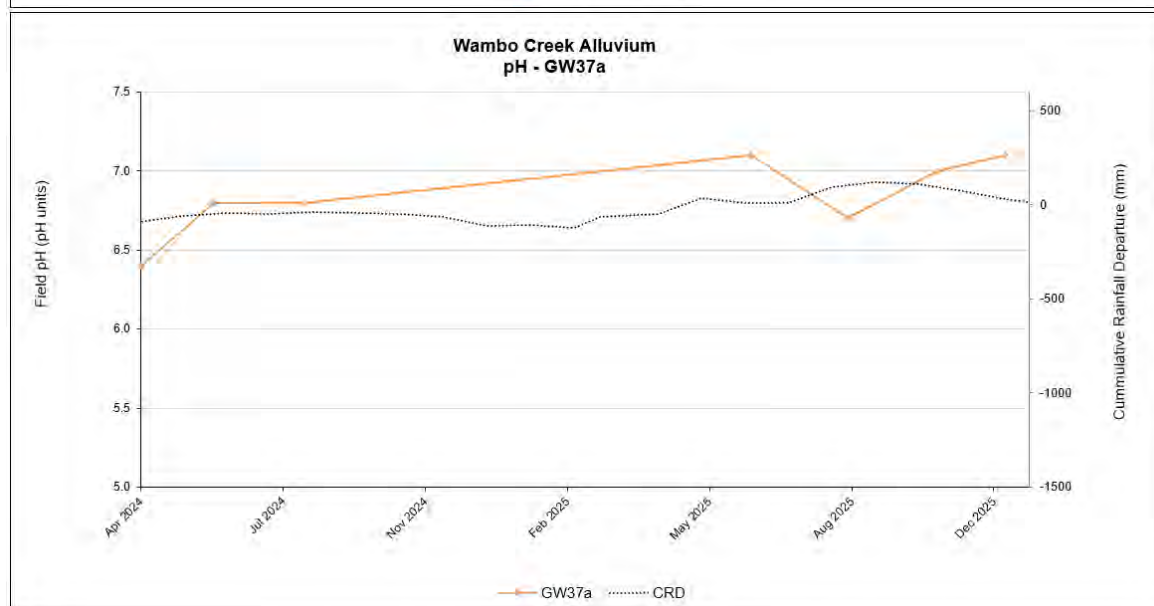
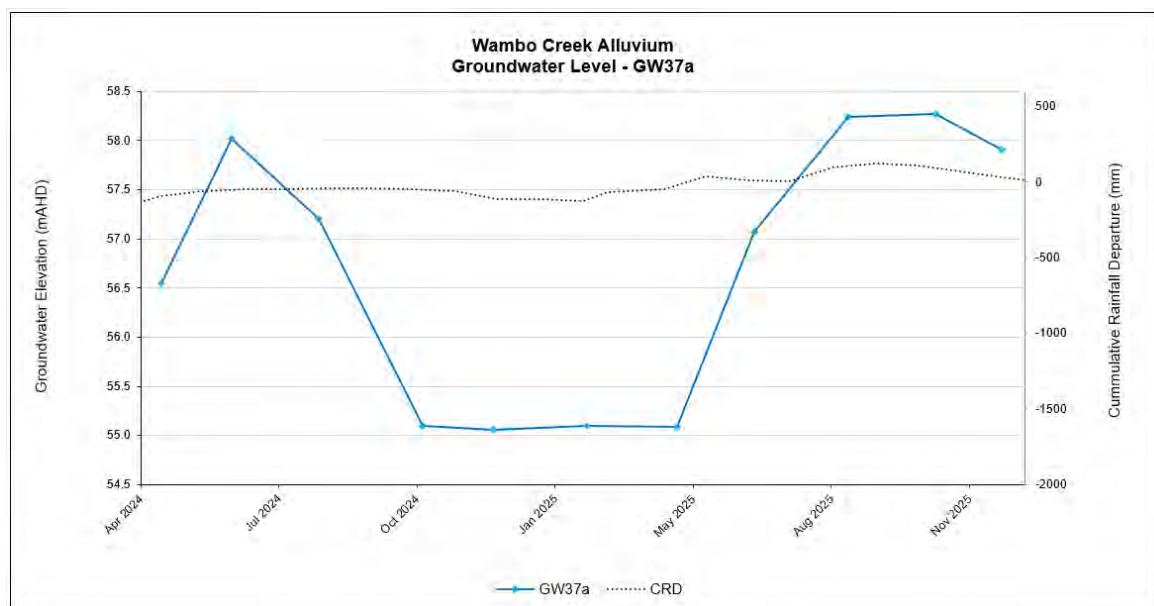


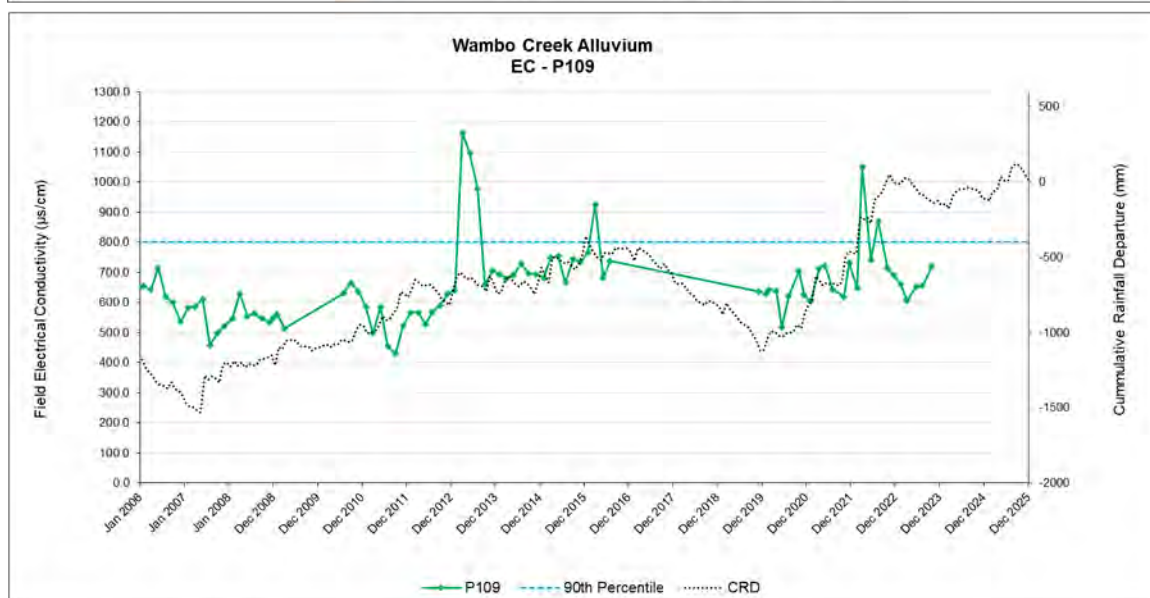
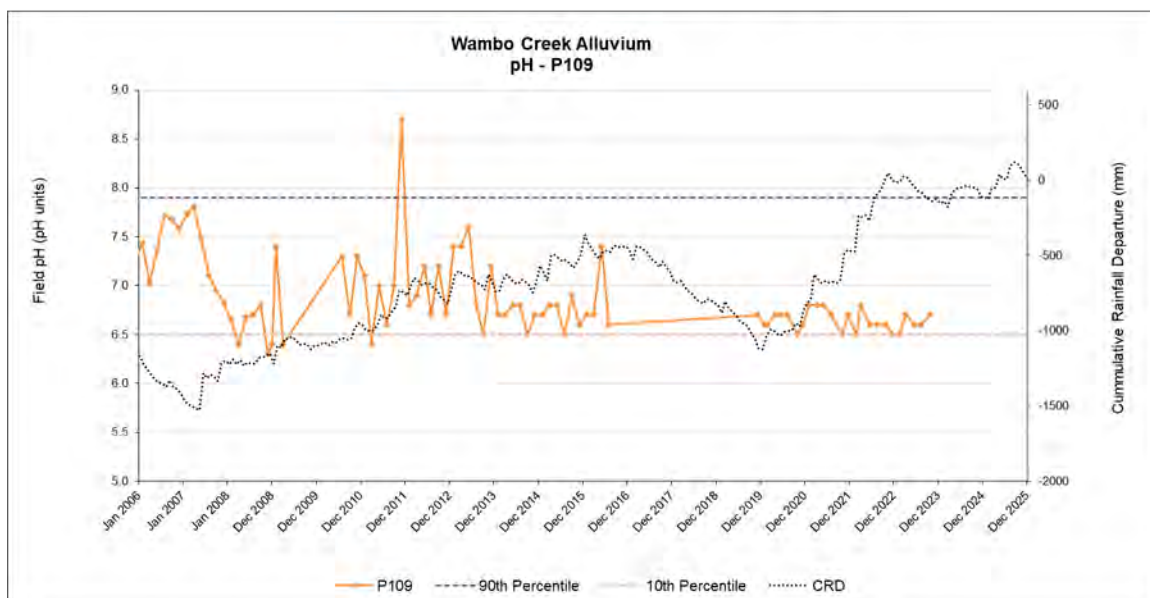
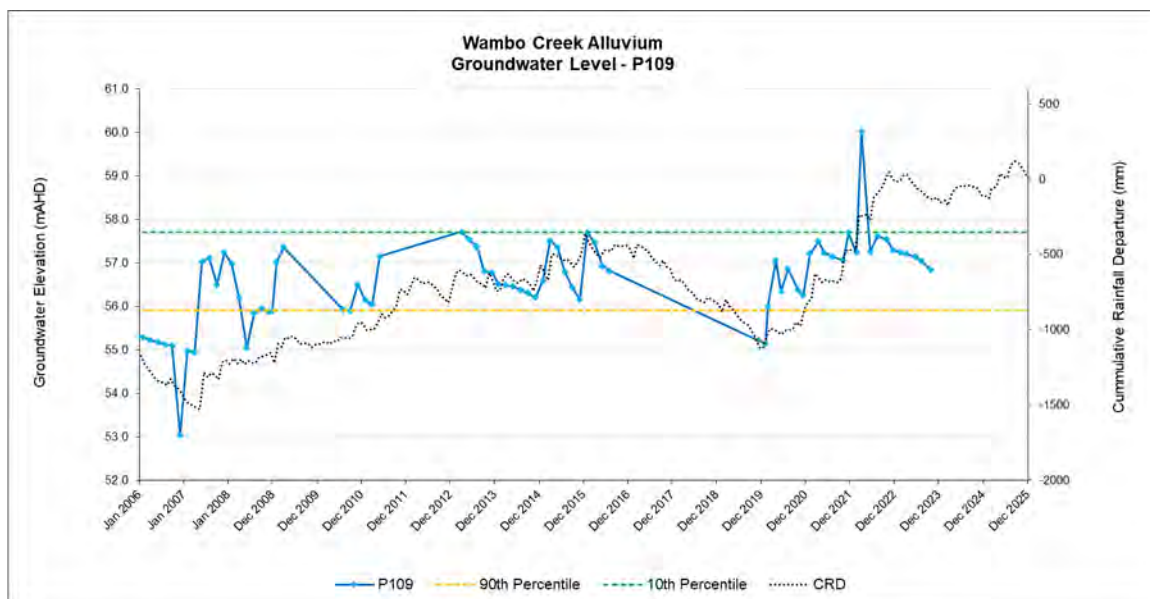


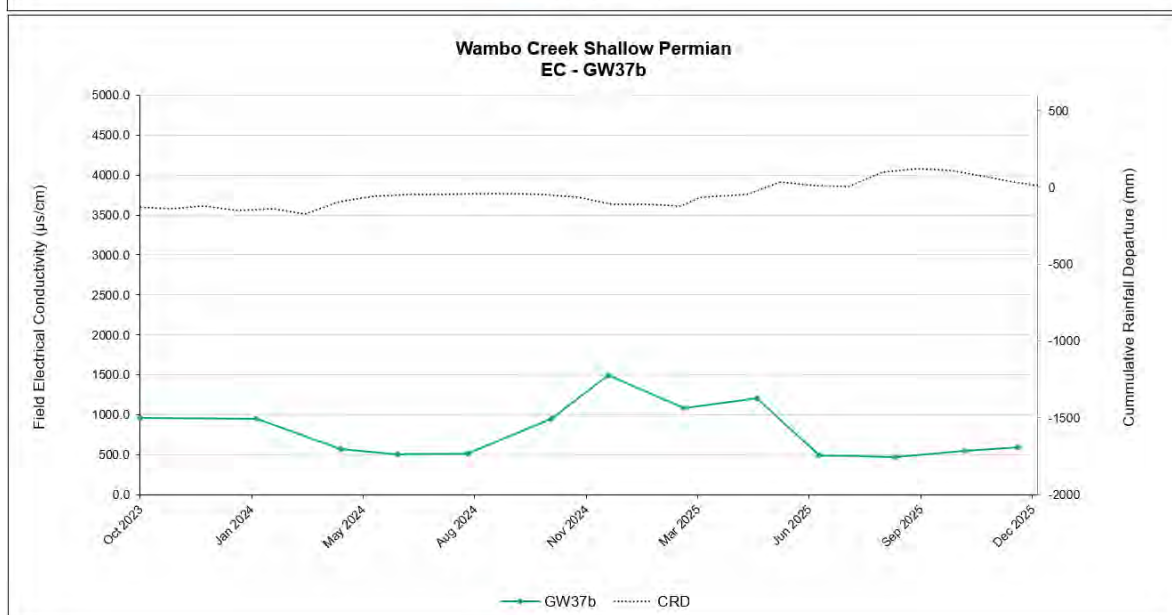
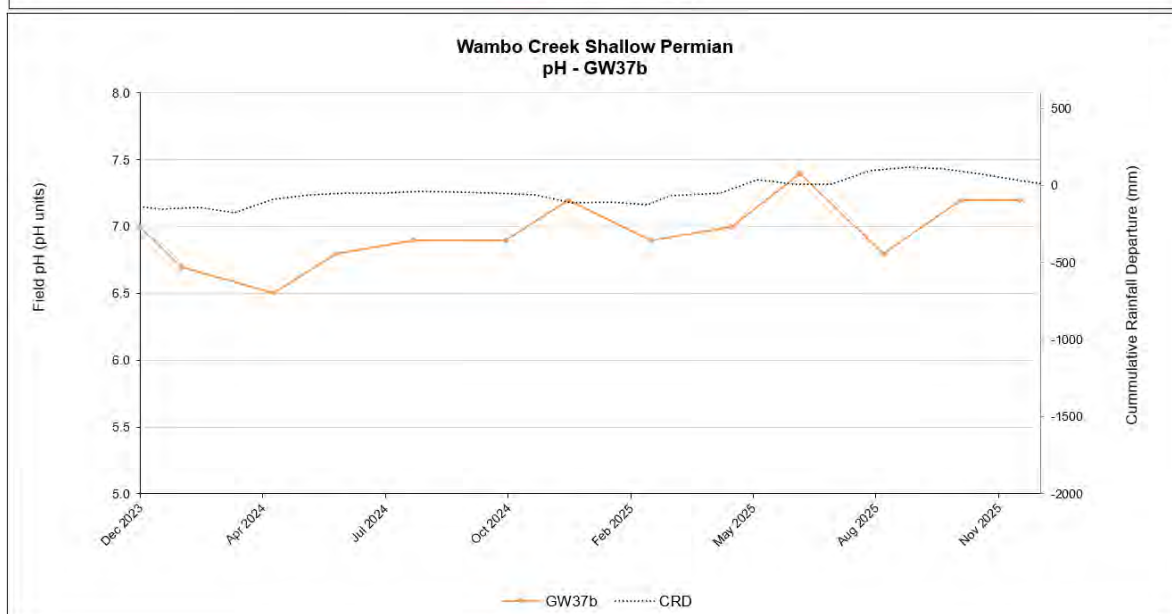
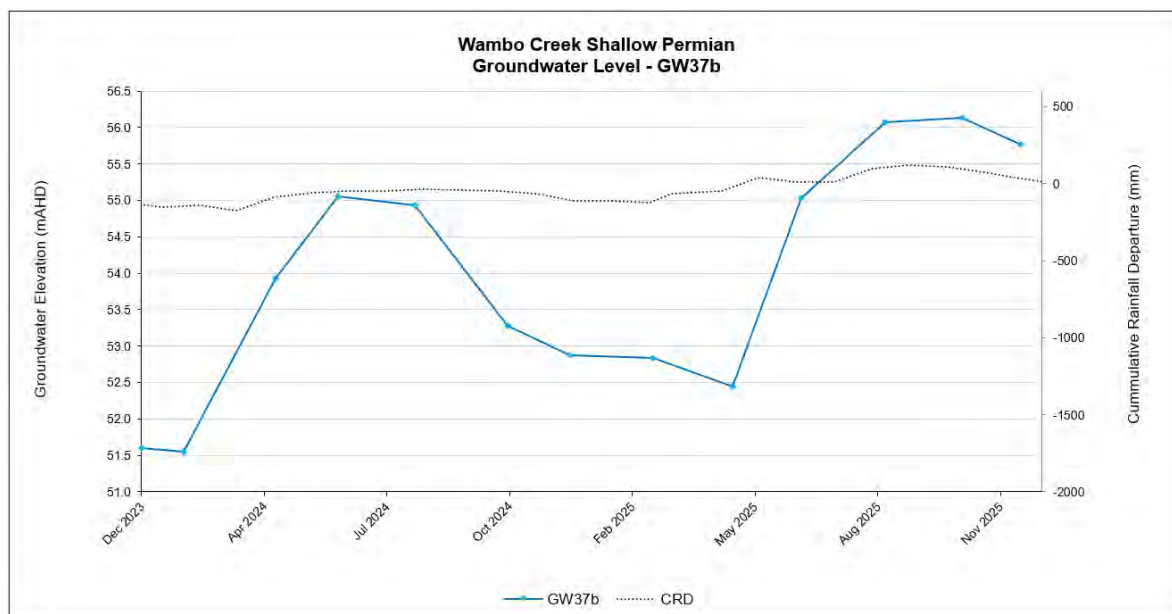


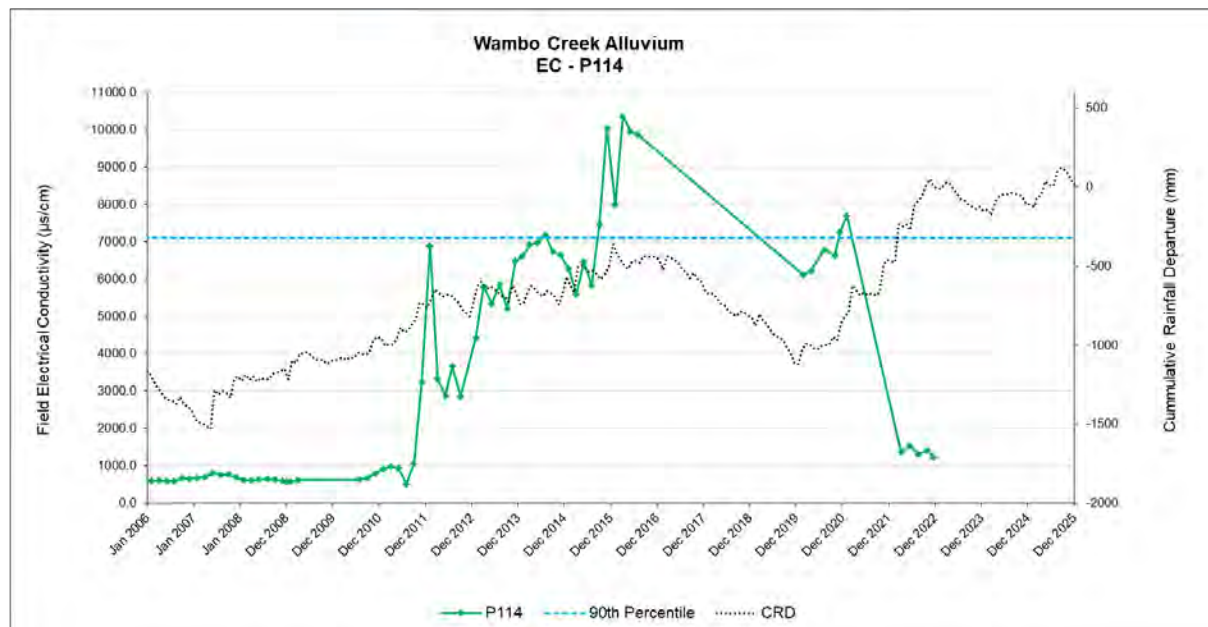
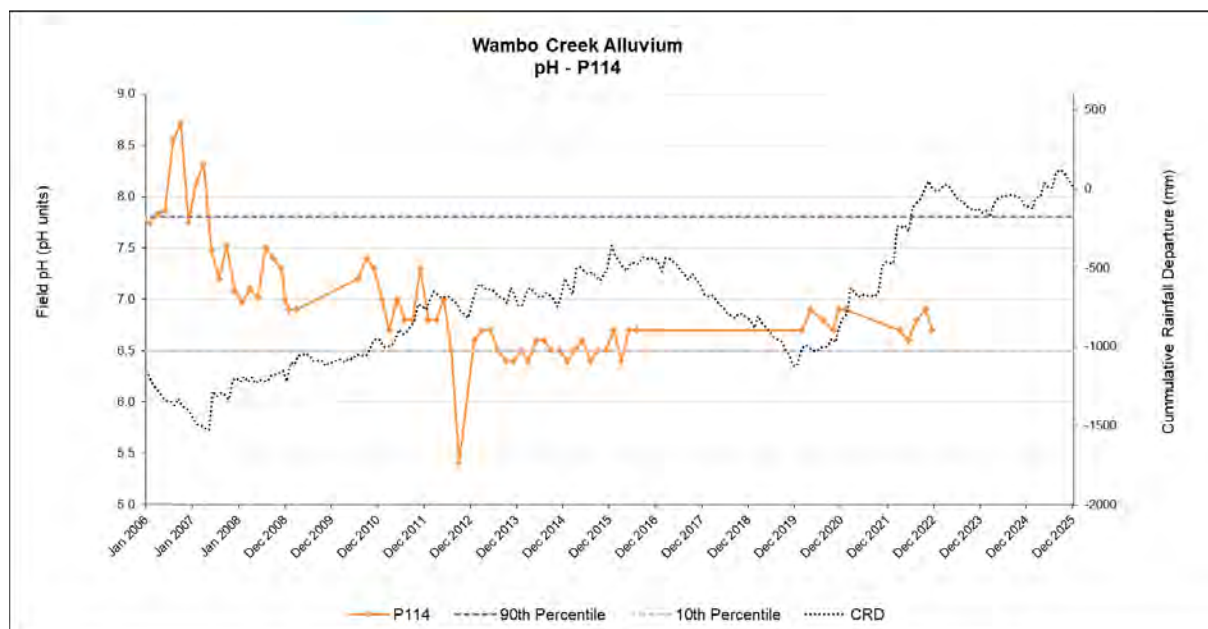
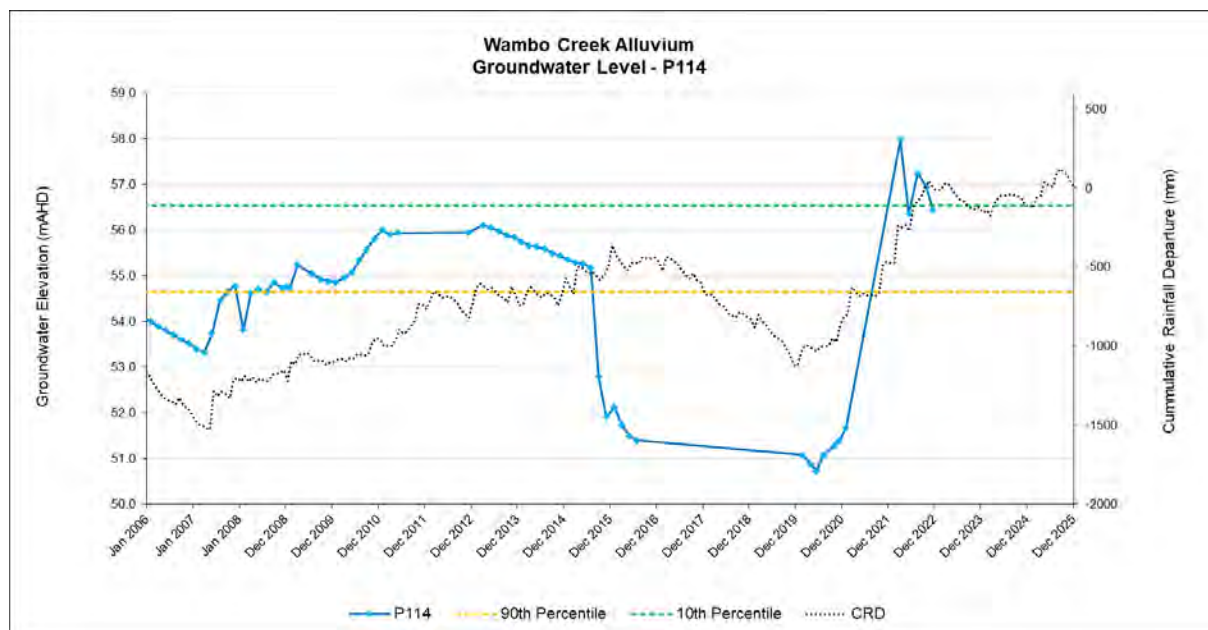


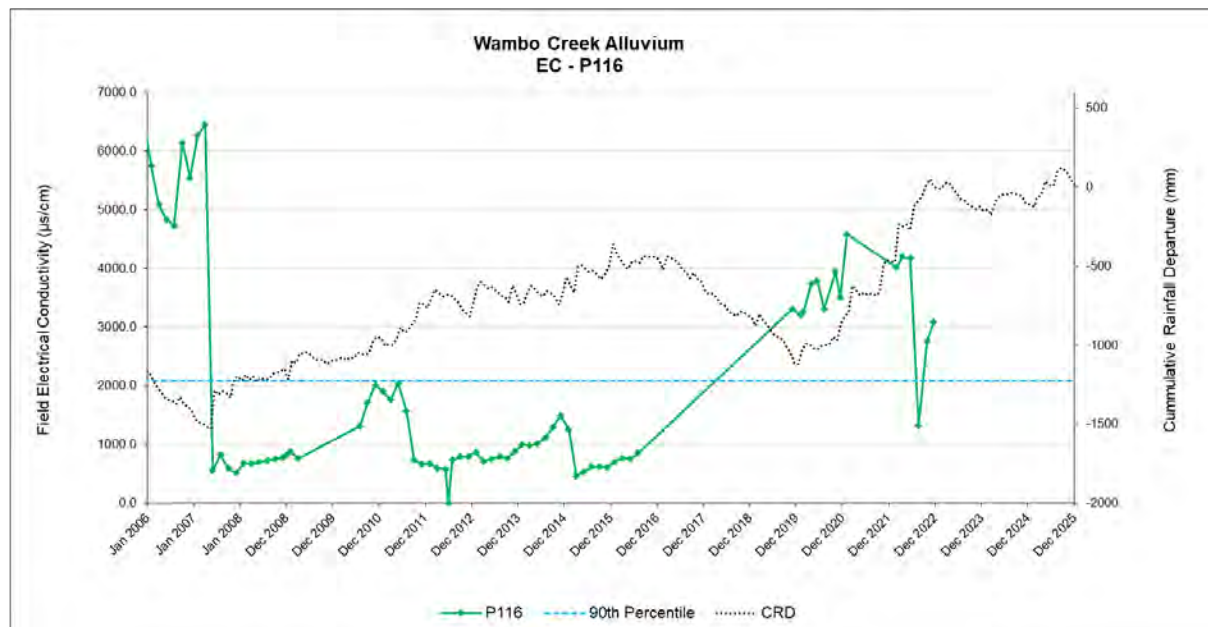
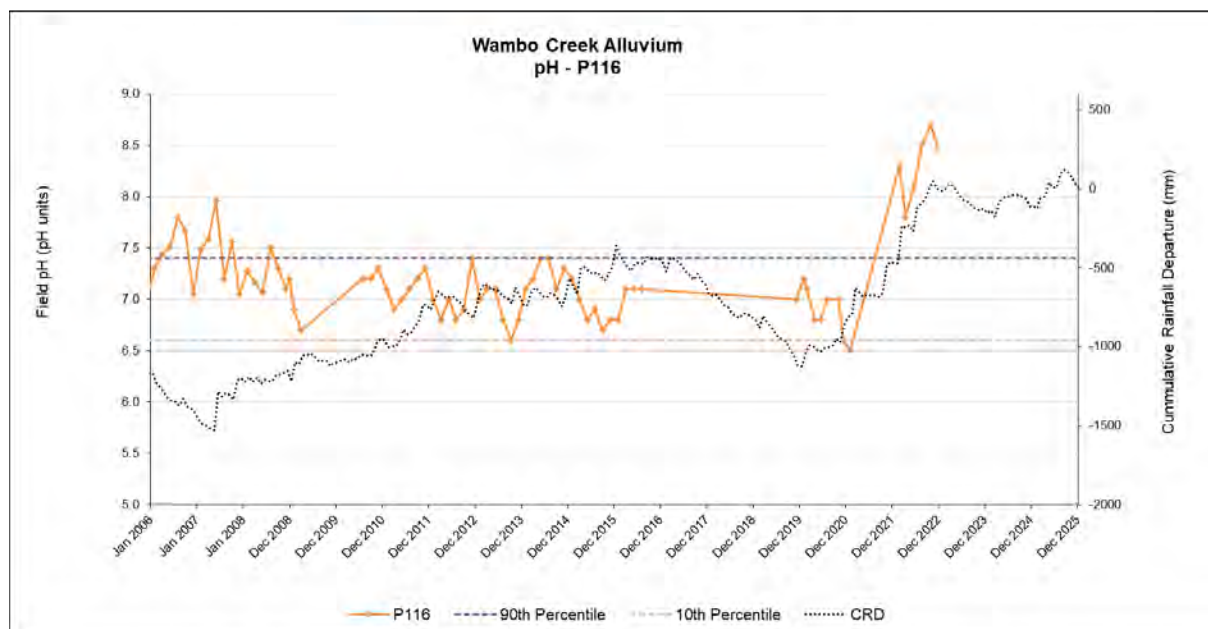
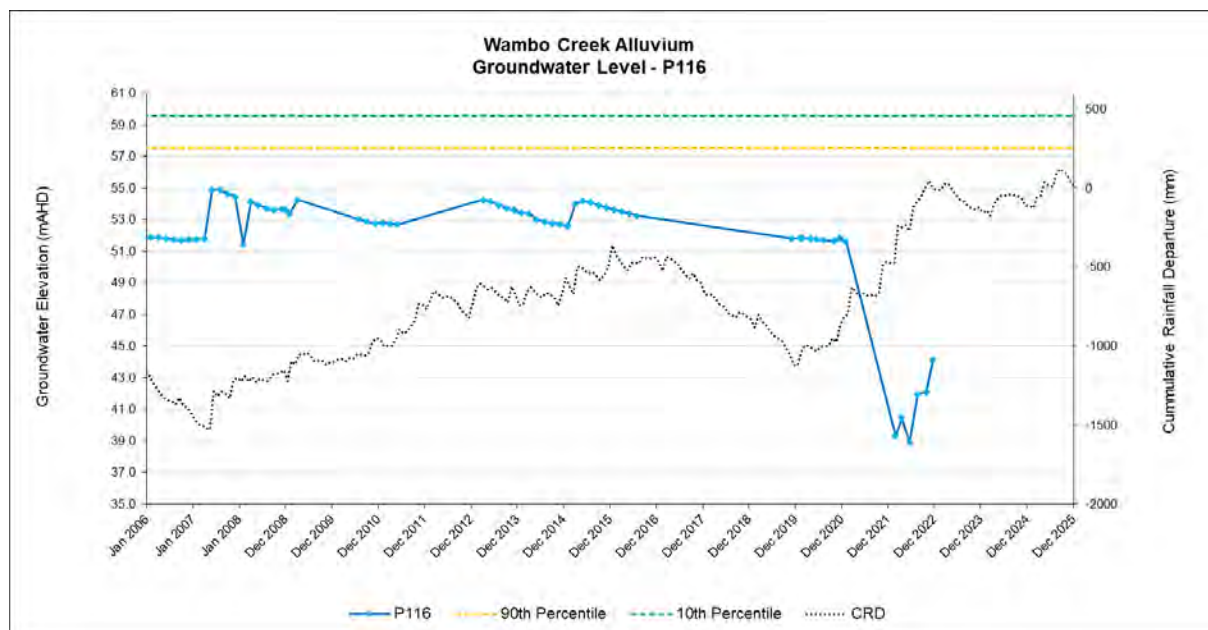


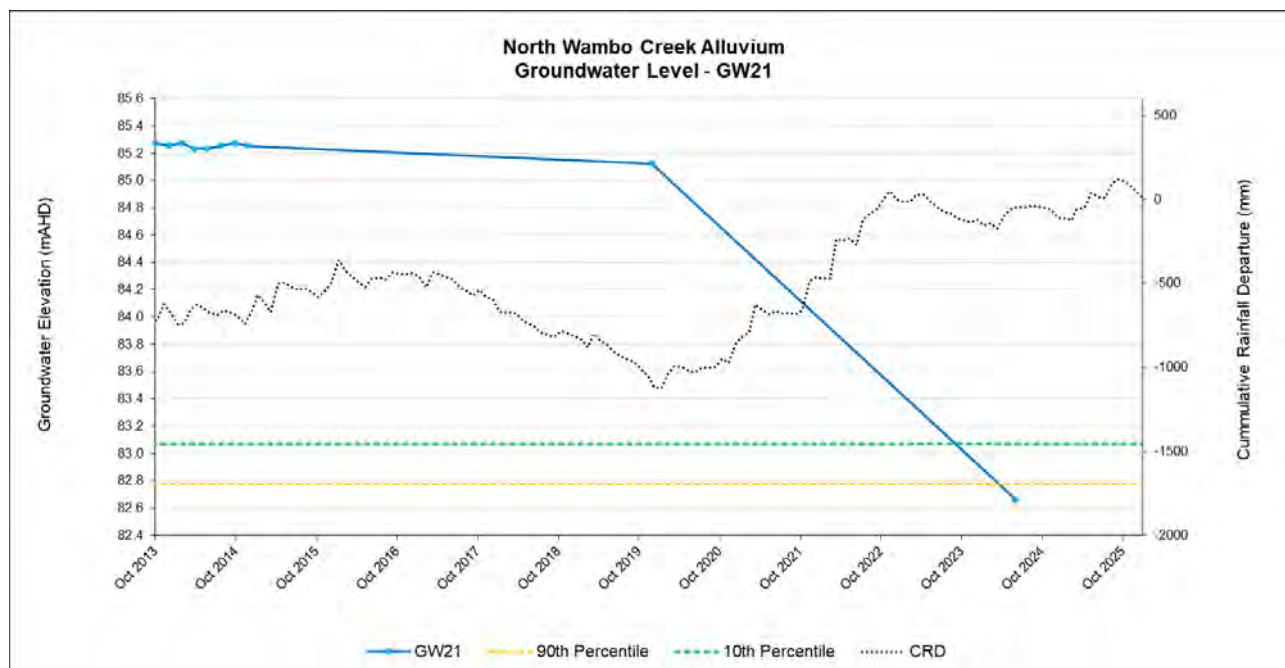






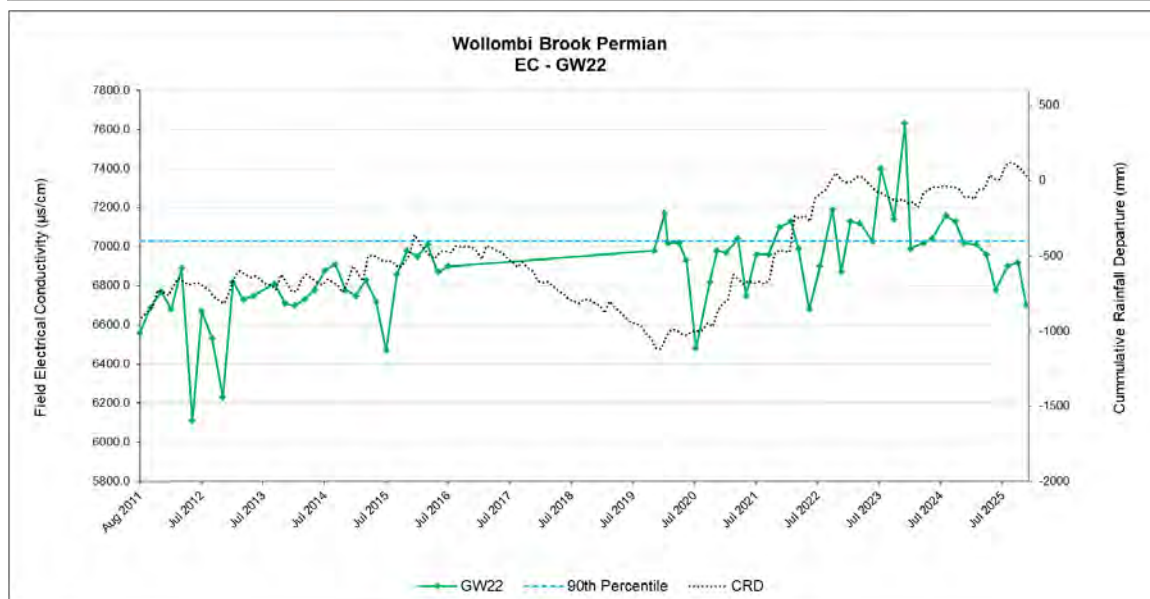
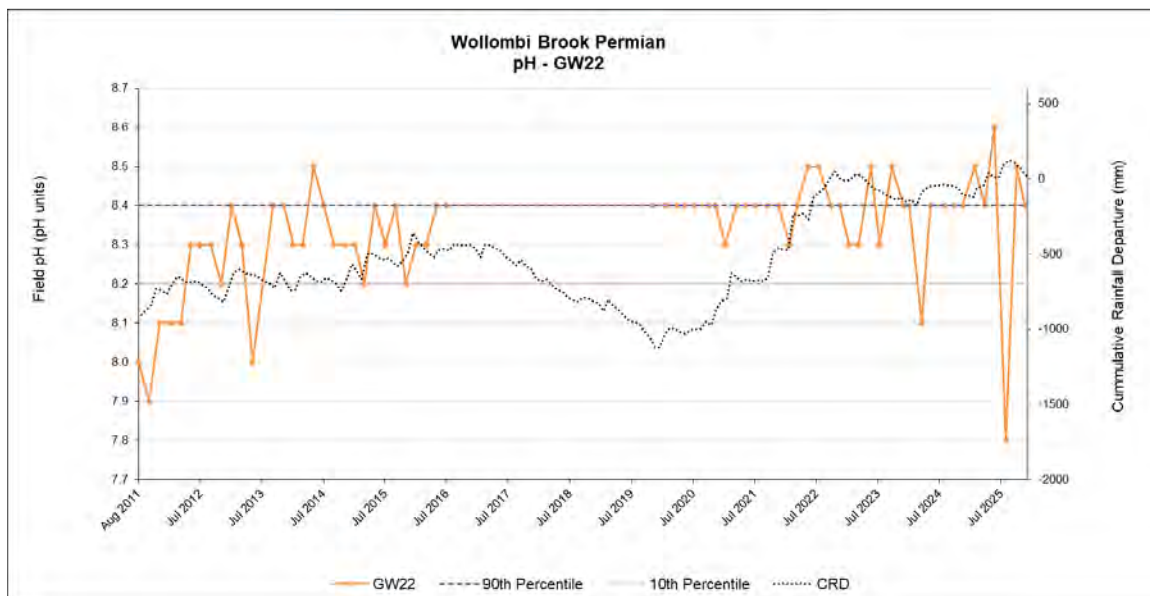
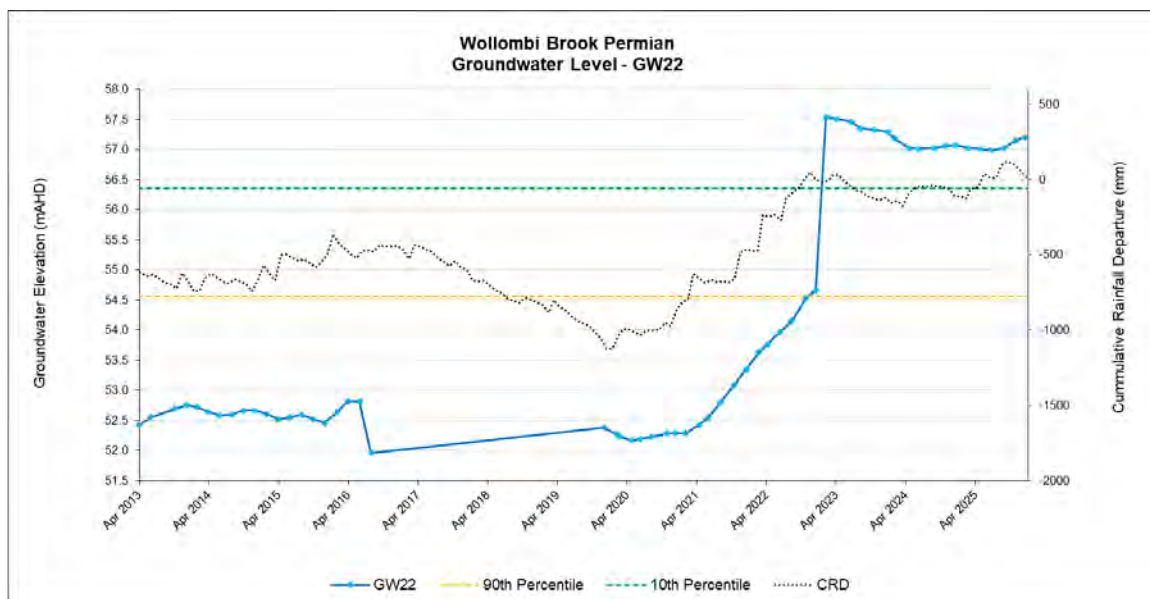


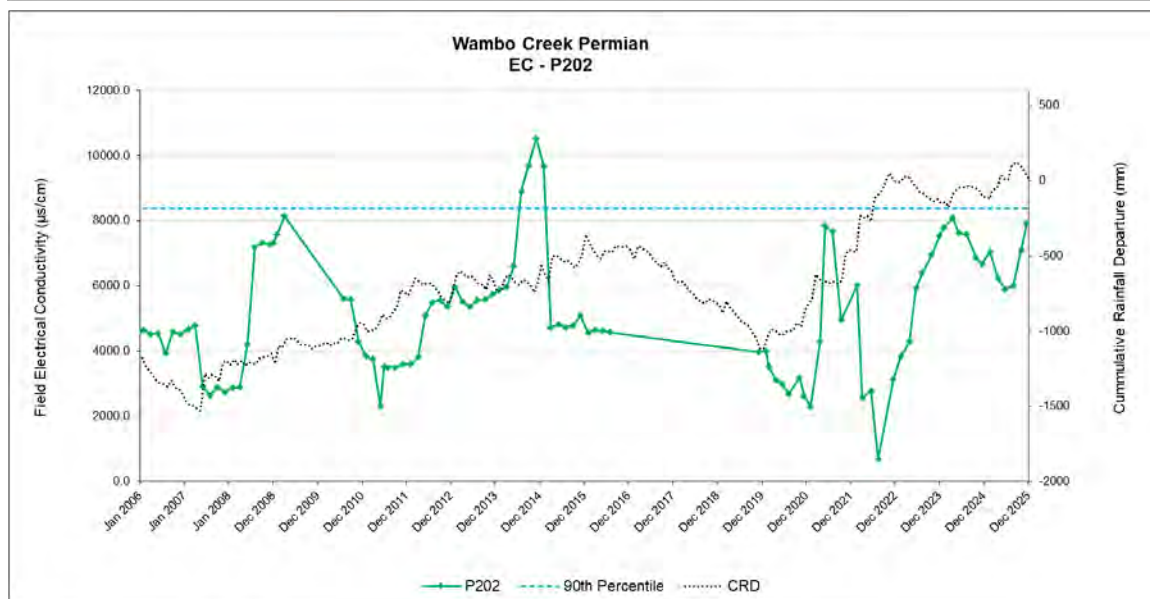
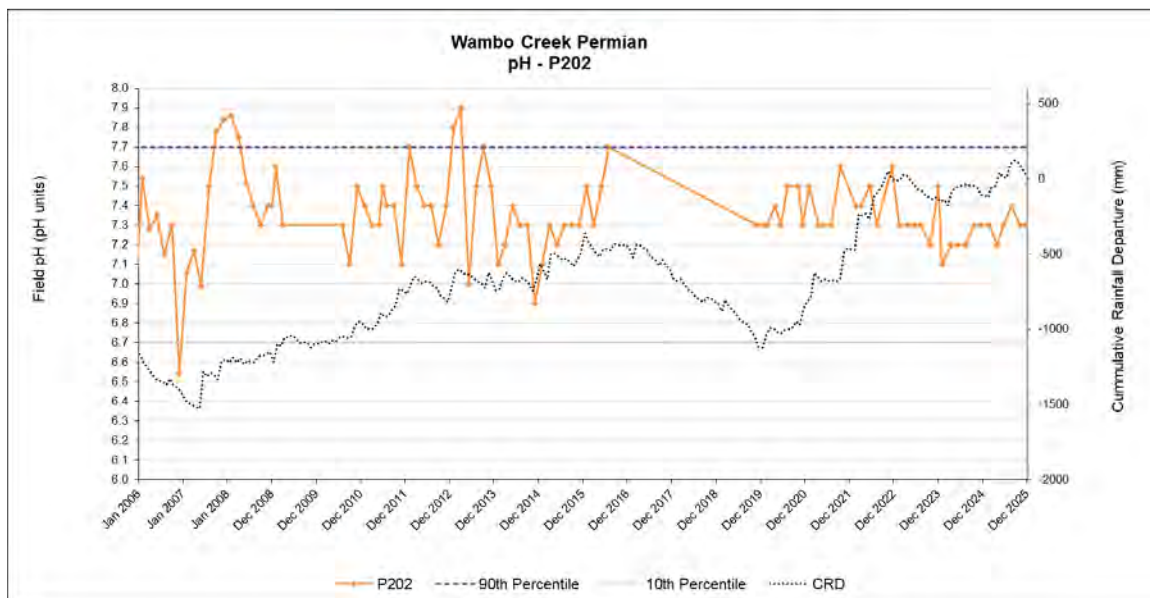
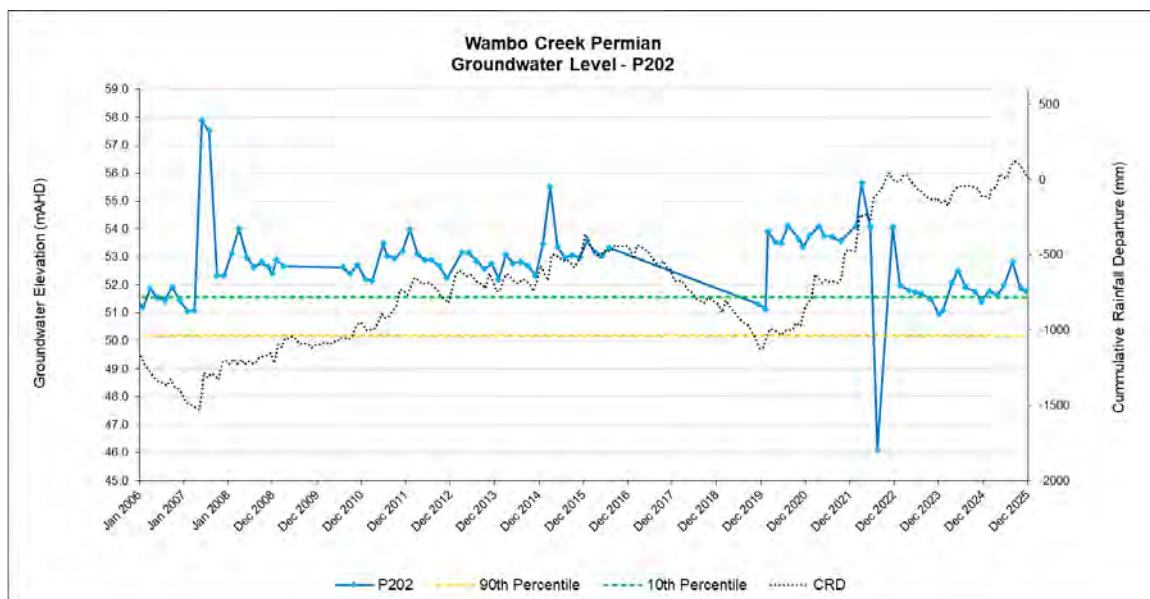


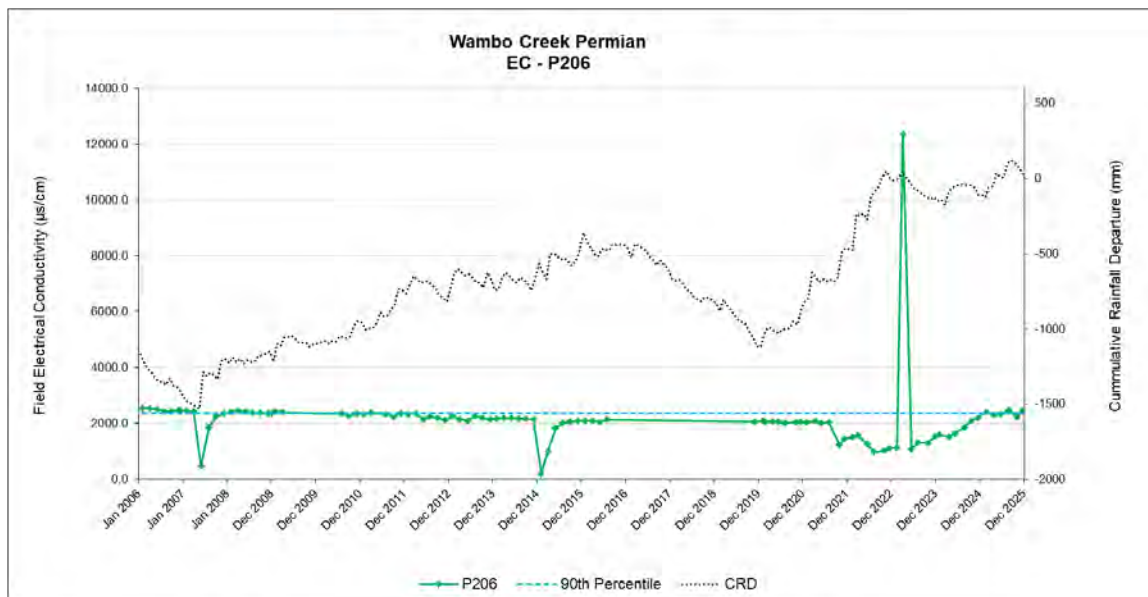
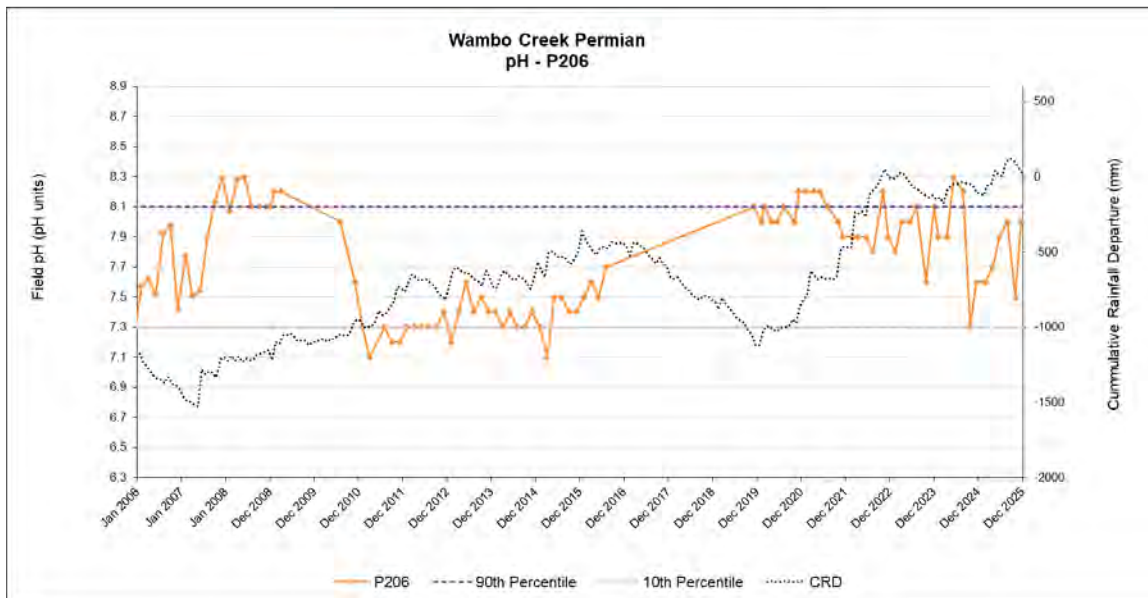
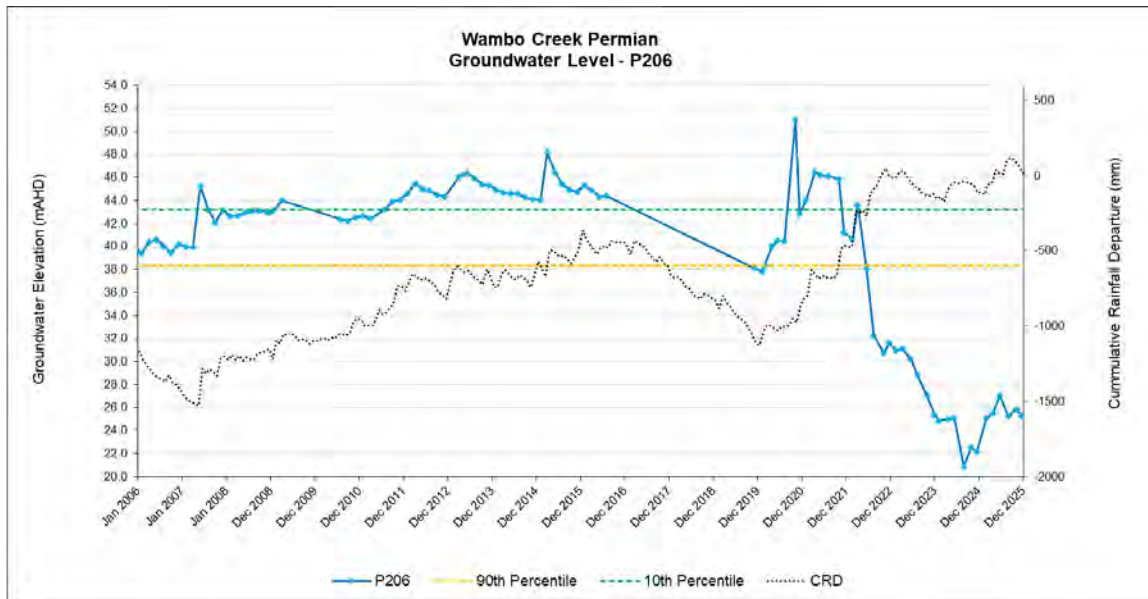


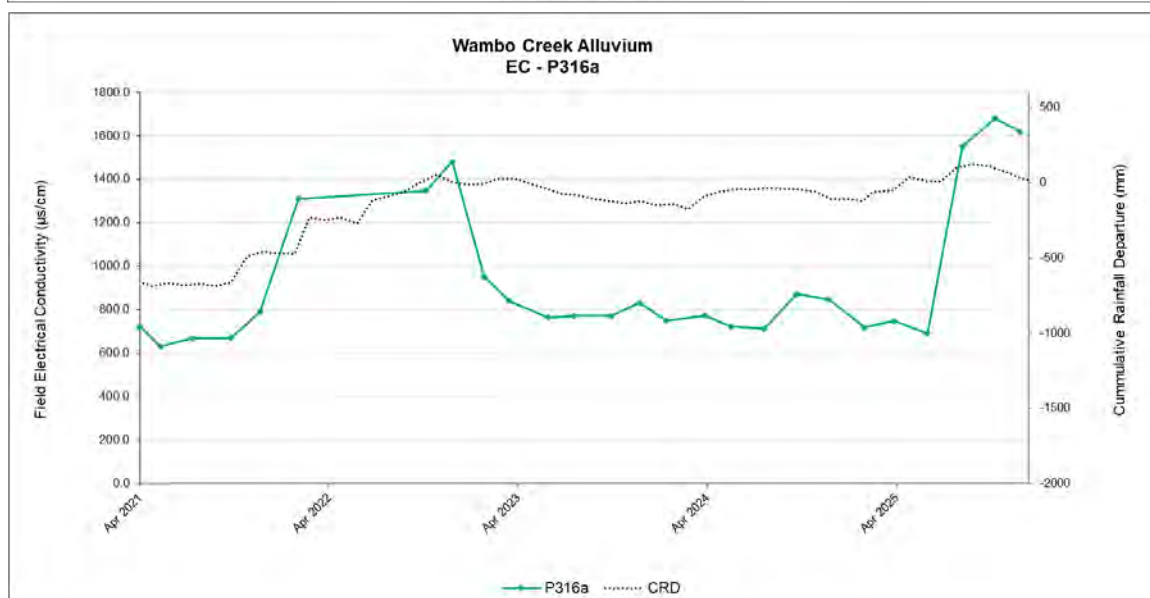
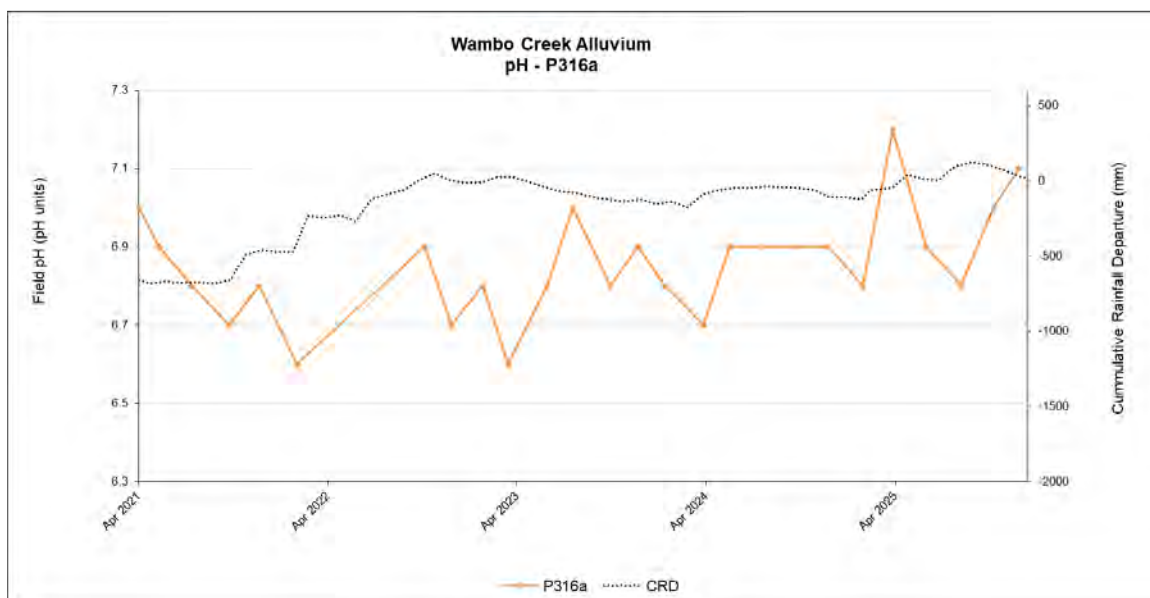
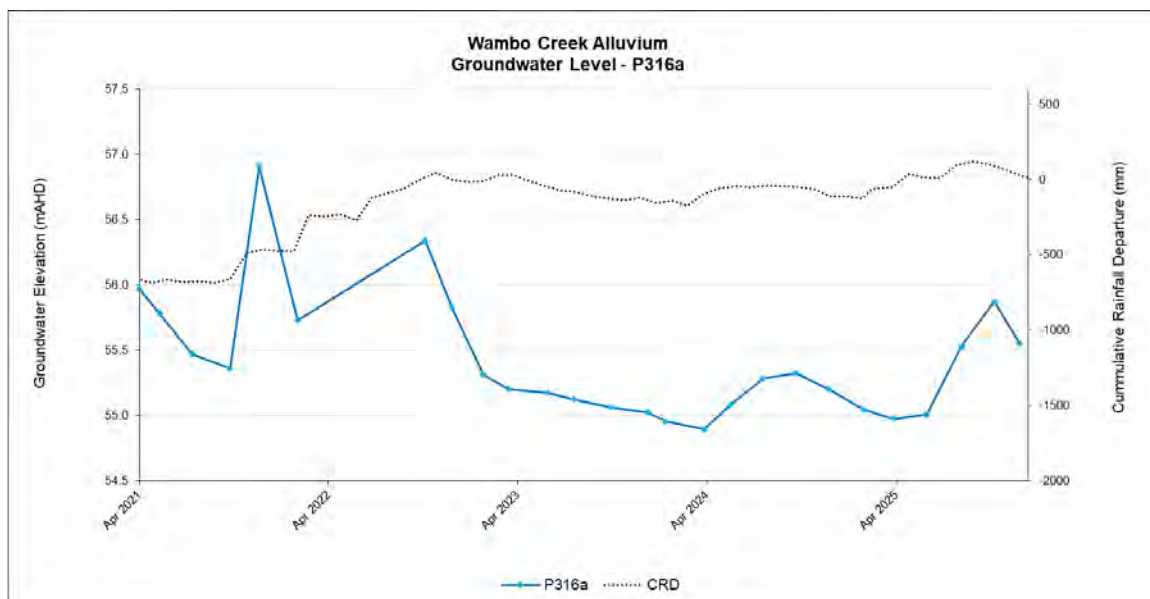
No data available for field pH

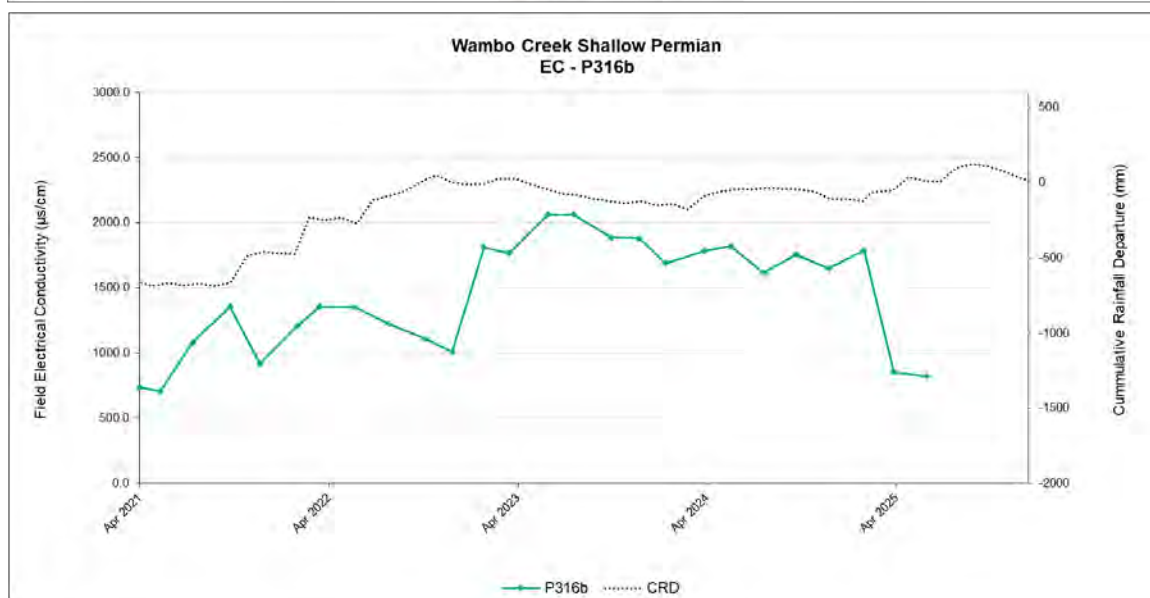
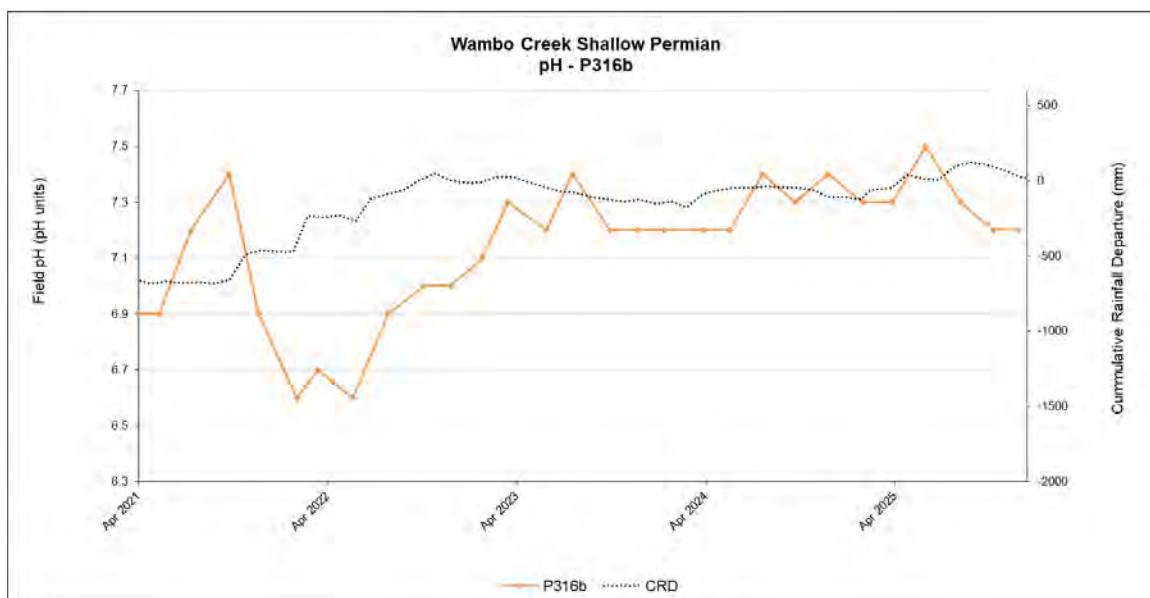
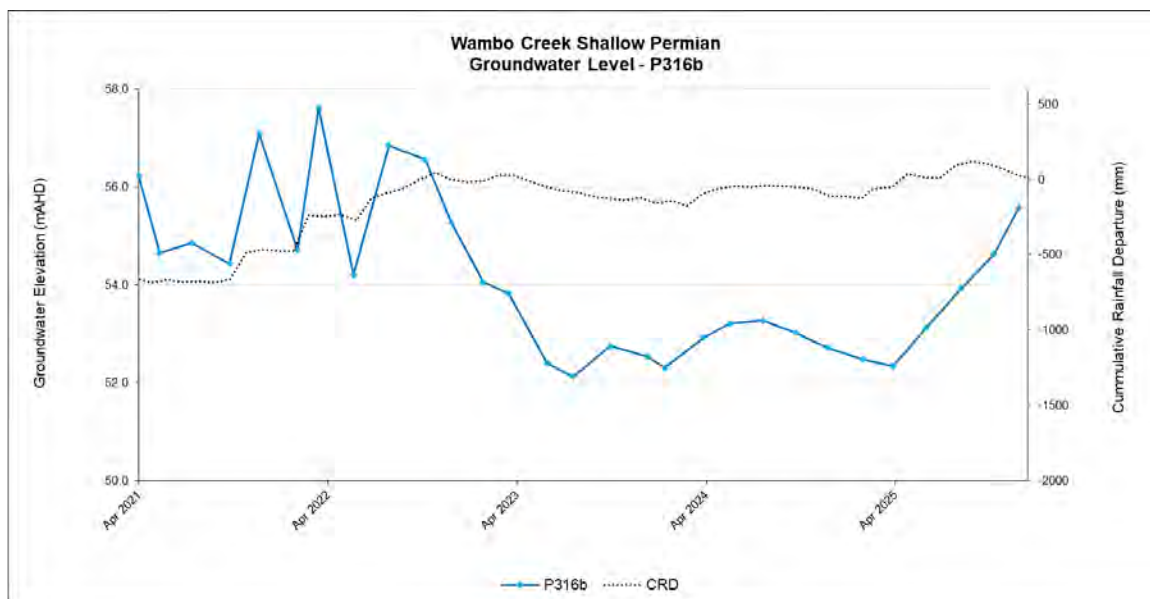
No data available for field EC

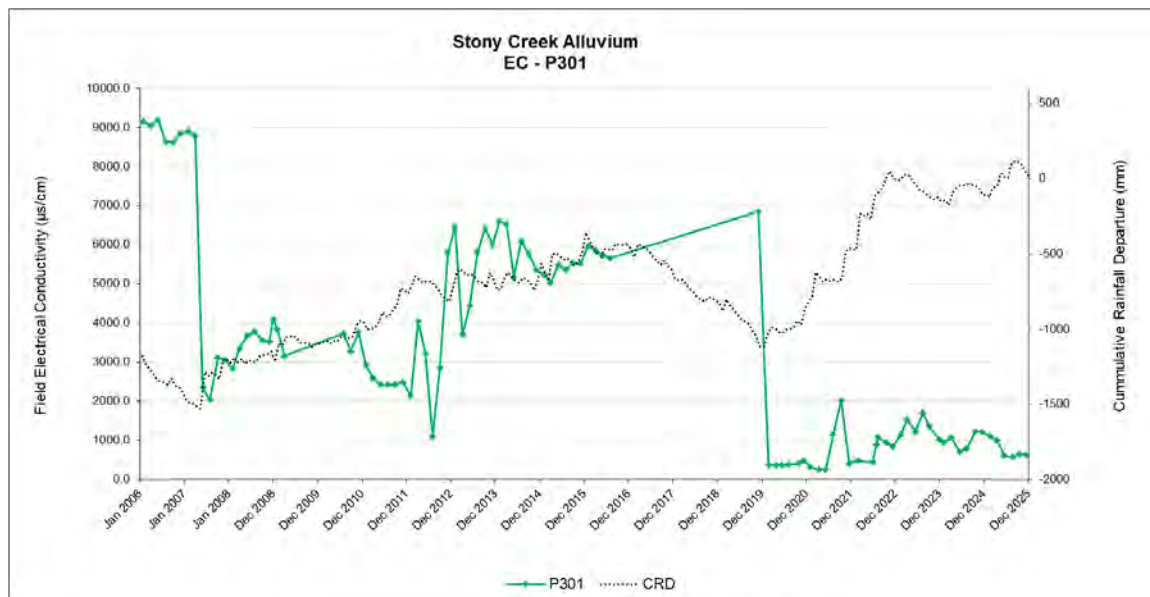
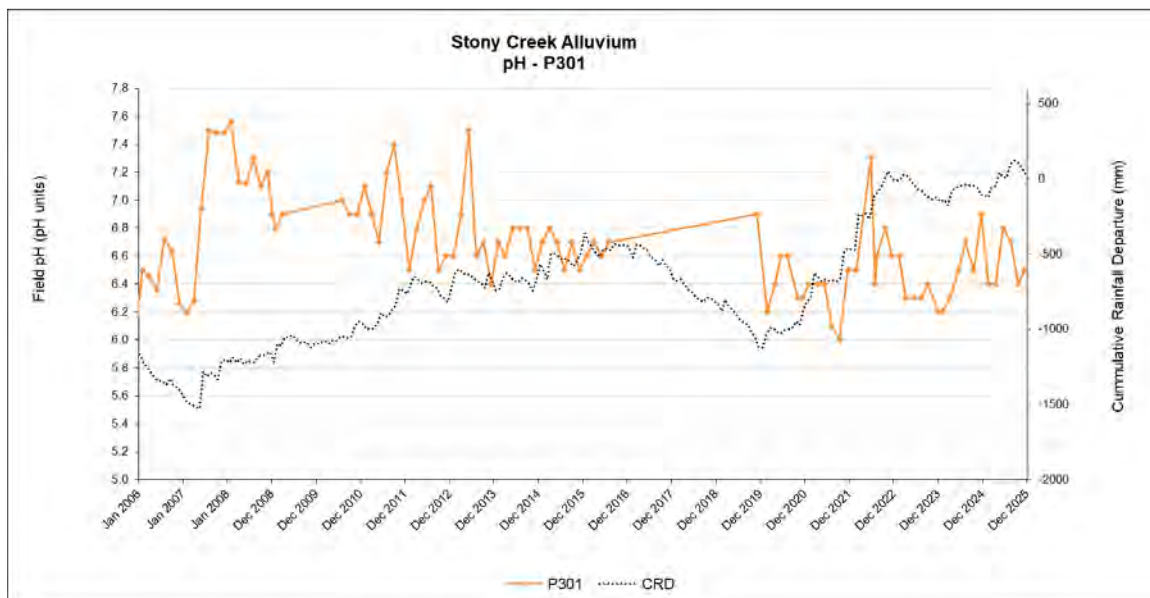
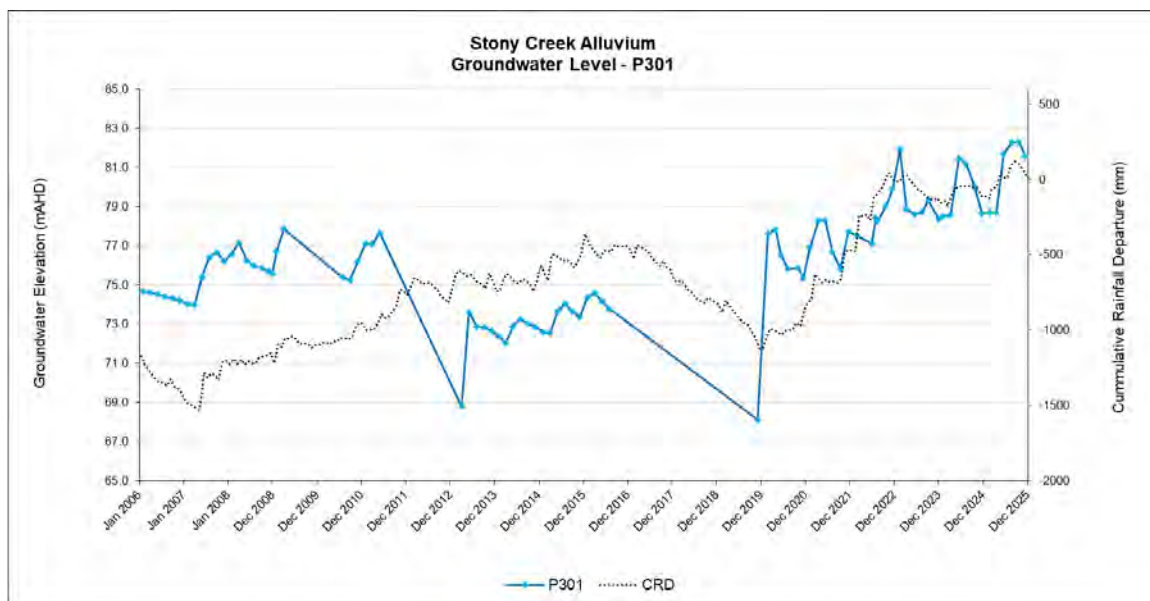


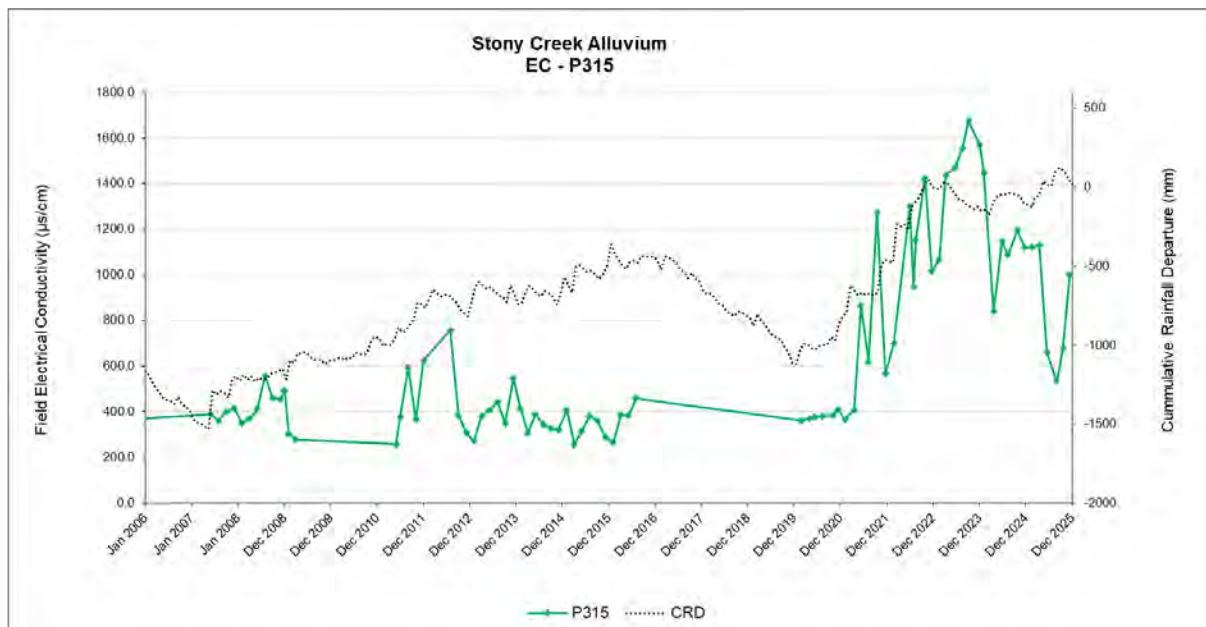
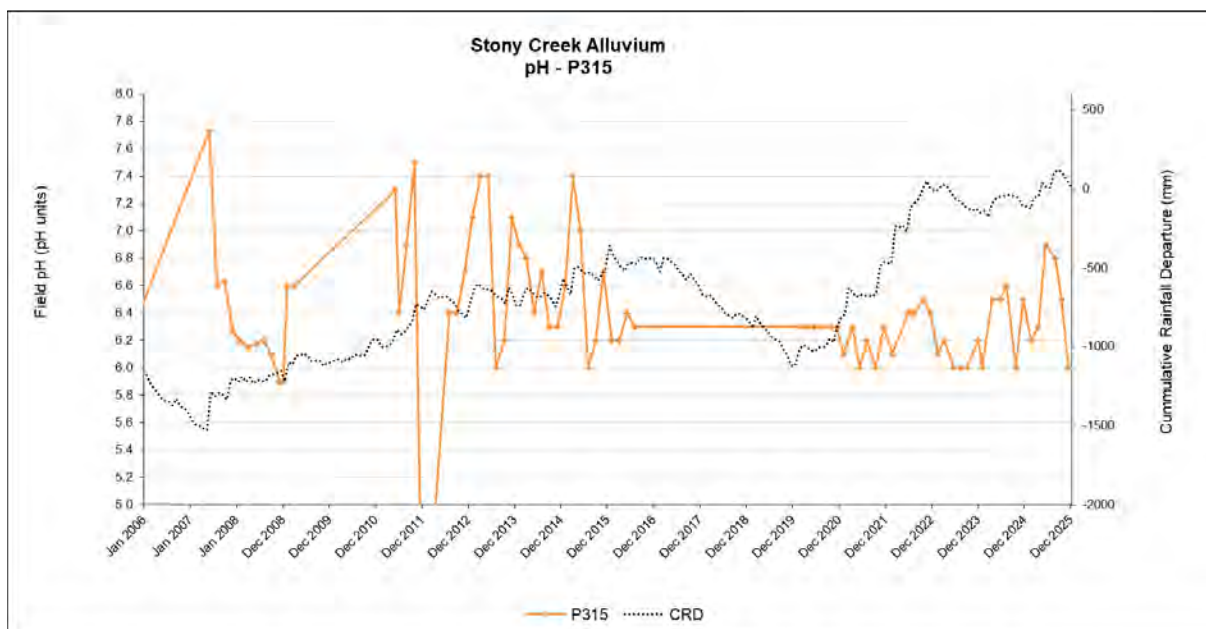
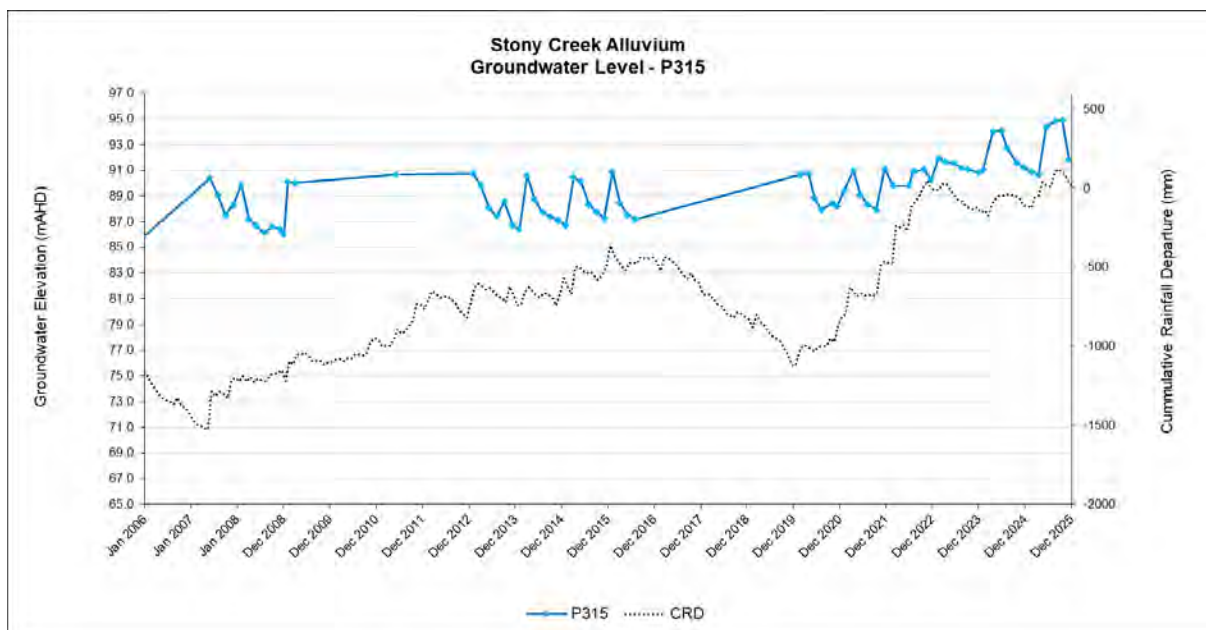


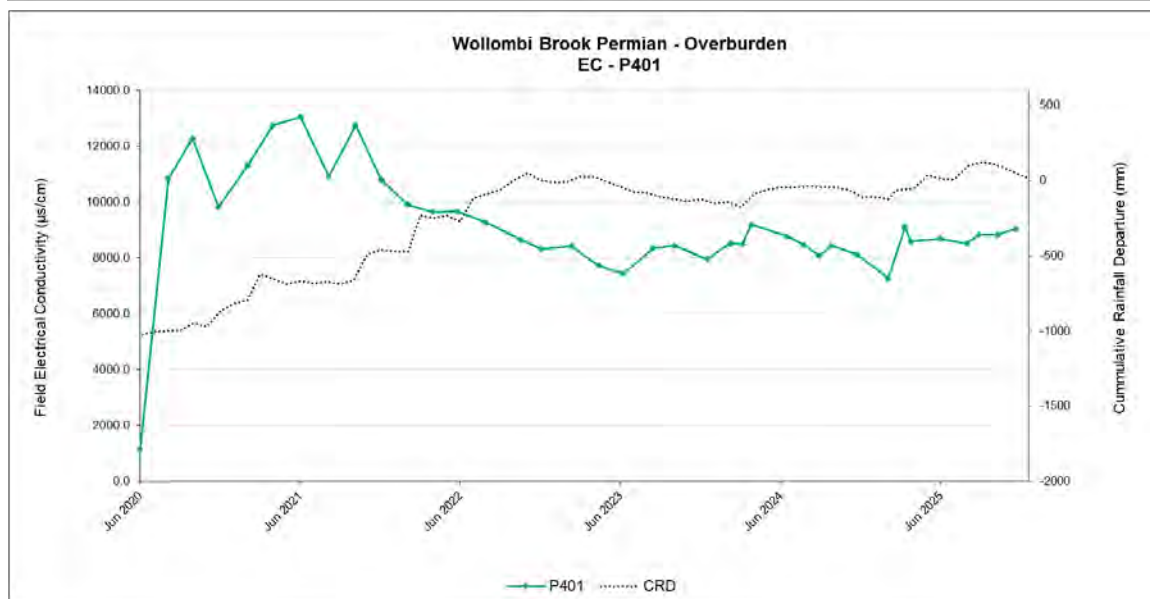
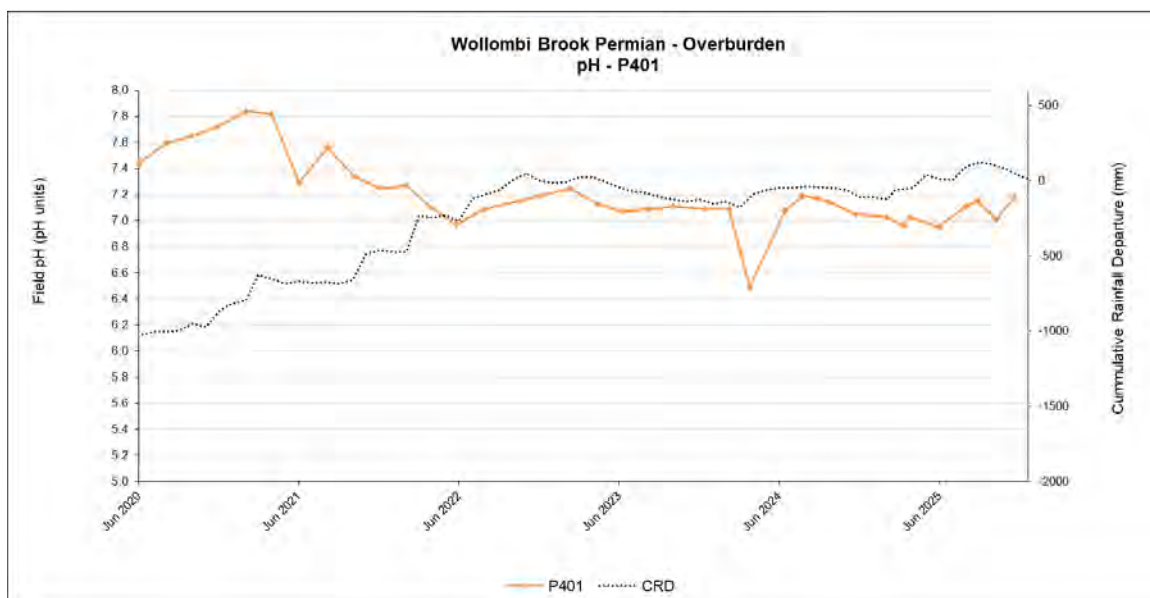
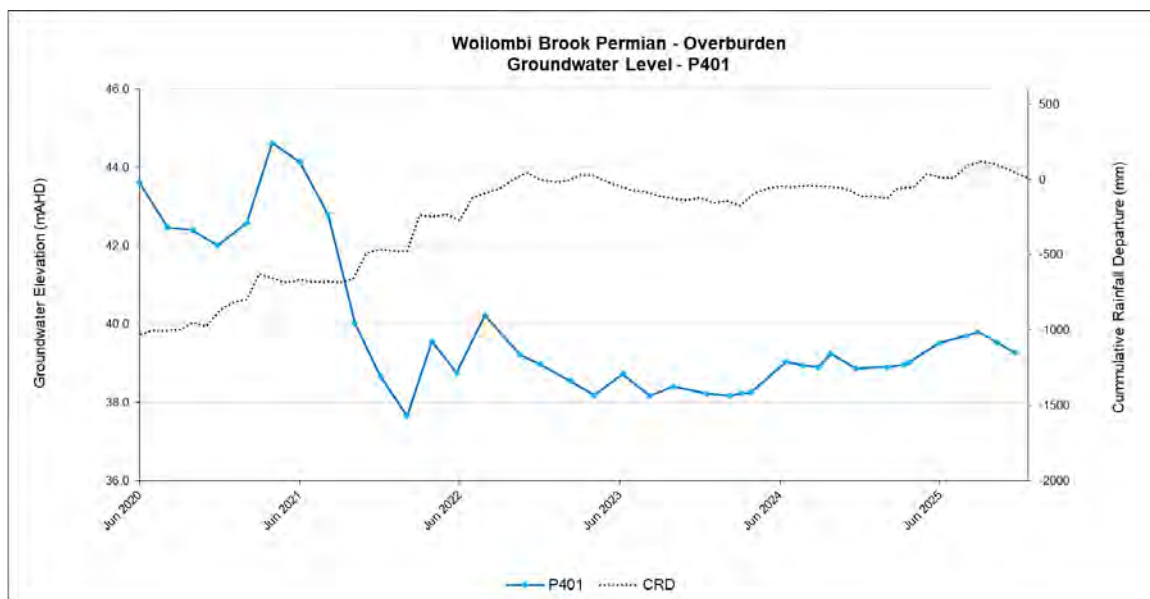


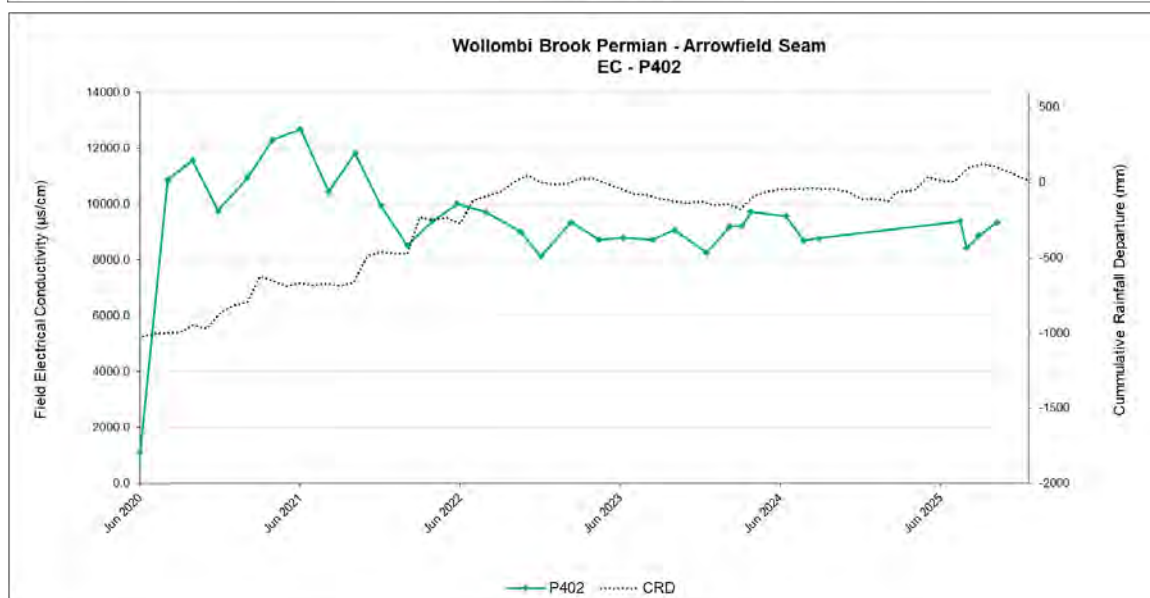
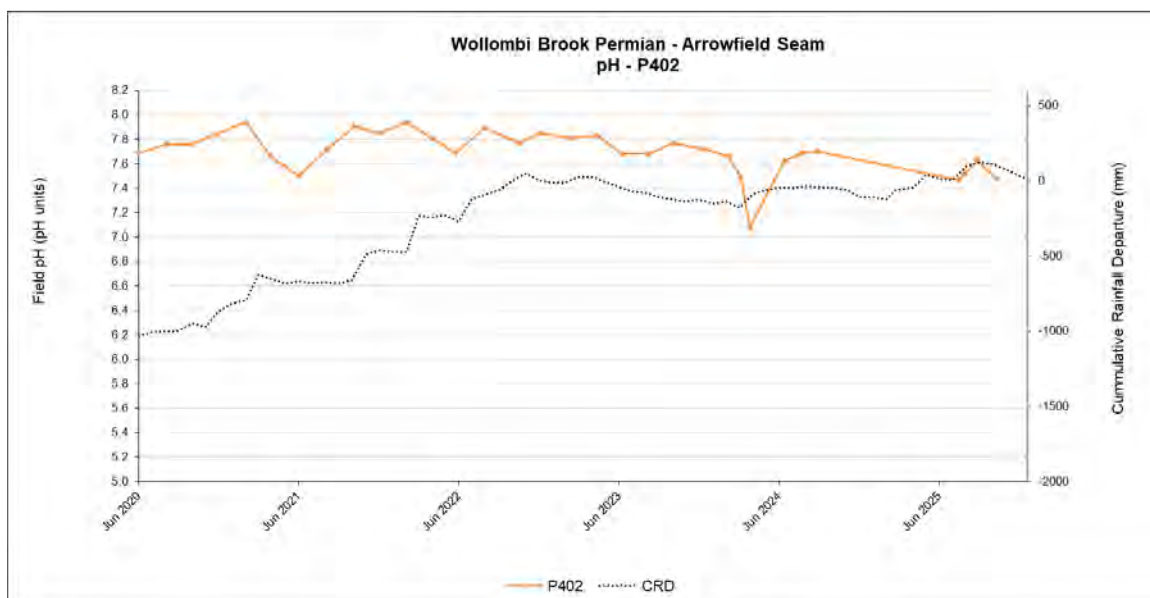
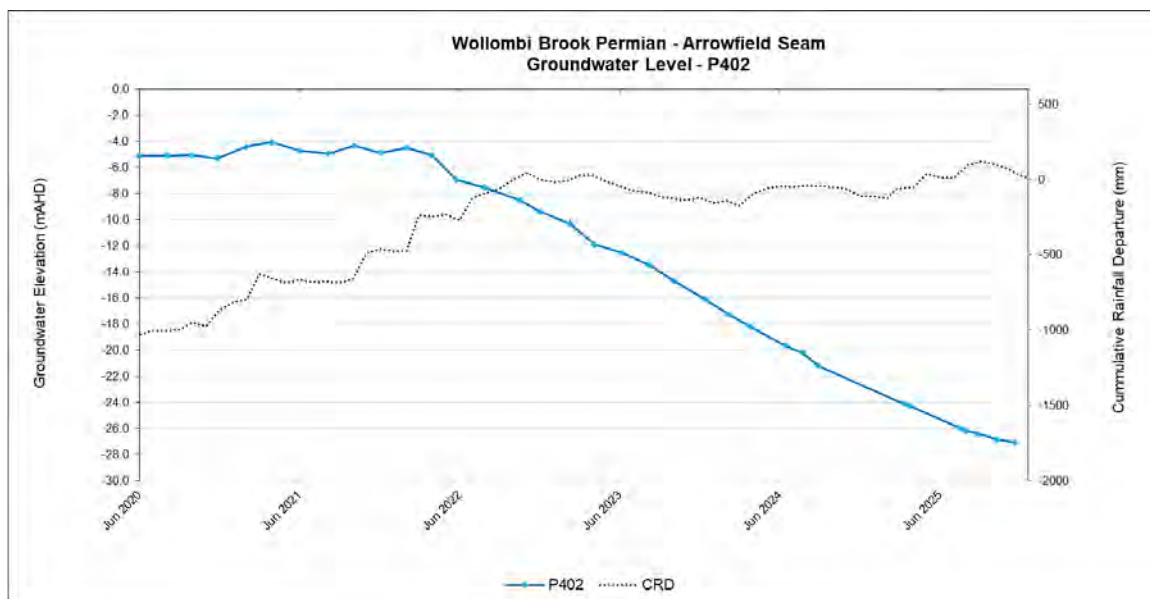


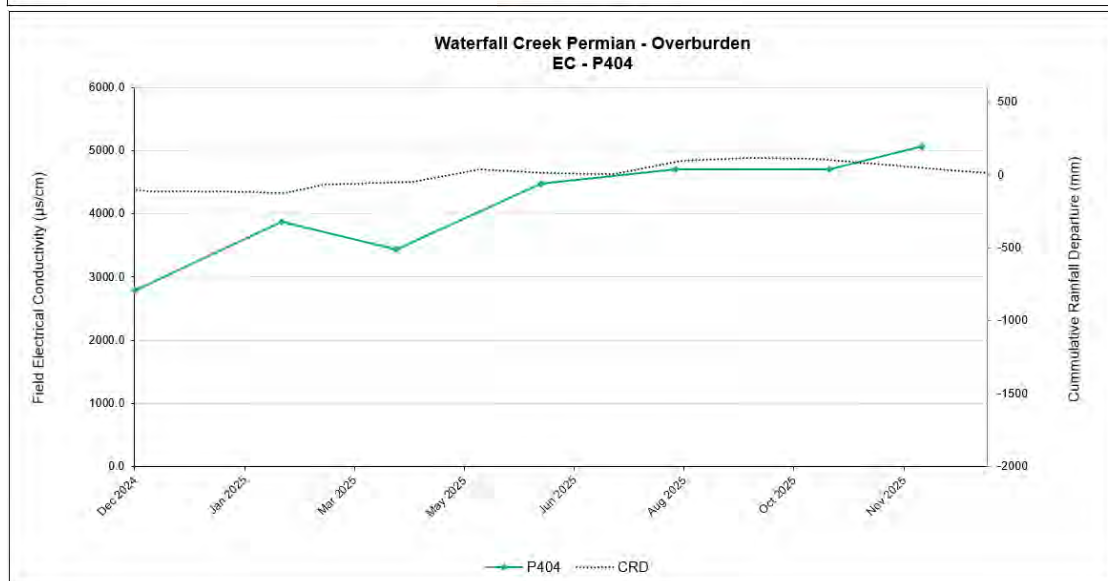
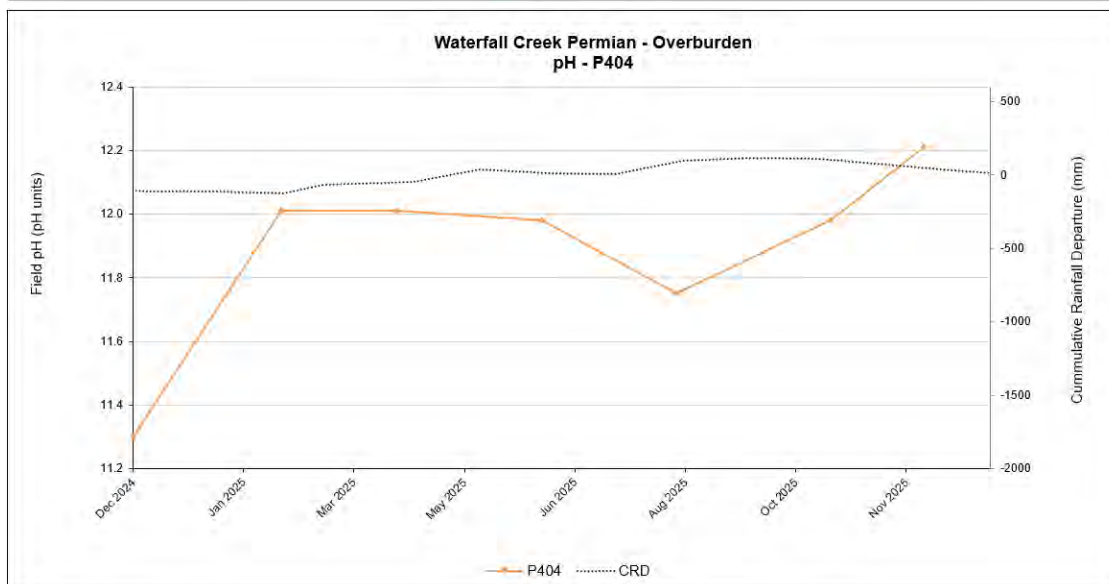
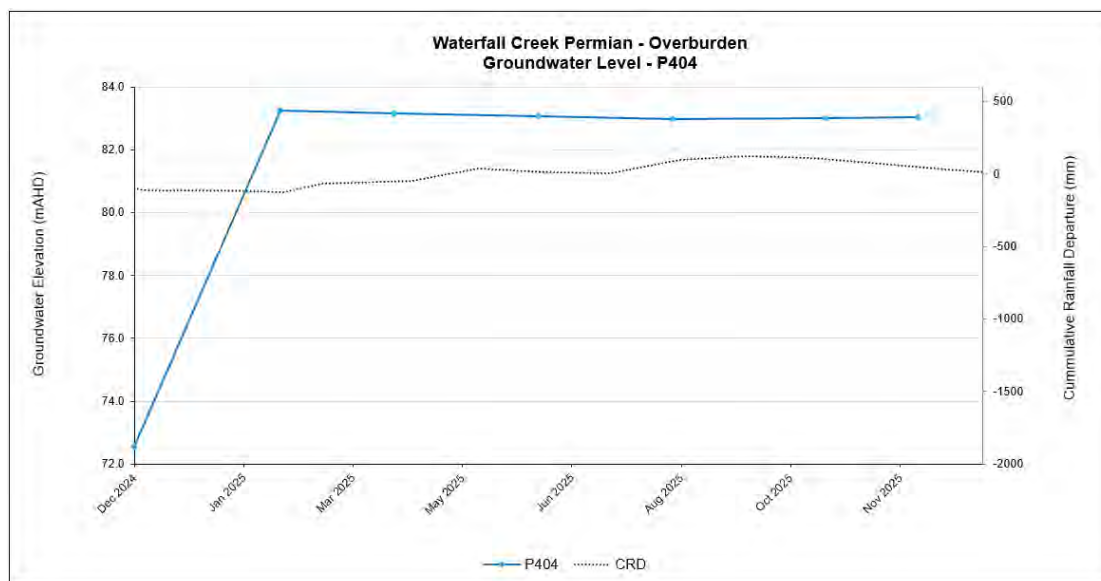


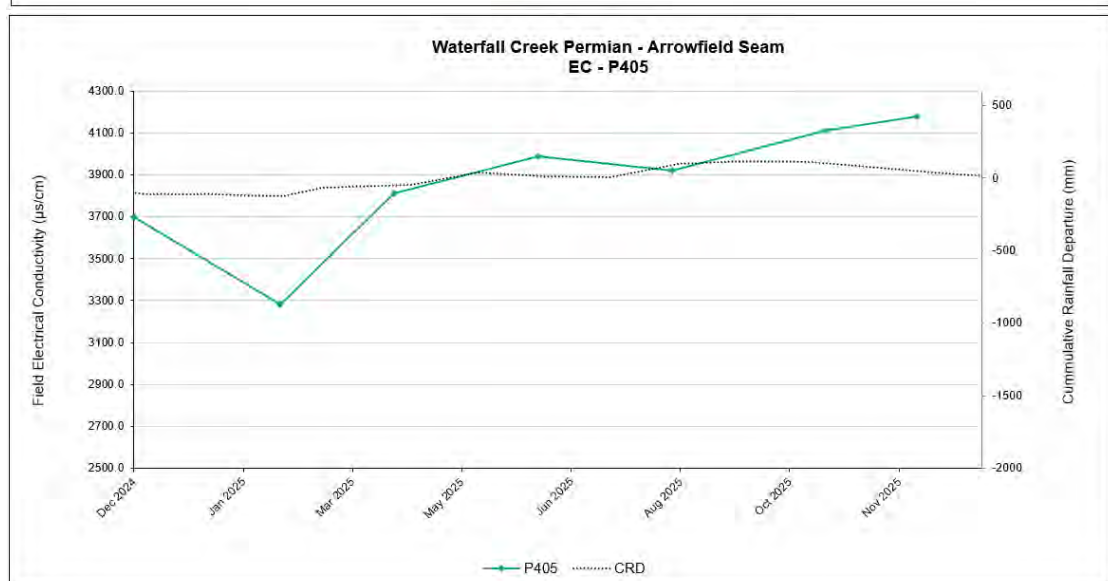
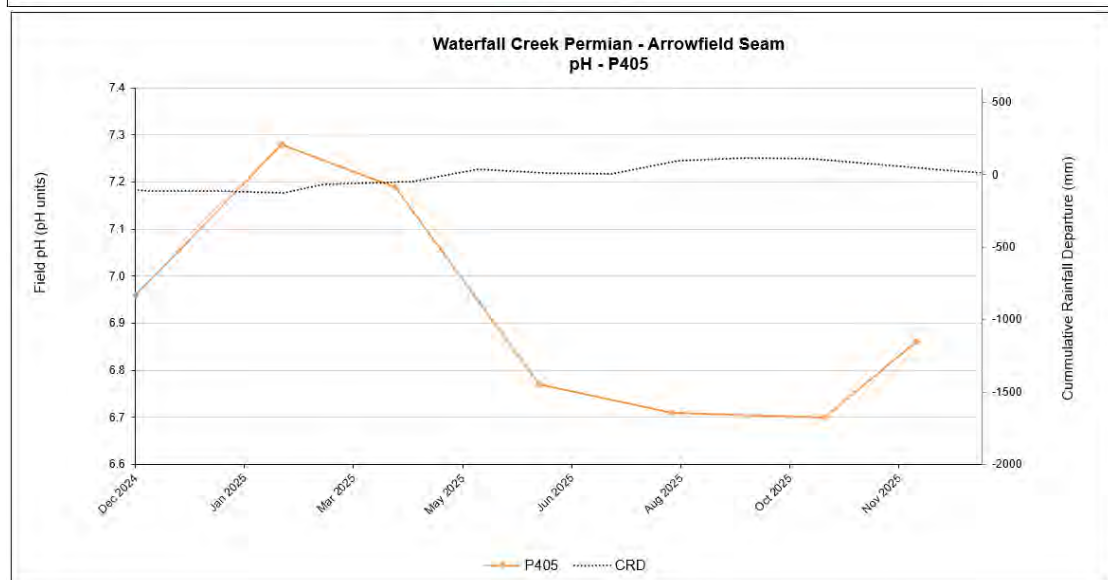
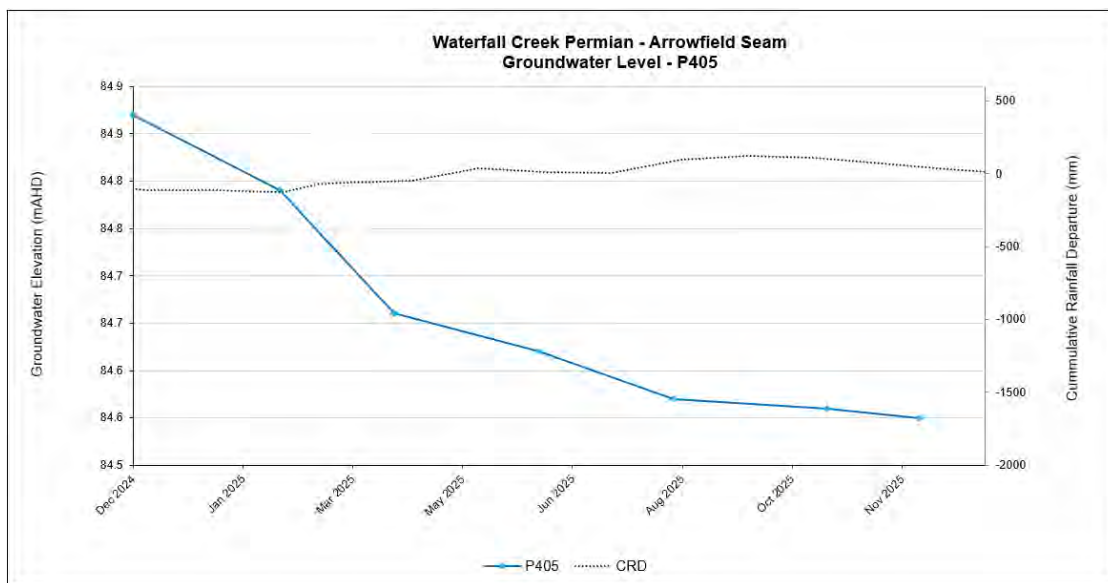


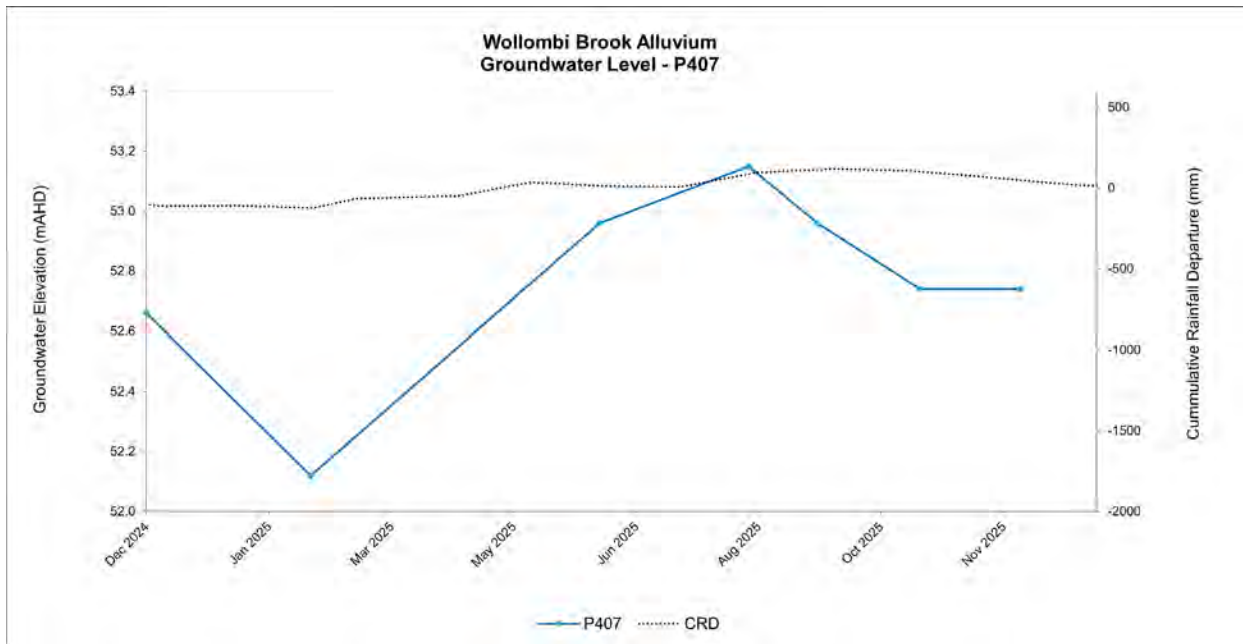






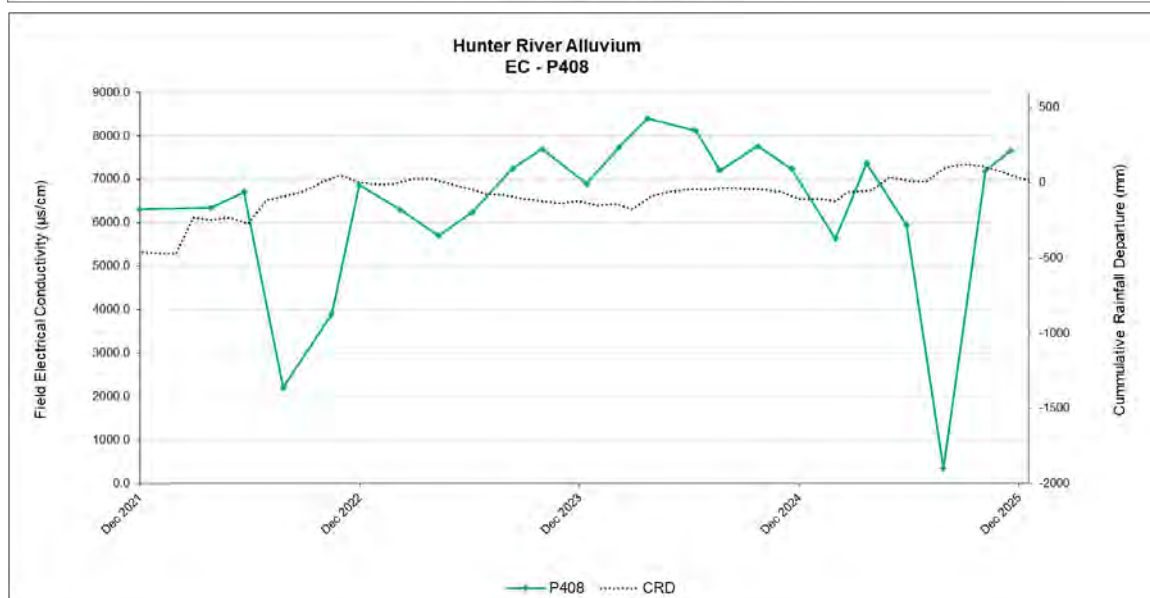
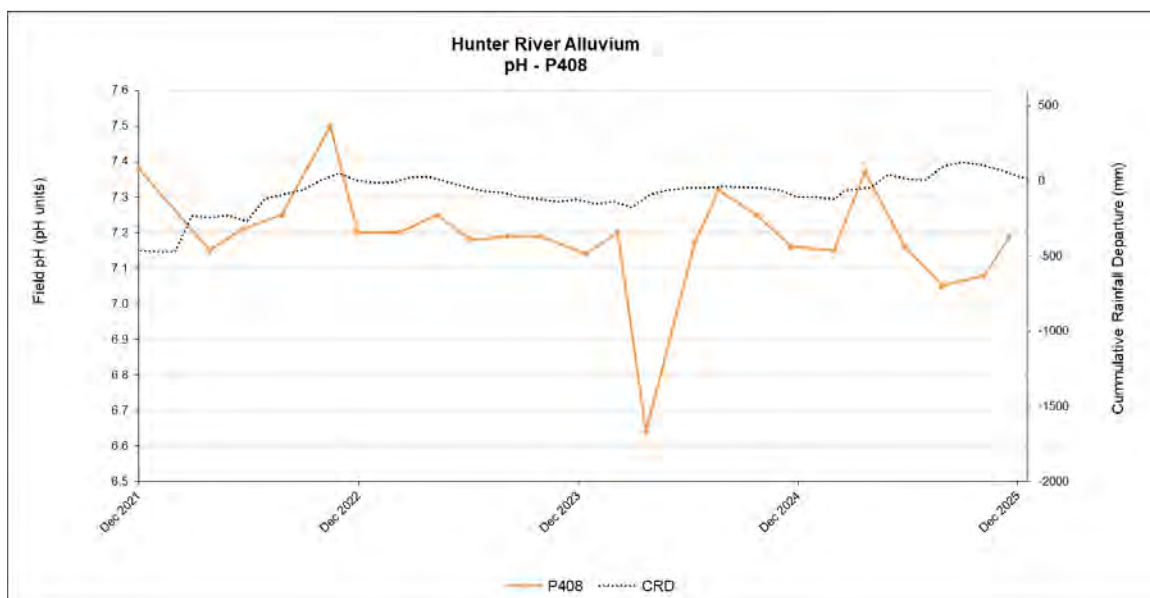
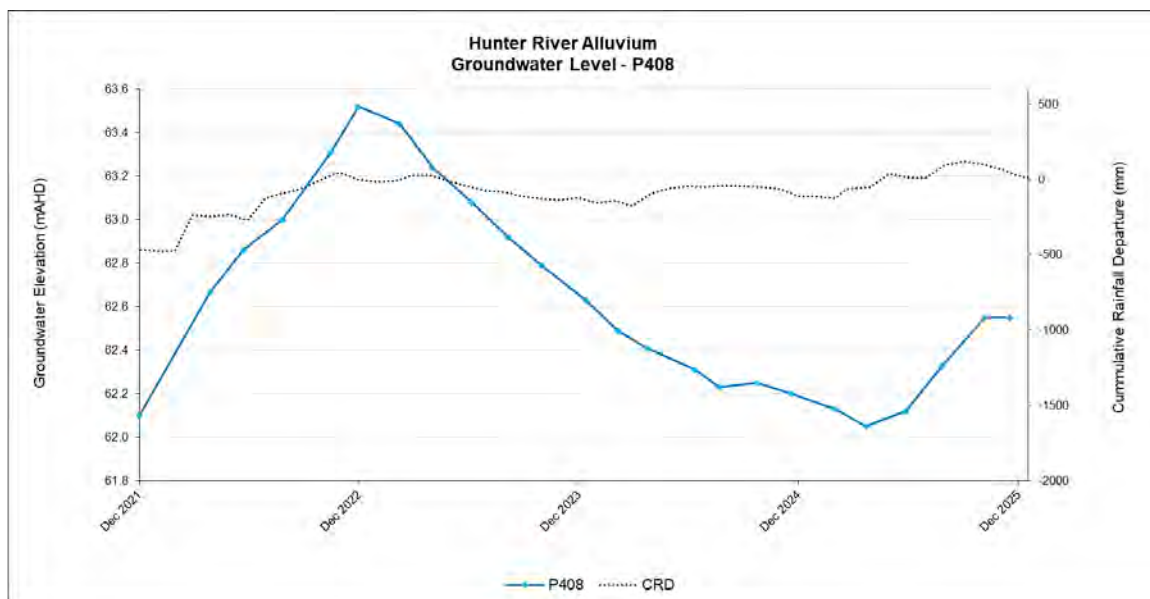






No data available for field pH

No data available for field EC



Appendix D

Groundwater Monitoring Network Review



Groundwater Monitoring Network Review

Wambo Complex

Wambo Coal Pty Ltd & United Collieries Pty Ltd

Wambo Underground Coal Mine and United Joint Venture Open Cut Mine
Watt Street, Warkworth NSW 2330, Australia

Prepared by:

SLR Consulting Australia Pty Ltd

SLR Project No.: 665.v10008.02035

18 November 2025

Revision: 1.0

Basis of Report

This report has been prepared by SLR Consulting Australia Pty Ltd (SLR) with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with Wambo Coal Pty Ltd & United Collieries Pty Ltd (the Client). Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid.

This report is for the exclusive use of the Client. No warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from SLR.

SLR disclaims any responsibility to the Client and others in respect of any matters outside the agreed scope of the work.

Table of Contents

Basis of Report	ii
Groundwater Monitoring Network Review	1

Tables

Table 1	Monitoring Program Groundwater Receptors and Water Sources.....	1
Table 2	Sampling Frequency Explanation	3
Table 3	Key to proposed changes in the monitoring network.....	3
Table 4	Proposed Monitoring Network.....	8

Figures

Figure 1	Wambo Complex Groundwater Monitoring Network	4
----------	--	---



Groundwater Monitoring Network Review

SLR was commissioned by Wambo Coal Pty Ltd to review the groundwater monitoring network at the Wambo Complex, which includes the United Wambo Joint Venture (UWJV) open cut operations and Wambo underground operations. The review has been completed by Mr Adam Skorulis who was appointed by the Department of Planning, Housing and Infrastructure (DPHI) as the groundwater expert for Wambo 27 October 2021.

The review assessed monitoring objectives, bore construction details, and the availability and reliability of collected data. It proposes a revised monitoring network and frequency suitable for current and future operations.

As Wambo underground suspended underground mining operations in September 2025, many locations are proposed to have a reduced monitoring frequency, and damaged locations or those with unreliable data are recommended for decommissioning.

Key monitoring locations: with trigger levels, locations near groundwater receptors (e.g. GDEs, alluvial water sources), or locations near current operations such as South Dam, South Bates Extension LWs24-26, or the South Wambo Boxcut (Glen Munro Pit) are recommended to maintain monitoring at the frequency previously approved in Groundwater Management Plans for both operations (GWMPs)

The review of the Wambo Complex monitoring network relating to current and future open cut operations includes recently installed standpipe and VWP monitoring locations, and the shift of certain monitoring locations formerly within the Wambo underground network to be the responsibility of UWJV.

Proposed Monitoring Network

The proposed groundwater monitoring program has been refined to ensure objectives are clear and monitoring is targeted to enable appropriate assessment of mining impacts.

To assist with assessment and reporting of results the monitoring program has been split into “groups”. These groups relate to groundwater receptors and water sources that may be impacted by Wambo Complex operations. These groups broadly align with the reporting structure of annual review and impact assessment reporting.

A brief description of the 12 groups is provided in Table 1 below.

Table 1 Monitoring Program Groundwater Receptors and Water Sources

Group	Catchment/ Watercourse	Target Lithologies	Relevant Impact (Primary)
1	Hunter River	Alluvium, Permian coal measures	Impacts from open cut mining (Wambo Open Cut)
2	Waterfall Creek	Alluvium, Permian coal measures	Impact on alluvium from underground and open cut mining (SBUE, Wambo Open Cut)
3	North Wambo Creek (upper)	Alluvium, Permian coal measures	Impact on alluvium from underground and open cut mining (SBUE, Wambo Open Cut)
4	Redbank Creek	Shallow weathered Permian coal measures	Impacts on GDEs from United open cut and historical underground mining (United Underground).



Group	Catchment/ Watercourse	Target Lithologies	Relevant Impact (Primary)
5	North Wambo Creek (mid)	Regolith, Permian coal measures	Impact from historical Complex underground mining (SBU, NWU, Wambo Open Cut).
6	Stony Creek (upper)	Alluvium/regolith, Permian coal measures	Impact on alluvium from historical underground mining (Homestead-Wollemi, NWU, SBU).
7	Wambo Creek	Alluvium, Permian coal measures	Impact on alluvium from historical underground mining (Homestead-Wollemi, NWU).
8	North Wambo Creek (lower)	Alluvium, Permian coal measures	Impact on alluvium from historical underground mining (Homestead/Wollemi, NWU, United Underground).
9	Redbank Creek	Permian coal measures	Impacts from United Open Cut
10	Wambo Creek	Alluvium/colluvium, Permian coal measures	Impacts from South Wambo Dam.
11	Wollombi Brook (North)	Alluvium, colluvium, Permian coal measures	Impacts from United Open Cut, Complex mine water storages, historical underground mining (United Underground).
12	Wollombi Brook (South)	Alluvium, regolith, Permian coal measures	Baseline monitoring for South Wambo Underground Mine.

SBU – South Bates Underground mine

SBUE – South Bates Extension Underground mine

NWU – North Wambo Underground Mine

Locations in the proposed monitoring network are displayed on Figure 1 and have been symbolised based on the 12 monitoring objective groups, and whether the monitoring location is a standpipe or VWP. Inset 1a, 1b and 1c have also been included to help identify individual locations in areas with a high density of monitoring locations.



Table 2 provides an explanation for the symbols used to indicate the proposed sampling frequency in the proposed monitoring network (Table 4). It is planned for these to be added to management plan tables as footnotes. Table 3 provides the key to colouration used in the proposed monitoring network (Table 4).

Table 2 Sampling Frequency Explanation

Symbol	Definition	Comment
A	Annual	Has historically been completed in October
2A	Bi-Annual	Suggest monitoring in Feb and Aug
3A	Tri-Annual	Suggest monitoring in Feb, June and Oct
2M	Bi-Monthly	Currently monitored Feb, Apr, Jun, Aug, Oct, Dec
M	Monthly	Monthly
+ C	with Continuous	Standpipe with datalogger installed
	Basic Water Quality	Field parameters – EC, pH
	Detailed Water Quality	Full suite analysis – metals and major ions

Table 3 Key to proposed changes in the monitoring network

Explanation	Colour
No change to monitoring program	LIGHT GREEN
Change to monitoring program	ORANGE
Site to be removed from monitoring program	PURPLE
Site to be added to monitoring program	BLUE

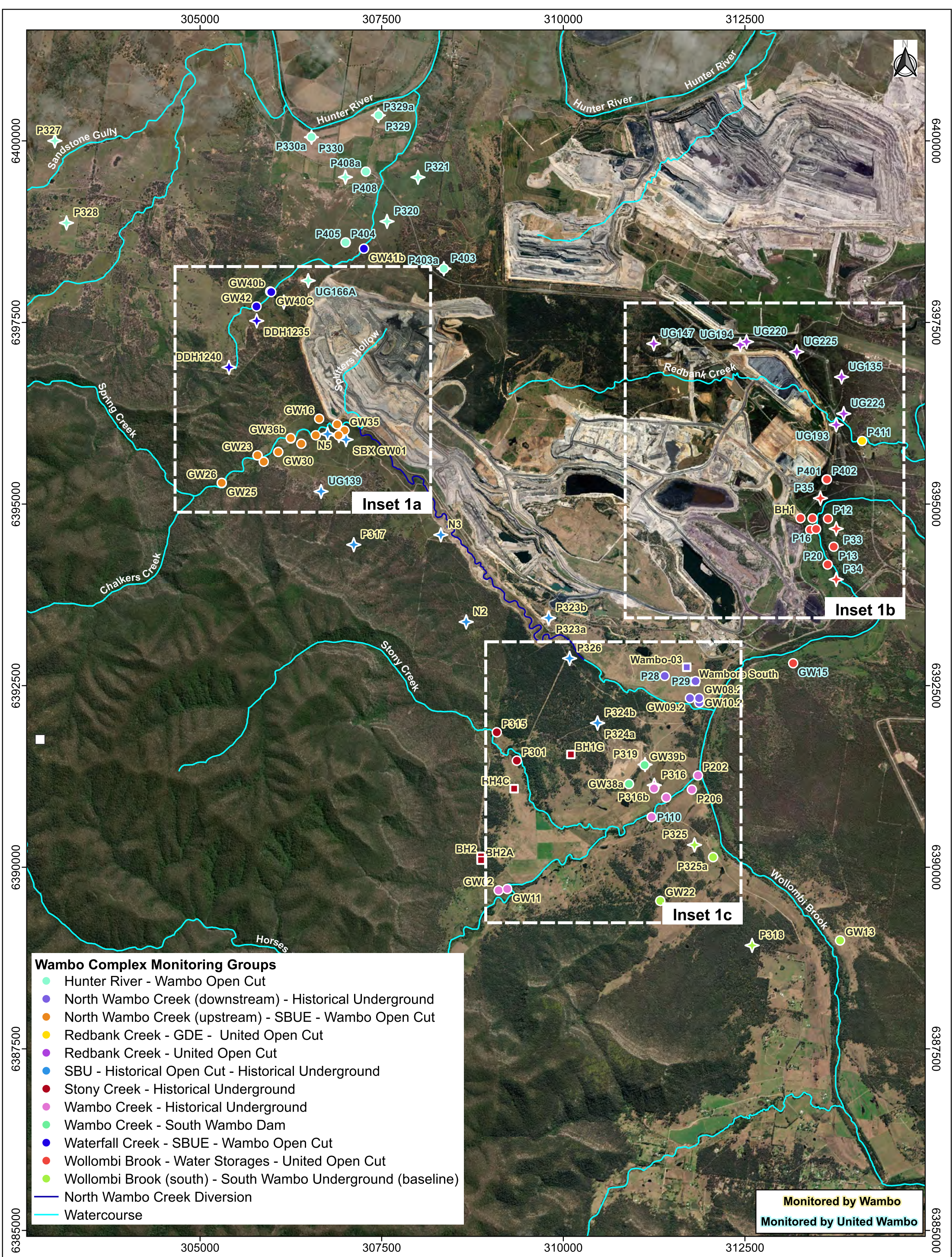
Sincerely,

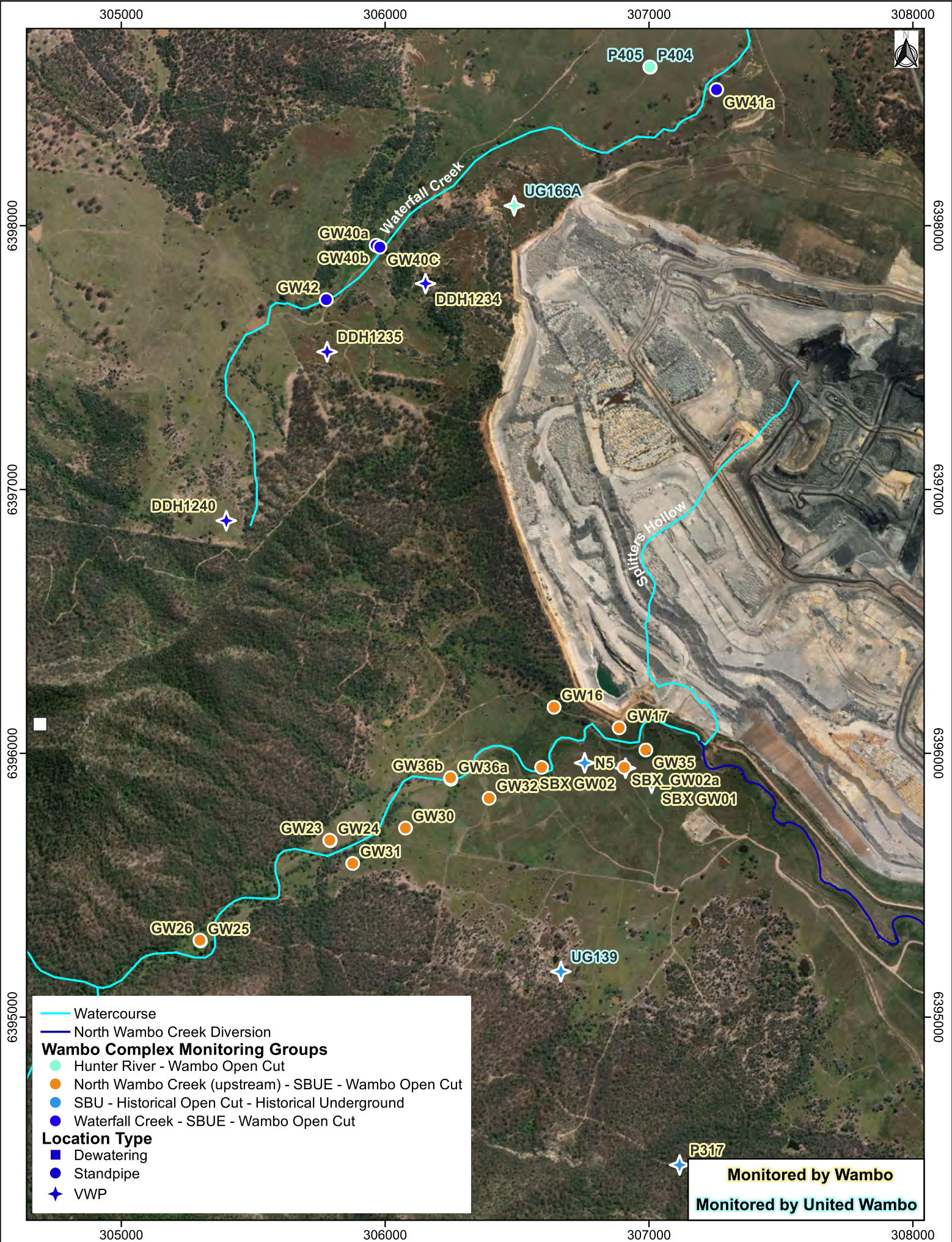
SLR Consulting Australia Pty Ltd

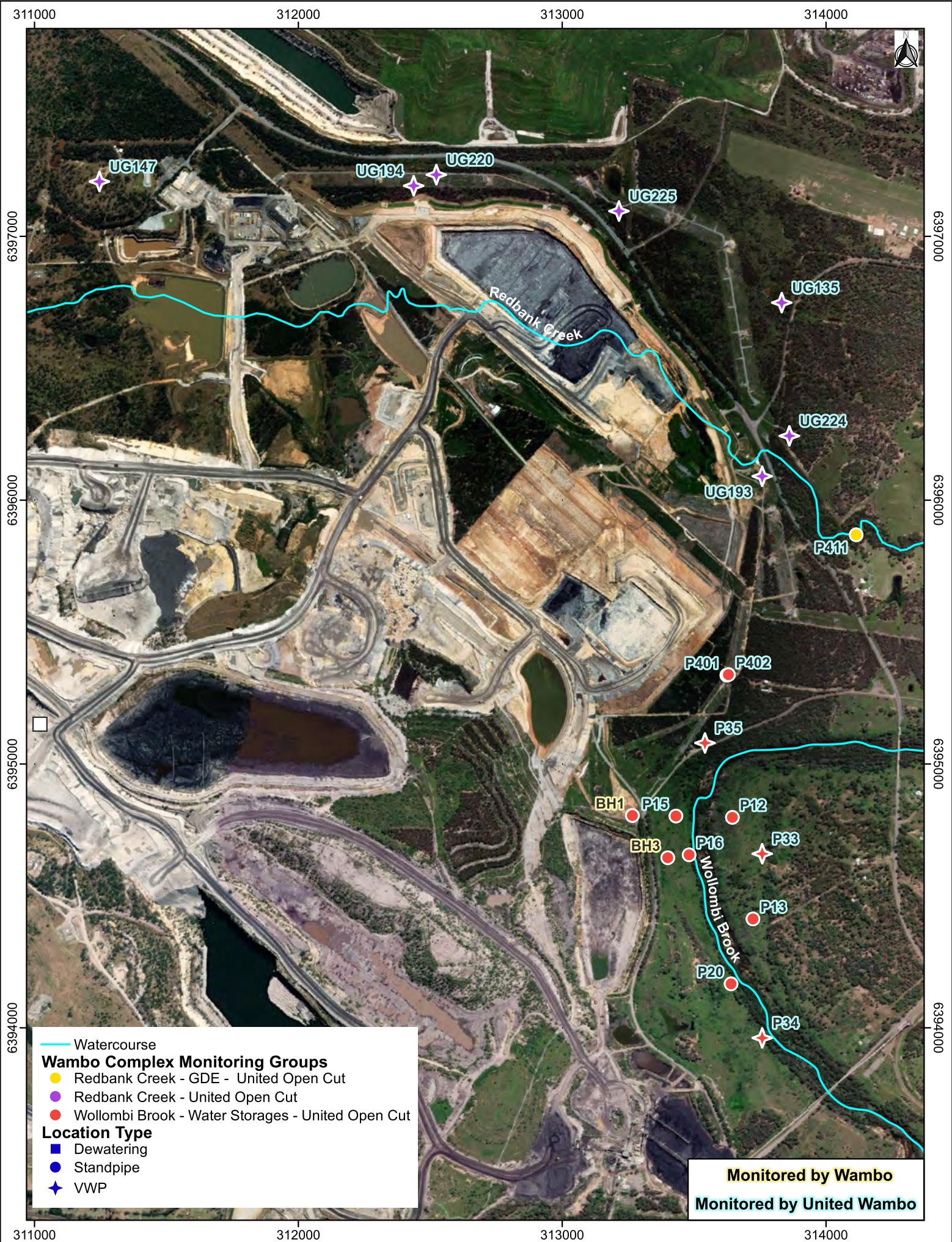


Adam Skorulis
Hydrogeologist









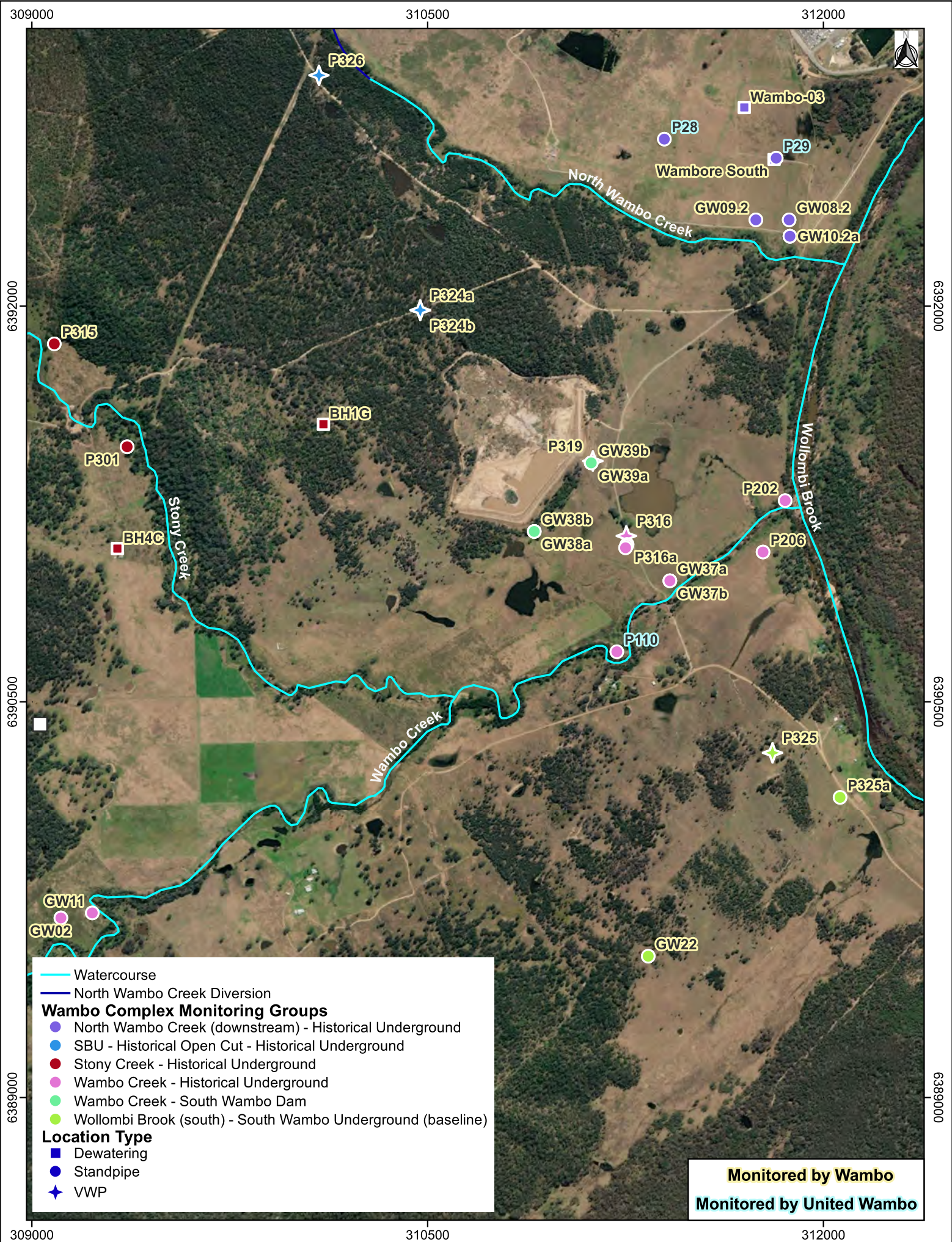


Table 4 Proposed Monitoring Network

ID	Type	Monitored By	Easting	Northing	Ground Elevation (mAHD)	Depth (m)	Lithology	Current Program	Proposed Program	Change	Comment
Group 1 - Hunter River - Wambo Open Cut											
P320	VWP	United Wambo	307574	6398891	85.86	92	Warkworth	SWL - Continuous	SWL - Continuous	No change	
						191	Vaux				
						217.5	Baywater				
						263	Pike Gully				
						305	Lower Arties				
						344	Middle Barrett				
P321	VWP	United Wambo	308000	6399499	110.39	31.8	Arrowfield	SWL - Continuous	SWL - Continuous	No change	
						72.1	Warkworth				
						161.15	Vaux				
						187.82	Bayswater				
P327	VWP	Wambo	303001	6400001	141.25	65.25	Overburden	SWL - Continuous	SWL - Continuous	No change	
						228.25	Whybrow Seam				
						301.05	Wambo Seam				
						332.45	Whynot Seam				
P328	VWP	Wambo	303161	6398871	131.89	43	Overburden	SWL - Continuous	SWL - Continuous	No change	
						275	Whybrow Seam				
						350	Wambo Seam				
						388	Whynot Seam				
P329 (P409)	VWP	United Wambo	307455	6400352	72.42	67.6	Vaux Seam 1	SWL - Continuous	SWL - Continuous	No change	Going forward this site will be known as P329. A notation will be added to the UWJV GWMP Monitoring Table.
						87.4	Vaux Seam 2/3				
						117.5	Bayswater Seam				
						150.5	Pikes Gully Seam				
P330 (P410)	VWP	United Wambo	306534	6400051	73.62	67	Vaux Seam 1	SWL - Continuous	SWL - Continuous	No change	Going forward this site will be known as P330. A notation will be added to the UWJV GWMP Monitoring Table.
						137.25	Bayswater Seam				
						201.5	Pikes Gully Seam				
P408	VWP	United Wambo	307001	6399501	74.62	138.75	Vaux Seam	SWL - Continuous	SWL - Continuous	No change	
						187	Bayswater Seam				
						223.75	Pikes Gully Seam				
UG166A	VWP		306489	6398076	141.45	130	Unnamed D	SWL - Continuous		No change	



ID	Type	Monitored By	Easting	Northing	Ground Elevation (mAHD)	Depth (m)	Lithology	Current Program	Proposed Program	Change	Comment
		United Wambo				153	Unnamed E		SWL - Continuous		
						183	Blakefield				
						200	Glen Munro				
						238	Arrowfield				
						254	Bowfield				
						260	Bowfield				
P404	Standpipe	United Wambo	307005	6398601	96.87	40	Overburden	SWL – 2M Basic WQ – 2M Detailed WQ - A	SWL – 2M Basic WQ – 2M Detailed WQ - A	No change	
P405	Standpipe	United Wambo	307003	6398602	96.97	110	Arrowfield Seam	SWL – 2M Basic WQ – 2M Detailed WQ - A	SWL – 2M Basic WQ – 2M Detailed WQ - A	No change	
P408a	Standpipe	United Wambo	307283	6399577	75.35	15	Hunter River Alluvium	SWL – 2M Basic WQ – 2M Detailed WQ - A	SWL – 2M Basic WQ – 2M Detailed WQ - A	No change	
P329a (P409a)	Standpipe	United Wambo	307457	6400353	72.42	16	Hunter River Alluvium	SWL – 2M Basic WQ – 2M Detailed WQ - A	SWL - 3A Basic WQ – 3A Detailed WQ - A	SWL and Basic WQ frequency reduced from 2M to 3A Detailed WQ – no change	Going forward this site will be known as P329a. A notation will be added to the UWJV GWMP Monitoring Table. Monitoring frequency reduced as P408a is nearer Wambo Open Cut. Frequency could be increased if impacts are observed at P408a.
P330a (P410a)	Standpipe	United Wambo	306534	6400053	73.62	13	Hunter River Alluvium	SWL – 2M Basic WQ – 2M Detailed WQ - A	SWL - 3A Basic WQ – 3A Detailed WQ - A	SWL and Basic WQ frequency reduced from 2M to 3A	Going forward this site will be known as P330a. A notation will be added to the UWJV GWMP Monitoring Table. Monitoring frequency reduced as P408a is



ID	Type	Monitored By	Easting	Northing	Ground Elevation (mAHD)	Depth (m)	Lithology	Current Program	Proposed Program	Change	Comment
										Detailed WQ – no change	nearer Wambo Open Cut. Frequency could be increased if impacts are observed at P408a.
P403 (proposed)	VWP	United Wambo	308356	6398241	TBC	~30	Overburden	Not currently monitored	SWL - Continuous	New VWP being added to network – Dec 25	P403 was proposed to be drilled immediately adjacent Wambo Open Cut. Due to constraints on location, P403 is now being installed on HVO land to the NW of Wambo Open Cut.
						~125	Arrowfield Seam				
						~205	Warkworth Seam				
						~260	Vaux Seam				
P406/P403a (proposed)	Standpipe	United Wambo	308356	6398241	TBC	~30m	Overburden	Not currently monitored	SWL – 2M Basic WQ – 2M Detailed WQ - A	New monitoring bore being added to network - 2026	P406 was proposed to be a VWP in overburden, near P320. There are already monitoring bores in overburden in this area. New standpipe monitoring bore in overburden to be drilled adjacent new VWP (P403) – will be known as P403a.
Group 2 - Waterfall Creek - South Bates Extension Underground, Wambo Open Cut											
DDH1234	VWP	Wambo	306153	6397781	157.16	22	Weathered Sandstone	SWL - Continuous	SWL - Continuous	No change	
						39	Siltstone				
						54	Siltstone (5 m above WWA)				
DDH1235	VWP	Wambo	305780	6397522	167.04	40	Sandstone	SWL - Continuous	SWL - Continuous	No change	
						80	Siltstone				
						114	Whybrow Seam				
DDH1240	VWP	Wambo	305398	6396882	244.83	50	Narrabeen Group	SWL - Continuous	SWL - Continuous	No change	
						118	Overburden 1				
						218.5	Overburden 2				
						260.5	Whybrow seam				
GW40a	Standpipe	Wambo	305966	6397926	128.51	27	Waterfall Creek Alluvium	SWL – 2M Basic WQ – 2M Detailed WQ - A	SWL – 2M Basic WQ – 2M	No change	



ID	Type	Monitored By	Easting	Northing	Ground Elevation (mAHD)	Depth (m)	Lithology	Current Program	Proposed Program	Change	Comment
									Detailed WQ - A		
GW40b	Standpipe	Wambo	305966	6397926	128.51	35.75	Weathered Permian	SWL – 2M Basic WQ – 2M Detailed WQ - A	SWL – 2M Basic WQ – 2M Detailed WQ - A	No change	
GW40C	Standpipe	Wambo	305980	6397919	128.74	4.5	Waterfall Creek Alluvium	SWL – 2M + C Basic WQ – 2M Detailed WQ - A	SWL – 2M + C Basic WQ – 2M Detailed WQ - A	No change	
GW41a	Standpipe	Wambo	307256	6398516	91.61	10	Waterfall Creek Alluvium	SWL – 2M Basic WQ – 2M Detailed WQ - A	SWL – 2M Basic WQ – 2M Detailed WQ - A	No change	
GW41b	Standpipe	Wambo	307256	6398516	91.65	20	Weathered Permian	SWL – 2M Basic WQ – 2M Detailed WQ - A	SWL – 2M Basic WQ – 2M Detailed WQ - A	No change	
GW42	Standpipe	Wambo	305777	6397720	136.82	6	Waterfall Creek Alluvium	SWL – 2M + C Basic WQ – 2M Detailed WQ - A	SWL – 2M + C Basic WQ – 2M Detailed WQ - A	No change	
Group 3 - North Wambo Creek Alluvium (upstream) - South Bates Extension Underground, Historical Wambo Open Cut											
GW24	Standpipe	Wambo	305792	6395669	118.8	8.2	North Wambo Creek – Consolidated Bedrock	SWL – 2M + C Basic WQ – 2M Detailed WQ - A	SWL – 2M + C Basic WQ – 2M Detailed WQ - A	No change	
GW30	Standpipe	Wambo	306077	6395717	114.97	8.5	North Wambo Creek - Alluvium	SWL – 2M Basic WQ – 2M Detailed WQ - A	SWL – 2M Basic WQ – 2M	No change	



ID	Type	Monitored By	Easting	Northing	Ground Elevation (mAHD)	Depth (m)	Lithology	Current Program	Proposed Program	Change	Comment
									Detailed WQ - A		
GW31	Standpipe	Wambo	305877	6395583	122.12	10	North Wambo Creek - Alluvium	SWL – 2M Basic WQ – 2M Detailed WQ - A	SWL – 2M Basic WQ – 2M Detailed WQ - A	No change	
GW32	Standpipe	Wambo	306394	6395830	115.05	7	North Wambo Creek - Alluvium	SWL – 2M Basic WQ – 2M Detailed WQ - A	SWL – 2M Basic WQ – 2M Detailed WQ - A	No change	
GW33	Standpipe	Wambo	306593	6395947	110	7	North Wambo Creek - Alluvium	SWL – 2M Basic WQ – 2M Detailed WQ - A	SWL – 2M Basic WQ – 2M Detailed WQ - A	No change	
GW35	Standpipe	Wambo	306988	6396013	108.01	9	North Wambo Creek – Alluvium (In Channel)	SWL – 2M + C Basic WQ – 2M Detailed WQ - A	SWL – 2M + C Basic WQ – 2M Detailed WQ - A	No change	
GW36a	Standpipe	Wambo	306249	6395902	113.95	7.9	North Wambo Creek – Alluvium (In Channel)	SWL – 2M + C Basic WQ – 2M Detailed WQ - A	SWL – 2M + C Basic WQ – 2M Detailed WQ - A	No change	
GW36b	Standpipe	Wambo	306248	6395908	113.70	16.4	Weathered Sandstone (In Channel)	SWL – 2M + C Basic WQ – 2M Detailed WQ - A	SWL – 2M + C Basic WQ – 2M Detailed WQ - A	No change	
GW16	Standpipe	Wambo	306640	6396175	113.18	12.15	Alluvium and Regolith	SWL – 2M Basic WQ – 2M Detailed WQ - A	SWL - 3A Basic WQ – 3A Detailed WQ – A Stygo - A	SWL and Basic WQ frequency reduced from 2M to 3A	Reduce monitoring frequency due to suspension of underground mining. Monitoring frequency will be reconsidered



ID	Type	Monitored By	Easting	Northing	Ground Elevation (mAHD)	Depth (m)	Lithology	Current Program	Proposed Program	Change	Comment
										Detailed WQ – no change Stygo added to program – annually for 3 years (then review)	prior to recommencement of underground mining operations. Stygo - Recommendation from 2025 monitoring round
GW17	Standpipe	Wambo	306887	6396097	111.34	14	Regolith	SWL – 2M Basic WQ – 2M Detailed WQ - A	SWL - 3A Basic WQ – 3A Detailed WQ – A	SWL and Basic WQ frequency reduced from 2M to 3A Detailed WQ – no change	Reduce monitoring frequency due to suspension of underground mining. Monitoring frequency will be reconsidered prior to recommencement of underground mining operations.
GW23	Standpipe	Wambo	305790	6395671	118.8	13.2	North Wambo Creek Alluvium	SWL – 2M + C Basic WQ – 2M Detailed WQ - A	SWL – 2M + C Basic WQ – 2M Detailed WQ - A Stygo - A	Stygo added to program – annually for 3 years (then review) SWL & WQ – no change	Stygo - Recommendation from 2025 monitoring round. No other changes
GW25	Standpipe	Wambo	305300	6395289	129.4	13.2	North Wambo Creek Alluvium	SWL – 2M Basic WQ – 2M Detailed WQ - A	SWL - 3A Basic WQ – 3A Detailed WQ – A	SWL and Basic WQ frequency reduced from 2M to 3A Detailed WQ – no change	Reduce monitoring frequency due to suspension of underground mining. Monitoring frequency will be reconsidered prior to recommencement of underground mining operations.
GW26	Standpipe	Wambo	305298	6395292	129.6	5.6	North Wambo Creek – Consolidated Bedrock	SWL – 2M Basic WQ – 2M Detailed WQ - A	SWL - 3A Basic WQ – 3A Detailed WQ – A	SWL and Basic WQ frequency reduced from 2M to 3A Detailed WQ – no change	Reduce monitoring frequency due to suspension of underground mining. Monitoring frequency will be reconsidered prior to recommencement of



ID	Type	Monitored By	Easting	Northing	Ground Elevation (mAHD)	Depth (m)	Lithology	Current Program	Proposed Program	Change	Comment
											underground mining operations.
SBX_GW02a	Standpipe	Wambo	306906	6395947	108.92	20	Permian (~20M deep)	SWL – 2M Basic WQ – 2M Detailed WQ - A	SWL - 3A Basic WQ – 3A Detailed WQ – A	SWL and Basic WQ frequency reduced from 2M to 3A Detailed WQ – no change	Reduce monitoring frequency due to suspension of underground mining. Monitoring frequency will be reconsidered prior to recommencement of underground mining operations.
GW34	Standpipe	Wambo	307358	6395780	104.23	4	North Wambo Creek – Alluvium	SWL – 2M Basic WQ – 2M Detailed WQ - A	No monitoring – remove from network	No monitoring – remove from network	GW34 is consistently dry – decommissioning recommended.
Group 4 – Redbank Creek - United Open Cut											
UG135	VWP	United Wambo	313832	6396749	65.31	50	Interburden	SWL - Continuous	SWL - Continuous	No change	
						110	Warkworth Seam				
						129	Mt. Arthur Seam				
						146	Piercefield Seam				
						176	Vaux Seam				
						186	Broonie Seam				
UG147	VWP	United Wambo	311246	6397208	108	90	Glen Munro Seam	SWL - Continuous	SWL - Continuous	No change	
						157	Interburden				
						209	Mt Arthur Seam				
						242	Piercefield Seam??				
						249	Vaux Seam??				
						260	Broonie Seam??				
UG193	VWP	United Wambo	313758	6396091	58.21	27	Glen Munro Seam	SWL - Continuous	SWL - Continuous	No change	
						61	Arrowfield Seam				
						85	Bowfield Seam				
						160	Warkworth Seam				
						179.5	Piercefield Seam				
						210	Broonie Seam				
UG194	VWP		312437	6397192	81.66	20	Blakefield Seam	SWL - Continuous		No change	



ID	Type	Monitored By	Easting	Northing	Ground Elevation (mAHD)	Depth (m)	Lithology	Current Program	Proposed Program	Change	Comment
		United Wambo				60	Interburden		SWL - Continuous		
						100	Blakefield Seam				
						150	Interburden				
						190	Interburden				
						210	Vaux Seam				
UG220	VWP	United Wambo	312523	6397234	81.98	52.5	Overburden	SWL - Continuous	SWL - Continuous	No change	
						77	Arrowfield Seam				
						106	Interburden				
						110	Interburden				
						136	Warkworth Seam				
						152	Mt. Arthur Seam				
						207	Vaux Seam				
UG224	VWP	United Wambo	313861	6396244	58.83	163	Piercefield Seam	SWL - Continuous	SWL - Continuous	No change	
						172	Interburden				
						191	Vaux Seam				
UG225	VWP	United Wambo	313215	6397096	68.9	23.0	Overburden	SWL - Continuous	SWL - Continuous	No change	
						58.5	Arrowfield Seam				
						93.2	Bowfield Seam				
						100.5	Interburden				
						128.0	Mt. Arthur Seam				
						178.0	Vaux Seam				
UG134	VWP	United Wambo	313783	6395768	61.32	-	Interburden & Coal Seams – Warkworth, Mt Arthur, Piercefield & Vaux	SWL - Continuous	No monitoring – remove from network	No monitoring – remove from network	UG134 was damaged beyond repair in 2020 – no plan to replace as there is already adequate monitoring in area (P34, UG193, UG224)
UG196	VWP	United Wambo	312365	6397123	81.1	-	Interburden & Coal Seams – Glen Munro, Arrowfield, Mt Arthur & Broonie	SWL - Continuous	No monitoring – remove from network	No monitoring – remove from network	UG196 was removed for construction of project – no plan to replace as there is already adequate monitoring in area (UG194, UG220)
Group 5 - South Bates Underground - Historical Wambo Complex Underground, Wambo Open Cut											
N2	VWP	Wambo	308664	6393377	122.53	40	Permian Overburden	SWL - Continuous		No change	



ID	Type	Monitored By	Easting	Northing	Ground Elevation (mAHD)	Depth (m)	Lithology	Current Program	Proposed Program	Change	Comment
						70	Permian Overburden		SWL - Continuous		
						100	Permian Overburden				
						140	Whybrow Seam				
						172.5	Interburden				
						204	Wambo Seam				
N3	VWP	Wambo	308315	6394576	104.97	30	Permian Overburden	SWL - Continuous	SWL - Continuous	No change	
						55	Permian Overburden				
						75	Permian Overburden				
						108.5	Whybrow Seam				
						142	Interburden				
						190	Wambo Seam				
N5	VWP	Wambo	306756	6395964	110.78	30	Permian Overburden	SWL - Continuous	SWL - Continuous	No change	
						73	Whybrow Seam				
						89.5	Interburden				
						133	Wambo Seam				
P323a	VWP	Wambo	309798	6393429	76.65	23	Overburden siltstone	SWL - Continuous	SWL - Continuous	No change	
						33	Whybrow Seam				
						85.5	Wambo Seam				
P323b	VWP	Wambo	309800	6393432	76.64	224.5	Woodlands Hill Seam,	SWL - Continuous	SWL - Continuous	No change	
						273.5	Arrowfield Seam				
P324a	VWP	Wambo	310472	6391984	74.44	11.5	Regolith	SWL - Continuous	SWL - Continuous	No change	
P324b	VWP	Wambo	310472	6391985	74.44	95.75	Whybrow Seam	SWL - Continuous	SWL - Continuous	No change	
						157	Wambo Seam				
						269.75	Woodlands Hill Seam				
						304.5	Interburden				
P326	VWP	Wambo	310088	6392875	75.48	43	Overburden–	SWL - Continuous	SWL - Continuous	No change	
						113.5	Wambo Seam				
						234	Woodlands Hill Seam				
						294.5	Arrowfield Seam				
UG139	VWP	United Wambo	306666	6395173	128.91	263	Unnamed D	SWL - Continuous	SWL - Continuous	No change	
						281	Unnamed E				



ID	Type	Monitored By	Easting	Northing	Ground Elevation (mAHD)	Depth (m)	Lithology	Current Program	Proposed Program	Change	Comment
						319	Interburden Glen Munro - Unnamed E				
						329	Glen Munro				
						375	Interburden Arrowfield-Glen Munro				
						382	Arrowfield				
						402	Interburden Warkworth - Bowfield				
SBX_GW01	VWP	Wambo	307010	6395887	107.95	43	Whybrow Overburden (Siltstone/Sandstone)	SWL - Continuous	SWL - Continuous	No change	
SBX_GW02	VWP	Wambo	306911	6395944	108.88	65.8	Whybrow Seam	SWL - Continuous	SWL - Continuous	No change	
						61.7	Whybrow Overburden				
						53.7	Whybrow Overburden (Siltstone/Sandstone)				
P317	VWP	Wambo	307116	6394440	155.41	35	Regolith	SWL – Continuous (5 sensors)	SWL – Continuous (2 sensors)	Only 2 of 5 sensors working (regolith & overburden)	3 Sensors in coal seams not working – removed monitoring of these seams
						100	Overburden				
						174	Whybrow Seam				
						213	Wambo Rider Seam				
						248.5	Wambo Seam				
GW21	Standpipe	Wambo	308648	6393379	121.79	36	Whybrow Coal Interburden	SWL – 2M + C Basic WQ – 2M Detailed WQ - A	No monitoring – remove from network	No monitoring – remove from network	Location has been dry/near-dry since monitoring commenced in 2012 and is not adding value to the network – location recommended to be decommissioned.
Group 6 - Stony Creek (upper) - Historical Wambo Underground Mining											
BH1G	Dewatering	Wambo	310105	6391552	85.15		Whybrow Seam	SWL - M	SWL - M	No change	
BH2	Dewatering	Wambo	308868	6390148	97.85		Whybrow Seam	SWL - M + C	SWL - M + C	No change	
BH2A	Dewatering	Wambo	308869	6390097	96.9		Whybrow Seam	SWL - M + C	SWL - M + C	No change	
BH4C	Dewatering	Wambo	309324	6391081	85.75		Whybrow Seam	SWL - M + C	SWL - M + C	No change	



ID	Type	Monitored By	Easting	Northing	Ground Elevation (mAHD)	Depth (m)	Lithology	Current Program	Proposed Program	Change	Comment
P315	Standpipe	Wambo	309085	6391857	94.74	9.37	Stony Creek Alluvium/Regolith	SWL – 2M + C Basic WQ – 2M Detailed WQ - A	SWL – 2M + C Basic WQ – 2M Detailed WQ - A	No change	
P301	Standpipe	Wambo	309361	6391467	88.18	20	Whybrow Interburden	SWL – 2M Basic WQ – 2M Detailed WQ - A	SWL - 3A Basic WQ – 3A Detailed WQ – A	SWL and Basic WQ frequency reduced from 2M to 3A Detailed WQ – no change	Reduce monitoring frequency due to suspension of underground mining. Monitoring frequency will be reconsidered prior to recommencement of underground mining operations.
BH4D	Dewatering	Wambo	-	-	-		Whybrow Seam, Wambo Seam	SWL - M	SWL - A	No change	Reduce monitoring frequency. Annual measurement suitable at this location as other dewatering locations monitored at higher frequency.
GW12	Standpipe	Wambo	309844	6391056	99	12.1	Stony Creek Alluvium/Whybrow Interburden	SWL – 2M + C Basic WQ – 2M Detailed WQ - A	No monitoring – remove from network	No monitoring – remove from network	Bore constructed within shallow/ weathered Permian strata after the commencement of NWU mining. Length of baseline period not suitable for development of trigger. Bore removed from monitoring network with P315 to provide supplementary data for Stony Ck alluvium
Group 7 - Wambo Creek - Historical Wambo Underground Mining											
GW37a	Standpipe	Wambo	311418	6390959	60.06	6.6	Wambo Creek Alluvium	SWL – 2M Basic WQ – 2M Detailed WQ - A	SWL – 2M Basic WQ – 2M Detailed WQ - A	No change	
GW37b	Standpipe	Wambo	311418	6390959	59.97	12	Permian overburden	SWL – 2M	SWL – 2M	No change	



ID	Type	Monitored By	Easting	Northing	Ground Elevation (mAHD)	Depth (m)	Lithology	Current Program	Proposed Program	Change	Comment
								Basic WQ – 2M Detailed WQ - A	Basic WQ – 2M Detailed WQ - A		
P316a	Standpipe	Wambo	311256	6391097	60.833	7	Wambo Creek alluvium	SWL – 2M Basic WQ – 2M Detailed WQ - A	SWL – 2M Basic WQ – 2M Detailed WQ - A	No change	
P316	VWP	Wambo	311253	6391129	60.39	10	Alluvium	SWL - Continuous	SWL - Continuous	No change	
						25	Regolith				
						50.63	Regolith Overburden				
						71	Whybrow Seam				
P319	VWP	Wambo	311126	6391413	64.4	11	Regolith	SWL - Continuous	SWL - Continuous	No change	
						74.9	Whybrow Seam				
						161.3	Wambo Seam				
						265.3	Interburden Sandstone				
P202	Standpipe	Wambo	311855	6391263	60.27	20	Whybrow Interburden	SWL – 2M Basic WQ – 2M Detailed WQ - A	SWL - 3A Basic WQ – 3A Detailed WQ – A	SWL and Basic WQ frequency reduced from 2M to 3A Detailed WQ – no change	Reduce monitoring frequency due to suspension of underground mining. Monitoring frequency will be reconsidered prior to recommencement of underground mining operations.
P206	Standpipe	Wambo	311771	6391068	60.23	50	Whybrow Interburden	SWL – 2M Basic WQ – 2M Detailed WQ - A	SWL - 3A Basic WQ – 3A Detailed WQ – A	SWL and Basic WQ frequency reduced from 2M to 3A Detailed WQ – no change	Reduce monitoring frequency due to suspension of underground mining. Monitoring frequency will be reconsidered prior to recommencement of underground mining operations.
GW02	Standpipe	Wambo	309110	6389681	79.9	11.2	South Wambo Creek Alluvium	SWL – 2M	SWL - 3A	SWL frequency	Reduce monitoring frequency due to



ID	Type	Monitored By	Easting	Northing	Ground Elevation (mAHD)	Depth (m)	Lithology	Current Program	Proposed Program	Change	Comment
								Basic WQ – 2M Detailed WQ - A	Basic WQ – 3A Detailed WQ – A	reduced from 2M to 3A Detailed WQ – no change	suspension of underground mining. Monitoring frequency will be reconsidered prior to recommencement of underground mining operations.
GW11	Standpipe	Wambo	309229	6389700	77.68	9.6	South Wambo Creek Alluvium	SWL – 2M Basic WQ – 2M Detailed WQ - A	SWL - 3A Basic WQ – 3A Detailed WQ – A	SWL frequency reduced from 2M to 3A Detailed WQ – no change	Reduce monitoring frequency due to suspension of underground mining. Monitoring frequency will be reconsidered prior to recommencement of underground mining operations.
P316b	Standpipe	Wambo	311253	6391091	60.906	13	Weathered Permian	SWL – 2M Basic WQ – 2M Detailed WQ - A	SWL - 3A Basic WQ – 3A Detailed WQ – A	SWL and Basic WQ frequency reduced from 2M to 3A Detailed WQ – no change	Reduce monitoring frequency due to suspension of underground mining. Monitoring frequency will be reconsidered prior to recommencement of underground mining operations.
P316c	Standpipe	Wambo	311250	6391084	61.047	26	Permian	SWL – 2M Basic WQ – 2M Detailed WQ - A	SWL - 3A Basic WQ – 3A Detailed WQ – A	SWL and Basic WQ frequency reduced from 2M to 3A Detailed WQ – no change	Reduce monitoring frequency due to suspension of underground mining. Monitoring frequency will be reconsidered prior to recommencement of underground mining operations.
GW14	Standpipe	Wambo	312478	6391358	65	18.0	Regolith	SWL	No monitoring – remove from network	No monitoring – remove from network	Bore was dry from 2011



ID	Type	Monitored By	Easting	Northing	Ground Elevation (mAHD)	Depth (m)	Lithology	Current Program	Proposed Program	Change	Comment
P110	Standpipe	United Wambo	311217	6390690	64.03	9.92	Weathered Permian and South Wambo Creek Alluvium	No monitoring	SWL – 2M Basic WQ – 2M Detailed WQ - A Stygo - A	Bore added to program	Stygo - Recommendation from 2025 monitoring round
Group 8 - North Wambo Creek Alluvium (downstream) - Historical Complex Underground Mining											
GW09.2	Standpipe	Wambo	311744	6392327	60.25	7.4	North Wambo Creek Alluvium	SWL – 2M Basic WQ – 2M Detailed WQ - A	SWL – 2M Basic WQ – 2M Detailed WQ - A	No change	
Wambo-03	Dewatering	Wambo	311700	6392753	62.35		Wambo Seam	SWL - M + C	SWL - M + C	No change	
Wambore South	Dewatering	Wambo	311813	6392556	61.2		Wambo Seam	SWL - M	SWL - M	No change	
GW10.2	Standpipe	Wambo	311873	6392265	60.83	3	North Wambo Creek Alluvium	SWL – 2M Basic WQ – 2M Detailed WQ - A	SWL – 2A Basic WQ – 2A Detailed WQ – A	SWL and Basic WQ frequency reduced from 2M to 2A Detailed WQ – no change	Reduce monitoring frequency due to suspension of underground mining. Monitoring frequency will be reconsidered prior to recommencement of underground mining operations.
GW10.2a	Standpipe	Wambo	311873	6392265	60.83	25	North Wambo Creek Permian	SWL – 2M Basic WQ – 2M Detailed WQ - A	SWL - 3A Basic WQ – 3A Detailed WQ – A	SWL and Basic WQ frequency reduced from 2M to 3A Detailed WQ – no change	Reduce monitoring frequency due to suspension of underground mining. Monitoring frequency will be reconsidered prior to recommencement of underground mining operations.
GW08.2	Standpipe	Wambo	311870	6392327	60.93	3	North Wambo Creek Alluvium	SWL – 2M Basic WQ – 2M Detailed WQ - A	SWL – 2M Basic WQ – 2M Detailed WQ - A Stygo - A	Stygo added No change to SWL or WQ monitoring	Stygo - Recommendation from 2025 monitoring round



ID	Type	Monitored By	Easting	Northing	Ground Elevation (mAHD)	Depth (m)	Lithology	Current Program	Proposed Program	Change	Comment
P28	Standpipe	United Wambo	311397	6392633	63.09	-	Whybrow Coal Overburden	SWL – 2M Basic WQ – 2M Detailed WQ - A	SWL - 3A Basic WQ – 3A Detailed WQ – A	SWL and Basic WQ frequency reduced from 2M to 3A Detailed WQ – no change	Reduced frequency as location not near active mining. Location retained in the network with long monitoring record near historical underground mine areas.
P29	Standpipe	United Wambo	311821	6392561	60.82	-	Whybrow Coal Overburden	SWL – 2M Basic WQ – 2M Detailed WQ - A	SWL - 3A Basic WQ – 3A Detailed WQ – A	SWL and Basic WQ frequency reduced from 2M to 3A Detailed WQ – no change	Reduced frequency as location not near active mining. Location retained in the network with long monitoring record near historical underground mine areas.
GW08	Standpipe	Wambo	311793	6392266	64	6.3	North Wambo Creek Alluvium	SWL – 2M Basic WQ – 2M Detailed WQ - A	No monitoring – remove from network	No monitoring – remove from network	Replaced by GW08.2
GW09	Standpipe	Wambo	311643	6392563	62	6.2	North Wambo Creek Alluvium	SWL – 2M Basic WQ – 2M Detailed WQ - A	No monitoring – remove from network	No monitoring – remove from network	Replaced by GW09.2
Group 9 - Redbank Creek (GDE) – United open cut and historical underground mining											
P411	Standpipe	United Wambo	314114	6395869	55.11	12.2	Weathered sandstone	SWL – 2M Basic WQ – 2M Detailed WQ - A	SWL – 2M Basic WQ – 2M Detailed WQ - A	No change	
Group 10 – Stony Creek (lower) - South Wambo Dam											
GW38a	Standpipe	Wambo	310904	6391146	63.544	6.64	Alluvium/ colluvium	SWL – 2M Basic WQ – 2M Detailed WQ - A	SWL – 2M Basic WQ – 2M Detailed WQ - A	No change	
GW38b	Standpipe	Wambo	310904	6391146	63.493	12.63	Base of weathered Permian	SWL – 2M Basic WQ – 2M Detailed WQ - A	SWL – 2M Basic WQ – 2M	No change	



ID	Type	Monitored By	Easting	Northing	Ground Elevation (mAHD)	Depth (m)	Lithology	Current Program	Proposed Program	Change	Comment
									Detailed WQ - A		
GW39a	Standpipe	Wambo	311120	6391406	64.076	10.74	Base of weathered Permian	SWL – 2M Basic WQ – 2M Detailed WQ - A	SWL – 2M Basic WQ – 2M Detailed WQ - A	No change	
GW39b	Standpipe	Wambo	311120	6391406	64.195	18.65	Fresh Permian	SWL – 2M Basic WQ – 2M Detailed WQ - A	SWL – 2M Basic WQ – 2M Detailed WQ - A	No change	
P106	Standpipe	Wambo	311519	6391083	61.07	44	Wambo Creek Alluvium	SWL – 2M Basic WQ – 2M Detailed WQ - A	No monitoring – remove from network	No monitoring – remove from network	Replaced by GW37a (alluvium) and GW37b (weathered Permian)
P109	Standpipe	Wambo	311215	6390768	62	-	Wambo Creek Alluvium	SWL – 2M Basic WQ – 2M Detailed WQ - A	No monitoring – remove from network	No monitoring – remove from network	Replaced by GW37a (alluvium) and GW37b (weathered Permian)
P114	Standpipe	Wambo	311205	6391288	62	-	Wambo Creek Alluvium	SWL – 2M Basic WQ – 2M Detailed WQ - A	No monitoring – remove from network	No monitoring – remove from network	Replaced by P316a (alluvium) and P316b (weathered Permian)
P116	Standpipe	Wambo	311057	6391293	64	-	Wambo Creek Alluvium	SWL – 2M Basic WQ – 2M Detailed WQ - A	No monitoring – remove from network	No monitoring – remove from network	Replaced by P316a (alluvium) and P316b (weathered Permian)
Group 11 - Wollombi Brook - Complex Mine Water Storages, United Open Cut											
BH3	Standpipe	Wambo	313400	6394645	54.39	65.4	Woodlands Hill Seam	SWL – 2M Basic WQ – 2M Detailed WQ - A	SWL – 2M Basic WQ – 2M Detailed WQ - A	No change	
GW15	Standpipe	United Wambo	313165	6392808	62.36	17.4	Wollombi Brook (east) Alluvium	SWL – 2M Basic WQ – 2M Detailed WQ - A	SWL – 2M Basic WQ – 2M Detailed WQ - A	No change	



ID	Type	Monitored By	Easting	Northing	Ground Elevation (mAHD)	Depth (m)	Lithology	Current Program	Proposed Program	Change	Comment
P13	Standpipe	United Wambo	313723	6394413	56.1	15	Wollombi Brook (east) Alluvium	SWL – 2M Basic WQ – 2M Detailed WQ - A	SWL – 2M Basic WQ – 2M Detailed WQ - A	No change	
P15	Standpipe	United Wambo	313431	6394803	56.71	8.1	Wollombi Brook (west) Alluvium	SWL – 2M Basic WQ – 2M Detailed WQ - A	SWL – 2M Basic WQ – 2M Detailed WQ - A	No change	
P16	Standpipe	United Wambo	313481	6394656	57.48	11.5	Wollombi Brook (west) Colluvium	SWL – 2M Basic WQ – 2M Detailed WQ - A	SWL – 2M Basic WQ – 2M Detailed WQ - A	No change	
P20	Standpipe	United Wambo	313640	6394167	57.4	10.6	Wollombi Brook (west) Colluvium	SWL – 2M Basic WQ – 2M Detailed WQ - A	SWL – 2M Basic WQ – 2M Detailed WQ - A	No change	
P401	Standpipe	United Wambo	313624	6395337	69.545	40	Overburden	SWL – 2M Basic WQ – 2M Detailed WQ - A	SWL – 2M Basic WQ – 2M Detailed WQ - A	No change	
P402	Standpipe	United Wambo	313630	6395339	69.829	120	Arrowfield Seam	SWL – 2M Basic WQ – 2M Detailed WQ - A	SWL – 2M Basic WQ – 2M Detailed WQ - A	No change	
P33	VWP	United Wambo	313758	6394660	55.932	13	Unnamed Seam C	SWL - Continuous	SWL - Continuous	No change	
						19	Unnamed Seam D				
						46.5	Unnamed Seam E				
						58	Blakefield Seam				
						113	Arrowfield Seam				
P34	VWP		313758	6393962	57.001	35	Glen Munro Seam	SWL - Continuous		No change	

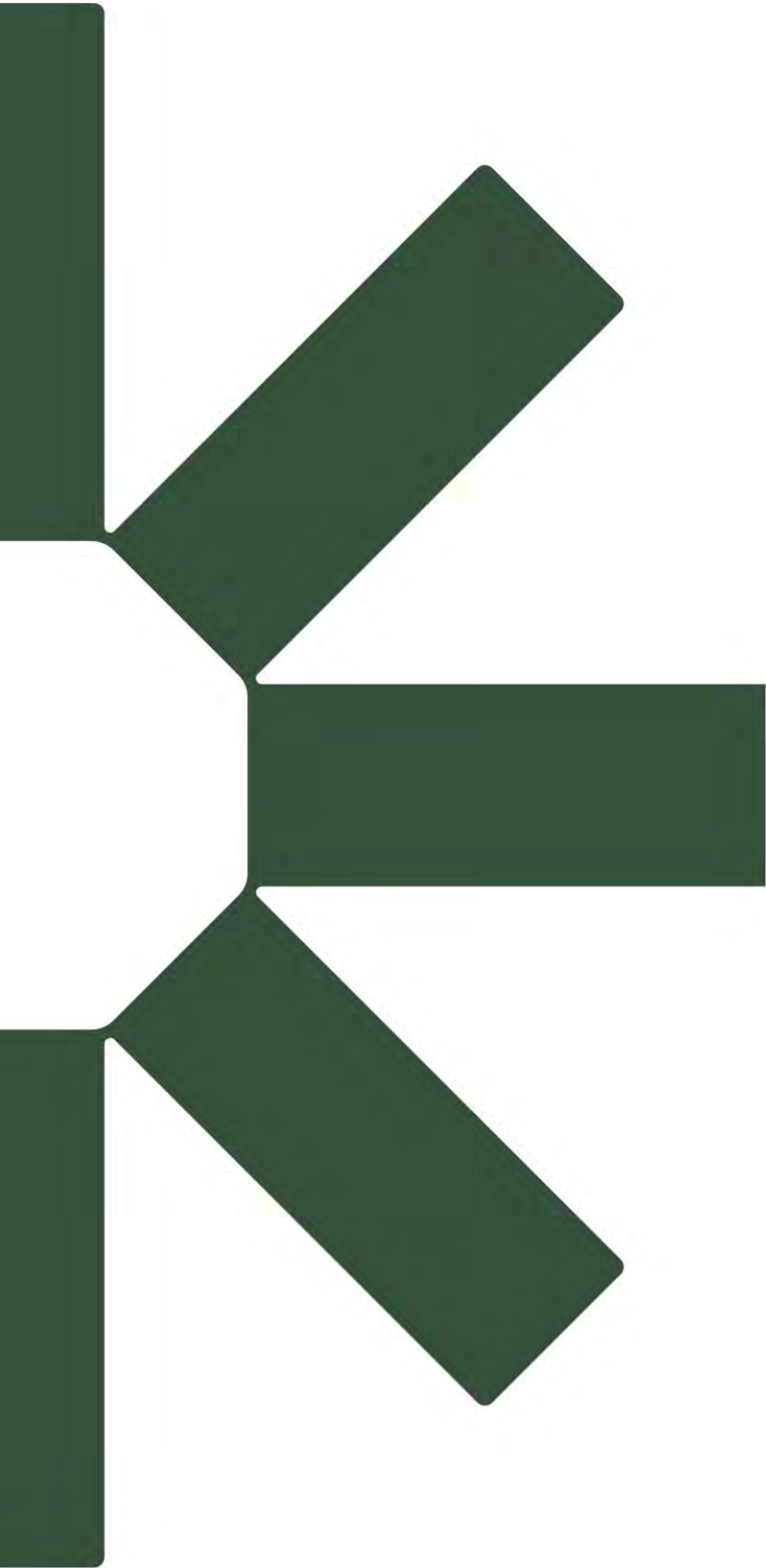


ID	Type	Monitored By	Easting	Northing	Ground Elevation (mAHD)	Depth (m)	Lithology	Current Program	Proposed Program	Change	Comment
P35	VWP	United Wambo	313541	6395080	59.887	68.5	Blakefield Seam	SWL - Continuous	SWL - Continuous	No change	
						144	Bowfield Seam				
						16	Interburden				
						19	Interburden				
						51	Blakefield Seam				
BH1	Standpipe	Wambo	313266	6394805	59.09	8.1	Alluvium	SWL – 2M Basic WQ – 2M Detailed WQ - A	SWL - 2A Basic WQ – 2A Detailed WQ – A	SWL and Basic WQ frequency reduced from 2M to 2A Detailed WQ – no change	Reduced frequency as location is persistently dry. Increased monitoring frequency to be considered if water storage elevation of Glen Munro pit is planned to increase.
P12	Standpipe	United Wambo	313645	6394798	55.2	15	Wollombi Brook (east) Alluvium	SWL – 2M Basic WQ – 2M Detailed WQ - A	SWL – 2M Basic WQ – 2M Detailed WQ - A Stygo - A	Stygo added No change to SWL or WQ monitoring	Stygo - Recommendation from 2025 monitoring round
P407	Standpipe	United Wambo	312540	6392914	61.82	9	Wollombi Brook (west) weathered sandstone	SWL – 2M Basic WQ – 2M Detailed WQ - A	SWL – 2M Basic WQ – 2M Detailed WQ - A Stygo - A	Stygo added No change to SWL or WQ monitoring	Stygo - Recommendation from 2025 monitoring round
Group 12 - Wollombi Brook (South) - South Wambo Underground Baseline											
P318	VWP	Wambo	312600	6388923	71.05	11	Regolith	SWL - Continuous	SWL - Continuous	No change	
						150.79	Whybrow Seam				
						205.25	Wambo Seam				
						314.25	Woodlands Hill				
						357	Arrowfield Seam				
P325	VWP	Wambo	311807	6390307	65.2	10.5	Regolith	SWL – Continuous (7 sensors)	SWL – Continuous (6 sensors)	Only 6 of 7 sensors working – monitoring	1 Sensor in Permian overburden not working – removed monitoring of this lithology
						32.5	Permian Overburden				
						82	Whybrow Seam				



ID	Type	Monitored By	Easting	Northing	Ground Elevation (mAHD)	Depth (m)	Lithology	Current Program	Proposed Program	Change	Comment
						159.5	Wambo Seam			of Permian overburden removed from program	
						203	Whynot Seam				
						251.5	Woodlands Hill Seam				
						336.5	Arrowfield Seam				
GW13	Standpipe	Wambo	313811	6388991	62.563	15	Regolith	SWL – 2M Basic WQ – 2M Detailed WQ - A	SWL – A Basic WQ - A Detailed WQ - A	Reduce frequency from 2M to annually for SWL & Detailed WQ – no basic WQ monitoring	Keep location in network to collect baseline data for South Wambo UG but reduce frequency to annual.
GW22	Standpipe	Wambo	311336	6389536	91.25713	54	Whybrow Coal Interburden	SWL – 2M Basic WQ – 2M Detailed WQ - A	SWL – 3A Detailed WQ - A	Reduce frequency from 2M (SWL & WQ) to 3A Detailed WQ – no change	Keep location in network to collect baseline data for South Wambo UG but reduce frequency.
P325a	Standpipe	Wambo	312063	6390138	65.2	8	Wollombi Brook Alluvium	SWL – 2M Basic WQ – 2M Detailed WQ - A	SWL - 3A Basic WQ – 3A Detailed WQ – A	SWL and Basic WQ frequency reduced from 2M to 3A Detailed WQ – no change	Keep location in network to collect baseline data for South Wambo UG but reduce frequency.





Making Sustainability Happen



P 1300 793 267 **E** info@umwelt.com.au **W** umwelt.com.au
NSW | ACT | WA | QLD | VIC | SA **ABN** 18 059 519 041

Appendix C - Summary of Complaints

Date	Time	Nature of Complaint	Description & Response
10/01/2025	0:30 AM	Noise	Complaint received via Community Information Line at 00:30. The complaint was in relation to noise generated onsite. The complainant requested a call back. Data was reviewed at the time indicated for the complaint - noise levels at continuous monitors were within limits, wind speed was 1.8m/s, there were no noise alarms during this period. Operations were modified by the Mining Supervisor at the time of complaint. As per request, the Environment & Community Manager called back the complaint later in the morning.
15/02/2025	3:22 PM	Dust	Complaint received via Community Information Line at 15:22. The complaint was in relation to dust generated on site. The complainant requested a call back. Dust was reviewed for the complaint period - noise levels at continuous monitors were within limits, wind speed was 2.4m/s, there were no dust alarms during this period. Equipment was shut-down prior to the complaint for maintenance repairs. As per request, the mining Coordinator called back the complainant at the time of the complaint.
15/02/2025	10:49 PM	Noise	Complaint received via community hotline at 22:49. The complaint was in relation to noise generated onsite. The complainant did not request a call back. Data was reviewed for the complaint period - noise levels at continuous monitors were within limits, wind speed was 0.9m/s, there were no noise alarms during this period. The Mining Supervisor continued to monitor conditions. Environment & Community Manager later followed up with the complainant.
15/03/2025	7:45 AM	Noise	Complaint received via community hotline at 07:45. The complaint was in relation to noise generated onsite. Data was reviewed for the complaint period - noise levels at continuous monitors were within limits, wind speed was 0.4m/s, there were no noise alarms during this period. The Mining Coordinator called the complainant to discuss and informed that the noise monitors were below criteria however some changes were made to operations to minimise noise. At the time of the call, the complainant was unable to hear the mining noise.
04/05/2025	9:16 AM	Noise	Complaint received via community hotline at 09:16. The complaint was in relation to noise generated onsite. The complainant did not request a call back.

Date	Time	Nature of Complaint	Description & Response
			Data was reviewed for the complaint period - noise levels at continuous monitors were within limits, wind speed was 0.8m/s, there were no noise alarms prior to or at the time of the call. The Mining Supervisor reviewed operations.
07/08/2025	9:13 AM	Noise	Complaint received via community hotline at 09:13. The complaint was in relation to noise generated onsite. The complainant did not request a call back. Real-time data was reviewed at the time of complaint - 0.9 m/s wind speed and wind direction of 188 degrees, noise levels were elevated, resulting in alarms both prior and at the time of the complaint. The Mining Supervisor modified operations, and following the changes noise levels returned to below criteria, with the last alarm at the time of the complaint. Mining supervisors continued to monitor noise levels.
12/08/2025	8:34 AM	Noise	Complaint received via community hotline at 08:34. The complaint was in relation to noise generated onsite around 15 minutes before the complaint was made. The complainant did not request a call back. Real-time data was reviewed for the complaint period - noise levels at continuous monitors were within limits, wind speed was 1.0 m/s and wind direction of 301 degrees. There were no noise alarms prior to or at the time of the complaint. The Mining Supervisor reviewed operations.
19/09/2025	9:03 AM	Noise	Complaint received via community hotline at 09:03. The complaint was in relation to noise generated on site. The complainant did not request a call back. Real-time data was reviewed for the complaint period - noise levels at continuous monitors were within limits, wind speed was 1.90 m/s and wind direction of 294 degrees. There were no noise alarms prior to or at the time of the complaint. The Mining supervisor reviewed operations.
11/11/2025	9:30 PM	Noise	Complaint received via community hotline at 09:30. The complaint was in relation to noise generated on site. The complainant did not request a call back. Real-time data was reviewed for the complaint period - noise levels at continuous monitors were within limits, wind speed was 1.80 m/s and wind direction of 113 degrees. There were no noise alarms prior to or at the time of the complaint. The Mining Supervisor reviewed operations.

Appendix D - Waste Performance

Offset waste disposal performance comparison at United Wambo for past three years including variance (%)

Waste Type	2023	2024	2025	Variance %
Recycled Hazardous				
Lead Batteries (kg)	14,990	18,536	20,333	10%
Nicad Batteries (kg)	24	288	-	-
Waste Oil (kg)	1,094,828	1,025,686	985,576	-4%
Oily Water (kg)	25,969	18,629	16,872	-9%
Waste Coolant (kg)	22,700	33,940	37,000	9%
Oil Filters (kg)	37,677	38,334	33,062	-14%
Chemicals	-	-	-	-
Waste Grease (kg)	7,640	5,647	9,280	64%
Empty Drums (kg)	10,482	8,044	3,708	-54%
Contaminated Sludge (kg)	10,396	1,596	9,358	486%
eWaste (kg)	-	108	-	-
Total Recycled Hazardous (kg)	1,224,706	1,150,808	1,115,189	-3%
Recycled Non-Hazardous				
Paper & Cardboard (kg)	14,700	18,580	10,120	-46%
Commingled	-	-	64	
Scrap Steel (kg)	335,570	290,740	389,740	34%
Timber (kg)	46,280	71,060	60,470	-15%
Confidential Documents (kg)	1,444	1,035	668	-36%
Effluent (kg)	598,700	618,100	772,100	25%
Tyres (kg)	-	-	1,010	-
Plastics (kg)	5,720	6,460	-	-100%
Concrete	-	-	-	-
Drilling Mud	-	-	-	-
Total Recycled Non-Hazardous (kg)	1,002,414	1,005,975	1,234,172	23%
Disposed Hazardous				
Oily Rags / Absorbents (kg)	16,554	14,837	10,510	-29%

Waste Type	2023	2024	2025	Variance %
Chemicals (kg)	78	108	-	-100%
Asbestos (kg)	0	0	1,640	-
Medical & Sanitary Waste (kg)	40	95	120	26%
Hydraulic Hoses (kg)	22,826	20,701	12,003	-42%
Total Disposed Hazardous (kg)	39,498	35,741	24,273	-32%
Disposed Non-Hazardous				
Mixed Solid Waste (kg)	317,423	309,610	288,690	-7%
Treated Timber (kg)	-	-	16,460	
Total Disposed Non-Hazardous (kg)	317,423	309,610	305,150	-1%
Waste Totals				
Total Offsite Waste (kg)	2,584,041	2,502,184	2,678,784	7%
Total Offsite Waste Disposed (kg)	356,921	345,401	329,423.00	-4.6%
Total Offsite Waste Recycling (kg)	2,227,120	2,156,783	2,349,361	9%

Note: Waste types with no volume registered across all 3 years – Chemicals, Acids, Concrete, Adhesives / Resins, Solvents, Paints, Degreaser, Fluorescent Tubes, Toner Cartridges, Aerosol Cans, Pallets, Green Waste, Glass, Contaminated Soil, Chemical Anchors, Radioactive Material, Diesel Particulate Filters, Conveyor Belt and Surfactants