ULAN COAL

GLENCORE

# 2023 Annual Review

## Ulan Coal Mine

| | |
|---|---|
| **Name of operation** | Ulan Coal Mine |
| **Name of operator** | Ulan Coal Mines Pty Limited |
| **Development consent / project approval #** | PA 08_0184 |
| **Name of holder of development consent / project approval** | Ulan Coal Mines Pty Limited |
| **Mining lease #** | CCL 741, MPL 315, ML 1341, ML1365, ML 1366, ML 1467, ML 1468, ML 1511, ML 1554, ML 1656, ML1754, ML1796, ML1798, ML1799, ML1813, ML1863 EL 5573, EL 7542, EL 8687, EL9363 & EL9419. |
| **Name of holder of mining lease** | Ulan Coal Mines Pty Limited |
| **Water licence #** | WAL41492, WAL19047, WAL37192, WAL41817, WAL41906, WAL42900 & WAL34921. WAL44712, WAL44842 (only allocation Licences listed). |
| **Name of holder of water licence** | Ulan Coal Mines Pty Limited |
| **Annual Review start date** | 01/01/2023 |
| **Annual Review end date** | 31/12/2023 |

I, Lucy Stuart, certify that this audit report is a true and accurate record of the compliance status of Ulan Coal Mines Pty Limited for the period of 01 January 2023 to the 31 December 2023 and that I am authorised to make this statement on behalf of Ulan Coal Mines Pty Limited.

Note.

a) *The Annual Review is an 'environmental audit' for the purposes of section 122B (2) of the Environmental Planning and Assessment Act 1979. Section 122E provides that a person must not include false or misleading information (or provide information for inclusion in) an audit report produced to the Minister in connection with an environmental audit if the person acknowledges 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 | Lucy Stuart |
| Title of authorised reporting officer | Environment and Community Manager |
| Signature of authorised reporting officer |  |
| Date | 28 March 2024 |

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# ELECTRONIC COPY

Electronic copy of the 2023 Annual Review submitted via the NSW Planning Portal to government stakeholders, attachments available electronically online via the website: *https://www.glencore.com.au/operations-and-projects/coal/current-operations/ulan-coal/reporting-documents*

# 1. Statement of Compliance

*Compliance Table 1 Statement of Compliance*

| Were all conditions of the relevant approval(s) complied with? | Yes / No* |
|---|---|
| PA 08_0184 | Yes |
| ML's | Yes |
| EL's | Yes |
| EPL 394 | No |
| Water Licences | Yes |
| EPBC Approvals (2009/5252) & (2015/7511) | Yes |

**Notes:*** Refer to Table 3 (Non Compliances), Section 3 (Approvals) Section 11 (Incidence and Non-Compliances) for details

*Compliance Table 2 Compliance Status Key*

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

*Compliance Table 3 Non- Compliances*

| Relevant Approval | Condition | Compliance Issue | Compliance Status | Comment | Section in AR |
|---|---|---|---|---|---|
| **EPL394** | M2.2 | The TEOM described in EPL 394, EPA ID number 30 due to a lightning strike and unplanned power outage by Essential Energy for approximately 43hrs from the 20/02/2023 to the 21/02/2023. | | The failure was due a lightning strike and to an unscheduled power outage by Essential Energy. There is a TEOM operated by MCO situated near by collecting data which can be used to confirm real time dust emissions. | **Section 11** |

# 2. Introduction

## 2.1 Report Scope

This 2023 Annual Review[1] (AR) was prepared to satisfy consent conditions and reporting obligations as specified by NSW Department of Planning and Environment[2] (DPE). The Reporting Period for this AR is from 01 January 2023 to 31 December 2023, with the AR due by 31 March 2024[3]. A copy of this AR will be distributed to:

- DPE;
- DPE –Resources Regulator (RR);
- NSW Environment Protection Authority (EPA);
- DPE -Biodiversity, Conservation & Science Directorate (BSC);
- DPE – Division of Water (DPE-Water); and
- Mid-Western Regional Council (MWRC)

Upon approval, this document will be uploaded to the Ulan Coal Mine website for public viewing at *www.ulancoal.com.au* and issued to Ulan Coal Mine's Community Consultative Committee (Ulan Coal CCC).

## 2.2 Mining Operations and Location

Ulan Coal Mines Pty Limited (UCMPL) is owned by Glencore Coal Assets Australia Pty Limited. UCMPL was granted PA08_0184 under Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act) on 15 November 2010 for the *Ulan Coal – Continued Operations Project.*

The Ulan Underground Mine (UUG), the Ulan West Underground mine (UW), the Ulan Surface Operations (USO) which includes the Ulan Open Cut mine, coal processing and train loading facilities; and land holdings, including the Bobadeen Irrigation Scheme (BIS), as a collective, are referred to as the Ulan Coal Complex (UCC) (**Figure 2-1**).

The UCC is located in New South Wales approximately 1.5 kilometres from Ulan Village, within the Mid-Western Regional Council (MWRC) Local Government Area (LGA). The project area is approximately 38 kilometres north-north-east of Mudgee and 19 kilometres north-east of Gulgong. The 13,000 hectare (ha) landholding, straddles the Great Dividing Range and is located at the headwaters of the Goulburn and Talbragar River Catchments. Underground and open cut mining and associated infrastructure are approved under PA08_0184 (as modified) (**Figure 2-2**) for:

- Mining operations on site until 30 August 2033;
- Longwall mining of the Ulan Underground Mine (UUG);
- Longwall mining of the Ulan West Underground Mine (UW);
- Open cut mining over a 239 ha area;

[1] The AR was prepared in accordance with the DPE *Annual Review Guideline October 2015* and the AR reporting requirements contained in Condition 3, Schedule 5 and Statement of Commitments in Appendix 9 of the PA08_0184.
[2] This AR references the DPE as representing both Department of Climate Change, Energy, the Environment and Water (DCCEEW) and the Department of Planning, Housing and Infrastructure (DPHI).
[3] In accordance with Condition 3, Schedule 5 of Project Approval 08_0184 (PA08_0184).

- Coal Handling and Preparation Plant (CHPP) and rail loadout facilities with total coal production capacity of up to 20 million tonnes per annum (Mtpa) product coal; and
- Surface facilities and ancillary activities to support the above mentioned operations.

## 2.3 Mine Contacts

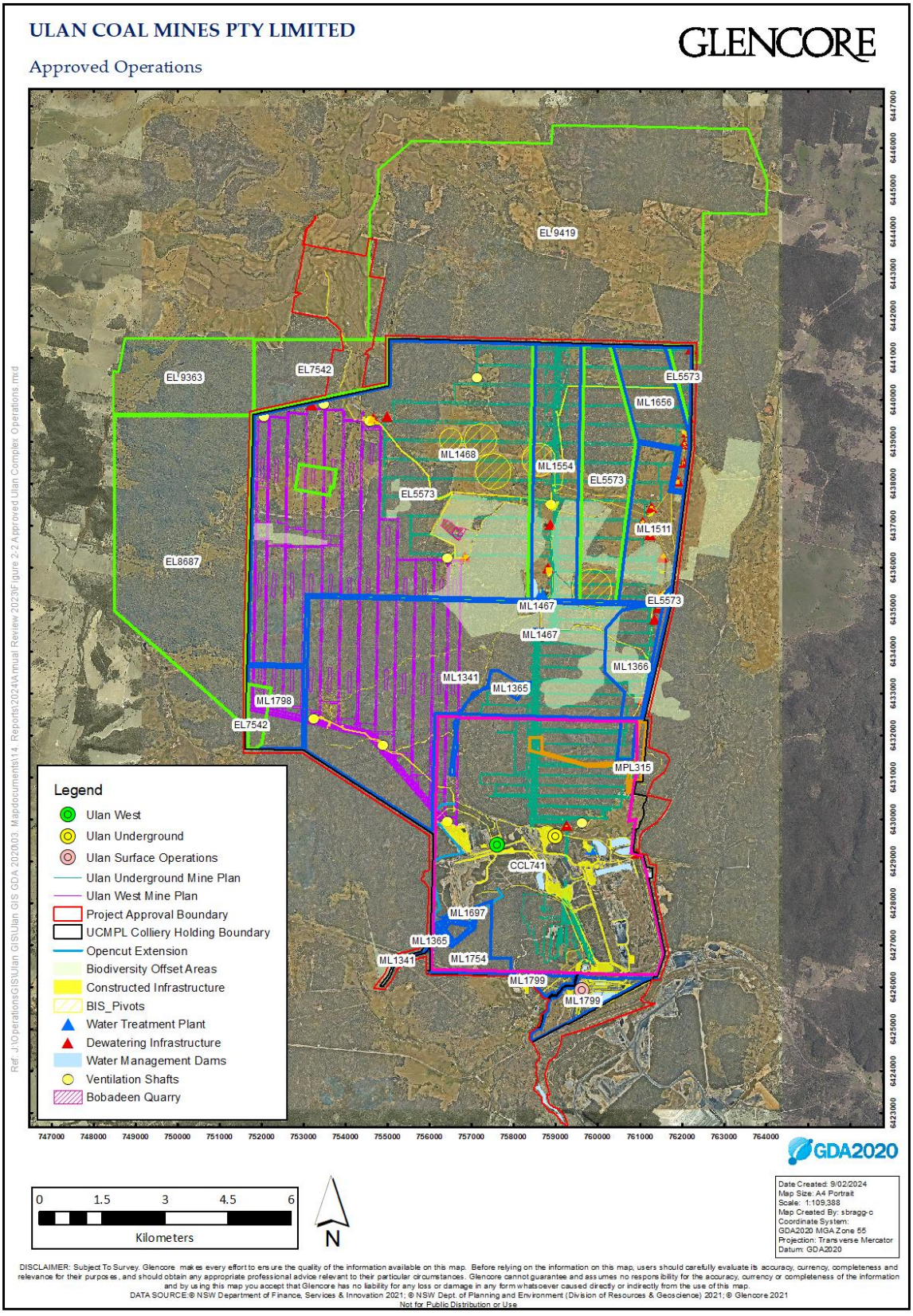
**Table 2-1** outlines the contact details for site personnel responsible for mining, coal preparation, rehabilitation, environmental and community management at the end of the Reporting Period.

*Table 2-1 – Ulan Coal Mine Contacts*

| Name | Position | Contact Details |
|---|---|---|
| **Peter Ostermann** | General Manager | Work: 02 6372 5300<br>Email: *peter.ostermann@glencore.com.au* |
| **Sam Wiseman** | Operations Manager – Ulan Surface Operations | Work: 02 6372 5400<br>Email: *sam.wiseman@glencore.com.au* |
| **David Ribaux** | Operations Manager – Ulan Underground Operations | Work: 02 6372 5300<br>Email: *david.ribaux@glencore.com.au* |
| **Matthew Stone** | Operations Manager – Ulan West Underground Operations | Work: 02 6370 9200<br>Email: *matthew.stone@glencore.com.au* |
| **Lucy Stuart** | Environment & Community Manager | Work: 02 6372 5368<br>Email: *lucy.stuart@glencore.com.au* |

*Figure 2-1 – Locality Plan*

*Figure 2-2 – Approved Ulan Complex Operations*



# 3. Approvals

**Table 3-1** presents the Project Approval PA08_0184 (as modified) granted under the EP&A Act, administered by DPE that UCMPL operates under.

*Table 3-1 –Project Approval (as modified)*

| Project Approval | Description | Approval Date |
|---|---|---|
| PA 08_0184 | Ulan Coal –Continued Operations Project. | 15/11/2010 |
| MOD 1 | Longwall extraction of the North 1 mining area. Modify UUG & UW mine plans. Concrete Batching Plant. | 07/12/2011 |
| Court Orders | Land & Environment Court Judgement. | April 2012 |
| MOD 2 | Modify UW mine plan LW1-5. Remove restrictions on construction blasts. Minor amendments to European and natural heritage sites where blasting measures are applicable. | 25/05/2012 |
| MOD 3 | Modify UW Mine Plan realignment of main headings further to the south. | 14/02/2016 |
| MOD 4 | Modify UW & UUG Mine Plan - extend the approved longwalls UUG LW30 - LW33 and LW W7-8 and UW LW07 and LW08. | 17/07/2019 |
| MOD 5 | Administrative modification to amend a misdescription of the Project Approval Figures. | 07/08/2020 |
| MOD 7 | Permit use of the Bobadeen West Offset Area as a replacement for the privately owned portion of Brokenback Conservation Area. | 23/03/2022 |

**Table 3-2** presents the mining and exploration authorisations, granted under the *Mining Act 1992*, administered by DPE-RR, that have been issued to UCMPL.

*Table 3-2 – Mining and Exploration Titles*

| Mining Lease (ML) | Date of Grant | Duration of Approval | Mine Area Applicability |
|---|---|---|---|
| Consolidation Coal Lease (CCL) 741 | 2/01/1990 | 15/05/2027 | All operations |
| Mining Purpose Lease 315 | 3/08/1993 | 3/08/2035 | Ulan Underground (Surface Lease) |
| Mining Lease 1341 | 25/01/1994 | 25/01/2036 | Ulan Underground and Ulan West |
| Mining Lease 1365 | 9/03/1995 | 9/12/2032 | Ulan Underground (Surface Lease) |
| Mining Lease 1366 | 9/03/1995 | 9/12/2032 | Ulan Underground (Surface Lease) |
| Mining Lease 1467 | 17/04/2000 | 16/04/2042 | Ulan Underground (Surface Lease) |
| Mining Lease 1468 | 16/05/2000 | 16/05/2042 | Ulan Underground and Ulan West |
| Mining Lease 1511 | 24/04/2002 | 23/4/2044 | Ulan Underground (Surface Lease) |
| Mining Lease 1554 | 1/09/2004 | 31/08/2025 | Ulan Underground (Surface Lease) |
| Mining Lease 1656 | 03/03/2011 | 03/03/2032 | Ulan Underground (Surface Lease) |
| Mining Lease 1697 | 22/05/2014 | 22/05/2035 | Ulan Open Cut |
| Mining Lease 1798 | 19/02/2020 | 19/02/2041 | Ulan West |
| Mining Lease 1799 | 26/02/2020 | 26/02/2041 | Ulan Open Cut |
| Mining Lease 1863 | 17/10/2023 | 17/10/2044 | Ulan West – (Surface Lease) |
| Exploration Licence 5573 | 28/04/1999 | 28/04/2024 | Ulan Underground |
| Exploration Licence 7542 | 6/05/2010 | 06/05/2026 | Ulan West |
| Exploration Licence 8687 | 31/01/2018 | 31/1/2024* | Ulan West |

| Mining Lease (ML) | Date of Grant | Duration of Approval | Mine Area Applicability |
|---|---|---|---|
| Exploration Licence 9363 | 24/02/2022 | 24/02/2028 | Ulan West |
| Exploration Licence 9419 | 31/05/2022 | 31/05/2028 | Ulan Underground |
| Mining Lease 1813 | 24/03/2021 | 24/03/2042 | Ulan Open Cut |

**Notes:** * Renewal Applied for. Ulan Underground formally refered to as No. 3 Underground

Water licences for monitoring bores and wells are listed in **Table 3-3**.

*Table 3-3 - Groundwater Licences held under Part 5 of Water Management Act 1912*

| Licence No. | Description | Works Type | Extraction Limit (ML) | Expiry Date |
|---|---|---|---|---|
| 20BL168100 | Monitoring Bores | Monitoring Bore | NA | Perpetuity |
| 20BL173736 | Monitoring Bores | Monitoring Bores | NA | Perpetuity |
| 20BL172841 | Bobadeen Monitoring Network | Monitoring Bore | NA | Perpetuity |
| 20BL172845 | Goulburn River Diversion Monitoring Network | Monitoring Bore | NA | Perpetuity |
| 20BL172846 | Alluvium Monitoring Network | Monitoring Bore | NA | Perpetuity |
| 20BL172847 | Hydrocarbon Monitoring Network | Monitoring Bore | NA | Perpetuity |
| 20BL172850 | North Monitoring Network | Monitoring Bore | NA | Perpetuity |
| 20BL172851 | Intermittent Monitoring Network | Monitoring Bore | NA | Perpetuity |
| 20WA216193 | 1977 Cope Road | Stock/Domestic Bore | NA | Perpetuity |
| 80WA706045 | 2460 Blue Springs Road | Stock/Domestic Bore | NA | Perpetuity |
| 80WA706112 | 2450 Blue Springs Road | Stock/Domestic Bore | NA | Perpetuity |

Water licences for dewatering bores, dams, and wells are listed in **Table 3-4**.

*Table 3-4 - Water Approvals held under Division 2 of the Water Management Act 2000*

| Licence No. | Description | Works Type | Extraction Limit* (Shares) | Water Source | Expiry Date |
|---|---|---|---|---|---|
| WAL41492 (20AL214787) | Aquifer (Extraction) | Water Allocation Licence | 7060 | Oxley Basin Coast Groundwater Source | Perpetuity |
| WAL37192 (20AL723743) | Aquifer (Extraction) | Water Allocation Licence | 704 | Murray Darling Basin Porous Rock Groundwater Source | Perpetuity |
| WAL41906 (80AL724736) | Aquifer (Extraction) | Water Allocation Licence | 2215 | Murray Darling Basin Porous Rock Groundwater Source | Perpetuity |
| WAL42900 (20AL220117) | Aquifer (Extraction) | Water Allocation Licence | 4031 | Murray Darling Basin Porous Rock Groundwater Source | Perpetuity |
| 20FW213272 | Goulburn River Flood Gates | Levy Licence | NA | NA | 21/09/2027 |
| WAL19047 20WA209953 | Moolarben Creek Dam/Pump & Baseflow loss | Water Allocation Licence | 600 | Upper Goulburn River Water source | 29/09/2023 WAL allocation Perpetuity |
| WAL41817 | WAL allocation Perpetuity | Water Allocation Licence | 50 | Upper Talbragar River Water Source | Perpetuity |

| Licence No. | Description | Works Type | Extraction Limit* (Shares) | Water Source | Expiry Date |
|---|---|---|---|---|---|
| WAL 34921 (80AL716931) | Aquifer (Baseflow loss) | Water Allocation Licence | 50 | Talbragar Alluvial Groundwater Source | Perpetuity |
| WAL44712 | WAL allocation Perpetuity | Water Allocation Licence | 190 | Murray Darling Basin Porous Rock Groundwater Source | Perpetuity |
| WAL44842 | WAL allocation Perpetuity | Water Allocation Licence | 30 | Murray Darling Basin Porous Rock Groundwater Source | Perpetuity |

**Notes:** *Annual extraction limits against licences provided in **Section 5.3** of this Report

**Table 3-5** presents other approvals and licence issued to UCMPL that Ulan Coal Mine operates under.

*Table 3-5 - Other Approvals and Licences*

| Licence/Approval | Licence/ Approval No. | Authority | Approval/Expires |
|---|---|---|---|
| Environment Protection Licence (EPL) | 394 | EPA | Anniversary Date 18 November |
| UW Extraction Plan LW1 to LW8 | NA | DPE | Approval 20/07/2022 |
| UUG Extraction Plan LW30 – LW32 & W6-W8 | NA | DPE | Approval 29/09/2023* |
| Radiation Management Licence | 5061101 | EPA | Expires 02/08/2023 |
| Radiation User Licence | 5023004 | EPA | Perpetuity |
| Dangerous Goods Notification | NDG023149 | WorkCover NSW | Expires Sept 2031 |
| EPBC Approval | 2009/5252 | DAWE | Expires 1 March 2036 |
| EPBC Approval (MOD 3 extension area) | 2015/7511 | DAWE | 22 December 2015 to Perpetuity |
| Bobadeen Grinding Groove Conservation Agreement | NA | BCS | Final signed copy received 11 December 2019 |
| Conservation Agreement for Brokenback Conservation Area- Area 1 (UCMPL owned land) | NA | BCS | Final signed copy received 11 December 2019 |
| Conservation Agreement for Bobadeen Vegetation Offset Area (UCMPL owned land) | NA | BCS | Final signed copy received 11 December 2019 |
| Conservation Agreement for Highett Road Offset Area (UCMPL owned land) | NA | BCS | Gazetted 6 December 2019 |
| Conservation Reservation for Spring Gully Offset Area (Crown owned land) | NSW Government Gazettal No 165 | DPE- Crown Land | Gazetted 6 December 2019 |
| Bobadeen West Offset Area Biodiversity Stewardship Agreement | NA | BCT | Final signed copy received 20 June 2023 |

**Notes:** * Secretary provided conditional approval of the revised Ulan Underground Extraction Plan submitted in August 2023. The approval is subject to the conditions outlined in Table 1. Refer to **Section 3.2.2** for an update of actions to address the conditions outlined in Table 1.

### 3.1.1 Surrender of Consents

Prior to PA08_0184, UCMPL formally operated under four major Development Consents, 18 modifications and 16 other minor development approvals. The final remaining Development Consent DA 113-12-98 was surrendered to DPIE (now DPE) on the 20/10/2017 within 3 months of the completion of LWW3, in accordance with Schedule 2 Condition 9 of PA08_0184. Resubmission was requested by DPE, this occurred 23/11/17. Finalisation is pending due to one remaining landowner providing their consent for the surrender of DA 113-12-98.

## 3.2 Changes to Approvals

### 3.2.1 EPL 394

There was one variation to EPL 394 during the Reporting Period in July 2023. The EPA varied EPL394 to remove Special Condition E3.1 as it related to stabilisation of the clean water system and rehabilitation area. UCMPL were able to demonstrate the rehabilitation around the 'Peanut dam' was stabilised and as such the rainfall runoff entering this dam is now considered 'clean'. Accordingly, the requirements of Special Condition E3.1 were met by UCMPL.

### 3.2.2 Extraction Plans

The Extraction Plan (EP) for Ulan Underground Longwalls LW30-LW32 and W6-W8[4] was conditionally approved during the Reporting Period to include LW31 and LW32 (**Table 3-6**). During the next Reporting Period UCMPL will revise EP for Ulan West to include the next two longwalls LW9 and LW10.

*Table 3-6 Status Update of Conditional Approval Requirements for UUG Extraction Plan*

| Conditional Approval Requirements | Completion Status |
|---|---|
| 1. Within three months of the approval of this extraction plan, the Proponent must investigate monitoring bore PZ10B to determine if it is functioning appropriately.<br><br>If it is determined to not be functioning appropriately, the Applicant must fix or replace the bore within six months of the approval of this extraction plan. | **Completed:** On the 22/11/2023 UCMPL completed the investigation of PZ10A and PZ10B. The downhole camera inspection of PZ10A and PZ10B proved the integrity of the bore casings are intact.<br><br>There was nothing to indicate the casing at either bore is leaking or had failed. |
| 2. Within 6 months of the approval of this extraction plan, unless otherwise agreed by the Secretary, the Proponent must install one or more new open hole monitoring bores in the Jurassic Pilliga and Purlewaugh formations. The location of the monitoring bore(s) must be determined in consultation with DPE Water the bore(s) must be equipped with a data logger (minimum daily measurements). | **Ongoing:** Awaiting feedback from DPE regarding the proposed locations for monitoring bores. |
| 3. Within three months of the approval of this extraction plan, unless otherwise agreed by the Secretary, the Proponent must equip monitoring bores PZ10A and PZ10B (if functioning appropriately) with data loggers (minimum daily measurements). If a replacement bore is required for PZ10B under condition 1 then the replacement bore must be fitted with a data logger(minimum daily measurements). | **Completed:** As a result of the downhole camera investigations completed on the 22/11/2023, UCMPL can confirm PZ10A is dry and confirmed the bottom of the bore hole was at approximately 165.1m with a standing water level (SWL) at approximately 165.0m., UCMPL have equipped monitoring bore PZ10B with a data logger.<br><br>A logger was installed at PZ10B on the 30 January 2024 as agreed to by DPE. |

[4] PA08_0184 Schedule 3, Condition 26. The Extraction Plan was prepared in accordance with the new Guidelines for the Preparation of Extraction Plans (as issued by the DPE in October 2022).

| Conditional Approval Requirements | Completion Status |
|---|---|
| Within 12 months of the approval of this extraction plan, the Proponent must:<br>a) review the remaining groundwater monitoring sites that will be impacted by mining and identify those that would most benefit from the frequency of monitoring associated with data loggers, in consultation with DPE Water and to the satisfaction of the Secretary; and<br>b) install data loggers at the identified monitoring sites. | **Ongoing:** UCMPL are currently undertaking a comprehensive review of its groundwater monitoring network that will be impacted by mining to identify those bores to most benefit from the frequency of monitoring associated with data loggers.<br>As required, UCMPL will undertake this review in consultation with DPE Water and to the satisfaction of the Secretary and install data loggers at those identified monitoring sites by 28 September 2024 |
| 4. By 30 September 2024, unless otherwise agreed by the Secretary, the Proponent must:<br>a) update and recalibrate the numerical groundwater model and predictions, in consultation with DPE Water, to the satisfaction of the Secretary;<br>b) reassess the predicted groundwater take, aquifer drawdown predictions (including in the Jurassic Pilliga and Purlewaugh formations) and baseflow losses;<br>c) provide revised predictions based on the updated numerical model including predicted cumulative impacts from approved mining; and<br>d) complete an independent peer review of the updated model by a technical expert endorsed by the Secretary. | **Ongoing:** Update and recalibration of the Groundwater Model has commenced. |
| 5. The Proponent must prepare a subsidence monitoring and mitigation program for the Mona Creek Rock Shelter Sites (Ulan ID # 180-187) to the satisfaction of the Secretary, prior to the commencement of secondary extraction in Longwall LWW8.<br>This program must include a comprehensive:<br>a) baseline data set to enable meaningful comparison of subsidence impacts;<br>b) Trigger Action Response Plan for the sites; and<br>c) mitigation plan for the sites, to cover all actions to ensure the performance measure of nil impact upon these sites is achieved. | **Ongoing:** LWW8 is not due to commence until 2026. The monitoring devices have been installed at the Mona Creek Rock Shelters and the TARP developed. This will be submitted in to DPE in due course for approval. |

### 3.2.3 Ulan Modification 6

UCMPL lodged MOD 6 with the DPE and public exhibition commenced on the 18 November and ran through to 15 December 2022. MOD 6 remained under assessment by the DPE at the end of the 2023 Reporting Period. In summary MOD6 proposes:

- Extension of Ulan Underground Long Wall (LW) panels LWW9 to LWW11 to the west;
- Widening of Ulan Underground LWW11 by approximately 30 metres; and
- Extension of Ulan West LW10 to LW12 to the north.

UCMPL is also proposing some minor changes to surface infrastructure to support underground mining activities including provision of:

- 1 ventilation shaft and associated infrastructure corridor;
- 2 dewatering bores and associated infrastructure corridors; and
- Infrastructure corridor and power borehole to the south west of Ulan West.

### 3.2.4 First Workings

Ulan West Longwalls 8 and 9 First Workings Request

On the 13 March 2023, UCMPL sought a minor amendment to the First Workings of the UW mine plan in accordance with Condition 25, Schedule 3 of PA08_0184. The First Workings request sought to shorten the northern end of LW8A by approximately 170m due to adverse in-seam geotechnical conditions, included some additional drivages for a dewater sump at the northern end of LW9 and minor changes to recovery drivages in five longwall panels. Approval by the Secretary regarding this First Workings amendment submitted on the 13 March 2023 was granted on the 12 April 2023.

### 3.2.5 Management Plans

After the submission of the AR 2021, UCMPL revised and resubmitted for approval, in November 2022, a number of management plans as required by Condition 4, Schedule 5 of PA08_084. The management plans and programs were reviewed to include but not be limited to Modification 7 (MOD 7) and actions from the 2022 Independent Environment Audit (2022 IEA). The management plans submitted in November 2022 and their current approval status include:

- Air Quality & Greenhouse Gas Management Plan (AQMP) (Version 8.3);
    - AQMP last approved 1/10/2020 (Version 7.1).
- Biodiversity Management Plan (BMP) (Version 6.1);
    - BMP last approved 15/05/2019 (Version 5);
- Environmental Management Strategy (EMS) (Version 14);
    - (EMS) (Version 14) approved 13/11/2023
- Blast Management Plan (BMgP) (Version 8.3);
    - BMgP (Version 8.3) approved 20/04/2023.
- Water Management Plan (Version 10.1) consolidating the Groundwater Monitoring Program (GWMP), the Surface Water & Groundwater Response Plan (SWGWRP) and the Surface Water Monitoring Program (SWMP) (see below);
- Erosion and Sediment Control Plan (ESCP) (Version 12);
    - ESCP (Version 12) approved 28/04/2023
- Heritage Management Plan (HMP) (Version 8.5);
    - HMP last approved 15/05/2019 (Version 7.1)
- Noise Management Plan (NMP) (Version 8.4); and
    - NMP (Version 8.5) approved on 01/08/2023
- Waste Management Plan (WMgP) (Version 12.5).
    - WMgP (Version 8.3) approved 20/04/2023

UCMPL submitted the 2022 AR on the 31 March 2023 as required by Condition 3, Schedule 5 of PA08_0184 and subsequently completed a review of the above management plans and programs as required by Condition 4(a), Schedule 5 of PA08_0184. In consideration of the recent reviews

completed by UCMPL in November 2022, no further revisions where deemed necessary for a number of the above management plans and programs as required by Condition 4(a), Schedule 5 of PA08_0184. The WMP, BMP and HMP were subsequently revised post consultation with relevant stakeholders.

In 2023, UCMPL revised the WMP (now Version 11) to include the requested additional information (RFI) by the DPE on the 18 April 2023, RFI by the DPE Water received on the 15 June 2023 and meeting with DPE and DPE Water on the 3 July 2023 regarding the groundwater model predictions and its suitability to inform monitoring and management requirements. The revised WMP (Version 11) also included several of the UUG Extraction Plan conditional approval requirements issued by the DPE on the 29 September 2023. Specific to the WMP were conditional approval requirements Conditions 1 to 4. For further information and status of addressing the conditional approvement requirements Conditions 1 to 4, refer to **Section 3.2.2**. The revised WMP (Version 11) was resubmitted for approval on the 8 December 2023. At the time of preparing the 2023 AR the revised WMP (Version 11) was still under approval consideration with the DPE.

In 2023, UCMPL revised the HMP (now Version 9) to address responses from Warrabinga Native Title Claimants Aboriginal Corporation (Warrabinga) and request for information from the DPE. UCMPL engaged their Aboriginal heritage specialist OzArk Environment & Heritage (OzArk) to assist in preparing responses for Warrabinga. At the time of preparing the 2023 AR the revised HMP (Version 9) was finalised by UCMPL and resubmitted for reapproval.

During the 2023 Reporting Period, the BMP (Version 7.0), was updated, to include updated Figure 5.1 and general formatting of the BMP. At the time of preparing the 2023 Annual Review, the BMP (Version 7.0) remained with the DPE for reapproval.

## 3.3 Mining Lease Reporting Conditions

Environmental management reporting requirements, annual rehabilitation reporting and non-compliance reporting requirements for UCMPL's mining leases CCL741, ML1656, MPL315, ML1697, ML1365, ML1366, ML1341, ML1754, ML1798, ML1799, ML1913, ML1468, ML1554, ML1467, ML1511 had the relevant conditions omitted as of the 17 October 2022 in accordance with *Instrument of Variation under section 261B and clause 12 of Schedule 1B of the Mining Act 1992 (the Act).* For further details refer Attachment I in the previous 2022 Annual Review.

## 3.4 RMP and ARPFP

UCMPL have prepared a Rehabilitation Management Plan (RMP) in accordance with the NSW Resources Regulator (NSW RR) *Form and Way-Rehabilitation Management Plan for Large Mines*. The RMP has been developed to satisfy the requirements of Condition 57, Schedule 3 of PA08-0184 to prepare an RMP. The development of the RMP also satisfies the rehabilitation requirements of UCMPL's relevant mining leases (**Table 3-2**).

UCMPL have also prepared an Annual Rehabilitation Report and Forward Program (ARPFP) in accordance with NSW RR *Form and Way – Annual Rehabilitation Report and Forward Program for Large Mines.* The ARPFP provides for a three-year surface disturbance and rehabilitation activities.

# 4. Operations Summary

Total product coal for the Reporting Period was 11,365,845 tonnes. **Table 4-1** provides an overview of production for 2023, production for 2022 and a forecast for the 2024 Reporting Period.

*Table 4-1– Production Summary*

| | Unit | Approved limit (specify source) | 2022 Reporting Period | 2023 Reporting Period | 2024 Reporting Period (Forecast) |
|---|---|---|---|---|---|
| **Waste Rock/Overburden** | $m^3$ | NA | 0 | 0 | 0 |
| **ROM Coal**<br>- **Open Cut**<br>- **Underground:**<br>Ulan West<br>Ulan Underground | Tonnes<br><br>Tonnes<br>Tonnes | 4.1M<br><br>NA<br>NA | 0<br><br>6,961,477<br>5,549,832 | 0<br><br>8,786,227<br>3,300,733 | 0<br><br>7,133,465<br>3,734,644 |
| **Coarse Rejects & Tailings** | Tonnes | NA | 388,152 | 260,966 | 426,814 |
| **Fine Tailings** | Tonnes | NA | 362,737 | 223,400 | 432,112 |
| **Product Coal*** | Tonnes | 20 M | 11,531,650 | 11,356,845 | 10,009,184 |

**Notes:** M = 1 Million Tonnes * Railed

## 4.1 Other Operational Conditions

### 4.1.1 Ulan West Underground

During the Reporting Period, underground mining operations included development of roadways for LW8 and LW9 and the main headings consistent with First Workings approvals. LW7 commenced in August 2022 and has retreated approximately 6,152m since commencment as of December 2023 (**Figure 4-1**). Ulan West produced 8,786,227 tonnes of ROM coal during the Reporting Period (**Table 4-1**). During 2023 ULW commenced site preparations for LW8 end of block infrastructure. This included road and pad construction, and a powerline corridor to support dewatering and ventilation to underground operational areas.

### 4.1.2 Ulan Underground

During the Reporting Period, underground mining operations included development of roadways for LWW8, LW30 and LW31 in accordance with First Workings approvals. LW30 commenced in July 2022 and had retreated to 0m chainage in July 2023. LW31 commenced in October 2023 (**Figure 4-1**) and had retreated approximately 294m at the end of the reporting period. Ulan Underground produced 3,300,733 tonnes of ROM coal during the Reporting Period (**Table 4-1**). Ulan Underground commissioned the upgrade of the compressors at 56ct during the reporting period and included expansion of an existing pad area and construction of a shed structure for the upgraded compressors. Additionally, commencement of site preparation activities for the installation of two service boreholes (concrete and ballast) at 82ct, located adjacent to existing infrastructure. These projects will be finalised during the 2024 Reporting Period.

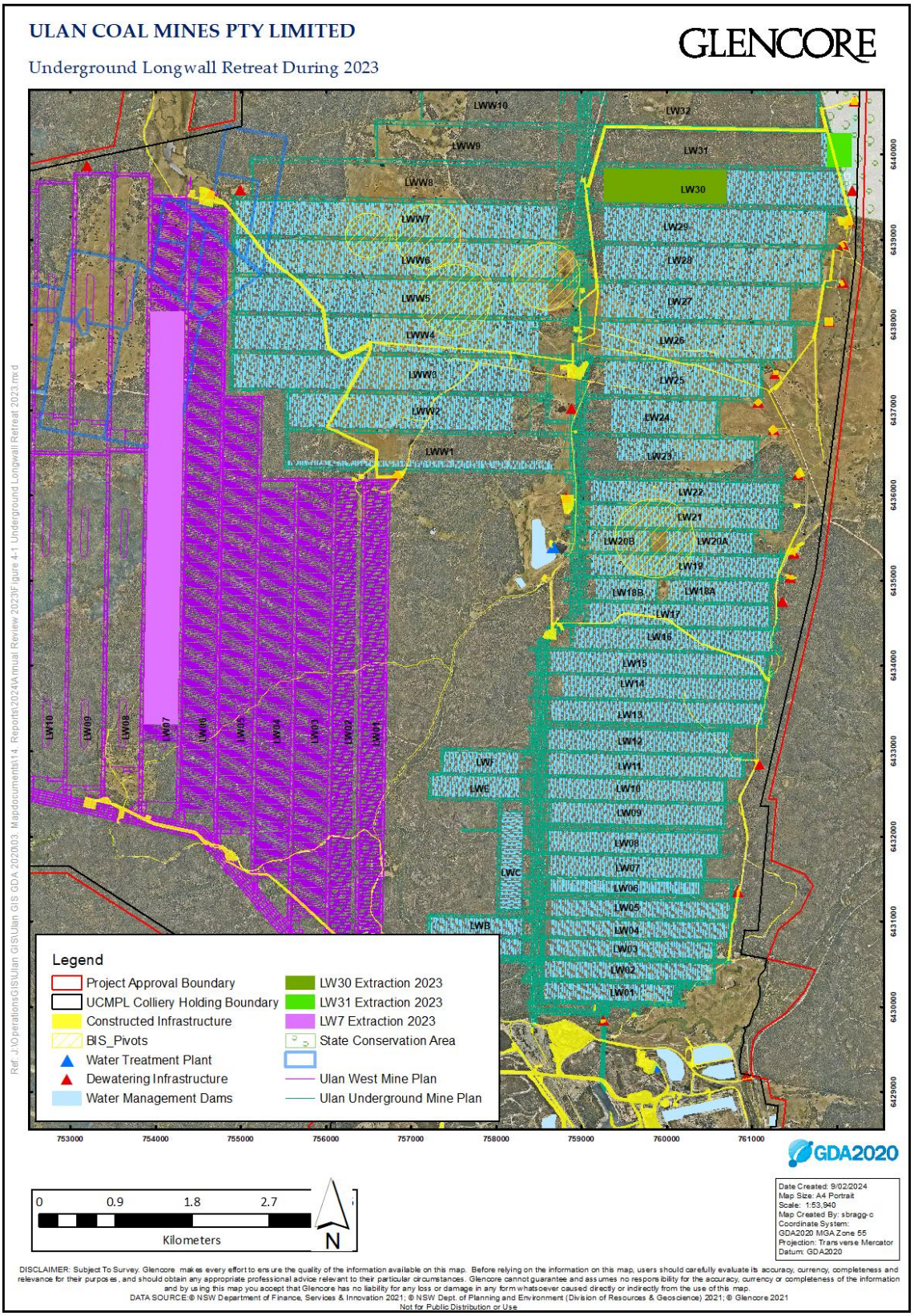



*Figure 4-1 Underground Longwall Retreat in 2023*

### 4.1.3 Open Cut

The Open Cut mining area has been in care and maintenance since 10 October 2016. No open cut mining activities occurred during the Reporting Period.

### 4.1.4 Bobadeen Basalt Quarry

The Bobadeen Basalt Quarry (the Quarry) (**Figure 2-2**) produced no Basalt Road Base in 2023 for road works or infrastructure construction. Annual production limit for the Quarry is 100,000 tonnes (EPL394, A1.2).

### 4.1.5 Extension of East Pit Tailings Dam

The construction of the East Pit Tailings Dam (No.3) or TD3 commenced in 2022 and was available for storage in mid 2023. During the Reporting Period construction of East Pit Tailings Dam (No.4) or TD4 commenced.

### 4.1.6 Coal Processing & Rail Movements

The Coal Handling Preparation Plant (CHPP) processed 2.680 Mt of UW ROM coal and 0.898 Mt of UUG ROM coal. The reject waste produced represents approximately 12.8% of the ROM coal processed by the CHPP; classified as either coarse reject (260,966 tonnes) and emplaced in the Barrier Pit or tailings (223,400 tonnes) emplaced in East Pit Tailings Dam Number 2. All product coal, approximately 11,316,532.48 tonnes, was transported via rail on the Sandy Hollow rail corridor to the Port of Newcastle during the Reporting Period (**Attachment L**) as required by Schedule 2, Condition 7 of PA08_0184 (**Table 4-2**). No product coal was transported on the Tallawang to Wallerawang rail corridor in the 2023 Reporting Period.

*Table 4-2 - Coal Loaded and Train Movements in 2023*

| Month | Average and Maximum Trains Leaving Site per Day (Maximum allowed 10) | | Total Movements for the Month | Coal Loaded for the Month (tonnes) |
|---|---|---|---|---|
| Year 2023 | Average | Maximum | | |
| **January** | 4 | 5 | 111 | 1,029,752.46 |
| **February** | 3 | 4 | 80 | 736,976.13 |
| **March** | 5 | 6 | 132 | 1,219,795.31 |
| **April** | 4 | 5 | 97 | 900,665.03 |
| **May** | 4 | 5 | 105 | 967,286.04 |
| **June** | 4 | 6 | 111 | 1,028,166.19 |
| **July** | 5 | 6 | 130 | 1,203,301.85 |
| **August** | 4 | 5 | 101 | 932,988.68 |
| **September** | 5 | 6 | 120 | 1,109,268.87 |
| **October** | 4 | 5 | 106 | 978,744.53 |
| **November** | 3 | 4 | 81 | 753,698.79 |
| **December** | 2 | 4 | 49 | 455,888.60 |

### 4.1.7 Land Preparation

Land preparation activities, during the Reporting Period were carried out in accordance with the RMP and ARPFP. Land preparation ahead of mining operations and infrastructure involves the construction of appropriate erosion and sediment control structures, the clearing of vegetation and stripping and stockpiling of topsoil. This applies to major surface disturbance works[5] and is not limited to open cut mining operations.

There was approximately 3.16ha of land disturbed associated with exploration activities, 7.64ha of land disturbed associated with the construction and site preparation activies for ULW LW08 end of block infrastructure and UUG compressor site upgrades and service borehole installation (**Figure 4-2**).

[5] Ground Disturbance Permit (GDP) is signed off by Senior Environment personnel and the applicable Mine Surveyor.

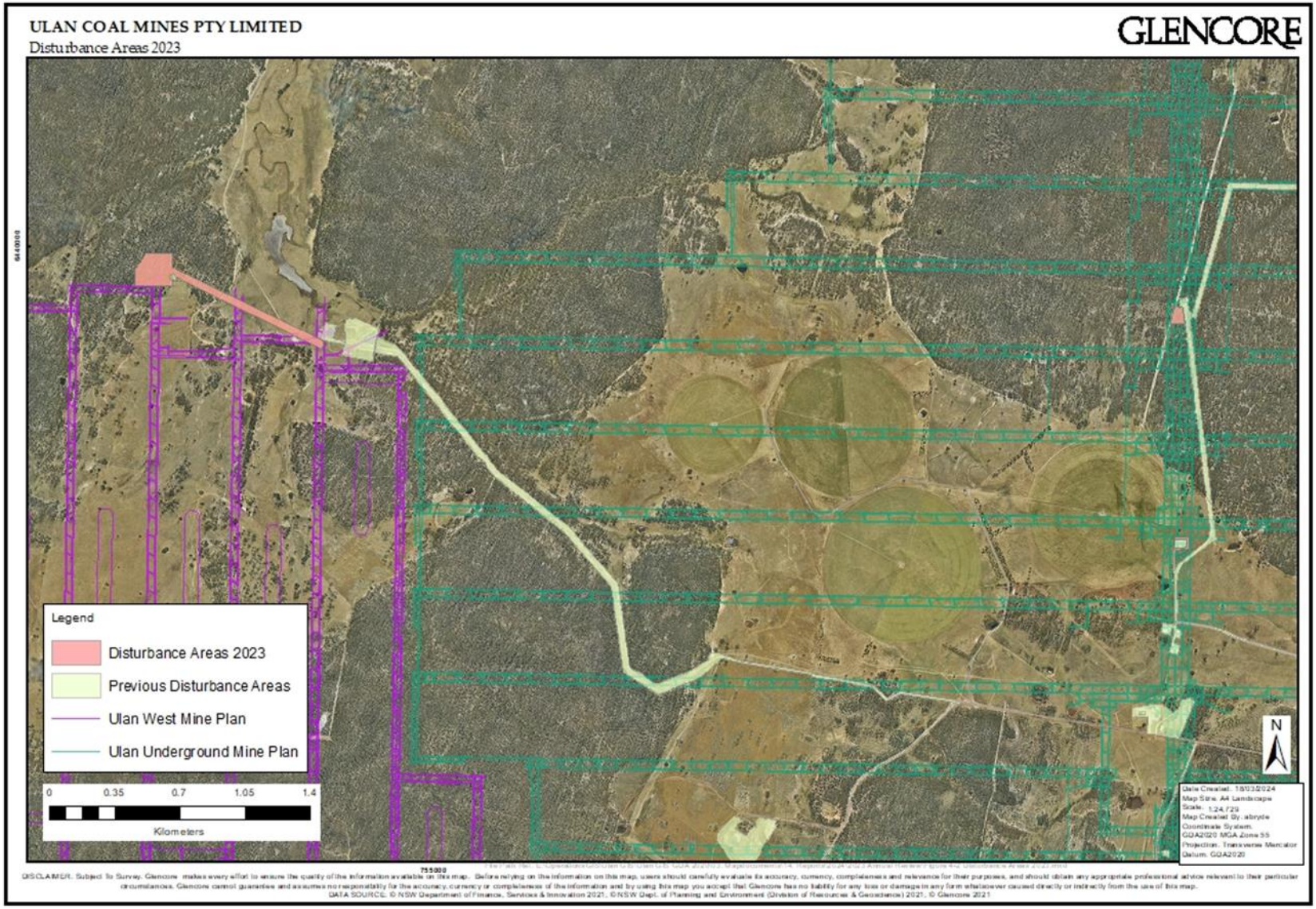



*Figure 4-2 UCMPL Surface Disturbance Areas for Underground Operations in 2023*

# 5. Actions Required From Previous AR

The 2022 AR was submitted to the DPE on 31 March 2023 as required under Schedule 5, Condition 3 of PA08_0184.

The DPE's review of the 2022 AR considered it generally satisfied the reporting requirements of the consent and the department's *Annual Review Guideline (October 2015)* in their repsonse letter dated 01 May 2023.

As required by Schedule 5, Condition 10, of PA08_0184, a copy of the 2022 AR is provided at *www.ulancoal.com.au*

# 6. Environmental Performance

## 6.1 Meteorological Monitoring

The weather station (WS1), located adjacent to the USO administration office (**Attachment K**), continuously records meteorological data[6] using multiple sensors and a data-logging system on a 30 metre tall mast. Logged meteorological parameters are listed in **Table 6-1**. WS1 is linked directly to the Sentinex[7] repository database providing access to real time weather conditions and rainfall events.

*Table 6-1 - EPL 394 Meteorological Monitoring Parameters*

| Parameter | Unit of Measure | Frequency | Averaging period | Sampling Method |
|---|---|---|---|---|
| Wind Direction | Degrees | Continuous | 15 minute | AM-2 & AM-4 |
| Wind Speed | Metres per second | Continuous | 15 minute | AM-2 & AM-4 |
| Sigma Theta | Degrees | Continuous | 15 minute | AM-2 & AM-4 |
| Rainfall | Millimetres | Continuous | 15 minute | AM-4 |
| Air Temperature | Degrees Celsius | Continuous | 1 hour | AM-4 |
| Relative Humidity | Percent | Continuous | 1 hour | AM-4 |

**Notes:** wind speed at 10, 20 and 30 metres above ground, wind direction at 10, 20 and 30 metres above ground sigma-theta from sampled wind direction measurements, temperature at 2 metres and 10 metres above ground. WS1 was maintained and operated in accordance with 'Approved methods for the sampling and analysis of air pollutants in NSW' (EPA, 2006) which refers to *Australian Standard AS2923 - 1987* (Guide for measurement of horizontal wind for air quality applications).

The rainfall recorded at WS1 for the Reporting Period (**Table 6-2**) was 415.8mm, approximately 674.5mm less than the rainfall of 1090.3mm received in 2022 (**Figure 6-1**) and approximately 256.2mm below the long term average of 672mm for the region (2009 EA). The majority of rain received was during the first and last quarters of 2023 approximately 65% of the annual amount. The wettest month was January with 61.9mm of rainfall recorded. The driest month was May with just 3.7mm of rainfall recorded.

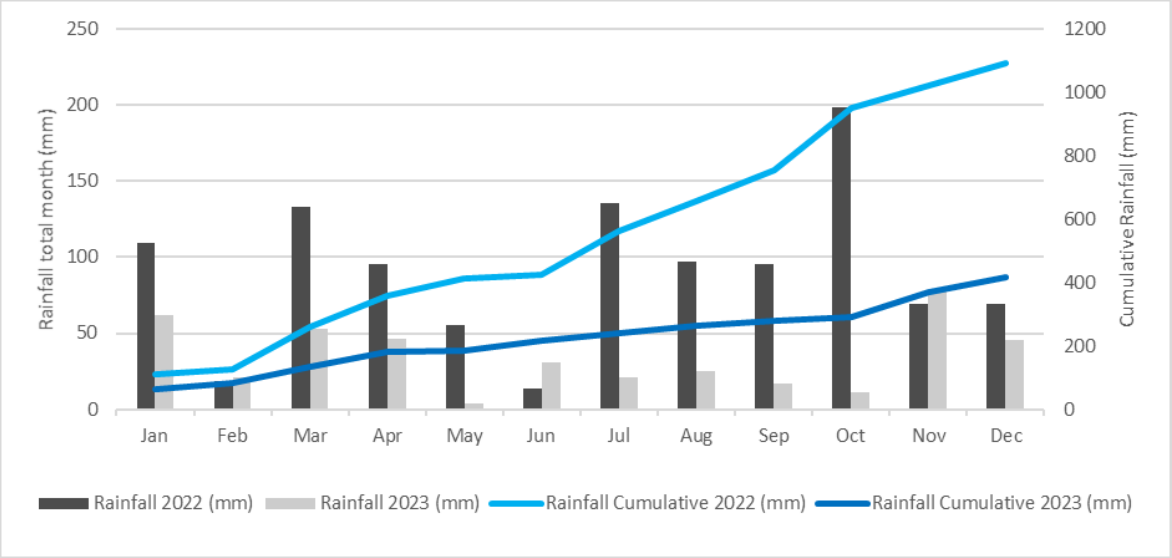



*Figure 6-1 - Rainfall Comparison to Previous Reporting Period*

[6] Condition 23, Schedule 3 of PA08_0184 and EPL394
[7] Sentinex is a web-based platform to communicate from monitoring locations

Monthly minimum and maximum 15-minute temperatures are recorded at WS1 (**Figure 6-2** and **Figure 6-3**). The highest temperature over a 15-minute period of 39.2°C was recorded in both March and December 2023 and the lowest temperature over a 15 minute period of -8.2°C was recorded on June 2023.

The monthly maximum temperatures were generally above the previous Reporting Period and comaparble to the seven year average with the exception of greater monthly temperatures recorded in March, June, September and October.

The monthly minimum temperatures were generally below the previous Reporting Period and below the seven year average with the exception of greater monthly temperatures recorded in November and December.

*Table 6-2 - Summary of Meteorological Conditions for 2023*

| Date | Rainfall (mm) | Rainfall Cumulative (mm) | Temperature Min (°C)^ | Temperature Max (°C)^ | Prevailing Wind Directions |
|---|---|---|---|---|---|
| Jan-23 | 61.9 | 61.9 | 37.4 | 7.3 | East |
| Feb-23 | 20.9 | 82.8 | 37.1 | 4.3 | East |
| Mar-23 | 53.2 | 136 | 39.2 | 3.5 | East |
| Apr-23 | 46.7 | 182.7 | 26.6 | 0.3 | East, South West |
| May-23 | 3.7 | 186.4 | 22.3 | -5.2 | South West |
| Jun-23 | 30.7 | 217.1 | 23.0 | -8.2 | South West |
| Jul-23 | 21.4 | 238.5 | 22.5 | -7.8 | South West |
| Aug-23 | 24.7 | 263.2 | 23.6 | -4.4 | South West |
| Sep-23 | 16.6 | 279.8 | 31.8 | -3.8 | South West |
| Oct-23 | 11.2 | 291 | 34.7 | 1.1 | South West, West |
| Nov-23 | 79.1 | 370.1 | 34.2 | 5.1 | North East |
| Dec-23 | 45.7 | 415.8 | 39.2 | 9.0 | North East |

**Notes:** ^15 minute capture period for data used.

Prevailing winds were generally from the West during winter and from the East during summer, consistent with the historical data presented in the 2009 EA. A westerly wind pattern is more common during winter through to early spring, in contrast to an easterly wind pattern during summer and autumn. Monthly wind roses for 2023 are presented in **Attachment K**.

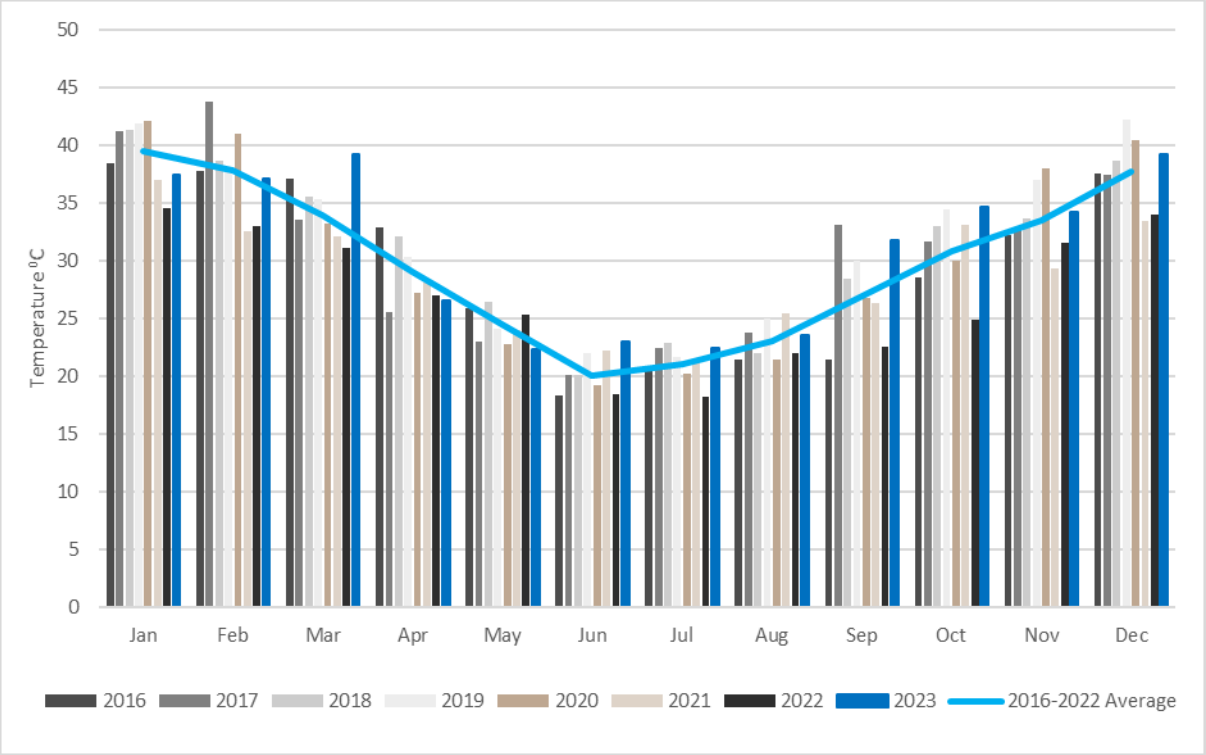



*Figure 6-2 - Seven Year Maximum Temperature Trends*

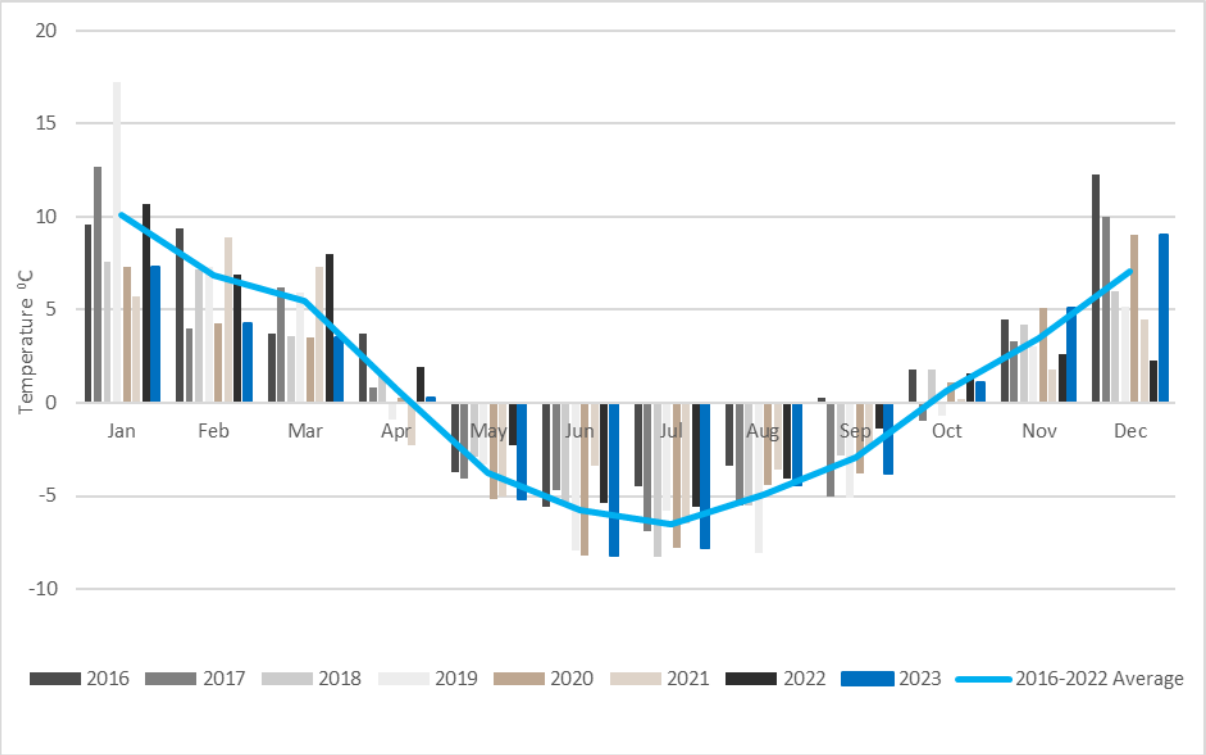



*Figure 6-3 - Seven Year Minimum Temperature Trends*

# 6.2 Operational Noise

The Noise Management Plan (NMP)[8] describes the attended noise monitoring, primarily used for determining compliance against the noise criteria, and unattended or real-time monitoring, which is used for proactive noise management.

The locations of the real time noise monitors (which may be relocated as required) and attended noise monitoring sites required by the NMP are provided in the attended noise monitoring reports and in **Attachment H**. Attended noise monitoring[9] results for June and December 2023 are summarised below in **Table 6-4**, with attended noise monitoring reports provided in **Attachment A**.

*Table 6-3 - Attended Noise Monitoring LAeq Maximums (dB) 2011 – 2023*

| Location | NM2 | NM3 | NM4[1] | NM6 | NM7 |
|---|---|---|---|---|---|
| **Noise Criteria** | **35** | **n/a[2]** | **35** | **35** | **38** |
| **2011** | 48 | 50 | 52 | 42 | - |
| **2012** | IA | 43 | 30 | IA | 29 |
| **2013** | 29 | 50 | <20 | 31 | 37 |
| **2014** | 20 | 49 | IA | 26 | <20 |
| **2015** | 20 | 46 | IA | 27 | IA |
| **2016** | <23 | 53 | IA | <25 | <27 |
| **2017** | <25 | 47 | <35 | 28 | 25 |
| **2018** | IA | 45 | IA | IA | 26 |
| **2019** | IA | 44 | IA | <20 | 38 |
| **2020** | <20 | 47 | IA | 26 | <25 |
| **2021** | <20 | 51 | IA | <25 | 33 |
| **2022** | <25 | 48 | - | IA | 33 |
| **2023** | 26 | 52 | - | 26 | 30 |
| General Trend (Stable, Increasing, Decreasing) | Stable | Stable | Stable | Stable | Stable |

**Notes**: IA = Inaudible. N/A = Not Applicable. [1] Ulan Public School currently in recess, therefore no monitoring was required at this location in December 2022. [2]NM3 must be acquired on request noise criteria do not apply (n/a).

One additional location during July and December 2023 noise monitoring surveys was conducted at Cope Road to evaluate cumulative noise impacts on Cope Road to meet monitoring requirements of Section 4.1.3 of the Noise Management Plan (NMP). The results of this additional noise monitoring are provided in **Table 6-4**.

UCMPL entered into four noise agreements with Property ID# 40, Property ID# 110, Property ID# 113 and Property ID# 276 during construction works associated with MOD 4 which was completed during the previous 2022 Reporting Period.

[8] NMP (Version 8.5) as required by PA08_0184 Schedule 3, Condition 9 last approved on the 1/08/2023.
[9] Reference methods*: NSW Environment Protection Authority, Noise Policy for Industry, 2017. (NPfI,2017) and Australian Standards: AS 1055.1, AS 1055.2 and 1055.3 Acoustics - Description and measurement of environmental noise; AS 2659.1 - Guide to the use of sound measuring equipment; and AS 2659 - Sound level meters*.

*Table 6-4 - Attended Noise Monitoring Summary LAeq (15-min) and Maximums (dB) for 2023*

**Noise Criteria/Predictions**

| Ulan Monitoring ID/ EPL394 Licenced Monitoring Point | Property Number | DayLAeq,15minute | Evening [1] LAeq,15minute | Night [1] LAeq,15minute | Night[1] LA1,1minute[3] |
|---|---|---|---|---|---|
| **NM2/ 38** | 60 | 35 | 35 | 35 | 45 |
| **NM3/ -** | 274 | NA | NA | NA | NA |
| **NM4[2]/26** | Ulan School[4] | 35 | NA | NA | NA |
| **NM6/ 38** | 1 | 35 | 35 | 35 | 45 |
| **NM7/ 24** | 254 | 38 | 38 | 37 | 45 |

**Notes:** [1.] NA indicates criteria is not applicable at this location during this time. [2.] Criteria for Ulan Public School (internal) 'when in use'. [3] All $LA_{max}$ results are interchangeable with LA1(1min) for assessment purposes. [4] Ulan Public School currently in recess.

The updated noise assessments for Mod 3 and Mod 4, combined with the *Environmental Assessment (2009)* indicate that three private residences are predicted to exceed 35dBA LAeq (15 min) at some stage of the project and have higher criteria limits to allow for short term elevated noise as indicated in the above table. Other residences have since been acquired and are no longer subject to the specified noise criteria.

**Performance During the Reporting Period**

| Monitoring Site | Property Number | Maximum Result LAeq 15min dB | Criterion Complies | Maximum Result LA1(1min) dB | Exceedance |
|---|---|---|---|---|---|
| **July 2023** | | | | | |
| **NM2** | 60 | IA | Yes | IA | Nil |
| **NM3** | 274 | 52 | Yes | 57 | Nil |
| **NM4** | Ulan School[1] | - | - | - | - |
| **NM6** | 1 | 26 | Yes | 28 | Nil |
| **NM7** | 254 | 30 | Yes | 31 | Nil |
| **December 2023** | | | | | |
| **NM2** | 60 | 26 | Yes | 27 | Nil |
| **NM3** | 274 | 41 | Yes | 50 | NA |
| **NM4** | Ulan School[1] | - | - | - | - |
| **NM6** | 1 | <25 | Yes | 25 | Nil |
| **NM7** | 254 | 25 | Yes | 28 | Nil |

**Notes:** IA = Inaudible NA = noise criteria does not apply NM=Not Measurable. [1] Ulan Public School currently in recess, therefore no monitoring was required at this location in 2023.

**Trends/Key Management Implications**

Attended noise monitoring in 2023 occurred during the evening and night periods in July and December, as follows:

- During the evening and night periods of 12 to 14 July 2023; and
- During the evening and night periods of the 5 and 6th and day periods on the 8 December 2022.

Ulan Complex complied with project specific criteria at all monitoring locations during the July and December 2023 survey (**Attachment A**).

Ulan Public School was in recess and not in use for the entirety of 2023 Reporting Period, therefore monitoring was not undertaken at this location during this survey.

Criteria may not always be applicable due to meteorological conditions at the time of monitoring. Stability class data (atmospheric data for wind speed and direction) rendered criteria not applicable on occasion (**Attachment A**).

There were no noised related complaints in 2023 associated with UW, UUG and USO. However, UCMPL received three (3) noise complaints associated with exploration activities (**Section 9.5**).

Current attended noise monitoring results for Property ID 274 align with noise levels predicted for Year 12 of the project (Table 8-4 and Appendix 12) in the EA.

The trend for attended noise monitoring results over time is considered stable (**Table 6-3**).

## 6.3 Blasting

The Blast Management Plan (BMgtP)[10] describes the monitoring, blast criteria and mitigation measures regarding blasting activities at the Ulan Complex. No blasts were undertaken at the Ulan Complex in 2023. There have been no blasting activities undertaken by UCMPL since 2018. Therefore, no exceedances of overpressure and vibration criteria[11] (**Table 6-5**) occurred during the Reporting Period.

*Table 6-5 – Blasting Criteria*

| Location | Airblast Overpressure (dB(Lin Peak)) | Ground Vibration (mm/s) | Allowable Exceedance |
|---|---|---|---|
| **Residence on privately owned land** | 115 | 5 | 5% of the total number of blasts over a period of 12 months |
| | 120 | 10 | 0% |

**Notes:** Blasting criteria for Aboriginal heritage sites in the BMgtP is 100 mm/s peak particle velocity

## 6.4 Air Quality

The Air Quality & Greenhouse Gas Management Plan (AQ&GHGMP)[12] describes the monitoring, air criteria and mitigation measures to reduce the potential for air quality impacts at the Ulan Complex. Air quality monitoring is carried out using a combination of monitors consisting of two (2) high volume air samplers (HVAS), one Tapered Element Oscillating Microbalance (TEOM), and of one (1) meteorological station (WS1).

Air quality monitoring locations are shown in **Attachment H**. The requirement to monitoring deposition dust was removed by EPL394 in 2020 and subsequently removed in the revision of the AQMP (Version 7.4), approved on 1 October 2020.

The following summary table (**Table 6-6**) compares the 2023 HVAS and TEOM monitoring results with the air quality impact assessment criteria, predictions in the 2009 EA and monitored dust levels in previous Reporting Periods. Further air quality monitoring results are provided in **Attachment B**.

### 6.4.1 Extraordinary Event

$PM_{10}$ levels measured by the Ulan TEOM exceeded criteria stipulated by PA08_0184, Schedule 3, Condition 19, Table 9 on 16 October 2023. Leading up to the time of elevated $PM_{10}$ result, a bushfire had established approximately 5 kilometres southwest of Ulan Coal Mines. The predominant wind direction was north-westerly. The bushfire, along with wind speed and wind direction, contributed to the elevated $PM_{10}$ data and consequently produced a 24-hour average result of 117 µg/$m^3$.

[10] BMgtP (Version 9) as required by PA08_0184 Schedule 3, Condition 16 last approved 20/04/2023.
[11] PA 08_0184, Schedule 3, Condition 10 and 10A
[12] AQ&GHGMP (Version 7.4) as required by PA08_0184 Schedule 3, Condition 16 last approved 1/10/2020.

*Table 6-6 – Air Quality Performance for 2023*

| Air Quality Criteria/Predictions | Performance During the Reporting Period | Trends/Key Management Implications |
|---|---|---|

**Air Quality Criteria/Predictions**

| Pollutant | Averaging Period | Criteria |
|---|---|---|
| **Total suspended particulate (TSP) matter** | Annual mean | [a] 90 µg/m³ |
| **Particulate matter < 10 µm ($PM_{10}$)** | Annual mean | [a] 30 µg/m³ |
| **Particulate matter < 10 µm ($PM_{10}$)** | 24 hour maximum | [a] 50 µg/m³ |

Notes: *a Total Impact (i.e. incremental increase in concentrations due to the project plus background concentrations due to other sources). b Excludes extraordinary events such as bushfires, prescribed burning, dust storms, sea fog, fire incidents, illegal activities or any other activity agreed by the Secretary in consultation with EPA.*

**EA Predicted Impact Year 12: Annual Average TSP 33-49 µg/m³**

| Pollutant | Averaging Period | [b] Criteria |
|---|---|---|
| **Particulate matter < 10 µm ($PM_{10}$)** | Annual mean | [a] 30 µg/m³ |
| **Particulate matter < 10 µm ($PM_{10}$)** | 24 hour maximum | [a] 50 µg/m³ |

Notes: *a Total impact (i.e. incremental increase in concentrations due to the project plus background concentrations due to other sources); b Excludes extraordinary events such as bushfires, prescribed burning, dust storms, sea fog, fire incidents, illegal activities or any other activity agreed to by the Director-General in consultation with EPA.*

**EA Predicted Impact Year 12: Annual Average $PM_{10}$ 26 µg/m³**

**Performance During the Reporting Period**

| TSP | Flannery's (HV1) µg/m³ | Merlene (HV3) µg/m³ |
|---|---|---|
| **Capture Rate** | 100% | 100% |
| **Annual Average** | 24.5 | 31.0 |
| **Maximum Result** | 65.6 | 86.7 |

| TEOM $PM_{10}$ Results^ | |
|---|---|
| **Capture Rate** | 99% |
| **Annual Average** | 12.9 µg/m³ |
| **Annual Average excluding extraordinary events*** | 12.6 µg/m³ |
| **Maximum (24hr)** | 117.0 µg/m³ |
| **Maximum (24hr) excluding extraordinary events*** | 42.6 µg/m³ |

Notes:* One event on the 16 October 2023 caused by nearby bushfire.

^ Capture rate of the TEOM was impacted by an electrical storm and unplanned power outage on the 20 and 21 February 2023. $PM_{10}$ data for the 20 and 21 February was supplied by the nearby MCO TEOM.

**Trends/Key Management Implications**

The annual average TSP concentrations recorded at HV1 and HV3 were below the project specific criteria[13] of 90 µg/m³ in 2023 (**Figure 6-4**) and in line with predictions provided in the air quality assessment from the 2009 Environmental Assessment (**Attachment B**).

The TSP annual averages for HV1 and HV3 in 2023 were slightly above the previous 2022 monitoring period of 24.2 µg/m³ and 17.6 µg/m³ respectively.

For further information and monitoring results for TSP refer to **Attachment B**.

The annual average $PM_{10}$ for 2023 was 10.8 µg/m³, well below the annual average criteria of 30µg/m³ and slightly higher than 9.6 µg/m³ in 2022.

TEOM monitoring data shows that the 24-hour average $PM_{10}$ concentration did exceed the 24hr 50 µg/m³ impact assessment criteria on one occasion during the Reporting Period of 117.0 µg/m³, recorded on the 16 October 2023.

The next maximum 24hr result $PM_{10}$ concentration of 42.6 µg/m³ was on the 18 April 2023 and below the 24hr 50 µg/m³ impact assessment criteria.

For further information and monitoring results for TEOMs, refer to **Attachment B**.

[13] Condition 19 of Project Approval PA 08_0184

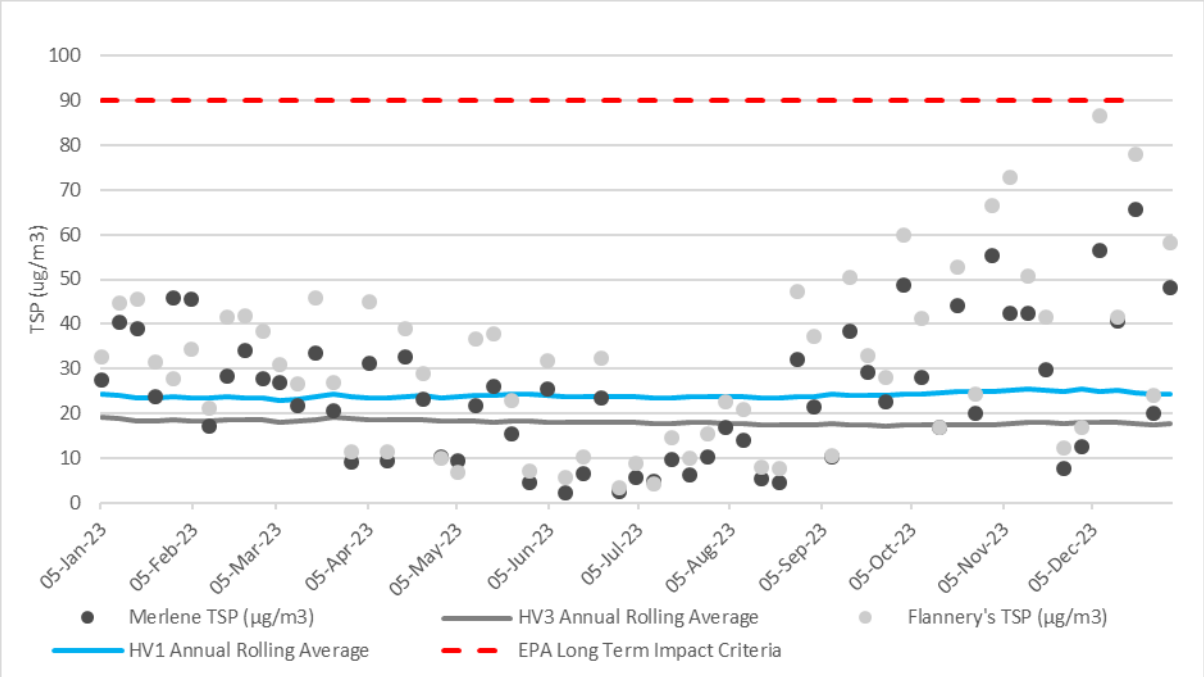



*Figure 6-4 – TSP 2023 Monitoring Results During Reporting Period*

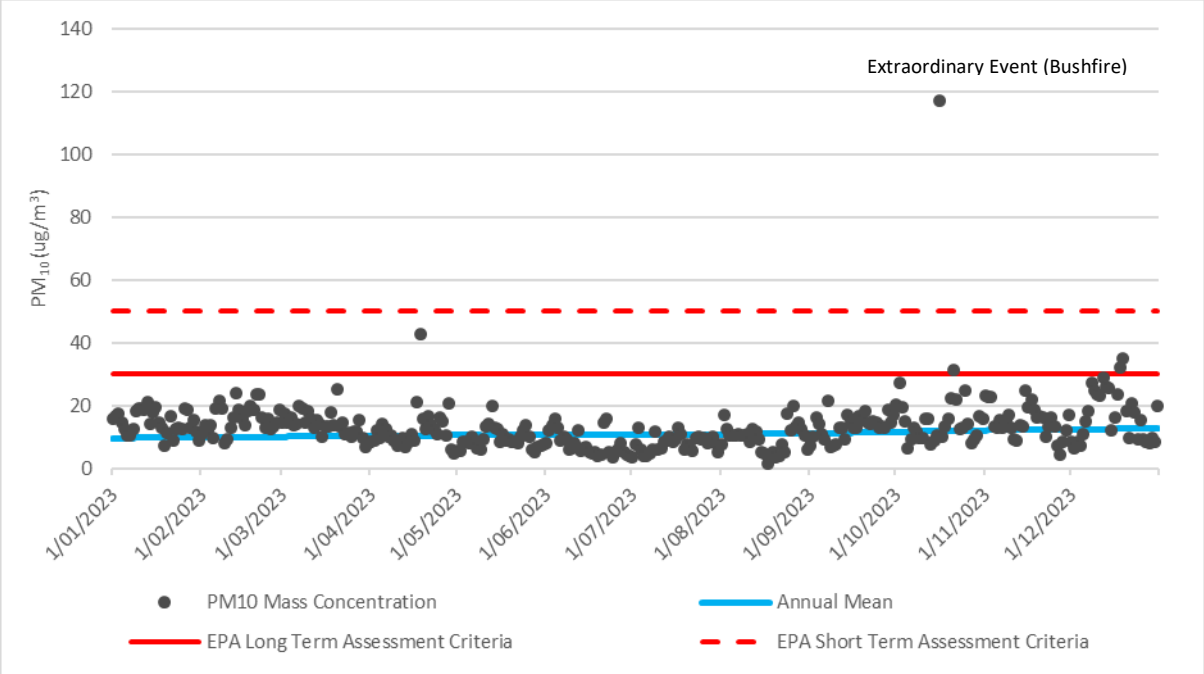



*Figure 6-5 – TEOM $PM_{10}$ 2023 Monitoring Results During the Reporting Period*

# 6.5 Heritage

## 6.5.1 Aboriginal Heritage

The Heritage Management Plan (HMP) describes the management and mitigation of the Project impacts on Aboriginal, European and natural heritage. During the 2022 Reporting Period the HMP (Version 8.5) was revised and resubmitted for approval on 30 November 2022. The revision of the HMP included minor updates referencing MOD4, MOD5 and MOD7, revised figures, updates of Aboriginal heritage recorded in the Project Area and cross referencing PA08-0184 requirements for management plans and where they are addressed in the HMP.

In 2023, UCMPL revised the HMP (now Version 9) to address responses from Warrabinga Native Title Claimants Aboriginal Corporation (Warrabinga) and request for information from the DPE. UCMPL engaged their Aboriginal heritage specialist OzArk Environment & Heritage (OzArk) to assist in preparing responses for Warrabinga. At the time of preparing the 2023 AR the revised HMP (Version 9) was finalised by UCMPL and resubmitted for reapproval.

Aboriginal heritage activities undertaken in accordance with the HMP in 2023 included but not limited to:

- Ulan West exploration tacks and drill sites in March 2023;
- Backfilled rockshelter test and salvage site Ulan ID#843;
- Test and salvage excavations at rockshelters Ulan ID#284 and Ulan ID#1580 in March 2023;
- Grinding groove site visit in December 2023;
- Site inspection and photographic recording of rockshleters within the proposed MOD6 area Ulan ID#1668 and Ulan ID#1673 in November 2023;
- Subsidence remediation of surface cracking within the Colinta lease area (Bobadeen) in November 2023; and
- Monitoring of Aboriginal rock shelter sites in accordance with the Extraction Plans (**Attachment I**).

Aboriginal Heritage Meetings were held in July, September and December 2023. Items discussed included:

- Overview of UCMPL activities and General Business;
- UCMPL's Exploration Program;
    - EL 9419 - North of Ulan Underground;
    - EL8687 and EL9363 – Ulan West Continued Operations
- Mining Leases;
- Results provided by OzArk from heritage surveys completed in 2022 and 2023;
- MOD 6 Approval Process (update) now with DPE for assessment;
- Extraction Plans;
    - Subsidence reporting, impacts and monitoring;
    - Installation of GNSS units at BBCA and proposed for GNSS units for MCRS; and
    - Proposed additional monitoring for Mona Creek Rock Shelters (MCRS) (i.e. movement sensors).
- The HMP and Aboriginal Conservation Management review; and
- The upcoming 2024 program of heritage works.

### 6.5.2 Bobadeen and Valley Way Grinding Groove Conservation Areas

Inspections of the Bobadeen and Valley Way Grinding Groove Conservation Areas were undertaken in April and with RAP's present during December 2023. Site boundary fencing on the northern side of the Bobadeen Grinding Grooves site has been impacted by localised flooding in recent years, however the site is still secure with repairs scheduled for 2024. Transient feral animal activity was observed in the Valley Way Grinding Groove Conservation Area without affecting the individual grinding groove sites. Routine feral animal control programs will continue across UCMPL in 2024.

*Photo 1 Valley Way Grinding Grooves April 2023*


*Photo 2 Bobadeen Grinding Grooves December 2023*

### 6.5.3 European and Natural Heritage

Annual inspection of the Bobadeen Homestead was undertaken, including maintenance of gardens and surrounds in accordance with the Bobadeen Homestead Management Plan[14] to reduce the risk of a bushfire further damaging the house and associated out buildings.

## 6.6 Biodiversity

Flora, terrestrial and aquatic fauna/stream health monitoring was completed consistent with the approved Biodiversity Management Plan (BMP) (Version 5.0), which includes the Offset Management Plan (OMP).

During the 2023 Reporting Period, the BMP was updated, now BMP (Version 7.0), to include updated Figure 5.1 and general formatting of the BMP. At the time of preparing the 2023 Annual Review, the BMP (Version 7.0) remained with the DPE for reapproval.

The annual flora and fauna monitoring reports prepared by Eco Logical Australia (ELA) for the Reporting Period are provided in **Attachment E** and summerised below. The locations of the 2023 flora and fauna monitoring sites are provided within each respective elcogical monitoring report.

### 6.6.1 Floristic Monitoring

Eco Logical Australia (ELA) were engaged by UCMPL to undertake floristic monitoring during autumn and spring 2023 at the Ulan Mine Complex (UMC). Monitoring was undertaken in accordance with the requirements of the BMP and the RMP. Performance indicators and completion criteria for the UMC are presented in the BMP and RMP. Refer to **Attachment E** for the complete report by ELA.

**Summary of Assessment Against RMP Completion Criteria**

The 2023 floristic monitoring results included assessment against specific completion / success criteria (**Table 6-7**) in the RMP for the following domains[15]:

- Domain B – Rehabilitation Area (Woodland/Open Forest);
- Domain C – Goulburn River Diversion;
- Domain D – Rehabilitation Area (Specific Endemic Vegetation Community); and
- Domain E – Rehabilitation Area (Tree Screen).

*Table 6-7 Domain A Summary of Assessment Against RMP Completion Criteria*

| Rehabilitation objectives | Completion criteria | Performance indices | Completion criteria status |
|---|---|---|---|
| Vegetation Composition as per criteria | Rehabilitation areas contain flora species assemblage's characteristic of each Growth | Native plant species richness assessed for each Growth Form | **Not yet achieved** – Polygon 1 (White Box Woodland) does not contain species characteristic of White Box Woodland within the 'other' growth form. |

[14] PA08_0184, Schedule 3, Condition 47 (d) and ULN SD EXT 0094 April 2011, revised scope of works ULN SD EXT 0135 January 2014.
[15] The Domain nomenclature is not aligned between the RMP and the BMP and the documents have different purposes when it comes to the management of lands. For clarity Domains B to E in the BMP are identified as Domain A (Native Ecosystem) in the RMP.

| Rehabilitation objectives | Completion criteria | Performance indices | Completion criteria status |
|---|---|---|---|
| | Form for the target native vegetation communities. | | **Achieved** – Polygon 5 (Ironbark Open Forest Complex), Polygon 6 and Polygon 9 (Grey Box Woodland) contain species characteristic of the target vegetation community in each growth form. All native species recorded within Polygons 2, 3, 4, 10, 11, 14, 16 and 17 (Native Woodland) are endemic to the Kerrabee IBRA Subregion. |
| Tree density as per completion criteria. | Indicative final minimum total tree/shrub densities for seeded areas to be 400 stems/ha. | Tree and shrub densities monitored for establishment and survival | **Achieved**<br>All Polygons monitored during 2023 recorded a stem density greater than 400 stems / ha. |
| The rehabilitation is self-sustainable | Evidence of flowering and seeds or second-generation juveniles for trees and shrubs or likely to be, based on comparable older rehabilitation sites. | Trees and shrubs are monitored for evidence of second-generation juveniles and evidence of flowers and seeds | **Achieved**<br>All areas monitored during 2023 recorded second-generation seedlings of canopy species, except Polygon 3 and Polygon 6. Reproductive features (buds) were recorded on several shrub and tree species within Polygon 3 and Polygon 6. |

### Summary of Assessment Against BMP Completion Criteria

The 2023 floristic monitoring results included assessment against specific completion / success criteria in the BMP (**Table 6-8**) for the following domains:

- Domain F (Biodiversity Offset Areas):
    - Bobadeen Conservation Area*;
    - Brokenback Conservation Area – 1;
    - Brokenback Conservation Area – 2;
    - Spring Gully Cliffline Management Area;
    - Highett Road Conservation Area; and
    - Bobadeen West Offset Area (Alternate Offset Area).
- Domain G - Salinity Offset Area (SOA).
    - *Sites also conform to MZ4a (i.e. assisted / natural regeneration within BCA)

*Table 6-8 Domain F Summary of Assessment Against BMP Completion Criteria*

| Phase | Domain Objective | Completion criteria | Completion criteria status |
|---|---|---|---|
| Growth Medium Development Phase | Facilitate the natural regeneration of Management Zone 2 areas | Monitor natural regeneration occurring within BOAs and update mapping with changes identified | **Achieved** as of 2020 – refer to *UCMPL Annual Flora Monitoring Report 2020* (ELA 2021). |
| | Re-establish native woodlands / open forest within Management Zone 3 areas | Plantings established and self-sustaining (flowering, fruiting or second-generation juvenile) and sufficient stem density for Woodland >40 stems/ha, Open Forest >60 stems/ha | **Ongoing**<br>Second generation seedlings were recorded throughout Forest plantings in MZ3. Areas of Woodland plantings are yet to reach reproductive maturity; however, are in healthy condition. |
| Ecosystem and Land Use Establishment Phase | Facilitate the natural regeneration of Management Zone 2 areas | Monitoring to indicate native species diversity approaching or consistent with MZ1 or other appropriate analogue sites. Stem density >40 stems/ha for woodland, >60 stems/ha for Open Forest vegetation community | **Ongoing**<br>Average stem density across MZ2 Forest sites monitored during 2023 was >60 stems/ha.<br>MZ2 Woodland sites were not monitored in 2023; however, previous data indicates that |

| Phase | Domain Objective | Completion criteria | Completion criteria status |
|---|---|---|---|
| | | | three sites contain <40 stems / ha (BOBE11, BOB9 and BOBE1). Dense perennial native grass cover may be inhibiting eucalypt germination; however, the areas surrounding these sites are consistent with remnant stem density for basalt areas in Goulburn River National Park. |
| | Re-establish native woodlands / open forest within Management Zone 3 areas | Monitoring to indicate native species diversity approaching or consistent with MZ1 or other appropriate analogue sites. Stem density >40 stems/ha for woodland, >60 stems/ha for Open Forest vegetation community | **Achieved**<br>Average stem density across MZ3 Woodland and Forest sites monitored during 2023 was >40 and >60 stems/ha respectively.<br>One MZ3 Woodland site (BOB12) recorded 0 stems/ha; however, the area immediately surrounding this site has an approximate density of 250 stems/ha. |
| | Weeds and feral animal species do not present a risk to regeneration / revegetation | Ensure priority weeds (as per LLS Central Tablelands Strategic Weed Management Plan 2017-2022) do not exceed 10% of plant cover. | **Not yet achieved**<br>Whilst priority weed species cover is generally low (<1% PFC); areas of the priority weed species *Hypericum perforatum* >10% PFC exist throughout Bobadeen VOA. Assessment against feral animals is provided in the *UCMPL Fauna Monitoring Report 2023* (ELA 2024). |
| | | Records indicate that listed weeds are controlled in accordance with legislation. | **Not yet achieved**<br>*Chrysanthemoides monilifera* subsp. *monilifera* is present throughout the Bobadeen VOA. In accordance with the *Biosecurity (Boneseed) Control Order 2007,* all individuals need to be removed from the land. |
| Ecosystem and Land Use Sustainability Phase | Facilitate the natural regeneration of Management Zone 2 areas | Monitoring to indicate native species diversity approaching or consistent with MZ1 or other appropriate analogue sites. | **Ongoing**<br>Native species diversity at woodland and forest MZ2 sites is approaching that recorded at MZ1 sites. |
| Re-establishment of Box Gum Grassy Woodland Critically Endangered Ecological Communities (CEEC) | Re-establishment of EEC | CEEC re-vegetation meets the DoE minimum requirements for classification as CEEC | **Achieved** (MZ2) – MZ2 areas conform to Box Gum Woodland. |
| | | | **Not yet achieved** (MZ3) – some parts of MZ3 do not conform to Box Gum Woodland due to absence of a predominately native understorey due to high cover of *Hypericum perforatum,* particularly near BOB12. |

### Summary of Assessment Against Floristic Based Subsidence Performance Indicators

The 2023 floristic monitoring also comprised of floristic based subsidence (FBS) monitoring undertaken above seven longwall panels during autumn and spring with the results assessed against the relevant Extraction Plan subsidence performance measures and indicators from the BMP (**Attachment E**).

An assessment of the BMP performance indicator relating to FBS monitoring, specific to the Extraction Plans include:

- Analysis of FBS data indicates a >10% (percentage points) decrease in canopy foliage cover of a site within the subsidence zone inconsistent with canopy foliage cover in the transition zone; and
- Analysis of FBS data indicates >10% (percentage points) decrease in canopy foliage cover in the selected vegetation community located above mining areas, not seen in non-mined reference sites.

Absolute change in project foliage cover (PFC) at all longwalls remains less than the subsidence Performance Indicator of a >10% (percentage points) decrease in canopy foliage cover. The absolute change in PFC since the beginning of monitoring for these sites (ELA, 2024a).

For sites with three of more years of data (UG LW30, UG LWW6, UG LWW7, UW LW6 and UW LW7), trends over time between maximum subsidence and transition sites have been compared. Fluctuations in PFC were recorded at each longwall for the duration of monitoring, with maximum subsidence and transition sites following similar trajectories. The greatest decrease in average PFC for both maximum subsidence and transition sites occurred at UG LWW6 however, this is attributed to 5% decreases in PFC at only two transition sites (L1 and L3) and one maximum subsidence site (L8) out of 10 sites at UG LWW6 (Autumn 2019 compared to Spring 2023). All other sites recorded either no change or an increase in PFC. A 5% difference in PFC is within the natural fluctuations expected for remnant vegetation (ELA, 2024a).

**Summary of Assessment Against Ulan West EPBC 2015/7511 Performance Indicators**

Development of a monitoring program for, and subsequent baseline monitoring of Box Gum Woodland condition and extent throughout the Ulan West Underground EPBC Referral Area was undertaken during 2022 (ELA 2023g) as required by Condition 3 of EPBC Referral 2015/7511. The monitoring program and baseline monitoring also seeks to track progress against Condition 2 of EPBC Referral 2015/7511 (ELA, 2024a).

An additional six (6) FBS monitoring sites were established within the EPBC 2015/7511 Area within autumn 2023, meaning a total of ten (10) monitoring sites are now established (UW LW L1, L2, L3, L4, L5, L6 and UW LW7 L7, L8, L9, L10). Sites will be established over LW9, LW11 and LW12 once mining progresses to these longwalls (ELA, 2024a). Assessment against the Ulan West EPBC 2015/7511 Area performance measures from the 2023 monitoring results is provided in **Table 6-9**.

*Table 6-9 Assessment Against Ulan West EPBC 2015/7511 Area Performance Indicators*

| Performance Measure | Performance Indicator | Assessment of performance indicator/measure | Assessment |
|---|---|---|---|
| Negligible impact on Box Gum Woodland. | Box Gum Woodland located above longwall panels in the subsidence zone are not expected to experience changes in condition different to changes in the corresponding sites located in the transition zone. | An indicator will be considered to have been triggered if:<br>• Analysis of FBS data indicates a >10% (percentage points) decrease in canopy foliage cover of a site within the subsidence zone inconsistent with canopy foliage cover in the transition zone; and<br>• Analysis of FBS data indicates >10% (percentage points) decrease in canopy foliage cover in the selected vegetation community located above mining areas, not seen in non-mined reference sites.<br>The performance measure is exceeded if investigation shows subsidence has resulted in greater than negligible impacts to the Box Gum Woodland within mined areas. | **Ongoing** – no sites recorded a >10% decrease in canopy PFC (% points), spring 2023 data compared to pre-mining data. |
| | At the completion of undermining, Box Gum Woodland patches continue to meet the condition thresholds described in the Policy Statement (DEH 2006). | An indicator will be considered to have been triggered if assessment against the condition thresholds within the Policy Statement (DEH 2006) are no longer met, with no negative impacts and/or decline in condition also recorded in Box Gum Woodland reference. | **Ongoing** – to be undertaken at completion of undermining (ELA 2023g). |

**Rehabilitation Report Card**

An assessment of the Glencore Coal Assets Australia (GCAA) Rehabilitation Report Card (RRC) for Domain B and Domain D was undertaken by ELA in 2023. For the summary of the GAAA RCC refer to **Section 8.2**.

### 6.6.2 Fauna

ELA was engaged by UCMPL to undertake fauna monitoring in accordance with the requirements of the BMP. The 2023 Fauna Monitoring Report details the results of autumn and spring feral pest monitoring, spring targeted threatened bird monitoring, and spring nest box monitoring. This report represents the eighth annual round of the revised monitoring schedule (**Attachment E**).

Feral pest remote camera monitoring recorded five feral animal species, of which four are listed as feral pest species in the *Central Tablelands Regional Strategic Pest Management Plan* 2018-2023 (Local Land Services 2018). All five feral species have been previously recorded within the UCMPL complex. Activity of *Lepus europaeus* (Brown Hare), *Sus scrofa* (Feral Pig) and *Dama dama* (Fallow Deer) increased in 2023, compared to both 2017 and 2020, when the same two remote camera transects were last monitored. It is recommended that the Bobadeen Vegetation Offset Corridor and Pleuger Road adjacent to Ulan Creek be a focus of control works for the above species. Feral Pig was also recorded during feral pest nocturnal surveys during 2023 monitoring (ELA, 2024b).

The target threatened bird species *Tyto novaehollandiae* (Masked Owl) was not recorded during 2023 surveys, with this species yet to be recorded within the UCMPL complex. No assessment was required of Masked Owl habitat after the completion of two years post-mining monitoring for Ulan Underground Longwall West 6 (UG LWW6), as no suitable HBTs for Masked Owl were identified within UG LWW6 sites over the duration of the monitoring period (ELA, 2024b).

An assessment of potential foraging habitat for *Anthochaera phrygia* (Regent Honeyeater) and *Lathamus discolor* (Swift Parrot) was also undertaken at FBS monitoring sites located above undermined longwalls which contain key and supplementary feed trees for these species. The assessment found that percent foliage cover (PFC) of feed trees at monitoring sites had not declined by >10% and as such, the relevant subsidence performance measure for these two threatened bird species has been met (ELA, 2024b).

A total of 80 nest boxes were monitored in 2023, of which 85% remained fit for use, with 49% of all nest boxes monitored demonstrating signs of use. *Trichosurus vulpecula* (Brushtail Possum) was recorded in two nest boxes, and *Varanus varius* (Lace Monitor) was recorded in one nest box. Six nest boxes had fallen off their host tree and require replacement, all of which are located within the Residual Project area, behind the OC diversion drain (ELA, 2024b).

In addition to the large quantity of data collected during formal surveys, a total of four threatened bird species listed under the NSW *Biodiversity Conservation Act 2016* (BC Act) and/or the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) were opportunistically recorded (ELA, 2024b).

Given the successful implementation of the UCMPL fauna monitoring program in 2023 and the results detailed in this report, UCMPL is considered to be compliant with their relevant Project Approval conditions (ELA, 2024b).

Fauna monitoring was undertaken across the UCMPL complex and included feral pest monitoring, targeted threatened bird monitoring, including subsidence monitoring of threatened bird habitat, and nest box monitoring. Given the successful implementation of the monitoring program in 2023 and the results detailed in this report, UCMPL is considered to be compliant with their relevant project approval conditions. The following sections contain minor recommendations to provide continual improvement of the UCMPL fauna monitoring program and ensure its ongoing compliance with relevant approval conditions and operational requirements (ELA, 2024b).

### 6.6.3 Microbat Monitoring

ELA was engaged by UCMPL to undertake microbat monitoring in accordance with the requirements of the BMP and the Extraction Plans.

Microbat monitoring in 2023 was undertaken in accordance with the approved management plans. This annual report details the results of microbat monitoring of 24 general fauna monitoring sites and targeted cliffline monitoring of eight control sites and 18 impact sites across the UCC during November and December 2023. General fauna monitoring was undertaken to record microbat species assemblages across the various UCC monitoring areas and management zones, including within the newly established Bobadeen West Biodiversity Stewardship Site. Targeted cliffline monitoring was undertaken to record the presence and activity of threatened cave-roosting microbat species *Chalinolobus dwyeri* (Large-eared Pied Bat) and *Miniopterus orianae oceanensis* (Large Bent-winged Bat) above Ulan West longwall panels and non-mined control sites (ELA 2024d).

In total, 13 microbat species from five separate families were definitively recorded across all general fauna sites, with a further eight species potentially recorded. At least three and potentially seven threatened species listed under the NSW *Biodiversity Conservation Act 2016* (BC Act) and/or the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) were also recorded at general fauna sites. The diversity of microbat species and families recorded across all monitoring areas and management zones confirms adherence to the monitoring objectives and completion criteria detailed in the BMP (UCMPL 2022a) (ELA 2024d).

A total of 133 microbats from nine individual species were captured across the 11 general fauna sites which underwent harp trapping in 2023. This included a total of 25 Large-eared Pied Bats, including six lactating / post-lactating adult females and 12 free-flying sub-adult individuals, indicating continued breeding success of this threatened cave-roosting species. Additionally, the threatened Corben's Long-eared Bat (*Nyctophilus corbeni)*, listed as vulnerable under the NSW BC Act and Commonwealth EPBC Act, was caught during harp trapping (site UGLWW3a) for the first time since the 2015 monitoring period (ELA 2024d).

All previously recorded threatened microbat species within the Brokenback Conservation Area and Spring Gully Cliffline Management Area were again recorded during 2023 monitoring. This included abundant call activity of Large Bent-winged Bat and Large-eared Pied Bat, with individual Large-eared Pied Bats also caught in harp traps within both areas. Given these results, the Provision of Threatened Species Habitat TARP for threatened microbat species within the Brokenback Conservation Area and Spring Gully Cliffline Management Area was not triggered (ELA 2024d).

The Large-eared Pied Bat was definitely recorded via acoustic call detection at all eight previously established targeted cliffline - control sites, whilst the Large Bent-winged Bat was definitely or

potentially recorded at all eight sites also. The consistent recording of both target threatened cave-roosting species in relatively high quantities at these sites, including the capture of Large-eared Pied Bats across three separate sites, confirms their suitability for use as control sites (ELA 2024d).

Monitoring was also completed at 18 targeted cliffline - impact sites, of which seven UWLW8 sites were monitored for the first time. Acoustic call detection surveys recorded relatively high and consistent microbat species richness, with mean species richness of 10.9 and 10.2 recorded across control and impact sites respectfully. The consistency of results amongst sites was also evident with both control and impact sites recording a total of at least 13 microbat species, of which at least three are listed threatened microbat species under the NSW BC Act and/or Commonwealth EPBC Act (ELA 2024d).

2023 saw the completion of two years post-mining monitoring at UWLW6, with the assessment of performance indicators detailed in the Ulan West EP LW1-8 (UCMPL 2022b) and UCMPL BMP (UCMPL 2022a) undertaken. These assessments were somewhat limited however, by the unavailability of pre-mining data and the varied undermining dates across the northern and southern cluster of sites (ELA 2024d).

Whilst a decline in Large-eared Pied Bat call activity was recorded at undermined impact sites (inclusive of UWLW6 sites) from 2022 to 2023, these declines are considered to be within seasonal variations, given the greater extent of declines recorded at non-mined control sites over the same period. Additionally, as declines were not recorded over two or more monitoring periods, the performance indicators for Large-eared Pied Bat have not been exceeded (ELA 2024d).

Large Bent-winged Bat call activity substantially increased at undermined impact sites from 2022 to 2023, largely driven by high call activity (>200 calls per night) at UWLW6 sites. Given these increases and with no decline in Large Bent-winged Bat call activity recorded in the final post-mining monitoring year at these sites, the performance indicators for Large Bent-winged Bat have not been exceeded (ELA 2024d).

It is recommended that the performance indicator for the assessment of threatened cave-roosting microbat species activity is revised and updated to reflect the rate of increases and declines recorded at control sites across the extent of the UCMPL monitoring program (ELA 2024d).

Given the successful implementation of the monitoring program in 2023 and the results detailed in this report, UCMPL is considered to be compliant with their relevant project approval conditions (ELA, 2024d).

### 6.6.4 Aquatic Monitoring

ELA was engaged by UCMPL to undertake aquatic monitoring in accordance with the requirements of the BMP.

Due to well-below average rainfall in the preceding 6 months (May-October) leading up to 2023 monitoring period, only 13 of the 16 sites had enough water for the full suite of ecological surveys to be undertaken. Due to the dry conditions, flow at most sites was dominated by discharged mine water that had first been treated with reverse osmosis (RO) (ELA 2024c).

Aquatic macroinvertebrate taxonomic richness in 2023 ranged from 9 to 26 taxa and was equal highest at upstream sites AQ20 and AQ21, and downstream site AQ6. SIGNAL2 scores ranged from 2.3 to 4.8, with downstream site AQ6 recording the highest SIGNAL2 score. Three of the 13 sites sampled had SIGNAL2 scores equal to or above 4.0, with one of these sites located downstream of the licenced discharge points (LDPs), and two upstream of mine operations. The mean SIGNAL2 score across all sites was 3.6, which is consistent with the long-term average across all previous monitoring years (3.7). Assessment of SIGNAL2 since the commencement of monitoring (2011 to 2023) demonstrates that downstream sites have a higher long-term mean SIGNAL2 score (4.0) compared to upstream sites (3.3). Despite this, SIGNAL2 scores continue to be reflective of moderate to severely disturbed systems. Across all years, macroinvertebrate results indicate that historical disturbances (e.g. clearing of riparian habitat) and regional land use practices, in conjunction with prevailing climatic conditions, remain the key factors influencing macroinvertebrate communities (ELA 2024c).

The 2023 Riparian Channel and Environmental (RCE) Inventory scores were largely consistent with previous years for each site. Seven sites scored RCE inventories of 'Good', three sites scored 'Very Good' whilst the remaining six sites scoring RCE inventories of 'Excellent'. Sites AQ2 and AQ21 in the Goulburn River Diversion have increased RCE scores since 2016 when remediation works commenced. Notable differences in RCE scores recorded in 2023 and supported by photo comparisons of each site, relate to variables influenced by reduced rainfall, such as decreases in water levels and flow. Overall, the RCE results indicate that the riparian environment is not subject to any ongoing adverse effects resulting from mining operations and are rather, reflective of historical disturbances and regional land use practices in the catchment (ELA 2024c).

Six water quality variables were measured at each site. Both alkalinity and pH results remain consistent across both monitoring sites and years. Turbidity exceeded ANZECC and ARMCANZ (2000) guidelines at 7 of 15 sites, all of which were located upstream of the UCML LDPs. Electrical Conductivity (EC) was variable across monitoring sites both upstream and downstream of LDPs, however, were still below the trigger values adopted for the UCC (UCMPL 2019) (ELA 2024c).

DO (% saturation) decreased across all sites during 2023 and was below ANZECC and ARMCANZ (2000) guidelines at all sites, except for two downstream sites (AQ7 and AQ19), and one upstream site (AQ15). Results from upstream and downstream sites and across multiple years indicate high variability in DO concentrations. Low and variable DO results were also recorded at UCMPL surface water monitoring sites throughout 2023, supporting previous conclusions of naturally low and variable DO within the catchment at both temporal and spatial scales. There was no correlation evident between DO and macroinvertebrate results in 2023 (ELA 2024c).

### 6.6.5 Pest and Weed Monitoring

Feral pest remote camera monitoring recorded five feral animal species, of which four are listed as feral pest species in the Central Tablelands Regional Strategic Pest Management Plan 2018-2023 (Local Land Services 2018). All five feral species have been previously recorded within the UCMPL complex. Activity of Lepus europaeus (Brown Hare), Sus scrofa (Feral Pig) and Dama dama (Fallow Deer) increased in 2023, compared to both 2017 and 2020, when the same two remote camera transects were last monitored. It is recommended that the Bobadeen Vegetation Offset Corridor and Pleuger

Road adjacent to Ulan Creek be a focus of control works for the above species. Feral Pig was also recorded during feral pest nocturnal surveys during 2023 monitoring (ELA, 2024b).

During the Reporting Period, UCMPL carried out feral pig baiting and control on UCMPL controlled land and lease holder land throughout 2023. Wild dog baiting in conjunction with Local Land Services (LLS) aerial baiting program was undertaken across UCMPL controlled lands in May 2023. Feral animal monitoring was completed using trail cameras, Inspections and opportunistic sightings.

Weed control in 2023 included a combination of herbicide application and mechanical mulching / slashing. Target species for herbicide application included Boneseed, Bitou Bush, Blue Heliotrope, Bathurst Burr, St John's Wort, Prickly Pear, Box- Thorn, Blackberry, Khaki Burr and Spiny Burr Grass on UCMPL controlled land and in UCMPL's offset areas and surrounds. Target species for mechanical mulching / slashing include Blackberry, Sweet Briar and Tree of Heaven.

## 6.7 Conservtaion Area Monitoring

Conservation Area (CA) monitoring was completed by ELA during the 2023 Reporting Period. The locations of UCMPL's CA is provided in **Attachment H**. A summary against Domain F relevant BMP completion criteria is provided in **Table 6-8** and **Attachment E**.

## 6.8 Energy and Greenhouse Gas (GHG)

UCMPL reports GHG in accordance with National Energy and Greenhouse Gases (NGER) legislation. Each financial year UCMPL is required to submit to the federal government the emissions from their NGERs registered facility. As UCMPL is not predicted to emit over 100kt of $CO_2e$- from Scope 1 emissions, i.e. the threshold required to be registered as a Safeguard facility, UCMPL has no baseline threshold. The following table (**Table 6-10**) contains the Scope 1 (direct emissions from the mining activities during the financial year), and Scope 2 emissions (electricity consumption by the mine during the financial year).

*Table 6-10 - Summary Scope 1 and 2 emissions Statistics for FY22/23*

| | FY18/19 | FY19/20 | FY20/21 | FY21/22 | FY22/23 | EA Prediction (Yr8-Yr11)[1] Annual Average (Calendar Year) |
|---|---|---|---|---|---|---|
| **Scope 1 Total ($tCO_2$-e)** | 59,805 | 40,416 | 41,154 | 51,039 | 44,723 | 76,749[2,3] |
| **Scope 2 Total ($tCO_2$-e)** | 133,908 | 147,216 | 151,559 | 155,941 | 142,102 | 171,517 |
| **Total Scope 1 & Scope 2 ($tCO_2$-e)** | 193,713 | 187,632 | 192,713 | 206,980 | **186,825** | **248,266** |

Notes: [1]EA Scope 1 and Scope 2 predictions based on forecast ROM Tonnes/Product Tonnes per annum. Year 8 to Year 11 forecast ROM Tonnes and Product Tonnes of 14,382,578 T and 12,527,720 T respectively. The Reporting Period ROM and Product Tonnes (**Table 4-1**) is considered within this forecast predictions. Yr8-Yr11 assumes both Ulan West and Ulan Underground are operating. Beyound Yr12 assumes only Ulan West is operating. [2] Inclusive of upgraded Methane emissions factor of 28. [3]Scope 1 emissions below Safeguard Mechanism baseline.

### 6.8.1 Comparison Against Predictions

During the FY22/23 UCML's Scope 1 and Scope 2 emissions were below the EA prediction as provided in **Table 6-10** and below baseline emissions under the Safeguard Mechanism for Scope 1.

### 6.8.2 Steps Taken to Improve Energy Efficiency and Reduce GHG Emissions

Ulan Coal Mine 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$^{o}$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.

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 Ulan Coal Mine this includes involvement with GCAA when considering available GHG abatement technology and mine planning to optimise efficiency (which usually translates into reduced fuel consumption).

## 6.9 Mine Subsidence

Underground mining activities at UW and UUG during the Reporting Period are outlined in **Section 4.1**. Subsidence monitoring at UW and UUG is undertaken in accordance with the relevant Extraction Plan for each underground operation (**Section 3.2.2**). The scope of the subsidence monitoring includes subsidence effects monitoring and environmental, heritage, land management, built features and public safety monitoring programs, to evaluate the potential subsidence impacts and environmental consequences from the secondary extraction of longwalls.

### 6.9.1 Subsidence Effects Monitoring

UCMPL engage SCT Operations Pty Ltd (SCT) to undertake a review of the subsidence monitoring conducted for the 2023 review period, including a comparison of observed behaviour with subsidence forecasts and assessments of compliance with the subsidence performance measures (**Table 6-12**).

**Table 6-11** compares the maximum forecast vales of primary subsidence parameters for conventional subsidence behaviour for LW7 at UW, LW30 and LW31 at UUG with the subsidence movements measured on the F Line and D Line at Ulan West for the 2023 Reporting Period.

*Table 6-11 – Summary of Primary Subsidence Parameters Measured -2023*

| Parameters | D Line (UW) | | F Line (UUG) | |
|---|---|---|---|---|
| | **Measured Values** | **Forecast Values** | **Measured Values** | **Forecast Values** |
| **Subsidence (m)** | 1.34 | 1.7 | 1.54 | 1.7 |
| **Tilt (mm/m)** | 18 | 45 | 13 | 30-35 |
| **Tensile Strain (mm/m)** | 9 | 20 | 8 | 10-15 |
| **Compressive Strain (mm/m)** | 7 | 25 | 6 | 15-20 |

Analyses and interpretation of the subsidence monitoring conducted for the areas mined during the 2023 calendar year indicate that the observed subsidence behaviour is consistent with expectation. Measured subsidence effects are less than forecasts presented in SCT reports to inform the Environmental Assessment (EA) for the UCCO Project, the EP for Longwalls 7-8 at UW and the EP for Longwalls 30-32 and LWW6-LWW8 at UUG (SCT, 2024).

SCT's review Our review is based on analysis of the survey data from subsidence monitoring, site inspections, and reports by UCM personnel and other specialists. A surface inspection was conducted by SCT personnel over areas the longwalls mined below during 2023 on 23 January 2024. The surface inspections were undertaken with UCM personnel and included discussions with a private landowner (SCT, 2024).

For further detail regarding the *2023 Annual Review of Subsidence Monitoring at Ulan West and Ulan Underground Mine (SCT, March 20243)* and the 2023 Annual Subsidence Report refer to **Appendix I** of the 2023 Annual Review.

### 6.9.2 Subsidence Monitoring

UCMPL completed environmental, heritage, land, built features and public safety monitoring during the Reporting Period as required by the Extraction Plans for UW and UUG, to evaluate the potential subsidence impacts and environmental consequences. A summary of subsidence monitoring undertaken by UCMPL in 2023 includes:

- Monthly inspections during longwall extraction at UW and UUG;
- Applicable cliff lines and heritage monitoring above LW7 (**Section 6.9.2)**;
- Floristic based-subsidence (FBS) plots (**Section 6.6.1**)
- Targeted cliff line monitoring for microbats (**Section 6.6.3**);
- Property inspections on privately owned land with the landowners above LW7;
- Property inspections with NPWS above LW30 and LW31;
- Ulan Creek monitoring (**Section 7.9);**
- Tributary monitoring above UW and UUG (**Section 7.10**);
- Groundwater and private bore monitoring (**Section 7.11**); and
- Built feature monitoring (**Section 6.9.2**).

**Table 6-12** summarises the subsidence performance measures outlined in Table 14 of PA08_0184 and assessment against the status of compliance expected for the 2023 Reporting Period.

*Table 6-12 – PA08_0184 Subsidence Performance Measures*

| Subsidence Performance Measures | | Compliance Yes/No | Assessment of Performance Measure |
|---|---|---|---|
| **Water** | | | |
| Ulan, Mona & Cockabutta Creeks | No greater environmental consequences than predicted in the EA | **Yes** | Main channels of creeks outside footprint of longwall mining in 2023 (assessed by other specialists) (SCT, 2024).<br>The main channels of Ulan Creek, Mona Creek and Cockabutta Creeks were not undermined during the Reporting Period by LW7 and LW30 and LW31 (**Attachment I**). |
| **Biodiversity** | | | |
| Threatened species, populations, habitat or ecological communities | Negligible impact | **Yes** | An assessment of potential foraging habitat for *Anthochaera phrygia* (Regent Honeyeater) and *Lathamus discolor* (Swift Parrot) was also undertaken at FBS monitoring sites located above undermined longwalls which contain key and supplementary feed trees for these species. The assessment found that percent foliage cover (PFC) of feed trees at monitoring sites had not declined by >10% and as such, the relevant subsidence performance measure for these two threatened bird species has been met (ELA, 2024b) (**Section 6.6.1, Section 6.6.2** and **Attachment E**). |
| **Land** | | | |

| Subsidence Performance Measures | | Compliance Yes/No | Assessment of Performance Measure |
|---|---|---|---|
| Cliffs in the Brokenback Conservation Area | Nil environmental consequences | **Yes** | Assessment by Pacific Environmental (PE 2024a) indicates compliance. Recent mining too remote from this area to cause impacts (SCT, 2024) (**Attachment I**). |
| Other cliffs | Minor environmental consequences | **Yes** | Approximately 7.1% of subsidence induced rockfalls occurring above cliff lines undermined by UW LW1-7 and UUG LWW4-LWW7, indicating the combined rock falls are lower than the 20% predicted in the 2009 EA (PE, 2024) (**Attachment I**).<br>Assessment by Pacific Environmental and UCM (PE 2024a) indicates compliance (SCT, 2024) (**Attachment I**). |
| **Heritage** | | | |
| Aboriginal sites | Nil impact in the Brokenback Conservation Area, Grinding Groove Conservation Areas; and on Mona Creek Rock Shelter Sites | **Yes** | Aboriginal heritage sites within the Brokenback Conservation Area, Grinding Groove Conservation Areas and on Mona Creek Rock Shelter Sites were not undermined by LW7 and LW30 and LW31 during the Reporting Period. Inspection of the Mona Creek rocks shelters Ulan ID#180 to 187 in August 2023, confirmed that no impact has occurred.<br>No impacts observed at Brokenback cliffs (PE 2024a). Recent mining too remote to cause impacts (SCT, 2023) (**Attachment I**). |
| Talbragar Fish Fossil Reserve | Negligible impact | **Yes** | Recent mining too remote to cause impacts (SCT, 2024) (**Attachment I**). |
| Other Heritage Sites | No greater impact than predicted in the EA | **Yes** | Aboriginal heritage sites required for monitoring by the Extraction Plan for UW LW7 included Ulan ID#487, ID#994, ID#995, ID#998 and ID #190. All sites with the exception of ID#190, experienced some rockfalls and cracking, consistent with predictions (**Attachment I**).<br>There are no Aboriginal heritage sites required for monitoring by the Extraction Plan for UUG for LW30 and LW31.<br>Compliance expected (other specialists to assess) Subsidence effects are less than forecast in EP (SCT, 2024) (**Attachment I**). |
| **Built Features** | | | |
| All built features | Safe, serviceable and repairable unless the owner agrees otherwise in writing | **Yes** | LW7 at UW undermined a section of two private properties, with the management and monitoring of impacts, completed as required by each applicable Private Property Subsidence Management Plan (PPSMP).<br>Repairs of surface cracking within a farm dam, tracks and grazing areas on private property was undertaken during the Reporting Period as required by each PPSMP.<br>Impacts to natural features and the agricultural landform across the Farrs Hill property have been consistent with expectation and less than the maximum forecast Impacts to drainage lines, surface dams are consistent with expectation and less than the maximum forecast. Impacts to farm infrastructure and other built features are consistent with expectation and less than the maxima forecast (SCT, 2024).<br>Impacts managed via provisions of Built Features Management Plan (BFMP) and Private Property Subsidence Management Plans (PPSMP) (SCT, 2023) (**Attachment I**). |
| **Public Safety** | | | |
| Public Safety | No additional risk due to mining | **Yes** | There were no reportable safety incidents as a result from subsidence due to LW7, LW30 and LW31.<br>A majority of the land undermined is UCMPL controlled land with restricted access. Land access to two private properties undermined during the Reporting Period is managed by the private landowner. Applicable signage, fencing and locked gates are in place and maintained by UCMPL. Additional warning signage were placed above LW31 in 2023 prior to extraction below an area within the DSCA.<br>Hazards managed via Public Safety Management Plan (PSMP) and (PPSMP) (SCT, 2024) (**Attachment I**). |

### 6.9.3 GNSS Monitoring BBCA

During the 2023 Reporting Period, UCMPL operated three Global Navigation Satellite Systems (GNSS) units to monitor UW subsidence effects within the Brokenback Conservation Area (BBCA). The GNSS monitoring units have been installed at the eastern end of BBCA to monitor and manage subsidence effects and impacts at significant features within the BBCA as the planned longwall mining approaches. Two units were installed in August 2022 to provide continuous, near-real-time measurements of changes in the easting, northing, and height.

*Photo 3 GNSS Unit within the BCA (August 2022)*

Changes in horizontal and vertical movements clearly show the influence of mining in Longwall 7 as the face line of this panel approached and passed by the two GNSS units. The horizontal movements were initially to the east-northeast towards the approaching longwall face and then turned to the east-southeast to follow in the direction of mining (SCT, 2024).

The low-level subsidence movements measured to date are consistent with expectation and previous monitoring. No impacts were observed to the significant features within the BBCA consistent with expectation (SCT, 2024).

## 6.10 Waste Management

Disposal and tracking protocols for waste, processes for identifying and minimising waste generation, controls to mitigate waste impacts and responsibilities for waste management are described in the Waste Management Plan (WMP)[16]. A licensed waste contractor provides off-site waste disposal and recycling. A summary of the waste performance for 2023 is provided in

**Table** 6-13[17].

Collectively across all three operations, approximately 65% of waste was recycled including oil filters, waste grease, scrap metal, timber, paper and cardboard, and empty drums. Waste contained onsite

[16] PA 08_0184 Schedule 3, Condition 54, and SoC 6.15.1 and EPL 394.
[17] PA 08_0184 Schedule 5, Condition 3.

for disposal in accordance with EPL 394. UCMPL are permitted to dispose of 400 tonnes of concrete per year as required by Condition L4.1. Waste statistics including recycling trends since 2019 are provided in **Table 6-14**.

*Table 6-13 - Summary of Monthly Waste Statistics for 2023*

| | | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| USO | **Total Offsite Waste (T)** | 5.5 | 5.0 | 11.3 | 7.3 | 14.9 | 14.3 | 1.8 | 7.5 | 3.7 | 7.2 | 7.8 | 21.0 | **107.8** |
| | **Recycled Waste (T)** | 24.5 | 24.1 | 44.8 | 15.2 | 26.0 | 40.2 | 23.7 | 39.1 | 22.7 | 33.0 | 17.7 | 22.7 | **334.2** |
| | **Recycling %** | 81 | 83 | 80 | 66 | 63 | 74 | 93 | 69 | 84 | 82 | 69 | 52 | **74** |
| UUG | **Total Offsite Waste (T)** | 40.9 | 12.9 | 18.3 | 23.1 | 10.7 | 61.0 | 19.7 | 27.0 | 26.6 | 21.1 | 24.5 | 31.1 | **317.7** |
| | **Recycled Waste (T)** | 100.3 | 96.0 | 39.3 | 29.8 | 40.8 | 47.0 | 41.7 | 60.1 | 34.7 | 41.6 | 58.3 | 79.0 | **669.2** |
| | **Recycling %** | 71 | 81 | 67 | 56 | 76 | 44 | 60 | 68 | 52 | 60 | 70 | 63 | **65** |
| UWO | **Total Offsite Waste (T)** | 40.9 | 68.7 | 49.9 | 34.8 | 66.1 | 113.2 | 40.8 | 53.1 | 39.4 | 43.7 | 57.3 | 43.3 | **651.6** |
| | **Recycled Waste (T)** | 100.3 | 130.5 | 185.7 | 59.7 | 58.8 | 53.2 | 64.6 | 69.0 | 54.6 | 95.4 | 87.7 | 65.0 | **1025** |
| | **Recycling %** | 71 | 63 | 78 | 62 | 47 | 32 | 60 | 56 | 57 | 67 | 60 | 60 | **60** |

*Table 6-14 - Summary of Annual Waste Statistics for 2019 - 2023*

| | | 2019 Totals | 2020 Totals | 2021 Totals | 2022 Totals | 2023 Totals |
|---|---|---|---|---|---|---|
| USO | **Total Offsite Waste (T)** | 319.5 | 448.9 | 95.3 | 246.5 | 107.8 |
| | **Recycled Waste (T)** | 253.75 | 24.26 | 457.31 | 78.1 | 334.2 |
| | **Recycling %** | 79.4 | 77.09 | 82.75 | 75.9 | 74 |
| UUG | **Total Offsite Waste (T)** | 972.3 | 970.02 | 391.75 | 424.0 | 317.7 |
| | **Recycled Waste (T)** | 583.2 | 651.89 | 619.32 | 739.1 | 669.2 |
| | **Recycling %** | 63 | 67.2 | 61.25 | 63.5 | 65 |
| UWO | **Total Offsite Waste (T)** | 98.6 | 1156.42 | 602.86 | 429.8 | 651.6 |
| | **Recycled Waste (T)** | 590.3 | 511.83 | 540.64 | 552.1 | 1025 |
| | **Recycling %** | 44.1 | 44.26 | 47.28 | 56.2 | 60 |

# 7. Water Management

The Water Management Plan (WMP)[18] provides a framework for the management of water and outlines the interaction between the various policies, plans, programs and procedures. The WMP clarifies requirements for surface water and groundwater management during construction and operational phases. The WMP includes a number of sub plans and systems including:

- Site Water Balance;
- Erosion and Sediment Control Plan (ESCP);
- Surface Water Monitoring Program (SWMP);
- Groundwater Monitoring Program (GWMP);
- Surface Water and Groundwater Response Plan (SWGWRP);
- Goulburn River Diversion Remediation Plan (GRDRP); and
- Goulburn River Diversion Erosion & Sediment Control Plan.

During the 2022 Reporting Period, UCMPL revised the WMP and consolidated the SWMP, GWMP and SWGWRP into the one document. The revised WMP (Version 10.1) was resubmitted for approval on the 30 November 2022. In 2023 the WMP (Version 10.1) was updated, now WMP (Version 11.0), to address additional information requested by the DPE on the 18 April 2023 and the DPE Water on 15 June 2023, the DPE's conditional approval for the Extraction Plan and address the DPE-Water's recommendations as provided to the DPE on the 25 October 2023. The WMP (Version 11) was resubmitted in December 2023 and at the time of preparing the 2023 Annual Review, the WMP (Version 11.0) remained with the DPE for re-approval.

## 7.1 Overview of Mine Water Management System

The mine water management system includes mine dewatering systems, water storages, the Bobadeen Irrigation Scheme (BIS), water treatment facilities, sedimentation and retention basins, settling and tailings ponds, clean water diversion drains and dirty water catch drains, levee banks and earth bunding around stockpiles, hardstand areas and refuelling areas. The key objectives of the water management system include:

- Preventing the contamination of clean water by mining and related activities;
- Reducing the discharge of pollutants from the mine to the environment;
- Minimising adverse effects on the Goulburn River and Ulan Creek;
- Managing approved water discharges to meet EPL394 licence conditions;
- Segregating mine impacted water from better quality water to minimise the volume of impacted water that requires recycling and treatment; and
- Managing the inventory of water on-site in order to meet the requirements of the mining operation.

Open cut mine surface runoff and pit water is directed to the mine water management system to control and treat runoff from site.

[18] PA08_0184 Schedule 3, condition 34, EA 2009, EPL394

## 7.2 Water Balance

The water balance[19] consists of micro water balances for discrete operational areas of the water circuit (detailed in **Attachment F**). The micro balances are summed to provide the overall water inputs and outputs (**Table 7-1**). Water sources are rainfall on dams and disturbed areas, groundwater inflows to underground mines and the potable water supply. Water is lost through product coal, the Bobadeen irrigation scheme, dust suppression, evaporation, supply to external parties and potable water use. Water in excess of operational needs is discharged from licenced discharge points.

Abstracted volumes were comprised of Ulan West (approximately 33%) and Ulan Underground (approximately 66%) during 2023. Daily extracted water volume ranged between 12.1 ML/day and 16.8 ML/day, with a combined average of 14.6 ML/day. The total volume extracted during 2023 was 5.3 GL. The mine inflows where slightly less than 2022 values and are within approved groundwater license allocations (AGE, 2024).

UCMPL decommissioned the Millers WTF during 2022. Supplemental potable water is now supplied using the permeate from the NSWD WTF, to improve water efficiencies and further reduce the need for external suppliers of potable water. During 2023, potable water supply to USO was mostly supplied by the NWSD.

*Table 7-1 - Water Balance for 2023*

| Water Balance Period for 2023[1] | | Volume (ML) |
|---|---|---|
| **Inputs[2]** | Precipitation & Runoff | 1,185 |
| | Groundwater inputs | 6,419 |
| | Third Party | 11 |
| | **Total** | **7,615** |
| **Outputs[3]** | Licensed Discharge | 7,992 |
| | Evaporation | 1,619 |
| | Entrainment | 1,360 |
| | Losses | 193 |
| | **Total** | **11,164** |
| **Water Balance[4]** | Inputs minus Outputs | -3,549 |
| | Change in Storage | 1,893 |
| | Imbalance Percentage | 9% |

Notes: [1]1 January to 31 December. [2] Includes rainfall, seepage from groundwater, coal & spoil, groundwater & water from dewatering bores & runoff/drainage from tailings.[3] Includes water used in the CHPP, dust suppression, irrigation, licensed discharge, evaporation, moisture bound to coal, rejects and tailings, onsite potable water use & seepage to spoil. [4] Total inputs less total outputs.

## 7.3 Salt Balance

The GoldSIM water model estimates a Net Salt loss of 1,696 tonnes for the 2023 reporting year.

[19] In accordance with Condition 34, Schedule 3 of the PA08_0184

*Table 7-2 - Water Balance Calculation 2023 Water Year*

| Site | Salt tonnes (1 Jan 2023) | Salt tonnes (31 Dec 2023) | Net Salt balance 2023 Tonnes |
|---|---|---|---|
| Water Management System | 13,395 | 11,699 | -1,696 |

## 7.4 Baseflow Offsets

Baseflow loss to the Goulburn River catchment was originally estimated by groundwater modelling at 0.05 ML/day, equivalent to 18.25 ML/ year[20]. The re-forecast peak baseflow losses for the Goulburn and Talbragar Rivers, using the updated and recalibrated 2021 groundwater model are 0.276 ML/day and 0.083 ML/day respectively. The increase from the 2018 estimate is due to having more surface drainage length interacting with groundwater through saturated shallow aquifers caused by nearby perching depicted in the model. A flow departure method was used to assess upstream and downstream flow data for the Goulburn River, from 15 August 2018 to 8 February 2020 and 1 April to 16 September 2019 (reported in the 2020 Ulan Coal Annual Review). The indicated average daily baseflow losses over 711 days is 0.156ML/day, although it is noted that more data is needed to provide effective assessment. It is noted that the average departure method does not subtract the baseflow losses due to mining that occurred prior to the current project approval, which is assumed for the groundwater model.

An average 21.18 ML/day of treated water was discharged to the Goulburn River in 2023. Flow at the downstream gauging station (SW02) ranged between 6.45 ML/day and 230.81 ML/day[21]. Rainfall in 2023 was siginifcantly less than 2022, 2021 and 2020. Approximately 415.8mm of rainfall was recorded by UCMPL in 2023, as opposed to 1090.3mm in 2022. The 2023 total rainfall was approximately 257mm less than the long term average of 672mm for the region (2009 EA), therefore any streamflow losses would be more evident in such a period.

A review of baseflow losses was undertaken by Hydro Engineering & Consulting (HEC) during 2020 which concluded there was no clear evidence consistent loss of flow which could be attributed to the effects of mining. It was recommended to undertake periodic gauging at SW02 and adjust the ratings curve if required, continue to collect data and re-assess when sufficient data is available.

Further to the recommendation provided by HEC, one gauging at SW02 was undertaken in late 2021, which did not provide adequate data to adjust the ratings curve. UCMPL completed further creek flow gauging in 2023 as flow volumes decreased. Based on the limited to insignificant strata depressurisation, AGE concluded that there was no significant change to modelled baseflow losses in the Goulburn.

The groundwater model estimates baseflow losses in the Goulburn catchment as 0.276 ML/day or 100.74 Ml/year and Talbragar catchment at 0.083 ML/day or 80 ML/year respectively. UCMPL has secured WALs in perpetuity to offset the Baseflow losses as follows:

- WAL 19047 provide 600 unity in the Upper Goulburn River Water Source[22]

[20] PA08_0184, Schedule 3, Condition 29
[21] Flow at SW02 augmented by licenced water discharge from both UCMPL and MCO.
[22] *Hunter Unregulated and Alluvial Water Sources 2009*

- WAL 41817 provides 50 units in the Upper Talbragar River Water Source[23] ; and
- WAL 34921 provides 30 units in the Talbragar Alluvium Water Source[29].

Water levels in Triassic and Permian units are monitored at key locations (PZ24, PZ29, TAL-1 and TAL-2) to inform ongoing assessment of baseflows to the Talbragar and Goulburn Rivers. Minor strata depressurisation was observed in the Triassic units in PZ24 and PZ29, which the Goulburn River flows over, which may indicate the potential for impacts to baseflow, albeit minor and very likely within the limits predicted by the numerical model. However, the noted declining trends in Triassic sensor may warrant further investigation into how it relates to baseflow (AGE 2024).

## 7.5 Water Extraction Licence Compliance

Water Balance indicates total groundwater extraction of 6070.79ML (**Table 7-3**) for the 2023 Water Year (1 July 2022 to 30 June 2023), of which;

- 1910.87ML of groundwater was extracted from the Oxley Basin Coast Groundwater Sources[24] (WAL41492 provides 7060 units of allocation). This was withdrawn under work approval 20AL214787 including various dewatering locations (**Attachment H**) throughout the Ulan Complex, none of which are in alluvial sediments.
- 4010.41ML of groundwater was extracted from the Sydney Basin of the Murray Darling Basin (MDB) Groundwater Source[25] (WAL37192 704 units, WAL41906 2215 units and WAL42900 4031 units of allocation respectively).
- A total of 130.93ML of entitlement under water access licence WAL19047 was used during the Reporting Period, 93.74ML was used to offset baseflow losses[31] to the Upper Goulburn River Water Source and 35.95 ML was evaporated during the Reporting Period.

*Table 7-3 – Water Extraction & Assessment of Compliance*

| Water Licence | Water sharing plan, source and management zone (as applicable) | Entitlement (Unit Shares) | Shares in ML for 2023 Water Year | Passive take / outflows | Active pumping | TOTAL | Complies (Yes/No) |
|---|---|---|---|---|---|---|---|
| **WAL41492** (20AL214787) | Oxley Basin Coast Groundwater Source, Water Sharing Plan for the North Coast Fractured and Porous Rock Groundwater Sources 2016 | 7060 | 7060ML | 0 | 1910.87 | 1910.87 | Yes |
| **WAL37192** (20AL723743) | Sydney Basin Groundwater Source Water Sharing Plan for the NSW Murray Darling Basin Porous Rock Groundwater Sources 2011 | 704 | 880* | 0 | 0 | 0 | Yes |

[23] Water Sharing Plan for the Macquarie Bogan Unregulated and Alluvial Water Sources 2012
[24] Water Sharing Plan for the North Coast Fractured and Porous Rock Groundwater Sources 2016
[25] Water Sharing Plan for the NSW Murray Darling Basin Porous Rock Groundwater Sources 2011

| Water Licence | Water sharing plan, source and management zone (as applicable) | Entitlement (Unit Shares) | Shares in ML for 2023 Water Year | Passive take / outflows | Active pumping | TOTAL | Complies (Yes/No) |
|---|---|---|---|---|---|---|---|
| **WAL41906** (80AL724736) | Sydney Basin Murray Darling Basin Groundwater Source | 2215 | 2768* | 0 | 0 | 0 | Yes |
| **WAL42900** (20AL220117) | Sydney Basin Groundwater Source Water Sharing Plan for the NSW Murray Darling Basin Porous Rock Groundwater Sources 2011 | 4031 | 5038* | 0 | 4010.41 | 4010.41 | Yes |
| **WAL44712** (80AL726689) | Sydney Basin Groundwater Source Water Sharing Plan for the NSW Murray Darling Basin Porous Rock Groundwater Sources 2011 | 190 | 237* | 0 | 0 | 0 | Yes |
| **WAL44842** (80AL726832) | Sydney Basin Groundwater Source Water Sharing Plan for the NSW Murray Darling Basin Porous Rock Groundwater Sources 2011 | 30 | 37.5* | 0 | 0 | 0 | Yes |
| **WAL19047**** (20WA209953,Moolarben Creek Dam / Pump / Water Supply)[26] | Upper Goulburn River Water Source Water Sharing Plan for the Hunter Unregulated & Alluvial Water Sources 2009. | 600 | 600ML | 130.93 | 0 | 130.93 | Yes |
| **WAL 34921** (80AL716931) | Castlereagh Groundwater Source Water Sharing Plan for Talbragar Alluvial Groundwater Source 2000 | 30 | 30 | 2.15 | 0 | 2.15 | Yes |
| **WAL 41817** | Macquarie Bogan Unregulated Rivers Water Sources Water Sharing Plan for Upper Talbragar River Water Source 2012 | 50 | 50 | 16.43 | 0 | 16.43 | Yes |

**Notes:** *As per changes to legislation, 1.25 ML is available per unit share of the access licence share. ** 96.1 ML offset baseflows to Goulburn River, 34.84 ML annual evaporation from Moolarben Dam.

[26] Works approval 20WA209953 requires riparian flow of 7 L/second.

# 7.6 Licenced Water Discharge

Water treatment and discharge facilities were operated in accordance with EPL 394 during the Reporting Period. Discharges were made from:

- The Bobadeen Irrigation Scheme (BIS)[27];
- The Bobadeen Water Treatment Facility (LDP6)[28]; and
- The North West Sediment Dam Water Treatment Facility (LDP19)[29].

Approximately 1363ML of water with an average EC of 1050.3µS/cm was applied to the BIS in 2023, with 76% of the modelled offset capacity used during 2023 and 74% of total offset capacity to date. Ecological performance of the offset is described in **Section 6.6.1** and groundwater monitoring results are provided in **Section 7.11.3**.

Discharge of blended product water from the Bobadeen Water Treatment Facility to Ulan Creek via LDP6 occurred on 363 days with an average daily discharge volume of 9 ML/day. Measured pH, EC and TSS concentrations were within EPL394 limits. The maximum discharge volume on any day was 14.3ML on the 4/07/2023, below the EPL394 volume limit 15ML/day (**Table 7-4** and **Attachment C**).

Discharge of blended product water from the Northwest Sediment Dam Water Treatment Facility to Ulan Creek near the Goulburn River (LDP19) occurred on 362 days with an average daily discharge volume of 12.2 ML/day and a maximum discharge on any day of 19.5ML on 21/01/2023, below the EPL394 volume limit 30ML/day. Measured pH, EC and TSS concentrations were within EPL 394 limits.

The maximum combined discharge of 29.66ML, on 23/02/2023, was below the 30ML/day limit. Monitoring summaries are provided in **Table 7-4** and **Attachment C**.

*Table 7-4 - 2023 Calendar Year Discharge Volumes*

| Location | Licence Limit (ML/year) | Discharged Volume (ML/year) | 2023 Discharge Compliance with Annual Discharge Limits |
|---|---|---|---|
| **Effluent Storage Dam (LDP1)** | 31 | 0 | No discharge |
| **Millers Dam (LDP2)** | 219 | 0 | No discharge |
| **Rowans Dam (LDP3)** | 3,650 | 0 | No discharge |
| **Truckfill Dam (LDP4)** | 730 | 0 | No discharge |
| **Discharge to Ulan Creek (LDP 6)** | 5,475 | 3,282.1 | Yes |
| **Discharge to Ulan Creek (LDP 19)** | 10,950 | 4,446.9 | Yes |
| **Discharge to Ulan Creek (LDP3, LDP6, and LDP19)** | 10,950 | 7,729.02 | Yes |
| **Discharge through irrigation scheme (BIS)** | No applicable volume limit[30] | 1363 | Yes |

[27] The BIS (operating since 2004) utilises five central irrigating pivots to irrigate approximately 242ha of pasture.
[28] The BWTF (commissioned 2006) uses microfiltration and reverse osmosis water treatment and discharges to EPL 394 LDP 6.
[29] The North West Sediment Dam WTF (initially commissioned April 2011) uses a reverse osmosis water treatment process and discharges to EPL394 LDP19. Commissioning of the expanded NWSDWTF occurred on the 28 October 2014.
[30] Salinity offset requirement EPL394 E 1.1 b) The Salinity Offset Program must offset the residual salinity loads generated by the Bobadeen Irrigation Area over the life of the Bobadeen Irrigation Program, and its associated salinity load impacts, and when fully implemented, must achieve an offset ratio of 1:1.5.

No discharges from LDP1 (Millers Dam), LDP2 (Effluent Dams) LDP3 (V-notch weir plate at the end of the discharge channel at Rowans Dam) or LDP4 (Truckfill Dam) occurred during the Reporting Period.

Monitoring was conducted at the Goulburn River Gauging Station Downstream (LMP18), the Goulburn River Gauging Station Upstream (LMP33) and Ulan West Box Cut clean water drain (LDP23) (**Section 7.8** and **Attachment C**).

## 7.7 Compensatory Water Supply

As required by Schedule 3 Condition 30 of Project Approval PA08_0184, UCMPL must provide a compensatory water supply to any owner of privately-owned land whose supply is adversely impacted as a result of UCMPL activities.

In previous Reporting Periods, Alternative Water Supply Agreements (Water Agreements) with several landholders has resulted in UCMPL completing a new groundwater bore constructed in 2019 located immediately to the east of the Project Boundary at a greater depth in response to dry conditions and poor performance of their existing bore, which was potentially impacted by predicted groundwater drawdown.

A PPSMP and Water Agreement is in place for the landholder regarding a spring fed dam undermined by Ulan West LWW5 and LWW6, a bore and other several dams including another spring fed dam undermined by LW7 in 2022. As predicted the bore undermined by LW7 went dry in 2022 with compensatory water supplied as requested and in accordance with the Water Agreement. Under this Water Agreement UCMPL have completed repairs in 2020 to a spring fed dam impacted by LWW5 and LWW6 and repairs to a dam undermined by LW7 in 2022. In 2023/24 UCMPL have increased the surface area of a number of outbuildings to catch rain water and also substantially increased the volume of storage with additional surface water tanks and dam earthworks as requested by the landholder.

In accordance with the PPSMP and applicable Water Agreement for another private landholder impacted by LW7, a dam impacted in January 2023 was repaired and an alternate water supply was provided by UCMPL until repairs were completed and to compensate for the dam's water loss.

## 7.8 Surface Water Monitoring Results

The Surface Water Monitoring Program (ULNCX-111515275-1642) (SWMP)[31] details surface water monitoring to measure and assess changes in stream health (including base flows) and channel stability that could be attributable to mining activities. The locations of surface water (SW) monitoring and Licenced Discharge Point (LDP) sites are shown in **Attachment H**. For details on parameters sampled, sampling method and sampling frequency of each monitoring site see **Attachment C**.

SW01 and SW02 are monitored for pH and EC (µS/cm) via a continuous monitor, monthly grab samples and specific rainfall events >30 mm in a 24hr period. The creeks in the vicinity of the operation are ephemeral. Surface water monitoring sites SW03 to SW11 are sampled monthly if flow is present and following specific rainfall events >30 mm in a 24hr period. Automatic water sampling stations are

[31] Condition 34, Schedule 3 of the PA08_0184. SWMP (Version 8.0). A component of the WMP (ULN SD PLN 0017).

installed at SW06, SW07, SW10 and SW11. Monthly grab sampling and specific rainfall events >30 mm in a 24hr period results are summarised in **Table 7-6.**

Due to the below average rainfall in 2023 (**Section 6.1**), there were no flows within Spring Gully (surface water monitoring site SW06), Bobadeen Creek (surface water monitoring site SW07) and Curra Creek (surface water monitoring site SW08). Therefore, no water samples were available for analysis at these locations. Only one monthly sample in January 2023 was available for analysis from residual flows within Mona Creek (surface water monitoring site SW10) and within Cockabutta Creek (surface water monitoring site SW11).

**Figure 7-1** displays the monthly and rainfall event sample results for pH, EC and TSS during the Reporting Period for SW01. **Figure 7-2** displays the long-term real time monitoring results for pH, EC and TSS from 2019 to 2023 for SW01. **Figure 7-3** displays the monthly and rainfall event sampling results for pH, EC and TSS during the Reporting Period for SW02. **Figure 7-4** displays the long-term real time monitoring results for pH, EC and TSS from 2019 to 2023 for SW02.

Monthly and rainfall event water samples are collected and sent to a NATA accredited laboratory for analysis of pH, EC (µS/cm), TSS (mg/L), TDS (mg/L) and Turbidity (NTU). **Notes:** No flows in creeks at the time of monthly surface water sampling in 2023 for SW06, SW07 and SW08

Figure 7-11 to Error! Reference source not found. provide the average water quality results for SW03 to SW11 within the Reporting Period, compared with the historical averages from 2011-2023.

The 2023 surface water results for SW01 to SW11 are compared against their respective adopted trigger values (detailed in the SWMP) in **Table 7-5**.

*Table 7-5 - Adopted Trigger Values for Key Water Quality Parameters*

| Water Quality Variable | Goulburn River Upstream (SW01) | Goulburn River Downstream (SW02)[4] | Ulan Creek Upstream of LDP6 (SW03)[9] | Ulan Creek at Old Ulan (SW04)[10] | Ulan Creek at Pleuger Road (SW05)[11] | Talbragar River[3] (SW09) | Watercourses flowing to Goulburn River (SW06, SW07, SW08) | Watercourses flowing to Talbragar River[6] (SW10, SW11) | Clean Water Diversion/ System SW12, SW13 (EPL23), SW14, SW15 |
|---|---|---|---|---|---|---|---|---|---|
| **pH** | 6.5 – 8.0[1] | 6.4 – 8.1[3] | 6.5 – 7.9[9] | 6.5 – 8.5[8] | 6.5 – 8.5[8] | 6.5 – 8.5[5] | 6.5 – 8.0[6] | 6.5 – 8.0[5] | 6.5 – 8.0[6] |
| **EC (µS/cm)** | 680[2] | 854[2] | 1126[9] | 900[8] | 900[8] | 125 – 2200[5] | 30 – 350[6] | 30 – 350[5] | 30 – 350[6] |
| **TSS (mg/L)** | 111[2] | 53[2] | 64[9] | 83[10] | 50[7] | 50[7] | 50[7] | 50[7] | 50[7] |

**Notes:** [1] ANZECC (2000) default trigger value range for lowland east flowing coastal rivers in NSW. [2] 80th percentile based on historical data for the Goulburn River. [3] Range within Historical data for Goulburn River Downstream. [4] SW02 is downstream of the Ulan Mine Complex and as such water quality at this location can be influenced by other developments in the catchment outside of UCMPL influence. [5] Interim trigger values based on ANZECC (2000) default trigger values for lowland rivers in NSW. Site-specific trigger values will be developed as monitoring data becomes available. [6] Interim trigger values based on ANZECC (2000) default trigger values for upland rivers in NSW. Site-specific trigger values will be developed as monitoring data becomes available. [7] Interim trigger values based on Volume 1 of Managing Urban Stormwater: Soils and Construction (Landcom, 2004). [8] Trigger level reflects upstream discharge limit approved under EPL394. [9] 80th percentile of SW03 baseline (31 samples taken between February 2012 and September 2017). [10] 80th percentile of SW04 baseline (24 samples taken between February 2012 and November 2017). [11] 80th percentile of SW05 baseline (30 samples between November 2010 and November 2017).

*Table 7-6 - 2023 Surface Water Sampling Result Summary*

| SW Sites | pH | | | EC (µS/cm) | | | TSS (mg/L) | | |
|---|---|---|---|---|---|---|---|---|---|
| | Min | Max | Ave | Min | Max | Ave | Min | Max | Ave |
| **SW01** | 7.1 | 7.8 | 7.4 | 268.0 | 1480.0 | 659.5 | 10.0 | 46.0 | 19.1 |
| **SW02** | 7.6 | 8.2 | 8.0 | 505.0 | 1060.0 | 726.1 | 1.0 | 20.0 | 4.9 |
| **SW03** | 7.5 | 8.5 | 7.9 | 556.0 | 1200.0 | 855.5 | 2.0 | 63.0 | 19.4 |
| **SW04** | 7.9 | 8.6 | 8.4 | 730.0 | 810.0 | 781.5 | 2.0 | 5.0 | 3.0 |
| **SW05** | 7.2 | 8.2 | 7.6 | 763.0 | 872.0 | 798.0 | 1.0 | 6.0 | 3.4 |
| **SW06** | * | * | * | * | * | * | * | * | * |
| **SW07** | * | * | * | * | * | * | * | * | * |
| **SW08** | * | * | * | * | * | * | * | * | * |
| **SW09** | 8.4 | 8.6 | 8.5 | 854.0 | 1330.0 | 1048.5 | 12.0 | 76.0 | 37.6 |
| **SW10#** | 6.6 | 6.6 | 6.6 | 88.0 | 88.0 | 88.0 | 32.0 | 32.0 | 32.0 |
| **SW11#** | 6.8 | 6.8 | 6.8 | 159.0 | 159.0 | 159.0 | 21.0 | 21.0 | 21.0 |
| **SW12** | 7.6 | 7.7 | 7.7 | 821.0 | 848.0 | 834.5 | 18.0 | 225.0 | 121.5 |
| **SW13** | * | * | * | * | * | * | * | * | * |
| **SW14** | * | * | * | * | * | * | * | * | * |
| **SW15** | * | * | * | * | * | * | * | * | * |

**Notes:** Shaded results were periodically outside the adopted trigger values in January 2023. Shaded results indicate a trigger has occurred i.e. three or more consecutive monthly results are outside of respective water quality criteria (refer to **Table 7-5**). * No flows in creeks or drainage systems at the time of monthly surface water sampling in 2023. # Only one monthly sample available for analysis in January 2023.

**Table 7-7** provides a summary of investigations undertaken where water quality results may have exceeded a trigger value for three or more consecutive monthly sampling events in 2023, as required by the SWGWRP Surface Water TARP. Results of monitoring for EPL 394 licence discharge points are reported in the EPL Annual Return. Further surface water results for SW01 to SW11 and assessments are provided in **Attachment C**.

SW12 and SW15 are located within the Clean Water System (CWS), a drainage and dam system that captures runoff from rehabilitated mine land. The water is not subject to the influence of mining activities and captured flows remain in Peanut Dam. Due to the lower rainfall totals in 2023 only two water samples for analysis were available in January and December at SW12. There were no applicable trigger values exceeded for three of more consecutive months for SW12 and SW15 in 2023 (**Attachment C**).

SW13 (EPL23) and SW14 are located in the Clean Water Diversion Drain, a drain system that captures the runoff from natural bushland, directing the flow around the mine operations. The water is not subject to the influence of mining activities and flows into a lower order tributary of Ulan Creek and into the Goulburn River. Due to the lower rainfall totals in 2023 and no flows within this drainage system, no surface water samples for analysis were available for analysis at SW13 and SW14 during the Reporting Period. Therefore, no applicable trigger values were exceeded for three of more consecutive months for SW13 and SW14 in 2023 (**Attachment C**).

*Table 7-7 - Surface Water Monitoring Result TARP Activation*

| Site | Date of sample | Trigger | Action | Result |
|---|---|---|---|---|
| SW09 | 3 consecutive monthly results (January to March)<br>3 consecutive monthly results (October to December) | Elevated pH<br>Elevated TSS | Inspection of Site, review of field sheet comments and review of data. | SW09 is located to the north west of the Project Area on the Talbragar River within private property and water quality is influenced by flooding events in the river, agricultural activities including cattle grazing and cultivated paddocks immediately upstream and surrounding the sampling point. Lower rainfall in 2023 has also seen reduced flow volumes in the river.<br>The periodic elevated pH and TSS at SW09 are likely the result of other natural and agricultural influences as discussed above surrounding this location and is considered too remote from UCMPL's activities to be an influencing source. |

*Table 7-8 - Concentration Limits for Licensed Discharge Points*

| Location | LDP | Discharge Limits | | | | | | | | 2022 Discharge Compliance with Discharge Limits |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Iron (mg/L) | Conductivity (µS/cm) | | Oil & Grease (mg/L) | pH | Zinc mg/L | TSS mg/L | Volume kL/ day | |
| | | | 50th Percentile | 100th Percentile | | | | | | |
| **Effluent Storage Dam** | 1 | - | - | 810 | - | 6.5-8.5 | - | - | 85 | No discharge |
| **Millers Dam** | 2 | 5 | - | 900 | 10 | 6.5-8.5 | 5 | 50 | 600 | No discharge |
| **Rowans Dam to Ulan Creek** | 3 | 5 | 800 | 900 | 10 | 6.5-8.5 | 5 | 50 | 10,000 | No discharge |
| **Truckfill Dam** | 4 | 5 | - | 900 | 10 | 6.5-8.5 | 5 | 50 | 2000 | No discharge |
| **Bobadeen WTF** | 6 | - | 800 | 900 | - | 6.5-8.5 | - | 50 | 15,000 | Compliant |
| **Goulburn River Gauging Station Downstream** | 18 | - | - | - | - | - | - | - | - | Compliant |
| **North West Sediment Dam WTF** | 19 | - | 800 | 900 | - | 6.5-8.5 | - | 50 | 30,000 | Compliant |
| **Ulan West Box Cut clean water** | 23 | - | - | - | - | - | - | - | - | Compliant |
| **Goulburn River Gauging Station Upstream** | 33 | - | - | - | - | - | - | - | - | Compliant |
| **Ulan Creek Cumulative Discharge Limit^** | 3 & 6 & 9 | - | - | - | - | - | - | - | 30,000 | Compliant |

**Note:** ^ The combined daily discharge from LDP 3, 6 and 19 must not exceed 30,000 kL/day

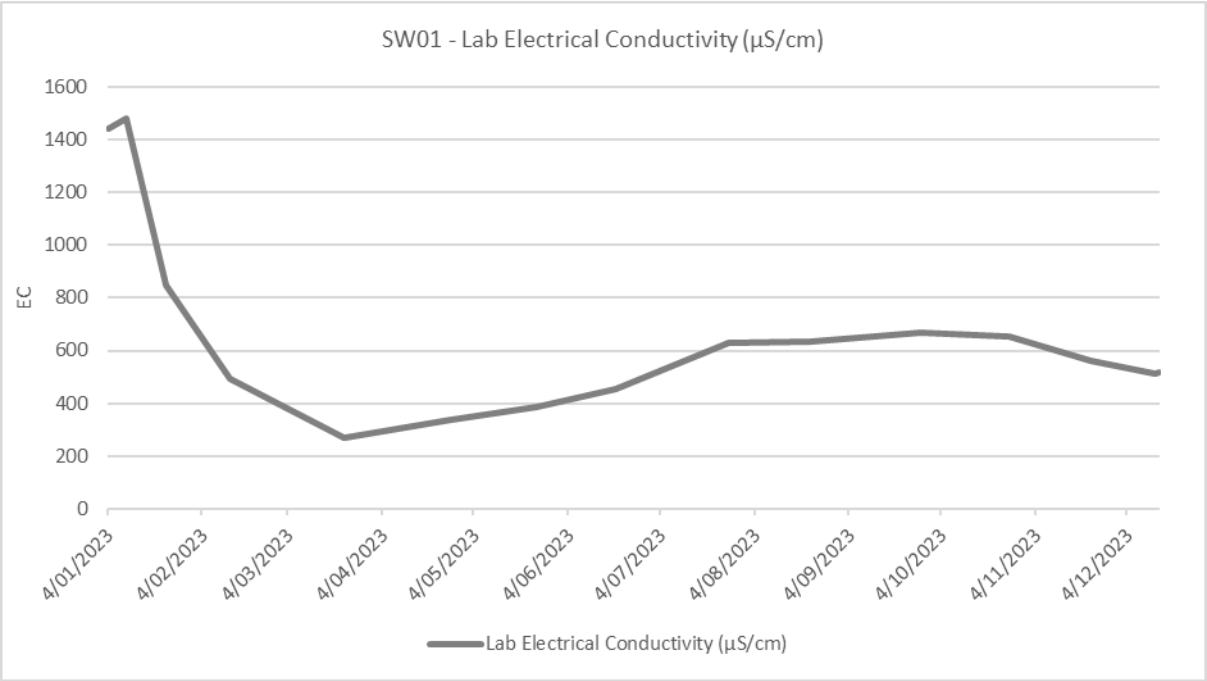



*Figure 7-1 SW01 Upstream Goulburn River Monthly EC Results 2023*

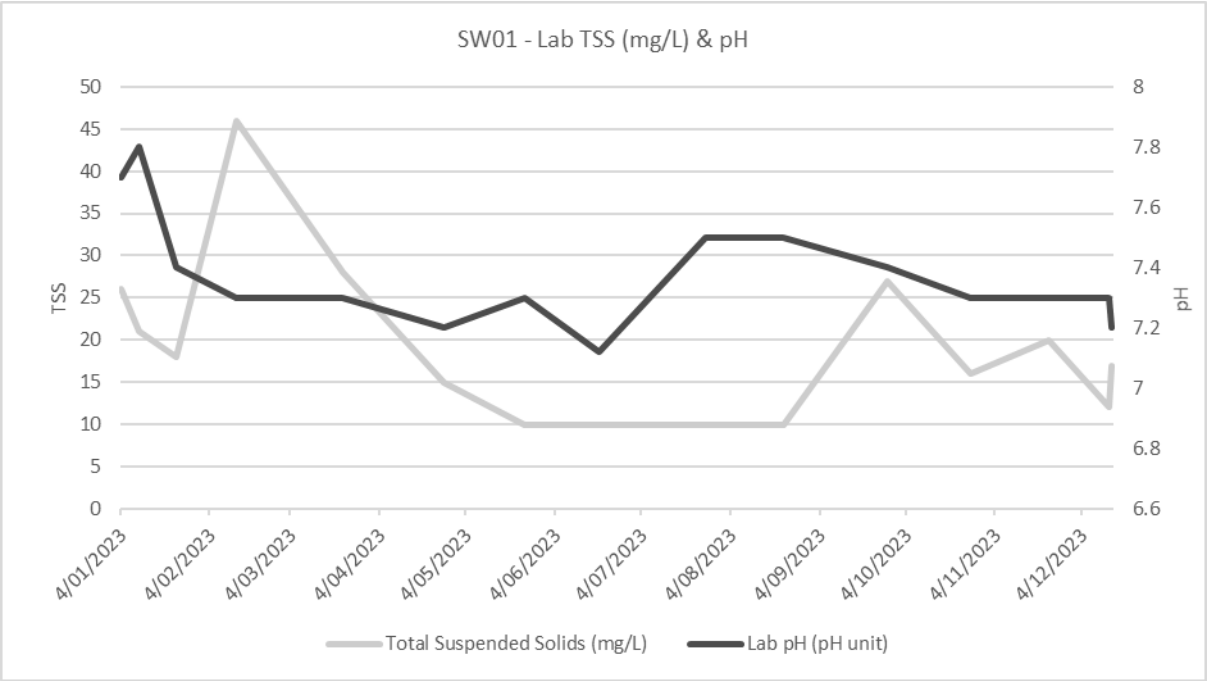



*Figure 7-2 SW01 Upstream Goulburn River Monthly pH & TSS Results 2023*

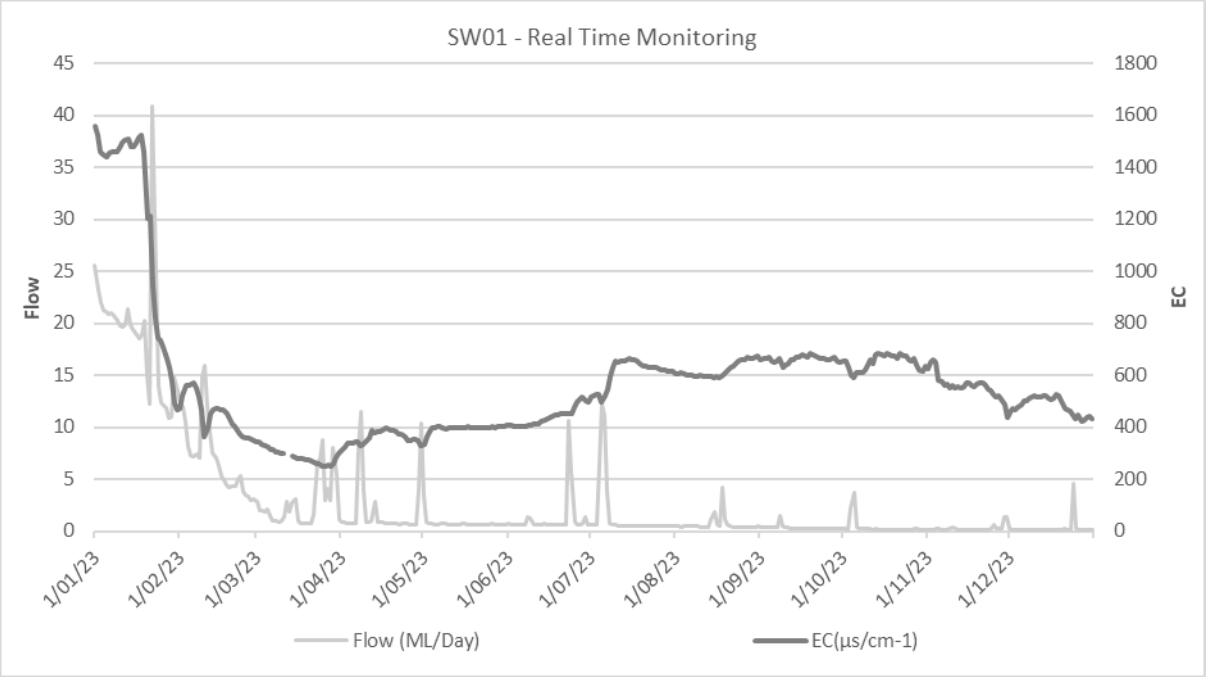



*Figure 7-3 SW01 Upstream Goulburn River Real Time Flow & EC Results 2023*

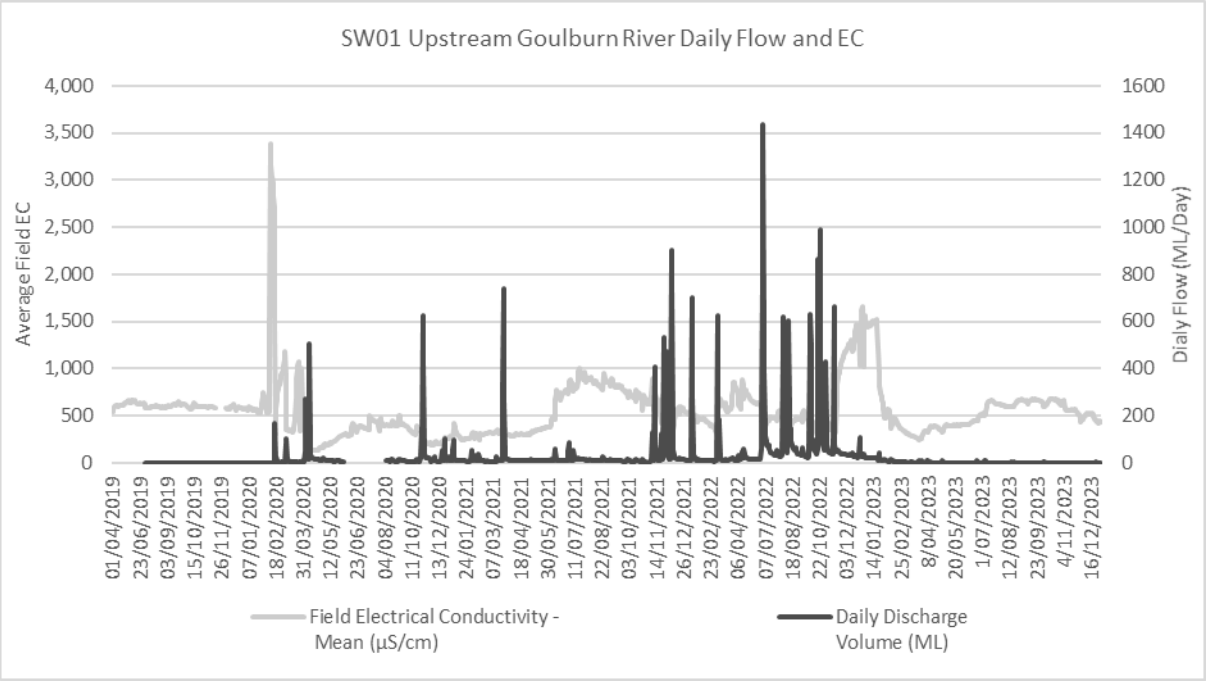



*Figure 7-4 SW01 Upstream Goulburn River Historical Real Time Flow & EC (2019 - 2023)*

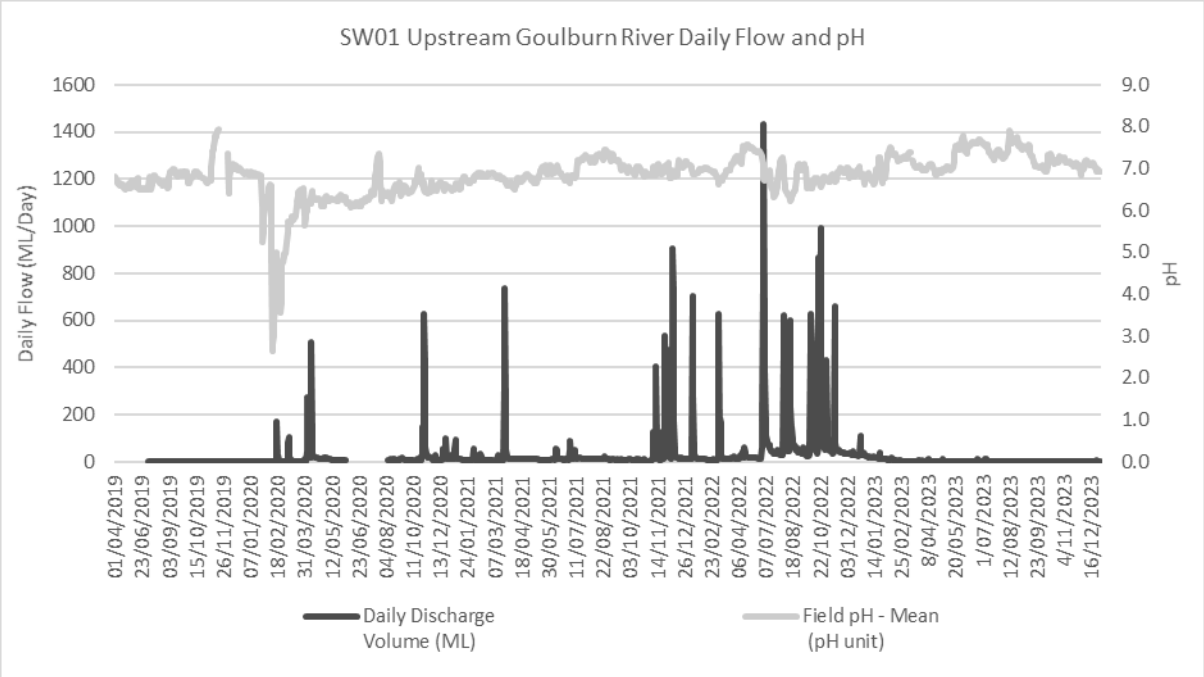



*Figure 7-5 SW01 Upstream Goulburn River Real Time Historical Flow & pH (2019 - 2023)*

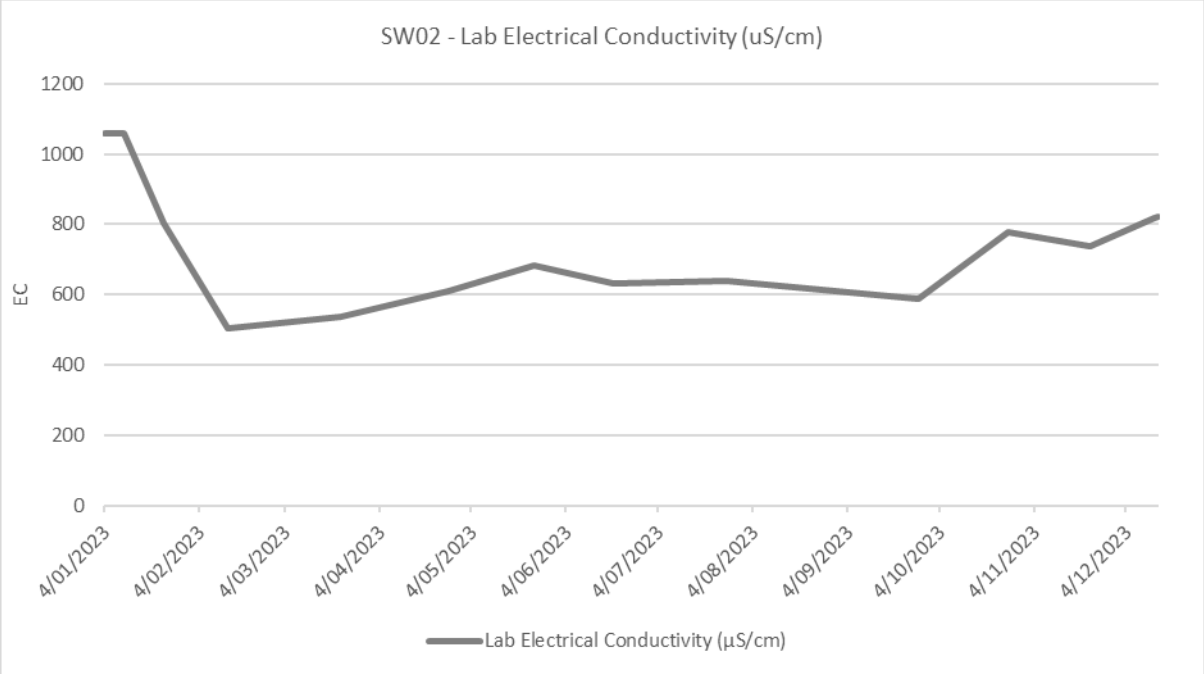



*Figure 7-6 SW02 Downstream Goulburn River Monthly EC Results 2023*

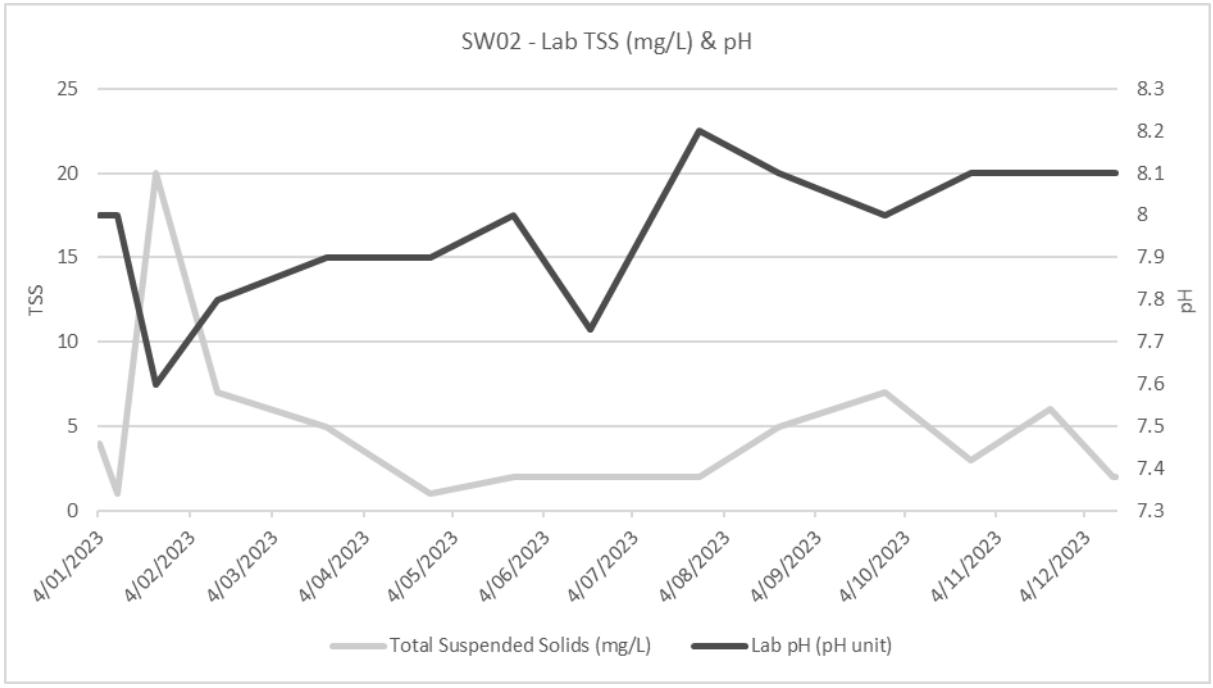



*Figure 7-7 SW02 Downstream Goulburn River Monthly pH & TSS Results 2023*

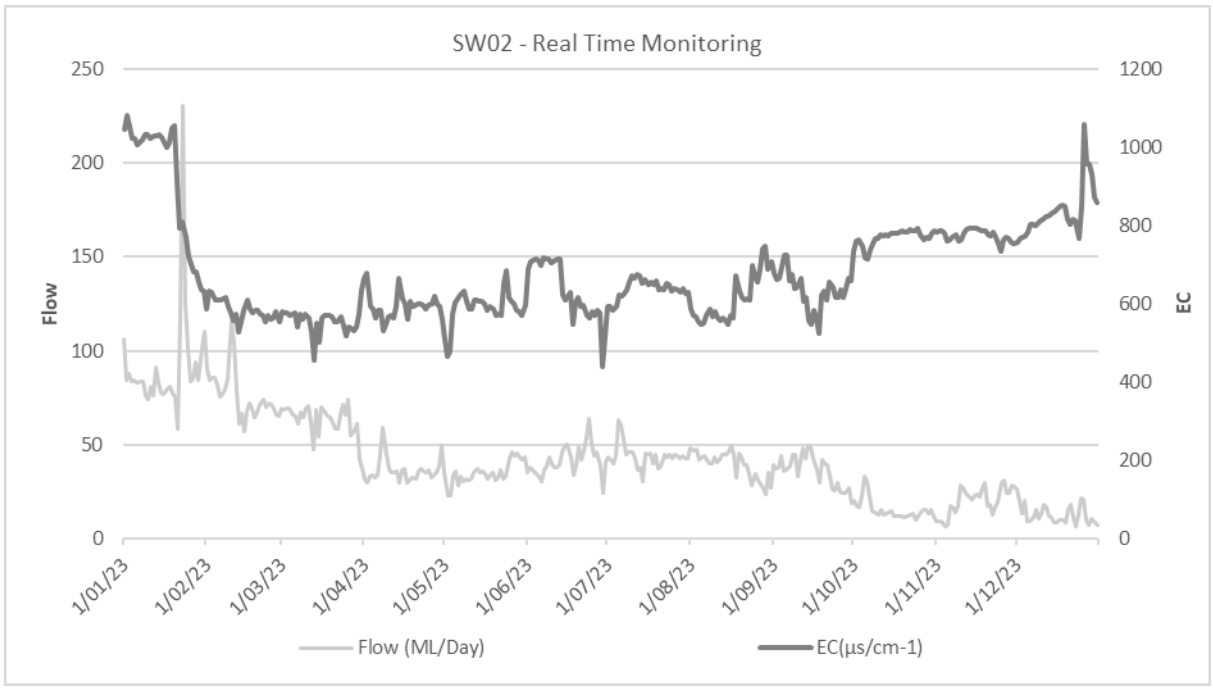



*Figure 7-8 SW02 Downstream Goulburn River Real Time Flow & EC Results 2023*

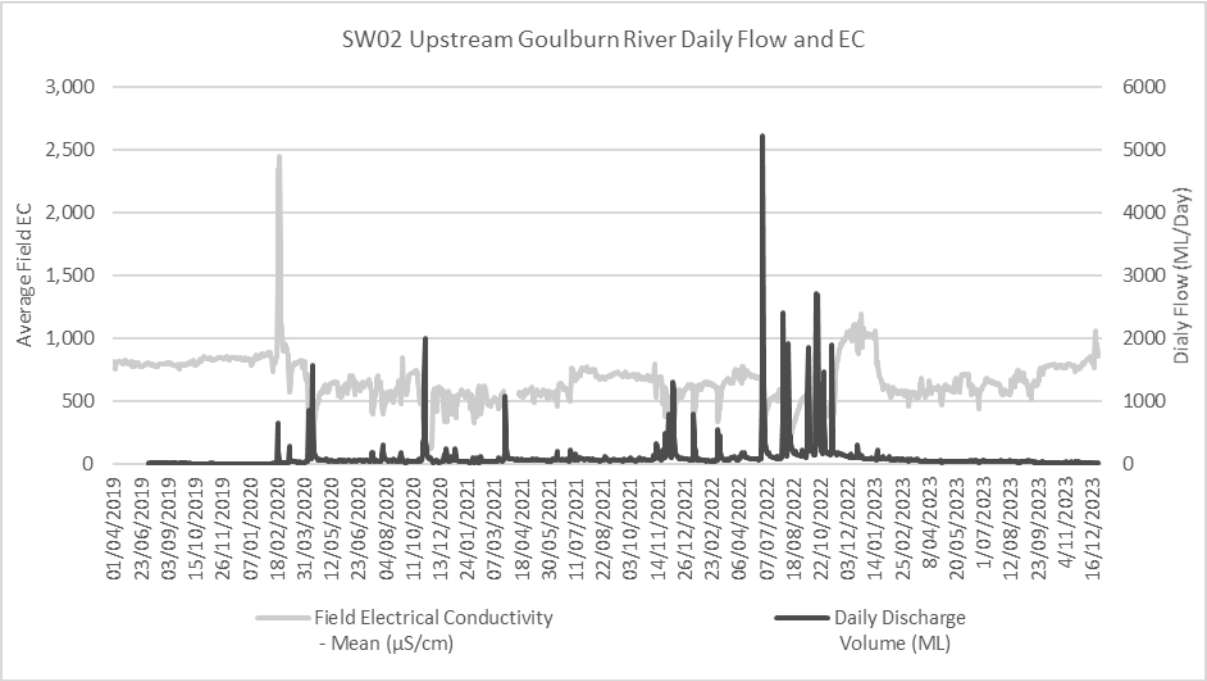



*Figure 7-9 SW02 Downstream Goulburn River Historical Real Time Flow & EC (2019 - 2023)*

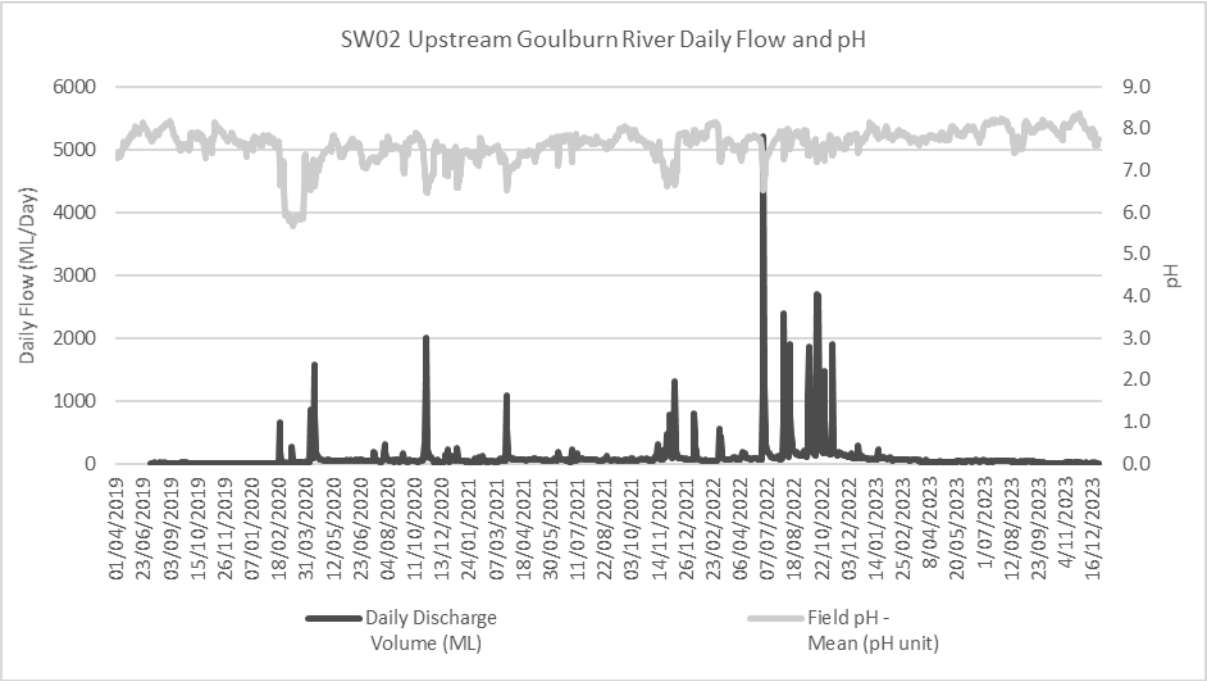
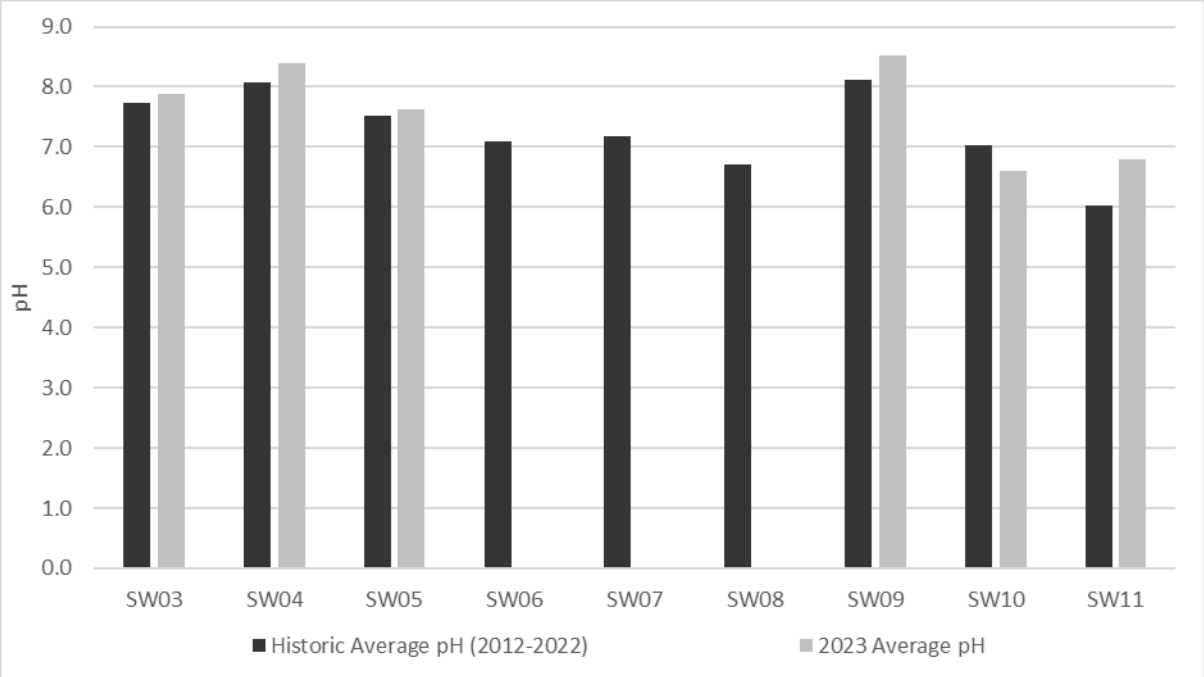
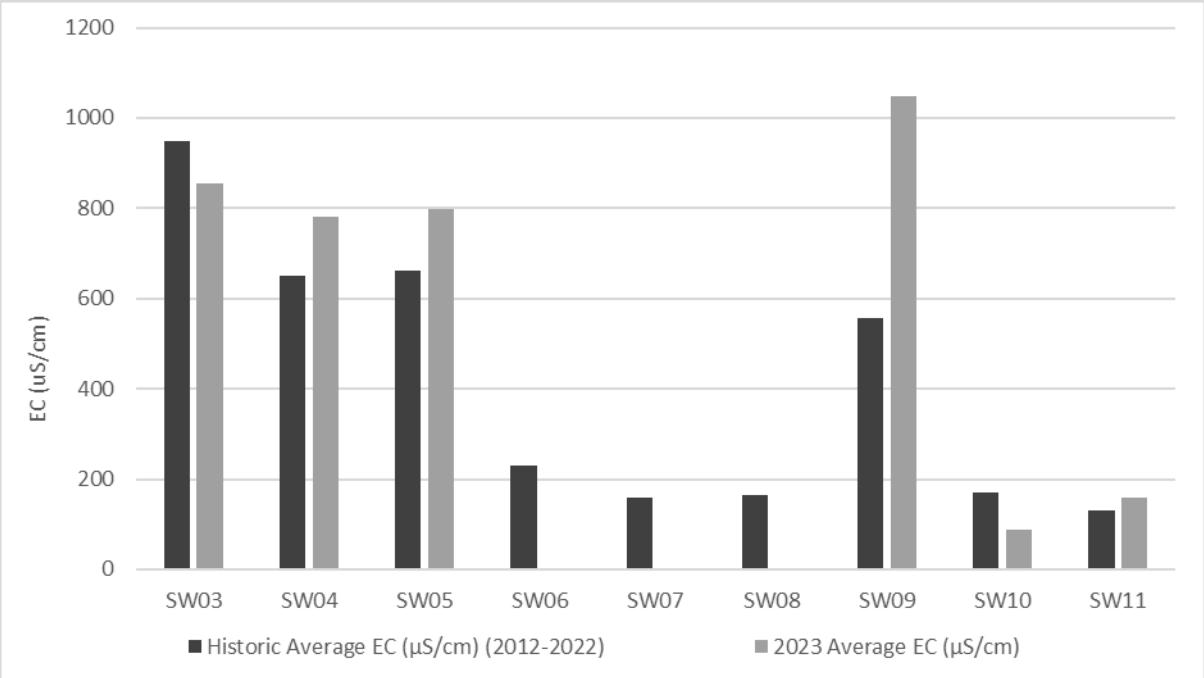



*Figure 7-10 SW02 Downstream Goulburn River Historical Real Time Flow & pH (2019 - 2023)*



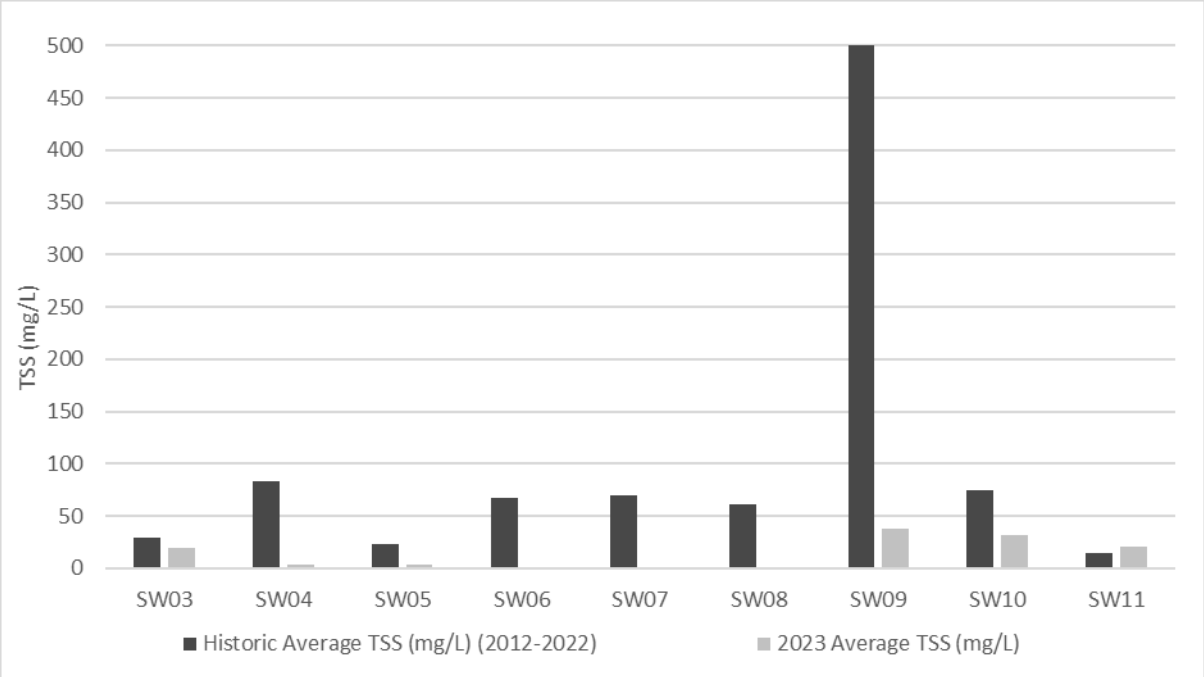

**Notes:** No flows in creeks at the time of monthly surface water sampling in 2023 for SW06, SW07 and SW08

*Figure 7-11 – 2023 pH Results Compared to Historical Average*




**Notes:** No flows in creeks at the time of monthly surface water sampling in 2023 for SW06, SW07 and SW08.

*Figure 7-12 – 2023 EC Results Compared to Historical Average*




**Notes:** No flows in creeks at the time of monthly surface water sampling in 2023 for SW06, SW07 and SW08

*Figure 7-13 – 2023 TSS Results Compared to Historical Average*

## 7.9 Channel Stability Monitoring

Channel stability monitoring of creeks scheduled to be undermined and predicted to be impacted by subsidence is required by the SWMP and Extraction Plans. Channel stability monitoring is to be completed before mining and annually for a period of 24 months post mining. Channel stability monitoring is also completed at regular intervals along the Goulburn River diversion to monitor the stability of the diversion profile as required by the SWMP.

Monitoring channel stability along a section of Ulan Creek occurred in 2023. Ulan Creek is outside the immediate zone of subsidence from the first longwall panel (i.e. LW1) of the UW mine, approximately 80m from the goaf edge of LW1. LW1 was completed by UW 01 May 2015. As with previous monitoring since 2015, there were no obvious signs of subsidence related impacts from the Ulan West underground mine on Ulan Creek in 2023 (PE 2024).

The Ulan Creek channel stability monitoring program indicates a range of stability trends at Sites UC08 to UC37. Observed stability since 2015 at nearly all the sites fluctuates, with destabilisation predominately influenced by prolonged drought periods and significant rainfall events that eventuate into destructive high flows in the creek, as recorded on the 17 February 2020. The potential destabilising influence from LD6 is less obvious when compared to these natural high flow events, although the absence of established ground vegetation along the channel floor, possibly hindered by daily augmented creek flows from LDP6 is an aspect to consider (PE 2024).

In 2023 the frequency and volume of rainfall has continued to decline. Observations in 2023 noted signs groundcover along the creek's riparian zone was decreasing and no inflows from lower order flow lines were observed. Decreasing groundcover was observed at UC8, UC10, UC16, UC19, UC32 to

UC36, which slightly lowered the stability score at these sites. UC27 was the only site with a slight improved stability score due to increased groundcover establishment along sections of the creek bed. The remaining sites maintained their previous stability score from 2022. There is the likelihood at least one flow event of any significance within the monitoring period has occurred, further exacerbating existing erosion observed along the creek from sites UC08 to UC37. Observations from the 2023 inspection along Ulan Creek noted continued mass wasting of the creek at UC20a, UC20b and UC23. Other observations noted fallen trees into the creek since 2022 at sites UC21, UC24, UC27 and UC31 and the removal of either geofabric from the creek bank wall at UC32 and jute-mesh material (as flood debris) from UC29 (PE 2023). For the complete report refer to **Attachment G**.

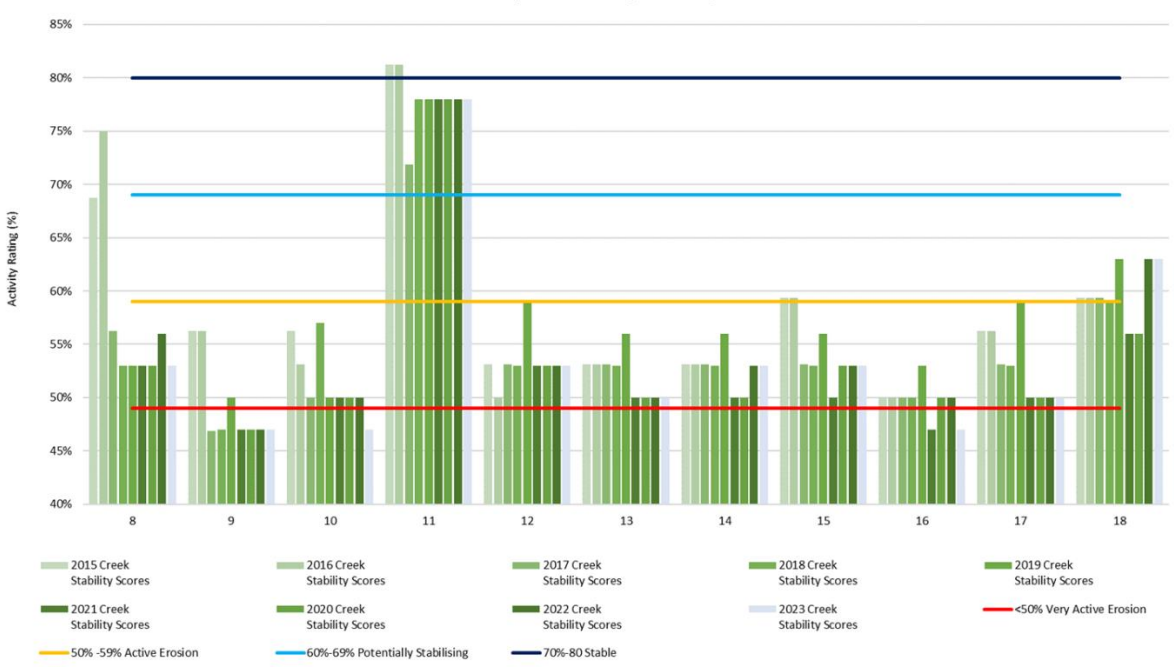



*Figure 7-14 2015-2023 Ulan Creek Stability Monitoring Assessment Scores (Sites 8 to 18)*

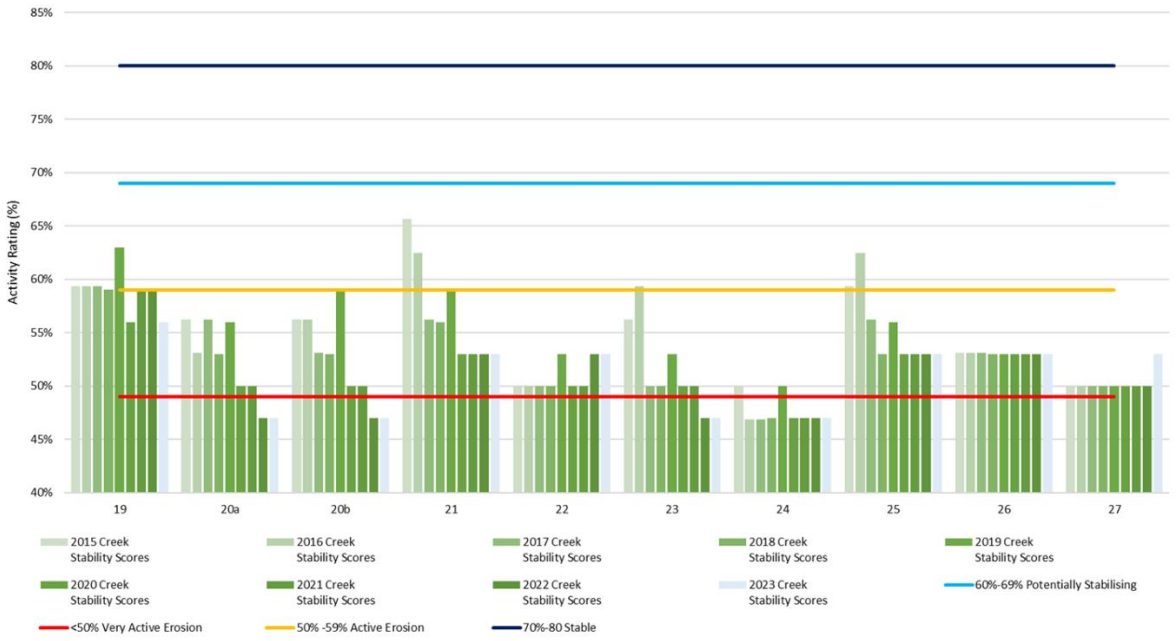



*Figure 7-15 2015-2023 Ulan Creek Stability Monitoring Assessment Scores (Sites 19 to 27)*

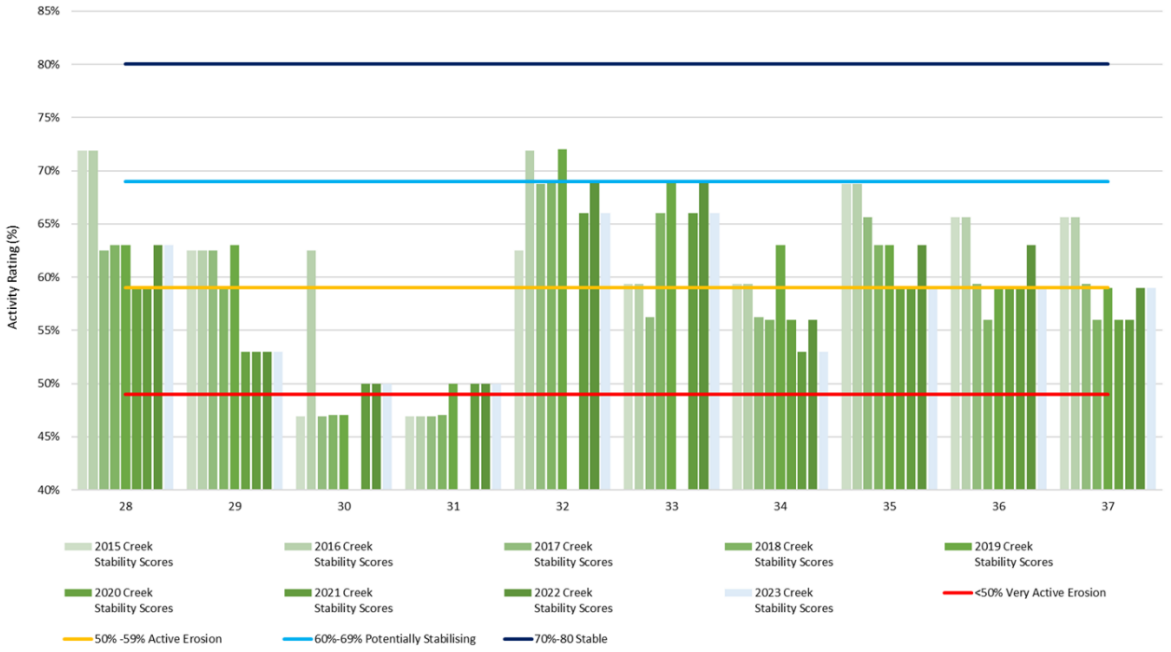



*Figure 7-16 2015-2023 Ulan Creek Stability Monitoring Assessment Scores (Sites 28 to 37)*

## 7.10 Tributary Monitoring

As required by the Ulan West Extraction Plan for LW1 – LW8 (The UW Extraction Plan) and the Ulan Underground Extraction for LWW6 to LWW8 and LW30 to LW32 (The UUG Extraction Plan), UCMPL completed the pre and post mining monitoring of selected creeks and ephemeral tributaries in 2023, including:

- A section of Ulan Creek Flowline 4 (UCFL4) above UW;

- A section of Brokenback Creek (BBC) above UW;
- A section of Mona Creek (MC) above UUG; and
- A section of Ulan Creek Flowline 3 (UCFL3) above UW.

The purpose of the post mining monitoring of ephemeral tributaries and creeks above Ulan West and Ulan Underground mine is to identify the presence of surface cracking and erosion, surface ponding or out of channel flows and distinguish between natural erosion and erosion induced from mine subsidence, as required by both Extraction Plans, for a monitoring period of two years post mining. The results of this flow line monitoring will be interpreted by UCMPL's subsidence engineer to validate subsidence predictions made in the respective Extraction Plan and Project EA.

Identified impacts at a number of sites to date have included cracking of bedrock material within the channel bed, surface cracking across the channel, ponding and erosion. Generally, in the absence of significant flow events, these observed impacts have not perceptibly changed during re-inspections over their respective two-year post mining monitoring period.

As observed in 2021 and 2022 there was less visual evidence (e.g. flood debris/sediment accumulation) of significant flow events in 2023 from high intensity rainfall events, when compared to observations made in 2020. The coincidence of such significant flow events with post mining impacts in some places has initiated erosion as identified in BBC, exacerbated existing erosion and changes of channel stability within the flowline as identified in UCFL4 (PE, 2024).

No water was observed flowing in the flow lines and creeks above the Ulan West mine inspected in 2023 likely associated with the reduced rainfall received during 2023. For the complete report refer to **Attachment I**.

A summary of tributary monitoring above LWW7 at the UUG during the Reporting Period is also provided in the Annual Subsidence Report (**Attachment I**).

No significant impacts were reported to or observed at drainage lines over areas mined by Longwall 7 at UW and Longwalls 30 and 31 at UUG during 2023. No significant impacts were observed in the drainage line of Mona Creek above Longwall 30 at UUG. No significant impacts were reported to the drainage lines of Mona Creek and Brokenback Creek on the Farrs Hill property above Longwall 7 at UW. No significant impacts were reported to the drainage line of Ulan Creek on land leased by UCM above Longwall 7 at UW. Minor impacts to Brokenback Creek from small cracks near the panel edges of Longwall 7 at UW were recorded. Previous impacts to Brokenback Creek, in the form of subsidence cracks and holes from nick-point erosion, over Longwalls 4-6 at UW were remediated during 2023 (SCT 2024).

## 7.11 Groundwater Monitoring Results

The Groundwater Monitoring Program (GWMP) (ULNCX-111515275-1643)[32] describes methods to monitor trends in groundwater levels, compare groundwater depressurisation inflows against modelled predictions and identify potential impacts to private licensed bores. Collected data is used

[32] Condition 34, Schedule 3 of PA08_0184, a component of the WMP (ULN SD PLN 0017)

to calibrate and update the groundwater model. Monitoring focusses on the alluvial and hard rock/coal measures aquifers in the region:

- Alluvial, Triassic, coal seam and interburden aquifers;
- Base flows to the Goulburn and Talbragar Rivers and associated creeks;
- Groundwater bores, springs and seeps on privately owned land; and
- 'The Drip', a groundwater dependant natural site, east of the operations.

### 7.11.1 Groundwater Sampling Procedure

Groundwater monitoring was undertaken in accordance with the following:

- the Groundwater Monitoring Program;
- *Approved Methods for the Sampling and Analysis of Water pollutants in NSW (Department of Environment and Conservation, 2004*);
- *Groundwater Monitoring Guidelines for Mine Sites within the Hunter Region (Department of Infrastructure, Planning and Natural Resources, 2003*);
- *AS/NZS 5667.1:1998 Water Quality – Sampling – Guidance on the Design of Sampling Programs, Sampling Techniques and the Preservation and Handling of Samples*; and
- *AS/NZS 5667.10:1998 Water Quality – Sampling – Guidance on Sampling of Waste Waters*.

### 7.11.2 Maintenance of Groundwater Monitoring Network

The groundwater monitoring network is reviewed annually with additional monitoring wells and Vibrating Wire Piezometers (VWP) installed (when required) as the mine advances to the North and West. Six additional monitoring bores were constructed during 2020 to provide groundwater monitoring points nearby Mona Creek. Three additional VWPs were installed during 2023 to provide additional data as the mine advances.

As required by the approval for the Ulan Underground Extraction Plan, (**Section 3.2.2**) UCMPL within three months of the approval carried out an investigation of monitoring bore PZ10B to determine if it is functioning appropriately. On the 22/11/2023 UCMPL completed the investigation of PZ10A and PZ10B. The downhole camera inspection of PZ10A and PZ10B proved the integrity of the bore casings are intact. There was nothing to indicate the casing at either bore is leaking or had failed.

As a result of the downhole camera investigations completed on the 22/11/2023, UCMPL can confirm PZ10A is dry and confirmed the bottom of the bore hole was at approximately 165.1m with a standing water level (SWL) at approximately 165.0m. UCMPL have equipped monitoring bore PZ10B with a data logger. A logger was installed at PZ10B on the 30 January 2024 as agreed to by DPE.

UCMPL are currently undertaking a comprehensive review of its groundwater monitoring network that will be impacted by mining to identify those bores to most benefit from the frequency of monitoring associated with data loggers. As required, UCMPL will undertake this review in consultation with DPE Water and to the satisfaction of the Secretary and install data loggers at those identified monitoring sites by 28 September 2024.

## 7.11.3 Groundwater Monitoring Results

Australasian Groundwater and Environmental Consultants Pty Ltd (AGE) were commissioned by UCMPL to prepare the annual groundwater review for the 2023 (**Attachment D**). A summary of the 2023 groundwater monitoring review by AGE is provided below.

### 7.11.3.1 Observed and Predicted Groundwater Inflows and Levels

The total volume extracted during 2023 was 5.3 GL. Abstracted volumes were comprised of Ulan West (approximately 33%) and Ulan No. 3 (66%) during 2023. Daily extracted water volume ranged between 12.1 ML/day and 16.8 ML/day, with a combined average of 14.6 ML/day. The mine inflows where slightly less than 2022 values and are within approved groundwater license allocations (AGE, 2024).

The calibrated groundwater model used for this report was originally developed in 2018 as part of the Modification 4 Groundwater Impact Assessment by AGE (2018). As per the GWMP, the numerical groundwater model is reviewed and assessed for accuracy and calibration every two years and, where necessary, updated. The latest model (updated in 2022) represents the state-of-the-art modelling techniques and is the most-accurate model to-date. This model was used in 2023 to update groundwater trigger levels (AGE 2023 ) and is used in this assessment. The GW model will again be reviewed and assessed for accuracy and calibration in 2024 (AGE, 2024)

The model was developed to predict future groundwater inflows to Ulan No. 3 and Ulan West. Ulan Coal Mine facilitates dewatering, using PMN bores.

### 7.11.3.2 North Monitoring Network

North Monitoring Network (NMN) (**Figure 7-17**) is UCMPL's largest network of environmental monitoring bores and in 2023 consisted of:

- 38 monitoring standpipes at eighteen locations from which groundwater level and quality data are collected annually or more-frequently;
- 1 data logger R753A is installed to collect continuous water level data; and
- (originally) 16 vibrating wire piezometer (VWP) array locations with multiple sensors installed to collect groundwater pressure data for the target strata (two sites have since been undermined).

Six additional monitoring bores were constructed during 2020 to provide groundwater monitoring points nearby Mona Creek and a further three VWPs were installed in 2023 to monitor potential impacts as the mine expands.

**NMN Results**

Groundwater monitoring was conducted in accordance with the GWMP during 2023 and compared to the recent derivation of groundwater level and groundwater quality triggers for NMN bores. NMN bores intersecting Jurassic sediments recorded varied trends and most of the VWPs intersecting Jurassic sediment showed very little overall change in 2023. No drawdown exceedances were identified in Jurassic bores or VWP sensors intersecting Jurassic strata (AGE, 2024).

Some of the monitoring bores and VWPs intersecting Triassic units recorded slight groundwater level declines over 2023, which added to cumulative declines, but none of the NMN bores recorded

drawdowns that exceeded the groundwater trigger levels. Drawdown is predicted at a number of Triassic bores and VWP sites, but the observed decline may also be due to climate variability (AGE 2024).

About two-thirds of the Permian bores were accessible in 2023 for groundwater level measurements and drawdown over 2023 was observed in all bores and ranged from 0.16 m (PZ11A) to 25.8 m (PZ09B). This reflects long-term trends associated with mine-related dewatering and is predicted by the numerical model. No Permian bores exceeded their groundwater trigger levels (AGE 2024).

Porewater pressure data was reviewed from VWP sensor sites with a focus on trends and cumulative drawdown. Review found that several shallow sensors are recording small but consistent declines over the period of record (often less than a few meters). These trends may be related to climate variability (which is not modelled) but should be investigated further to fully understand the nature of the behaviour (AGE 2024).

Many of the deeper sensors within or near the mine footprint recorded large depressurisation, which is predicted by the numerical model and expected due to mining, and only one site recorded cumulative drawdown that exceeded the predicted drawdown. PZ29 had four sensors exceeding the predicted drawdown. The trends causing these exceedances were investigated in 2023 and attributed to climate variability (AGE 2024).

Five of the NMN bores exceeded Stage 2 triggers for EC and two exceeded Stage 2 trigger for pH. A few bores exceeded Stage 1 trigger values but, as these were not a third consecutive exceedance, further consideration was not necessary. Average EC and pH from all bores across main strata units were in line with historic values indicating no major change to groundwater quality overall (AGE 2024).

Water levels in Triassic and Permian units are monitored at key locations (PZ24, PZ29, TAL-1 and TAL-2) to inform ongoing assessment of baseflows to the Talbragar and Goulburn Rivers. Minor strata depressurisation was observed in the Triassic units in PZ24 and PZ29, which the Goulburn River flows over, which may indicate the potential for impacts to baseflow, albeit minor and very likely within the limits predicted by the numerical model. However, the noted declining trends in Triassic sensor may warrant further investigation into how it relates to baseflow (AGE 2024).

The groundwater TARP trigger exceedances identified from the 2023 review within the NMN will be investigated in 2024. Investigations of groundwater triggers from 2022 were competed by AGE in 2023 with a summary of the investigations and recommendations provided in **Attachment D**.

#### 7.11.3.3 Bobadeen Monitoring Network

Land above Ulan Underground is irrigated with treated mine water as part of the BIS. The BIS has been operational since 2003 and includes five central pivots (P1 to P5). The rate of water pumped to the pivots is monitored and recorded at station Farm 1 and Farm 2. Significantly more mine water was irrigated in 2023 (1363 ML) than in previous years (410 ML in 2022, 654 ML in 2021). The majority of pumping in 2023 occurred in the first five and last two months of the calendar year. As discussed, even with the irrigation occurring, groundwater levels remained low in the majority of BMN monitoring bores with six of the nine bores recorded as dry throughout 2023. This implies high evapotranspiration rates, soil moisture deficits, and efficient water use (AGE 2024).

#### 7.11.3.4 Mona Creek Monitoring Bores

The Mona Creek monitoring bores are a group of six monitoring bores that were installed nearby to Mona Creek in the northern extent of the Ulan site boundary. More details are available in AGE (2020). The bores are distributed across three locations that consist of two nested monitoring bores, with one bore installed into unconsolidated sediments and the other into Triassic-aged sandstone at each installation site.

Six bores comprising the Mona Creek monitoring network were measured for groundwater levels in 2023. MCMB01B was recorded as "dry" throughout 2023 but the remaining bores recorded groundwater levels and showed generally small declines over 2023. Trigger levels have not been set for these bores (AGE 2024).

#### 7.11.3.5 Private Bore Monitoring

During 2023, 21 private bores identified in the GWMP were sampled for field water quality (pH and/or EC). An additional 15 private bores, yet to be added to the GWMP, were also visited and had pH and EC measured (note that sampling of bores for water quality may be available even if groundwater level cannot be measured). Measured pH was acidic to slightly alkaline, ranging from pH 4.66 (PB17) to pH 8.00 (PB42), and EC was fresh to saline, ranging from 400 µS/cm (PB30) to 5220 µS/cm (PB37) (AGE 2024).

Bores PB20 and PB32 could not be measured in 2023 so cumulative drawdown could not be calculated. PB09 has recently been equipped, preventing measuring of groundwater depth. PB08, which had been included in previous reports, has been undermined and removed from further discussion. The remaining five bores report cumulative drawdown less than that predicted by the numerical model. PB33 reported a cumulative rise in groundwater level between 2017 (first measurement) and 2023 of just over 1 m (AGE 2024).

Bores PB11, PB12 and PB18 recorded cumulative drawdown as of 2023 that exceeded that predicted by the latest numerical model. Cumulative drawdown was calculated as the difference between the first recorded groundwater level and 2023 levels. PB11 recorded 11.23 m of drawdown between 2010 and 2023 and was predicted to only record 10.65 m. PB12 and PB18 recorded much less drawdown (0.74 and 1.76, respectively) but still exceeded predictions. The groundwater level from 2023 for PB12 is commensurate to results recorded in 2015, 2018, and 2019 which were comparably dry years, whereas the initial measurement was taken in 2010, which was close to the average rainfall, indicating that this bore is climatically impacted. Departures in private bores will be investigated (AGE 2024).

Exceedances for private bores were derived previously in AGE (2021) but given that water quality exceedances are based on the full historic data record, pH and EC exceedances were re-calculated for this report as the historic (through 2022) minimum (pH only), 5 th percentile (pH only), 95th percentile (pH and EC), and maximum (pH and EC) values (AGE 2024).

Stage 2 trigger exceedances in pH were observed only at PB19 in 2023, with the 2023 value of 5.22 being less than the historic minimum value of 5.30. Six private bores had 2023 readings that exceeded the Stage 1 trigger values but as these were not part of three consecutive exceedances, they are not discussed further (AGE 2024).

Stage 2 exceedances in EC were observed in seven private bores with 2023 values ranging from 101% to 178% of historic maximum. Two private bores exceeded Stage 1 triggers but as these were not part of three consecutive Stage 1 exceedances, they are not discussed further (AGE 2024).

The groundwater TARP trigger exceedances within private bores will be investigated in 2024. Investigations of groundwater triggers from 2022 competed in 2023 are included in **Attachment D**.

No community complaints related to private bores were received in 2023.

#### 7.11.3.6 The Drip Monitoring Program

VWP site PZ29 monitors groundwater pressures nearby to The Drip. The porewater pressure trends have been generally stable for over five years but there has been a slight observed decline (less than 1 m) in the Triassic sensors in the past few years. However, compared to historic declines in the deeper strata, these declines are more likely related to natural variations rather than mining related drawdown. The Triassic strata sensor in bore PZ24 (closer to the mine) does not show similar declines suggesting the behaviour in the shallow sensors is unrelated to mining (AGE 2024).

Water quality at The Drip continues to exhibit a major ion composition comparable to some Triassic bore samples, but noticeably independent of the full range. This suggests the influence of an alternative water source mixing with Triassic sediments to recharge The Drip. Given that The Drip seep has a local recharge source compared to the regional Triassic aquifer, and no mining related depressurisation has been recorded in the Triassic nearby The Drip (as measured at PZ29), Ulan Coal Mine does not appear to be impacting groundwater flow at The Drip (AGE 2024).

Groundwater monitoring results for 2023 from VWP PZ29 are provided in **Attachment D**.

#### 7.11.3.7 Pleuger Monitoring Network (PMN)

The PMN comprises active and decommissioned bores used to dewater the underground workings at UCM. The current GWMP list 17 PMN bores that are to be measured weekly (MG27, MG23, MG22), fortnightly (East 20, MG26, MG28, MG29, UW TG1, and Ritz) or monthly (East 7, East 9, East 10, East 15, East 18, and MG21).

Monthly groundwater level elevations at six decommissioned dewatering bores within the PMN (East 7, East 9, East 10, East 15, East 18, and MG21). The groundwater hydrograph shows most groundwater levels were relatively stable over the long term with East 7 and East 9 showing some small variability, which is likely attributable to climate patterns. No data was collected from any PMN bores in June 2023 due to resource limitations (AGE 2024).

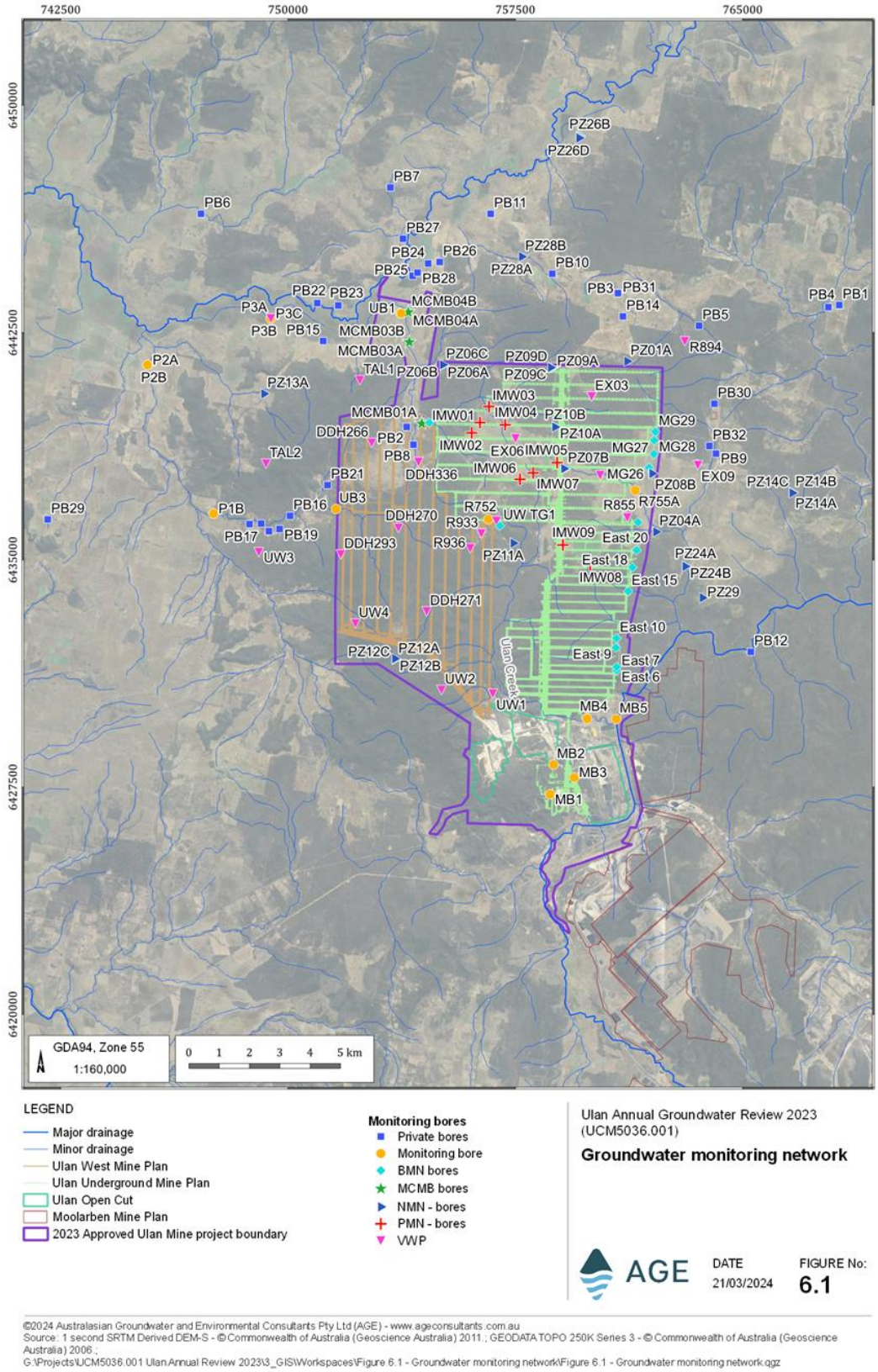





*Figure 7-17 UCMPL Groundwater Monitoring Network (AGE 2024)*

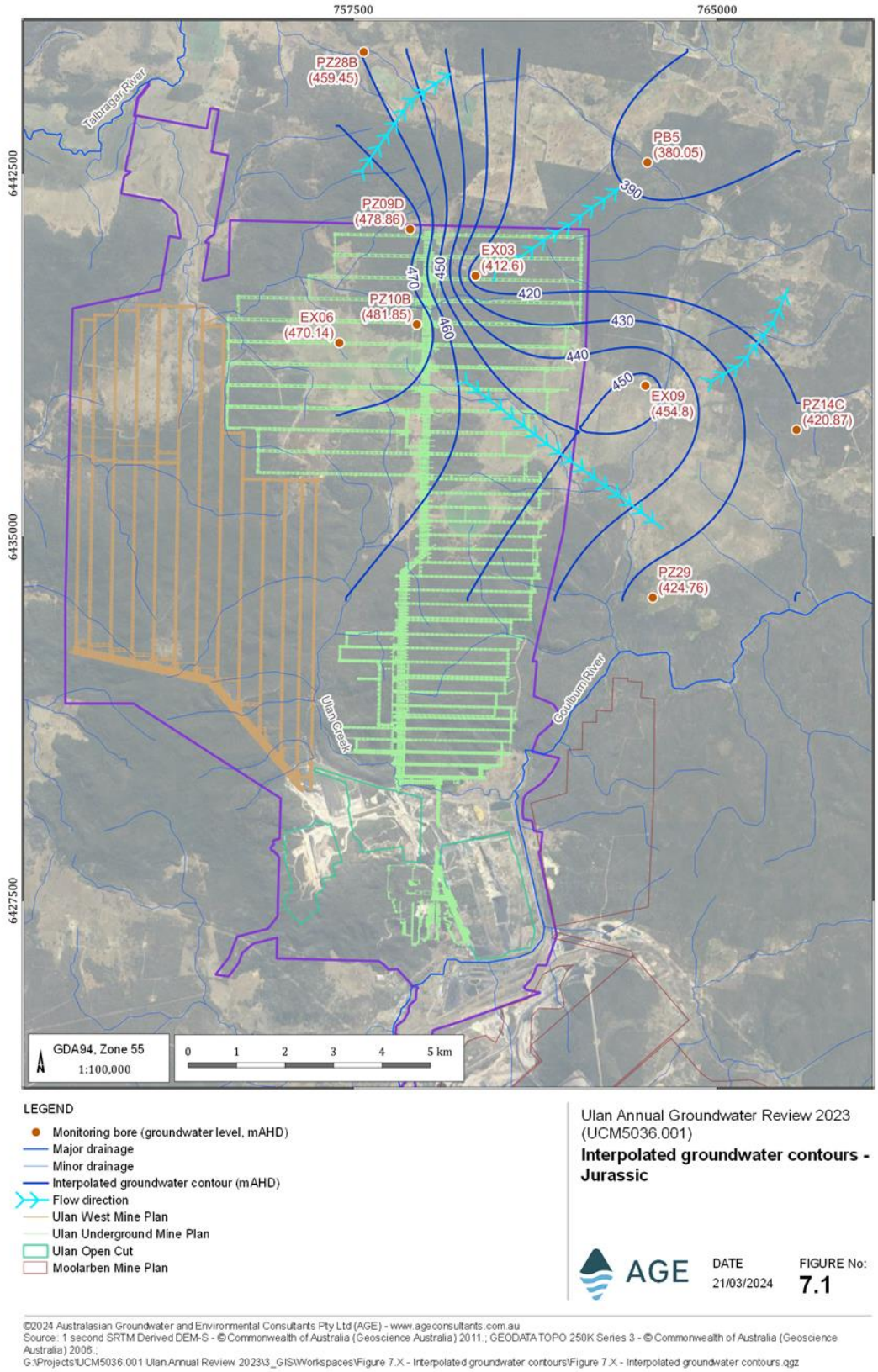



*Figure 7-18 - Interpolated Groundwater Contours - Jurassic Sediments (AGE 2024)*

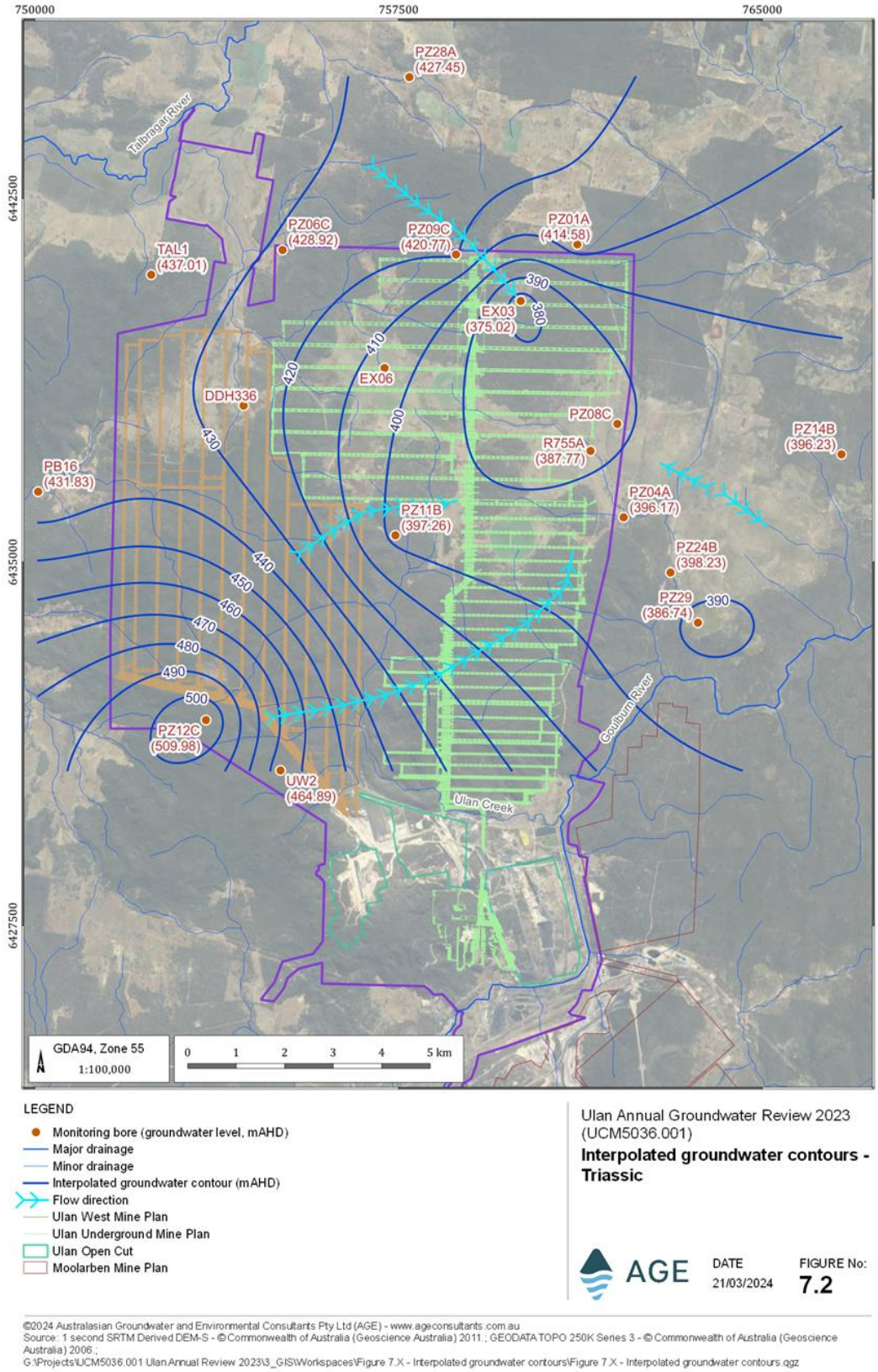



*Figure 7-19 - Interpolated Groundwater Contours - Triassic Sediments (AGE 2024)*

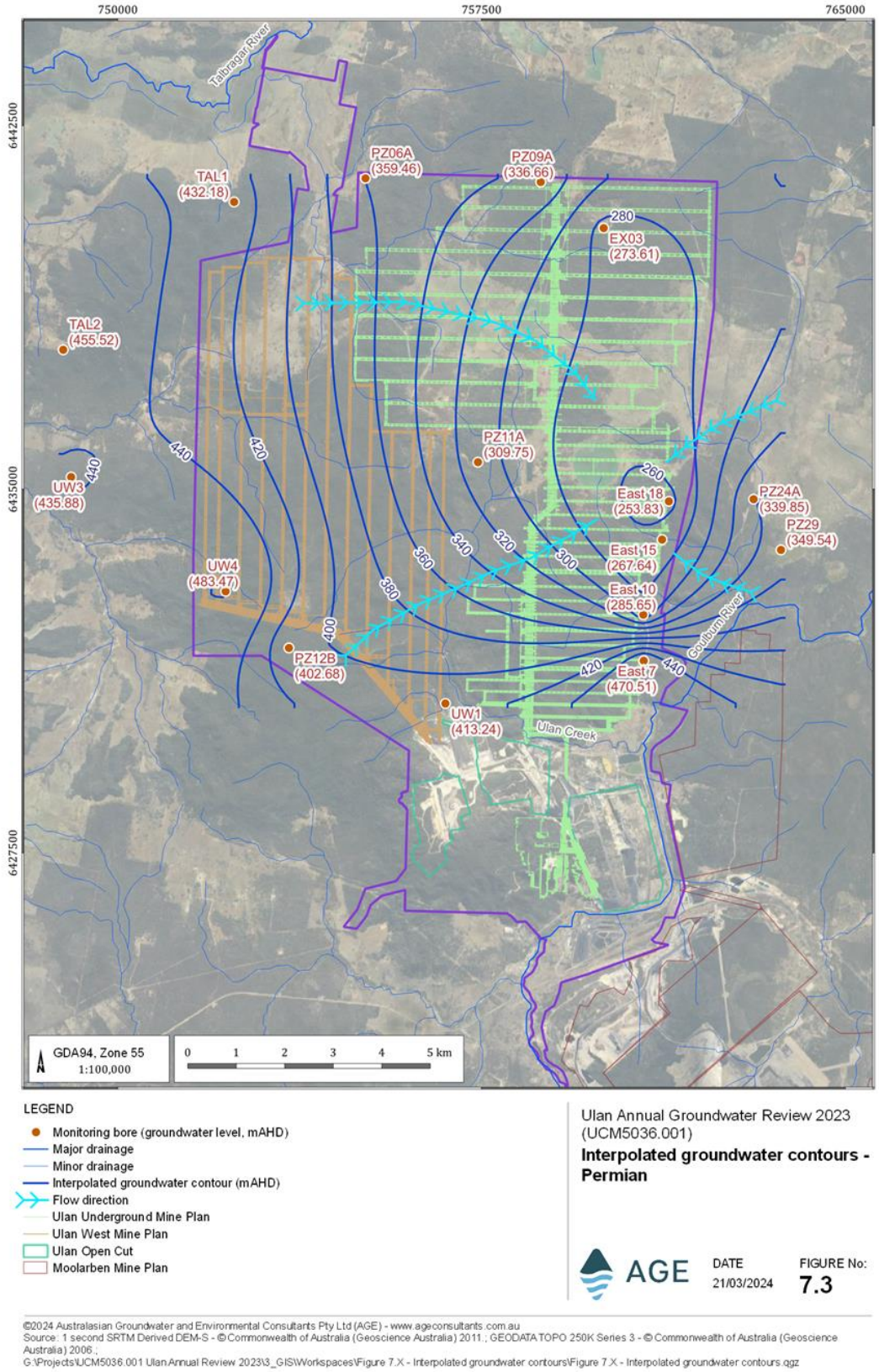



*Figure 7-20 - Interpolated Groundwater Contours – Permian Sediments (AGE 2024)*

# 8. Rehabilitation

## 8.1 Status of Mining & Rehabilitation

### 8.1.1 Open Cut Operations

Open cut operations had previously been undertaken until exhaustion of approved reserves and completion of the mining contract in 2008. Open Cut operations recommenced in January 2012 in the Open Cut Extension Area. Mining in the Open Cut Extension Area continued as required to supplement the Underground ROM production for rail until 10 October 2016 when the Open Cut was placed into Care and Maintenance for the foreseeable future.

**Table 8-1** presents a summary of the current rehabilitation and disturbance areas associated with the Open Cut. The Open Cut remained in care and maintenance in 2023 and no further areas are currently available for rehabilitation. During the Reporting Period, rehabilitation activities primarily included weed maintenance and monitoring within existing rehabilitated areas (**Section 8.2**).

UCMPL gained certification of 76Ha of rehabilitated areas associated with Ulan Surface Operations reducing the land under active rehabilitation to 473Ha. Areas that have been certified are now maintained in accordance with land management practices as described in the BMP.

**Figure 8-1** displays the extent of mining and rehabilitation activities for the Open Cut in 2023.

*Table 8-1 – Open Cut Rehabilitation and Disturbance Summary*

| | 2023 (ha) | 2024 Forecast (ha) |
|---|---|---|
| **A. Total disturbance footprint** | 1192.4 | 1192.4 |
| **B. Total active disturbance** | 591.2 | 591.2 |
| **C. Land being prepared for rehabilitation** | 0 | 0 |
| **D. Land under active rehabilitation** | 473 | 426 |
| **E. Completed rehabilitation[33]** | 76 | 47.4 |

**Notes:** A = total disturbance of the Open Cut area. B = Disturbance minus rehabilitation (including certified areas). D = Rehabilitation minus certified areas. E = Assuming 47.4Ha will achieve certification by NSW RR in 2024.

#### 8.1.1.1 Objectives and Final Land Use

The primary objective of rehabilitation and revegetation of the post-mining disturbance areas, in particular the open cut disturbance area, will be to create a stable final landform, being self-sustaining native vegetation communities characteristic of the pre-mining composition, with a post mining land and soil capability Class 6 landscape. The RMP defines the following Final Land Use Domains:

- Domain A: Native Ecosystem
  - Applicable to Mining Domain 1 (Infrastructure), Mining Domain 2 (Tailings Storage Area), Mining Domain 3 (Water Management Area), Domain 4 (Overburden Emplacement Area) and Domain 5 (Active Mining Areas).
- Domain D: Rehabilitation Biodiversity Offset Area

[33] Detail provided in **Section 8.5**

- Domain F: Water Management Areas
- Domain G: Water Storage (excluding final void)
- Domain I: Infrastructure
- Domain K: Other – Subsidence Management Area

Within Domain A: Native Ecosystem, UCMPL will rehabilitate and revegetate the open cut to self-sustaining native vegetation communities, as proposed in the 2009 EA including (**Figure 8-2**):

- Grey Box Woodland and Ironbark Open Forest Complex on Sandstone communities which are characteristic of the pre-mining composition within the Open Cut Extension Area; and
- A mix of Woodland and Open Woodland within previous areas rehabilitated or disturbed areas of the open cut prior to the approval of PA08_0184.

The proposed vegetation communities within the post-mining landscape will be specific endemic (e.g. Ironbark Open Forest Complex and Grey Box Woodland) or Native Woodland areas (non-specific). In accordance with the Rehabilitation Objectives Native Woodland vegetation communities will be rehabilitated to ensure that composition, structure and function will be commensurate with Ironbark Open Forest Complex on Sandstone, Grey Box Woodland or White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland Communities. They will have 'characteristics' of these communities, but at this point in time will not be used for any offsetting requirements. Hence, they are not classified under Endangered Ecological Community (EEC) and Critically Endangered Ecological Community (CEEC) completion criteria.

### 8.1.2 Underground Operations

Longwall mining activities during the Reporting Period for UW and UUG are provided in **Section 4.1.1** and **Section 4.1.2** respectively.

For the Underground Operations, disturbance of the surface above longwall mining activities can result from either the construction of various approved infrastructure including roads, vent fans, dewatering sites, powerlines, pipeline substations to support the Underground Operations and/or subsidence related impacts.

However not all subsidence related impacts require rehabilitation. The decision to remediate subsidence impacts takes into consideration accessibility, potential risks to the public, employee and contractor safety and the environment.

If assessments determine subsidence cracking does not present a safety risk or risk to the environment, the crack will be left to self-remediate to prevent further clearing/disturbance works associated with the remediation.

If assessments determine subsidence cracking requires remediation, an appropriate method will be selected to minimise the potential disturbance to the surrounding environment as required by the relevant Extraction Plan.

During the Reporting Period UCMPL completed several rehabilitation projects to repair subsidence cracking on UCMPL owned land and on privately owned land (**Figure 8-3**). **Figure 8-3** displays the extent of mining and rehabilitation activities for the Underground Operations in 2023.

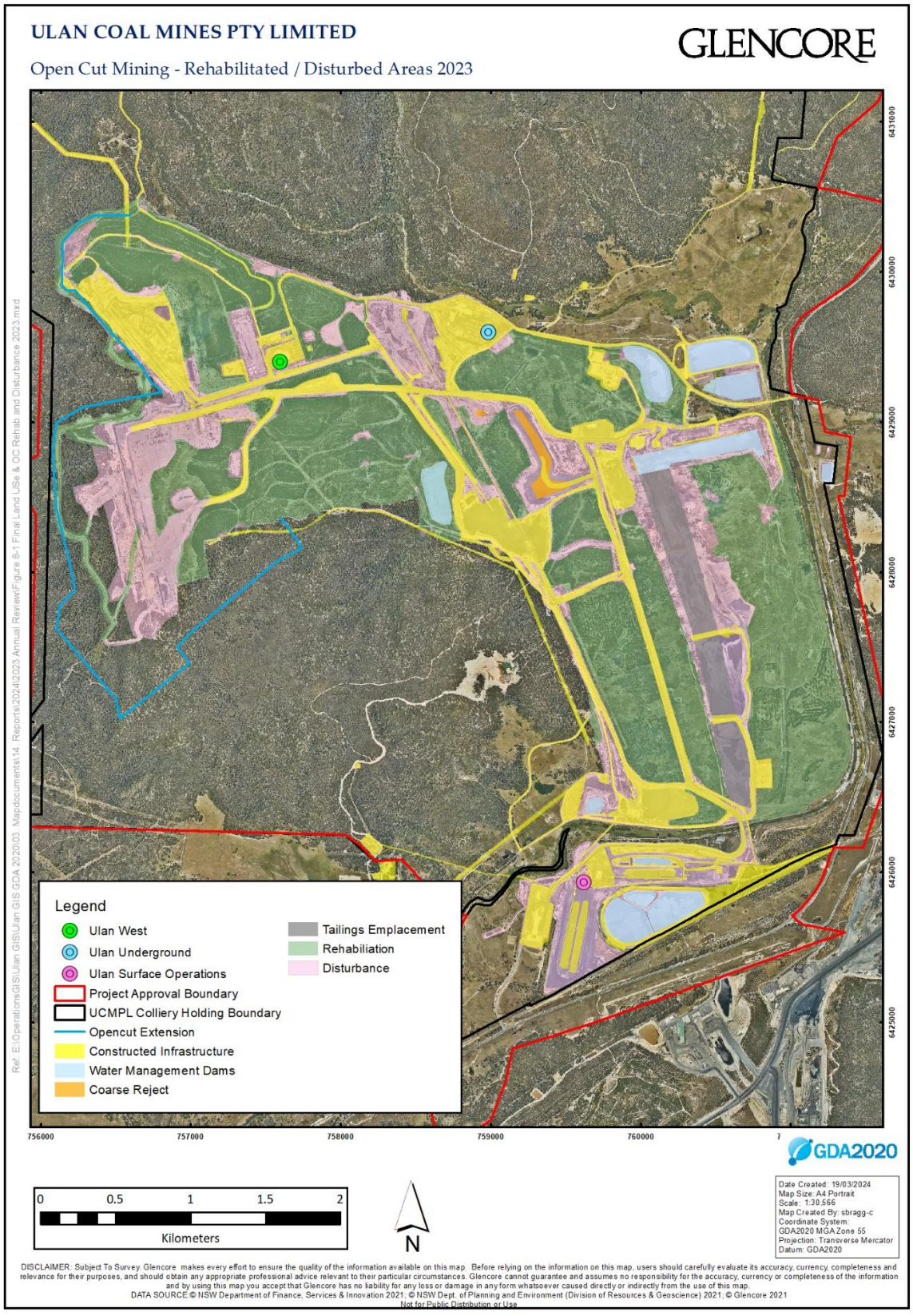



*Figure 8-1 Open Cut Rehabilitation and Disturbance Status in 2023*

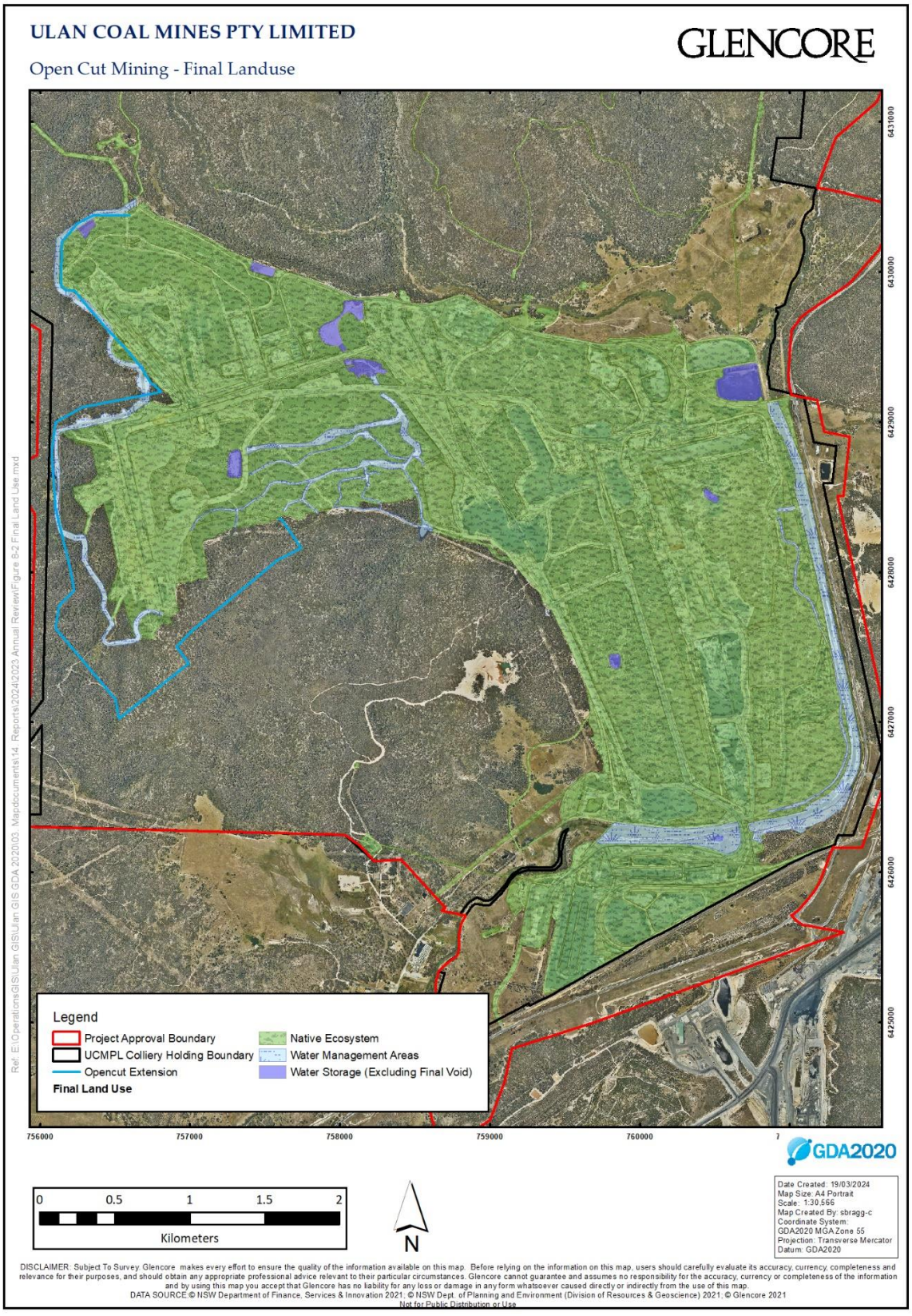



*Figure 8-2 Final Land Use*

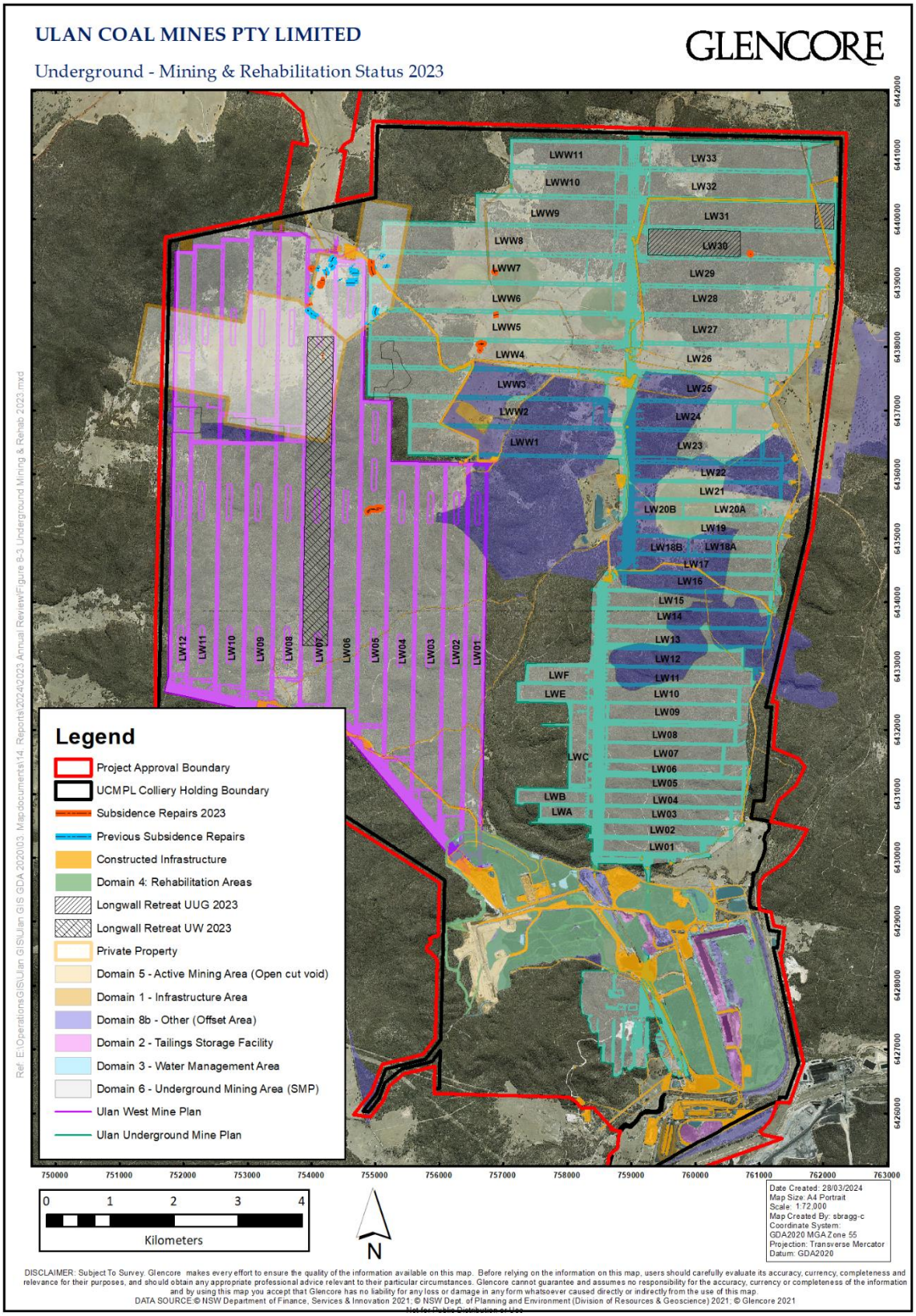



*Figure 8-3 Status of Underground Rehabilitation and Disturbance in 2023*

## 8.2 Rehabilitation Monitoring

Open Cut Rehabilitation Areas 1 to 18 (**Figure 8-4 to Figure 8-6**) were created to facilitate tracking of rehabilitation performance as per GCAA Report Card. The areas were formed by grouping rehabilitation areas with a similar age, connectivity structure and species composition. GCCA aims to standardise monitoring and completion criteria based on NSW RR feedback, using the RRC monitoring and assessment process.

Eco Logical Australia (ELA) were engaged by UCMPL to undertake floristic monitoring during autumn and spring 2023 at the Ulan Mine Complex (UMC). Monitoring was undertaken in accordance with the requirements of the BMP and the RMP. Performance indicators and completion criteria for the UMC are presented in the BMP and RMP. Refer to **Attachment E** for the complete report by ELA.

A summary from *the Annual Flora Monitoring Report 2023* by ELA for Domain A in the RMP (i.e. Native Ecosystem) included:

- Results from the GCAA Rehabilitation Report Card are provided in **Figure 8-7** below. All Polygons fall within the 'maintenance' performance category, except Polygon 9 and Polygon 5.
- Polygon 9 falls within the 'rework' performance category due to significant gully erosion and drainage structure failures in a localised area.
- According to the GCAA Rehabilitation Report Card Polygon 5 is the best performing Polygon, with only one category scoring 'maintenance' (function). Function scores could be increased by installing large woody debris within this Polygon; however, function scores also likely to increase as the vegetation matures and stem diameter increases.
- Tree stem and canopy were the lowest performing categories, with all Polygons recording 'monitor' or 'maintenance' scores.
- Polygons which scored 'maintenance' for tree stem density recorded stem density above the optimal range identified by the calculator (300-800 stems/ha), except for the East Pit rehabilitation which recorded lower stem density than the optimal range.
- All polygons which scored 'maintenance' for canopy, recorded canopy covers lower than the optimal range identified by the calculator (15-50% PFC).

The 2023 floristic monitoring results included assessment against specific completion / success criteria in the RMP as provided in **Section 6.6.1** and **Table 6-7**.

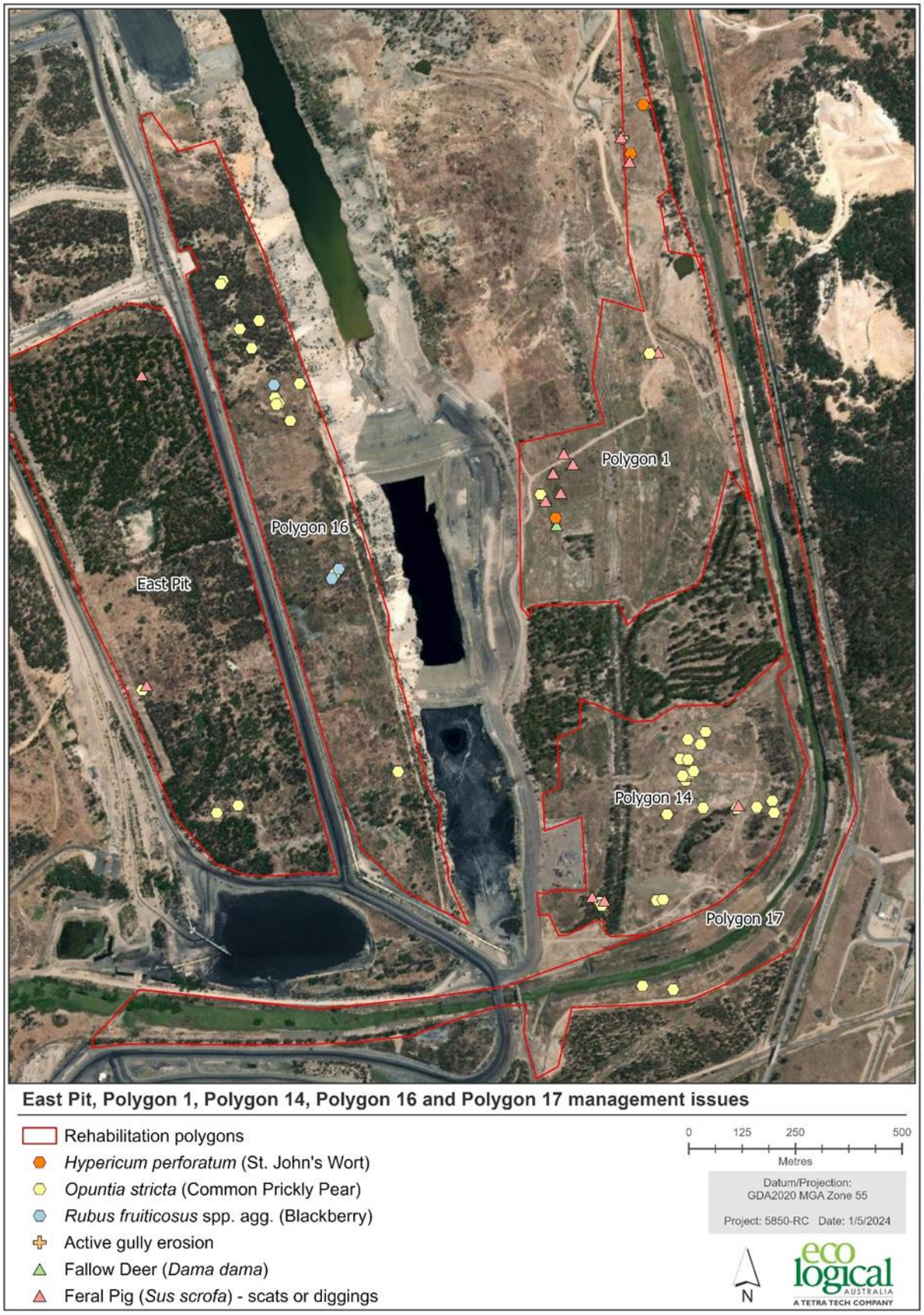



*Figure 8-4 Open Cut (East Pit Area) Rehabilitation Monitoring Locations 2023*


*Figure 8-5 Open Cut (Barrier Pit Area) Rehabilitation Monitoring Locations 2023*

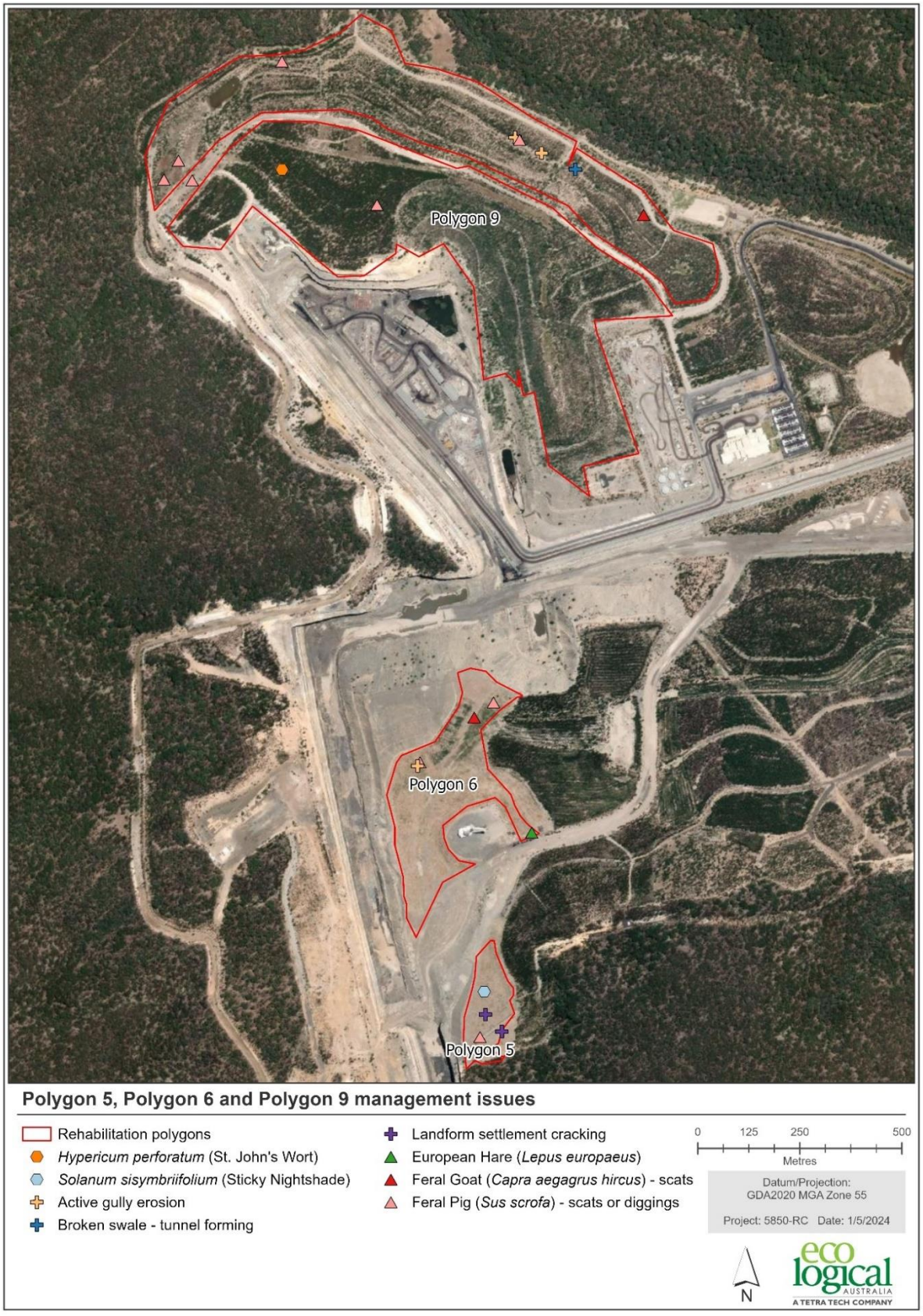


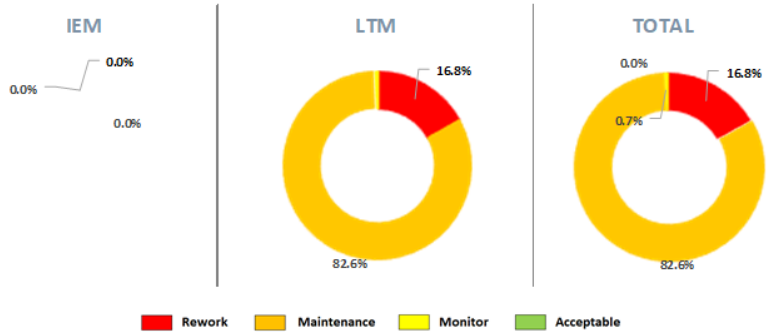

*Figure 8-6 Open Cut (Ulan West & Open Cut Extension Area) Rehabilitation Monitoring Locations 2023*

## 2024 Rehabilitation Report Card

### UCMPL

COAL ASSETS AUSTRALIA
GLENCORE

*Overall Performance Summary:*




| | IEM | | LTM | | Total | |
|---|---|---|---|---|---|---|
| | ha | % | ha | % | ha | % |
| Area monitored | 0 | 0.0% | 381.5 | 100.0% | 381.5 | 100.0% |
| Rework | 0 | 0.0% | 64 | 16.8% | 64 | 16.8% |
| Maintenance | 0 | 0.0% | 315 | 82.6% | 315 | 82.6% |
| Monitor | 0 | 0.0% | 2.5 | 0.7% | 2.5 | 0.7% |
| Acceptable | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% |

*Detailed Performance Summary:*

| Block Name | Area (ha) | Monitor Type | Slope | Erosion | Bare | Weed | Tree Stem | Nat Comp | Structure | Function | Canopy | Repro | Past Comp | Biomass | Perf. Categ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Polygon 1 | 34 | Targeted_LTM | Acceptable | Monitor | N/A | Monitor | Monitor | Maintenance | Monitor | Maintenance | N/A | Acceptable | N/A | N/A | Maintenance |
| Polygon 2 | 17 | NonSpecific_LTM | Acceptable | Acceptable | Acceptable | Acceptable | Maintenance | Acceptable | N/A | N/A | Monitor | Monitor | N/A | N/A | Maintenance |
| Polygon 3 | 6 | NonSpecific_LTM | Acceptable | Monitor | Monitor | Monitor | Maintenance | Monitor | N/A | N/A | Maintenance | Acceptable | N/A | N/A | Maintenance |
| Polygon 4 | 12 | NonSpecific_LTM | Acceptable | Monitor | Monitor | Monitor | Maintenance | Monitor | N/A | N/A | Maintenance | Acceptable | N/A | N/A | Maintenance |
| Polygon 5 | 2.5 | Targeted_LTM | Acceptable | Monitor | N/A | Monitor | Monitor | Monitor | Monitor | Maintenance | N/A | Acceptable | N/A | N/A | Monitor |
| Polygon 6 | 9 | Targeted_LTM | Acceptable | Maintenance | N/A | Monitor | Monitor | Maintenance | Monitor | Monitor | N/A | Acceptable | N/A | N/A | Maintenance |
| Polygon 10 | 36 | NonSpecific_LTM | Acceptable | Acceptable | Acceptable | Acceptable | Maintenance | Monitor | N/A | N/A | Maintenance | Maintenance | N/A | N/A | Maintenance |
| Polygon 11 | 36 | NonSpecific_LTM | Acceptable | Monitor | Monitor | Monitor | Maintenance | Monitor | N/A | N/A | Maintenance | Acceptable | N/A | N/A | Maintenance |
| Polygon 14 | 26 | NonSpecific_LTM | Acceptable | Acceptable | Acceptable | Acceptable | Maintenance | Maintenance | N/A | N/A | Maintenance | Maintenance | N/A | N/A | Maintenance |
| Polygon 16 | 37 | NonSpecific_LTM | Acceptable | Acceptable | Acceptable | Acceptable | Maintenance | Monitor | N/A | N/A | Maintenance | Monitor | N/A | N/A | Maintenance |
| Polygon 17 | 51 | NonSpecific_LTM | Acceptable | Monitor | Monitor | Monitor | Maintenance | Monitor | N/A | N/A | Monitor | Acceptable | N/A | N/A | Maintenance |
| East Pit (Relinquished) | 51 | NonSpecific_LTM | Acceptable | Acceptable | Acceptable | Acceptable | Maintenance | Acceptable | N/A | N/A | Maintenance | Acceptable | N/A | N/A | Maintenance |
| Polygon 9 | 64 | Targeted_LTM | Acceptable | Rework | N/A | Monitor | Maintenance | Maintenance | Monitor | Maintenance | N/A | Acceptable | N/A | N/A | Rework |

*Figure 8-7 – Open Cut Rehabilitation Report Card Results*

# 8.3 Infrastructure Decommissioned

There was no major infrastructure or buildings removed in 2023. Decommissioning of redundant infrastructure at USO in 2023 included a LV wash platform, a rotary breaker, coal conveyors CV1005, CV1022, CV1021, CV1020, CV1019, Nut Coal House and O&K Crusher and associated Dump Hopper.

# 8.4 Other Rehabilitation and Land Management Activities

## 8.4.1 Rehabilitation Maintenance Activities

Addressing open cut rehabilitation maintenance and repair of areas identified **Figure 8-4** to **Figure 8-6** is ongoing. Inspection and maintenance of subsidence repairs were completed as required (**Figure 8-3**).

## 8.4.2 Exploration Program

There was 3.16ha of disturbance within the MLs during the reporting period associated with 11 exploration sites. All sites were rehabilitated in accordance with the RMP and Ground Disturbance Permit procedure.

# 8.5 Relinquished Rehabilitation Areas

## 8.5.1 2023 Reporting Period

During 2023 UCMPL received certification of two rehabilitated areas associated with Ulan Surface Operations, totalling 76.8Ha. These two areas were:

- Polygon 12 (57.1 Ha) has been rehabilitated with more contemporary methods and locally relevant species. The vegetation is described as a mixture of Dense Eucalyptus sp. (4-8 m in height) > 100 stems per ha and dense *Acacia linearfolia* (+/- sparse Eucalyptus stands).
- Polygon 13 (19.7 Ha) is an area of historic rehabilitation in the East Pit Open Cut. It was rehabilitated using a range of forestry species similar to areas already certified. The vegetation is described as non-local native species advanced rehabilitation. It is similar to East Pit A2 (EPA2).

Inclusive of the 2020 certification, this endorsement by the Resources Regulator now results in a total of 126 ha of rehabilitated areas associated with Ulan Surface Operations. UCMPL is currently investigating the potential certification of two rehabilitation polygons for submission in the 2024 reporting period (**Figure 8-7**). Floristic assessment has been completed at the time of annual review preparation, with further investigations including soil assessments, fauna monitoring and thermal imagery to be conducted. The areas under assessment are:

- Polygon 8 (26.4 Ha) has been rehabilitated with more contemporary methods and locally relevant species. The vegetation is characteristic of Ironbark Open Forest Complex with tree stem density greater than the completion criteria target with a high native species richness across all growth forms.
- Polygon 15 (21 Ha) has been rehabilitated with contemporary methods and locally relevant species with 80% of native species recorded characteristic of Ironbark Open Forest Complex. The area has tree stem density greater than the completion criteria and good percentage foliage cover of native species across growth form groups.

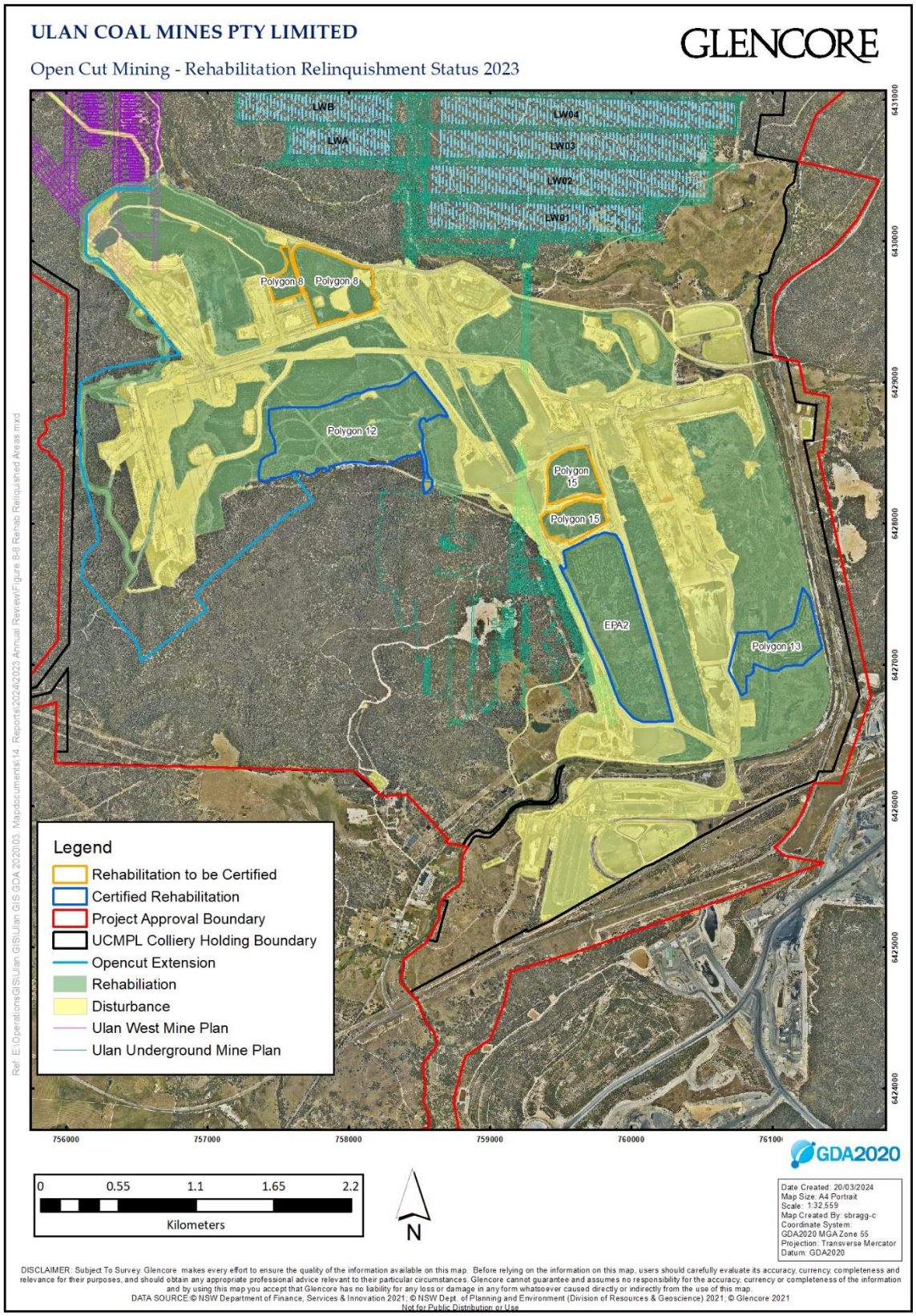



*Figure 8-8 Open Cut Rehabilitation Relinquishment Areas*

## 8.6 Rehabilitation Objectives and Final Landform and Rehabilitation Plan

As required by *Schedule 8A of the Mining Regulation 2016* UCMPL submitted and received approval for the *Rehabilitation Objectives and Final Landform and Rehabilitation Plans* on 13 December 2023. The approved objectives address the following categories:

- Bushfire
- Ecological rehabilitation
- Groundwater
- Land and water contamination
- Land contamination
- Landform stability
- Management of waste and process materials
- Native revegetation
- Removal of infrastructure
- Retention of infrastructure
- Surface water
- Water approvals
- Water quality

Further information regarding the *Rehabilitation Objectives and Final Landform and Rehabilitation* Plans can be found within the ARR and Forward Plan (**Section 3.4**) submitted to NSW RR annually.

## 8.7 Rehabilitation Trials and Research

UCMPL's Forward Program provides a three-year mining and rehabilitation forecast as required by Schedule 8A of the *Mining Regulation 2016*. As outlined in the Forward Program, there are no proposed rehabilitation trials in the Open Cut during the next Reporting Period.

## 8.8 Rehabilitation Actions Proposed

UCMPL's Forward Program provides a three-year mining and rehabilitation forecast as required by Schedule 8A of the *Mining Regulation 2016.* As outlined in the Forward Program, there are no proposed areas for rehabilitation in the Open Cut during the next Reporting Period. Rehabilitation maintenance activities in the Open Cut will be associated with landforms under ecosystem and land use development phase in the next Reporting Period, and will be guided by the outcomes of UCMPL's annual rehabilitation monitoring program. Rehabilitation maintenance activities in the Open Cut during the next Reporting Period may include, but not be limited to:

- Weeds and pest animal control;
- Managing bushfire risks;
- Minor earthworks to remediate any significant erosion features, including contour banks and diversion channels;
- Infill planting and/or seeding to meet vegetation community requirements;
- Tree thinning in the Open Cut and
- Maintaining erosion and sediment controls.

Continued monitoring and remediation of subsidence impacts for the Underground Operations will be undertaken in accordance with the relevant Extraction Plan during the next Reporting Period.

# 9. Community

## 9.1 Ulan Coal CCC Meetings

Four meetings of the Ulan Coal Community Consultative Committee (CCC) were held on the 16 March, 15 June, 14 September and 6 December 2023. Operational progress and activities, community complaints, monitoring results and environmental performance were presented at each meeting. The 2023 meetings also presented and discussed activities and interactions with other mines both proposed and existing in the region, management plan updates, the exploration program, proposed modifications to the Project Approval (i.e. MOD 6), Ulan West Continued Operations, rehabilitation relinquishment, results of the Annual Review, additional community consultation and the community investment program.

For the complete 2023 CCC presentations refer to the Ulan Coal website *https://www.glencore.com.au/operations-and-projects/coal/current-operations/ulan-coal/community-documents*

## 9.2 Exploration Consultation

Throughout the 2023 reporting period prior to drilling operations occurring within EL7542, EL8687 or EL9419 adjacent landholders/residents were notified via phone, letter or email of the schedule for drilling. Notification letters and exploration newsletter updates were delivered to landholders within 5km of the operations, indigenous stakeholder groups, Mudgee Local Aboriginal Land Council, Ulan Coal CCC Members, Bungaba Progress Association, Turill Community Centre, Mid-Western Regional Council and the NSW government local Member of Parliament.

### 9.2.1 EL8687 and EL7542

The exploration program for EL8687 and EL7542 in 2023 was announced in advertisement placed in Mudgee Guardian Mining Notice Classifieds 9 December 2022 and 16 December 2022 and in the December 2022 issue of the Gulgong Gossip advising intention to drill in Bungaba area, providing contact details for further information (**Attachment J**).

Letters were sent at the beginning of June 2023 to all residents within 2km of EL8687 (those within potential audible range of drilling activities) regarding re-commencement of drilling operations for the 2023 exploration program. Three community information sessions were held on the 30th April, 20th September and 25th November 2023 for residents, landholders and other interested stakeholders (**Section 9.5**).

### 9.2.2 EL9419

The exploration program for EL9419 in 2023 was announced in advertisement advising intention to drill in EL9419, providing contact details for further information (**Attachment J**) were placed in:

- Mudgee Guardian Mining Notice Classifieds 11th and 18th August 2023;
- Gulgong Gossip September 2023 issue (monthly publication);
- The Coolah District Diary 16/8/2023 (fortnightly publication); and
- The Dunedoo District Diary 23 August 2023 (fortnightly publication).

All residents within 2km of boreholes scheduled for 2023 in EL9419 (those within potential audible range of drilling activities) were informed of the commencement of drilling operations for the 2023 exploration program. Two community information sessions were held on 28th June and 29th November 2023 for residents, landholders and other interested stakeholders (**Section 9.5**).

## 9.3 Community Newsletters

During the Reporting Period, UCMPL published three community newsletters in May, September and December 2023. Information provided in the newsletters included operational and exploration updates including the Bungaba Community Newsletter, project approval modification updates, community investment program, rehabilitation certification, the 24hr community hotline details and contact details for the Ulan Mine Complex community representatives. For the complete 2023 newsletters refer to the Ulan Coal website *https://www.glencore.com.au/operations-and-projects/coal/current-operations/ulan-coal/community-documents*

## 9.4 Community Sponsorship

GCAA invests in Health, Arts and Culture, Education and Enterprise, Environment and the Community, including, as an example, education grants to NSW Government Schools. Examples of UCMPL's Community Investment Program in 2023 included:

- Dunedoo Show Society (2023 Dunedoo Show);
- Gulgong Show Society (2023 Gulgong Show);
- Educar Foundation (2023 Max Potential Program);
- Mid-Western Regional Council (Play Like a Girl Scholarships);
- Mudgee Mens Shed (Woodworking Dust Collector Unit);
- Kandos Public School (Technology upgrade);
- St Matthews Catholic School (Secondary Campus School Vegetable Garden Project);
- Mudgee Show Society (2023 Mudgee Show);
- Mudgee PCYC (Off-field uniforms for two teams competing in the Nations of Origin games);
- Gulgong DC Rural Fire Brigade (Repurposed retired IT equipment);
- Lake Windamere Under Canvas (Donation of left over trees from Mudgee Show);
- Westpac Rescue Helicopter Service (Mudgee Golf Day 2023 donation);
- Ulan West Surplus First Aid Supplies (Donation of surplus first aid supplies to Mudgee Junior Rugby League and Mudgee District Netball Assoc.);
- Ulan West Expired First Aid Supplies (Donation of expired first aid supplies to WIRES Western Network:
- Lions Club Firewood Deliveries (Firewood deliveries in conjunction with Mudgee Lions)
- Cancer Council (USO's Biggest Morning Tea Fundraiser);
- Lake Windamere Under Canvas (Replacement of fluoro lights at Lake Windamere Under Canvas Camping);
- Lake Windamere Under Canvas (Technology upgrade);
- Gulgong Public School (Breakfast Club);
- Dunedoo Central School (CNC Router Designs);
- All Hallows Central School (Garden Club Greenhouse and Work Shed);
- Mid-Western Regional Council (Yurbay (Wiradjuri for Seed);

- TPI Association of NSW (Coolah Veterans/Long Tan Day);
- Wings 4 Kidz (Mudgee Running Festival - Coal Miners Cup);
- Mudgee Maternity Unit (Maternity Unit technology and equipment upgrade);
- Pink Up Mudgee (Site fundraisers (USO & UUG);
- Wings 4 kidz (Late Mail Postie Ride); and
- Mudgee Rotary Clubs (Mudgee Showground Carols).


*Figure 9-1 – Dunedoo Show Society (2023 Dunedoo Show)*


*Figure 9-2 – Mudgee Men's Shed (Woodworking Dust Collector Unit*


*Figure 9-3 – Mudgee PCYC (Off-field uniforms for the Nations of Origin Games)*

## 9.5 Community Complaints

Of the seven (7) complaints received during the 2023 Reporting Period, one complaint was in relation to an access track, three were exploration noise related, a mine vehicle speeding along a local road, a mine vehicle turning around using a private driveway and potential water loss from a dam (**Attachment M**). Community complaints recorded from 2013 are presented in **Figure 9-4**.

Historical and the 2023 community complaint summary register with actions undertaken, is available from the Ulan Coal Website *https://www.glencore.com.au/operations-and-projects/coal/current-operations/ulan-coal/community-documents*

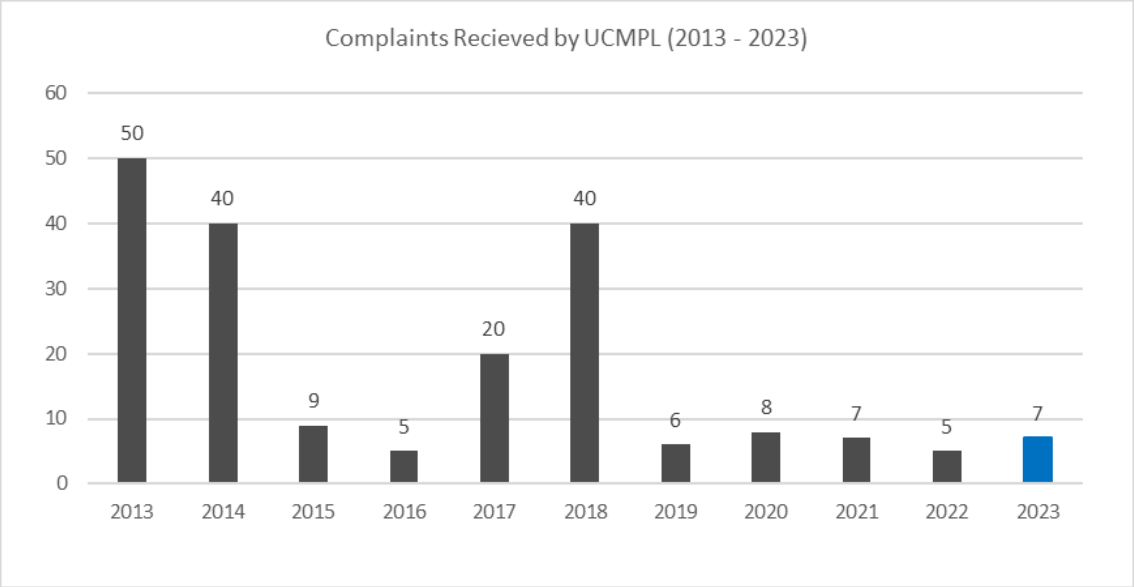



*Figure 9-4 – Community Complaints (2013-2023)*

## 9.6 Bungaba Community Consultation Program

UCMPL held three community information sessions in April, September and November 2023 to provide the community with both operational and exploration activities, with a focus regarding the Ulan West Continued Operations area and current and proposed exploration activities associated with EL8687 and EL9363.

For the 2023 Bungaba Community Newsletters and the Ulan Coal Community Newsletter refer to the Ulan Coal website *https://www.glencore.com.au/operations-and-projects/coal/current-operations/ulan-coal/community-documents*

## 9.7 Turill Community Consultation Program

UCMPL held two community information sessions in June and November 2023 to provide the community with both operational and exploration activities, with a focus regarding the EL9419 Exploration Licence Area and current and proposed exploration activities associated with EL9419.

## 9.8 Ulan Road Noise Mitigation Strategy

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

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

## 9.9 Ulan Road Traffic Management

Employees, including contractors, are trained and reminded (through site inductions, environmental management systems training, training day presentations and toolbox talks) of each person's responsibility to maintain legal and considerate behaviour during passage to and from the mine site. Key messages communicated include considerate and legal behaviour, minimising road use where possible, litter avoidance and reporting unsafe behaviour.

## 9.10 Community Complaints Hotline/Email

UCMPL operates both a 24-Hour Community Hotline Ph: **1800 647 630** or email: *ulancommunity@glencore.com.au*

# 10. Independent Compliance Audit

An Independent Environmental Audit (IEA), as required by Schedule 5 Condition 8 of PA08-0184, is conducted every three years by a suitably quality, experience and independent team, who has been endorsed by the Secretary. The previous IEA was conducted in 2022.

RPS Australia East Pty Ltd (RPS) were engaged by UCMPL to conduct the 2022 IEA of the Ulan Coal Complex which, included Ulan Underground mine, the Ulan West Underground mine, the Open Cut mine and land holdings and the Bobadeen Irrigation Scheme (BIS).

The IEA was conducted in accordance with the above-mentioned requirements, the site visit and verification component of the IEA was undertaken from 20 April to 22 April 2022, and the IEA report was received on 31 May 2022. A status summary of the 2022 IEA outcomes and any recommendations was provided in 2022 Annual Review.

The next scheduled IEA as required by as required by Schedule 5 Condition 8 of PA08-0184 will occur in 2025.

A copy of previous IEA reports and responses to IEA recommendations can be found on the Ulan Coal website at *https://www.glencore.com.au/operations-and-projects/coal/current-operations/ulan-coal/reporting-documents*

# 11. Incidents & Non-compliances

UCMPL must notify the EPA, DPE and other relevant agencies immediately on becoming aware of a notifiable incident[34].

## 11.1 Reportable Incidents

There were no reportable incidents during the 2023 Reporting Period.

## 11.2 Non-Compliances

There was a one non-compliance for the 2023 Reporting Period. A summary of non-compliances, the nature and cause of the non-compliances and actions to address the non-compliances is provided in **Table 11-1** below.

*Table 11-1 – Details of Non-Compliances*

| Relevant Approval | Date | Details of Non-Compliance Issue | Cause of Non-Compliance | Actions to Address Non-Compliance |
|---|---|---|---|---|
| M2.2 EPL394 | 20/2/2023 to 22/2/2023 | The TEOM described in EPL 394, EPA ID number 30 failed to record due to a lightning strike and unplanned power outage by Essential Energy for approximately 43hrs from the 20/02/2023 to the 21/02/2023. | Unplanned outage believed to be caused by the electrical storm at 4:55pm on 20/02, confirmed with Essential Energy at 11:30 on 21/02. Essential Energy restored power at 2:36pm on 21/02/2023.<br>On review of TEOM data after power was restored, it was confirmed that the PM10 component was not recording.<br>The TEOM pump was replace on the 22/02 at 12pm.<br>The TEOM was offline for approximately 43 hours | The failure was due a lightning strike and to an unscheduled power outage by Essential Energy.<br>There is a TEOM operated by MCO situated near by collecting data which can be used to confirm real time dust emissions. |

[34] PA 08_0184 Schedule 5, Condition 6 and Protection of the Environment Operations Act 1997, Section 153 - Pollution Incident Response Management Plan

# 12. Activities Planned for 2024

**Operational activities planned for 2024**

- Ulan Underground will continue to develop roadways for LWW8 , LWW9 and LW32in 2023 as well as advancing the Main Headings. Longwall mining will continue in LW31 for the remainder of 2024.
- Ulan West Operations will continue to develop roadways for LW9 in 2024. Longwall mining of LW7 will be completed with mining commencing in LW8a for the remainder of 2024.. The Ulan West Operations will continue with the installation of new ventilation infrastructure (shaft and fan) adjacent to End of Block LW9.
- The Ulan Open Cut is not expected to operate in 2023.
- Handling and processing of coal from the ROM stockpiles to the train load out.
- Blasting and extraction of rock material from the Bobadeen Basalt Quarry, if required for operational projects.
- Exploration at both Ulan West and Ulan Underground will continue with approximately 20 and 13 holes respectively to be drilled in 2024.

**Groundwater Monitoring Program**

- Response to recommendations from the 2023 Groundwater monitoring report.

**Rehabilitation/Remediation/Offset Areasr**

- Management actions as for identified issued within the rehabilitation/remediation and offset areas.
- Progress the rehabilitation relinquishment (**Section 8.2.9**) and identify other areas that meet completion criteria.
- Commence implementation of GCAA report card recommendations including East Pit rehabilitation remediation/maintenance works.

**The following heritage works are planned for 2024:**

- Exploration sites (as required).
- Rock shelter test /salvage.
- Heritage site inspections.

**Management Plan/Extraction Plan revisions planned for 2023 include:**

- Revision of the relevant Ulan Coal Management Plans following the submission of this Annual Review, including the incorporation of the implemented recommendations from the following reports:
    - Annual Groundwater Report.
    - Ulan Creek Stability Report.
    - Annual Subsidence Report.
    - Annual Biodiversity Reports.
    - Biodiversity Management Plan.

### Approval Modifications

- Proposed Modification 6 to extend Ulan Underground LWW9 to LWW11 and widen LWW11 and extend Ulan West LW10 to LW12. The Modification will include minor changes to surface infrastructure. There are no proposed changes to extraction limits, the mining method, coal processing or transportation.

### Community

- Consultation for the 2023 Exploration Program within EL8687, EL7542, EL9363 and EL9419 via newspaper adverts, community newsletters, exploration newsletters, emails, letter drops, telephone calls and face to face meetings.
- Negotiate private property access agreements with landholders for exploration within ML1468, EL8687, EL7542, EL9363 and EL9419.
- Provide support to the local community through Community Investment Program via sponsorship support, community projects and in-kind donations.

# 13. References

*Environmental Noise Monitoring – December 2023, EMM (January 2024)*

*Environmental Noise Monitoring – July 2023, EMM (August 2023)*

*UCMPL Aquatic Monitoring Report 2023, Eco Logical Australia (March 2024c)*

*UCMPL Fauna Monitoring Report 2023, Eco Logical Australia (March 2024b)*

*Floristic Monitoring - Annual Report 2023, Eco Logical Australia (March 2024a)*

*UCMPL Microbat Monitoring Report 2023, Eco Logical Australia (March 2024d)*

*2023 Annual Review of Subsidence Monitoring at Ulan West and Ulan Underground Mines, SCT Operations Pty Ltd (March 2024)*

*2023 Monitoring of Creeks and Tributaries, Pacific Environmental Pty Ltd (March 2024)*

*2023 Ulan Creek Stability Monitoring Report, Pacific Environmental Pty Ltd (March 2024)*

*2023 Cliff Line Monitoring Report, Pacific Environmental Pty Ltd (March 2024)*

*Ulan 2022 Groundwater Exceedance Investigation (AGE, July 2023)*

*Ulan Coal Mine Annual Groundwater Review 2023 (AGE 2024)*

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