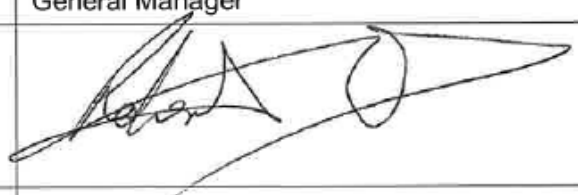
# 2024 Annual Review

## Northparkes Operations

Evolution MINING

| Document Details | |
|---|---|
| Name of Operation | Evolution Mining Northparkes Operations |
| Name of Operator | Evolution Mining (Northparkes) Pty Ltd operating as Northparkes Mining Services Pty Ltd |
| Development Consent/Project Approval Number | DC 11_0060 (the Consent), as modified |
| Name of holder of development consent/Project Approval | Evolution Mining (Northparkes) Pty Ltd |
| Mining Leases | ML1247, ML1367, ML1641, ML1743 |
| Name of holder of mining lease | Evolution Mining (Northparkes) Pty Ltd |
| Water Licence # | Refer to Table 4 Summary of Licences |
| Name of holder of water licence | Evolution Mining (Northparkes) Pty Ltd |
| MOP/RMP Commencement Date | 1st July |
| MOP/RMP Completion Date | 30th June |
| Annual Review Commencement Date | 1st January 2024 |
| Annual Review Completion Date | 31st December 2024 |
| I, Rob Cunningham, certify that this audit report is a true and accurate record of the compliance status of Evolution Mining Northparkes Operations for the period 1st January 2024 to 31st December 2024 and that I am authorised to make this statement on behalf of Evolution Mining Pty Ltd. | |
| Name of authorised reporting officer | Rob Cunningham |
| Title of authorised reporting officer | General Manager |
| Signature of authorised reporting officer |  |
| Date | 27 March 2025 |

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# 1. STATEMENT OF COMPLIANCE

In accordance with the *Post-approval requirements for State significant mining developments – Annual Review Guideline* (NSW Government, 2015) a statement of compliance has been prepared to document the status of compliance with Development Consent 11_0060 (the Consent) (as modified), mining leases and other relevant approvals at the end of the 2024 reporting period. Table 1 shows each statutory approval and its compliance status in the reporting period. Table 2 provides further information on any identified non-compliances.

**Table 1 Statement of Compliance**

| Were all conditions of the relevant approvals complied with? | |
|---|---|
| DC 11_0060 | No |
| ML 1247 | Yes |
| ML 1367 | Yes |
| ML 1641 | Yes |
| ML 1743 | Yes |
| EPL 4784 | Yes |
| EPBC 2013/6788 | Yes |
| WAL9995, WAL8241, WAL7866, WAL34955, WAL32138, WAL32120, WAL32004, WAL31969, WAL31963, WAL31930, WAL31863*, WAL31850, WAL21471, WAL21466, WAL1698, WAL13108, WAL10082 | Yes |

*Property sold in 2024

**Table 2 Non-Compliance**

| Relevant Approval | Condition Number | Condition Description | Compliance Status | Comment | Where addressed in Annual Review |
|---|---|---|---|---|---|
| DC 11_0060 | Schedule 3 Condition 14 | Air Quality | Non-compliant | Particulate matter exceeded 24 hour criterion | Section 11 |

The only identified non-compliance in the reporting period was in relation to the short term (24hr) air quality criteria within Table 4 of Schedule 3 of the Consent. Condition 14 was exceeded at the Hubberstone monitoring location on 31 October following a non-forecasted high wind event. Northparkes uses three real time PM10 monitoring locations and calculates the PM2.5 contribution as per footnote ‘e’ of Condition 14 in the Consent.

Northparkes self-reported that a non-forecasted high wind event was recorded on the 31 October resulting in elevated dust levels being recorded at the Hubberstone monitoring location. Northparkes undertake a weekly weather assessment based off the Weatherzone predictions for the week. Thursday 31 October was not predicted to be a high-risk wind day (based on Northparkes’ assessment criteria) as the maximum wind speed was predicted to be 6m/s, however the actual wind speed that day reached up to 12m/s over a two-hour period in the afternoon. This event was a non-compliance to the air quality criterion with no harm to the environment occurring.

# 2. INTRODUCTION

## 2.1 Mine Operation Introduction and History

### *2.1.1 Location, History and Process Overview*

Evolution Mining Northparkes Operations (Northparkes) is a copper-gold mine located 27 kilometres north-west of the town of Parkes in central west New South Wales, Australia (Figure 1). The Northparkes business continues to run under a joint venture arrangement with 80% interest with Evolution Mining (Northparkes) Pty Ltd and the remaining 20% share owned by the Sumitomo Group.

The majority of Northparkes employees reside in the Parkes Shire, which has a population of approximately 15,000 residents. Parkes Shire is a diverse municipality centred in the town of Parkes. The largest industry is the healthcare and social assistance industry, followed by the agricultural and retail industries.

North Mining Limited originally received development consent for Northparkes operations in 1992, 15 years after the first onsite resource discovery. This approval was based on open cut mining of E22 and E27 and underground mining of E26 within the 'Mining Reserve' of 64.1 million tonnes (Mt).

Underground block cave mining commenced at Northparkes in October 1993 with the construction of the E26 underground block cave mine through the granting of development consent DA504/90. Northparkes commissioned its second block cave mine, E26 Lift 2 in 2004. In 2008, an extension to the second block cave mine, E26 Lift 2 North (E26 Lift 2N) was commissioned. Mining operations at Northparkes focus on the extraction of a range of ore bodies based on a set of target mineral concentration limits.

Open cut mining commenced with the E27 pit in December 1993 and the E22 pit in January 1994. The gold-enriched oxide ore was processed through a separate carbon-in-pulp (CIP) gold circuit, including the use of cyanide for gold extraction, prior to the construction of the copper-gold sulphide processing circuits in 1995. Ore was then stockpiled for blending with E26 underground material. Open cut mining at Northparkes operated on a campaign basis determined by economic and environmental viability. Open cut mining ceased in October 2010 with the completion of the E22 open cut campaign. The CIP processing plant has been decommissioned from site, with cyanide no longer used in process circuits on site. In July 2014, Development Consent 11_0060 was granted under section 75J of the *Environmental Planning and Assessment Act 1979* (NSW) (EP&A Act) for the Northparkes Extension Project (the Project). This Consent surrendered the Project Approval PA06_0026 and DA11092 in accordance with section 104A of the EP&A Act.

In 2019, the Consent was gazetted as a State Significant Development (SSD) under section 4 of the EP&A Act. Northparkes continues to undertake modifications to DC 11_0060 as operations develop (Section 3.2.1).

An open cut mining campaign consisting of two pits (E31 and E31N) commenced in August 2023 and is planned to be completed in 2025 reporting period.

The final product, a black powder (concentrate), is trucked to a local rail siding 13 km from site, trained to Port of Newcastle, then shipped to overseas customers.

Northparkes has two offset properties being Kokoda (350ha purchased in 2014) and Estcourt (65 ha converted in 2011).

Farmland surrounds the Northparkes site and acts as a buffer for noise and dust. Approximately 2,400 hectares of this surrounding land is sharefarmed with a local farming family.

A satellite property 25 km south west of Northparkes is owned and ear marked for future gold mining in the current life of mine plan.

Ownership of Northparkes has included North Mining Limited from 1992, Rio Tinto from 2000 to 2013 and CMOC Mining Services Pty Ltd from 2013 to 2023. In December 2023, ownership once again transferred, this time to Evolution Mining.

### *2.1.2 Current and Future Operations*

The major components of the Northparkes onsite infrastructure and approved future operations includes:

- Continuation of approved underground block cave and sub-level cave mining in the E48 and E26 ore bodies, and associated underground infrastructure
- Development of underground block caving in the E22 resource beneath the E22 open cut void
- Campaign open cut mining of open cut resources including E31, E31N, E28, E28NE
- Ongoing tailings disposal and TSF raises including:
    - continuation of tailings disposal to TSF1, TSF2, Infill TSF (including extension) and Estcourt TSF to an approved height of 28 metres
    - provision for additional raises on Rosedale TSF to provide for an increased height up to approximately 28m above ground surface

- Development of new waste dumps (overburden emplacement areas) for the management of open cut waste rock. Waste rock from open cut mining areas to be utilised in the development of TSF raises, such as Rosedale TSF
- Continuation of approved ore processing infrastructure up to 8.5 Mtpa capacity, and road haulage of copper concentrate to local rail sidings
- Continued use of existing site infrastructure including administration buildings, workshops, internal access roads and service infrastructure
- Continued use of surface mining infrastructure including ventilation shafts, hoisting shaft and ore conveyors
- Continuation of existing approved water supply and management processes
- Continuation of approved mining operations until end of 2032, and
- Rehabilitation and closure of the mine site to be carried out after the end of the operational life of the Project in accordance with relevant approvals.

## 2.2 Key personnel

The following are responsible for the environmental management of the operation:

| | | |
|---|---|---|
| Chris Higgins | Environment & Farm Superintendent | Chris.Higgins@evolutionmining.com |
| Rachael Whiting | Sustainability Manager | Rachael.Whiting@evolutionmining.com |
| Rob Cunningham | General Manager | Rob.Cunningham@evolutionmining.com |

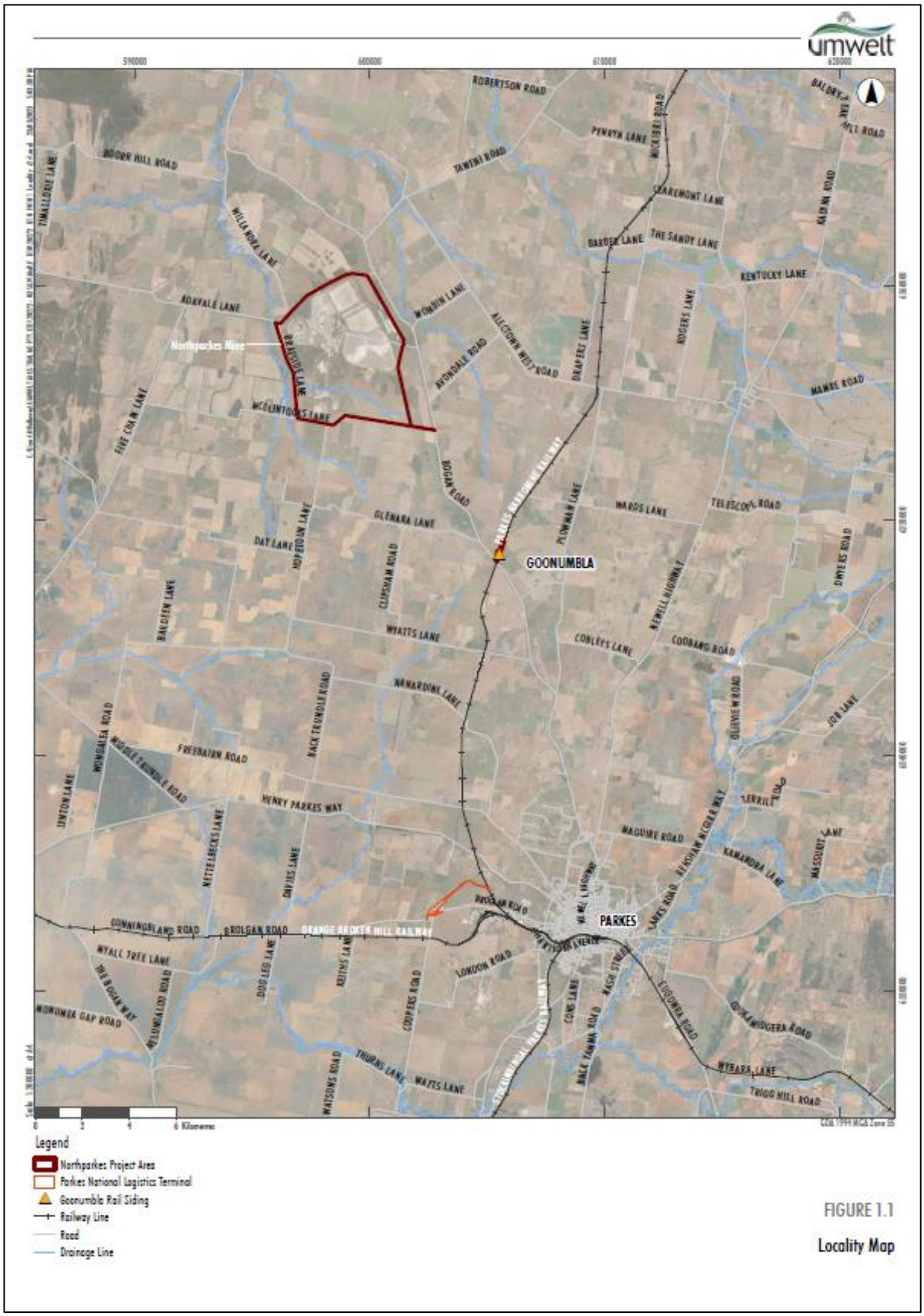



**Figure 1 Project Locality Plan**

### 2.2.1 Site Layout and Infrastructure


**Figure 2 Surface Infrastructure and Operational Layout**


**Figure 3 Approved disturbance footprint**


**Figure 4 Offset – Estcourt**


**Figure 5 Offset – Kokoda**

## 2.3 Scope

This Annual Review provides a summary of actual operational and environmental management activities undertaken at Northparkes during the reporting period and provides a review against planned works, as described in the Rehabilitation Management Plan (RMP), and predicted impacts documented in the Northparkes Mines Step Change Project Environmental Assessment (EA) (Umwelt, 2013). The Annual Review also covers community relations and addresses mine development and rehabilitation undertaken during the reporting period.

The report has been prepared to satisfy the conditions of the Consent (in particular Schedule 6, Condition 4) and Mining Leases (ML) 1247, 1367, 1641, 1743. Key requirements of these approvals are described in Table 3.

The report has been prepared generally in accordance with the NSW Governments "*Annual Review Guideline*" October 2015 where practicable, as well as the relevant Northparkes reporting framework.

Northparkes recognises and respects the importance of stakeholders and considers positive relationships that aid in continual improvement of its environmental management practice. This report is therefore provided to the following stakeholders:

- Department of Planning, Industry and Environment (DPE)
- Resource Regulator, Department of Regional NSW
- Forestry Corporation of NSW
- NSW Environment Protection Agency (EPA)
- Biodiversity Conservation Trust (BCT)
- Peak Hill Local Aboriginal Land Council (PHLALC)
- Wiradjuri Council of Elders (WCE)
- Parkes Shire Council (PSC)
- Forbes Shire Council (FSC)
- Northparkes Community Consultative Committee and,
- General public (available at **https://evolutionmining.com.au/northparkes/**).

## 2.4 Annual Review Requirements

**Table 3 Annual Review Requirements**

| Licence Approval or Guideline | Section Reference | Requirement | Reference in this Report |
|---|---|---|---|
| Development Consent 11_0060 | Schedule 6, Condition 4 | By the end of March each year, or as otherwise agreed by the Secretary, the Proponent must review the Environmental performance of the project to the satisfaction of the Secretary. This review must:<br>(a) describe the development that was carried out in the previous calendar year, and the development that is proposed to be carried out over the next year | Whole document |
| | | (b) include a comprehensive review of the monitoring results and complaints records of the project over the previous calendar year, which includes a comparison of these results against the<br>• the relevant statutory requirements, limits or performance measures/criteria<br>• the monitoring results of previous years and<br>• the relevant predictions in the EA | Section 4<br>Section 6<br>Section 7<br>Section 8 |
| | | (c) identify any non-compliance over the last year, and describe what actions were (or are being) taken to ensure compliance | Section 1<br>Section 11 |
| | | (d) identify any trends in the monitoring data over the life of the project | Section 4<br>Section 6<br>Section 7<br>Section 8 |

| Licence Approval or Guideline | Section Reference | Requirement | Reference in this Report |
|---|---|---|---|
| | | (e) identify any discrepancies between the predicted and actual impacts of the project, and analyse the potential cause of any significant discrepancies and | Section 4<br>Section 6<br>Section 7<br>Section 8 |
| | | (f) describe what measures will be implemented over the next year to improve the environmental performance of the project. | Section 12 |
| | Schedule 3, Condition 38 | The Proponent must:<br>(a) implement all reasonable and feasible measures to minimise the waste (including waste rock) generated by the project)<br>(b) ensure that the waste generated by the project is appropriately stored, handled and disposed of and<br>(c) monitor and report on effectiveness of the waste minimisation and management measures in the Annual Review | Section 4 |
| ML 1247<br>ML 1367<br>ML 1641<br>ML1742 | Condition 3 (f) | The lease holder must prepare a Rehabilitation Report to the satisfaction of the Minister. The report must:<br>i. provide a detailed review of the progress of rehabilitation against the performance measures and criteria established in the approved MOP<br>ii. be submitted annually on the grant anniversary date (or at such times as agreed by the Minister) and<br>iii. be prepared in accordance with any relevant annual reporting guidelines published on the Department's website. | Whole document |

# 3. APPROVALS

## 3.1 Approvals, Leases and Licences

Table 4 summarises the key mining leases and approvals currently held by Northparkes which are relevant to the operations.

**Table 4 Summary of Licences**

| Approval | Description | Issue Date |
|---|---|---|
| **Project Approvals** | | |
| DC 11_0060 | Project Approval – Step Change Project (Mine Extension) | 16/07/2014 |
| DC 11_0060 Mod 1 | Modification to include Sub Level Cave Mining | 16/05/2015 |
| DC 11_0060 Mod 2 | Correct error in project boundary | 31/03/2016 |
| DC 11_0060 Mod 3 | Development and operation of E26 Lift 1 North | 22/08/2017 |
| DC 11_0060 Mod 4 | Changes to Ore Processing Infrastructure | 06/09/2018 |
| DC 11_0060 Mod 5 | Temporary road haulage route and new secondary crusher | 30/09/2019 |
| DC 11_0060 Mod 6 | Amendments to Operational Activities | 06/06/2022 |
| DC 11_0060 Mod 7 | Underground Portal and TSF buttressing | Withdrawn |
| DC 11_0060 Mod 8 | Product haulage arrangements | 22/12/2022 |
| DC 11_0060 Mod 9 | E22 Portal Geotechnical Drilling | 20/04/2023 |
| DC 11_0060 Mod 10 | E31 Waste Rock Emplacements and Cyclone Tailings | 09/11/2023 |
| DC 11_0060 Mod 11 | E28NE open cut, Altona Water Storage and Primary Crushed Stockpile | 05/03/2025 |
| DC 11_0060 Mod 12 | E48 sub-level cave | 14/11/2024 |
| SSD | E44 Rocklands | SEARs Expired |

| Approval | Description | Issue Date |
|---|---|---|
| **Commonwealth Approvals** | | |
| EPBC 2013/6788 | EPBC Approval | 13/02/2014 |
| Current variation | s.143 Change to approval conditions | 30/08/2017 |
| **Council Approvals** | | |
| | PSC Approval for Road Train Access on Bogan Road | 19/11/1999 |
| **Mining Leases** | | |
| ML 1247 | Mining Lease (1629.6 Ha) | 27/11/1991 |
| ML 1367 | Mining Lease (826.2 Ha) | 21/03/1995 |
| ML 1641 | Mining Lease (24.4 Ha) | 25/03/2010 |
| ML 1743 | Mining Lease (193.3 Ha) | 01/09/2016 |
| **Exploration Leases** | | |
| EL 5800 | Exploration Lease (12,130Ha) | 08/01/2001 |
| EL 5801 | Exploration Lease (49,550 Ha) | 08/01/2001 |
| EL 5323 | Exploration Lease (21,840 Ha) | 18/07/1997 |
| EL 8377 | Exploration Lease (25,950 Ha) | 12/06/2015 |
| **Environmental Protection Licences** | | |
| EPL 4784 | Environmental Protection Licence | 30/05/2001 |
| Current variation | s.58 Licence variation update to Evolution Mining (Northparkes) Pty Ltd | 29/07/2024 |
| **Dangerous Good and Explosives** | | |
| NDG029083 | Acknowledgement of Notification of Hazardous Chemicals on Premises | 19/08/2019 |
| XSTR200036 | Licence to Store Explosives | 24/09/2019 |
| XMNF200011 | Licence to Manufacture Explosives | 28/07/2019 |
| 5060895 | Radiation Management Licence | 13/10/2023 |
| **Heavy Vehicle Authorisation** | | |
| 133827V6 | Road Train Operation Permit | 12/09/2020 |
| **Water Licences** | | |
| WAL43208 | Water Access Licence - High Security | 01/07/2020 |
| WAL43207 | Water Access Licence - General Security | 01/07/2020 |
| WAL34955 | Water Access Entitlement | 04/10/2012 |
| WAL32138 | Water Access Entitlement | 14/09/2012 |
| WAL32120 | Water Access Entitlement | 14/09/2012 |
| WAL32004 | Water Access Entitlement | 14/09/2012 |
| WAL31969 | Water Access Entitlement | 14/09/2012 |
| WAL31963 | Water Access Entitlement | 14/09/2012 |
| WAL31930 | Water Access Entitlement | 14/09/2012 |
| WAL31863 | Water Access Entitlement (property sold in 2024) | 14/09/2012 |
| WAL31850 | Water Access Entitlement | 14/09/2012 |
| **Forestry Occupation Permits** | | |
| 847 | Limestone State Forest Occupation Permit | 14/01/2022 |
| **Annual Rehabilitation Report** | | |
| | 2022 ARR | 31/03/2023 |

## 3.2 Amendments during the Reporting Period

### *3.2.1 Development Consent*

During 2024, the modifications lodged for assessment under the EP&A Act were Modification 11 (MOD 11) and Modification 12 (Mod 12). Mod 12 was assessed and granted approval for a sub-level cave in E48 ore body in November 2024, and Mod 11 was still under review at the end of the reporting period.

### *3.2.2 Environmental Protection Licence*

An Annual Return for the reporting period was submitted to the EPA on 28 July 2024 in accordance with requirements under Environment Protection Licence (EPL) 4784 Condition R1.5. No non compliances were noted for the period.

In July 2024, Northparkes requested that the Environment Protection Licence 4784 licensee be changed to Evolution Mining (Northparkes) Pty Ltd due to the company name change associated with the recent change of ownership.

# 4. OPERATIONS SUMMARY

## 4.1 Production Statistics

A summary of production figures for 2024 calendar year is provided in Table 5 below. Also shown are the previous and predicted production figures for the 2023 and 2025 reporting period, respectively.

**Table 5 Production and waste rock summary**

| Material | Approved Limit | Previous Reporting Period (2023) | Current Reporting Period (2024) | Next Reporting Period (2025 forecast) |
|---|---|---|---|---|
| Underground Ore Mined to ROM (Mt) | >5.0 | 5.56 | 4.42 | 5.35 |
| Open Pit Ore Mined to ROM (Mt) | | 0.28 | 0.45 | 0.22 |
| Open Pit Ore Mined and Stockpiled (Mt) | N/A | 1.11 | 5.60 | 0.76 |
| Existing Stockpiled Ore to ROM (Mt) | N/A | 1.42 | 2.20 | 1.96 |
| Ore Processed (Mt) | 8.5 | 7.28 | 7.00 | 7.48 |
| Waste Rock/Overburden (Mt) | N/A | 3.11*` | 2.82 | 0.16 |
| Fine Reject (tailings) (Mt) | N/A | 7.14 | 6.85 | 7.32 |
| Saleable Product (Mt) | N/A | 0.14 | 0.15 | 0.15 |

*a significant portion of the waste rock generated during the period was consumed as part of Rosedale Stage 3 construction.

Mining operations within the 2024 reporting period remained within the limits specified in the Consent. Other conditions relevant to operating conditions are addressed throughout the report.

## 4.2 Mining and Processing

### *4.2.1 Open cut*

Throughout 2024, mining at the E31 Project continued, providing a reliable, additional source of high-grade ore to the Northparkes operation. Approximately 8.5Mt of material were mined from the two pits (E31 and E31N) in the year including different types of ore and waste.

Drill and blast activities were undertaken throughout the year, with blast days generally limited to once a week. Vibration and noise monitoring continued to be undertaken for every blast in the period, all measurements were well below the thresholds outlined in the Consent conditions.

Geotechnical monitoring of the pits continued, with more than 200 additional prisms installed for remote monitoring of the pit walls; no large-scale instability was identified.

Dewatering has been ongoing, with almost all water pumped from the pits deemed to be accumulated rainfall rather than groundwater; pit walls are largely dry.

With 18 months having now passed since open pit mining commenced in these areas, the pits are approaching final design; the current forecast indicating the pits concluding towards the end of March 2025.

### *4.2.2 Underground Operations*

Underground operations in 2024 included the mining of the E26 L1N block cave, E26 SLC and the development of the E48 SLC.

**Table 6 Underground Operations Summary**

| 2024 Summary | E26 L1N | E26 SLC | E48 |
|---|---|---|---|
| **Mining Method** | Block Cave | Sublevel Cave | Sublevel Cave |
| **Ore Mined (tonnes)** | 4,025,746 | 309,405 | 79,159 |
| **Waste Mined (tonnes)** | 0 | 0 | 0 |
| **Centreline Development (meters)** | 0 | 180.8 | 1,051.6 |
| **Blast Frequency** | Secondary breaking only – multiple firings daily | Production firings up to twice per day, development firings twice per day in Jan-Feb 24 | Development firings twice per day. |

Underground mining activities are currently undertaken in the E26 ore body. The E26 L1N mine is operated as a block cave as the primary method of resource extraction. Block caving is an underground hard rock mining method that involves undermining an ore body and allowing it to progressively collapse under its own weight (see Figure 6 Block Cave Mining Method). The E26 SLC mine is a sublevel caving operation involving construction of the sub level horizon followed by retreat drill and blast of that horizon, with the material above allowed to freely cave to fill the opened voids.

The E26 SLC project commenced construction in April 2015 and went into production in 2016. The mine design aimed to extract a remnant wedge of high-grade material adjacent to the E26 Lift 2 block cave. The operations at E26 SLC had ceased in 2021, having completed production from the first four levels at approximately 20m vertical spacing. The remaining two levels were deferred due to less favourable economics. The development of the remaining levels commenced in 2023 with 25m vertical spacings.

Production has been completed from level 5, with level 6 coming online early in 2025. Production in the SLC is expected to continue until October 2025.

Mining development is planned to continue in 2025 for the purpose of accessing the E48 SLC ore body, with development for the E22 Block Cave likely to be delayed until future years.

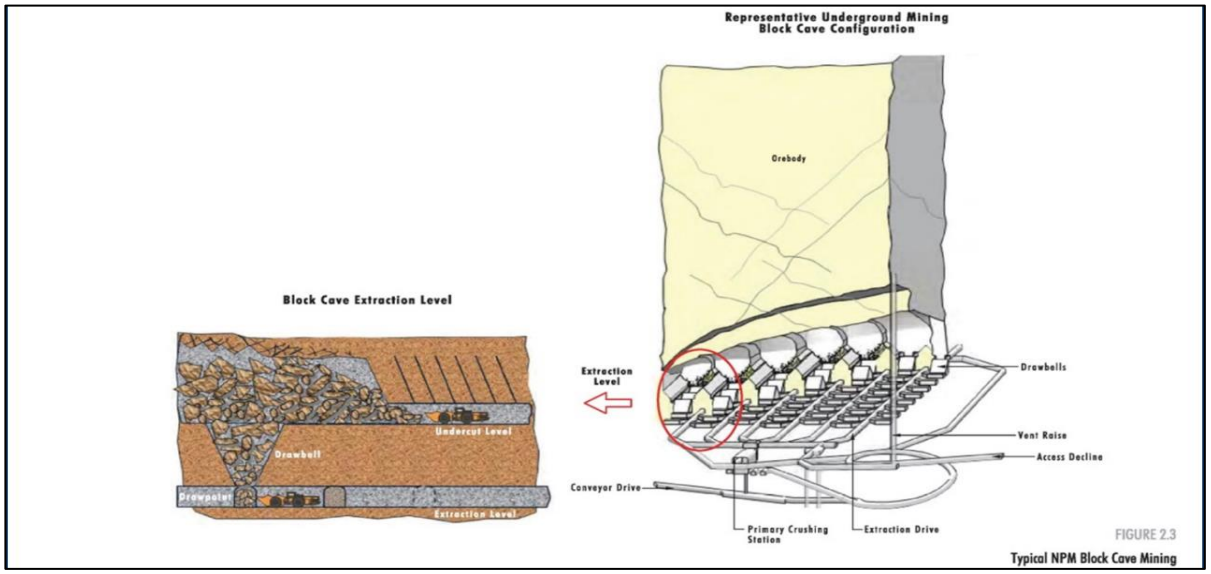



**Figure 6 Block Cave Mining Method**

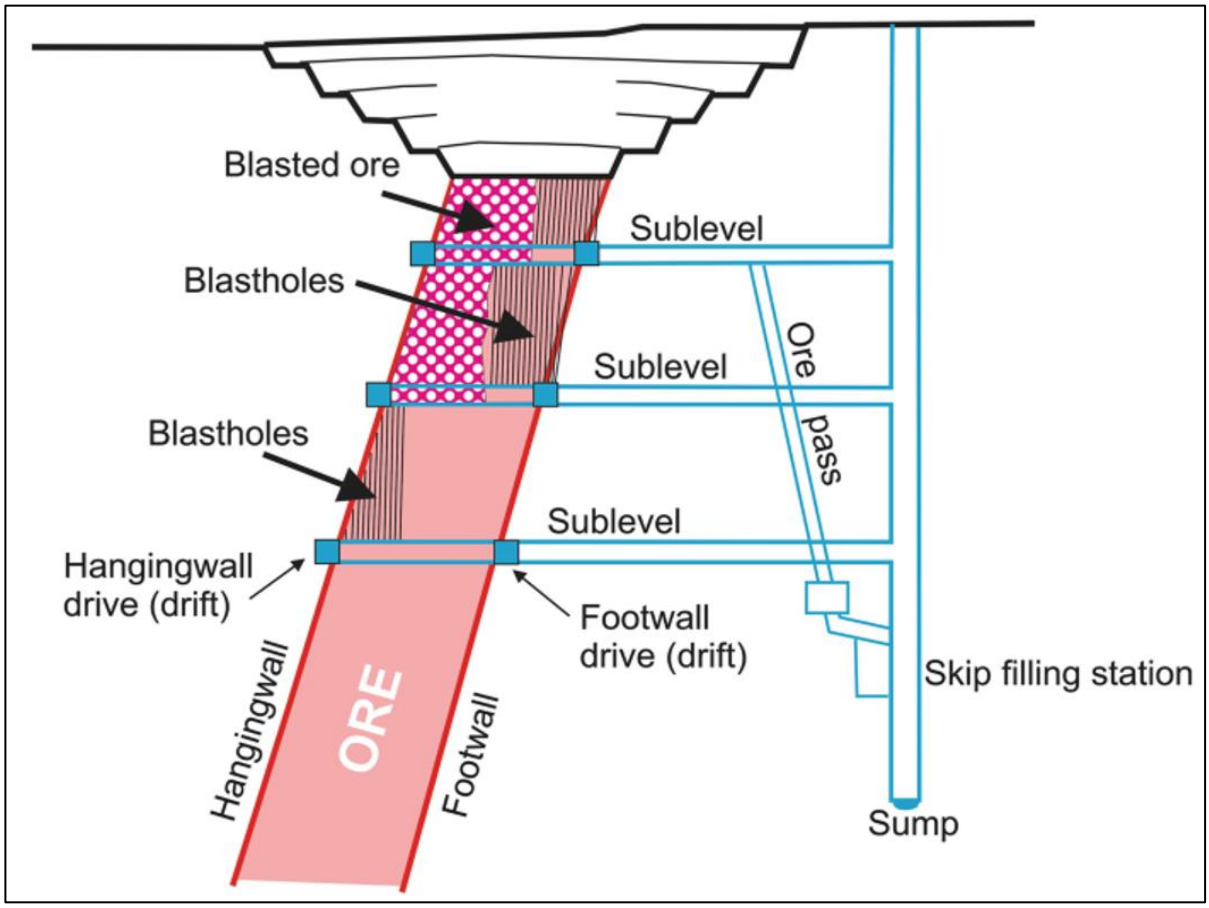



**Figure 7 Sublevel Cave Mining Method**

### *4.2.3 Waste Rock*

There was no waste rock generated from underground mining activities during the period.

During the development of the E31 open pits, suitable construction material was used in previous reporting periods for the construction of the Rosedale Stage 3 TSF. As the pits transitioned into full production, waste material was placed within either of two temporary dumps; the West Waste Dump (WWD) and the Borrow Pit Stockpile (BPSP). The material within each of these dumps is to be used for future TSF construction projects prior to conclusion of life of mine. A small amount of waste deemed unsuitable for future TSF construction was deposited on the Eastern Waste Dump (EWD). In total, approximately 2.8Mt of material was placed on the WWD, BPSP or EWD.

## 4.3 Exploration and Resource Utilisation

Exploration and evaluation programs continued across the Mining Leases during the reporting period as shown in Figure 8. No non-compliances have been noted within the mining leases related to exploration or evaluation activities.

A combined total of 53 diamond drill holes for 14,377.1m were drilled during the reporting period across several project areas within ML 1247, ML1641 and ML1367 (Table 7).

**Table 7 Summary of drilling completed in the reporting period**

| Licence | Program | Location | Type | Holes | Total (m) |
|---|---|---|---|---|---|
| ML1247 | E28 | Surface | Diamond | 4 | 789.5 |
| ML1247/ML1641 | E48 | Underground | Diamond | 25 | 6,914.6 |
| ML1247/ML1367 | Major Tom | Surface | Diamond | 22 | 6,118 |
| ML1367 | E51 | Surface | Diamond | 2 | 555.0 |
| TOTAL | - | - | - | **53** | **14,377.1** |

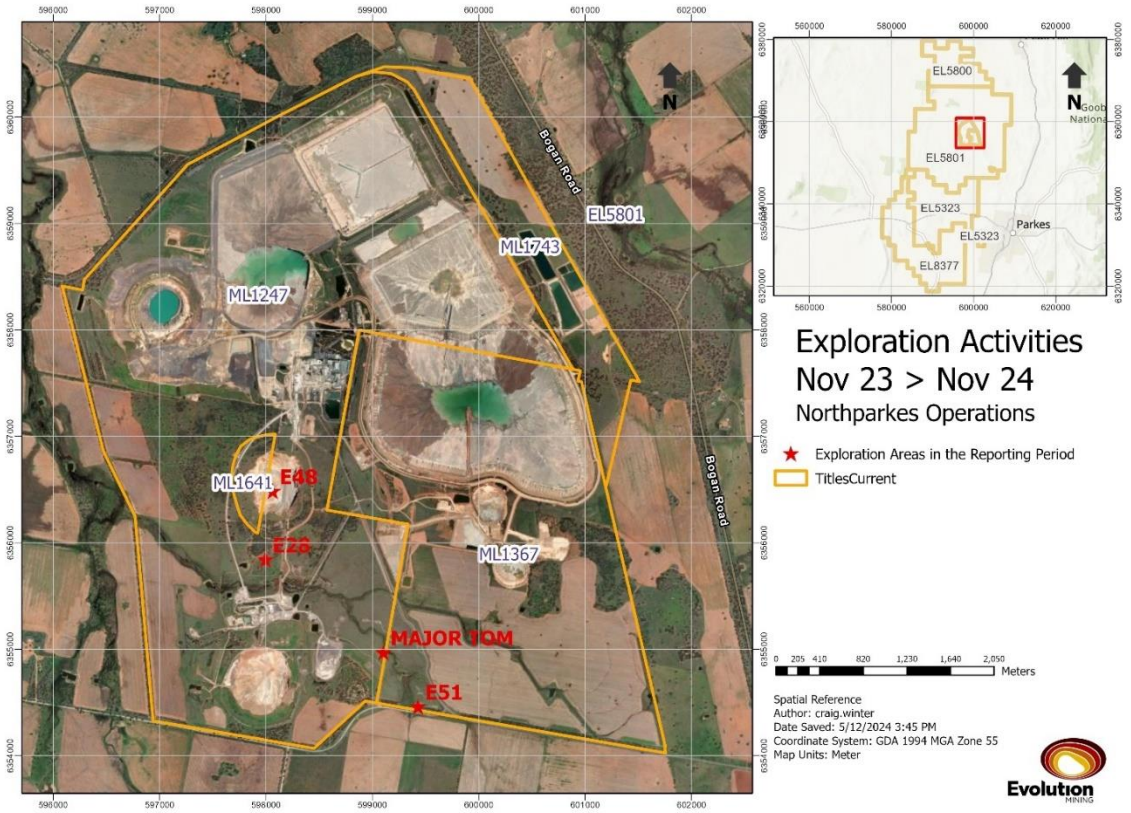



**Figure 8 Exploration activities through the reporting period**

Non-drilling activities during 2024 included:

- Development of new geological 3D models of E48, Major Tom and E51
- Ongoing support for two research projects

Exploration and evaluation activities will continue in the next reporting period with eight planned drilling and exploration programs including:

- Infill drilling for the Major Tom Advanced Prospect
- Continual infill Resource Definition drilling at E51 Deposit
- E28NE infill drilling
- Ground gravity and Discovery drilling along the volcaniclastic, monzonite stick contact
- Follow-up surface drilling into the E22 deposit
- Infill underground drilling in the MJH resource volume
- Follow-up underground drilling at E48 lift 2
- Discovery underground drilling into the CLJ prospect

Planning for the above programs are ongoing at the time of writing.

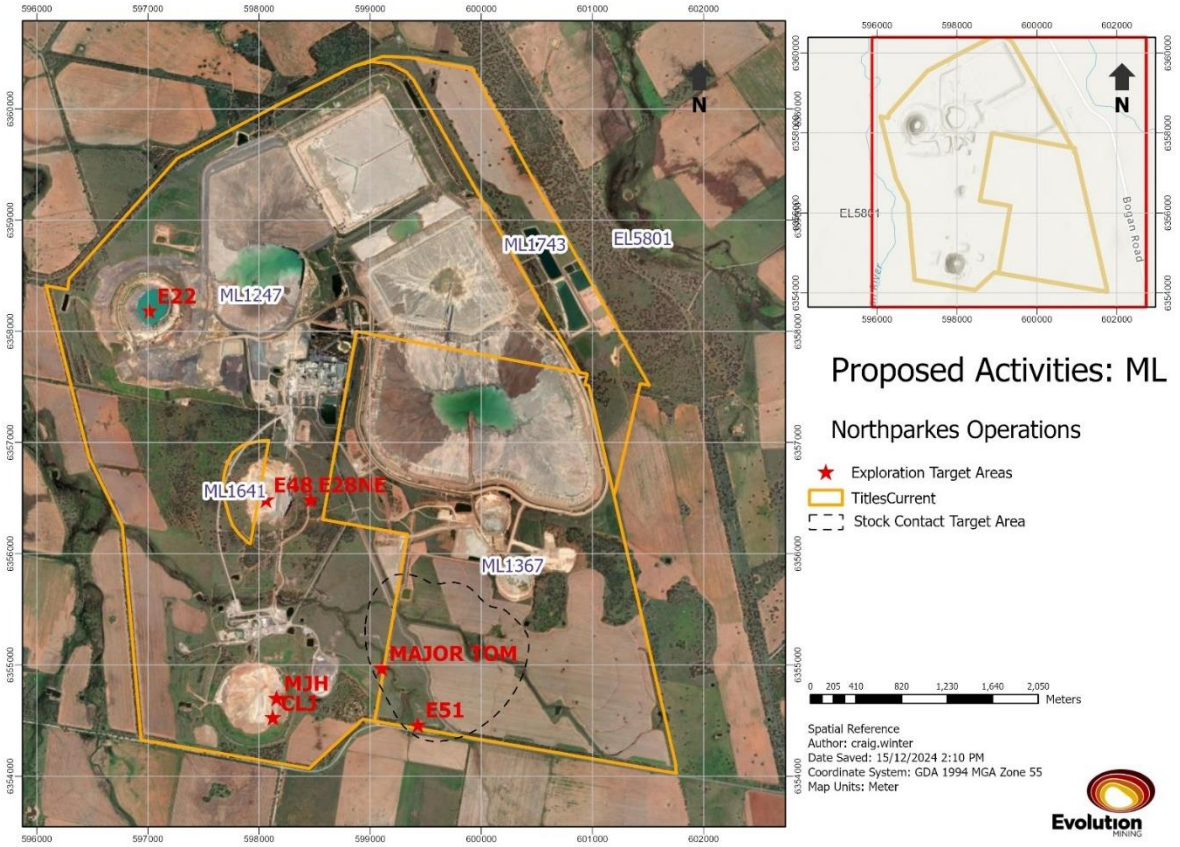



**Figure 9 Proposed exploration activities for the next reporting period**

## 4.4 Ore processing

In 2024, a total of 7.00Mt of sulphide ore was processed from the underground ore bodies and existing surface stockpiles (4.38Mt underground and 2.62Mt of E31 open pit ore). Copper-gold concentrate production totalled 144,775 tonnes (dry) and was predominantly sold to customers in China and Japan. Production for the past five years is presented in Table **8** below.

Ore processing includes several defined stages that include crushing, grinding, flotation and dewatering. Ore is sourced from either underground mines, surface stockpiles or open pits, where it is first primary crushed, followed by passing through a secondary and tertiary crushing circuit before being stockpiled into two separate stockpiles. From the stockpiles, material is fed to the grinding circuit, compromising of two parallel modules (Mod 1 and Mod 2), each incorporating a Semi Autogenous Grinding (SAG) mill, oversize pebble crushing, two stages of ball milling, flotation (rougher-scavenger with cleaning stage) and thickeners for concentrate and tails streams.

Air and agitation to produce bubbles in combination with a suite of reagents, to enable attachment of particles (minerals) are captured and recovered in the flotation process to produce a sulphide-rich concentrate containing copper and gold bearing minerals. After flotation, the concentrate is first thickened through thickeners and filtered through ceramic disc filters to produce a low moisture concentrate ready for loading and transportation to the port.

The tailings component is pumped from the final flotation stage to a tails thickener for dewatering followed by additional pumping to the TSF.

**Table 8 Ore Processing Production**

| Year | Ore Milled (Mt) | Production Copper Concentrate (t) |
|---|---|---|
| 2020 | 6.49 | 107,541 |
| 2021 | 6.84 | 107,798 |
| 2022 | 7.60 | 117,830 |
| 2023 | 7.27 | 136,169 |
| 2024 | 7.00 | 144,775 |

## 4.5 Tailings

In the reporting period, 6.66Mt of tailings were deposited into Estcourt TSF, TSF 1 and Rosedale TSF. A summary of the tailings distribution and TSF capacity consumed during the reporting period is provided in Table 9 below.

**Table 9 Distribution and Capacity Consumed of Tailings Storage Facilities**

| Tailings Storage Facility | Distribution (%) | Capacity Consumed (Mt) |
|---|---|---|
| TSF1 | 0.15 | 0.01 |
| TSF2 | 0 | 0 |
| TSF Infill | 0 | 0 |
| Estcourt | 18 | 1.20 |
| Rosedale | 81.85 | 5.44 |

A total of 147Mt of tailings has been deposited at Northparkes operations to date. All tailings have been deposited within TSF1, TSF2, Estcourt, Rosedale TSF and the Infill TSF located approximately 2km from the processing plant. The tailings are generally sub-aerially deposited into the active TSF from the external embankments (excluding TSF1 central discharge and Rosedale cyclone deposition project) with supernatant water runoff contained and directed to the internal central decant towers.

All TSFs at Northparkes have been designed by a qualified engineering company and approved by the Engineer of Record and third party independent engineers to provide:

- Safe and permanent containment of all tailings solids
- The recovery of free water for reuse within the processing plant
- Containment of all water under extreme rainfall conditions
- Maximised structural strength through the deposited tailings and
- Containment of all chemical residues.

Northparkes' control measures for the management of tailings during construction and operation are implemented as per the Dam Safety Management system plan, Maintenance and Surveillance Manuals and the Emergency Management Tailings Storage Facility Procedure.

The site tailings strategy is regularly reviewed, with the most optimal disposal strategy determined for safe operation and future Life of Mine TSFs designs. The current deposition strategy involves the use of hydro cyclones around the crest of Rosedale tailings facility to separate coarse and fine particle tailings in order to develop a 50m perimeter of consolidated high density tailings. The finer tailings are deposited in the central part of the facility where strength is not a risk to the structural integrity of the outer embankment. The coarse packed tailings will provide a platform for further upstream lifts to final height. Some capacity is still available in Estcourt and TSF 1 for deposition when required.

The Infill Extension Project early works commenced in the Oct – Dec quarter with construction scheduled for May 2025. This project will complete the programme to improve the factor of safety for TSF2 north and west embankments and will be due for completion in late 2025.

Dust mitigation strategies continue to be implemented across the business, with measures including vegetation covers on non-operational facilities and ripping any dust susceptible areas of TSFs included. Ripping the surface of TSF1 and Infill proved successful in limiting dust lift off during the year.

# 5. ACTIONS REQUIRED FROM 2023 ANNUAL REVIEW

No actions were raised from the submission of the 2023 Annual Review to the agencies listed in Section 2.2.

# 6. ENVIRONMENTAL MANAGEMENT AND PERFORMANCE

## 6.1 Environmental Management System

Northparkes has developed and implemented a Health, Safety and Environment Management System (HSEMS). The environmental related system components are compliant with ISO14001.

The Environment Management System (EMS) at Northparkes provides the strategic framework for environmental management. The EMS:

- Outlines all relevant statutory leases, licences and approvals that apply to the Northparkes operations
- Details key plans, procedures, management plans and other documents that will be implemented to ensure compliance with all relevant leases, licences and approvals
- Describes the key processes that will be implemented to:
    - Communicate with community and government stakeholders
    - Manage community complaints
    - Resolve disputes and
    - Respond to non-compliance incidents and emergencies.
- Outlines Northparkes monitoring, reporting and auditing requirements
- Outlines relevant roles, responsibilities and accountabilities relevant to environment management for all Northparkes employees and contractors.

During the reporting period, Northparkes maintained the EMS to the ISO14001:2015 standard. Northparkes also maintained its Level 1 risk rating under the EPA's risk based licencing scheme, the highest possible standard.

Northparkes has developed a suite of environmental management plans to guide environmental management at Northparkes. The plans have been developed in accordance with the EMS, the Consent and other statutory requirements. The revision status of approved key environmental management plans, as required by Schedule 6, Condition 3 of the Consent, is summarised in Table 10.

**Table 10 Key Environmental Management Plans**

| Management Plan | Status |
|---|---|
| Biodiversity Offset Management Plan | Revision 7.05 – Published December 2024 |
| Water Management Plan<br>• Surface Water Management Plan<br>• Groundwater Management Plan | Revision 12.01 – Published December 2024<br>Revision 6.01 – Published December 2024<br>Revision 7.01 – Published December 2024 |
| Pollution Incident Response Management Plan (PIRMP) | Revision 12.0 – Published February 2025 |
| Air Quality Management Plan | Revision 22.03 – Published December 2024 |
| Noise Management Plan | Revision 18.02 – Published December 2024 |
| Environmental Management Strategy | Revision 16.01 – Published March 2024 |
| Blast Management Plan | Revision 9.03 – Published December 2024 |

| Management Plan | Status |
|---|---|
| Heritage Management Plan | Revision 9.04 – Published March 2024 |
| Rehabilitation Management Plan | Revision 15.01 – Revised December 2023 |
| Traffic Management Plan | Revision 3.02– Published December 2024 |

The PIRMP listed in Table 10 applies to all activities that have the potential to generate pollution incidents. These include, but are not limited to, water discharge events, and hazardous spills resulting in land or water contamination and fire hazards.

The PIRMP was not required to be implemented throughout the reporting period, however it was desktop scenario tested in December 2024, and revised accordingly.

## 6.2 Meteorology

The Consent (Schedule 3, Condition 18) requires a permanent meteorological station to be installed and maintained for the life of the Project. As such, a meteorological monitoring station (MET) has been established to continuously measure and record wind speed, wind direction, temperature, solar radiation and rainfall at Northparkes.

The MET station provides real-time data to Northparkes employees and contractors. Meteorological data is used for assessing compliance, dust and noise management, and for investigative and reporting requirements. The parameters recorded by the MET monitoring station and the method are outlined in Table 11.

**Table 11 MET Monitoring Parameters**

| Parameter | Units | Frequency | Averaging period |
|---|---|---|---|
| Temperature at 2m | ºC | Continuous | 15 minute |
| Temperature at 10m | ºC | Continuous | 15 minute |
| Wind direction at 10m | º | Continuous | 15 minute |
| Relative Humidity | % | Continuous | 15 minute |
| Rainfall | mm/hr | Continuous | 1 hour |
| Solar radiation | W/m2 | Continuous | 15 minute |

### *6.2.1 Temperature*

Maximum, minimum and average temperatures are calculated daily and averaged in 15 minute interval recordings.

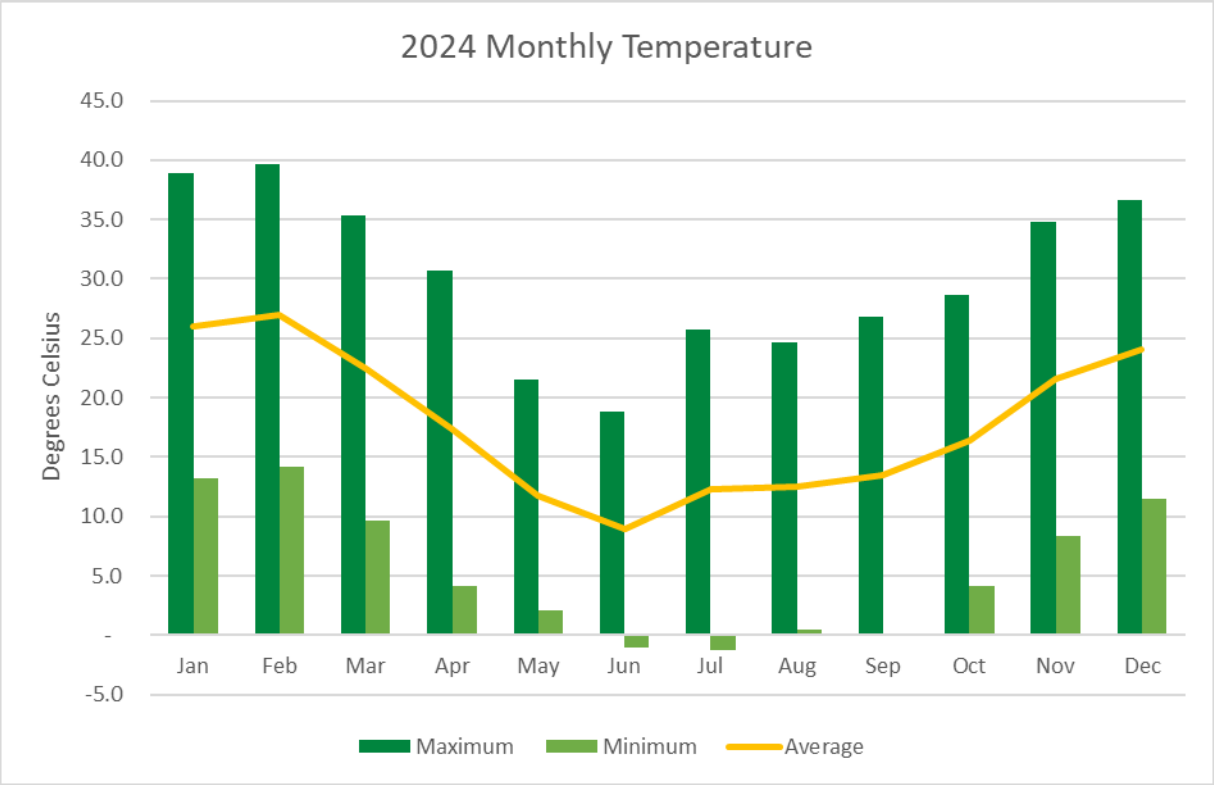



**Figure 10 Average monthly temperature records (10m MET recordings)**

Compared to the long-term historical data, average maximum temperatures were slightly lower during the period, averaging -0.2°C across the months. Average minimum temperatures were all higher during the period, averaging +2.8°C across all months, noting a difference of +4.7 in August and +5.0°C in November.

**Table 12 Temperature averages**

| 2024 | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Average Maximum Temp | 31.6 | 32.5 | 29.6 | 22.2 | 18.8 | 13.7 | 13.2 | 17.6 | 19.6 | 24.5 | 29.4 | 31.4 |
| Variance from long-term data | -2.0 | 0.4 | 0.8 | -1.9 | -0.1 | -1.4 | -1.2 | 1.5 | -0.5 | 0.3 | 1.3 | 0.3 |
| Average Minimum Temp | 20.0 | 19.9 | 17.4 | 10.8 | 8.3 | 4.8 | 4.1 | 7.2 | 6.6 | 10.8 | 17.1 | 17.8 |
| Variance from long-term data | 2.2 | 2.9 | 3.2 | 1.3 | 3.1 | 1.1 | 1.7 | 4.7 | 2.1 | 3.0 | 5.0 | 3.2 |

### *6.2.2 Rainfall*

The total onsite rainfall recorded at the onsite MET monitoring station for the period was 725.6mm. The rainfall received during the reporting period was 107.3mm above the long-term average for the region (618.3mm). Even with the increase rainfall received, dry conditions were still experienced increasing the risk of airborne particulates during high wind events, requiring continual, diligent management of onsite sources. A comparison of the 2024 recorded rainfall to long-term average for Parkes is shown in Figure 11 below.

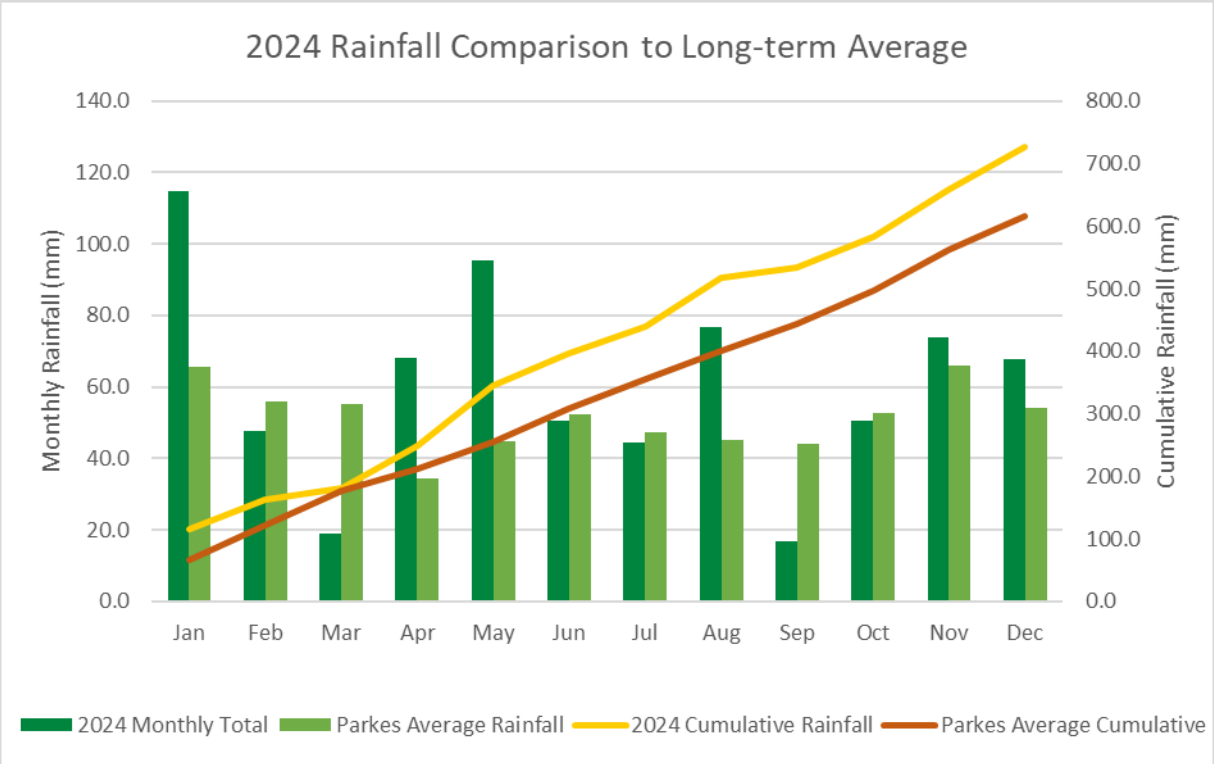



**Figure 11 Rainfall comparison to long term average for Parkes**

### *6.2.3 Wind*

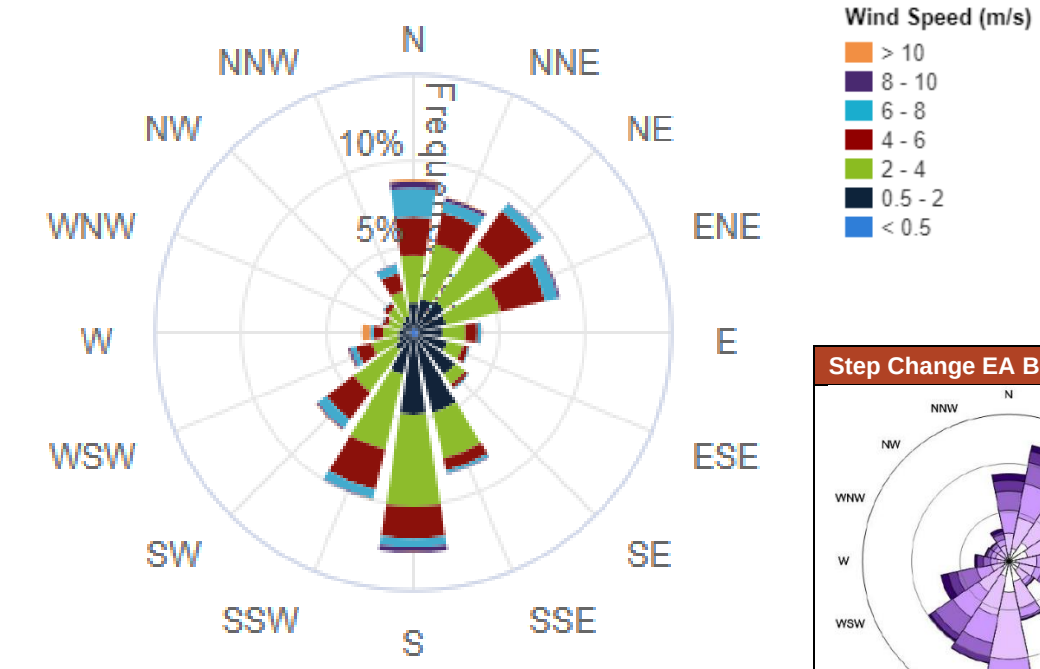
Analysis of data reveals that prevailing winds during the 2024 reporting period were largely in line with that recorded for the Step Change Environmental Assessment (EA), Umwelt 2013. Prevailing winds for the period were typically received from the south and south-west. Average wind speeds were generally consistent as follows:

**Table 13 Wind direction and speeds**

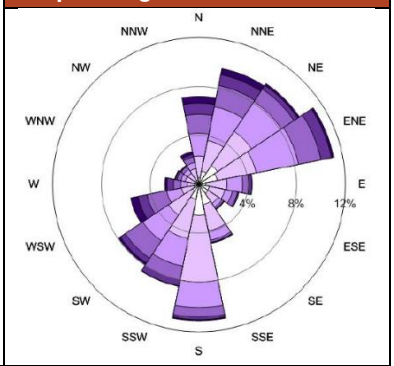
| Season | Average Direction | Average Speed |
|---|---|---|
| Summer | North, North-East | 3.6 |
| Autumn | South | 2.7 |
| Winter | South | 2.9 |
| Spring | South, or North, North-East | 3.5 |

Wind speeds throughout the year were relatively consistent. Wind data for the 2024 reporting period is presented by the wind roses in Figure 12. Wind speed values are all displayed as metres per second.

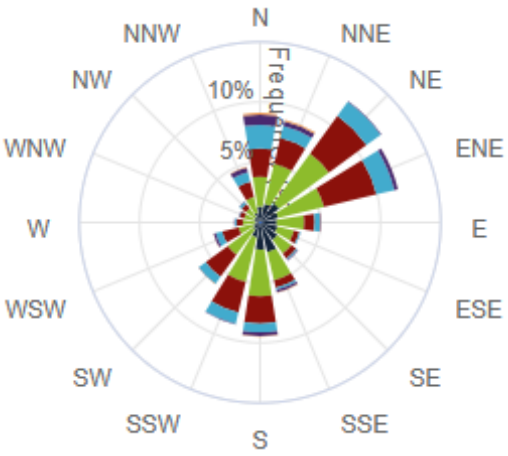
## Annual - 2024



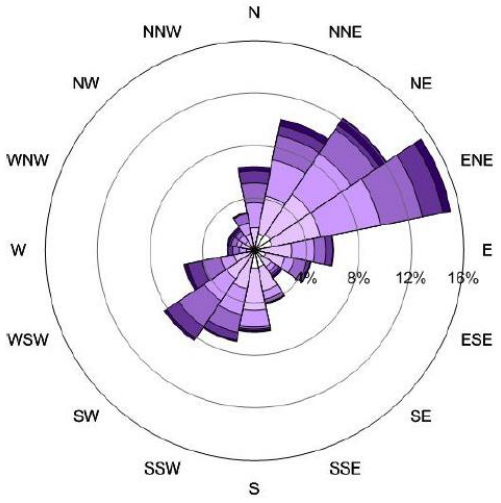

## Step Change EA Baseline




## Summer - 2024




## Summer - Step Change EA Baseline



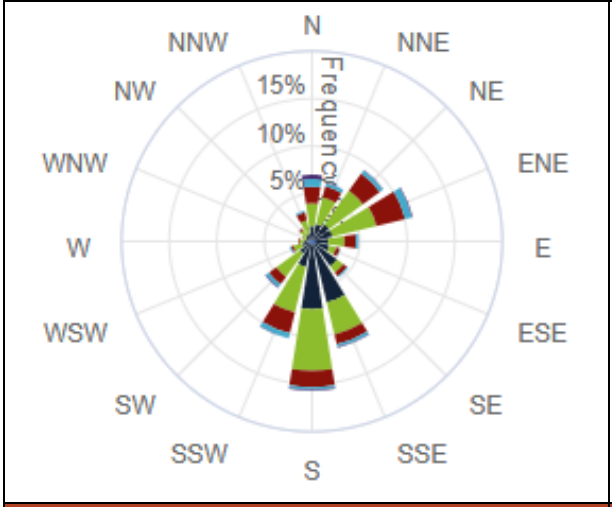
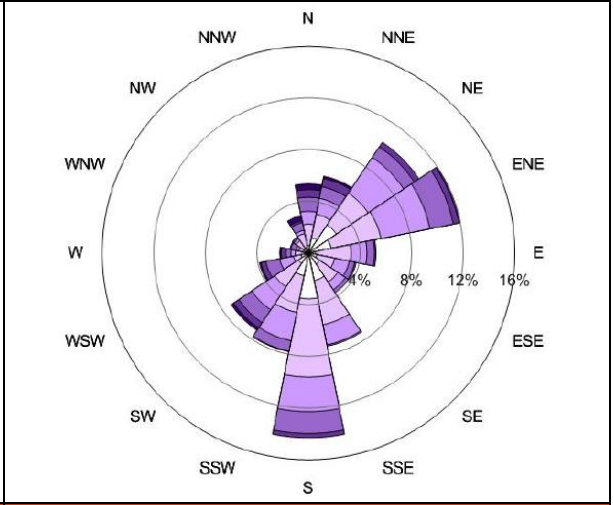
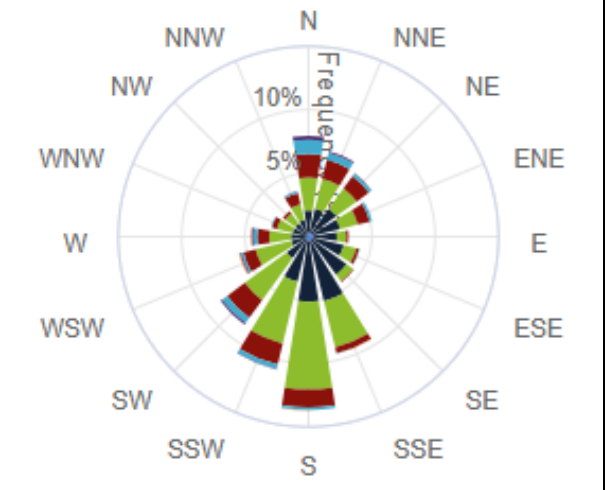
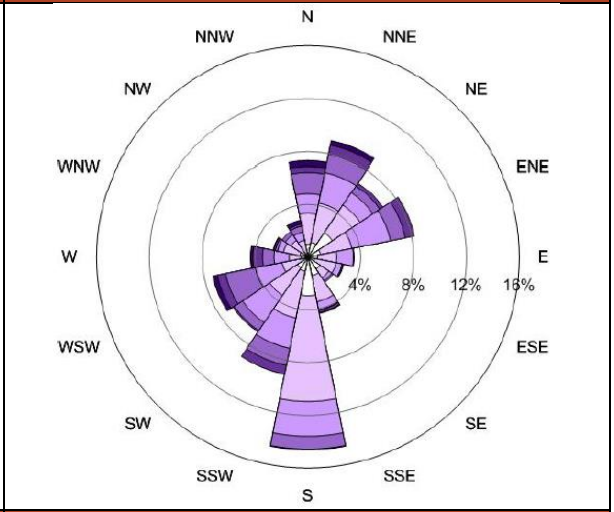
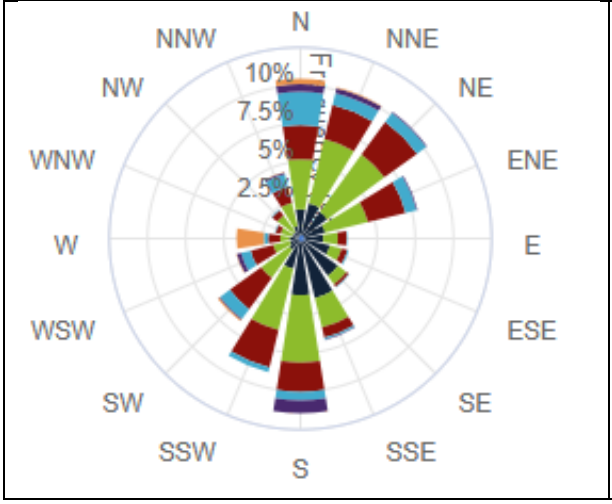
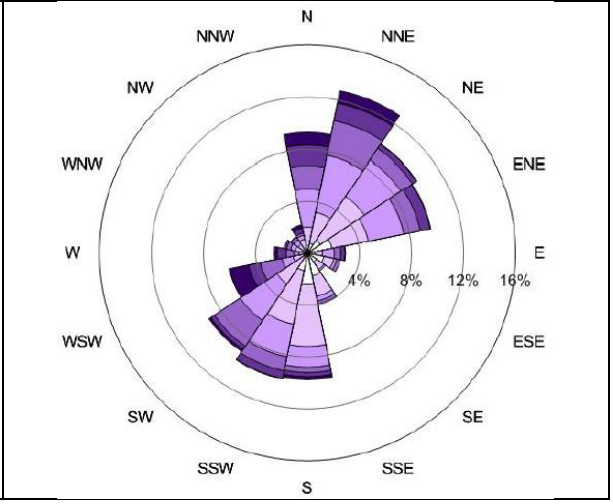
| Autumn - 2024 | Autumn - Step Change EA Baseline |
|---|---|
|  |  |
| **Winter - 2024** | **Winter - Step Change EA Baseline** |
|  |  |
| **Spring - 2024** | **Spring - Step Change EA Baseline** |
|  |  |



**Figure 12 Seasonal wind rose comparison against Step Change EA baseline**

### *6.2.4 Meteorology Improvements and Initiatives*

Northparkes continues to implement and refine processes to assess risks based on meteorological predictions at Northparkes. This included ongoing utilisation of real-time meteorological data and weather forecasting to guide the implementation of reactive and proactive mitigation measures. A weekly weather assessment is undertaken to evaluate the potential risk for fugitive dust generation, with high-risk periods communicated to key departments and mitigative measures are implemented where required.

## 6.3 Air Quality

### *6.3.1 Air Quality Management*

Air quality management is undertaken in accordance with the approved Air Quality Management Plan (AQMP). The AQMP outlines mitigation measures, required monitoring and provides clear definitions of the roles and responsibilities.

Through implementation of the AQMP, Northparkes executes a range of mitigation measures for air quality that have proven to be effective at managing dust impacts, demonstrated by maintaining compliance. These mitigation measures will continue to be implemented and maintained throughout 2025. During the 2024 reporting period, mitigation measures included, but were not limited to, the following:

- Major works scheduled to undergo a risk assessment prior to commencing work
- Environmental inductions and training to ensure workforce awareness
- Purchase of equipment that meets relevant air emission standards
- Maintaining plant and machinery in good working order
- Maintaining haul roads in good condition
- Regular contact with local residents to notify of extraordinary weather events
- Weekly internal weather assessment and forecast predicting risk and controls
- Sealing high traffic roads, where possible
- Ripping of exposed areas, including TSFs
- Targeted tailings deposition
- Use of water carts on construction haul roads
- Scheduling of work with attention paid to adverse weather conditions and modifications made to the work program where necessary
- Implementation of best management practice to minimise the construction, operational and road air quality impacts of the operations
- A program of permanent air quality monitoring, including real-time, of site operations to determine whether the operations are complying with the criteria set out in the Consent
- Continual upgrade and replacement of air quality monitoring equipment to ensure best practice.

Northparkes implements a dust monitoring program to measure concentrations of particulate matter. PM10 monitors measure the concentration of particulate matter less than 10 microns in diameter, utilising real-time Beta-Attenuation Monitoring (BAM). As required by the consent, PM2.5 data is derived via a calculation based on recorded PM10 data. The ratio is 1 (PM10) : 0.35 (PM2.5). Results from monitoring are discussed in Section 6.3.2.

**Table 14 Air Quality Monitoring Sites**

| Site ID | Type | Units | Frequency |
|---|---|---|---|
| Milpose | PM10 (BAM) and PM2.5 (calculated) | µg/m3 | Continuously |
| Hubberstone | PM10 (BAM) and PM2.5 (calculated) | µg/m3 | Continuously |
| Hillview | PM10 (BAM) and PM2.5 (calculated) | µg/m3 | Continuously |

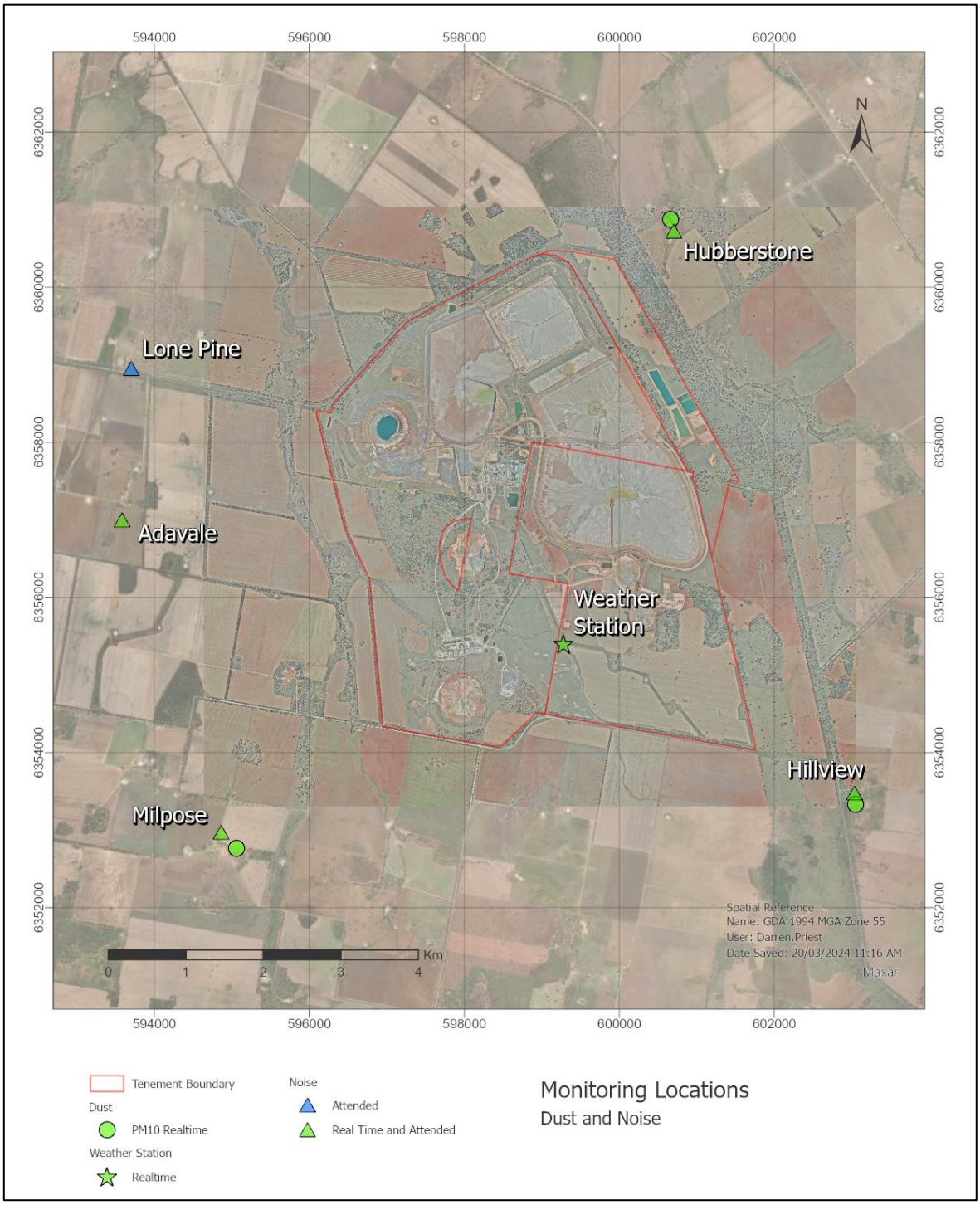



**Figure 13 Map of dust and noise monitoring locations**

### 6.3.2 Air Quality Performance

Monitoring equipment is maintained in accordance with manufacturer's specifications.

During the reporting period the risk of dust from the TSFs was managed through the implementation of a variety of different strategies. These strategies included the:

- Weekly weather assessment to identify trending environmental conditions that have the potential to exacerbate dusty conditions
- Deposition of wet tailings on active TSFs, and
- Strategic ripping of tailings surfaces.

Native groundcover species have continued to colonise across the TSF2 beach. These species are from planted tube-stock, broadcasted seeds and natural germination, with succession occurring over the past few years, now providing generous ground cover to prevent the occurrence of tailings dust generation. Opportunities to vegetate TSFs that may be inactive for a period of time continue to be investigated.

Above average rainfall conditions for the majority of the reporting period resulted in good regional air quality during high wind events. One high wind event resulted in dust being generated from Rosedale and TSF1, and registered an exceedance of the 24 hour criterion at Hubberstone (refer Section 1). Targeted deposition on TSF1 provided immediate mitigation that managed dust generation. Ripping is scheduled on a regular basis to ensure that facilities have minimal surface area that is likely to incur dust lift off. Figure 14 below shows ripping undertaken on the Rosedale TSF.

**PM10**

PM10 monitoring results for the Hubberstone (Figure 15 and Figure 16), Milpose (Figure 17 and Figure 18) and Hillview (Figure 19 and Figure 20) monitoring locations, for the reporting period are displayed below. The criteria for exceedances (as nominated in the Consent) is >25 µg/m$^3$ for the annual average and >50 µg/m$^3$ for a 24-hour monitoring period.

Monitoring results for the three locations were under the air quality criteria stated in the Consent. All exceedances were investigated. If the exceedance was determined to be a result of non-mine related dust, they were removed from the dataset.

The exceedance recorded on 31 October at Hubberstone was found to be mine related and has been retained in the dataset. During the reporting period, there were a further seven elevated readings recorded, comprising of two at Hillview, three at Milpose and two at Hubberstone monitoring locations. These readings were internally investigated and found to be non-mine related. Due to the rural setting of the project area, monitoring results are regularly impacted by agricultural activities or regional smoke, requiring detailed investigations to determine the source of the particulates.

Missing data, as a result of power supply and instrumentation issues, continue to be rectified and managed accordingly.

The annual average PM10 levels recorded at all monitoring locations are well below the predicted concentrations of the Step Change EA (~20 µg/m3) and the Consent criteria, shown in Table 15 below.

**Table 15 Annual average PM10 and PM2.5 results compared to predicted concentrations and the Consent criteria**

| Site ID | Annual Average $PM_{10}$ (Outliers Omitted) | Predicted Air Quality (Step Change EA) | Development Consent 11_0060 Criteria |
|---|---|---|---|
| Milpose | 9.7 µg/m3 | 23 µg/m3 | 25 µg/m3 |
| Hubberstone | 11.0 µg/m3 | 21 µg/m3 | 25 µg/m3 |
| Hillview | 11.7 µg/m3 | Not modelled | 25 µg/m3 |
| **Site ID** | **Annual Average $PM_{2.5}$ (Outliers Omitted)** | **Predicted Air Quality (Step Change EA)** | **Development Consent 11_0060 Criteria** |
| Milpose | 3.5 µg/m3 | Not modelled | 8 µg/m3 |
| Hubberstone | 3.6 µg/m3 | Not modelled | 8 µg/m3 |
| Hillview | 4.0 µg/m3 | Not modelled | 8 µg/m3 |

**Figure 14 Ripping undertaken on Rosedale TSF for dust control**

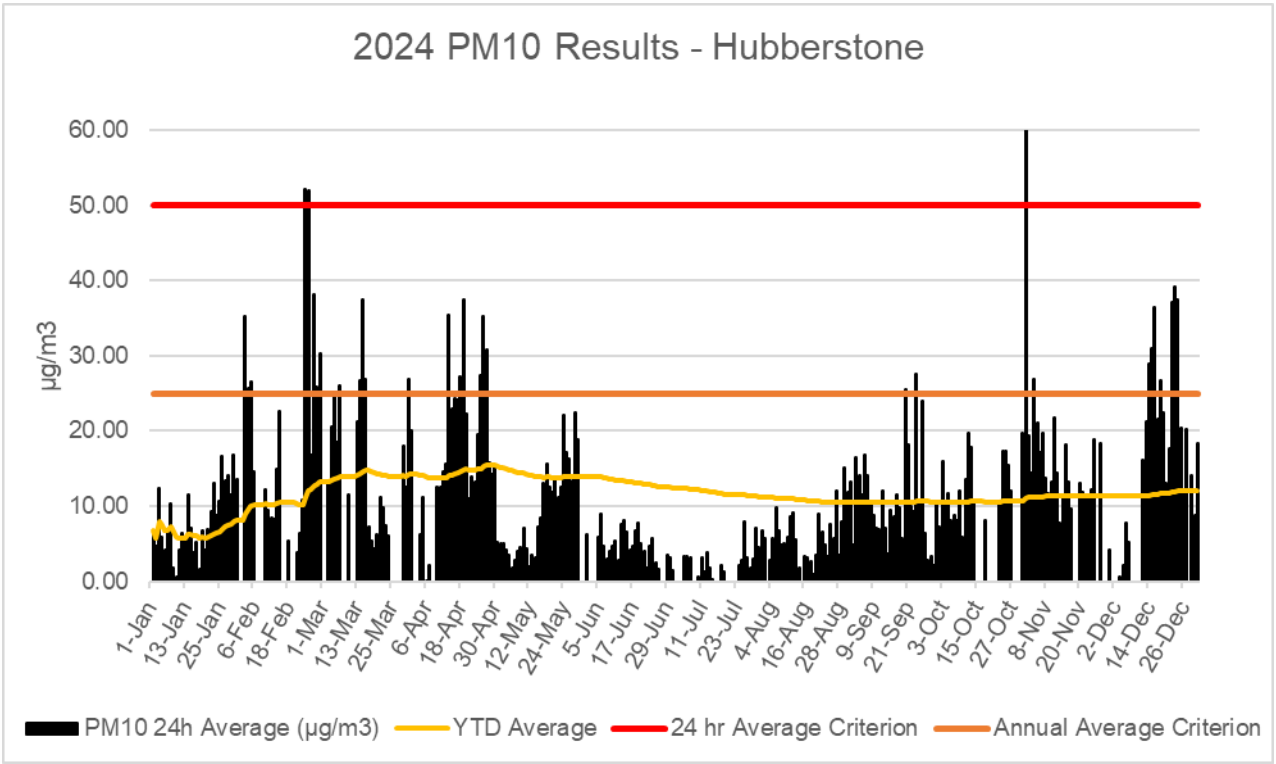



**Figure 15 PM10 Monitoring results (without outliers omitted) – Hubberstone**

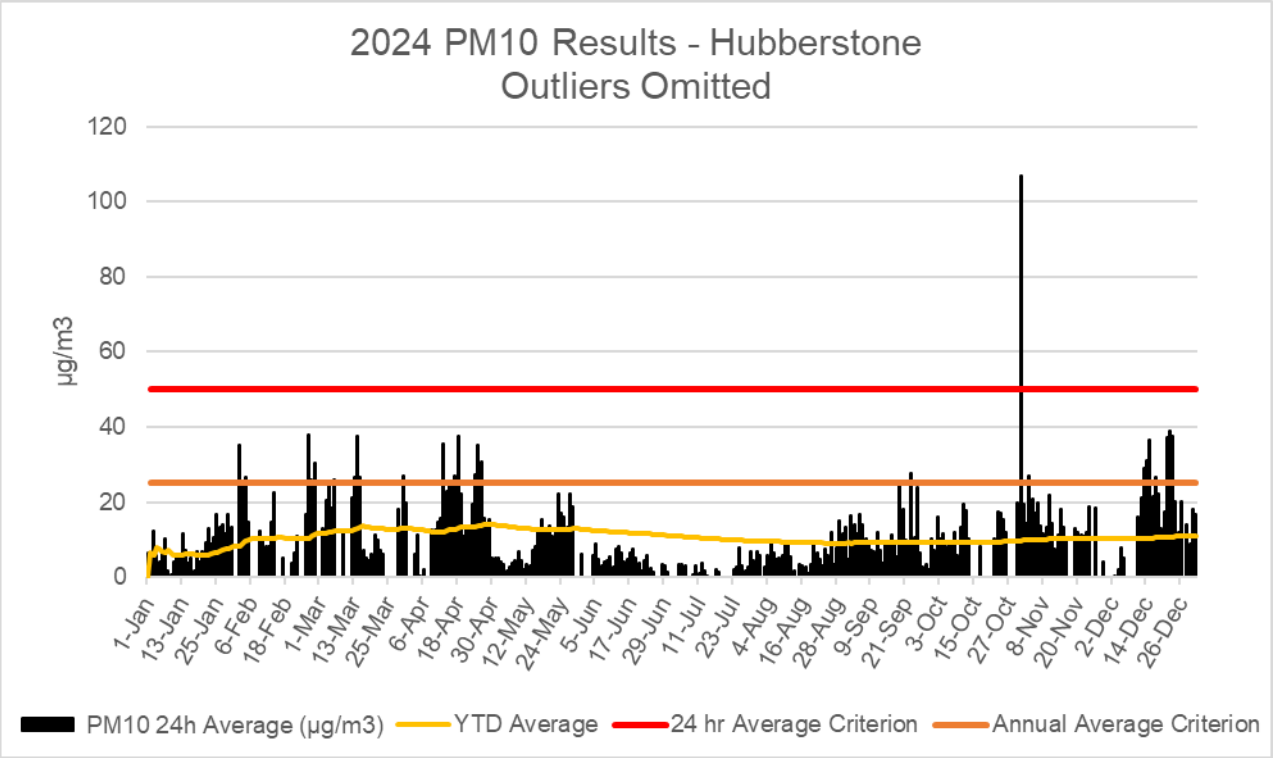



**Figure 16 PM10 Monitoring results (with outliers omitted) - Hubberstone**

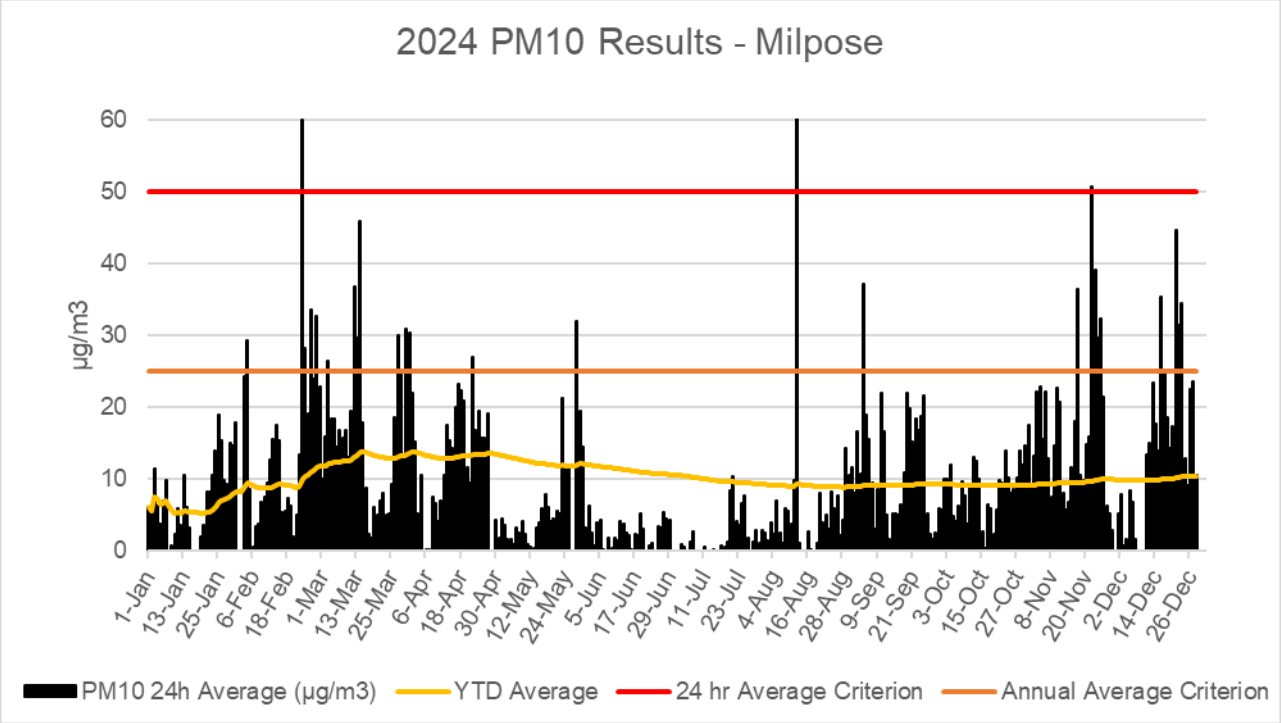



**Figure 17 PM10 Monitoring results (without outliers omitted) – Milpose**

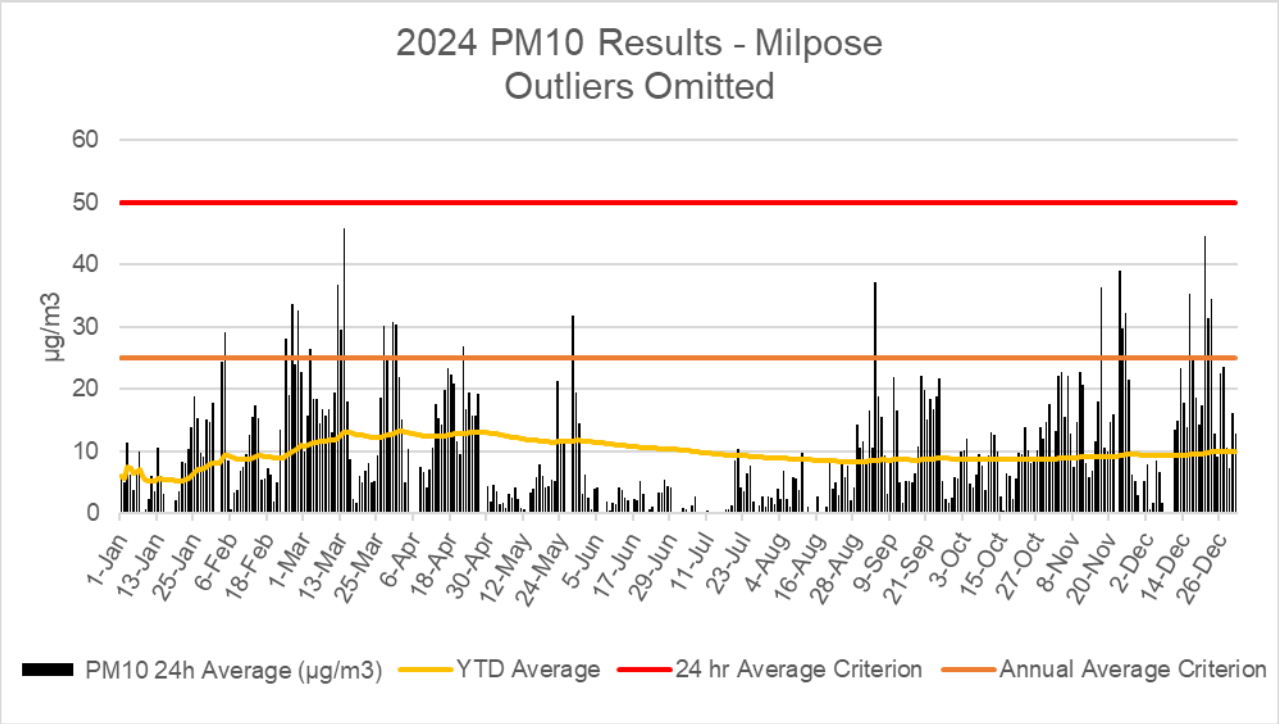



**Figure 18 PM10 Monitoring results (with outliers omitted) – Milpose**

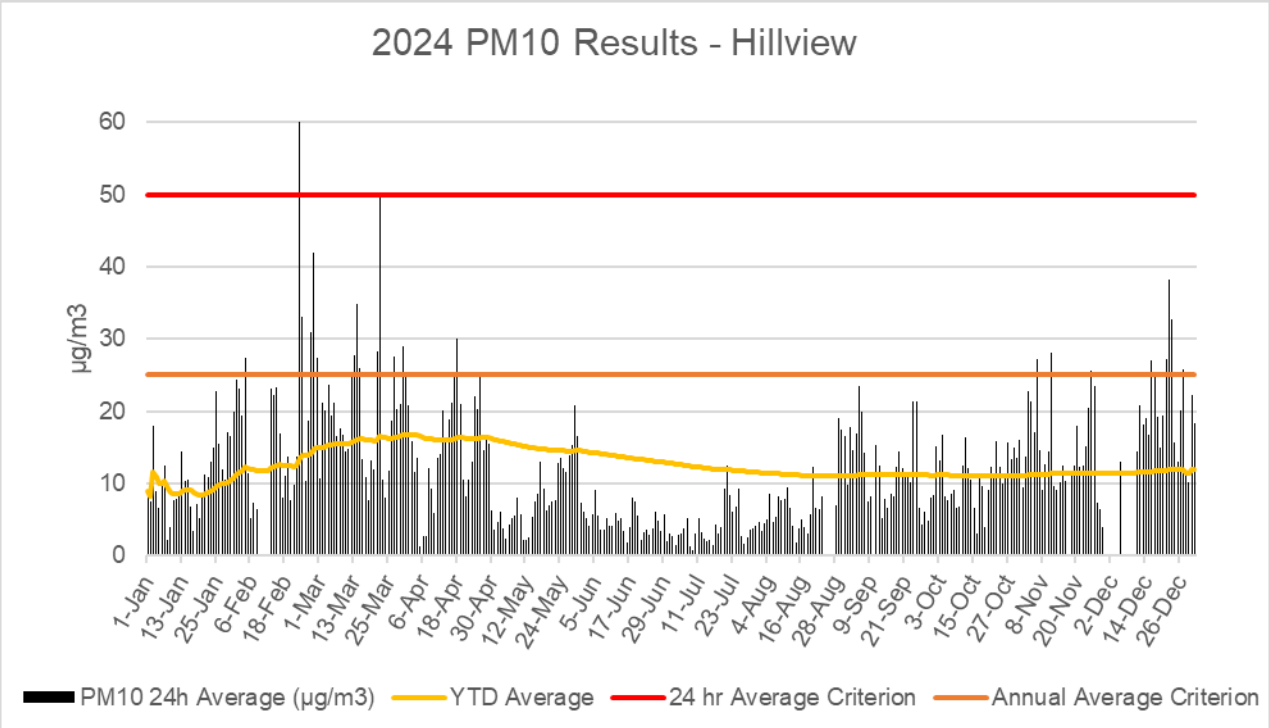



**Figure 19 PM10 Monitoring results (without outliers omitted) – Hillview**

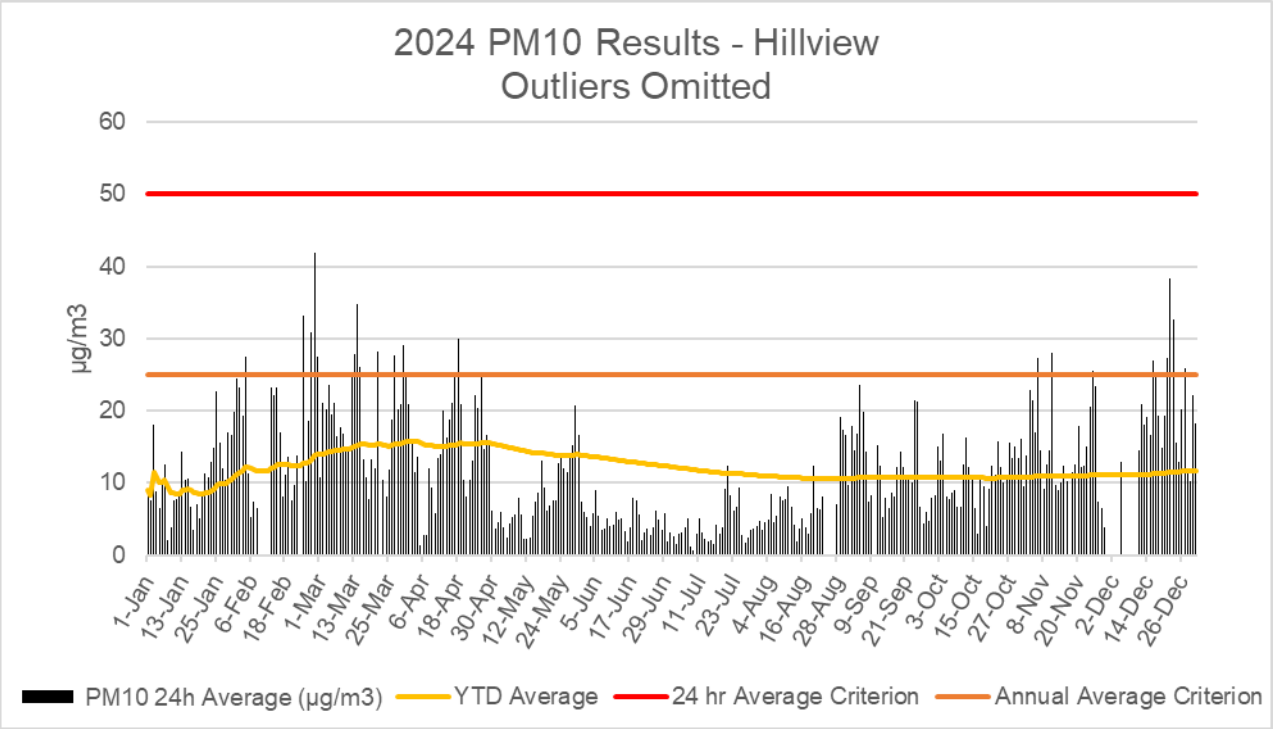



**Figure 20 PM10 Monitoring results (with outliers omitted) – Hillview**

**PM2.5**

Calculation based PM2.5 results for the Hubberstone (Figure 21), Milpose (Figure 22) and Hillview (Figure 23) monitoring locations are detailed below. The PM2.5 criteria for exceedances (as nominated in the Consent) is >8 µg/m$^3$ for the annual average and >25 µg/m$^3$ for a 24-hour monitoring period. All results have had non-mine related outliers removed.

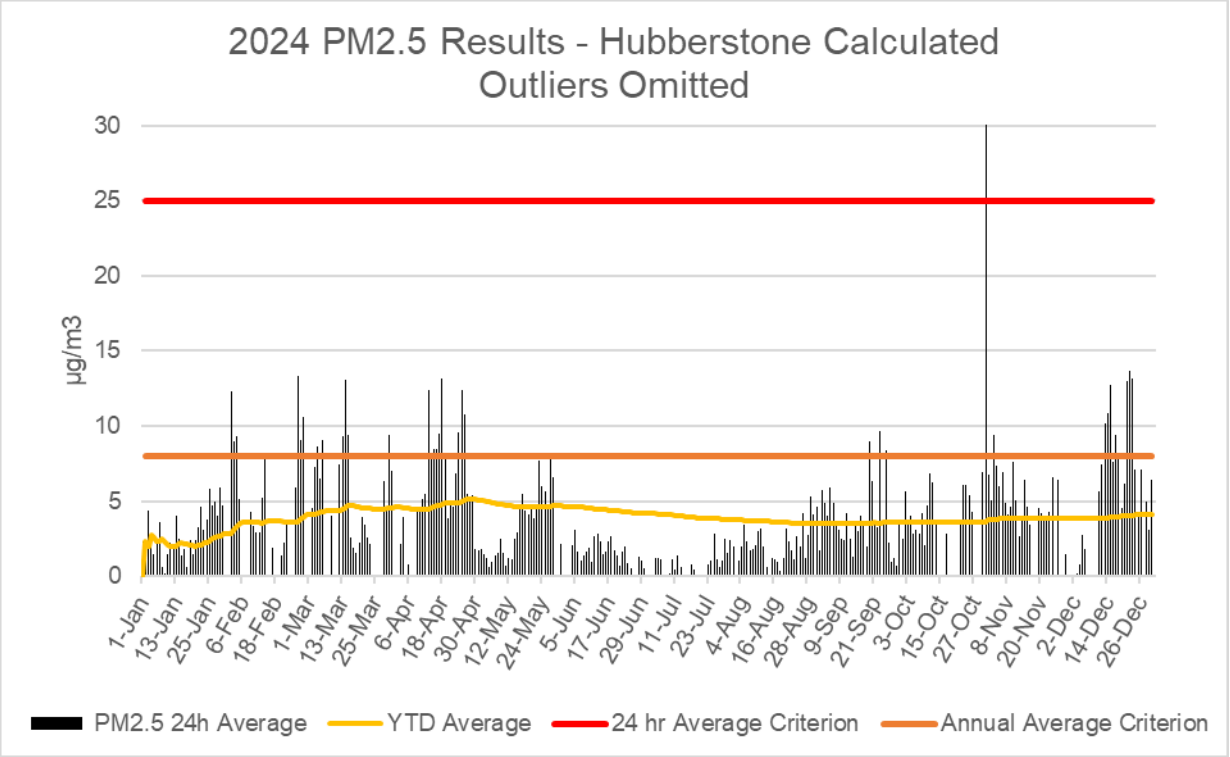



**Figure 21 PM2.5 Monitoring results with outliers omitted – Hubberstone**

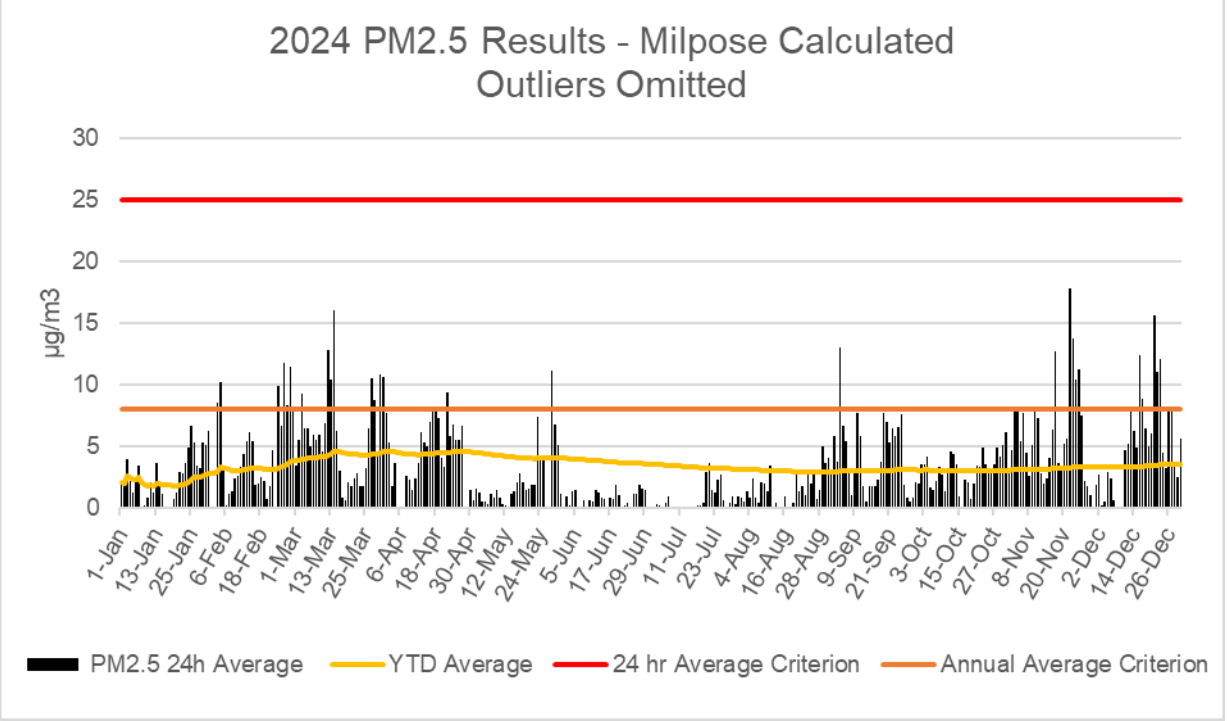



**Figure 22 PM2.5 Monitoring results with outliers omitted – Milpose**

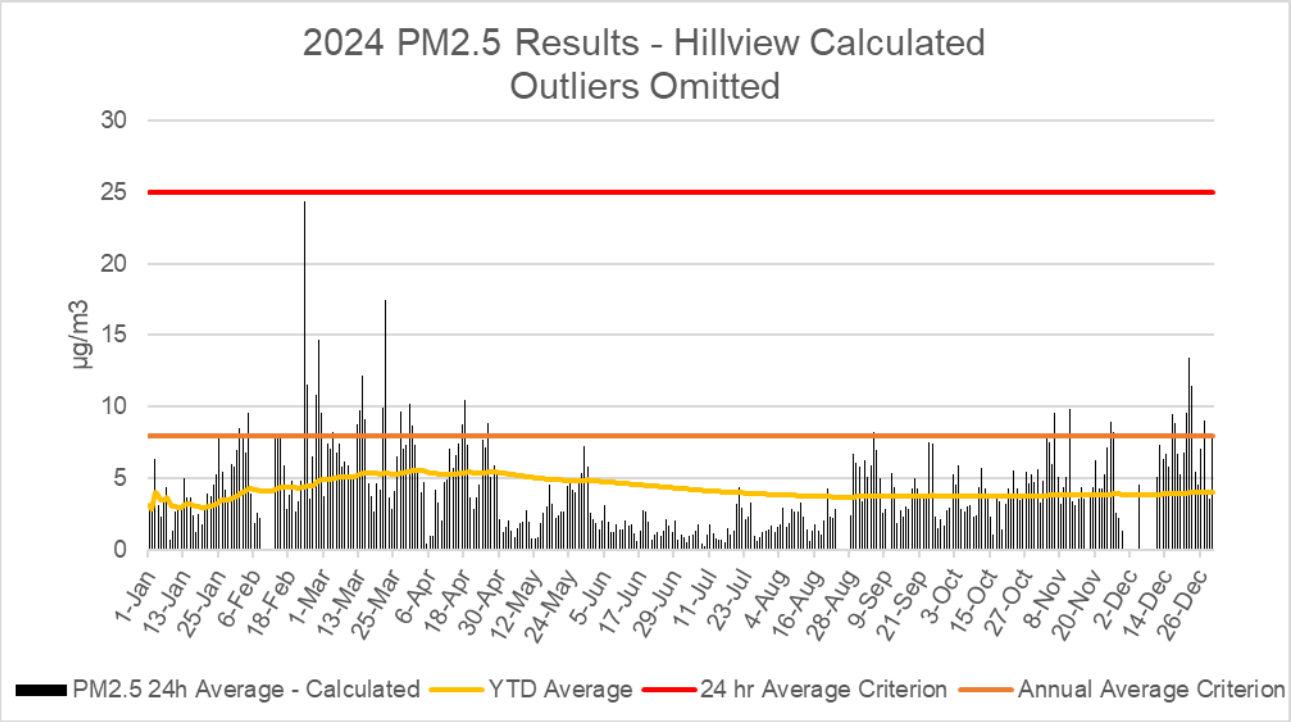



**Figure 23 PM2.5 Monitoring results with outliers omitted – Hillview**

### *6.3.3 Air Quality Improvements and Initiatives*

A real-time alert system has been successfully implemented onsite. It allows investigations to commence when hourly elevated results are occurring throughout the day. During the next reporting period, Northparkes will look to employ additional strategies for air quality impacts, these include:

- E26 subsidence zone dust risk reduction for inactive zones
- Review the outcomes from applying small volumes of biosolids to TSF2 established vegetation.

## 6.4 Noise

### *6.4.1 Noise Management*

Operational noise is managed in accordance with the approved Noise Management Plan (NMP). The NMP covers all operational activities with the potential to generate noise at Northparkes. It details specific noise management and mitigation measures, outlines monitoring and reporting requirements and provides clear definition of the roles and responsibilities for noise management.

Control measures for the management of noise during construction, operation and decommissioning are essential in minimising noise impacts. The three main strategies used to identify reasonable and feasible noise control/mitigation strategies are:

- Controlling noise at the source
- Controlling the transmission of noise and
- Controlling noise at the receiver.

Noise control measures at Northparkes are designed to comply with the Consent and the requirements of the *NSW Noise Policy for Industry (2017).*

Operational control measures include:

- Major scheduled works undergo a risk assessment prior to commencing work
- Environmental inductions and training to ensure workforce awareness

- Purchase of equipment that meets relevant noise emission standards
- Maintaining plant and machinery in good working order
- Maintaining haul roads in good condition
- Operating equipment in a manner that will minimise noise emissions
- Regular contact with local residents
- Modifications to surface ventilation fans
- Scheduling of work with consideration of adverse weather conditions, particularly at night, and modifications made to the work program where necessary
- Implementation of best management practice to minimise the construction, operational and road noise of the operations
- A program of regular noise monitoring of site operations to determine whether the operations are complying with the criteria set out in the Consent. This monitoring will be undertaken as attended and real-time noise monitoring at surrounding receivers over the life of the mine
- Additional targeted noise monitoring during construction activities, and whilst open cut mining operations occur during winter night-time operations if required. This targeted monitoring program will include the use of real time monitoring and be undertaken to identify situations when meteorological conditions have the potential to exacerbate noise impact on neighbouring receivers. Appropriate noise mitigation measures will be implemented as required.

### *6.4.2 Noise Performance*

Northparkes undertakes a noise monitoring program at five locations on privately owned properties outside the mining leases. The program consists of operator-attended monitoring at five of the nearest occupied residences, Hubberstone, Milpose, Lone Pine, Hillview and Adavale, and unattended real-time monitoring at four of these locations, excluding Lone Pine (see Figure 13 Map of dust and noise monitoring locations).

Noise measurements are undertaken in accordance with the requirements of the Consent*, AS 1055:2018*, the *NSW Noise Policy for Industry, 2017* and Approved Methods for the measurement and analysis of environmental noise in NSW, 2022. Northparkes engaged acoustic specialists to undertake attended noise monitoring on a quarterly basis at locations defined in the NMP to adequately assess the noise impacts related to Northparkes operations. All acoustic instrumentation is designed to comply with the requirements of *AS/NZS IEC 61672.1:2019 Electroacoustics - sound level meters pattern evaluation tests* and carries current NATA or manufacturer calibration certificates.

Temperature inversions, when they occur, have the ability to increase noise levels by focusing sound waves. Temperature inversions occur predominantly at night during the winter months but can also occur as a result of low cloud cover. They are generally determined based on the occurrence of atmospheric stability classes, with moderate and strong inversions corresponding to atmospheric stability categories F and G respectively.

A total of 179 out of 188 15-minute LAeq attended noise surveys were undertaken during the reporting period. Of which, 170 (94%) were during favourable meteorological conditions, as stipulated in the Consent. The surveys undertaken during unfavourable meteorological conditions were excluded from assessment. The reason for this being that the assessment was undertaken during stability class of F or G or a rain event. These are shown in Table 16 below.

Unattended noise monitoring was conducted continuously over the year at each monitoring location. This data was used to assess background ambient noise levels and does not have an applicable exceedance criterion.

A summary of the attended noise monitoring results is provided in Table 16. This includes all quarterly monitoring conducted in 2024.

**Table 16 Summary of Attended Noise Monitoring Results**

| Location | | Day | Evening | Night | |
|---|---|---|---|---|---|
| | | $L_{Aeq}$(15min) | $L_{Aeq}$(15min) | $L_{Aeq}$(15min) | $L_{A1}$(1min) |
| | Criteria dB (A) | 35 | 35 | 35 | 45 |
| Hubberstone | 20-23 February | ^ | ^ | ^ | <45 |
| | 14 – 15 May | ^ | **~<35** | **~<35** | <45 |
| | 11 – 13 September | ^ | ~<35 | <35 | <45 |
| | 4 - 5 December | ^ | ^ | ^ | <45 |
| Predicted Noise Impact (EA) | | 19 | 32 | | n/a |
| Lone Pine | 20-23 February | ^ | ^ | ~<30 | <45 |
| | 14 – 15 May | ^ | **<35** | <35 | <45 |
| | 11 – 13 September | ^ | ~<35 | ~<35 | <45 |
| | 4 - 5 December | ^ | ^≠ | ~<35 | <45 |
| Predicted Noise Impact (EA) | | 17 | 31 | | n/a |
| Milpose | 20-23 February | ^ | ^ | ~<30 | <45 |
| | 14 – 15 May | ^ | **^** | ~<30 | <45 |
| | 11 – 13 September | ^ | ~<35 | **~<35** | <45 |
| | 4 - 5 December | ^ | ~<35 | ~<35 | <45 |
| Predicted Noise Impact (EA) | | 19 | 19 | | n/a |
| Hillview | 20-23 February | ^ | ^ | ^ | <45 |
| | 14 – 15 May | ^ | ^ | ^ | <45 |
| | 11 – 13 September | ~<35 | ^ | **<35** | <45 |
| | 4 - 5 December | ^ | ~<35 | ~<35 | <45 |
| Predicted Noise Impact (EA) | | 20 | 20 | | n/a |
| Adavale | 20-23 February | ^ | ~<30 | ~<30 | <45 |
| | 14 – 15 May | ^ | **~<35** | **~<35** | <45 |
| | 11 – 13 September | ^ | **~<35** | ~<30 | <45 |
| | 4 - 5 December | ^ | ^ | ^ | <45 |
| Predicted Noise Impact (EA) | | 21 | 34 | | n/a |

Note: Measurements represent total mine contribution by excluding impact noise from extraneous sources such as wind noise and fauna. As LA[1] results are not adjustable, this measurement is not representative of noise produced by the mine and should be disregarded. **Bolded** results have been recorded during a stability class of F or G and are not a true representation of the mine noise contribution. Predicted evening / night impact levels selected based on most significant impact of the two scenarios in the MOD 4 noise assessment.
^ Northparkes Inaudible.
~ Northparkes Slightly Audible
≠ Not measurable (rain affected)

Noise levels assessed as part of the monitoring program were within all operational noise criteria. They were also within the noise levels predicted in the Modification 4 Expansion Noise Assessment (Umwelt, 2018), and did not exceed the sleep disturbance limit at night despite the frequency and impact of temperature inversion conditions. During most attended monitoring surveys at all locations, operators noted that Northparkes operations were inaudible or only slightly audible.

Northparkes was successful in achieving the long-term intrusive noise goals during the 2024 reporting period.

All attended monitoring reports for the reporting period are available on the Northparkes webpage at:

https://evolutionmining.com.au/compliance/#Northparkes

Appendix 3, Commitment 6.6.2 of the Consent requires Northparkes to *"undertake additional targeted noise monitoring during construction periods for TSFs while campaign open cut mining operations occur during winter night-time operations. This targeted monitoring program will include the use of real time monitoring and be undertaken to identify situations when metrological conditions have the potential to exacerbate noise impacts on neighbouring receivers"*. During the reporting period, Northparkes engaged a consultant to complete further targeted noise monitoring in February, July and September to meet this commitment.

### *6.4.3 Noise Improvements and Initiatives*

Northparkes will continue to implement the operational controls in the approved NMP including its quarterly attended noise monitoring program to remain compliant with the approved limits.

Night-time surface mining commenced at the end of January with the trigger action response plan (TARP) continuing as a useful tool throughout the year. The TARP helped to identify periods of adverse weather conditions (noise exacerbating) and gave time to implement controls to reduce any potential noise impact. As an input to the TARP, Northparkes is continuing to utilise inversion technology that predicts periods of adverse weather stability.

To further improve the real time noise monitoring network, a directional monitor will continue to be trialled at a nearby residence to evaluate the contribution of night-time surface mining, while excluding other potential noise contributing sources. Northparkes will continue to work with the supplier to improve the technology and communicate results.

To reduce the potential for night-time open cut operations generating unwanted noise, from September 2024 the haulage of waste rock from the E31 pits did not occur between 10pm and 6am. This will occur through to the end of the open cut mining project.

## 6.5 Blasting

### *6.5.1 Blasting Management*

Blast management is undertaken in accordance with the approved Blast Management Plan (BMP) and outlines the mitigation measures, required monitoring, and provides clear definitions of the roles and responsibilities related to managing impacts of surface blasting. The vibration monitors have also assisted to demonstrate that underground draw bell blasting is within the Consent criteria.

Implementation of the BMP executes a range of mitigative measures to minimise annoyance in accordance with the conditions of the Consent. Blast operations also have specific management requirements regarding:

- Blast hours
- Notification of the frequency of blasts
- Road closures
- Fly rock removal and road maintenance
- Property inspections
- Reporting of exceedances and complaints

### *6.5.2 Blasting Performance*

During the reporting period, Northparkes completed 55 surface blasts at the E31 and E31N open pits. All events were successfully recorded at all monitoring locations and vibration impacts were well below the criteria detailed in the Consent. Overpressure results are also below the criteria in the Consent, though are heavily impacted by weather, most commonly wind and rain. Figure 24 and Figure 25 below detail the vibration and overpressure results from each of the blast events.

Northparkes is permitted to only carry out surface blasting on site between 9am and 5pm, Monday to Saturday inclusive. All blasts were consistent with the approved periods defined in the Consent.

The E31 open pit campaign is scheduled to finish in March 2025.

All underground blasting activities remain well within the impact limits detailed in the Consent.

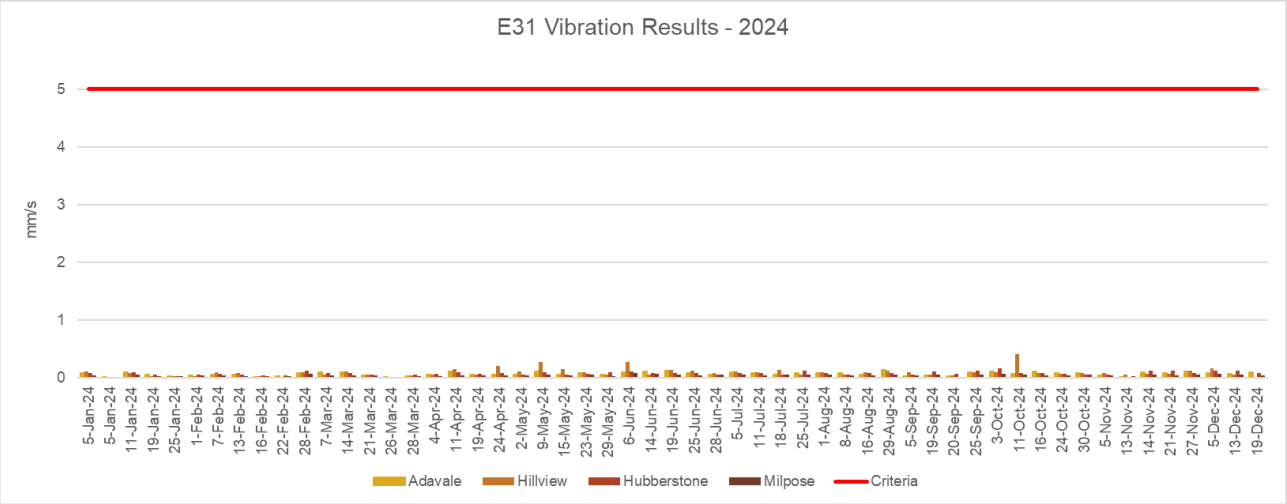



**Figure 24 Vibration results for surface blasting**

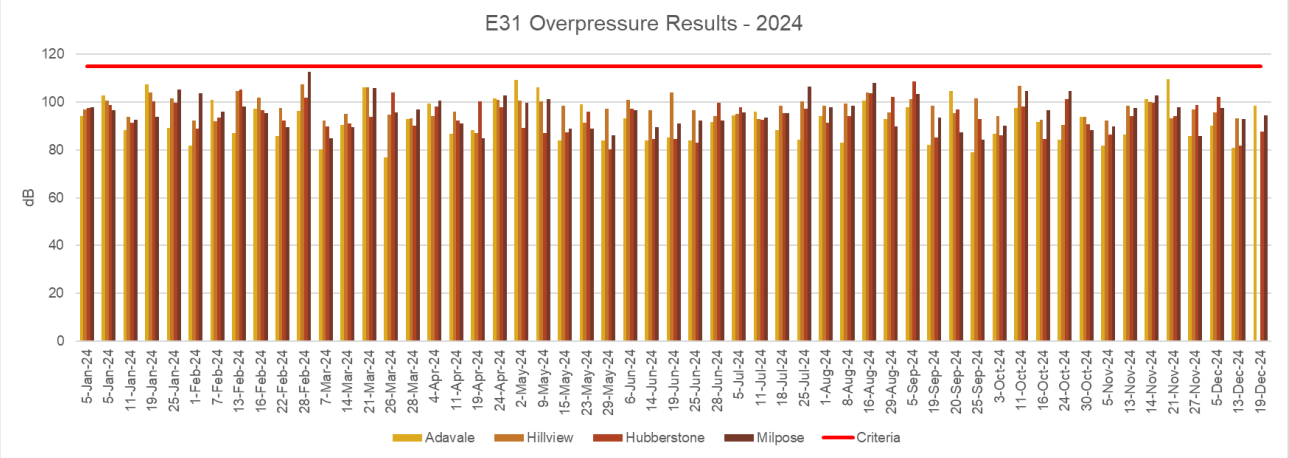



**Figure 25 Overpressure results for surface blasting**

### *6.5.3 Blasting Improvements and Initiatives*

Northparkes will complete blasting activities early in the next reporting period. Blasts from open cut operations were consistently within criteria and not noticeable by neighbours. Performance from the recent E31 pits' blast design will be considered in future open cut campaigns.

## 6.6 Biodiversity and Ecology

### *6.6.1 Biodiversity and Ecology Management*

Biodiversity impacts are managed in accordance with the approved Biodiversity Offset Management Plan (BOMP). The BOMP provides a framework for managing biodiversity values within the project boundary, Biodiversity Offset Areas (BOAs), and wider locality.

The BOMP guides the implementation of offsetting commitments and manages potential risks to biodiversity as a result of operations at Northparkes. Specifically, the BOMP aims to:

- Describe the measures (short, medium and long-term) to be implemented to manage remnant vegetation and habitat within the Project boundary and BOAs, including detailed performance and completion criteria
- Describe enhancement practices and procedures to be undertaken in accordance with commitments stipulated in the Voluntary Conservation Agreements (VCA) and BOMP
- Describe the practical management strategies to be implemented to:

- manage impacts on flora and fauna
- maximising salvage and beneficial use of resources in areas to be impacted for habitat enhancement
- rehabilitate creeks, drainage lines and disturbed areas and
- control weeds and pests.

- Ensure compliance with all legislative requirements, statutory approvals/licences and corporate responsibilities of Northparkes
- Describe biodiversity monitoring and reporting requirements and
- Provide details of the parties responsible for monitoring, reviewing, and implementing the BOMP.

No impacts outside those predicted in the EA have occurred during the reporting period indicating the management strategies specified by the BOMP implemented across the site are adequate to address potential impacts.

Northparkes has implemented a range of biodiversity monitoring activities since the commencement of operations, in addition to those studies completed for the EA.

### *6.6.2 Biodiversity and Ecology Performance Monitoring*

Northparkes is required to undertake ecological monitoring at Kokoda (annual) and Estcourt (three yearly) Biodiversity Offset Properties. The last monitoring was undertaken in 2023 for Estcourt. This program is guided by clearly defined, repeatable and consistent methodologies for monitoring changes in various aspects of ecosystem function, succession and long-term sustainability. The adopted monitoring methodology is a standard and simple procedure that can be easily replicated over any vegetation community or revegetation area. It includes a combination of Landscape Function Analysis (LFA) and flora diversity. For more details on rehabilitation monitoring undertaken in 2024, refer to the 2024 Kokoda Offset Monitoring Report, available via the Evolution Mining website at **https://evolutionmining.com.au/northparkes/**.

**Kokoda Ecological Monitoring**

A range of ecological field surveys were undertaken across Kokoda in 2024. These included:

- Floristic data using plot-based surveys
- Landscape Function Analysis (LFA) monitoring
- Targeted bird surveys in winter and spring
- Monitoring of kangaroo numbers
- Qualitative biannual inspections for weeds, pests and maintenance.

**Floristic Data Using Plot-Based Surveys**

A total of seventeen 20m x 20m permanent flora sampling sites (plots) were assessed at Kokoda in 2024. The location of survey sites was selected to represent the different vegetation communities mapped by Umwelt in 2013 and were marked for ease of relocating for subsequent monitoring surveys (using a handheld global positioning system (GPS) and star pickets). Photographs were also taken at each site to help monitor changes over time.

During surveys, total floristic diversity was recorded in systematic increments within the monitoring plots, beginning at the start of the LFA vegetation transect in the 1m x 1m sub-plot. Total shrub counts were made within the shaded 10m x 20m subplots and mature tree counts and condition variables were made within the entire 20m x 20m quadrat.

Floristic plot-based survey at Kokoda in 2024 recorded 183 plant species, comprised of 48 non-native (exotic) species and 135 native species (73%). No threatened flora species were detected in the flora plots during field surveys. Refer to the 2024 Kokoda Offset Monitoring Report on the Evolution Mining website for full information and data.

A range of Key Performance Indicators (KPI's) were quantified by data obtained from replicated reference sites which were representative of the Grey Box Woodland critically endangered ecological communities and Dwyer's Red Gum woodland. All ecological performance indicators are quantified by range values measured from these reference sites which form both *upper* and *lower* KPI targets. The same ecological performance indicators are also measured in the revegetation/rehabilitation sites and these should equal or exceed these values, or at least demonstrate an increasing trend.

Table 17 below indicates the performance of the woodland revegetation monitoring sites against the proposed Primary Completion Performance Indicators. The selection of criteria has been presented in order of rehabilitation phases. The range values of the ecological performance targets are amended annually. Revegetation sites meeting or exceeding the range values of their representative community type have been identified with a coloured box and have therefore been deemed to meet these primary completion performance targets this year. Hashed coloured boxes indicate they may be outside of the reference target ranges, but within acceptable agricultural limits.

The reference sites at Kokoda are typically degraded and of low quality which subsequently have provided low performance targets. In the Grey Box woodlands, there was limited abundance and diversity of the grassy understorey and there were limited shrubs. Previous revegetation activities included a range of species known to occur within these communities and not just restricted to those occurring within the existing reference sites.

**Landscape Function Analysis Monitoring**

Landscape Function Analysis (LFA) monitoring was also undertaken at the seventeen permanent plots. LFA is a methodology used to assess key indicators of ecosystem function including landscape organisation and soil surface condition as measures of how well the landscape retains and uses vital resources. The indicators used quantify the utilisation of the vital landscape resources of water, topsoil, organic matter and perennial vegetation in space and time. Soil sampling was also undertaken at the plots.

Table 17 below provides a performance summary of the woodland monitoring sites against completion performance indicators obtained from their relevant reference sites in 2024. The selection of criteria has been presented in order of rehabilitation phases. Revegetation sites meeting or exceeding the range values of their representative target community type have been identified with a coloured box and have therefore been deemed to meet these primary completion performance targets this year. Hashed coloured boxes associated with soil condition indicate they may be outside of the reference target ranges, but within acceptable agricultural limits.

**Table 17 Performance of the Grey Box, Ironbark and Dwyers Red Gum woodland monitoring sites against completion performance indicators in 2024**

| Rehabilitation Phase | Aspect or ecosystem component | | Completion criteria | Performance Indicators | Unit of measurement (*desirable) | DReveg 1 | DReveg 2 | DReveg 3 | DWoodLQ | GBReveg 1 | GBReveg 2 | GBReveg 3 | GBReveg 4 | GBReveg 5 | WBWood 1 | IronWood 1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | *Performance indicators are quantified by the range of values obtained from replicated reference sites* | | | | 2024 | | | | | | | | | | |
| Phase 3: Landform establishment and stability | Landform slope, gradient | | Landform suitable for final land use and generally compatible with surrounding topography | Slope | < Degrees (18°) | 4 | 3 | 4 | 3 | 5 | 4 | 3 | 4 | 3 | 3 | 4 |
| | Active erosion | | Areas of active erosion are limited | No. Rills/Gullies | No. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Phase 4: Growth medium development | Soil chemical, physical properties and amelioration | | Soil properties are suitable for the establishment and maintenance of selected vegetation species | pH | pH (*5.6 - 7.3) | 5.5 | 5.4 | 5.9 | 5.5 | 6.6 | 5.7 | 6.2 | 6.0 | 6.3 | 6.2 | 5.1 |
| | | | | Organic Matter | % (*>4.5) | 3.3 | 2.8 | 4.5 | 3.4 | 3.6 | 5.4 | 3.6 | 2.2 | 2.7 | 4.7 | 5.3 |
| | | | | Phosphorous | ppm (*50) | 8.2 | 13.8 | 9.8 | 9.2 | 9.8 | 10.5 | 10.2 | 9.2 | 9.2 | 7.5 | 8.2 |
| Phase 5: Ecosystem & Land use Establishment | Landscape Function Analysis (LFA): Landform | | Landform is stable and performing as it was designed to do | LFA Stability | % | 71.0 | 76.0 | 72.3 | 68.5 | 75.0 | 74.0 | 72.9 | 73.4 | 77.5 | 66.4 | 70.0 |

| Rehabilitation Phase | Aspect or ecosystem component | | Completion criteria | Performance Indicators | Unit of measurement (*desirable) | DReveg 1 | DReveg 2 | DReveg 3 | DWoodLQ | GBReveg 1 | GBReveg 2 | GBReveg 3 | GBReveg 4 | GBReveg 5 | WBWood 1 | IronWood 1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | stability and organisation | | | LFA Landscape organisation | % | 100 | 93 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| | Vegetation diversity | | Vegetation contains a diversity of species comparable to that of the local remnant vegetation | Diversity of shrubs and juvenile trees | species/area | 3 | 10 | 0 | 4 | 1 | 1 | 4 | 6 | 1 | 9 | 8 |
| | | | | | % endemic | 100 | 100 | 0 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| | | | | Exotic species richness | <No./area | 15 | 6 | 24 | 13 | 16 | 11 | 19 | 18 | 24 | 13 | 2 |
| | Shrubs and juvenile tree (<5cm dbh) density | | Vegetation contains a density of shrubs and juvenile trees (<5cm dbh) comparable to the local remnant vegetation | Density of eucalypts | No./area | 3 | 1 | 0 | 15 | 0 | 0 | 5 | 3 | 6 | 1 | 3 |
| | | | | Density of acacias | No./area | 4 | 7 | 0 | 4 | 0 | 0 | 3 | 3 | 0 | 11 | 1 |
| | | | | Density of other endemic shrubs | No./area | 1 | 10 | 0 | 3 | 1 | 1 | 0 | 2 | 0 | 14 | 131 |
| | | | | Density of exotic / non endemic species | <No./area | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | | | The percentage of eucalypts | % population | 38 | 6 | 0 | 68 | 0 | 0 | 63 | 38 | 100 | 4 | 2 |
| | | | | Total density of endemic shrubs and/or juvenile trees | No./area | 8 | 18 | 0 | 22 | 1 | 1 | 8 | 8 | 6 | 26 | 135 |

| Rehabilitation Phase | Aspect or ecosystem component | | Completion criteria | Performance Indicators | Unit of measurement (*desirable) | DReveg 1 | DReveg 2 | DReveg 3 | DWoodLQ | GBReveg 1 | GBReveg 2 | GBReveg 3 | GBReveg 4 | GBReveg 5 | WBWood 1 | IronWood 1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Ecosystem composition | | The vegetation is comprised by a range of growth forms comparable to that of the local remnant vegetation | Trees | No./area | 2 | 1 | 0 | 3 | 1 | 0 | 2 | 3 | 1 | 4 | 5 |
| | | | | Shrubs | No./area | 1 | 9 | 0 | 2 | 0 | 1 | 2 | 3 | 0 | 6 | 5 |
| | | | | Herbs | No./area | 21 | 21 | 33 | 34 | 20 | 27 | 25 | 24 | 31 | 35 | 13 |
| | | | | Grasses | No./area | 9 | 8 | 8 | 9 | 6 | 7 | 9 | 8 | 6 | 9 | 6 |
| Phase 6: Ecosystem & Land use Development | Landscape Function Analysis (LFA): Landform function and ecological performance | | Landform is ecologically functional and performing as it was designed to do | LFA Infiltration | % | 44.6 | 41.5 | 48.7 | 55.4 | 49.6 | 41 | 51.3 | 44.8 | 52.1 | 51.1 | 46.4 |
| | | | | LFA Nutrient recycling | % | 44.8 | 44.8 | 46.2 | 54.9 | 51 | 41.3 | 50.7 | 45.4 | 52.4 | 48 | 49.7 |
| | Protective ground cover | | Ground layer contains protective ground cover and habitat structure comparable with the local remnant vegetation | Perennial plant cover (< 0.5m) | % | 13.5 | 40.5 | 9 | 7.5 | 26.5 | 33 | 18 | 21.5 | 20.5 | 17.5 | 10.3 |
| | | | | Total Ground Cover | % | 80.5 | 91 | 98 | 99 | 100 | 99 | 98.5 | 98.5 | 100 | 94.5 | 97.5 |
| | Native ground cover abundance | | Native ground cover abundance is comparable to that of the local remnant vegetation | Percent ground cover provided by native vegetation <0.5m tall | % | 44.0 | 71.6 | 42.0 | 53.3 | 37.7 | 50.4 | 35.6 | 37.9 | 54.8 | 74.7 | 95.2 |

| Rehabilitation Phase | Aspect or ecosystem component | | Completion criteria | Performance Indicators | Unit of measurement (*desirable) | DReveg 1 | DReveg 2 | DReveg 3 | DWoodLQ | GBReveg 1 | GBReveg 2 | GBReveg 3 | GBReveg 4 | GBReveg 5 | WBWood 1 | IronWood 1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Ecosystem growth and natural recruitment | | The vegetation is maturing and/or natural recruitment is occurring at rates similar to those of the local remnant vegetation | shrubs and juvenile trees 0 - 0.5m in height | No./area | 6 | 9 | 0 | 13 | 1 | 1 | 0 | 1 | 3 | 9 | 40 |
| | | | | shrubs and juvenile trees 1.5 - 2m in height | No./area | 0 | 2 | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 1 | 11 |
| | Ecosystem structure | | The vegetation is developing in structure and complexity comparable to that of the local remnant vegetation | Foliage cover 0.5 - 2 m | % cover | 0.5 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 1 |
| | | | | Foliage cover >6m | % cover | 0 | 0 | 0 | 24 | 0 | 0 | 0 | 0 | 0 | 29 | 6 |
| | Tree diversity | | Vegetation contains a diversity of maturing tree and shrubs species comparable to that of the local remnant vegetation | Tree diversity | % | 100 | 0 | 0 | 100 | 0 | 0 | 0 | 0 | 0 | 100 | 100 |
| | Tree and mature shrub (>5cm dbh) density | | Vegetation contains a density of maturing tree and shrubs (>5cm dbh) species comparable to the local remnant vegetation | Total tree and mature shrub density | No./area | 10 | 0 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 7 | 27 |
| | | | | Density of eucalypts | No./area | 10 | 0 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 6 | 26 |
| | | | | Density of acacias | No./area | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| Rehabilitation Phase | Aspect or ecosystem component | | Completion criteria | Performance Indicators | Unit of measurement (*desirable) | DReveg 1 | DReveg 2 | DReveg 3 | DWoodLQ | GBReveg 1 | GBReveg 2 | GBReveg 3 | GBReveg 4 | GBReveg 5 | WBWood 1 | IronWood 1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Density of other endemic species | No./area | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| | | | | Density of exotic / non endemic species | <No./area | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | | | Percentage of eucalypts | % population | 100 | 0 | 0 | 100 | 0 | 0 | 0 | 0 | 0 | 86 | 96 |
| | Ecosystem health | | The vegetation is in a condition comparable to that of the local remnant vegetation. | Live trees | % population | 100 | 0 | 0 | 100 | 0 | 0 | 0 | 0 | 0 | 88 | 77 |
| | | | | Healthy trees | % population | 90 | 0 | 0 | 22 | 0 | 0 | 0 | 0 | 0 | 50 | 9 |
| | | | | Flowers/fruit: Trees | % population | 10 | 0 | 0 | 78 | 0 | 0 | 0 | 0 | 0 | 63 | 20 |

### Targeted Bird Surveys

Targeted bird surveys were carried out at Kokoda in winter and spring 2024. Bird surveys were conducted at six sites across two days in winter and eleven sites across two days in spring. Surveys consisted of a two-hectare area search for 20 minutes in suitable habitat within Kokoda on each day.

The bird surveys undertaken at Kokoda were undertaken by a suitably qualified ecologist. Winter bird surveys targeted the Regent Honeyeater and Swift Parrot, and spring bird surveys targeted the Superb Parrot and eastern subspecies of the Grey-crowned Babbler. During targeted bird surveys, all birds seen (using binoculars) or heard (using diagnostic calls) were recorded. Targeted bird surveys were undertaken twice at each survey site each time in the early morning when birds are most active and vocal to maximise detectability. Any opportunistic bird species identified during surveys were also recorded.

During targeted bird surveys, a total of 66 bird species were recorded during winter and a total of 59 bird species during spring. Four of those species were identified as threatened and/or migratory under the *Biodiversity Conservation Act 2016* and *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act). These include:

- Superb parrot (Polytelis swainsonii) (EPBC: V / BC: V)
- Grey-crowned babbler (eastern sub-species) (Pomatostomus temporalis) (BC:V)
- Brown Treecreeper (Climacteris picumnus victoriae) (EPBC: V / BC: V)
- Speckled Warbler (Chthonicola sagittata) (BC:V)

Threatened species records appear consistent with previous years records. Overall, species diversity appears stable over the past few years. A slightly higher number of species are recorded during the spring survey periods compared with winter periods over the previous five years. This is likely to be a function of the greater number of survey sites and microhabitats present in the spring than winter (11 in spring versus six in winter), rather than more species occurring in spring.

There were sightings of two birds not previously seen at Kokoda. These were the White-throated Gerygone and the Horsfield Bronze Cuckoo.

As per the requirements of the Biodiversity Conservation Trust Agreement and BOMP, the frequency of bird surveys will be reduce to every 3 years with the next survey to be completed in 2027.

**Figure 26 Superb Parrot, Grey-crowned babbler (eastern sub-species) & Speckled Warbler**

### Opportunistic Flora and Fauna Monitoring

A number of trial cameras were set up across Kokoda to opportunistically observe the range of potential feral animal species. Table 18 details the current presence of feral animal species from the trail cameras. Although the presence of cats has not been captured recently, it is possible they exist within the offset area but are yet to be photographed.

Kangaroo numbers are on the increase and almost back to the numbers seen prior to the installation of the exclusion fence in 2019. A culling program will be introduced in 2025 to help control the population.

**Table 18 Presence of feral pest species**

| Feral Animal Species | Prior to Exclusion Fencing (pre 2019) | 2024 |
|---|---|---|
| Rabbits | Yes | Yes |
| Cats | Yes | No |
| Dogs | No | No |
| Foxes | Yes | Yes |
| Pigs | Yes | Yes |
| Goats | Yes | No |
| Deer | No | No |

### Pest Animal Management

For the presence of pest animals noted in the table above, suitable pest management programs were developed in conjunction with the Local Land Service (LLS) and Northparkes. As part of a wider increase in feral pig populations, a rise in pig habitation was observed during the period at the Kokoda offset.

Northparkes purchased a pig trap that has been used in conjunction with the neighbours to reduce the pig numbers. The pig trap has had success in reducing numbers during the reporting period.

**Figure 27 Pig trap purchased**

### Pine Donkey Orchid Population Monitoring

Field inspections of the two populations of the Pine Donkey Orchid (*Diuris tricolour*) (PDO) found within the Northparkes mining lease were carried out during October, which targeted emerging and effloresced plants to coincide with the species flowering period. The density of PDO individuals recorded at the two populations have varied significantly over the years, with the seasonal conditions, ground cover abundance, ease of identification and survey timing having a significant impact on the orchid populations. Higher than average rainfall during the year produced record numbers compared to previous years.

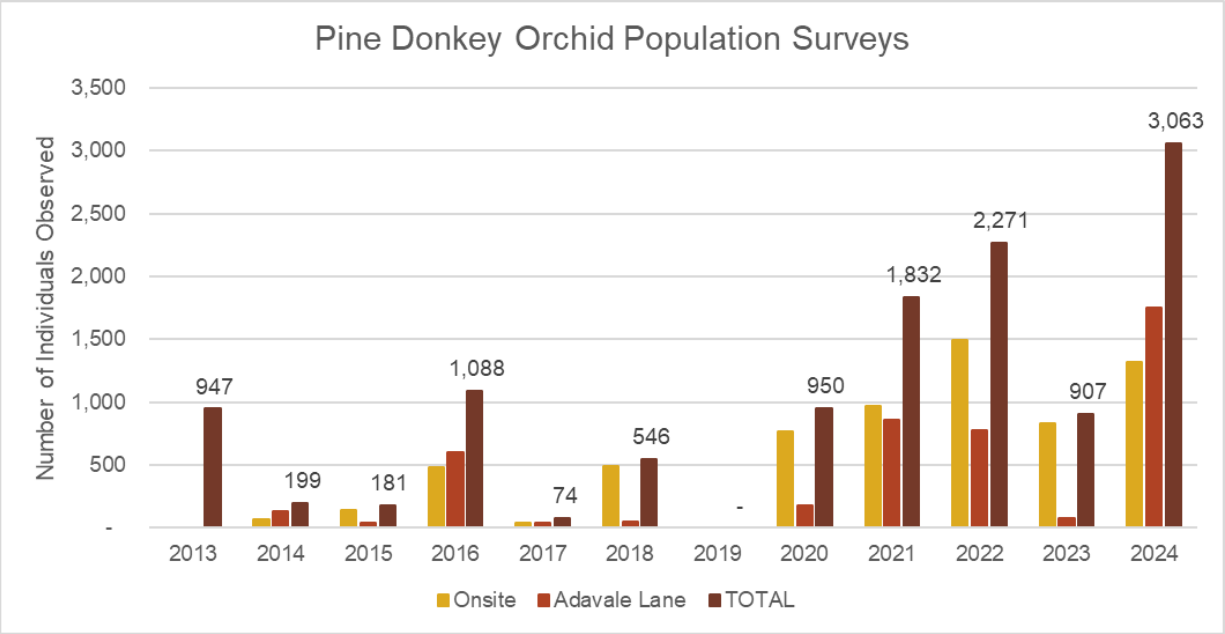



**Figure 28 Number of Pine Donkey Orchids observed during surveys**

**Figure 29 Pine Donkey Orchid (*Diurus tricolour*)**

## 6.7 Waste

### *6.7.1 Waste Management*

The Consent, specifically Schedule 3 Condition 38, requires the following in regards to waste:

- Implement all reasonable and feasible measures to minimise waste generated by the Project
- Ensure waste generated by the Project is appropriately stored, handled and disposed of and
- Monitor and report on the effectiveness of waste minimisation and management measures in the Annual Review.

Northparkes Waste Management Plan covers aspects of waste management peripheral to mining activities, i.e. does not include production waste, such as coarse or fine reject. The Waste Management Plan was prepared in accordance with the objectives of the *Waste Avoidance and Resource Recovery Act 2007* and is based on the waste management hierarchy of avoid, reduce, reuse, recycle and dispose.

Waste management measures employed on site include:

- General waste from operations is disposed at an appropriate licensed waste management facility
- Recyclable wastes are collected for recycling at an appropriate facility
- Contaminated soil is collected and transported to the on-site bioremediation area for treatment and eventual on-site disposal
- Scrap metal materials are separated on-site and collected by a recycling contractor for off-site recycling
- All waste oils and greases are segregated and stored appropriately until collection by a licensed waste contractor for appropriate off-site recycling/disposal
- Waste chemicals (including solvents) are segregated, stored appropriately and transported off-site by a licensed waste contractor for appropriate disposal
- Contaminated areas are bunded and water is reused within the process water circuit and
- Clean surface water/runoff is diverted around mine facilities (where feasible).

### 6.7.2 Waste Performance

Northparkes tracks operational waste disposal for all key waste streams. All waste streams are stored in appropriate containers prior to disposal at licenced facilities.

Operational waste collection statistics for the 2024 reporting period is summarised in Table 19.

**Table 19 Summary of Waste Disposal**

| Waste Stream | Tonnes |
|---|---|
| **Hazardous recycled**: empty drums oil filters oily water waste grease waste oil dust suppressant/resin/glue and fluorescent tubes. | 181 |
| **Hazardous disposal**: hydraulic hose medical/sanitary waste oily rags and used absorbent | 10 |
| **Non-Hazardous recycled**: empty drums | 0.24 |
| **Non-Hazardous disposal**: mixed solid waste | 514 |
| **Recycled metal** | 2,522.47 |
| **TOTAL** | **3,227.71** |

Northparkes and its contractors have continued to implement the waste management hierarchy. Wherever possible, waste materials are re-used on site in preference to direct disposal. Recycling of materials is also undertaken where possible to minimise waste.

Northparkes contracts a third-party waste service to manage its waste from the premises. This has been successful as specialised waste streams can be more thoroughly investigated for opportunities and improvements.

Site induction packages include waste awareness and Northparkes has included waste best practice in employee and contractor HSE sessions. Environmental inspections were undertaken by Northparkes throughout the reporting period with observations and non-conformances with site practices communicated as necessary to relevant contractors.

### 6.7.3 Bioremediation Area

The bioremediation area was maintained and monitored during the reporting period, as listed in Table 20. Successful management of this bioremediation area has allowed for onsite treatment of contaminated material and subsequently reduced the need to transfer contaminated waste material offsite. The bioremediation area was not active during the 2024 reporting period (refer to Table 20).

**Table 20 Summary of Bioremediation Activities**

| Initiated | Origin of Material | Description | Completion |
|---|---|---|---|
| 2016 | - | Construction of bioremediation area | 2016 |
| 2016 | Surge Dam 2 | The treatment of approximately 15,000m$^3$ of material from the western surge dam with Micro-Blaze formulation | 2017 |
| 2019 | Surge Dam 1 | The treatment of approximately 21,000m$^3$ of material from the eastern surge dam with Micro-Blaze formulation | 2023 |
| 2023 | Surge Dam 1 | Removal of treated material to E26 waste emplacement | 2023 |
| 2023 | Surge Dam 2 | Removal of approximately 20,000m3 of material from western surge dam to bioremediation bay. | 2023 |
| 2024 | - | No bioremediation was completed during 2024 | - |

### 6.7.4 Waste Improvements and Initiatives

Consistent with the implementation of the waste management hierarchy, Northparkes and its waste contractor continue to look for ways to re-use waste materials onsite in preference to direct disposal.

During the reporting period, a trial was to be conducted to process the surge dam material through the ore handling circuit. A risk assessment was completed and it was decided not to go ahead due to the uncertainty of what the results would be on the mill process.

## 6.8 Cultural Heritage

### *6.8.1 Cultural Heritage Management*

The management, including identification, assessment and monitoring, of cultural heritage at Northparkes is undertaken in accordance with the Heritage Management Plan (HMP).

The HMP prescribes:

- The policies and practices for the preservation of sites during construction and operations
- Other facets of cultural heritage practices and conservation measures including salvage of sites as required and the practice of due diligence inspections
- Management of unanticipated Aboriginal objects and
- Other relevant cultural heritage considerations including consultation with the Aboriginal community.

Northparkes utilises a Site Disturbance Permit (SDP) approval system to manage the protection of heritage sites on the mining lease. This approval process applies to activities planned in undisturbed areas or previously rehabilitated areas. The area to be disturbed is compared to the Aboriginal cultural heritage sensitivity zones to determine the need for additional survey work or salvage work prior to starting the project.

### *6.8.2 Near miss*

Within the Northparkes Heritage Management Plan Section 11.3.1, it states that exclusion zones will be constructed around sites of known Aboriginal objects. However, it does not specify a timeframe as to when exclusion zones will be installed.

In 2019 Northparkes worked with the Traditional Owners to survey large areas of the Mining Lease that were outside of the approved operational area. During the April 2019 survey, a scatter of artefacts was identified, labelled OS1 and an exclusion zone established. In the August/September 2019 survey of the adjacent area to the east, a further six artefacts were found beside the fenced OS1 April artefact scatter. The fence from OS1 was to be extended around the additional six artefacts, however it was not fenced.

In 2024, while preparing a drill pad in the area, it was identified that the additional six artefacts had not been fenced. Investigations so far have indicated no harm to the artefacts. Traditional Owners and Regulators were notified during the period and Northparkes is working with them on improving internal processes.

### *6.8.3 Cultural Heritage Initiatives and Programs*

In accordance with the HMP, Northparkes continued on-going consultation with the Wiradjuri Executive Committee (WEC) throughout the reporting period, with meetings held in February, July and October. The WEC is a consultation forum to enable appropriate review of the Aboriginal Heritage Management Practices at Northparkes and identify potential improvement opportunities for the community.

Works and initiatives undertaken by the WEC in the reporting period included:

- Feedback on selection of Northparkes Indigenous Scholarship recipients and encouragement of Indigenous employment
- Review of the planned modifications to the operations and therefore regulatory approvals
- Input into the rehabilitation planning process
- Planning to develop a cultural heritage training program for Northparkes' leaders
- Initiation of an Indigenous employment contract for onsite gardening with the Peak Hill Local Aboriginal Land Council
- Commenced a review of the working Agreement between Northparkes and the WEC.

# 7. WATER MANAGEMENT

Water management at Northparkes is undertaken in accordance with approved management plans, prepared generally in accordance with the Consent. The Water Management Plan (WMP) acts as the overarching document to govern water management at Northparkes. Approved subordinate plans supporting the WMP include:

- Surface Water Management Plan (SWMP)
- Groundwater Management Plan (GWMP) and
- Site Water Balance (SWB) report.

## 7.1 Surface Water

### *7.1.1 Surface Water Management*

Surface water is managed in accordance with the SWMP and associated water management plans which conform to the Consent, licenses and other regulatory requirements of Northparkes.

The primary objectives of water management at Northparkes is to manage dirty and contaminated catchment runoff, divert clean water around operational areas of the mine and to collect and store water for use on site to minimise the dependence on external water supplies. A critical component of the water management system is to maintain zero discharge of contaminated water into the surrounding environment.

The water management strategy includes the separation of clean, dirty and contaminated water, categorised as follows:

- **Clean water** includes surface runoff from areas not affected by mining operations and includes runoff from undisturbed areas, rehabilitated areas and water supplied by external sources. The clean water system includes diversion drains and farm dams (FD) surrounding the active mining areas in order to capture and divert clean water away from areas disturbed by mining operations.
- **Dirty water** includes sediment-laden runoff from disturbed areas, including rehabilitated waste rock stockpile areas, TSF embankments and surface infrastructure areas that are not associated with mineralized ore. Runoff from these areas is collected in sediment ponds (SP) to allow sediment to fall out of suspension.
- **Contaminated water** includes water associated with mining, ore processing and TSFs. Any potentially contaminated water is managed within retention ponds (RP), the Caloola Dams, E22 pit, surge dams and the process water dam to avoid discharge into surrounding watercourses and to maximise water reuse.

In accordance with the Consent, Northparkes maintains a Surface Water Balance (SWB) for effective management of water resources. The SWB details water use, water demand and water management, as well as the sources and security of water supply, including contingency for future reporting periods.

The following subsections describe surface water monitoring and environmental performance.

**Surface Water Monitoring Program**

Water quality monitoring is undertaken at Northparkes specifically within the three defined water management systems mentioned above.

The table below lists each monitoring location and their corresponding water management system.

**Table 21 Surface Water Quality Monitoring Location Catchments**

| Clean water management system | Dirty water management system | Contaminated water management system |
|---|---|---|
| **Upstream**<br>WC4. WC6, WC7, WC13, W14<br><br>**Downstream**<br>WC1, WC2, WC3, WC5, WC11 WC12, WC15, WC16<br><br>**Farm Dams**<br>FD04, FD05, FD06, FD07, FD11, FD12, FD16, FD18, FD25, FD26, FD27 | SP03, SP10, SP15, SP33 | RP01, RP02, RP03, RP04, RP05, RP06, RP07, RP08, RP09, RP12 RP13, RP15, RP16, RP19, RP20, RP21, RP22, RP23, RP24, RP25, RP26, RP27, RP28, RP32, RP34<br><br>Process Water Dam, Surge Dam 1 and 2, Caloola Storages |

The monitoring locations of watercourses and surface water storages are provided in Appendix 1. Table 22 identifies the specific analytical suites undertaken for each of the different water management systems.

**Table 22 Surface water monitoring program**

| Monitoring Locations | Frequency | Analytical Suite |
|---|---|---|
| Watercourses (clean water systems) | Quarterly | pH, EC, TSS, TDS, Cu, Na, K, Ca, Mg, Cl, $SO_4$, $HCO_3$, $CO_3$ |
| Farm Dams (clean water systems) | Quarterly | pH, EC, TSS, TDS, Cu, NA, K, Ca, Mg, Cl, $SO_4$, $HCO_3$, $CO_3$ |
| Sediment Ponds (dirty water management system) | Quarterly | pH, EC, TSS, TDS, Cu, NA, K, Ca, Mg, Cl, $SO_4$, $HCO_3$, $CO_3$ |
| Retention Ponds and Process water system (contaminated water management system) | Quarterly | pH, EC, Cu |
| | Annual | pH, EC, TSS, TDS, Na, K, Ca, Mg, Cl, $SO_4$, $HCO_3$, $CO_3$, Al, As, Ba, Be, Cd, Co, Cu, Cr, Mo, Mn, Ni, Pb, Se, Th, U, Zn |

The monitoring of watercourse stability is to identify potential changes on bank stability. Records are made, including comments regarding bed and bank condition. Photographs may also be taken to provide a record on the status of the watercourse.

**Table 23 Watercourse stability monitoring program**

| Location | Frequency | Assessment Requirements |
|---|---|---|
| WC01, WC02, WC03, WC04, WC05, WC06, WC07, WC11, WC12, WC13, WC14, WC15, WC16 | Following significant rainfall events | Visual assessment of channel form, presence of instabilities in watercourse banks or in crossing structure (bridge/culvert). |

Northparkes uses a handheld multi-parameter water quality probe (pH, electrical conductivity (EC), temperature). All water quality samples requiring lab analysis are collected by a suitably qualified employee and sent to a NATA accredited laboratory for processing.

The existing monitoring program is subject to periodic review and as such will evolve with the continual development of Northparkes water management system.

**Surface Water Quality Criteria**

Surface water quality criteria use a two-stage water quality trigger system based on the statistical analysis of the existing available water quality data. The current WMP Stage 1 and Stage 2 trigger values, as well as livestock water quality guidelines were taken into consideration when developing and updating the site water quality trigger levels.

### *7.1.2 Surface Water Performance*

There were no non-compliances related to surface water management recorded during the reporting period. All storages show trends that are generally within historical ranges of all parameters. All quarterly monitoring events were carried out successfully and within the scheduled period.

**Surface Water Quality**

Samples were able to be taken at all locations during the period at least once. Due to the nature of the ephemeral streams, water courses may not be flowing or have insufficient water at time of sampling, with the exception of WC12. WC12 is located along the Bogan River and seldom goes dry unless in severe drought. FD12 was also dry for most of the period.

***Watercourses***

All water courses except WC13 and WC14 were tested at least once during the period. pH and zinc levels slightly increased and reached both stage 1 and stage 2 trigger levels at some locations. Northparkes will continue to monitor and assess local water courses to ensure there are no detrimental mine related impacts to the local environment.

***Farm Dams***

Farm dam results for all parameters remained in line with historical data, with the exception of FD18 which continues to record elevated electrical conductivity. Since the commencement of monitoring FD18, EC values have averaged 2,506µS/cm, higher than the Stage 1 trigger value of 2,133µS/cm. While trigger levels were reviewed the EC levels for farm dams stayed the same.

***Retention Ponds***

Process water monitoring locations (retention ponds) fluctuated throughout the year although still remain within long-term historical data across pH, electrical conductivity and dissolved copper. RP16, RP20 and SD1 and 2 continued to have elevated EC results above the Stage 1 internal trigger level during the year. These results are consistent with that of the contaminated water system. In 2024, RP04 had increased results in a number of concentrations due to a tailings pipe break near the facility. Results are starting to return to normal during the Oct-December quarter.

At the end of 2024, two retention ponds were removed from the program due to the start of the construction of the TSF Infill Extension project.

***Sediment Ponds***

Sediment pond locations recorded pH, electrical conductivity and dissolved copper results in line with long-term historical data. EC levels dropped at SP03 from the previous year, leaving the results under the Stage 1 trigger. SP10 zinc results increased to Stage 2 Trigger levels by the Oct-Dec quarter. This will continue to be monitored in 2025.

The monitoring results were predominantly in line with or below historical data and representative of the regional freshwater quality characteristics. The monitoring results are available in Appendix 1.

### *7.1.3 Surface Water Improvements and Initiatives*

Catchment reduction investigations were undertaken for E31s area to reduce capacity requirements of ponds and relieve pressure of existing systems.

Within the next reporting period, Northparkes is looking to review the E22 surface water layout to prevent water ingress to the void whilst dewatering is occurring in preparation for the block cave. As part of Infill TSF project, construction on a new water storage (known as Altona) to the east of site will be started.

## 7.2 Groundwater

### *7.2.1 Groundwater Management*

Groundwater is managed in accordance with the approved GWMP. The GWMP provides a framework defining how Northparkes will assess, manage and mitigate impacts to the groundwater system. This particularly focuses on impacts to the shallow alluvial aquifer as a result of mining activities such as dewatering the open pit void and underground operations. There was minimal to no groundwater inflow to the E31s open pit voids. Water was pumped out following rainfall events.

The GWMP specifies impact assessment criteria and trigger levels to identify groundwater level and quality changes, and outlines Northparkes monitoring and reporting requirements for groundwater management.

### Groundwater Monitoring Program

Northparkes groundwater monitoring program aims to identify any changes to the natural groundwater system as a result of mining operations and ensure compliance with the Consent. It focuses on potential impacts to environmental assets and groundwater users in the area surrounding Northparkes.

The monitoring program undertaken during the reporting period included:

- Quarterly monitoring of groundwater levels and
- Quarterly laboratory groundwater quality analysis.

During the reporting period the active groundwater monitoring network comprised 40 monitoring bores located across different geographical areas, including 12 surrounding the tailing storage facilities, 12 surrounding the open cut voids, 11 associated with the underground operations and five regional bores on neighbouring properties. Monitoring details for these bores are listed in Table 24 and Table 25 and their respective locations are shown in Appendix 1.

At the end of 2024, six monitoring bores were closed off and removed from the program in preparation for the construction of the Infill Extension TSF project.

**Table 24 Groundwater Monitoring networks**

| TSF Bores | Opencut Bores | Underground Bores | Regional |
|---|---|---|---|
| MB01, MB02, MB03, MB05, MB06B, W26, W27, W28, W29, W30, W31, W32 | MB10, MB11, MB12, MB13, MB14, MB16, W14, W19, W20, W21, W22, W23, W24, W25, W33, W34<br>MB16 collapsed and could no longer be monitored, W14, W22, W23, W26, W27 and MB16 were closed off and removed from the program in preparation for the construction of the Infill Extension TSF project. (W33 and W34 installed in 2024 to replace EPL bores W14 and W23). | MB17, MB18, MB19, MB20, P101, P102, P103, P104, P139, P145, P149 | Far Hilliers, Moss, Wright, Long Paddock, South Hilliers |

**Table 25 Groundwater monitoring program**

| Monitoring Locations | Frequency | Analytical Suite |
|---|---|---|
| TSF Bores, Open cut Bores, Underground Bores, Regional Bores | Quarterly | Water level, pH, EC, total dissolved solids, hydroxide alkalinity, carbonate alkalinity, bicarbonate alkalinity, total alkalinity, sulphate, chloride, calcium, magnesium, sodium, potassium, aluminium, antimony, arsenic, beryllium, barium, cadmium, chromium, cobalt, copper, lead, manganese, molybdenum, nickel, selenium, zinc, nitrate, strontium, thallium, thorium, uranium, iron and mercury. |

### Groundwater Quality Criteria

2024 saw the introduction of the new trigger levels that were developed by independent consultant. The change in trigger levels were developed to assist in identifying and appropriately managing potential groundwater impacts based on historical monitoring data available from the groundwater monitoring network. Northparkes has developed groundwater levels and quality criteria for each bore where there is sufficient data available.

## *7.2.2 Groundwater Performance*

There were no non-compliances related to groundwater management recorded during the reporting period. All bores show trends that are generally within historical ranges of all parameters. Quarterly monitoring events were carried out successfully and within the scheduled period.

**Groundwater Quality**

***TSF Bores***

The groundwater monitoring results were predominantly in-line with historical long-term data. The electrical conductivity, pH and dissolved copper levels of all bores remained in line with the previous reporting period and long-term averages.

***Open Cut Bores***

Open cut monitoring bore MB11 was not sampled during the reporting period and hasn't been sampled since the quarter April - June 2016 due to it being dry. Likewise, foreign material at water level is preventing MB12 from being sampled (last sampled quarter January – March 2018).

Electrical conductivity at monitoring bores W19 and W21 has continued increasing during the reporting period. These points will continue to be closely monitored. All other readings are largely in line with historical data. There were no significant changes to copper or pH levels.

***Underground Bores***

All bores monitoring the underground areas are generally in line with historical data and below internal trigger values. The electrical conductivity of MB18 has slightly increased above the internal trigger level, and long term averages. There has been no sources of contamination nearby and the water level is stable showing no influence from E48 subsidence zone. Northparkes will continue to monitor the results. There were no significant changes to copper or pH levels.

***Regional Bores***

Regional ground water quality remained similar to the previous reporting period and in-line with the long-term averages. Groundwater pH, copper concentration and electrical conductivity at each regional bore were generally consistent with previous monitoring periods. pH results at Wright have reduced back to levels consistent with long-term data.

The groundwater monitoring results were predominantly in-line with historical long-term average data, and consistent with the EA predictions. The monitoring results are presented in Appendix 1.

**Groundwater Levels**

Quarterly monitoring of groundwater levels is undertaken by suitably qualified Northparkes personnel in accordance with the approved GWMP. Throughout 2024, and over the last 10 years, groundwater levels have displayed a consistent upward trend at all monitoring bores. Changes in rainfall over the past decade may have effects on local water quality variability. Groundwater levels remained below internal trigger values set in the WMP.

### *7.2.3 Improvements and Initiatives*

During the next reporting periods, Northparkes will continue to update the Groundwater model as part of future approvals Environmental Assessment. As part of this update, all groundwater data will be reviewed for trends which may also result in a reduction in monitoring locations or frequency.

## 7.3 Water Balance

Northparkes has utilised the onsite water supply to maximise recycle water supply and minimise the use of raw water as much as reasonably practicable during the period. The demand on fresh water varies according to milled tonnage rates and environmental conditions along with constraints on recycle water pumping infrastructure. The Goldsim water model is being updated to reflect new tailings facilities and higher throughput rates to manage the water supply through future years.

In reviewing the mine water balance for the reporting period, the following is of note:

- A total rainfall of 725.6mm was recorded at the onsite weather station during the reporting period. The rainfall received during the reporting period was 107.3mm above the long-term average for the region (618.3mm),
- The volume of freshwater imported to site was slightly lower than the previous reporting period (1,881ML in 2023) as a result of the utilisation of onsite water stocks. All water imported to site was from groundwater and surface water licence allocations owned by Northparkes or through a commercial arrangement with Parkes Shire Council, as shown in Table 26

- Total water usage was less than the previous reporting period (6,848ML in 2023)
- Recycled water use remained at approximately 66% of all water use during the period.

Details of Northparkes water balance for the reporting period are outlined in the table below.

**Table 26 Reporting period water balance**

| Water Balance | Total (ML) |
|---|---|
| Total Water Input from external sources | 1,776 |
| Recycled onsite water | 4,967 |
| **Water Use** | **6,743** |

### *7.3.1 Surface Water Storage*

Water is essential in the processing of ore through the concentrator to produce copper concentrate. Effective water management is therefore crucial to the long-term success of Northparkes. A summary of the major water storage volumes at the beginning of the five most recent reporting periods are provided in Table 27.

**Table 27 Major Water Storages**

| Major Storage Volumes (ML) | 01/01/2021 | 01/01/2022 | 01/01/2023 | 01/01/2024 | 01/01/2025 |
|---|---|---|---|---|---|
| Caloola North | 326 | 425 | 500 | 353 | 219 |
| Caloola South | 427 | 504 | 570 | 256 | 216 |
| E22 Void | 575 | 917 | 2,858 | 3,089 | 2,965 |
| Process Water Dam (PWD) | 180 | 190 | 166 | 132 | 150 |
| RP09 | 60 | 60 | 50 | 60 | 60 |
| Other Infrastructure | - | 200 | 440 | 340 | 190 |
| **TOTAL** | 1,538 | 2,296 | 4,584 | 4,230 | 3,800 |

Water storage levels of all active sediment ponds, retention ponds and process water dams are monitored and recorded periodically. This allows for effective management of stored supplies in terms of consumption, avoidance of potential discharges and infrastructure planning.

Onsite water storages are heavily dictated by surface water inflows. Fluctuating rainfall adds further emphasis on the need to conserve, protect and recycle water resources. Northparkes continually looks to optimise water use and investigate opportunities to operate more efficiently to manage water impact responsibly.

## 7.4 Water Supply

Northparkes sources water from numerous locations including imported water from various licences (see Table 4 Summary of Licences).

Water recycled from the on-site ore processing facility and TSF reclamation system is collected through existing on-site infrastructure.

Effective water management is crucial to the long-term success of Northparkes operations as it is essential in the processing of ore through the concentrator to produce copper concentrate. The water management system aims to efficiently and economically collect, store and re-use water onsite to minimise external water supply inputs and supplement supply during periods of high consumption.

In accordance with its licences and the Consent, Northparkes:

- accesses groundwater from the Lachlan Alluvial Water Sources
- holds water entitlements for surface water extraction from the Lachlan River
- can trade additional water to make up shortfalls or sell any excess water in a reporting period
- uses existing water entitlements to supplement demand.

The water supplied by Northparkes licenses for mining activities during the 2024 water reporting period is detailed in Table 28.

**Table 28 Mine Water Entitlements and Use**

| Water Licence | Water sharing plan, source and management zone | Licenced Volume (ML) | Passive take/ inflows | Active Pumping | Total (ML) |
|---|---|---|---|---|---|
| WAL43208 | Lachlan River Water Sharing Plan Lachlan River Regulated River Water Source (High Security) | 1305 | 0 | Yes | 753 |
| WAL43207 | Lachlan River Water Sharing Plan Lachlan River Regulated River Water Source (General Security) | 3463 | 0 | No | 0 |
| WAL34955 | Lachlan River, Water Sharing Plan NSW Murray Darling Basin Fractured Rock Groundwater Sources | 232 | <10 | No | <10 |
| WAL32138 | Lachlan River, Water Sharing Plan Lachlan Unregulated and Alluvial Water Sources | 1110 | 0 | No | 0 |
| WAL32120 | | 1050 | 0 | Yes | 226 |
| WAL32004 | | 1600 | 0 | Yes | 590 |
| WAL31969 | | 1728 | 0 | No | 0 |
| WAL31963 | | 700 | 0 | No | 0 |
| WAL31930 | | 600 | 0 | No | 0 |
| WAL31863* | | 534 | 0 | No | 0 |
| WAL31850 | | 500 | 0 | No | 0 |

*Property sold in 2024

Core water demand during the reporting period was for ore processing. Small quantities of water were also required for dust suppression, vehicle wash down and potable water uses. Table 29 outlines future estimated water volumes as described in the EA (Umwelt, 2013). Water demand predictions were initially provided in the EA and have remained unchanged through subsequent project modifications.

**Table 29 Predicted Water Demand**

| Water Source | Current Approved Operations (ML) |
|---|---|
| External | 4,350 |
| Recycled | 2,091 |
| Surface Water Runoff | 523 |
| Groundwater | 290 |
| Total | 7,254 |

# 8. REHABILITATION

Northparkes owns and manages approximately 10,000ha of land within and surrounding the mine leases. This area supports a range of land uses including mining, exploration, crop production, grazing and habitat re-establishment.

Rehabilitation activities incorporate the entire landholding in order to enhance the regional landscape and native habitat values. The Rehabilitation Strategy is described in Sections 2.0 and 3.0 of Appendix 4 of the EA. The State and Commonwealth approvals require rehabilitation to be generally consistent with the Rehabilitation Strategy (i.e. Schedule 3, Condition 39 of the Consent).

The Rehabilitation Management Plan (RMP) was prepared to guide the ongoing management of the sites progressive rehabilitation, to ensure integration with the surrounding Northparkes owned land, and is managed with the view of enhancing the regional landscape and native habitats.

## 8.1 Post Mining Land Use

Northparkes is committed to developing a stable landform that is capable of supporting sustainable ecosystems and enables sustainable land use after the completion of mining operations at Northparkes.

The agreed final land use as stated in the Consent includes the following:

- Agricultural land use
- Native vegetation and
- Restricted land use.

## 8.2 Landform Establishment

### *8.2.1 TSF1 Final Landform*

During 2019, discharge of tailings using the central discharge method was undertaken to assist the final formation of TSF1. This method creates a self-draining final landform that assists with closure of the facility. The central discharge requires the deposition of tailings in thin layers to enable drying. As such, the tailings discharge will continue to occur over several years.

Deposition of tailings on TSF1 has slowed whilst investigation studies into increased height (Section 8.2.2) of TSFs is completed.

### *8.2.2 Consolidated Northern TSF Investigations*

With the construction of Infill TSF extension planned to start in 2025, an integrated tailings footprint will exist from TSF1, TSF2, Estcourt, Infill and Rosedale. With the potential for increasing throughput rates later in the life of mine, larger TSFs may be required. Instead of creating new TSFs in the future, the consolidation and combined increased height of some or all of these TSFs is being investigated. A range of design options are being considered. To deposit into a consolidated TSF, the final approved height may need be raised and the final landform altered.

### *8.2.3 Mining Void Tailings Investigations*

Studies investigating the filling of E31 and E31N open cut voids with tailings were carried out in 2024. The E31 and E31N in-pit tailings is essential for the potential future Rocklands TSF. Filling voids with tailings is desired for the final landform as it reduces ongoing safety risks and provides increased tailings storage capacity. During the next reporting period, regulatory approval for E31 and E31N in-pit depositions will be sought through Modification 13.

### *8.2.4 Tailings Construction Materials*

To reduce ongoing final landform and material balance risks, in 2022 and 2023 Northparkes trialled the use cyclones to separate course and fine tailings particles as tailings is deposited into the TSF. In 2023 the trial moved into implementation with cyclone deposition occurring in the Rosedale TSF. The coarse tailings particles are being used as the construction material for the upstream, on beach, portion of the future lifts.

Upstream cyclone use is being considered to be used in other TSFs, such as the extension of Infill TSF.

The use of coarse cyclone tailings for upstream raises is unlikely to significantly reduce the volume of waste rock used for the downstream buttresses for TSF construction compared to previous Northparkes construction volumes.

## 8.3 Growth Medium Development

Growth medium was placed on the eastern embankment of TSF2 during the previous reporting period. This material was sourced from the cover that was on the east embankment prior to it being reshaped. Additional volume was also sourced from the E31 mining area as part of the overburden stripping process.

## 8.4 Ecosystem Development and Establishment

### *8.4.1 E22 Waste Rock Batter*

A small area on the western batter of the rehabilitated E22 waste rock emplacement had erosion repairs carried out in 2021. The area was reshaped, with erosion gutters and benches removed to create a consistent gradient. Growth medium was sourced immediately below the area from a rehabilitation stockpile that was against the Sediment Pond 3 embankment.

The vegetation cover is continuing to establish with a mix of native and exotic species (Figure 30).


**Figure 30 E22 waste rock batter rehabilitation repairs from 2020 to 2024**

## 8.5 Research and Rehabilitation Trials

### *8.5.1 TSF1 Trial Plots*

Four trial plots of 20m x 20m have been within the southwest corner of TSF1, separated from active deposition, since 2008. Each plot has different levels and layers of cover over the tailings.

**Table 30 TSF1 capping trial design specifications**

| Design | Plot A | Plot B | Plot C | Plot D |
|---|---|---|---|---|
| | No specific cover | Shallow cover | Shallow cover with capillary break | Standard cover |
| Topsoil [m] | 0.1 | 0.1 | 0.1 | 0.1 |
| Waste rock [m] | -- | 0.4 | 0.4 | 0.9 |
| Capillary break [m] | -- | -- | 0.3 | -- |
| Total trial depth [m] | 0.1 | 0.5 | 0.8 | 1 |

Modelling of the water balance for various cover design scenarios showed that for the climatic conditions of Northparkes, the contribution of vegetation to extract moisture from the cover could greatly improve the performance. The maximum depth from which upward water flow, caused by evaporation, has been derived from modelling is approximately 1.8m to 2m. This depth would ensure avoidance of surface salt accumulation. In case of shortcomings of topsoil or other fine textured material, upward flow from a saline subsurface layer can be interrupted by a capillary break layer, consisting of coarse competent rock, which would allow a reduction of the cover thickness.

The plots have not seen the impact of salts within the cover material, with vegetation cover consistently higher on Plot A.

Drone photos have been taken of the trial plots from 2019 onwards to assist in monitoring the differences between groundcover percentage and indicate species diversity between each plot across the reporting years (Figure 31 TSF1 trial plot groundcover comparison from 2019 to 2024). Plot A continued to maintain the highest percentage of groundcover and higher contribution to cover from perennial grasses.

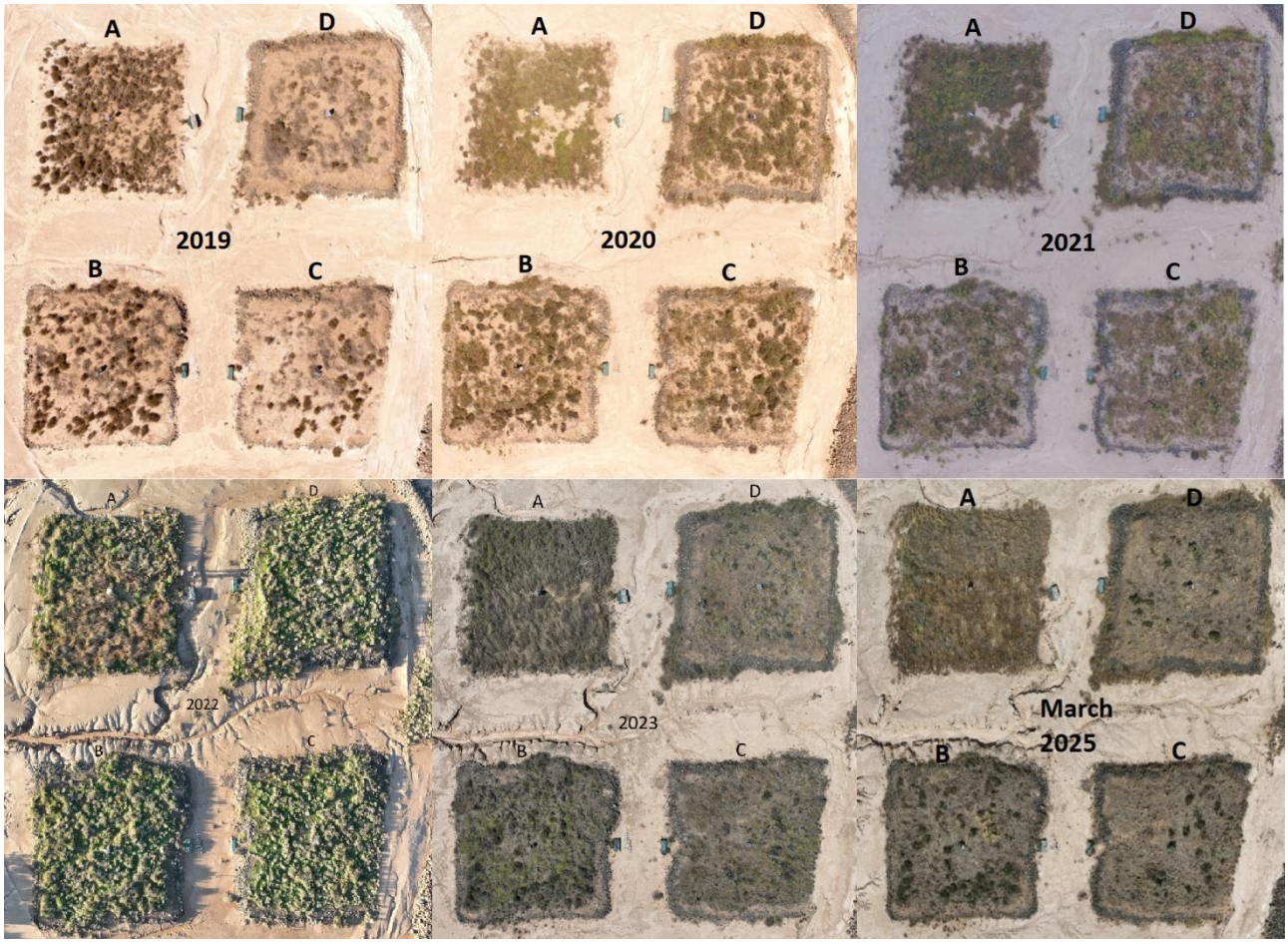



**Figure 31 TSF1 trial plot groundcover comparison from 2019 to 2024**

An external ecologist assessed the vegetation cover across the four TSF1 trial plots in October 2024 and compared the results to their August 2019 assessment. Figure 31 shows the changes in ground cover provided by living plants across each of the plots. The percentage of living groundcover was consistent across the four plots in 2024. This is believed to be the result of favourable growing prior to the survey.

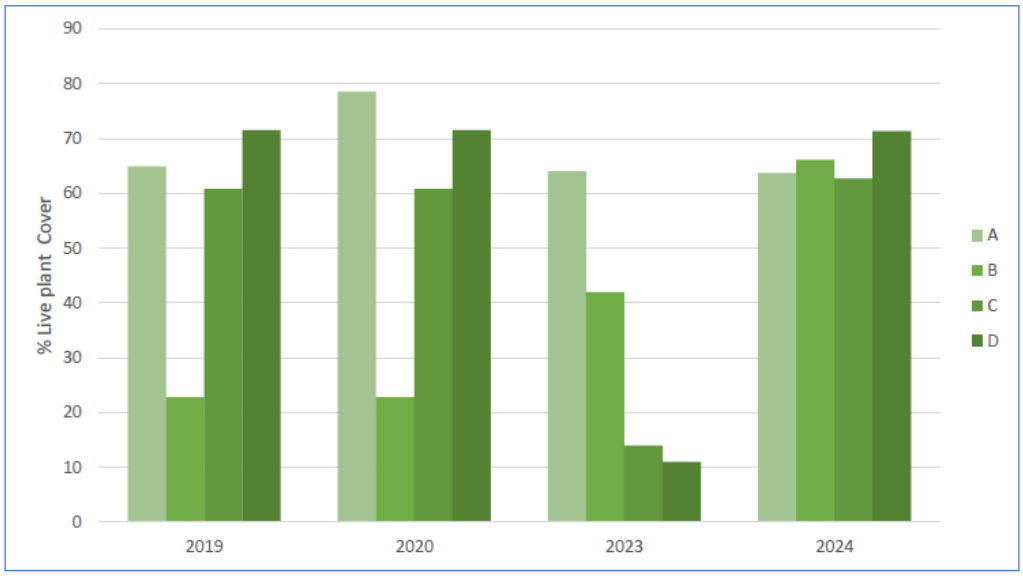



**Figure 32 Percentage live plant cover recorded for TSF1 trial plots (2019 to 2024)**

The percentage of groundcover provided by native plants was compared across the different assessment years Figure 33. Plot A (0.1m topsoil) has maintained the highest percentage of native groundcover across the assessment period, however there were more exotic species this year compared to previous. It is understood that all plots had the same seeding treatment, indicating that the variability in native groundcover is likely to be influenced by water availability being lower with waste rock depth.

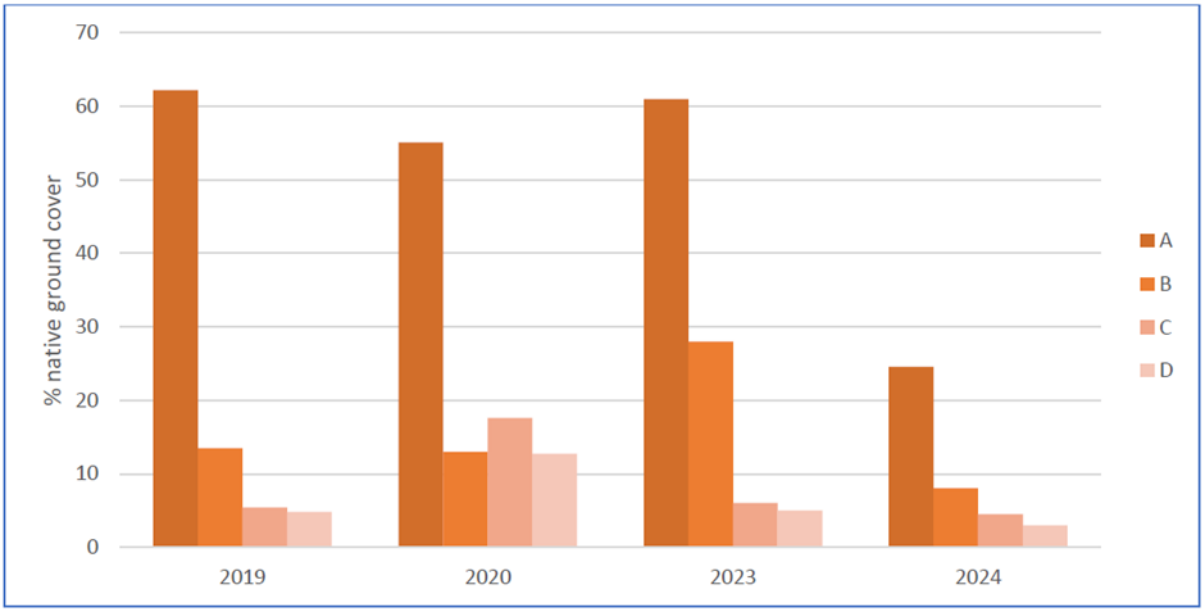



**Figure 33 Percentage groundcover provided by Native Plants for TSF1 trial plots**

### *8.5.2 TSF2 Direct Revegetation*

Since 2015, a range of projects have been carried out on the existing TSFs to reduce potential dust lift off. The establishment of vegetation directly onto tailings has not only proven to be an effective dust control strategy but has demonstrated vegetation establishment directly within the saline tailings surface is possible.

The ongoing success of vegetation species establishing directly in the TSF2 tailings has initiated a multi-year study into the potential for the tailings material to be used as a growth medium for long term rehabilitation.

During the reporting period SGM Environmental conducted further research into TSF2 direct revegetation. Some conclusions from the study can be summarised as:

- Salt bush rooting depth is approximately 1m and perennial grasses >0.4m (Figure 34), proving that the tailings is acting as a growth medium
- Addition of organic matter on the surface or incorporated into the tailings increases revegetation success
- Tailings geochemistry is not limiting vegetation growth

In November 2023, as part of Modification 10, Northparkes was approved to use biosolids on the surface of TSF2 to enhance the established vegetation. Biosolids is planned to be spread during the 2025 reporting period to provide both a nutrient improvement, but equally important, a boost in microbes to the tailings profile.

**Figure 34 Perennial grass rooting depth in TSF2 tailings profile**

### *8.5.3 Rehabilitation Notice Directions*

In October 2024 Northparkes responded to the notice from the NSW Resources Regulator containing three directives relating to tailings closure design. A summary of the three directions and the responses are included below:

1. *Modelled assessment of longer-term erosional stability of TSF landforms*

   A digital elevation model was created to determine erosion risks to the TSF landforms. Outcomes from the study showed that the embankments can be covered with either waste rock alone or a 0.1m 50:50 soil:waste rock blend.

2. *Studies to support the TSF capping planned for closure*

   The assessment was based on results from the various long term TSF1 and TSF2 rehabilitation works. The study concluded that the tailings beach and embankments should have a 0.1m cover of soil:waste rock blend, however the tailings beach is also able to have direct seeding into the tailings or a 0.1m addition of organic matter instead of soil. This study supports Northparkes' understanding of the capping design for TSFs.

   Based on the outcomes from the cover studies, it was confirmed that there is adequate material inventories.

3. *Update the rehabilitation risk assessment including the outcomes from directions 1 & 2.*

   A two-day risk assessment was facilitated by a third party, Umwelt, in October 2024. The assessment included the representatives from the tailing's operations, tailings designs and tailings construction projects.

   Total of 55 rehabilitation risks were assessed, with two being ranked as high. The two high rated risks related to:

   - a breach of tailings embankment resulting in a release to the environment
   - Ongoing settlement of the E27 open cut portion of Estcourt TSF

## 8.6 Rehabilitation Status

The areas rehabilitated to date include the E26 Oxide Dump, E26 Lift 1 Mullock Dump and waste rock dumps surrounding the E22 pit. None of these rehabilitated areas have been signed-off as final by regulators.

In 2009, DnA Environmental established monitoring sites which included mixed woodland and native grassland reference sites. These monitoring sites are assessed on a three-year basis, with the latest monitoring being carried out in the 2023 reporting period across 16 rehabilitation sites and seven reference sites.

All reference sites have been subjected to some prior form of disturbance, in particular clearing, logging and grazing and some sites were likely to be older regrowth. Exotic annual grasses and a range of other agricultural weeds such were also common.

The rehabilitation monitoring sites occur on various waste emplacements and on the TSF embankments. Some sites were also established in revegetation areas located around the farming properties as well in the Limestone Forest area. As discussed above, separate monitoring reports are prepared to record ecological changes occurring in the Estcourt and Kokoda Offset Areas. The monitoring sites were chosen based on their final land use/vegetation community type and year of establishment and were considered to be representative of the rehabilitation area as a whole.

Due to the disturbance on the TSF2 East Embankment (Section 8.3) and the E22 batter (Section 8.4.1), the two associated monitoring sites were restarted in 2023 with new monitoring locations with low levels of functional patch areas currently. Older monitoring sites, such as E26 and E27 have developed well with patch areas remaining relatively high.

There are no current or foreseeable issues that may affect the ability to successfully rehabilitate the site. Table 31 Rehabilitation Status

and Figure 33 Percentage groundcover provided by Native Plants for TSF1 trial plots

provides the status of disturbance and rehabilitation as per '*Table 8*' of the guidelines.

**Table 31 Rehabilitation Status**

| Mine Area Type | 2023 Reporting Period (Previous) | 2024 Reporting Period (Actual) | 2025 Reporting Period (Forecast) |
|---|---|---|---|
| Total Mine Footprint | 1,386 | 1396 | 1416 |
| Total active disturbance | 1,177 | 1186 | 1206 |
| Land being prepared for rehabilitation | 158 | 158 | 158 |
| Land under active rehabilitation | 52 | 52 | 52 |
| Completed Rehabilitation | 0 | 0 | 0 |

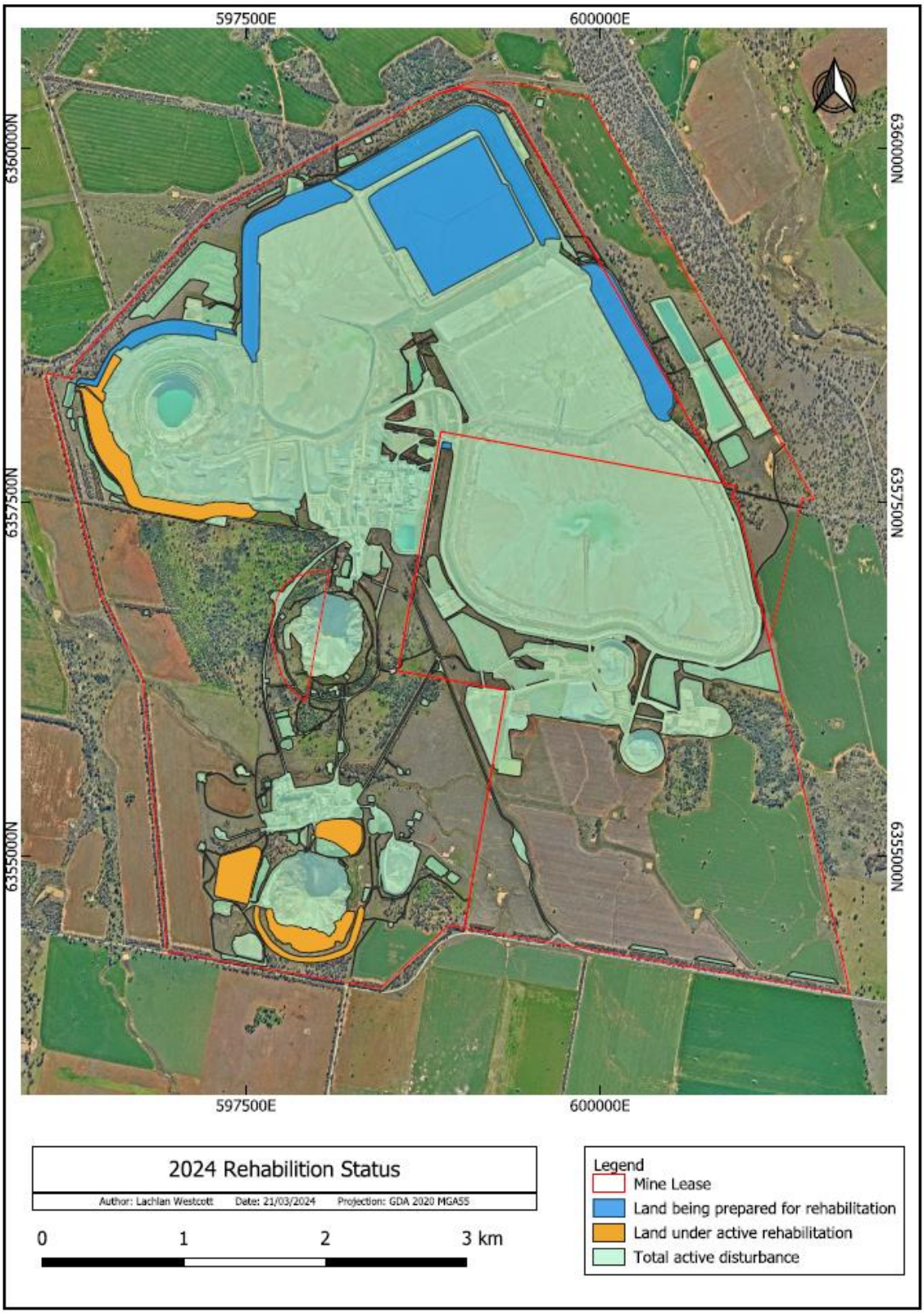



**Figure 35 Rehabilitation status**

## 8.7 Rehabilitation Actions for the next Reporting Period

As per the commitments within the Forward Program, the following rehabilitation activities will be carried out:

- The ongoing monitoring of the established tailings cover trial plots on TSF1 will continue, which is detailed within Section 8.5.1
- Continued research into the vegetation established directly into the tailings, which is detailed within Section 8.5.2
- Research into various opportunities to modify the final tailings landforms will continue
- Work with the Resources Regulator regarding their conclusions to Northparkes response to the directions (Section 8.5.3).

# 9. COMMUNITY RELATIONS

## 9.1 Reporting Period Summary

The Stakeholder Communications Management Plan (the Plan) guides Northparkes relationship with the community in which it is licensed to operate. The Plan aims to address the various and, at times, diverse needs of Northparkes stakeholders, employees, community and government. During 2024 Northparkes:

- Continued to build stakeholder relationships
- Worked closely with the community and proactively participated in community initiatives
- Invested in the future of the community through community contributions, strategic partnerships, and scholarship programs and
- Recognises the importance of positive relations with its community and takes this into account in the operation of its business and the decisions made.

## 9.2 Community Engagement

Northparkes engages directly and regularly with the local community to both understand community issues and to keep the community updated about activities relating to the operations.

The Northparkes Community Consultative Committee (CCC) was established in 2006. The CCC provides an open forum to discuss any issues relating to Northparkes and its impact on the local community. The CCC comprises an independent chairperson, several local council and community members and Northparkes personnel. Two meetings were held in the reporting period in March, and October 2024. The primary topics covered within the period related to regulatory environmental approvals being sought from the Department of Planning. A range of considerations were discussed, however no significant issues were raised during the meetings held with the CCC during the reporting period.

Northparkes hosts formal meetings open to neighbours twice a year and meets with many neighbours individually throughout the year. During 2024, formal meetings were held in March and October at Adavale Hall.

The Northparkes Facebook and LinkedIn page were used actively as a two-way communication channel by both Northparkes and the community during the reporting period. The Northparkes Facebook Page has over 5,000 followers and LinkedIn has over 10,000 followers.

Additional engagement and communication with neighbours were undertaken on a scheduled and as required basis, with the commencement of surface blasting in the E31 zone. Neighbours received scheduled text messages 24 hours prior to the blast, and any updates if the schedule changed. The Evolution Mining website was also used to communicate blasting times and additional information to the community.

The Northparkes Environment Team distributes an internal weekly weather assessment. If there is a high-risk dust day, the Community and Engagement Team contact any neighbour who may be potentially impacted. The messaging includes information about the expected high-risk day and any mitigating actions Northparkes plans to take, as well as the invitation to call the Community and Engagement Specialist if people have concerns or questions.

## 9.3 Contributions and Achievements

In 2024 Northparkes celebrated 30 years of operations. To mark this significant milestone a free festival was held in the town of Parkes. The Cheers to 30 Years Festival was the biggest stand-alone event in Cooke Park, Parkes ever. Over 8000 people came from all over NSW to attend the event which was headlined by Daryl Braithwaite, supported by local act Foxxy Cleopatra and Indigenous solo artist Isaac Compton. The event also won the 2024 Parkes Shire Council Community Event of the Year Award.


**Figure 36 30 year concert in the park**


**Figure 37 Parkes Shire Council Community Event of the Year Award**

Northparkes also has a Community Investment Program to manage financial support for local community events, committees and schools. An independent sub-committee helps Northparkes make decisions regarding sponsorship requests from the local community, as part of the program.

In 2024, Northparkes continued to provide financial assistance to local organisations that deliver benefits to the community investing in various sporting, educational, cultural, industry, environmental and agricultural programs through on-going partnerships and larger one-off support.

The major initiatives in the reporting period included:

- Funding a Grants Officer Program in conjunction with Parkes Shire Council
- Funding for an Aboriginal Project Officer in conjunction with Parkes Shire Council
- A Sports Grant Program and Rising Star Program with the Parkes Shire Council
- Supporting education through the Parkes Life Education Program
- Supporting children's developmental and early intervention for health through the Sprouts Program
- Supporting arts through sponsorship of the Frost and Fire Festival.

## 9.4 Complaints

### *9.4.1 Management of Complaints*

Northparkes has a process for receiving, investigating, responding and reporting complaints received from community members. 24-hour external telephone lines are in place to allow the public to raise community concerns. These contact numbers are advertised on the Evolution Mining website.

Registered neighbours received an updated magnetised contact list including all relevant contact numbers of Northparkes personnel.

The Evolution Mining website provides information about all aspects operations and has the capacity for the community to submit enquiries, concerns or complaints via e-mail direct to the Community and Engagement Advisor.

All complaints received across site are referred to the Communications and Engagement team and are responded to in a professional and timely manner. All complaints are recorded, with the outcomes of investigation findings and corrective actions communicated to the relevant personnel and reported in the Annual Review.

### *9.4.2 Registered Community Complaints*

During the reporting period, one community complaint was received during November 2024 in relation to the declining health of eucalyptus trees on their property. The complainant considered that the decline in some eucalyptus on their property was due to fumes or dust from Northparkes operations. The complaint was raised both to the EPA and directly to Northparkes. The outcomes from the investigation determined that patches of eucalyptus die back were occurring across the Central West of NSW and there was no link to Northparkes operations.

Monthly summaries of complaints are made publicly available on the Evolution Mining website.

## 9.5 Workforce Profile

Wherever possible, Northparkes and its contractors employ local personnel. The team consists of 427 staff, with majority locally based.

An updated human resources system has made it easier for employees to update address after relocation which has provided a more accurate snapshot of employee addresses. A breakdown of the local government areas where employees reside is presented in Table 32.

**Table 32 Residential Locality of Employees**

| Locality | Employee Residency (%) |
|---|---|
| Parkes | 70% |
| Forbes | 14% |
| Dubbo | 2% |
| Orange | 2% |
| Peak Hill | 2% |
| Other | 10% |

# 10. INDEPENDENT ENVIRONMENTAL AUDIT

As required by Schedule 6, Condition 9 and 10 of the Consent, Northparkes are required to undertake an independent environmental audit every three years. Ken Holmes from Barnett & May was approved as the Accredited Lead Auditor by DPHI and attended site on 21 and 22 May 2024. The next independent audit is scheduled for May 2027. The audit covered the period from 30 June 2021 to 22 May 2024 and a summary of compliance with pre-operations statutory requirements is provided in Table 33. The number of conditions include sub-clauses within each approval document.

**Table 33 Summary of Statutory Compliance**

| Approval/Licence | No. of Conditions | Compliant | Non-compliant | Noted | n/a or not triggered |
|---|---|---|---|---|---|
| PA 11_0060 | 169 | 138 | 1 | 9 | 21 |
| EPL 4784 | 47 | 30 | 0 | 10 | 7 |
| Mining Lease Standard Conditions | 97 | 48 | 1 | 33 | 15 |
| Mining Leases<br>1247<br>1367<br>1641<br>1743 | 16 | 8 | 0 | 5 | 3 |

| No. | Condition | Observation | Recommendation | Risk Level |
|---|---|---|---|---|
| **Project Approval 11_0060** | | | | |
| S3 C7 | The Proponent must only carry out surface blasting on site between 9 am and 5 pm Monday to Saturday inclusive. No blasting is allowed on Sundays, public holidays, or at any other time without the written approval of the Secretary. | On Thursday 30 November, the E31S blast was recorded as being fired at 5.01.19 pm – 1 minute and 19 seconds outside of the permitted period defined in the Consent (DC 11_0060) (Schedule 3 Condition 7). Northparkes reported this non-compliance to the Department of Planning. | The incident has been investigated and appropriate action taken. No further action required. | Low |
| **MINING LEASE STANDARD CONDITIONS** | | | | |
| D4 C19 | The holder of the mining lease must give written notice to the Secretary of—<br>the full name and contact details of the nominated person—within 28 days after the date on which the standard conditions apply to the mining lease under clause 31A of this Regulation, and | The notification of contact person was outside of the initial 28-day period required by Condition D4 C19. | Ensure that submissions to the RR meet the timelines required by the Mining Lease Standard Conditions. | Administrative non-compliance |

**Figure 38 Non-conformance results between 30 June 2021 and 22 May 2024**

Further details related to the audit can be found on the Evolution Mining website.

# 11. INCIDENTS AND NON-COMPLIANCES

## 11.1 Non-compliances during the reporting period

As stated within Section 1, there was one non-compliance recorded for the 2024 reporting period.

### *11.1.1 Particulate matter exceeded 24 hour criterion*

On 31 October, the PM10 monitoring station at Hubberstone recorded an elevated result above the 24 hour criterion. During the day Northparkes had received telephone calls from neighbours, and alerts on the real time monitors, that there was dust leaving site. The investigation identified the wind speed from the south-west was considerably higher than what was predicted in the weekly assessment. The dust controls implemented for 31 October were for the predicted lower wind speed. Northparkes self-reported to the Department of Planning and made a curtesy call to the EPA. The neighbours were notified by text message. This event was a non-compliance to the air quality criterion with no harm to the environment occurring.

## 11.2 Summary Environmental Incidents

During 2024 there were 9 internally reported events entered into INX-InControl, with an environmental component, reported across different event types and event outcomes. The majority of events related to hydrocarbon management and spillage from damaged equipment.

**Table 34 Environmental Hazards and Incidents**

| Event Type | Number |
|---|---|
| Spill | 5 |
| Fauna | 2 |
| Non-Conformance | 1 |
| Fixed plant | 1 |
| **Total** | **9** |

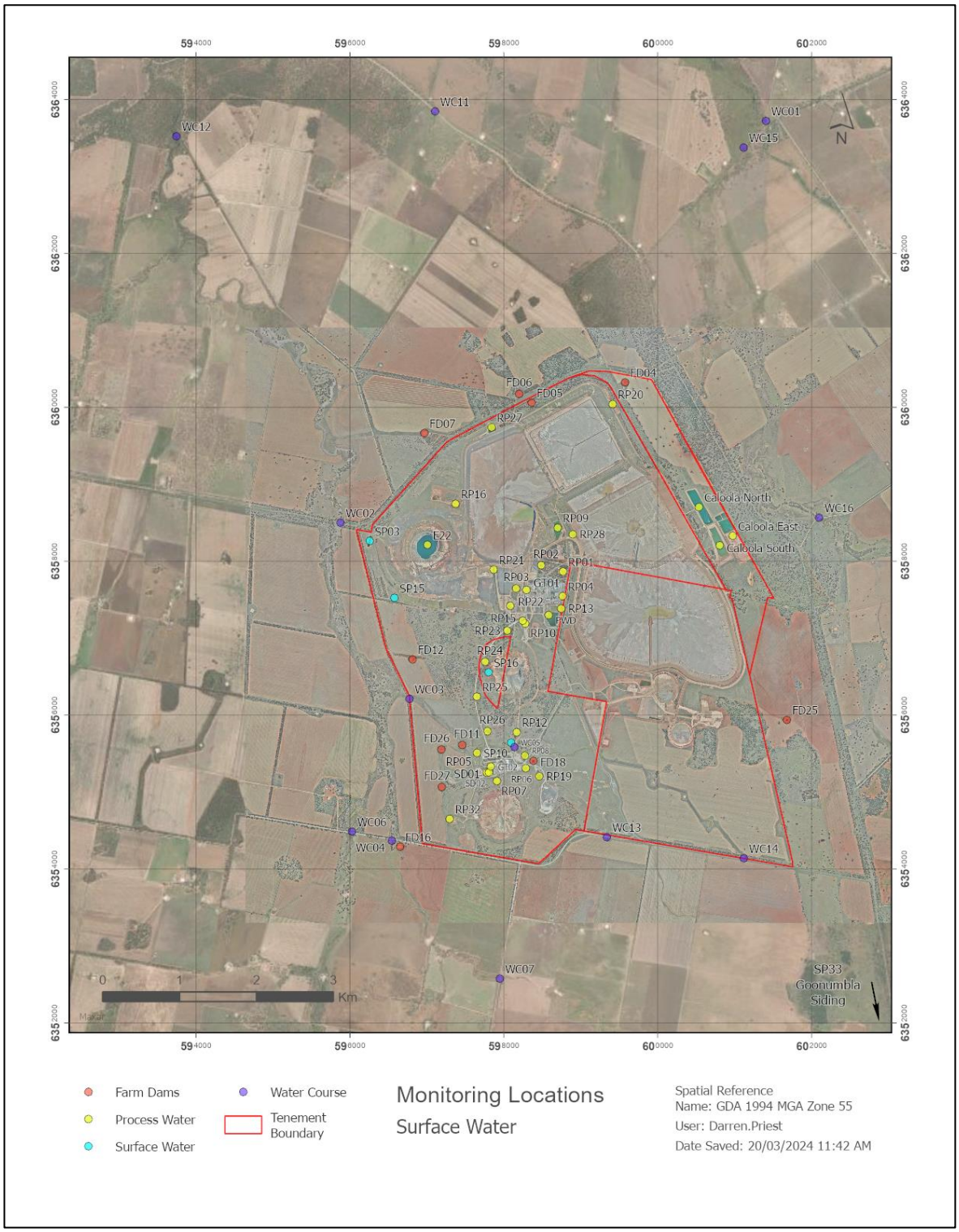
# 12. ACTIVITIES TO BE COMPLETED IN THE NEXT REPORTING PERIOD

Activities proposed for the next reporting period include:

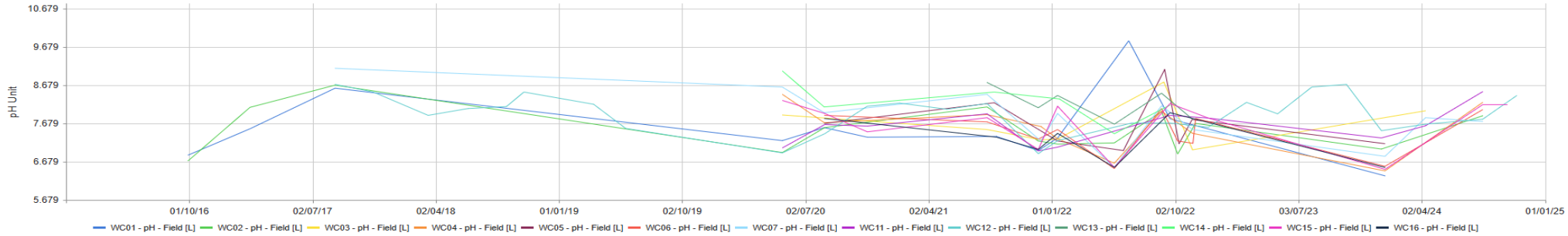
- Support the construction of the Infill TSF Extension
- Progress various modifications works and implement conditions post approval
- Continue research aimed at improved long-term effectiveness of tailings closure covers and embankment designs

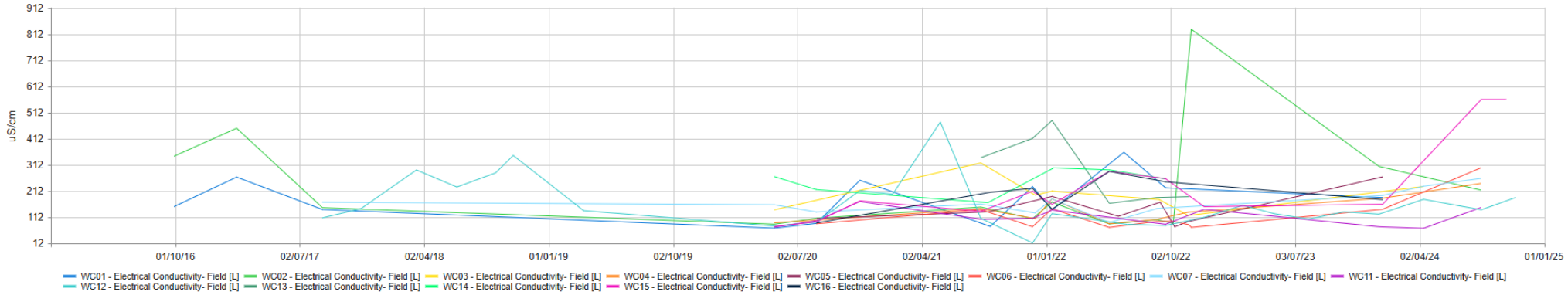
# APPENDIX 1 WATER MONITORING

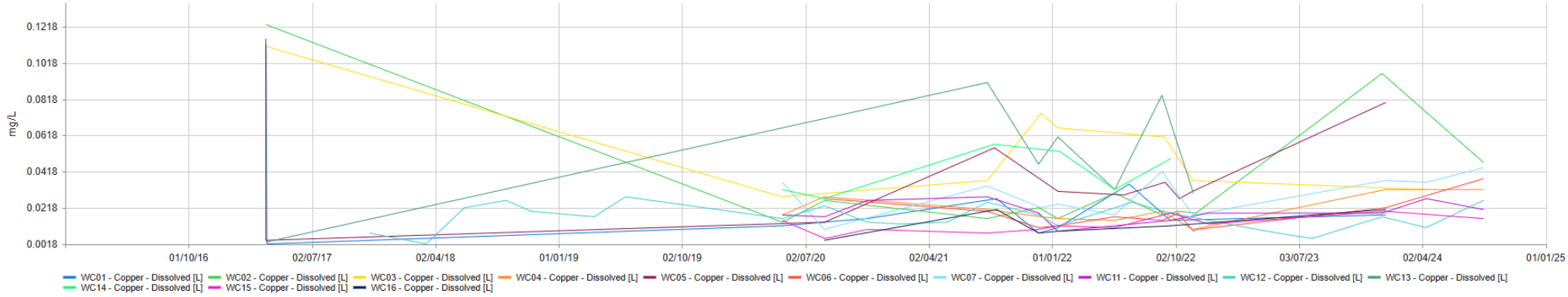
### Surface water monitoring locations



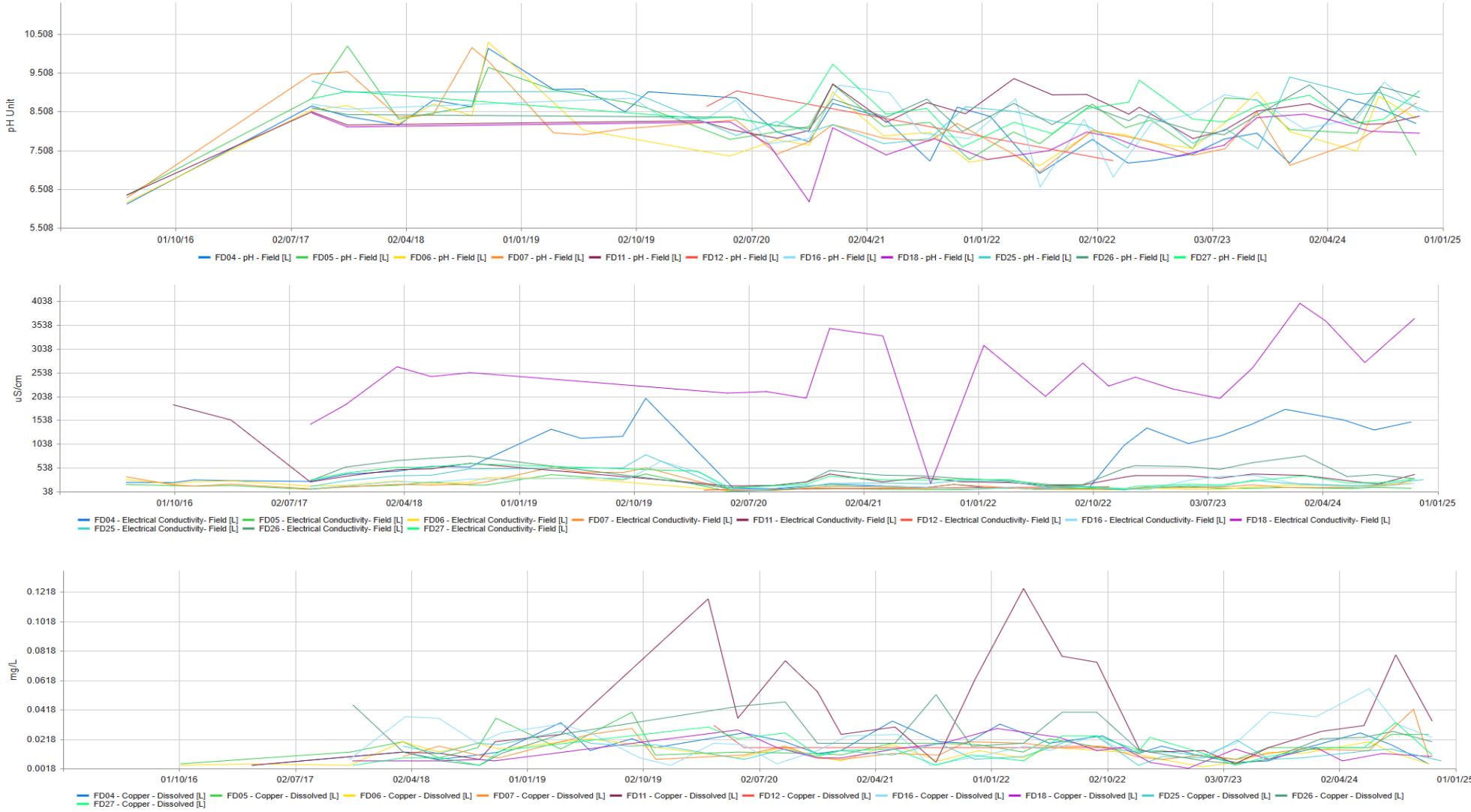
## Surface water monitoring results – Water Course pH, electrical conductivity and copper



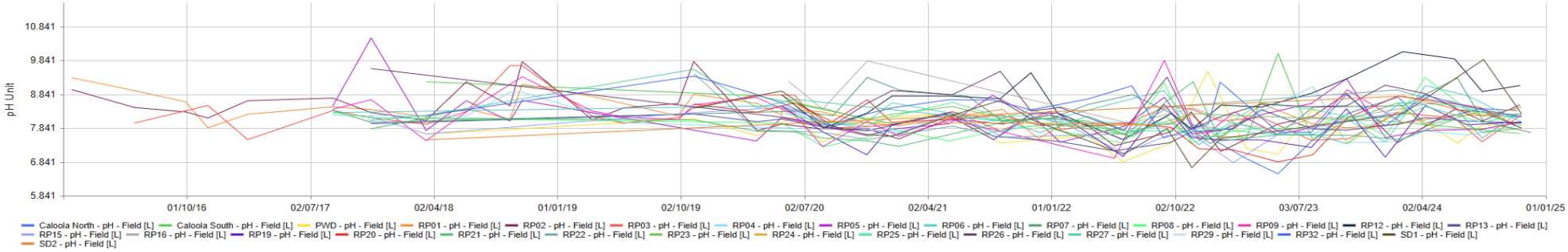



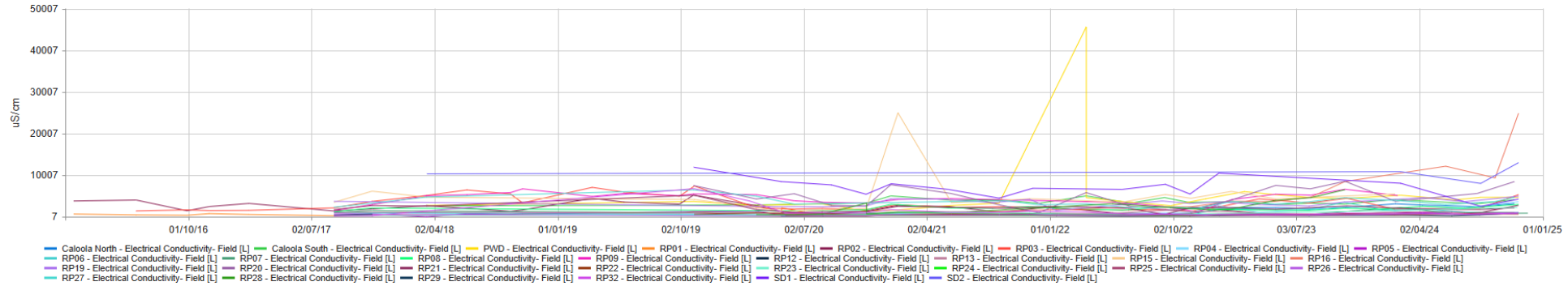



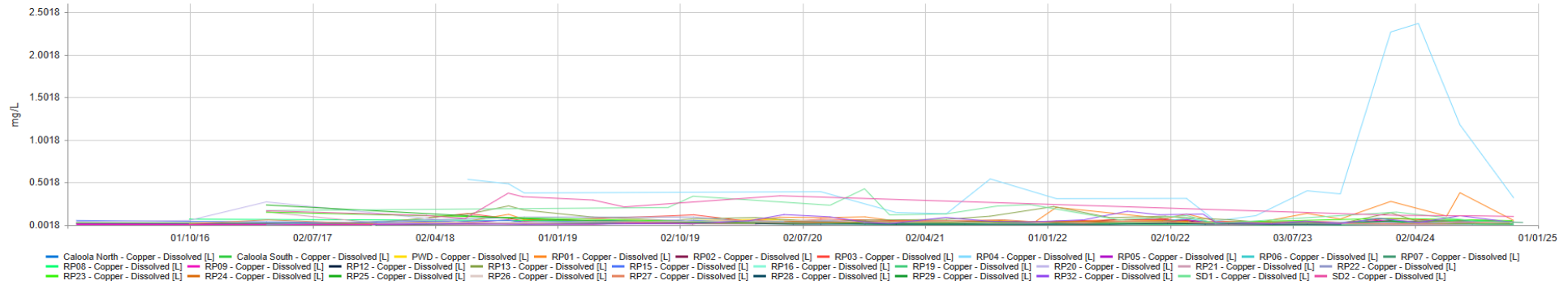
Surface water monitoring results – Farm dams pH, electrical conductivity and copper



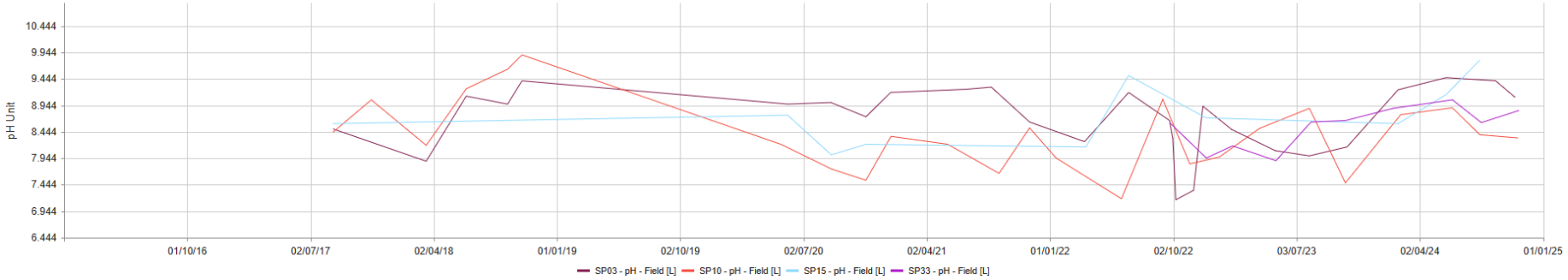
## Surface water monitoring results – Retention ponds pH, electrical conductivity and copper

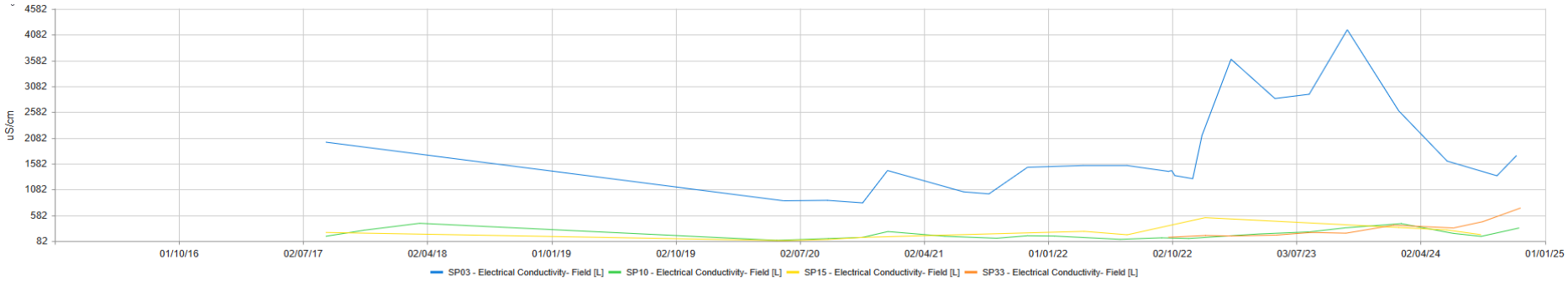


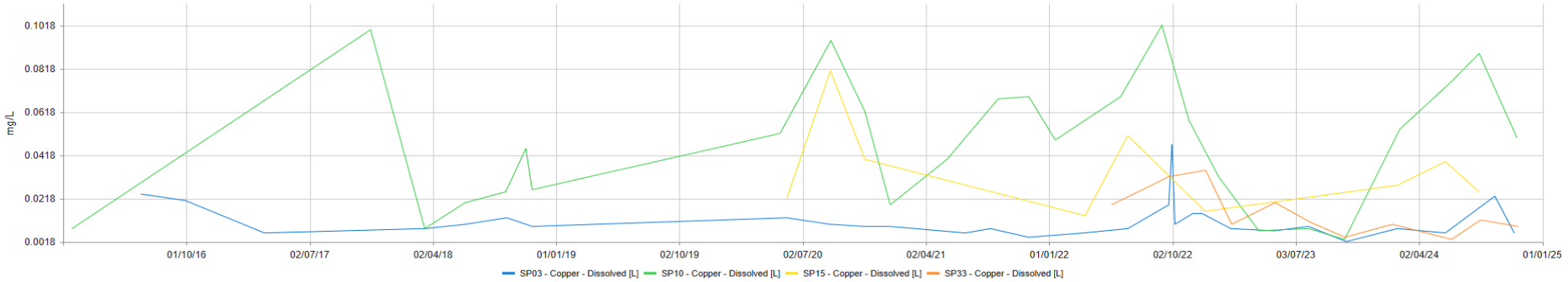



## Surface water monitoring results – Sediment ponds pH, electrical conductivity and copper

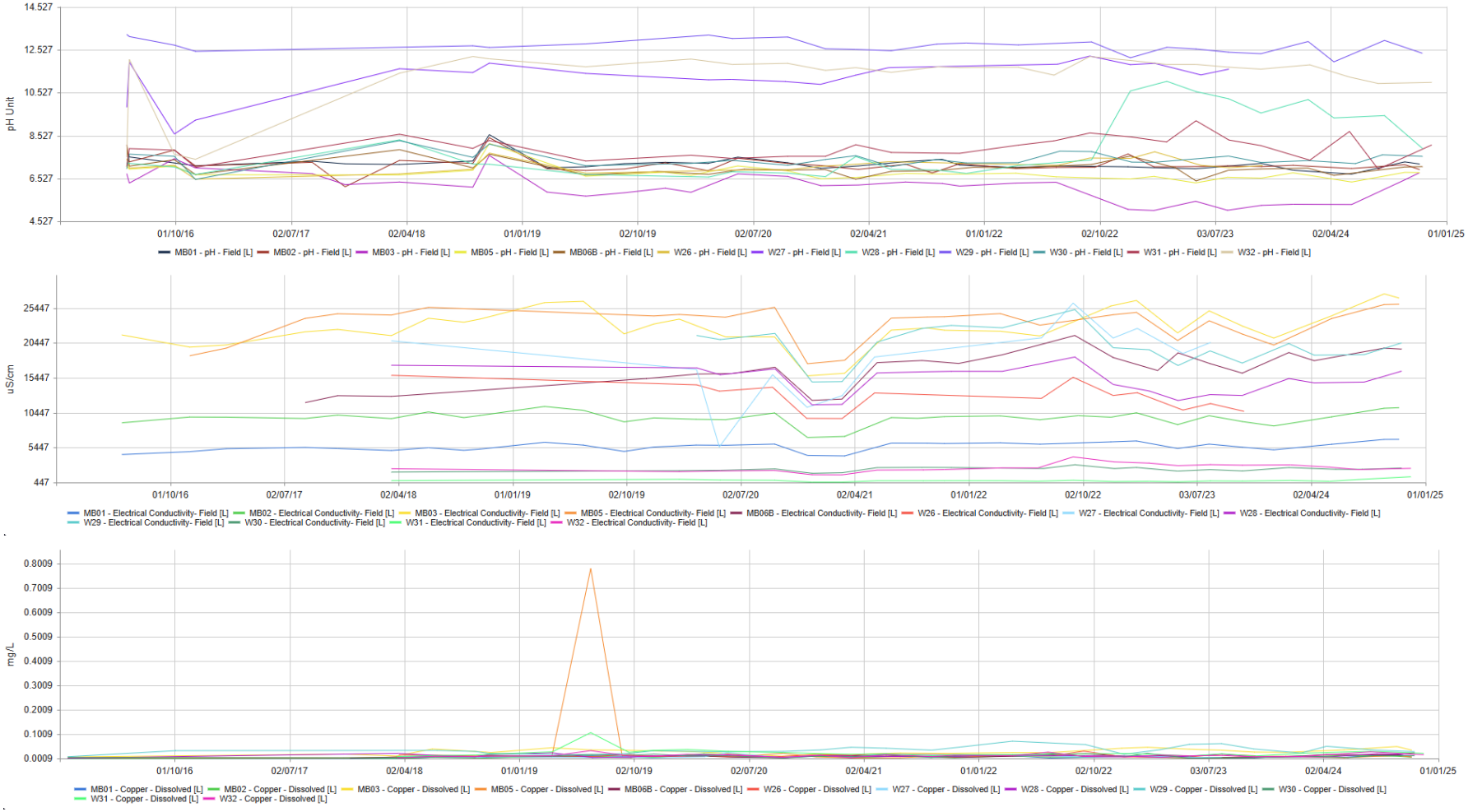


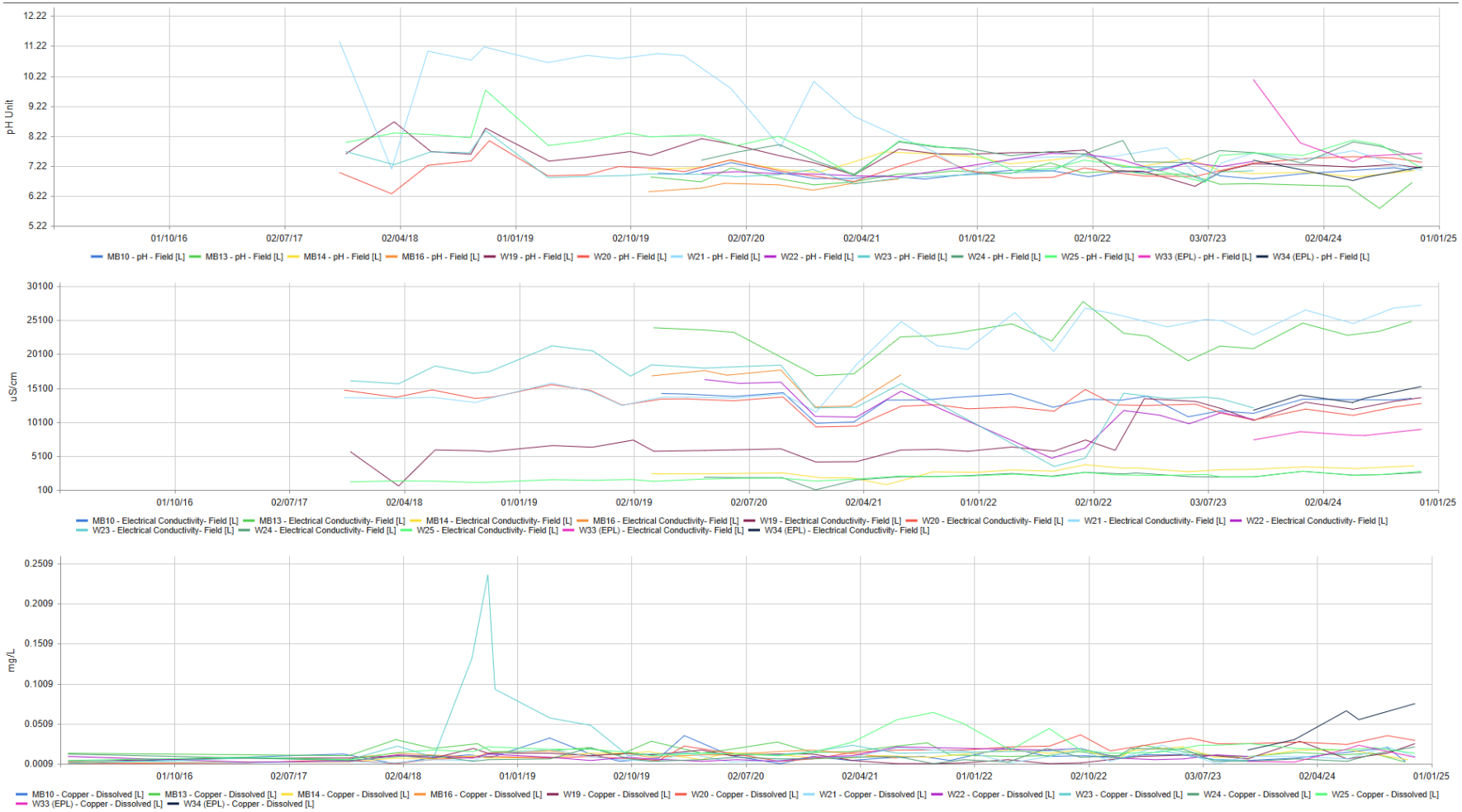



**Ground water monitoring locations**

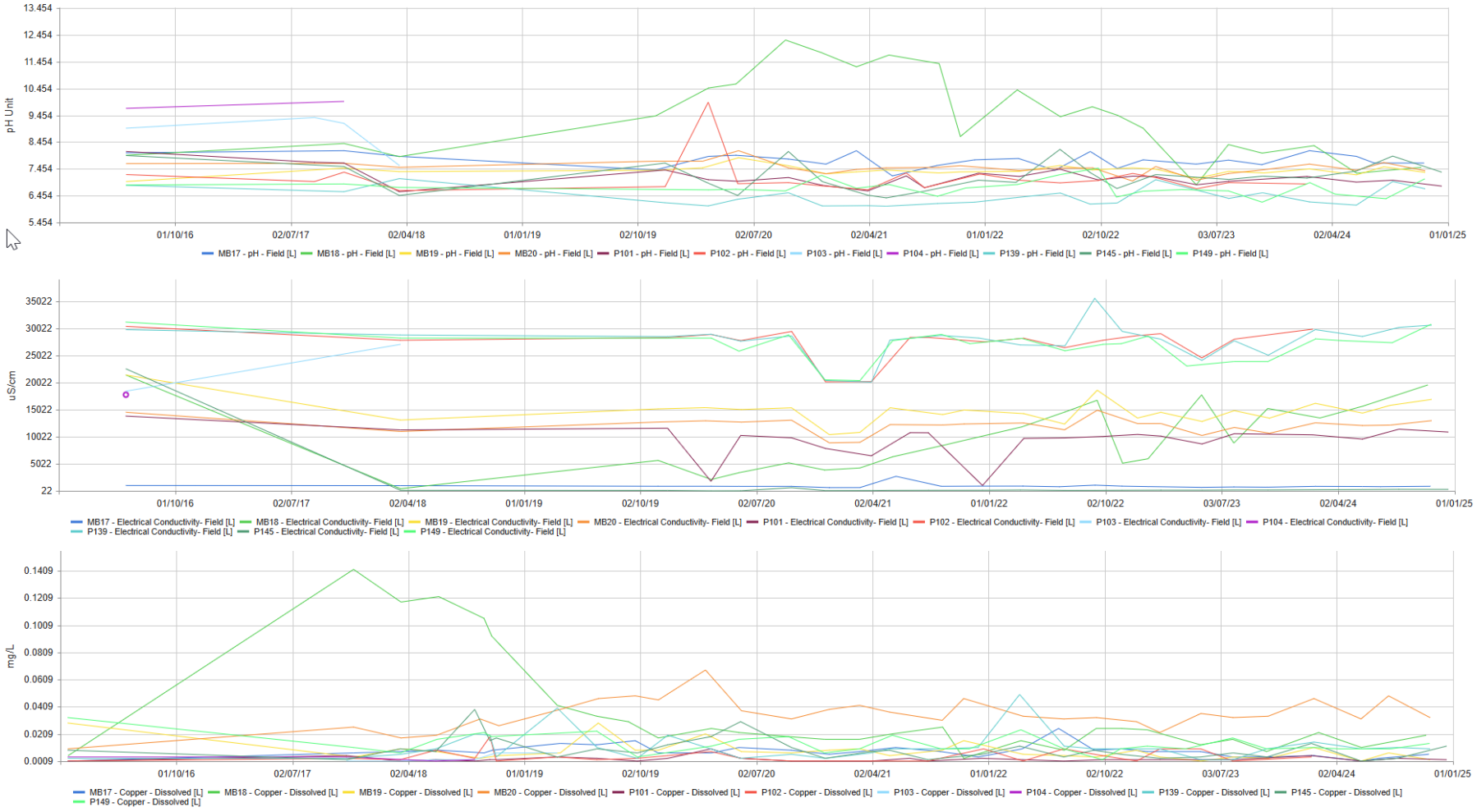
## Ground water monitoring results – TSF bores pH, electrical conductivity and copper



## Ground water monitoring results – Opencut bores pH, electrical conductivity and copper



## Ground water monitoring results – Underground bores pH, electrical conductivity and copper



## Ground water monitoring results – Regional bores pH, electrical conductivity and copper