Annual Compliance Report - Beverley, Beverley North, & Four Mile

01 January 2024 to 31 December 2024

Mining Leases 6321, 6387, & 6402

EPBC 2006/3167, 2009/5138, & 2008/4252

Extractive Mineral Leases 6049-6051, 6392, 6384, 6385, 6048, & 6052

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Revision History

DATE	VERSION	SUMMARY OF CHANGE	AUTHOR
31/03/2025	1.0	Final	A. Ostrowski

AUTHORITY TO ISSUE:	
Area:	HSSE
Manager:	Clancy Smith
Signed:	

Table of Contents

Table of Tables

Table of Figures

1. Declaration of accuracy

This report is prepared for the Department for Energy and Mining to fulfil the annual mining compliance reporting requirements for the tenements listed herein. The information contained in this report is to the best of my knowledge a true and accurate record of the mining activities and compliance status for the reporting period.

Name	Clancy Smith
Position	Manager – HSSE, Regulatory & Compliance
Company or agent	Heathgate Resources Pty Ltd
Signature	
Date	31/03/2025
Summary of steps undertaken to review the compliance report to ensure its accuracy	Data in this report has been provided and reviewed by discipline owners within Heathgate Resources, including Chief Operations Officer, Manager – HSSE, Regulatory & Compliance, Senior Environment Advisor, Radiation Advisor, Production Superintendent, and Chief Geologist.

2. Public liability insurance

Provide details relating to public liability insurance and attach a certificate evidencing insurance coverage as Appendix A to this compliance report. Documents provided should certify that the insurance is current.

Please find a copy of the current public liability insurance provided as Appendix A.

3. Identification

Mine name(s)	Beverley	Beverley North	Four Mile	EML's
Tenement holder(s)	Heathgate Resources Pty Ltd		Quasar Resources Pty Ltd	Heathgate Resources Pty Ltd
Operating company(s)	Heathgate Resources Pty Ltd, Level 7, 25 Grenfell St Adelaide, (08) 8110 0550			
Tenement number(s)	ML 6321	ML 6387	ML6402	EML 6048, 6049, 6050, 6051, 6052, 6384, 6385, 6392
Program for environment protection and rehabilitation PEPR(s) or mine operation plan (MOP) document, approved under the Mining Act 1971 (SA)	Beverley PEPR v8 No: MPEPR2023/047 Approved: 10 September 2024	Beverley North PEPR v14 No: MPEPR2024/001 Approved: 10 September 2024	Four Mile PEPR v4 No: MPEPR2023/038 Approved: 30 October 2023	EML 6048 - MRP99/26A Approved: 08 July 1999 EML6049, 6050, 6051, 6392 - MPEPR2015/014 Approved: 01 June 2016 EML 6052 - 99/26E Approved: 08 July 1999 EML 6384 - PEPR2012/014 Approved: 23 August 2012 EML 6385 - PEPR2012/014 Approved: 23 August 2012
Mining and Rehabilitation Program (MARP) approved under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)	MARP Version 6.0 Approved: 11 November 2008	MARP Version 10.0 Approved: 14 February 2011	MARP Version 3.0 Approved: 20 December 2016	na
EPBC approval number	2006/3167	2009/5138	2008/4252	na
EPBC approved actions	Extension of the Beverley Uranium Mine, including the development of additional wellfields and associated infrastructure to increase uranium production.	Construction and operation of an in-situ recovery uranium mine to the north of the existing Beverley Uranium Mine, utilising the existing Beverley infrastructure and workforce for processing uranium product.	Construction and operation of an in-situ recovery uranium mine at the Four Mile deposit, including the development of wellfields and associated infrastructure.	na
Site contact	Name	Clancy Smith		
	Email	Clancy.Smith@heathgate.com.au		
	Phone	(08) 8110 0550		
Location details	The Beverley ML 6321, Beverley North ML 6387 and Four Mile ML 6402, are located between the Northern Flinders Ranges and Lake Frome, approximately 550 km north of Adelaide and 300 km north-east of Port Augusta. EMLs are located within, and to the south and south east, of the Four Mile ML			
Reporting period	From 01/01/2024	To 31/12/2024		
Compliance report submission date	31/03/2025			

4. Tenements

Table 4. 1 - Tenement summary

Tenement	Tenement grant date	Tenement expiry date	Status of currency
ML 6321	16/08/2008	25/4/2043	Active
ML 6387	15/12/2010	25/4/2043	Active
ML 6402	26/04/2012	25/4/2043	Active
EML 6048, 6049, 6050, 6051, 6052	28/06/1999	25/04/2043	Active
EML 6384	15/12/2010	01/12/2031	Active
EML 6385	15/12/2010	09/12/2031	Active
EML 6392	03/11/2011	02/11/2032	Active

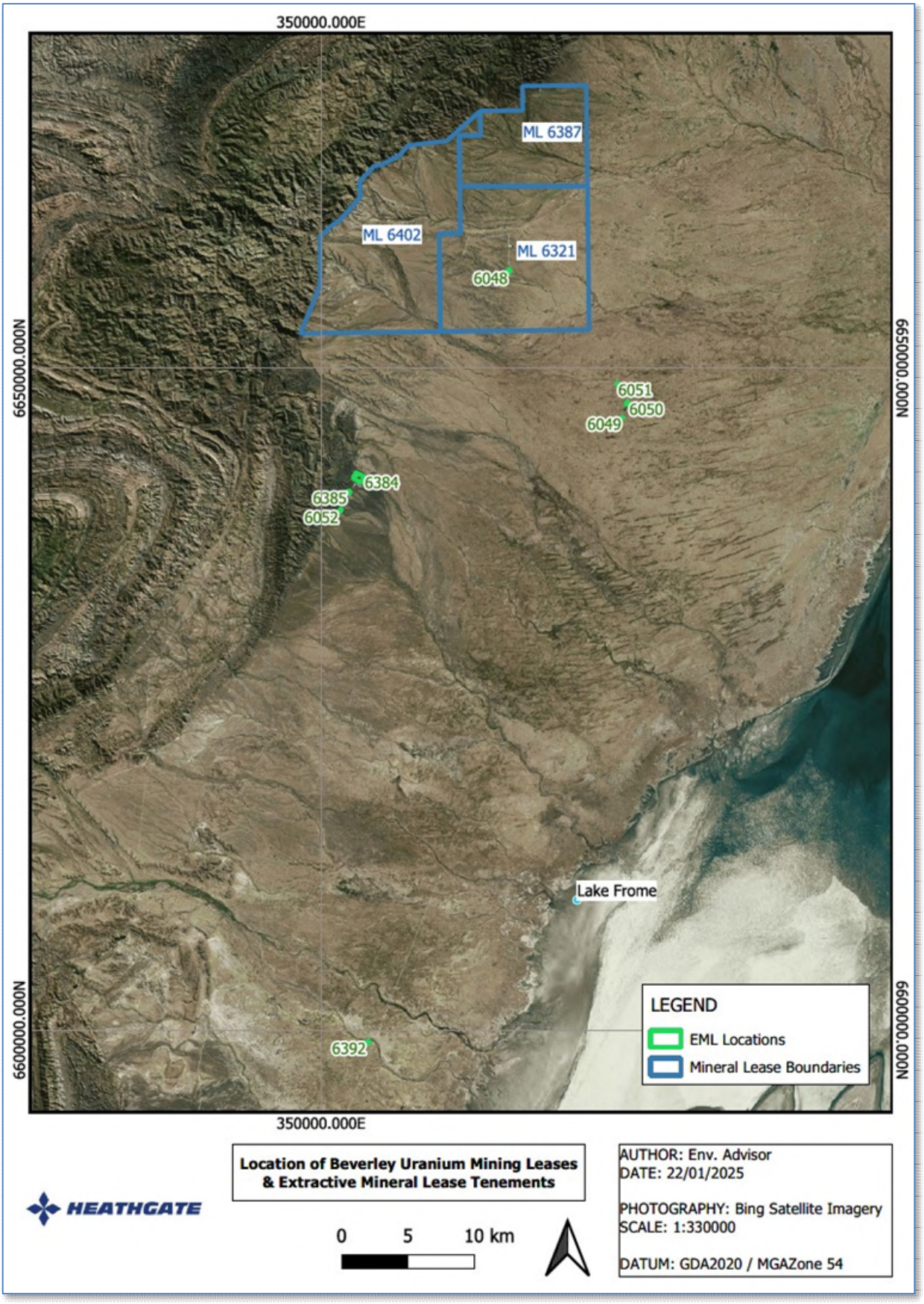

Figure 4. 1 - Location of Beverley Uranium Mine Tenement Boundaries

5. Other approvals

Table 5. 1 - Other approvals

Approval document	Regulatory authority or other	Supporting documents	Relevant environmental outcome/objective or tenement condition	Status of currency
Environmental Protection Authority (EPA) Licence Number 12918	Environment Protection Authority South Australia	Technical Report in Support of Application for Amendment: Addition of Waste Facility	Soil (Table 8.3) Groundwater (Tables 8.5, 8.6, 8.7)	Current. Expiry 31 October 2025
Environment Protection Authority (EPA) Licence 50975	Environment Protection Authority South Australia	Radiation Management Plan & Radioactive Waste Management Plan	Air quality (Table 8.8)	Current. Expiry 30 June 2025

6. Ore reserves and mineral resources

Ore Reserves and life of mine as of December 2024 will be reported to Government in a separate submission.

Table 6. 1 - Estimated mine life

Estimated mine life (years)	Reported to the Department for Energy and Mining in separate submission.
Notes Only uranium was recovered from mining operations during the reporting period	

Note: There are legislative requirements for tenements holders conducting exploration activities with specific reporting requirements set down in regulation 78 of the Mining Regulations 2020. If any exploration has been undertaken during the reporting period, technical reports and data must be provided to the department in accordance with Mineral Regulatory Guidelines MG13 ***Mineral exploration reporting guidelines for South Australia***.

7. Mining, processing and waste storage activities

Table 7. 1 - Ore mining

Ore mined – mine life	Ore mined – reporting period	Expected quantity to be mined during next reporting period	Quantity of ore stockpiled on the tenement at the end of reporting period
Beverley – 7,400 Tonnes Beverley North – 1.77 Tonnes Four Mile – 17,814 Tonnes	Beverley – No production Beverley North – No production Four Mile – 2,139 Tonnes	Beverley – No Production Beverley North – No Production Four Mile – 2,200 Tonnes	N/A
Production notes N/A			

Table 7. 2 - Ore processing

Ore processed – mine life	Ore processed – reporting period	Expected quantity of ore to be processed next reporting period
Beverley – 7,400 Tonnes Beverley North – 1.77 Tonnes Four Mile – 17,814 Tonnes	Beverley – No production Beverley North – No production Four Mile – 2,139 Tonnes	2,200 Tonnes
Production notes N/A		

Concentrate or other product exported – mine life	Amount of concentrate or other product exported – reporting period	Expected amount of concentrate or other product to be exported next reporting period
N/A	2300	2200
Production notes N/A		

Table 7. 4 - Overburden or waste mined

Overburden or waste mined – mine life	Overburden or waste mined – reporting period	Expected amount of overburden or waste to be mined next reporting period
N/A	N/A	N/A
Production notes N/A		
Volume of potential acid forming (PAF) and non-acid forming (NAF) material mined during reporting period		
N/A	NAF: N/A	PAF: N/A
Remaining capacity of current waste facilities or planned future waste facilities as per approved PEPR/MOP		
9 years	NAF: N/A	PAF: N/A
Is there sufficient capacity in the current or planned future waste facilities as per approved PEPR/MOP? If not, include what future work is required.		
Yes		

8. Compliance with environmental outcomes/objectives and leading indicator criteria

Tables 8.1 to 8.9 provide a summary of the compliance of the Beverley, Beverley North and Four Mile mining tenements with all operational outcomes, as specified in the tenement conditions or approved PEPR.

Table 8. 1 - Fauna Compliance Assessment

Aspect Fauna	**Tenement(s)** Beverley ML 6321, Beverley North ML 6387, Four Mile ML 6402	**Compliance status** Compliant
Environmental outcome/objective No net adverse impacts from the site operations on native fauna abundance or diversity in the lease. No introduction of new species of weeds, plant pathogens or pests (including feral animals), nor increase in abundance of existing weed or pest species in the lease area compared to adjoining pastoral areas.		
Tenement condition ML 6321 - Schedule 2, Condition 5 & 10 ML 6387 – Schedule 2, Condition 5 & 12 ML 6402 – Schedule 2, Condition 1D & G		
Outcome/objective measurement criteria Results of monitoring program show no reduction of native vertebrate density and diversity compared with local area background. Results of monitoring program show no decrease in native vertebrates, compared with local area background, based on assessment by the appropriately qualified and experienced specialists engaged to undertake and assess the monitoring program. Results of monitoring program show no increase in feral vertebrates, compared with local area background, based on assessment by the appropriately qualified and experienced specialists engaged to undertake and assess the monitoring program. All complaints from neighbours regarding feral animal control are investigated and are demonstrated to be not due to mining operations.		
Outcome/objective measurement criteria summary. Further details can be provided in a supporting appendix, but sufficient details must be provided in this section. The annual fauna survey undertaken in Spring 2024 by Ecosphere Ecological Solutions (Appendix C.1), concluded that no reduction in native vertebrate density or diversity could be identified when compared with local area background. The annual feral vertebrate survey also undertaken in Spring 2024 by Ecosphere Ecological Solutions (Appendix C.1) concluded that there was no increase in feral vertebrate species within the ML's when compared to local area background. No complaints have been received regarding feral animal control during the reporting period.		
Leading indicator criteria. Trends from the monitoring program.		
Leading indicator summary. Further details can be provided in a supporting appendix, but sufficient details must be provided in this section. As detailed in the 2024 fauna survey, no significant trends for native species across impact and control sites exist since an increase was observed in 2020. The minor annual variations in species abundance and richness identified in the 2023 survey compared to the 2024 survey was linked to changes in flora cover and below average rainfall. No consistent differences in species abundance and richness have been detected across an eight-year survey period (Appendix C.1). The annual fauna survey did not identify any decrease or increase in feral vertebrates across all years when comparing relevant impact and control site off lease (Appendix C.1).		
Effectiveness of existing controls As no significant decrease in native fauna species abundance or diversity or increase in feral vertebrate numbers, the effectiveness of existing controls has been demonstrated.		
Supporting report reference Annual fauna monitoring reports are provided in Appendix C.1.		

Table 8. 2 - Native Vegetation / Weeds & Pest and Fire Compliance Assessment

Aspect Native Vegetation Weeds & Pests Fires	**Tenement(s)** Beverley ML 6321, Beverley North ML 6387 and Four Mile ML 6402	**Compliance status** Compliant
Environmental outcome/objective No loss of abundance or diversity to native vegetation on or off the mining lease through clearance other damage unless prior approval under the relevant legislation is obtained. No introduction of new weeds, plant pathogens or pests (including feral animals), nor increase in abundance of existing weed or pest species in the lease area compared to adjoining pastoral areas. No uncontrolled fires caused by mining operations.		
Tenement condition ML 6321 - Schedule 2, Condition 4, 5 & 12. ML 6387 – Schedule 2, Condition 4 & 5. ML 6402 – Schedule 2, Condition 1C & 1D.		
Outcome/objective measurement criteria Demonstrate that all clearing is undertaken within the maximum area approved in the Native Vegetation Management Plan. Flora and fauna surveys demonstrate no new weeds or feral animals (due to mining activities) nor statistically significant increase in abundance of existing weed or pest species in the lease area compared to adjoining pastoral areas. Any fires caused by mining operations are controlled within the ML boundary.		
Outcome/objective measurement criteria summary. Further details can be provided in a supporting appendix, but sufficient details must be provided in this section. All vegetation clearances have been carried out in accordance with the respective Native Vegetation Management Plans, and documented with an Environmental Clearance Permit for each clearance event. All cleared areas are subject to and accounted for in Significant Environmental Benefit (SEB) figures (Table 13.1). The annual vegetation survey undertaken in Spring 2024 by Ecosphere Ecological Solutions concluded that no new weeds (due to mining activities) nor statistically significant increase in abundance of existing weeds in the lease area compared to adjoining pastoral areas (Appendix C.2). No fires were recorded on the Beverley, Beverley North or Four Mile MLs in 2024.		
Leading indicator criteria. Trends from the monitoring program. Progressive SEB accounting in the Annual Compliance Report.		
Leading indicator summary. Further details can be provided in a supporting appendix, but sufficient details must be provided in this section. As detailed above, the annual vegetation survey concluded that no new weeds or feral animals (due to mining activities) nor statistically significant increase in abundance of existing weed or pest species in the lease area compared to adjoining pastoral areas (see Appendix C.2). SEB accounting figures are contained in Table 13.1 of this report.		
Effectiveness of existing controls As full compliance with operational outcomes for vegetation can be demonstrated, existing control measures specific to vegetation can also be demonstrated.		
Supporting report reference Vegetation monitoring reports are provided in Appendix C.2. SEB accounting figure are provided in Table 13.1.		

Table 8. 3 - Soil Compliance Assessment

Aspect Soil	**Tenement(s)** Beverley ML 6321, Beverley North ML 6387 and Four Mile ML 6402	**Compliance status** Compliant
Environmental outcome/objective Soil affected by mining activities is suitable for a return to (pre-mining) pastoral use.		
Tenement condition ML 6321 - Schedule 2, Condition 1 ML 6387 – Schedule 2, Condition 1 ML 6402 – Schedule 2, Condition 1A		
Outcome/objective measurement criteria All sites subject to mining or disposal solution spills meet the radiological criteria as defined in the Radioactive Waste Management Plan (RWMP). Spills of hazardous materials are assessed as soon as practicable and if so determined cleaned up. - Diesel spills to site specific criteria to be established using NEPM Risk Assessment methodology as recommended by the EPA. - Acid or Alkali: spill sites returned to within local background range of pH. Off-road vehicle movements not approved via an Environmental Clearance Permit are investigated, reported and one of the following actions are taken: - Fenced off to prevent reuse and rehabilitated; or - Converted to an authorised road subject to SEB accounting.		
Outcome/objective measurement criteria summary. Further details can be provided in a supporting appendix, but sufficient details must be provided in this section. All radiological mining or disposal solution spills that occur outside active operational areas are remediated immediately. Spills that occur in accessible areas within active operational areas are remediated immediately. All radiological spills that may occur are logged in Heathgate's hazard and incident reporting system (Donesafe). The following details are recorded in Donesafe to ensure there is adequate remediation on conclusion of operations: • Spill coordinates. • Spill type. • Distribution extent. • Radiation measurements. Donesafe is available for review during every routine regulatory site inspection. Soils that are radiologically affected above the operational contamination criteria will be remediated immediately and disposed according to the RWMP. All chemical spills are either treated in-situ where appropriate or removed for disposal to a licenced EPA landfill facility. Preventative controls include: • Wellfields are continually checked by Wellfield Operators and Maintenance personnel. • Continual pressure monitoring of trunklines. • Continual flow monitoring of wellhouses. • Monitoring of wellhead drip trays. All chemical spills are logged within Donesafe. Coordinates are recorded, the extent of the spill assessed and cleaned up immediately. All chemical spills are either treated in-situ where appropriate or removed for disposal to a licenced EPA landfill facility. Spills are also recorded so that upon mine rehabilitation and closure these areas can be monitored, as required, to ensure that any soil affected by mining activities is suitable for return to pre-mining use. Any unauthorised off-road vehicle movements that may occur within the MLs will be investigated and recorded in Donesafe.		
Leading indicator criteria. Leakage from double-lined ponds is compared to the Target Action Leakage Rate (TALR) of 22 mL/m^2/day. Water levels in ponds are checked at least weekly and after >10 mm of rainfall in a day and maintained at least 0.20 m below lowest level of rim. Any leaks detected by visual observation are logged as events and rectified. Number and nature of spills and clean-ups. Number of non-compliant ECPs involving off-road incidents.		

Leading indicator summary. Further details can be provided in a supporting appendix, but sufficient details must be provided in this section. TALR of the double lined ponds was not exceeded during the reporting period. Visual observations and inspections indicated that no leaks are present. Process plant pond levels have remained within the minimum freeboard of 0.2 m throughout the year. Any leaks detected in process or mining infrastructure during routine operations continue to be logged in Donesafe and Heathgate's electronic maintenance system (TechOne). This maintenance system is also utilised to schedule and manage the completion of rectification works. During the reporting period, 55 lixiviant events in operational areas were reported, documented, and investigated. No reportable spills under the 'Criteria and procedures for recording and reporting incidents at SA uranium mines' (i.e. Bachmann Criteria) were recorded. Four (4) reportable spills under Department of Health criteria were recorded: • On 16 February 2024, approximately 5,600 litres of untreated effluent spilt from the 1st rotating disk at the accommodation village wastewater treatment plant (WWTP) due to failure of the discharge pump on the transfer tank. A Community Wastewater Management System Incident Notification Form was submitted to the Department of Health on the 21 February 2024. • On 14 April 2024, approximately 12,000 litres of untreated effluent spilt to the area adjacent the WWTP due to a blockage upstream of the primary tank. A Community Wastewater Management System Incident Notification Form was submitted to the Department of Health on the 15 April 2024. • On 22 May 2024, approximately 12,000 litres of untreated effluent spilt to the area between an accommodation block and the WWTP due to a blockage between the inspection point and the primary tank. A Community Wastewater Management System Incident Notification Form was submitted to the Department of Health on the 22 May 2024. • On 24 July 2024, approximately 2,000 litres of untreated effluent spilt to the area around the primary tank of the WWTP due to a blockage in the primary tank's inlet. A Community Wastewater Management System Incident Notification Form was submitted to the Department of Health on the 24 July 2024. All spills were risk assessed, investigated and if required, contaminated areas were remediated as per PEPR, RWMP and Wastewater Treatment System approval requirements. During the reporting period, eight (8) unauthorised off-road non-compliances were reported across the three MLs. These were investigated and recorded in Donesafe. Actions undertaken included demarcating the area to prevent reuse and undertake rehabilitation. In addition, communications were sent site wide to reinforce the information about driving off designated areas.
Effectiveness of existing controls The management strategies to minimise the risks to soils has been effective during the reporting period. The eight (8) off-road excursions and 55 lixiviant events recorded were managed in accordance with the controls outlined in the PEPR, RWMP and the Beverley Wastewater Treatment System approval. Annual soil (creek sediment) monitoring is carried out annually in October / November. Laboratory reports are provided in Appendix C.10. Analysis results confirm background analyte levels with no contaminations found in creek sediments, soil is suitable for pre-mining use.
Supporting report reference N/A.

Table 8. 4 - Surface Water Compliance Assessment

Aspect Surface Water	**Tenement(s)** Beverley ML 6321, Beverley North ML 6387 and Four Mile ML 6402	**Compliance status** Compliant
Environmental outcome/objective No compromise of pastoral use of downstream surface water bodies.		
Tenement condition ML 6321 – Schedule 2, Condition 6 ML 6387 – Schedule 2, Condition 6 ML 6402 – Schedule 2, Condition 1E		
Outcome/objective measurement criteria Water quality in; (a) Beverley – Water quality in North and South Mulga Dams shall be measured as soon as it is safe to do so following surface water flow, if there has been any release of mining solution into a flowing stream. This must show no compromise of pastoral use that it is		

attributable to mine operations. A mass balance calculation using estimated spill volume and chemical quality and estimated stream flow shall be undertaken to ascertain if any compromise is plausibly due to the mine. The parameters of most relevance are those elevated (except pH) in mining or disposal solutions at Beverley, i.e., salinity (via its surrogate Electrical Conductivity), pH, sulphate, chloride, and uranium. There are no specific stock water guidelines for chloride. The adopted trigger values (below which no problems when used as stock water for sheep, beef cattle or horses may be expected according to ANZECC/ARMCANZ 2000) are: • Salinity (via its surrogate Electrical Conductivity) – 4,000 mg/L (6,000 uS/cm) • Sulphate – 1,000 mg/L • Uranium – 0.2 mg/L. In the event any of these parameters are elevated above the ANZECC/ARMCANZ stock water guidelines (used as trigger values), a mass-balance calculation will be undertaken to assess if the presence of the parameter can reasonably be attributed to the mine, as the natural variability of water quality is high in arid areas. An example of a mass balance calculation is given in Appendix G of the Beverley ML PEPR which shows that there is a small chance of exceeding the trigger value with small creek flows., and (b) Beverley North, Four Mile – Water quality in downstream water storages (within 5 km of an individual mining/spill site, or the closest accessible significant temporary creek waterhole if there is no water storage within 5 km), will be measured as soon as it is safe to do so following surface water flow, if there has been any immediately reportable release un-remediated spill of resin or chemicals. Applicable ANZECC/ARMCANZ stock water guidelines are: • salinity (EC) – 4,000 mg/L (6,000 uS/cm) • sulphate (SO4)– 1,000 mg/L • uranium – 0.2 mg/L. Note that a mass balance calculation using estimated spill volume and chemical quality and estimated stream flow will be undertaken, or another investigation acceptable to the Chief Inspector of Mines, to ascertain if any compromise is plausibly due to the mine operations.
Outcome/objective measurement criteria summary. Further details can be provided in a supporting appendix, but sufficient details must be provided in this section. No downstream surface water bodies for pastoral use were impacted during the reporting period.
Leading indicator criteria. N/A.
Leading indicator summary. Further details can be provided in a supporting appendix, but sufficient details must be provided in this section. N/A.
Effectiveness of existing controls Controls outlined in the PEPR and RWMP remain effective.
Supporting report reference N/A.

Table 8. 5 - Hydrogeology (Groundwater) - Beverley Compliance Assessment

Aspect Hydrogeology (Groundwater)	**Tenement(s)** Beverley ML 6321	**Compliance status** Compliant
Environmental outcome/objective No compromise to other existing Great Artesian Basin users within the Beverley mine region. No compromise to pastoral use of the Willawortina aquifer. No compromise of potential pastoral use (should it meet pastoral water quality standards) of the Namba aquifer outside the Beverley mining lease.		
Tenement condition ML 6321 – Schedule 2, Condition 7 – 9.		
Outcome/objective measurement criteria GAB use not to exceed the allocated volume specified by license conditions which are issued according to the requirements of the approved Water Allocation Plan, Far North Prescribed Wells Area (DEW). The pressure in the GAB at the extraction bores remains higher than the maximum pressure in Namba aquifer.		

Monitoring of ECL parameters and EC demonstrates that the category of pastoral use of the Willawortina aquifer does not change adversely in relation to ANZECC/ ARMCANZ categories of water use, as a result of mining operations.
Appropriate records show LLRW facilities built to design.

Groundwater quality monitoring (ECL parameters and EC) shows no compromise of Willawortina that could be attributed to the LLRW facilities.

No migration of mining and disposal solutions outside the ML as demonstrated by Excursion Control Levels (ECL) monitoring and response.

Outcome/objective measurement criteria summary. Further details can be provided in a supporting appendix, but sufficient details must be provided in this section.
No mining was carried out in the Beverley ML during the reporting period. Activities were restricted to liquid disposal activities in the former Beverley East wellfields. Beverley groundwater data is provided in Appendix C.5.

GAB extraction volumes for the reporting period were within the licence conditions, which are provided in Figure C.4.2 of Appendix C.4.

GAB bores have higher pressure than the maximum pressure in the Namba. Pressure monitoring graphs are provided in Appendix C.4.4.

Concentrations of ECL parameters and EC within the Willawortina monitoring wells (Appendix C.5.6) show that results that are stable and consistent with background concentrations as described in Table 6.14 of the Beverley PEPR.

All LLRW facilities were built in accordance with approved design specifications (See Figure C.3.6 for design specifications).
As per the Willawortina monitoring wells the results observed in the Waste Repository monitoring wells indicate stable concentrations consistent with background conditions (Appendix C.3).

No multiple exceedances, or single ECL exceedance above 20% of the ECL limit, were detected during the reporting period (see Appendix C.3, C.4 and C.5) demonstrating no migration of mining or disposal solutions have migrated outside the ML.

Leading indicator criteria.
Volume of water progressively taken from GAB.
Water pressures and pressure trends in GAB.
Trend of EC.
Water levels and level trends in Willawortina Formation.
Water quality and quality trends in Willawortina Formation (ECL parameters and EC).
Water pressures in Namba injection and monitor wells are less than the conservatively calculated aquitard fracture pressure.
Water quality and quality trends in Namba Formation (ECL parameters)
Cell sump monitoring confirms that no water has entered the cell.
Leakage from double-lined ponds.

Leading indicator summary. Further details can be provided in a supporting appendix, but sufficient details must be provided in this section.
Water abstraction quantity and pressure trends from the GAB are shown in Appendix C.4.

The trend of EC within the GAB bores (Figure C.4.5) remains within historical ranges.

Water levels and quality remain stable within the Willawortina Formation (Figure C.5.2). No exceedance of ECL's were detected at operational compliance monitoring wells during the reporting period except for the following;

- The pH ECL (4.5) decreased at the waste repository monitor well DMW004 (pH of 4.14) on 19 May 2024 with subsequent sampling showing the pH within ECL levels during the reporting period (Figure C.3.2).

- On 2 November 2024 the waste repository monitoring well DMW005 pH was below the ECL with 4.13. This decrease will be confirmed during the next sampling event in Q1 2025 (Figure C.3.2).

The pressures observed within the Namba did not exceed the calculated aquitard fracture pressure of 860 Kpa with the maximum pressure observed in the Namba during the reporting period being 645 KPa.

Water quality remains stable within the Namba Formation (Appendix C.5). No exceedance of ECL's were detected at operational compliance monitoring wells during the reporting period except for the following;

- Sulphate results for DSMW022 and MW072 (Figure C.5.10) returned concentrations of 3.77 and 3.85 g/L 30 April and 5 May 2024 respectively which exceeded the ECL of 3.6 g/L. Subsequent sampling events indicated a return to historical ranges.

Ongoing monitoring of the cell sump wells confirm minimal residual water is contained in the waste repository (Figure C.3.7, Appendix C.3). No leakage was observed from double lined ponds during the reporting period.
Effectiveness of existing controls As full compliance with all hydrogeological outcomes for the Beverley ML can be demonstrated, the effectiveness of all controls specified in the current approved PEPR can also be demonstrated.
Supporting report reference All hydrological data for GAB is provided in Appendix C.4. All hydrogeological data for the former mining aquifer and overlying aquifer is provided in Appendix C.5.

Table 8. 6 - Hydrogeology (Groundwater) - Beverely North Compliance Assessment

Aspect Hydrogeology (Groundwater)	**Tenement(s)** Beverley North ML 6387	**Compliance status** Compliant
Environmental outcome/objective No compromise to the environmental values of the Eyre or Namba Formations aquifer outside the mining lease. No compromise to the environmental values of the Willawortina aquifer. No compromise to the environmental values of the underlying aquifers.		
Tenement condition ML 6387 – Schedule 2, Condition 7, 8, 9,10 and 11.		
Outcome/objective measurement criteria No migration of mining solutions in the Eyre or Namba Formation aquifers outside the ML (except for areas where a Cross Boundary Agreement applies that has been accepted by the Director of Mines) as demonstrated by ECL and EC monitoring and response. Compliance with the Eyre and Namba Formation outcome will be demonstrated by either no exceedance of ECLs at lateral monitor wells or by demonstration of compliance with the contingency measures. Monitoring of ECL parameters and EC demonstrates no compromise of the Willawortina aquifers, should it be present and saturated, as a result of mining operations. Monitoring of ECL parameters and EC demonstrates no compromise of the environmental values of the underlying aquifer(s), as a result of mining activities.		
Outcome/objective measurement criteria summary. Further details can be provided in a supporting appendix, but sufficient details must be provided in this section. No ECL exceedances in overlying compliance monitor wells were detected during the reporting period (see Appendix C.6). No ECL exceedances detected at any compliance lateral monitoring wells in operational wellfields in the reporting period (see Appendix C.6). No ECL exceedances detected at any underlying monitoring wells in the reporting period (see Appendix C.6).		
Leading indicator criteria. Water levels and ECL level trends in overlying monitoring wells (ECL parameters). Water quality and quality trends in underlying aquifer monitoring wells (ECL parameters). Water quality and quality trends in the mined aquifer monitoring and observation wells (ECL parameters).		
Leading indicator summary. Further details can be provided in a supporting appendix, but sufficient details must be provided in this section. No increasing or decreasing ECL or water level trends detected at any compliance monitor well in operational wellfields during the reporting period (Appendix C.6).		
Effectiveness of existing controls Given that mining fluid continues to be effectively managed, and no excursions of mining fluid have been detected, the effectiveness of existing controls can be demonstrated.		
Supporting report reference All hydrological monitoring data for the Beverley North ML is provided in Appendix C.6.		

Table 8. 7 - Hydrogeology (Groundwater) - Four Mile Compliance Assessment

Aspect Hydrogeology (Groundwater)	**Tenement(s)** Four Mile ML 6402	**Compliance status** Compliant
Environmental outcome/objective No compromise to the environmental values of the Willawortina or Namba aquifers. No compromise to the environmental values of the target aquifer (Eyre Formation and FM Diamictite aquifer) outside the ML No compromise to the environmental values or reduction in aquifer pressure of the Fractured Rock Aquifer (FRA) outside the ML.		
Tenement condition ML 6402 – Schedule 2, Condition 1F and Condition 6.		
Outcome/objective measurement criteria Monitoring of ECPs will be used to demonstrate there has been no compromise to the environmental values of the Willawortina and Namba aquifers, should they be present and saturated, as a result of mining operations. No migration of mining solution in the target aquifers (Eyre Formation or FM Diamictite aquifer) outside the ML (except for areas where a Cross-Boundary Co-ordination Agreement applies that has been accepted by the Director of Mines). The protection of environmental values of the Eyre Formation and FM Diamictite aquifers will be demonstrated by no exceedance[1] of two ECLs at lateral compliance monitor wells. In order to demonstrate that there has been no compromise to the; a) environmental values, or b) reduction in aquifer pressure of the FRA outside the ML, the following outcome measurement criteria have been established: a) For the maintenance of environmental values: The natural pressure differential between the mining aquifers and the FRA prohibits the movement of mining fluid through the FRA outside the ML. The outcome measurement criteria described below has been established to account for the unconnected (FMNE) and variably connected (FME and FMW) that exist between the mining zone and the FRA within the Four Mile ML. <u>FMNE (Unconnected hydrogeological setting):</u> • Maintenance of an upward pressure differential between the Eyre Formation outside the wellfield, at a lateral monitor well and an FRA monitor well underlying the wellfield. • No exceedance of two ECLs at designated underlying Wellfield FRA monitor wells. <u>FMW & FME (Variably connected hydrogeological setting):</u> Maintenance of the inward pressure gradient i.e. as measured between FRA monitor wells near the ML Boundary and their paired FRA monitor wells adjacent the mining zone. b) For the maintenance of FRA pressure outside the ML: In order to demonstrate that aquifer pressures outside the ML have not been influenced by mining activities, the outcome measurement criteria will be to maintain background pressures in the FRA outside the ML boundary.		
Outcome/objective measurement criteria summary. Further details can be provided in a supporting appendix, but sufficient details must be provided in this section. No ECL exceedances detected in any overlying aquifers during the reporting period (see Appendix C.7). No ECL exceedances detected at any lateral monitoring wells in the reporting period. Two wells saw elevated concentrations of sulphate during the December 2024 sampling event. Subsequent sampling showed a return of concentrations to within historical ranges (see Appendix C.7). Elevated pH results were observed at both 4LMW022 and 4LMW060 during the November sampling event. The result at 4LMW060 was most likely due to residual drilling muds being present within the well following installation. Elevated pH at 4LMW022 was likely anomalous. Subsequent sampling events showed pH at both wells being within historical ranges for the network. No ECL exceedances detected at any underlying monitoring wells in the reporting period. An elevated result was noted for sulphate at well 4UMW023 during the June sampling event recording a concentration of 1.61 g/L. Concentrations at this well returned to historical ranges during subsequent sampling events (see Appendix C.7). All pressure differentials were maintained during the reporting period (Appendix C.7).		
Leading indicator criteria. Water levels and water level trends, water quality and water quality trends in the Willawortina/Namba Formation. Water quality and water level trends in lateral monitor wells in the Eyre Formation and FM Diamictite Aquifers.		

1 Except for areas where a Cross Boundary Co-ordination Agreement applies that has been accepted by the Director of Mines, as demonstrated by ECP and EC monitoring and response.

Four Mile – All Areas • Monitoring of water levels in the FRA on the Mine Lease Boundary records a reduction of aquifer pressure outside the natural fluctuation range. FMNE (Unconnected hydrogeological setting) • Water quality and quality trends in FRA monitor wells in unconnected settings. • A 30% reduction in the pressure differential between the Eyre Formation at a lateral monitoring well and the underlying FRA at a central FRA monitoring well. FMW & FME (Variably connected hydrogeological setting) A 30% decrease in the FRA pressure gradient caused by an increase in pressure detected by the downgradient well of an FRA central boundary monitor well pairs.
Leading indicator summary. Further details can be provided in a supporting appendix, but sufficient details must be provided in this section. No increasing or decreasing ECL and water level trends were detected in the overlying aquifer during the reporting period (Appendix C.7). No increasing or decreasing ECL and water level trends were detected in the mining aquifer during the monitoring period (Appendix C.7). No increasing or decreasing ECL detected within the FRA. No pressure trends outside of agreed values detected.
Effectiveness of existing controls Given that mining fluid continues to be effectively managed, and no excursions of mining fluid have been detected, the effectiveness of existing controls can be demonstrated.
Supporting report reference All hydrological monitoring data for the Four Mile ML is provided in Appendix C.7

Table 8. 8 - Air Quality / Radiation Compliance Assessment

Aspect Air Quality / Radiation	**Tenement(s)** Beverley ML 6321, Beverley North ML 6387 and Four Mile ML 6402	**Compliance status** Compliant
Environmental outcome/objective No adverse impacts to workers, public or the environment due to radon release, uranium bearing dust, nor radiological aspects of seepages and spills (see Section 7.3 & 7.4).		
Tenement condition ML 6402 – Schedule 2, Condition 1B.		
Outcome/objective measurement criteria Estimated radiation doses to the public (and workers) within applicable limits as defined under the ***Radiation Protection and Control Act 2021*** (RPC Act).		
Outcome/objective measurement criteria summary. Further details can be provided in a supporting appendix, but sufficient details must be provided in this section. • Radiation monitoring was carried out as per the approved Radioactive Waste Management Plan (RWMP). • Estimated doses to members of the public remained low and well below the annual limits (Appendix C.9). • Uranium dust and radon decay products – monitored doses are calculated and are within applicable limits as defined in the RPC Act (Appendix C.9).		
Leading indicator criteria. (a) Beverley – Monitoring of radon decay products and uranium dust in the processing plant, ponds and accommodation camp areas remain below the investigation levels. (b) Beverley North – Monitoring of radon decay products and radionuclide dust in the satellite plant and wellfields remain below the investigation levels. (c) Four Mile – Radon decay products and radionuclide dust in the wellfields remain below the investigation levels.		

Leading indicator summary. Further details can be provided in a supporting appendix, but sufficient details must be provided in this section. Trends from uranium dust and radon decay products remain below investigation levels (Appendix C.8).
Effectiveness of existing controls As radiation doses to both employees and public remained low and within the applicable limits defined under the RPC Act, the effectiveness of existing controls can be demonstrated.
Supporting report reference Airborne radiological concentrations and dose assessments are provided in Appendix C.8 and C.9.

Table 8. 9 - Heritage Compliance Assessment

Aspect Heritage	**Tenement(s)** Beverley ML 6321, Beverley North ML 6387 and Four Mile ML 6402	**Compliance status** Compliant
Environmental outcome/objective No disturbance to Aboriginal artefacts or sites of significance caused by mine activity unless prior approval under the relevant legislation is obtained. Beverley ML– Commitments to Traditional Owners, as set out in agreements, are met.		
Tenement condition ML 6321 – Schedule 2, Condition 11. ML 6387 – Schedule 2, Condition 13. ML 6402 – Schedule 2, Condition 1H.		
Outcome/objective measurement criteria Documented Aboriginal Heritage Clearance surveys of all operational areas. Commitments to Traditional Owners (TO) reviewed and discussed at the Beverley Advisory Committee (BAC) to the satisfaction of members (as the agreement is confidential the measurement criterion will be the absence of disputes requiring legal action). Audits show flagged areas are not disturbed.		
Outcome/objective measurement criteria summary. Further details can be provided in a supporting appendix, but sufficient details must be provided in this section. All operational areas have fully documented Aboriginal Heritage Clearance (work area clearances) surveys completed. The BAC Beverley Advisory Committee (BAC) meetings were held on 6 March, 5 July, 4 September and 4 December 2024, between Heathgate and eight (8) senior members of the Adnyamathanha community and four (4) senior Adnyamathanha representatives from Adnyamathanha Traditional Lands Association (ATLA). These meetings discussed the implementation of the Native Title Mining Agreement with a focus on cultural heritage protection, the environment and rehabilitation, training and employment, business enterprise and community support. No disputes requiring legal action occurred during the 2024 reporting period. No evidence of disturbance within flagged areas was identified during routine environmental audits.		
Leading indicator criteria. Near-miss incident reports relating to potential disturbance of flagged areas.		
Leading indicator summary. Further details can be provided in a supporting appendix, but sufficient details must be provided in this section. No incident reports related to disturbance of flagged areas were reported in 2024.		
Effectiveness of existing controls Implementation of control measures as defined in the Beverley, Beverley North and Four Mile PEPR's are in place to reduce the risk of disturbance to Aboriginal artefacts or sites of significance.		
Supporting report reference Incident reports and supervisor reports.		

Table 8. 10 - Third Party Aspects

Aspect Third Party Aspects	**Tenement(s)** Beverley ML 6321, Beverley North ML 6387 and Four Mile ML 6402	**Compliance status** Compliant
Environmental outcome/objective No unauthorised damage to adjacent public or private property and infrastructure, including that caused by fire, as a result of mine activity. Any report of public injuries or deaths is investigated to determine if the incident was caused by mining operations and could have been reasonably prevented.		
Tenement condition ML 6321 – N/A. ML 6387 – Schedule 2, Condition 14. ML 6402 – Schedule 2, Condition 1J.		
Outcome/objective measurement criteria Any fires caused by mining operations are controlled within the ML boundary. Any accidental damage to infrastructure is made good as soon as practicable. No reportable incidents involving the public caused by mining operations.		
Outcome/objective measurement criteria summary. Further details can be provided in a supporting appendix, but sufficient details must be provided in this section. During the reporting period no fires, or accidental damaged to infrastructure or reportable incidents involving the public caused by mining operations were recorded.		
Leading indicator criteria. N/A.		
Leading indicator summary. Further details can be provided in a supporting appendix, but sufficient details must be provided in this section. N/A.		
Effectiveness of existing controls As no incidents or damage to infrastructure or public was recorded during the reporting period, the effectiveness of existing controls has been demonstrated.		
Supporting report reference N/A.		

Table 8. 11 - Waste Disposal Aspects

Aspect Waste Disposal Aspects	**Tenement(s)** Beverley ML 6321, Beverley North ML 6387 and Four Mile ML 6402	**Compliance status** Compliant
Environmental outcome/objective No wastes are disposed of within the Beverley North or the Four Mile MLs unless prior approval under the relevant legislation is obtained.		
Tenement condition ML 6321 – N/A. ML 6387 – Schedule 2, Condition 2 & 3. ML 6402 – Other Environmental Conditions, Condition 3.		
Outcome/objective measurement criteria No evidence of unauthorised disposal of wastes within the Beverley North ML. No unauthorised disposal of wastes within the Four Mile ML.		
Outcome/objective measurement criteria summary. Further details can be provided in a supporting appendix, but sufficient details must be provided in this section. No unauthorised disposal of waste has occurred within the Beverley North or Four Mile MLs during the reporting period.		
Leading indicator criteria. N/A.		
Leading indicator summary. Further details can be provided in a supporting appendix, but sufficient details must be provided in this section.		

N/A.
Effectiveness of existing controls As no unauthorised disposal of waste has occurred within the Beverley North or Four Mile MLs during the reporting period, the effectiveness of existing controls has been demonstrated.
Supporting report reference N/A.

9. Compliance with environmental outcomes/objectives and leading indicator criteria – Extractive Mineral Leases

Tables 9.1 to 9.10 provide a summary of the compliance of the Extractive Mineral Lease (EML) tenements with all operational outcomes, as specified in the tenement conditions or approved PEPR.

Table 9. 1 - Native Vegetation Compliance Assessment

Aspect Native Vegetation	**Tenement(s)** EMLs 6384, 6385, 6049, 6050, 6051 & 6392	**Compliance status** Compliant
Environmental outcome/objective Ensure no permanent loss of abundance or diversity on or off the Lease through clearance, dust / contaminant deposition, fire, other damage to native vegetation unless prior approval under the relevant legislation is obtained.		
Tenement condition EML 6392 – Schedule 2, Condition 1a. EML 6385 – Schedule 2, Condition 3. EML 6384 – Schedule 2, Condition 5.		
Outcome/objective measurement criteria Measurement of and progressive accounting of the actual area cleared (by direct or indirect means) will show that all vegetation clearance has occurred within the approved area (see EMLs PEPR, 2016). Equivalent SEB compensation accrued will be undertaken in the Annual Compliance Report (ACR) to demonstrate all clearing done with approval. Incident reports (or lack thereof) regarding fires, fuel spill or other damage. Annual site inspections show no offsite damage or clearance of native vegetation derived from mining activities.		
Outcome/objective measurement criteria summary. Further details can be provided in a supporting appendix, but sufficient details must be provided in this section. There have been no vegetation clearances during the reporting period across the EMLs. Historically cleared areas have been accounted for in the SEB calculations. There have been no incidents regarding fires, fuel spills or other damage has been reported for the reporting period. The annual EML site inspections observed no offsite damage and no clearance of native vegetation outside of the EML boundaries during the reporting period.		
Leading indicator criteria. N/A.		
Leading indicator summary. Further details can be provided in a supporting appendix, but sufficient details must be provided in this section. N/A.		
Effectiveness of existing controls As no incidents, other damage or clearance of native vegetation has occurred during the reporting period, the effectiveness of existing controls has been demonstrated.		
Supporting report reference N/A.		

Table 9. 2 - Weeds and Pests Compliance Assessment

Aspect Weeds and Pests (feral animals)	**Tenement(s)** EMLs 6049, 6050, 6051, 6384, 6385 & 6392	**Compliance status** Compliant
Environmental outcome/objective No introduction of new species of weeds, plant pathogens or pests (including feral animals), nor increase in abundance of existing weed or pest species in the Lease area compared to adjoining land.		
Tenement condition EML 6392 – Schedule 2, Condition 1b. EML 6385 – Schedule 2, Condition 4.		

EML 6384 – Schedule 2, Condition 6.
Outcome/objective measurement criteria Comparison of quarry and analogue area, weed and pest inspections conducted on an annual basis show no significant increase or new introductions of weeds or pest species in the lease area due to mining compared to the analogue (EML's 6049, 6050, 6051 & 6392). Satisfactory outcome of annual inspections (EML's 6384 & 6385).
Outcome/objective measurement criteria summary. Further details can be provided in a supporting appendix, but sufficient details must be provided in this section. No significant increase or new introductions of weeds or pests identified in lease area in comparison with surrounding area.
Leading indicator criteria. N/A.
Leading indicator summary. Further details can be provided in a supporting appendix, but sufficient details must be provided in this section. N/A.
Effectiveness of existing controls As no significant increase or introduction of weeds or pest, the effectiveness of existing controls have been demonstrated.
Supporting report reference N/A.

Table 9. 3 - Soil Compliance Assessment

Aspect Soil	**Tenement(s)** EMLs 6385, 6385, 6048 6049, 6050, 6051, 6052 & 6392	**Compliance status** Compliant
Environmental outcome/objective The Lessee must in constructing and operating the Lease ensure that the existing soil quality and quantity is maintained. The lessee shall ensure that topsoil is progressively stripped ahead of quarrying and shall be temporarily stockpiled for use in the progressive rehabilitation of land disturbed by mining. The lessee shall ensure that all land disturbed by quarrying operations is, when practicable to do so and in accordance with the appropriate seasonal conditions, progressively re-spread with topsoil and sown to a mixture of grasses to prevent soil erosion to the satisfaction of the Chief Inspector of Mine.		
Tenement condition EML 6392 – Schedule 2, Condition 1c. EML 6385 – Schedule 2, Condition 5. EML 6384 – Schedule 2, Condition 7. EML 6051 – Schedule 2, Condition 1 and 2. EML 6050 – Schedule 2, Condition 1 and 2. EML 6049 – Schedule 2, Condition 1 and 2. EML 6048 – Schedule 2, Condition 1 and 2.		
Outcome/objective measurement criteria Results of annual environmental inspection including annual monitoring photos of topsoil stockpiles compared to baseline photos show no significant loss of topsoil. Repair of any erosion if highlighted by annual environmental inspection (noted in ACR). Vegetation regrowth on closure is satisfactory.		
Outcome/objective measurement criteria summary. Further details can be provided in a supporting appendix, but sufficient details must be provided in this section. No significant loss of topsoil was identified during the reporting period. No erosion repairs were required during the reporting period. Closure has not yet commenced.		
Leading indicator criteria. N/A.		
Leading indicator summary. Further details can be provided in a supporting appendix, but sufficient details must be provided in this section. N/A.		

Effectiveness of existing controls As no significant loss of topsoil or erosion repairs required during the reporting period, the effectiveness of existing controls has been demonstrated.
Supporting report reference N/A.

Table 9. 4 - Heritage Compliance Assessment

Aspect Heritage	**Tenement(s)** EMLs 6384, 6385, 6049, 6050, 6051 & 6392	**Compliance status** Compliant
Environmental outcome/objective No disturbance to Aboriginal or European artefacts or sites of significance unless prior approval under the relevant legislation is obtained.		
Tenement condition EML 6392 – Schedule 2, Condition 1d. EML 6385 – Schedule 2, Condition 2. EML 6384 – Schedule 2, Condition 4.		
Outcome/objective measurement criteria Mine records to demonstrate that work ceased on discovery and appropriate authorities advised of disturbance to any Aboriginal or European Heritage sites on the lease during mining operations and that work commenced only after appropriate authorization (EML's 6049, 6050, 6051 & 6392). Keep records of complaints and any artefacts discovered and investigate to demonstrate no inappropriate actions by mine operator (EML's 6385 & 6385).		
Outcome/objective measurement criteria summary. Further details can be provided in a supporting appendix, but sufficient details must be provided in this section. Heritage surveys have been undertaken across all EMLs. No Aboriginal or European heritage sites or artefacts have been discovered within EMLs during the reporting period. No complaints have been received during the reporting period.		
Leading indicator criteria. N/A.		
Leading indicator summary. Further details can be provided in a supporting appendix, but sufficient details must be provided in this section. N/A.		
Effectiveness of existing controls The effectiveness of existing controls has been demonstrated for the reporting period with no complaints or discovery of Aboriginal or European sites or artefacts reported.		
Supporting report reference N/A.		

Table 9. 5 - Hydrocarbon Management Compliance Assessment

Aspect Hydrocarbon Management	**Tenement(s)** EMLs 6049, 6050, 6051, 6384, 6385 & 6392	**Compliance status** Compliant
Environmental outcome/objective Hydrocarbon storage and refueling facilities to be bunded in accordance with Environment Protection Authority requirements (EML's 6049, 6050, 6051 & 6392). No contamination of soils by fuel spills that would prevent return to pastoral use (6384 & 6385).		
Tenement condition EML 6392 – Schedule 2, Condition 1e. EML 6385 – Schedule 2, Condition 6. EML 6384 – Schedule 2, Condition 9.		
Outcome/objective measurement criteria Hydrocarbon storage and refueling facilities to be bunded in accordance with Environment Protection Authority requirements (EML's 6049, 6050, 6051 & 6392). No contamination of soils by fuel spills that would prevent return to pastoral use (6384 & 6385).		

Outcome/objective measurement criteria summary. Further details can be provided in a supporting appendix, but sufficient details must be provided in this section. No incidents of hydrocarbon spills have occurred during the reporting period.
Leading indicator criteria. N/A.
Leading indicator summary. Further details can be provided in a supporting appendix, but sufficient details must be provided in this section. N/A.
Effectiveness of existing controls As there have been no incidents or hydrocarbon spills during the reporting period, the effectiveness of existing controls has been demonstrated.
Supporting report reference N/A.

Table 9. 6 - Protection of Third-Party Property Compliance Assessment

Aspect Protection of Third-Party Property	**Tenement(s)** EMLs 6049, 6050, 6051, 6384, 6385 & 6392	**Compliance status** Compliant
Environmental outcome/objective No unauthorised damage (including that caused by fire) to adjacent public or private property and infrastructure (including roads).		
Tenement condition EML 6384 – Schedule 2, Condition 3.		
Outcome/objective measurement criteria Any complaints of unauthorised damage will be recorded in the mine logbook at the time of the complaint and investigated within 7 days (or any other time as agreed with DSD Mining Regulation) to show that the mine operator did not cause the damage through mining operations (EML's 6049, 6050, 6051 & 6392). Recording of any incident in relation to third party property damage and independent investigation of all incidents (EML's 6049, 6050, 6051 & 6392). Road used is kept in repair consistent with nearby parts of road not used (EMLs 6384 & 6385).		
Outcome/objective measurement criteria summary. Further details can be provided in a supporting appendix, but sufficient details must be provided in this section. No complaints have been received during the reporting period. No incidents of third-party property damage have occurred during the reporting period. Road was not used during the reporting period.		
Leading indicator criteria. N/A.		
Leading indicator summary. Further details can be provided in a supporting appendix, but sufficient details must be provided in this section. N/A.		
Effectiveness of existing controls As there have been no complaints or incidents of third-party property damage during the reporting period, the effectiveness of existing controls has been demonstrated.		
Supporting report reference N/A.		

Table 9. 7 - Unauthorised Access Compliance Assessment

Aspect Unauthorised Access	**Tenement(s)** EMLs 6049, 6050, 6051, 6384, 6385 & 6392	**Compliance status** Compliant
Environmental outcome/objective No public injuries and or deaths resulting from unauthorised entry to the site that could have been reasonably prevented.		
Tenement condition EML 6392 – Schedule 2, Condition 1f.		
Outcome/objective measurement criteria		

Independent investigation of all incidents of entry of members of the public to the mining operations (which resulted in injury or death) to be completed in 14 days or as agreed with the Chief Inspector of Mines to demonstrate that the mine operator could not have reasonably prevented the incident from occurring.
Outcome/objective measurement criteria summary. Further details can be provided in a supporting appendix, but sufficient details must be provided in this section. No incidents of entry of members of the public have been recorded during the reporting period.
Leading indicator criteria. N/A.
Leading indicator summary. Further details can be provided in a supporting appendix, but sufficient details must be provided in this section. N/A.
Effectiveness of existing controls As there have been no incidents recorded during the reporting period, the effectiveness of existing controls has been demonstrated.
Supporting report reference N/A.

Table 9. 8 - Traffic Compliance Assessment

Aspect Traffic	**Tenement(s)** EMLs 6384, 6385,6049, 6050, 6051 & 6392	**Compliance status** Compliant
Environmental outcome/objective No traffic accidents involving the public at mine access points that could have been reasonably prevented by the lessee.		
Tenement condition EML 6384 – Schedule 2, Condition 2.		
Outcome/objective measurement criteria All traffic accidents involving the public at mine access points are recorded in a mine logbook. All incidents will be investigated by a suitable qualified independent third party within one calendar month (or any other time as agreed with DEM Mining Regulation) and the results of the investigation show that the incident could not have been reasonably prevent by the Tenement Holder.		
Outcome/objective measurement criteria summary. Further details can be provided in a supporting appendix, but sufficient details must be provided in this section. No traffic accidents involving the public have occurred during the reporting period. No incidents have been reported during the reporting period.		
Leading indicator criteria. N/A.		
Leading indicator summary. Further details can be provided in a supporting appendix, but sufficient details must be provided in this section. N/A.		
Effectiveness of existing controls As there have been no traffic accidents or incidents recorded during the reporting period, the effectiveness of existing controls has been demonstrated.		
Supporting report reference N/A.		

10. Compliance with non-outcome based tenement conditions

A compliance assessment of all non-outcome based tenement conditions associated with the Beverley, Beverley North and Four Mile Mining Lease tenements and the Extractive Mineral Lease tenements are provided in Tables 10.1, 10.2, 10.3 and 10.4 respectively.

Table 10. 1 - Compliance with non-outcome based tenement conditions - Beverley ML 6321

Tenement condition and number	Compliance status	Evidence demonstrating compliance with tenement condition
Schedule 1, Condition 1 Mining operations authorised by this lease must be only for the recovery of Uranium.	Compliant	Mining operations are as detailed in Table 6.1
Schedule 1, Condition 2 The Lessee must keep accurate records of the quantity, value and manner of disposition of all minerals mined and, whenever required to do so, submit the records for inspection by any person authorised by the Director of Mines.	Compliant	No records requested for inspection.
Schedule 1, Condition 3 The Lessee must not conduct any mining operations on the land until a Mining and Rehabilitation Program (MARP) has been approved by the Minister.	Compliant	A revision of the 2008 MARP was approved by DMITRE (now Department for Energy and Mining) on 9 December 2013. This document was re-named Beverley Mine PEPR, Version 8, September 10, 2024.
Schedule 1, Condition 4 The MARP must comply with the requirements of guidelines approved by the Director of Mines and include environmental outcomes and criteria that are developed in consultation with relevant stakeholders.	Compliant	The current Beverley Mine PEPR, v8, 2024, approved by DEM on September 10, 2024.
Schedule 1, Condition 5 The Lessee agrees to the approved MARP being made available for public inspection.	Compliant	The Beverley Mine PEPR is available to the public on the DEM website.
Schedule 1, Condition 6 The Lessee must demonstrate upon request and to the Director of Mines, the Lessee's capability and competence to comply with the requirements of the Mining Act 1971, the conditions of this lease and the MARP.	Compliant	No request has been made by the Director of Mines.

Schedule 1, Condition 7 The Lessee accepts that the Director of Mines may withdraw a MARP approval if, in the Director's opinion, the Lessee has not complied with the approval, or has not demonstrated satisfactory capability to comply with the approval.	Compliant	No withdrawal request has been made from the Director of Mines.

Schedule 1, Condition 8 The Lessee must provide to the Director of Mines, a Mining and Rehabilitation Compliance Report (MARCR) on operations carried out on the lease and compliance with the approved MARP. The MARCR must be submitted every year, within 3 months after the anniversary of the date the lease was granted, or at some other time agreed with the Director of Mines in accordance with guidelines approved by the Director of Mines. The Lessee agrees to the MARCR being made available for public inspection.	Compliant	Evidence of compliance is detailed in this document.

Schedule 1, Condition 9 The Lessee must, if requested by the Director of Mines, undertake an independent audit of achievement of the environmental outcomes in the MARP, by an independent expert approved by the Director of Mines. The audit will be made available to the public, in a manner and form as determined by the Director of Mines.	Compliant	No independent audit was requested during the reporting period.

Schedule 1, Condition 10 The Lessee must provide to PIRSA a Mine Completion Report prior to lease relinquishment, in accordance with guidelines approved by the Director of Mines.	Compliant	Mine closure did not commence during the reporting period.

Schedule 1, Condition 11 The Lessee must, prior to commencing operations under this lease and for the duration of the lease maintain public liability insurance to cover all operations under the lease in the name of the Lessee for a sum not less	Compliant	See Appendix A.

than $50 million or such greater sum as specified by the Director of Mines and make such amendments to the terms and conditions of the insurance as the Director of Mines may require.		

Schedule 1, Condition 12 The Lessee must report any non-compliant criteria that demonstrate a breach of the environmental outcomes to be achieved (as detailed in the MARP) to the Director of Mines. A report must be provided after the Lessee becomes aware of the non-compliance, by the close of the next business day or such time period as specified in the MARP.	Compliant	No non-compliances occurred during the reporting period.

Schedule 1, Condition 13 The Lessee must, before commencing operations under this lease, lodge a bond in accordance with the Mining Act, 1971 of such an amount of the surety as determined from time to time by the Minister, to cover the full cost of rehabilitation liability assessed by an independent third party at any time. In requesting a review of the bond, the Minister may request that written quotes from a third party are obtained by the lessee for the cost of rehabilitating the site to the requirements specified in the approved MARP. The Lessee must meet all the charges and costs in obtaining and maintaining the Bond.	Compliant	Full security bond held by Department of Energy and Mining.

Schedule 2, Condition 2 & 3 The Lessee must in constructing and operating the lease ensure that there is no contamination of land and soils either on or off the site caused by waste products and hazardous materials used in the mine operations that would compromise a return to pastoral use. The Lessee must in constructing and operating the lease ensure that there are no adverse impacts to the environment due to radon release, uranium-bearing materials, or radiological aspects of seepages and spills.	Compliant	All waste is managed and disposed of in accordance with EPA Licence 12918.

Schedule 2, Condition 12 The Lessee must in constructing and operating the lease ensure that there are no uncontrolled fires caused by mining operations.	Compliant	No unauthorised fires caused by mining operations were recorded during the reporting period.

Schedule 2, Condition 13 The Lessee must in constructing and operating the lease ensure that there are no public injuries and or deaths resulting from unauthorised entry to the site that could have been reasonably prevented.	Compliant	No public injuries and or deaths were recorded during the reporting period.

Schedule 2, Condition 14 Where the pastoral lease holder differs from the mining lease holder, the Lessee must ensure that the occupier of the land is fully advised of their program of activities, particularly in regard to the impact of operations on the land and rehabilitation progress.	Not relevant	Heathgate is the lease holder of Wooltana Pastoral Lease.

Schedule 2, Condition 15 The Lessee must, in constructing and operating the lease, ensure that there is no unauthorised damage to adjacent public or private infrastructure.	Compliant	No reported damage to adjacent public or private infrastructure was identified during the reporting period.

Schedule 2, Condition 16 The Lessee must demonstrate prior to lease expiry or surrender that the following outcomes (in so far as they may be affected by mining operations) will be achieved indefinitely post mine closure to the satisfaction of the Director of Mines.	Not relevant	Mining not yet completed.

Schedule 2, Condition 16a No change, outside of natural background variation, to the water quality of the GAB.	Not relevant	Mining not yet completed.

Schedule 2, Condition 16b No change, outside of natural background variation, to the water quality of the Willawortina	Not relevant	Mining not yet completed.

Formation.		

Schedule 2, Condition 16c No compromise of potential pastoral use (should it meet pastoral water quality standards) of the Namba aquifer outside the Beverley mining lease.	Not relevant	Mining not yet completed.

Schedule 2, Condition 16d The external visual amenity of the site is acceptable to relevant stakeholders.	Not relevant	Mining not yet completed.

Schedule 2, Condition 16e Risks to the health and safety of the public and fauna are as low as reasonably achievable.	Not relevant	Mining not yet completed.

Schedule 2, Condition 16f Ecosystem and landscape function is resilient, self-sustaining and indicating that the pre-mining ecosystem and landscape function will ultimately be achieved	Not relevant	Mining not yet completed.

Schedule 2, Condition 16g All waste materials left onsite are chemically and physically stable	Not relevant	Mining not yet completed.

Schedule 2, Condition 17 The MARP must include additional leading indicator criteria for the following outcomes 17a – 17d.	Compliant	As identified in Section 8 – Tables 8.1 – 8.10 for the reporting period.

Schedule 2, Condition 17a Ensure that soil affected by mining activities is suitable for a return to pastoral use.	Compliant	As identified in Section 8 - Table 8.3 for the reporting period.

Schedule 2, Condition 17b Ensure that there is no compromise to other existing Great Artesian Basin users within the Beverley mine region.	Compliant	As identified in Section 8 Tables 8.4 to 8.7 for the reporting period.

Schedule 2, Condition 17c Ensure that there is no	Compliant	As identified in Section 8 Tables 8.4 to 8.7 for the reporting period.

compromise to pastoral use of Willawortina aquifer.		

Schedule 2, Condition 17d Ensure that there is no compromise of potential pastoral use (should it meet pastoral water quality standards) of the Namba aquifer outside the Beverley mining lease.	Compliant	As identified in Section 8 Tables 8.4 to 8.7 for the reporting period.

Table 10. 2 - Compliance with non-outcome based tenement conditions - Beverley North ML 6387

Tenement condition and number	Compliance status	Evidence demonstrating compliance with tenement condition
Schedule 1, Condition 1 Mining operations authorised by this lease must be only for the recovery of Uranium.	Compliant	Mining operations are as detailed in Table 6.1.
Schedule 1, Condition 2 The Lessee must not commence or undertake any mining operations the land until a Mining and Rehabilitation Program (MARP) has been approved by the Minister and a bond has been paid in accordance with Section 62 of the Mining Act 1971.	Compliant	The original MARP was approved in 2011, the current version 14 was approved on September 10, 2024. A full bond is held by DEM to cover all decommissioning and remedial requirements at Beverley North.
Schedule 1, Condition 3 The Lessee must prepare a MARP that complies with the requirements of guidelines approved by the Director of Mines and include criteria that are developed in consultation with relevant stakeholders.	Compliant	The original MARP was approved in 2011, the current version 14 was approved on September 10, 2024. A full bond is held by DEM to cover all decommissioning and remedial requirements at Beverley North.
Schedule 1, Condition 4 The criteria included in the MARP must demonstrate clear and unambiguous achievement of the environmental and mine closure outcomes specified in the Second Schedule by: Including the specific parameters to be measured and monitored by the Lessee Specifying the locations that the parameters will be measured, or how these locations will be determined Clearly stating the acceptable values for demonstrating	Compliant	All criteria described in the Beverley North PEPR (Version 14) approved by the DEM on September 10, 2024.

achievement of the outcome, with consideration of any inherent errors of measurement Specifying the frequency of monitoring by the Lessee Identifying background conditions including the predicted effect of other mining leases with an approved PEPR in determining background groundwater data for relevant aquifers		

Schedule 1, Condition 5 The Lessee Must implement and comply with the approved MARP.	Compliant	Compliance demonstrated via this document.

Schedule 1, Condition 6 The Lessee must review the MARP on request of the Director of Mines within a time specified in the request and submit the revised MARP for approval to the Director of Mines.	Compliant	No request has been made by the Director of Mines during the reporting period.

Schedule 1, Condition 7 The Lessee agrees to the approved MARP being made available for public inspection.	Not relevant	Beverley North PEPR (Version 14) is available to the public on the DEM website.

Schedule 1, Condition 8 The Lessee must provide information as requested by and to the Director of Mines, on the Lessee's capability and competence to comply with the requirements of the Mining Act, 1971, the conditions of this lease, and the MARP in accordance with approved guidelines or as otherwise specified by the Director of Mines	Not relevant	No request has been made by the Director of Mines during the reporting period.

Schedule 1, Condition 9 The lessee must provide to the Director of Mines a Mining and Compliance Report (MARCR) on operations carried out on the Lease and compliance with the approved MARP. The MARCR must be submitted every year, within 2 months after the anniversary of the date the Lease was granted, or at some other time agreed with the Director of Mines in accordance	Compliant	Compliance demonstrated via this document.

with guidelines approved by the Director of Mines. The Lessee agrees to the MARCR being made available for public inspection.		

Schedule 1, Condition 10 The Lessee must, if requested by the Director of Mines, undertake an independent audit of achievement of the environmental outcomes in the MARP, by an independent expert approved by the Director of Mines and submit the audit to the Director of Mines. The lessee agrees to the audit being made available for public inspection. The Lessee must meet all the charges and costs in undertaking the independent audit.	Compliant	No request has been made by the Director of Mines during the reporting period.

Schedule 1, Condition 11 At least 3 months prior to Lease relinquishment or expiry, the Lessee must provide to the Minister a Mine Completion Report prepared in consultation with the landowner and in accordance with guidelines approved by the Director of Mines, which demonstrates achievement of the closure criteria as specified in the current MARP.	Not relevant	Mine closure has not yet commenced.

Schedule 1, Condition 12 The Lessee must, prior to commencing operations under this Lease and for the duration of the lease maintain public liability insurance to cover all operations under the Lease in the name of the Lessee for a sum not less than $50 million or such greater sum as specified by the Director of Mines and make such amendments to the terms and conditions of the insurance as the Director of Mines may require. A copy of the cover note of certificate of insurance must be provided to the Director of Mines upon request If requested by the Director of Mines, the Lessee must engage an independent and reputable risk assessor to prepare a risk assessment report detailing the	Compliant	See Appendix A.

public liability risks arising out of conduct of operations on the lease, and recommending the level of amount of public liability cover (in respect of any one occurrence) that should be effected and maintained by the Lessee. In preparing the risk assessment report, the assessor must consult with the landowner and the Director of Mines. In specifying the level of insurance required, the Director of Mines accepts no liability for the completeness, adequacy of the sum insured, the limit of liability, the scoped coverage, the conditions or exclusions of the insurance in respect of how the Lessee may or may not respond to any loss, damage or liability.		

Schedule 1, Condition 13 The Lessee must report any non-compliance with these conditions and approved MARP to the Director of Mines. A verbal notification must be provided within 24 hours, after the Lessee becomes aware of the non-compliance. A written report must be provided within 3 calendar days, or such time period as approved by the Director of Mines.	Not relevant	No non-compliances occurred during the reporting period.

Schedule 1, Condition 14 In requesting a review of the bond required under the Mining Act 1971 the Minister may request that written quotes from a third party are obtained by the Lessee for the cost of rehabilitating the site to the requirements specified in the approved MARP. The Lessee must meet all the charges and costs in obtaining and maintaining the Bond.	Not relevant	No request has been made by the Minister for a third-party review of the rehabilitation bond.

Schedule 2, Condition 2 & 3 The Lessee must not dispose of any waste within the lease unless prior approval under the relevant legislation is obtained. The Lessee must in constructing and operating the lease ensure that there are no adverse impacts to the environment due	Compliant	All waste is managed and disposed of in accordance with EPA Licence 12918.

to radon release, uranium-bearing materials, or radiological aspects of seepages and spills.		

Schedule 2, Condition 14 The Lessee must in constructing and operating the lease ensure there is no unauthorised damage (including that caused by fire) to adjacent public or private property and infrastructure.	Compliant	No unauthorised damage to public or private infrastructure occurred within the reporting period.

Schedule 2, Condition 15 The Lessee must demonstrate that the following outcomes (in so far as they may be affected by mining operations) are expected to be achieved indefinitely post mine closure to the satisfaction of the Director of Mines: a) No compromise to the environmental values of the Willawortina Formation, Namba aquifer, Eyre Formation, Fractured Rock and Great Artesian Basin aquifers. b) No change, outside of natural background variation, to the pre-mining water quality and aquifer pressure of the Mt Painter Fractured Rock aquifer. c) The external visual amenity of the site is acceptable to relevant stakeholders. d) The risks to health and safety of the public and fauna are as low as reasonably achievable. e) Ecosystem and landscape function is resilient, self-sustaining and indicating that that pre-mining ecosystem and landscape function will ultimately be achieved. f) The site is physically stable. g) All waste materials left onsite are chemically and physically stable. h) No compromise to the ability of other existing mining lessees with an approved MARP to achieve their approved groundwater closure criteria.	Not relevant	Mine closure has not yet commenced.

Schedule 2, Condition 16 The Lessee must specify closure criteria that will be used to demonstrate (within 10 years of the cessation of mining) the clear and unambiguous achievement of the closure outcomes.	Not relevant	Mine closure has not yet commenced.

Schedule 2, Condition 17 Where the pastoral lease holder differs from the mining lease holder, the Lessee must ensure that the occupier of the land is fully advised of their program of activities, particularly in regard to the impact of operations on the land and rehabilitation process.	Not relevant	Heathgate are the holders of the Wooltana Pastoral Lease on which the Beverley North Operation is contained.

Table 10. 3 - Compliance with non-outcome based tenement conditions - Four Mile ML 6402

Tenement condition and number	Compliance status	Evidence demonstrating compliance with tenement condition
Schedule 1, Condition 1 Mining operations authorised by this Lease must only be for the recovery of uranium as outlined in the mining lease proposal document dated 7th January 2009 and subsequent response document dated 19th March 2009.	Compliant	Only uranium is mined within the Four Mile ML.
Schedule 1, Condition 2 The Lessee is authorised under Section 10A(1) of the Mining Act 1971 to conduct mining operations to recover radioactive minerals.	Compliant	As per this report.
Schedule 1, Condition 3 The Lessee is authorised under Section 10A(1) of the Mining Act 1971 to dispose and sell radioactive minerals.	Compliant	As per this report.
Schedule 1, Condition 4 In accordance with Regulation 86(1)(a) the Lessee must provide a Compliance report every year, within 2 months after the anniversary of the date the Lease was granted, or at some other time agreed with the Minister.	Compliant	As per this report.
Schedule 1, Condition 5 The Lessee agrees to the approved Program for Environment Protection and Rehabilitation (PEPR) (section 70B (5)) and any Compliance or Incident report submitted in accordance with Regulation 86	Compliant	As identified in Section 8.1 to Section 8.10, four (4) non-compliances have occurred in the reporting period with details of notification contained in Section 8.3 and 8.7.

or 87 being made available for public inspection.		

Schedule 1, Condition 6 In accordance with Regulation 90(1) the Lessee must, prior to commencing operations under this Lease and for the duration of the Lease, maintain public liability insurance to cover all operations under the Lease in the name of the Lessee for a sum not less than $50 million or such greater sum as specified by the Minister, and make such amendments to the terms and conditions of the insurance as the Minister may require.	Compliant	See Appendix A.

Schedule 1, Condition 7 In requesting a review of the bond required under the Mining Act 1971 the Minister may request that written quotes from an independent third party approved by the Minister are obtained by the Lessee for the cost of rehabilitating the site to the requirements specified in the approved Program under Regulation 65(2).	Compliant	No request has been made by the Minister for a third-party review of the rehabilitation bond.

Schedule 1, Condition 8 The Lessee must meet all the charges and costs in obtaining and maintaining the bond.	Compliant	Condition accepted.

Schedule 2, Condition 1I The Lessee must in constructing and operating the lease ensure that here are no public injuries and or deaths resulting from unauthorised entry to the site that could have been reasonably prevented.	Compliant	No unauthorised entry occurred during the reporting period.

Schedule 2, Condition 1J The Lessee must, in constructing and operating the lease, ensure that there is no unauthorised damage (including that caused by fire) to adjacent public or private property and infrastructure.	Compliant	No reported damage to adjacent public or private infrastructure was identified during the reporting period.

Schedule 2, Condition 1K The Lessee must demonstrate to the satisfaction of the Director of Mines that the following mine	Not relevant	Mine closure has not yet commenced.

closure outcomes (in so far as they may be affected by mining operations) are expected to be achieved and sustained after mine closure: a) No compromise to the environmental values of the Namba aquifer. b) No compromise to the environmental values of the Eyre Formation. c) No change, outside of natural background variation, to the pre-mining water quality and aquifer pressure of the Mt Painter Fractured Rock aquifer. d) The external visual amenity		

Schedule 2, Condition 2 The Lessee must, within 10 years of the cessation of mining, demonstrate performance against approved closure criteria such that the outcomes listed under “Closure and Rehabilitation” in Condition 1 will be achieved.	Compliant	Mine closure has not yet commenced.

Schedule 2, Condition 3 The Lessee must, in constructing and operating the Lease, ensure that all commercial or industrial waste is disposed of in accordance with relevant legislation.	Compliant	All waste is managed and disposed of in accordance with EPA licence 12918.

Schedule 2, Condition 4 a & b a) The Lessee must take responsibility for establishing and implementing a Community Engagement Plan. b) The Community Engagement Plan must comply with the requirements approved by the Director of Mines.	Compliant	A community engagement plan is defined in the approved Four Mile PEPR v4.0, 2023.

Schedule 2, Condition 5 The Lessee must ensure that the occupier of the land is fully advised of their program of activities, particularly in regard to the impact of operations on the land and rehabilitation progress.	Compliant	Heathgate is the owner of the Wooltana Pastoral Lease. The adjacent Arkaroola Pastoral Lease (Arkaroola Wilderness Sanctuary) form part of routine engagement activities.

Table 10. 4 - Compliance with non-outcome based tenement conditions - EMLs 6385, 6384, 6392, 6048, 6049, 6050 & 6051

Tenement condition and number	Compliance status	Evidence demonstrating compliance with tenement condition
EML 6385 Schedule 2, Condition 7 The Lessee must, before commencing operations under this lease, consult with the Department for Transport, Energy and Infrastructure and set up an agreement for the maintenance of the Mt Hopeless – Balcanoona Rd.	Compliant	An agreement was set up prior to operations commencing.
EML6392 Schedule 2, Condition 1h EML 6385 Schedule 2, Condition 8 EML 6384 Schedule 2, Condition 8 EML 6048, 6049, 6050 & 6051 Schedule 2, Condition 3,4 & 5 The Lessee must demonstrate to the satisfaction of the Director of Mines that the following mine closure outcomes (in so far as they may be affected by mining operations) are expected to be achieved and sustained after mine closure: a) the external visual amenity of the site is acceptable as determined by the Director of Mines in consultation with relevant interested parties. b) the risks to the health and safety of the public and fauna are as low as reasonably practical. c) where practical, re-establishment of the pre-mining ecosystem and landscape function. d) the site is physically stable. e) no compromise of the quality and quality of ground and or surface water to existing users and water dependent ecosystems. f) all mine waste materials left onsite are chemically and physically stable. g) no industrial or domestic waste left onsite.	Compliant	Mine closure has not yet commenced.

11. Rectification of non-compliances

Table 11. 1 - Rectification of non-compliances

Date of the incident 16/02/2024	**Date the incident was reported** 16/02/2024
What environmental outcome/objective or tenement condition was breached? ML 6321 Schedule 2, Condition 1 The Lessee must, in constructing and operating the Lease, ensure that soil affected by mining activities is suitable for a return to pre-mining use. Beverley **(**ML 6321) Program for Environment Protection and Rehabilitation (PEPR) Outcome: Soil affected by mining activities is suitable for a return to pastoral use.	
State the cause of the non-compliance Approximately 5,600 litres of untreated effluent spilt from the 1st rotating disk due to growth on the transfer tanks pin floats causing failure of the discharge pump. A Community Wastewater Management System Incident Notification Form was submitted to the Department of Health on the 21 February 2024	
Detail any actions taken or yet to be taken to rectify the non-compliance and to prevent the recurrence of any such noncompliance. The spill was investigated, and the pin floats of the transfer tank were replaced with ball floats to prevent future seizing due to microbial growth.	

Date of the incident 14/04/2024	**Date the incident was reported** 14/04/2024
What environmental outcome/objective or tenement condition was breached? ML 6321 Schedule 2, Condition 1 The Lessee must, in constructing and operating the Lease, ensure that soil affected by mining activities is suitable for a return to pre-mining use. Beverley **(**ML 6321) Program for Environment Protection and Rehabilitation (PEPR) Outcome: Soil affected by mining activities is suitable for a return to pastoral use.	
State the cause of the non-compliance Approximately 12,000 litres of untreated effluent spilt to the area adjacent the wastewater treatment plant due to a blockage upstream of the primary tank. A Community Wastewater Management System Incident Notification Form was submitted to the Department of Health on the 15 April 2024.	
Detail any actions taken or yet to be taken to rectify the non-compliance and to prevent the recurrence of any such noncompliance. The spill was risk assessed, investigated and contaminated areas were remediated as per PEPR, RWMP and Wastewater Treatment System approval requirements. Communications were sent site wide to increase awareness of the potential risks of flushing unsuitable material into the effluent treatment system.	

Date of the incident 22/05/2024	**Date the incident was reported** 22/05/2024
What environmental outcome/objective or tenement condition was breached? ML 6321 Schedule 2, Condition 1 The Lessee must, in constructing and operating the Lease, ensure that soil affected by mining activities is suitable for a return to pre-mining use. Beverley **(**ML 6321) Program for Environment Protection and Rehabilitation (PEPR) Outcome: Soil affected by mining activities is suitable for a return to pastoral use.	
State the cause of the non-compliance	

Approximately 12,000 litres of untreated effluent spilt to the area between an accommodation block and the wastewater treatment plant due to a blockage between the inspection point and the primary tank. A Community Wastewater Management System Incident Notification Form was submitted to the Department of Health on the 22 May 2024.
Detail any actions taken or yet to be taken to rectify the non-compliance and to prevent the recurrence of any such noncompliance. The spill was risk assessed, investigated and contaminated areas were remediated as per PEPR, RWMP and Wastewater Treatment System approval requirements. Communications were sent site wide to increase awareness of the potential risks of flushing unsuitable material into the effluent treatment system.

Date of the incident 24/07/2024	**Date the incident was reported** 24/07/2024
What environmental outcome/objective or tenement condition was breached? ML 6321 Schedule 2, Condition 1 The Lessee must, in constructing and operating the Lease, ensure that soil affected by mining activities is suitable for a return to pre-mining use. Beverley **(**ML 6321) Program for Environment Protection and Rehabilitation (PEPR) Outcome: Soil affected by mining activities is suitable for a return to pastoral use.	
State the cause of the non-compliance Approximately 2,000 litres of untreated effluent spilt to the area around the primary tank of the wastewater treatment plant due a blockage in the primary tank's inlet. A Community Wastewater Management System Incident Notification Form was submitted to the Department of Health on the 24 July 2024.	
Detail any actions taken or yet to be taken to rectify the non-compliance and to prevent the recurrence of any such noncompliance. The spill was risk assessed, investigated and contaminated areas were remediated as per PEPR, RWMP and Wastewater Treatment System approval requirements. Communications were sent site wide to increase awareness of the potential risks of flushing unsuitable material into the effluent treatment system.	

Date of the incident 03/04/2024	**Date the incident was reported** 08/04/2024
What environmental outcome/objective or tenement condition was breached? ML 6402 PEPR Outcome: Off-road vehicle movements not approved via an Environmental Clearance Permit are investigated, reported and one of the following actions are taken: - fenced off to prevent reuse and rehabilitated; or - converted to an authorised road subject to Significant Environmental Benefit (SEB).	
State the cause of the non-compliance Vehicle operators of both Heavy Vehicles (HV) and Light Vehicles (LV) drove outside of the cleared area when undertaking drilling within the Four Mile ML.	
Detail any actions taken or yet to be taken to rectify the non-compliance and to prevent the recurrence of any such noncompliance. Actions undertaken included restricting the area to prevent reuse and enable rehabilitation. In addition, communications were sent site wide to reinforce the importance of driving off designated areas. This was investigated and recorded in the incident management system Donesafe.	

Date of the incident 22/04/2024	**Date the incident was reported** 22/04/2024
What environmental outcome/objective or tenement condition was breached? ML 6321 PEPR Outcome: Off-road vehicle movements not approved via an Environmental Clearance Permit are investigated, reported and one of the following actions are taken:	

- fenced off to prevent reuse and rehabilitated; or - converted to an authorised road subject to Significant Environmental Benefit (SEB).
State the cause of the non-compliance Vehicle operator/s drove outside of the demarcated area where fencing has been dismantled when undertaking drilling within the Beverley ML.
Detail any actions taken or yet to be taken to rectify the non-compliance and to prevent the recurrence of any such noncompliance. Actions undertaken included re-erection of fencing and restricting the area to prevent reuse and enable rehabilitation. In addition, communications were sent site wide to reinforce the importance of driving off designated areas. This was investigated and recorded in the incident management system Donesafe.

Date of the incident 10/05/2024	**Date the incident was reported** 16/05/2024
What environmental outcome/objective or tenement condition was breached? ML 6402 PEPR Outcome: Off-road vehicle movements not approved via an Environmental Clearance Permit are investigated, reported and one of the following actions are taken: - fenced off to prevent reuse and rehabilitated; or - converted to an authorised road subject to Significant Environmental Benefit (SEB).	
State the cause of the non-compliance A restricted area was accessed which a Heavy Vehicle (HV) operator drove off established tracks encroaching into the exclusion area of a creek boundary within the Four Mile ML.	
Detail any actions taken or yet to be taken to rectify the non-compliance and to prevent the recurrence of any such noncompliance. Actions undertaken included demarcating the area to prevent reuse and enable rehabilitation. In addition, communications were sent site wide to reinforce the importance of driving off designated areas. This was investigated and recorded in the incident management system Donesafe.	

Date of the incident 25/07/2024	**Date the incident was reported** 26/07/2024
What environmental outcome/objective or tenement condition was breached? ML 6321 PEPR Outcome: Off-road vehicle movements not approved via an Environmental Clearance Permit are investigated, reported and one of the following actions are taken: - fenced off to prevent reuse and rehabilitated; or - converted to an authorised road subject to Significant Environmental Benefit (SEB).	
State the cause of the non-compliance Unauthorised off-road movement, which resulted in a vehicle track being established within the Beverley ML.	
Detail any actions taken or yet to be taken to rectify the non-compliance and to prevent the recurrence of any such noncompliance. Action undertaken included converting the cleared track to an authorised vehicle track and incorporating into the annual Significant Environmental Benefit (SEB) calculation. In addition, communications were sent site wide to reinforce the importance of driving off designated areas. This was investigated and recorded in the incident management system Donesafe.	

Date of the incident 25/07/2024	**Date the incident was reported** 26/07/2024
What environmental outcome/objective or tenement condition was breached? ML 6387 PEPR Outcome:	

Off-road vehicle movements not approved via an Environmental Clearance Permit are investigated, reported and one of the following actions are taken: - fenced off to prevent reuse and rehabilitated; or - converted to an authorised road subject to Significant Environmental Benefit (SEB).
State the cause of the non-compliance Unauthorised bypass track was undertaken, which resulted in a vehicle track being established within the Beverley North ML.
Detail any actions taken or yet to be taken to rectify the non-compliance and to prevent the recurrence of any such noncompliance. Action undertaken included converting the cleared track to an authorised vehicle track and incorporating into the annual Significant Environmental Benefit (SEB) calculation. In addition, communications were sent site wide to reinforce the importance of driving off designated areas. This was investigated and recorded in the incident management system Donesafe.

Date of the incident 13/08/2024	**Date the incident was reported** 13/08/2024
What environmental outcome/objective or tenement condition was breached? ML 6321 PEPR Outcome: Off-road vehicle movements not approved via an Environmental Clearance Permit are investigated, reported and one of the following actions are taken: - fenced off to prevent reuse and rehabilitated; or - converted to an authorised road subject to Significant Environmental Benefit (SEB).	
State the cause of the non-compliance Vehicle operator/s drove off established roads when moving between different areas within the Beverley ML.	
Detail any actions taken or yet to be taken to rectify the non-compliance and to prevent the recurrence of any such noncompliance. Actions undertaken included demarcating the area to prevent reuse and enable rehabilitation. In addition, communications were sent site wide to reinforce the importance of driving off designated areas. This was investigated and recorded in the incident management system Donesafe.	

Date of the incident 23/09/2024	**Date the incident was reported** 23/09/2024
What environmental outcome/objective or tenement condition was breached? ML 6321 & ML 6402 PEPR Outcome: Off-road vehicle movements not approved via an Environmental Clearance Permit are investigated, reported and one of the following actions are taken: - fenced off to prevent reuse and rehabilitated; or - converted to an authorised road subject to Significant Environmental Benefit (SEB).	
State the cause of the non-compliance Heavy Vehicle (HV) operator/s drove of established roads when moving between different locations within the Beverley and Four Mile MLs.	
Detail any actions taken or yet to be taken to rectify the non-compliance and to prevent the recurrence of any such noncompliance. Actions undertaken included demarcating the area to prevent reuse and enable rehabilitation. In addition, communications were sent site wide to reinforce the importance of driving off designated areas. This was investigated and recorded in the incident management system Donesafe.	

Date of the incident 30/12/2024	**Date the incident was reported** 30/12/2024

What environmental outcome/objective or tenement condition was breached? ML 6321 PEPR Outcome: Off-road vehicle movements not approved via an Environmental Clearance Permit are investigated, reported and one of the following actions are taken: - fenced off to prevent reuse and rehabilitated; or - converted to an authorised road subject to Significant Environmental Benefit (SEB)
State the cause of the non-compliance Light Vehicle (LV) operator drove of established road when moving between different locations within the Beverley ML.
Detail any actions taken or yet to be taken to rectify the non-compliance and to prevent the recurrence of any such noncompliance. Actions undertaken included demarcating the area to prevent reuse and enable rehabilitation. In addition, communications were sent site wide to reinforce the importance of driving off designated areas. This was investigated and recorded in the incident management system Donesafe.

12. Disturbance and rehabilitation activities

The tables below provide a summary of the disturbance and rehabilitation activities.

Table 12. 1 - Disturbance Activities

Area	Description of disturbance activity carried out during the reporting period	Amount of land disturbed during the reporting period (hectares)	Total area disturbed (hectares)
Beverley ML	General and Low Level Waste Pit excavation, Geology laydown, vehicle access tracks and Namba bore installation.	5.96	574.56
Beverley North ML	Pannikan delineation drilling, and pipework extension to trunkline.	0.73	62.63
Four Mile ML	Four Mile West, North, North East and East wellfield expansion and delineation, Kaolin exploration project, and Four Mile North East mud pit excavation.	32.84	276.84
	Total	39.53	914.03

Table 12. 2 - Rehabilitation Activities

Area	Description of rehabilitation works carried out during the reporting period	Amount of land rehabilitated during the reporting period (hectares)	Estimated amount of land to be rehabilitated in the next reporting period (hectares)	Total amount of land where rehabilitation works are completed (hectares)
Beverley ML	Rehabilitation program is progressing with rehabilitation of wellfields in Beverley South, Beverley Central, Beverley East and North Beverley of the ML 6321.	82	25	150
Beverley North ML	Rehabilitation program commenced with rehabilitation of Pepegoona Satellite Plant and wellfields.	1.29	14	1.29
Four Mile ML	No rehabilitation works carried out during the reporting period.	0	0	0
	Total	83.29	39	151.29

Strategies implemented to avoid or minimise disturbance
To ensure minimal disturbance to vegetation and sensitive environmental areas, Heathgate has an Environmental Clearance Permit (ECP) system where a permit must be obtained prior to any work commencing in any undisturbed area or area under rehabilitation on the MLs. The ECP system ensures access networks are planned, and sensitive habitat and soaks are protected in accordance with specific environmental and rehabilitation requirements. The ECP system also ensures that all new areas of disturbance are measured by GPS which is then imported into a Geographic Information System (GIS) to enable accurate calculations of the total area disturbed for each year. All rehabilitated areas are also measured in this manner and this information forms the basis for Significant Environmental Benefit (SEB) accounting.

Provide a summary of any potential improvements learned from previous rehabilitation activities
N/A.

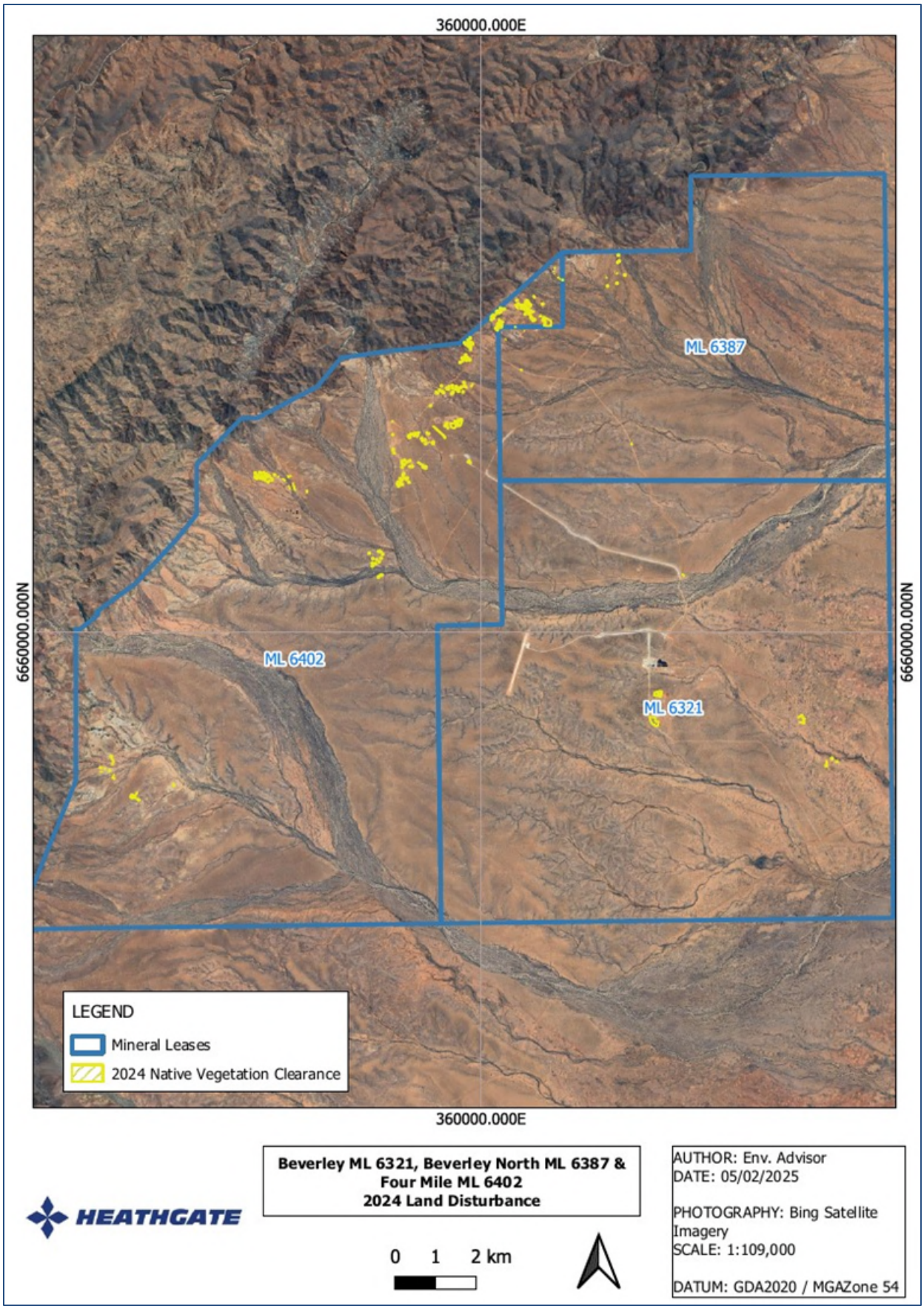

Figure 12. 1 - Beverley, Beverley North & Four Mile 2024 Land Disturbance

13. Reconciliation of native vegetation clearance

Table 13.1 details the area of native vegetation cleared during the reporting period (including payments made to the Native Vegetation Council), and the total amount of hectares cleared to date. Also outlined is the estimated clearance for the 2025 reporting period.

Table 13. 1 - Reconciliation of Native Vegetation Clearance

Tenement	PEPR Approval Date	PEPR Approved Clearance Area (Ha)	Amount cleared since PEPR approval	Amount cleared in reporting period (Ha)	Total amount cleared to date (Ha)	Estimated amount to be cleared next reporting period (Ha)	SEB payment to NVC within reporting period
Beverley ML 6321	2024	220	5.96	5.96	574.56	5	$17,661.29
Beverley North ML 6387	2024	220	0.73	0.73	62.63	5	$2,793.19
Four Mile ML 6402	2023	320.7	128.57	32.84	276.84	20	$20,885.55 Offset by assignment of credit NVC Application No: 2018/4004/010/005

* Payment to be submitted following submission of Annual Compliance Report.

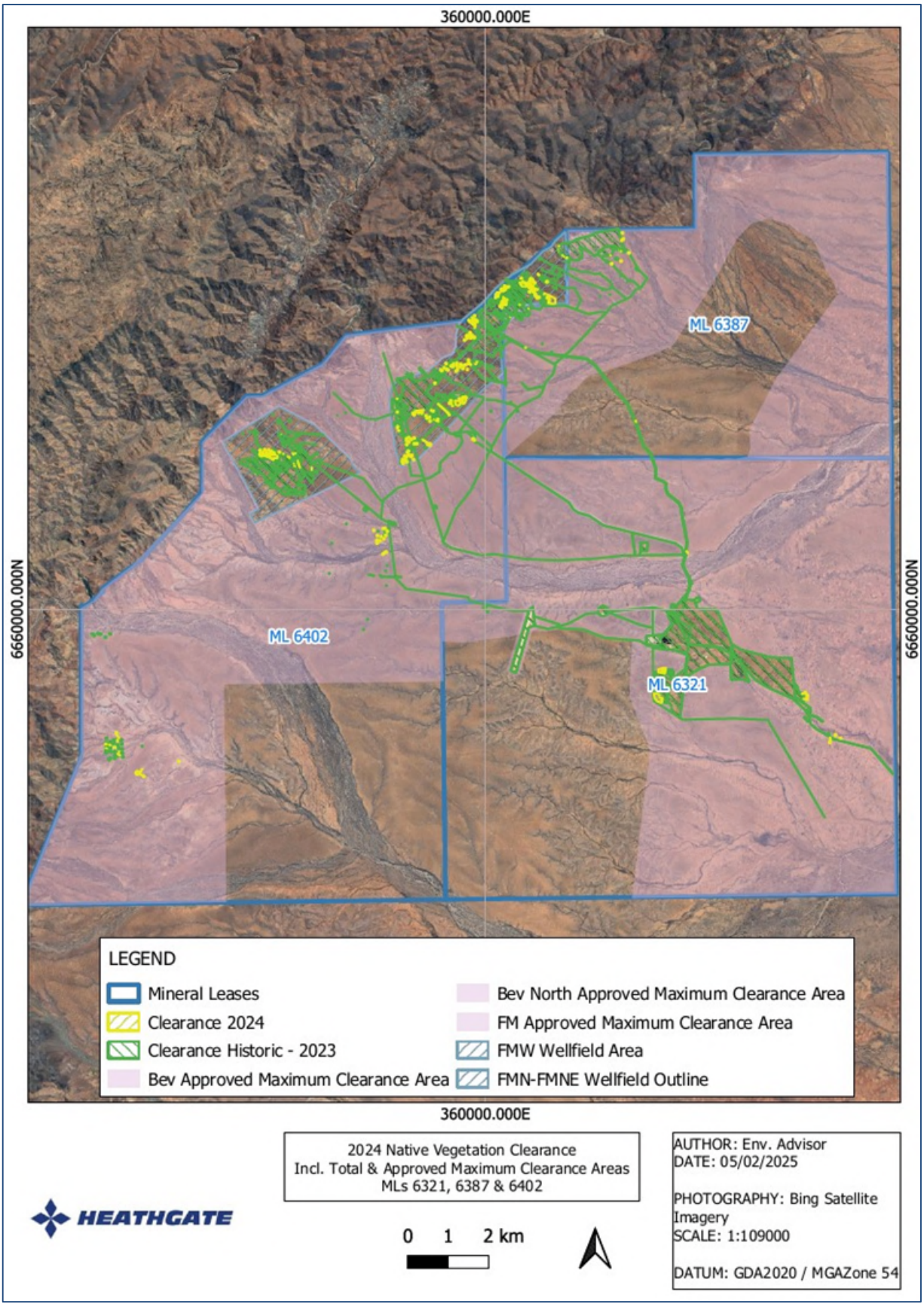

Figure 13.1 - 2024 Native Vegetation Clearance (incl Total and Maximum areas)

14. Environment Protection and Biodiversity Conservation Act Reporting

The Beverley (EPBC 2006/3167), Beverley North (EPBC 2009/5138), and Four Mile (EPBC 2008/4252) operations are subject to approvals under the Commonwealth ***Environment Protection and Biodiversity Conservation Act 1999*** (EPBC Act).

A summary of compliance against approval conditions is provided in Tables 14.1, 14.2 and 14.3.

Table 14. 1 – Beverley ML 6321 (EPBC 2006/3167) Environment Protection and Biodiversity Conservation Act Reporting

1. The person taking the action must ensure that, in undertaking the action, the following outcomes are achieved (in so far as they may be affected by mining operations):

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
1 (a)	No compromise to other existing Great Artesian Basin users within the Beverley mine region.	Compliant	Refer to Table 8.5 and Appendix C.4.
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
1 (b)	No compromise to pastoral use of the Willawortina aquifer.	Compliant	Refer to Table 8.5 and Appendix C.5.
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
1 (c)	No compromise of potential pastoral use (should it meet pastoral water quality standards) of the Namba aquifer outside the Beverley mining lease.	Compliant	Refer to Table 8.5 and Appendix C.5.
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
1 (d)	No loss of abundance or diversity on or off the Beverley mining lease to native vegetation through clearance or other damage unless prior approval under relevant legislation is obtained.	Compliant	Refer to Table 8.2 and Appendix C.2.
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
1 (e)	No net adverse impacts from the site operations on native fauna abundance	Compliant	Refer to Table 8.1 and Appendix C.1.

	or diversity in the lease area and adjacent areas.		
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
1 (f)	No introduction of new weeds, plant pathogens or pests (including feral animals), or increase in abundance of existing weed or pest species in the lease area compared to adjoining pastoral areas.	Compliant	Refer to Table 8.1 and 8.2 and Appendix C.1 and C.2.
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
1 (g)	No uncontrolled fires caused by mining operations.	Compliant	Refer to Table 8.10.
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
1 (h)	No disturbance to Aboriginal artefacts or sites of significance unless prior approval under the relevant legislation is obtained.	Compliant	Refer to Table 8.9.
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
1 (i)	No compromise of pastoral use of downstream surface water bodies.	Compliant	Refer to Table 8.4.
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
1 (j)	Soil affected by mining activities is suitable for return to pastoral use.	Compliant	Refer to Table 8.3.
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
1 (k)	No adverse impacts to the environment due to radon release, uranium-bearing	Compliant	Refer to Table 8.8 and Appendix C.9.

	materials, or radiological aspects of seepages and spills.		
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
1 (l)	No contamination of land and soils either on or off the site caused by waste products and hazardous materials used in the mine operations that would compromise a return to pastoral use.	Compliant	Refer to Table 8.3.
Additional requirements			
N/A.			

2. The person taking the action must develop a Monitoring Plan to measure the achievement of each outcome in Condition 1. The Monitoring Plan must specify:

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
2 (a)	Criteria to demonstrate the clear and unambiguous achievement of the outcomes specified above.	Compliant	A monitoring plan was approved by the Minister on 11 November 2008 by approval of the Beverley Mine MARP v6 in compliance with the EPBC Act. Under the Mining Act (SA) the MARP was updated to the Beverley Mine Program for Environment Protection and Rehabilitation (PEPR) v8 on 15 November 2024.
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
2 (b)	The parameters to be monitored.	Compliant	As per Condition 2 (a).
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
2 (c)	How frequency of monitoring will be determined.	Compliant	As per Condition 2 (a).
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
2 (d)	The responsibility for interpreting the monitoring results.	Compliant	As per Condition 2 (a).
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
2 (e)	The threshold triggers and the response activities.	Compliant	As per Condition 2 (a).
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
2 (f)	An outline of control and management strategies that may be used to achieve the groundwater outcomes in Condition 1.	Compliant	As per Condition 2 (a).
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
2 (g)	Reporting arrangements to management, external stakeholders and the public, including procedures for reporting non-compliance.	Compliant	As per Condition 2 (a).
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
2 (h)	The action cannot commence until the Monitoring Plan is approved by the Minister. The approved Plan must be implemented.	Compliant	As per Condition 2 (a).
Additional requirements			
N/A.			

3. The person taking the action must develop a Mine Closure and Completion Plan. The Plan must demonstrate that the following outcomes, in so far as they may be affected by mining operations, will be achieved indefinitely post mine closure:

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
3 (a)	No change, outside of natural background variation, to the water quality of the Great Artesian Basin.	Compliant	A Mine Closure and Completion Plan was approved by the Minister on 11 November 2008 by approval of the Beverley Mine MARP v6 in compliance with the EPBC Act. Under the Mining Act (SA) the MARP was updated to the Beverley Mine Program for Environment Protection and Rehabilitation (PEPR) v8 on 15 November 2024.
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
3 (b)	No change, outside of natural background variation, to the water quality of the Willawortina formation.	Compliant	As per Condition 3 (a).
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
3 (c)	No compromise of potential pastoral use (should it meet pastoral water quality standards) of the Namba aquifer outside the Beverley mining lease.	Compliant	As per Condition 3 (a).
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
3 (d)	Risks to the health and safety of the public and fauna are as low as reasonably achievable.	Compliant	As per Condition 3 (a).
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
3 (e)	Ecosystem and landscape function is resilient, self-sustaining and indicating that the pre-mining ecosystem and landscape function will ultimately be achieved.	Compliant	As per Condition 3 (a).
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
3 (f)	All waste materials left onsite are chemically and physically stable.	Compliant	As per Condition 3 (a).
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
3 (g)	The action cannot commence until the Mine Closure and Completion Plan is approved by the Minister. The approved Plan must be implemented.	Compliant	As per Condition 3 (a).
Additional requirements			

N/A.

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
4	The person taking the action must prepare a Community Engagement Plan to enable open dialogue with stakeholders on compliance with the approval conditions. The action cannot commence until the Plan is approved by the Minister. The Plan must be implemented.	Compliant	The Community Engagement Plan was approved by the Minister on 11 November 2008 with the approval of the Beverley Mine MARP v6 under the EPBC Act. Under the Mining Act (SA) the MARP was updated to the Beverley Mine Program for Environment Protection and Rehabilitation (PEPR) v8 on 15 November 2024.
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
5	Within 14 days of commencement of the action, the person taking the action must advise the Department of the actual date of commencement.	Compliant	Formal advice provided to the Department in 2008.
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
6	Within three months of the anniversary of the date of commencement of the action and each year after, the person taking the action must provide a report to the Department addressing compliance with the conditions of this approval. Annual reports must be provided until the Minister is satisfied that the proponent has complied with all conditions of the approval.	Compliant	This document provides evidence of compliance against all conditions of approval.
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
7	If at any time after five years from the date of this approval, the Minister notifies the person taking the action in writing that the Minister is not satisfied that there has been substantial commencement of the action, the action must not thereafter be commenced without the written agreement of the Minister.	Not relevant	N/A.
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
8	Upon the direction of the Minister, the person taking the action must ensure that an independent audit of compliance with the conditions of approval is conducted and a report submitted to the Minister. The independent auditor must be approved by the Minister prior to the commencement of the audit. Audit criteria must be agreed to by the Minister and the audit report must address the criteria to the satisfaction of the Minister.	Not relevant	No request for an independent audit was requested during the reporting period.
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
9	If the person taking the action wishes to carry out any activity otherwise than in accordance with the Plans referred to in Conditions 2, 3 and 4, the person taking the action must submit a revised Plan for the Minister's approval. If the Minister approves the revised Plan submitted, the person taking the action must implement this Plan instead of the Plan originally approved.	Compliant	No change requested during the reporting period.
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
10	If the Minister believes that it is necessary or desirable for the better protection of the environment to do so, the Minister may request the person taking the action to make specified revisions to the plan approved pursuant to Conditions 2, 3 and 4 and to submit a revised plan for the Minister's approval. The person taking the action must comply with any such request. If the Minister approves the revised plan pursuant to this paragraph, the person taking the action must implement this plan instead of the plan originally approved.	Not relevant	No request made by the Minister during the reporting period.
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
11	The person taking the action must maintain accurate records substantiating all activities associated with or relevant to the above conditions	Compliant	All records maintained on site.

	of approval and make them available upon request to the Department. Such records may be subject to audit by the Department and used to verify compliance with the conditions of approval.		
Additional requirements			
N/A.			

Table 14. 2 - Beverley North ML 6387 (EPBC 2009/5138) Environment Protection and Biodiversity Conservation Act Reporting

1. The proponent must ensure that the action achieves the following outcomes:

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
1 (a)	No compromise of the Environmental Values of the Willawortina Formation, Fractured Rock or Great Artesian Basin aquifers.	Compliant	Refer to Table 8.6 and Appendix C.4.
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
1 (b)	No compromise of the Environmental Values of the Namba Formation and Eyre Formation aquifers outside the Beverley North Mining Lease.	Compliant	Refer to Table 8.6 and Appendix C.5.
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
1 (c)	No loss of abundance or diversity of native vegetation on or off the Beverley North Mining Lease through clearance, or any other damage, unless prior approval under the relevant legislation is obtained.	Compliant	Refer to Table 8.2 and Appendix C.2.
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
1 (d)	No net adverse impacts (including from fire) from the site operations on native fauna abundance or diversity in the Beverley North Mining Lease area and adjacent areas.	Compliant	Refer to Table 8.1 and Appendix C.1.
Additional requirements			

N/A.

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
1 (e)	No introduction of new weeds, plant pathogens or pests (including feral animals), or increase in abundance of existing weed or pest species in the Beverley North Mining Lease compared to adjoining land.	Compliant	Refer to Table 8.1 and 8.2 and Appendix C.1 and C.2.
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
1 (f)	No disturbance to Aboriginal artefacts or sites of significance unless prior approval under the relevant legislation is obtained.	Compliant	Refer to Table 8.9.
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
1 (g)	No compromise of pastoral use of downstream surface water bodies.	Compliant	Refer to Table 8.4.
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
1 (h)	Soil affected by mining activities is suitable for return to pre-mining land use following mine closure.	Compliant	Refer to Table 8.3.
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
1 (i)	No adverse impacts to the public or the environment from radiological aspects of the action.	Compliant	Refer to Table 8.8.
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
1 (j)	No disposal of waste within the Beverley North Mining Lease unless prior approval under the relevant legislation is obtained.	Compliant	No waste is transferred to the Beverley North ML for disposal.

Additional requirements
N/A.

2. The proponent must implement control and management strategies to achieve the outcomes in condition 1. The control and management strategies may include the following in relation to the outcomes required under:

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
2 (a)	Condition 1(a) & (b) – the measures indicated at section 7.7.3 of the Public Environment Report.	Compliant	Control and management strategies utilised within the Beverley North ML are defined in the Mining and Rehabilitation Program (MARP) v10 approved by the Minister on 14 February 2011 under the EPBC Act. Under the Mining Act (SA) the MARP was updated to the Beverley North Mine Program for Environment Protection and Rehabilitation (PEPR) v14 on 15 November 2024.
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
2 (b)	Condition 1(c), & (e) – the measures indicated at section 7.5.3 of the Public Environment Report.	Compliant	As per Condition 2 (a).
Additional requirements			
N/A			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
2 (c)	Condition 1(d) – the measures indicated at section 7.8.3 of the Public Environment Report.	Compliant	As per Condition 2 (a).
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
2 (d)	Condition 1(f) – the measures indicated at section 7.10.3 of the Public Environment Report.	Compliant	As per Condition 2 (a).
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
2 (e)	Condition 1(g) – the measures indicated at section 7.6.3 of the Public Environment Report.	Compliant	As per Condition 2 (a).
Additional requirements			

N/A.

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
2 (f)	Condition 1(h) – the measures indicated at section 7.4.3 of the Public Environment Report.	Compliant	As per Condition 2 (a).
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
2 (g)	Condition 1(i) – the measures indicated at sections 7.4.3, 7.6.3, 77.3 & 7.9.3 of the PEPR; and	Compliant	As per Condition 2 (a).
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
2 (h)	Condition 1(j) – the measures indicated at section 7.4.3 of the Public Environment Report.	Compliant	As per Condition 2 (a).
Additional requirements			
N/A.			

3. The proponent must develop a Monitoring and Management Plan (the Monitoring Plan) to measure the achievement of each outcome in condition 1. The Monitoring Plan must specify:

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
3 (a)	The area to which the Monitoring Plan applies.	Compliant	The monitoring plan was approved by the Minister on 14 February 2011 by approval of the Beverley North Mine MARP v10 in compliance with the EPBC Act. Under the Mining Act (SA) the MARP was updated to the Beverley North Mine Program for Environment Protection and Rehabilitation (PEPR) v14 on 15 November 2024.
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
3 (b)	Criteria to demonstrate the clear and unambiguous achievement of the outcomes in condition 1.	Compliant	As per Condition 3 (a).
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
3 (c)	The parameters to be monitored.	Compliant	As per Condition 3 (a).
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
3 (d)	Frequency of monitoring.	Compliant	As per Condition 3 (a).
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
3 (e)	The responsibility for interpreting the monitoring results.	Compliant	As per Condition 3 (a).
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
3 (f)	Leading indicator criteria and the response activities that will be implemented if a leading indicator is reached.	Compliant	As per Condition 3 (a).
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
3 (g)	An outline of control and management strategies that may be used to achieve the outcomes in condition 1; and	Compliant	As per Condition 3 (a).
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
3 (h)	Reporting arrangements to management, external stakeholders and the public.	Compliant	As per Condition 3 (a).
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
4	The Monitoring Plan must also include a program for obtaining monitoring data to validate predictions of enhanced	Compliant	The monitoring plan was approved by the Minister on 14 February 2011 by approval of the Beverley North Mine MARP v10 in

	natural attenuation of mining fluids and determine the impact of groundwater flush. The program must also take into account any cumulative impacts on groundwater arising from other in situ recovery mining activities.		compliance with the EPBC Act. Under the Mining Act (SA) the MARP was updated to the Beverley North Mine Program for Environment Protection and Rehabilitation (PEPR) v14 on 15 November 2024.
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
5	The action must be confined to the area specified in the Monitoring Plan. The action cannot commence operation within the area designated in the Monitoring Plan until the Plan is approved by the Minister. The approved Monitoring Plan must be implemented.	Compliant	The monitoring plan was approved by the Minister on 14 February 2011 by approval of the Beverley North Mine MARP v10 in compliance with the EPBC Act. Under the Mining Act (SA) the MARP was updated to the Beverley North Mine Program for Environment Protection and Rehabilitation (PEPR) v14 on 15 November 2024.
Additional requirements			
N/A.			

6. The proponent must develop a Mine Closure Plan for the Beverley North Mining Lease (the Mine Closure Plan). The Mine Closure Plan must describe how the following outcomes, in so far as they may be affected by mining operations, will be achieved indefinitely post mine closure:

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
6 (a)	No compromise to the Environmental Values of the Willawortina Formation, Namba Formation, Eyre Formation, Fractured Rock and Great Artesian aquifers.	Compliant	The status of progressive rehabilitation is documented in the Annual Compliance Report. A mine closure plan was approved by the Minister on 14 February 2011 by approval of the Beverley Mine MARP v10 in compliance with the EPBC Act. Under the Mining Act (SA) the MARP was updated to the Beverley North Mine Program for Environment Protection and Rehabilitation (PEPR) v14 on 15 November 2024.
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
6 (b)	Risks to the health and safety of the public and fauna are as low as reasonably achievable.	Compliant	As per Condition 6 (a).
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition

6 (c)	Ecosystem and landscape function is resilient, self-sustaining and indicating the pre-mining ecosystem and landscape function will ultimately be achieved.	Compliant	As per Condition 6 (a).
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
6 (d)	The site is physically stable.	Compliant	As per Condition 6 (a).
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
6 (e)	All waste materials left on site are chemically and physically stable.	Compliant	As per Condition 6 (a).
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
6 (f)	No compromise to the ability of other existing mine lease operators to achieve their approved closure criteria.	Compliant	As per Condition 6 (a).
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
7	The action cannot commence operation until the Mine Closure Plan is approved by the Minister. The approved Mine Closure Plan must be implemented.	Compliant	A mine closure plan was approved by the Minister on 14 February 2011 by approval of the Beverley Mine MARP v10 in compliance with the EPBC Act. Under the Mining Act (SA) the MARP was updated to the Beverley North Mine Program for Environment Protection and Rehabilitation (PEPR) v14 on 15 November 2024.
Additional requirements			
N/A.			

8. The Mine Closure Plan must be revised by the proponent prior to mine closure to take into account the results of the monitoring in Condition 4 to validate predictions of enhanced natural attenuation of mining fluids. The revised Mine Closure Plan must:

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
8 (a)	Specify closure criteria that will be used to demonstrate the clear and	Compliant	A mine closure plan was approved by the Minister on 14 February 2011 by approval of the Beverley Mine MARP v10 in compliance

	unambiguous achievement of the closure outcomes.		with the EPBC Act. Under the Mining Act (SA) the MARP was updated to the Beverley North Mine Program for Environment Protection and Rehabilitation (PEPR) v14 on 15 November 2024.
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
8 (b)	Show how closure criteria can be achieved within 10 years of the cessation of mining;	Compliant	As per Condition 8 (a).
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
8 (c)	Include a program for monitoring progress towards achievement of closure criteria; and	Compliant	As per Condition 8 (a).
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
8 (d)	Include remedial actions to be taken in the event that monitoring demonstrates that closure criteria will not be achieved in a 10 year period.	Compliant	As per Condition 8 (a).
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
9	The revised Mine Closure Plan must be submitted to the Minister for approval. The approved revised Mine Closure Plan must be implemented.	Compliant	A mine closure plan was approved by the Minister on 14 February 2011 by approval of the Beverley Mine MARP v10 in compliance with the EPBC Act. Under the Mining Act (SA) the MARP was updated to the Beverley North Mine Program for Environment Protection and Rehabilitation (PEPR) v14 on 15 November 2024.
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
10	To secure compliance with Conditions 1 and 6 of this approval, the proponent must, before commencing operation of	Compliant	Rehabilitation bond held by State government, Department for Energy and Mining (DEM).

	the mine, comply with any requirement under the relevant approval granted by the government of South Australia to provide a bond in accordance with s 62 of the Mining Act 1971 (SA).		

Additional requirements
N/A.

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
11	If at any time the Minister determines in writing that s/he is not satisfied that either the Monitoring and Management Plan or the Mine Closure Plan is being or will be implemented, the Minister may require the proponent to provide a bond in favour of the Commonwealth for up to the full cost of rehabilitation liability.	Compliant	Rehabilitation bond held by DEM.

Additional requirements
N/A.

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
12	In setting a bond amount in condition 11, the Minister may take account of any bond required under condition 10.	Compliant	Rehabilitation bond held by DEM.

Additional requirements
N/A.

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
13	The Minister may vary the bond amount required under these conditions to cover the full cost of rehabilitation liability at any time. The Minister may also decrease the bond amount required where the proponent has decreased the rehabilitation liability through undertaking rehabilitation.	Compliant	Rehabilitation bond held by DEM.

Additional requirements
N/A.

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
14	In providing for or varying a bond amount in accordance with these conditions, the Minister may request that the proponent obtain written quotes for the cost of rehabilitation liability under the Mine Closure Plan from a third party approved by the Minister.	Compliant	Rehabilitation bond held by DEM.

Additional requirements
N/A.

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
15	The proponent must meet all the charges and costs in obtaining and maintaining the bond.	Compliant	Rehabilitation bond held by DEM.

Additional requirements
N/A.

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
16	The proponent must prepare a Community Engagement Plan to enable open dialogue with all stakeholders on compliance with the approval conditions. The action cannot commence operation until the Community Engagement Plan is approved by the Minister. The Community Engagement Plan must be implemented.	Compliant	A Community Engagement Plan was approved by the Minister on 14 February 2011 by approval of the Beverley Mine MARP v10 in compliance with the EPBC Act. Under the Mining Act (SA) the MARP was updated to the Beverley North Mine Program for Environment Protection and Rehabilitation (PEPR) v14 on 15 November 2024.

Additional requirements
N/A.

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
17	All plans approved by the Minister under these conditions must be published on the proponent's website 20 business days of approval by the Minister, unless the plans are published within this time on an appropriate South Australian Government website.	Compliant	Plans are published on the South Australian Department for Energy and Mining (DEM) website.

Additional requirements
N/A.

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
18	The Department may require the proponent to publish on the internet a plan in a specified location or format and with specified accompanying text. The proponent must comply with an such requirement.	Compliant	Plans are published on the South Australian Department for Energy and Mining (DEM) website.

Additional requirements
N/A.

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
19	Within 10 business days commencement, the proponent must advise the Department in writing of the actual date of commencement.	Compliant	Date of commencement 18 February 2011.

Additional requirements
N/A.

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
20	If, at any time after five years from the date of this approval, the Minister notifies the proponent in writing that the Minister is not satisfied that there has been commencement of the action, the action must not commence without the written agreement of the Minister.	Compliant	No notifications have been received by the Minister.

Additional requirements			
N/A.			
Condition number	**Condition**	**Compliance status**	**Evidence demonstrating compliance with condition**
21	If the proponent wants to act other than in accordance with a plan approved by the Minister under these conditions, the proponent must submit a revised plan for the Minister's approval.	Compliant	No revised plans have been required to be submitted to the Minister.
Additional requirements			
N/A.			
Condition number	**Condition**	**Compliance status**	**Evidence demonstrating compliance with condition**
22	If the Minister approved the revised plan, then that plan must be implemented instead of the plan originally approved.	Compliant	No revised plans have been required to be submitted to the Minister.
Additional requirements			
N/A.			
Condition number	**Condition**	**Compliance status**	**Evidence demonstrating compliance with condition**
23	Until the Minister has approved the revised plan, the proponent must continue to implement the original plan.	Compliant	No revised plans have been required to be submitted to the Minister.
Additional requirements			
N/A.			
Condition number	**Condition**	**Compliance status**	**Evidence demonstrating compliance with condition**
24	If the Minister believes that is necessary or desirable for the better protection of a relevant controlling provision for the action, the Minister may require the proponent to make, within a period specified by the Minister, revisions to a plan approved under these conditions.	Compliant	No revisions to plans have been requested by the Minister.
Additional requirements			
N/A.			
Condition number	**Condition**	**Compliance status**	**Evidence demonstrating compliance with condition**
25	If the Minister requires a revision to a plan, the proponent must:	Compliant	No revisions to plans have been requested by the Minister.
25 (a)	Comply with that requirement		
25 (b)	Submit the revised plan to the Minister for approval within the period specified in the requirement.		
Additional requirements			
N/A.			
Condition number	**Condition**	**Compliance status**	**Evidence demonstrating compliance with condition**

26	The proponent must implement the revised plan on approval of the Minister.	Compliant	No revisions to plans have been requested by the Minister.
Additional requirements			
N/A.			
Condition number	**Condition**	**Compliance status**	**Evidence demonstrating compliance with condition**
27	Until the Minister has approved the revised plan, the proponent must continue to implement the original plan.	Compliant	No revisions to plans have been requested by the Minister.
Additional requirements			
N/A.			
Condition number	**Condition**	**Compliance status**	**Evidence demonstrating compliance with condition**
28	For any plan required to be approved by the Minister under these conditions, the proponent must ensure the Minister is provided at least 20 business days for review and consideration of the plan, unless otherwise agreed in writing between the proponent and the Minister. This does not apply to urgent changes required to protect the environment.	Compliant	Plans were approved by the Minister on 14 February 2011 by approval of the Beverley Mine MARP v10 in compliance with the EPBC Act. Under the Mining Act (SA) the MARP was updated to the Beverley North Mine Program for Environment Protection and Rehabilitation (PEPR) v14 on 15 November 2024.
Additional requirements			
N/A.			
Condition number	**Condition**	**Compliance status**	**Evidence demonstrating compliance with condition**
29	If these conditions require the proponent to provide something by a specified time, a longer period may be specified in writing by the Department.	Compliant	No provisions have been requested by the Minister.
Additional requirements			
N/A.			
Condition number	**Condition**	**Compliance status**	**Evidence demonstrating compliance with condition**
30	On the request of and within a period specified by the Department, the proponent must ensure that:	Compliant	No audits have been requested by the Minister.
30 (a)	An independent audit of compliance with these conditions is conducted; and		
30 (b)	An audit report, which addresses the audit criteria to the satisfaction of the Department, is published on the internet and submitted to the Department.		
Additional requirements			
N/A.			
Condition number	**Condition**	**Compliance status**	**Evidence demonstrating compliance with condition**
31	Before the audit begins, the following must be approved by the Department:	Compliant	No audits have been requested by the Minister.
31 (a)	The independent auditor; and		

31 (b)	The audit criteria.		
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
32	The audit report must include:	Compliant	No audits have been requested by the Minister.
32 (a)	The components of the project being audited;		
32 (b)	The conditions that were activated during the period covered by the audit;		
32 (c)	A compliance/non-compliance table;		
32 (d)	A description of the evidence to support audit findings of compliance or non-compliance;		
32 (e)	Recommendations on any non-compliance or other matter to improve compliance;		
32 (f)	A response by the proponent to the recommendations in the report (or, if the proponent does not respond within 20 business days of a request to do so by the auditor, a statement by the auditor to that effect); and		
32 (g)	Certification by the independent auditor of the findings of the audit report.		
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
33	The financial cost of the audit will be borne by the proponent.	Compliant	No audits have been requested by the Minister.
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
34	The proponent must:	Compliant	No audits have been requested by the Minister.
34 (a)	Implement any recommendations in the audit report, as directed in writing by the Department;		
34 (b)	Investigate any non-compliance identified in the audit report; and		
34 (c)	If non-compliance is identified in the audit report – take actions as soon as practicable to ensure compliance with these conditions.		
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
35	If the audit report identifies any non-compliance with the conditions, within 20 business days after the audit report is submitted to the Department, the	Compliant	No audits have been requested by the Minister.

	proponent must provide written advice to the Minister setting out the:		
35 (a)	Actions taken by the proponent to ensure compliance with these conditions; and		
35 (b)	Actions taken to prevent a recurrence of any non-compliance, or implement any other recommendation to improve compliance, identified in the audit report.		

Additional requirements
Note 1: To avoid doubt, independent third party auditing may include audit of the proponent's performance against the requirements of any plan required under these conditions. Note 2: Audit criteria should focus on compliance with the outcomes specified in conditions 1 and 6.

Condition number	**Condition**	**Compliance status**	**Evidence demonstrating compliance with condition**
36	Within three months of every anniversary of the action commencing operation, or by a date otherwise agreed by the Minister, the proponent must provide a report to the Department addressing compliance with each of the conditions of this approval.	Compliant	The status of compliance is documented in the Annual Compliance Report.

Additional requirements
N/A.

Condition number	**Condition**	**Compliance status**	**Evidence demonstrating compliance with condition**
37	The proponent must ensure that the report is publicly available on the internet within 20 days of it being submitted to the Minister.	Compliant	Annual Compliance Reports are published on the South Australian Department for Energy and Mining (DEM) website.

Additional requirements
N/A.

Condition number	**Condition**	**Compliance status**	**Evidence demonstrating compliance with condition**
38	Reports must be provided until the Minister is satisfied that the closure outcomes in Condition 6 have been met.	Compliant	Annual Compliance Reports will be provided to the Minister until the outcomes in Condition 6 have been met.

Additional requirements
N/A.

Condition number	**Condition**	**Compliance status**	**Evidence demonstrating compliance with condition**
39	The proponent must, when first becoming aware of a non-compliance:	Compliant	Non-compliances are reported to the Minister in accordance with plans approved by the Minister on 14 February 2011 by approval of the Beverley Mine MARP v10 in compliance with the EPBC Act. Under the Mining Act (SA) the MARP was updated to the Beverley North Mine Program for Environment Protection and Rehabilitation (PEPR) v14 on 15 November 2024.
39 (a)	In relation to the criteria specified in the Monitoring and Management Plan (condition 3) and the Mine Closure Plan (condition 6), report the non-compliance and remedial action to the Department within five business days;		
39 (b)	In relation to any other non-compliance with these conditions, report the non-compliance and remedial action to the Department within 30 business days; and		

39 (c)	Bring the matter into compliance within a reasonable time frame specified in writing by the Department.		

Additional requirements
N/A.

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
40	To avoid doubt, a plan or report prepared to address State requirements may also be submitted to address the requirements of these conditions provided that the plan or report addresses the relevant matters identified in these conditions. This includes audit reports required under condition 30 and compliance reports under condition 36.	Compliant	State (Mining Act 1971) and Federal (EPBC Act 1999) requirements are addressed in the Annual Compliance Report.

Additional requirements
N/A.

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
41	The proponent must:	Compliant	Records are kept in accordance with plans approved by the Minister on 14 February 2011 by approval of the Beverley Mine MARP v10 in compliance with the EPBC Act. Under the Mining Act (SA) the MARP was updated to the Beverley North Mine Program for Environment Protection and Rehabilitation (PEPR) v14 on 15 November 2024.
41 (a)	Maintain accurate records substantiating all activities associated with or relevant to these conditions of approval, including measures taken to implement a plan approved under these conditions; and		
41 (b)	Make those records available on request to the Department. Such records may be subject to audit by the Department or an independent auditor in accordance with section 458 of the EPBC Act, or used to verify compliance with these conditions.		

Additional requirements
Note: Audits or summaries of audits carried out under these conditions, or under section 458 of the EPBC Act, may be posted on the Department's website. The results of such audits may also be publicised through the general media.

Table 14. 3 - Four Mile ML Environment Protection and Biodiversity Conservation Act Reporting (EPBC 2008/4252)

1. The person taking the action must ensure that the action does not result in any:

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
1 (a)	Adverse impacts on other existing users of water from the Great Artesian Basin.	Compliant	No GAB water is extracted within the Four Mile ML.

Additional requirements
N/A.

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition

1 (b)	Reduction in the Environmental Values of the Willawortina, Eyre Formation, Namba or Mt Painter Group Fractured Rock aquifers outside the Four Mile Mining Lease.	Compliant	Refer to Table 8.7 and Appendix C.7.
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
1 (c)	Reduction in aquifer pressure of the Mt Painter Group Fractured Rock aquifer outside the Four Mile Mining Lease (in order to protect the Paralana Hot Springs).	Compliant	Refer to Table 8.7 and Appendix C.7.
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
1 (d)	Permanent loss of abundance or diversity of native vegetation on or off the Four Mile Mining Lease through clearance, dust or contaminant deposition, fire or other damage unless prior approval under the relevant legislation is obtained.	Compliant	Refer to Table 8.2 and Appendix C.2.
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
1 (e)	Net adverse impacts (including from fire) from the site operations on native fauna abundance or diversity in the Four Mile Mining Lease areas and adjacent areas.	Compliant	Refer to Table 8.1 and Appendix C.1.
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
1 (f)	Introduction of new weeds, plant pathogens or pests (including feral animals), or increase in abundance of existing weed or pest species in the Four Mile Mining Lease compared to adjoining pastoral areas.	Compliant	Refer to Table 8.1 and 8.2 and Appendix C.1 and C.2.
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition

1 (g)	Disturbance to Aboriginal artefacts or sites of significance unless prior approval under the relevant legislation is obtained.	Compliant	Refer to Table 8.9.
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
1 (h)	Compromise of pastoral use of downstream surface water bodies.	Compliant	Refer to Table 8.4.
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
1 (i)	Soil affected by mining activities being unsuitable for return to pre-mining land use following mine closure.	Compliant	Refer to Table 8.3.
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
1 (j)	Adverse impacts to the environment from radiological aspects of the action.	Compliant	Refer to Table 8.8.
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
2	The person taking the action must not dispose of any unauthorised waste within the Four Mile ML.	Compliant	All waste generated in Four Mile ML is transferred to the Beverley ML for disposal.
Additional requirements			
N/A.			

3. The person taking the action must develop a Monitoring and Management Plan to measure the achievement of each outcome in Condition 1. The Monitoring and Management Plan must specify:

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
3 (a)	Criteria to demonstrate the clear and unambiguous achievement of the outcomes in Condition 1.	Compliant	A monitoring plan was approved by the Minister on 20 December 2016 by approval of the Four Mile MARP v3 in compliance with the EPBC Act. Under the Mining Act (SA) the MARP was updated to the Four Mile Program for Environment Protection and Rehabilitation (PEPR) v4 on 23 November 2023.
Additional requirements			

N/A.

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
3 (b)	The parameters to be monitored.	Compliant	As per Condition 3 (a).
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
3 (c)	How frequency of monitoring will be determined.	Compliant	As per Condition 3 (a).
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
3 (d)	The responsibility for interpreting the monitoring results.	Compliant	As per Condition 3 (a).
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
3 (e)	The threshold triggers and the response activities that will be implemented if a threshold is reached.	Compliant	As per Condition 3 (a).
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
3 (f)	The trigger levels at which mining must cease until approval is obtained from the Minister to recommence.	Compliant	As per Condition 3 (a).
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
3 (g)	An outline of control and management strategies that may be used to achieve the groundwater outcomes in Condition 1.	Compliant	As per Condition 3 (a).
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
3 (h)	Reporting arrangements to management, external stakeholders and the public, including procedures for reporting non-compliance.	Compliant	As per Condition 3 (a).
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
3 (i)	The action cannot commence operation until the Monitoring Plan is approved by the Minister. The approved Monitoring Plan must be implemented.	Compliant	As per Condition 3 (a).
Additional requirements			
N/A.			

4. The person taking the action must develop a Mine Closure and Completion Plan for the Four Mile Lease (the Mine Closure Plan). The Closure Plan must demonstrate that the following outcomes, in so far as they may be affected by mining operations, will be achieved indefinitely post mine closure:

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
4 (a)	No change, outside of natural background variation, to the water quality of the Namba aquifer.	Compliant	A closure plan was approved by the Minister on 20 December 2016 by approval of the Four Mile MARP v3 in compliance with the EPBC Act. Under the Mining Act (SA) the MARP was updated to the Four Mile Program for Environment Protection and Rehabilitation (PEPR) v4 on 23 November 2023.
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
4 (b)	No reduction in the Environmental Values of the Mt Painter Fractured Rock aquifer.	Compliant	As per Condition 4 (a).
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
4 (c)	No change, outside of natural background variation, to the aquifer pressure in the Mt Painter Fractured Rock aquifer.	Compliant	As per Condition 4 (a).
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
4 (d)	The health and safety of the public and fauna are not compromised.	Compliant	As per Condition 4 (a).
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
4 (e)	Ecosystem and landscape function is resilient, self-sustaining and indicating that the pre-mining ecosystem and landscape function will ultimately be achieved.	Compliant	As per Condition 4 (a).
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
4 (f)	The action cannot commence operation until the Mine Closure Plan is approved by the Minister.	Compliant	As per Condition 4 (a).
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
4 (g)	The Mine Closure Plan must be revised by the person taking the action prior to mine closure to take into account the results of the monitoring in Condition 3 to validate predictions of enhanced natural attenuation of mining fluids.	Compliant	As per Condition 4 (a).
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
4 (h)	The revised Plan must be submitted to the Minister for approval. The revised Mine Closure Plan must: Specify closure criteria that will be used to demonstrate the clear and unambiguous achievement of the closure outcomes.	Compliant	As per Condition 4 (a).
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition

4 (i)	Show how closure criteria can be achieved within 10 years of the cessation of mining.	Compliant	As per Condition 4 (a).
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
4 (j)	Include a program for monitoring progress towards achievement of closure criteria.	Compliant	As per Condition 4 (a).
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
4 (k)	Include remedial actions to be taken in the event that monitoring demonstrates that closure criteria will not be achieved in the 10 year period.	Compliant	As per Condition 4 (a).
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
4 (l)	The revised Mine Closure Plan must be submitted to the Minister for approval. The approved revised Mine Closure Plan must be implemented until the Minister is satisfied that the closure criteria have been achieved.	Compliant	As per Condition 4 (a).
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
5	To secure compliance with Condition 3 and 4 of this approval, the person taking the action must, before commencing operation of the mine, comply with any requirement under the relevant approval granted by the government of South Australia to provide a bond in accordance with s 62 of the Mining Act 1971 (SA).	Compliant	Security bond held by DEM for the Four Mile operations.
Additional requirements			
N/A.			

6. To secure compliance with Conditions 3 and 4 of the approval:

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition

6 (a)	If at any time the Minister determines in writing that he is not satisfied that either the Monitoring and Management Plan or the Mine Closure Plan is not being or will not be implemented, the Minister may require the person taking the action to provide a bond in favour of the Commonwealth for the full cost of rehabilitation liability.	Compliant	Compliant as per approved Four Mile MARP v3 by the Minister on 20 December 2016 in compliance with the EPBC Act. Under the Mining Act (SA) the MARP was updated to the Four Mile Program for Environment Protection and Rehabilitation (PEPR) v4 on 23 November 2023.
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
6 (b)	The Minister may vary the bond amount required under Condition 6(a) to cover the full cost of rehabilitation liability at any time.	Compliant	As per Condition 6 (a).
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
6 (c)	In providing for or varying a bond amount in accordance with Condition 6 (a) and 6(b), the Minister may request that the person taking the action obtain written quotes for the cost of rehabilitation liability under the Mine Closure Plan from a third party approved by the Minister.	Compliant	As per Condition 6 (a).
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
6 (d)	The person taking the action must meet all the charges and costs in obtaining and maintaining the bond.	Compliant	As per Condition 6 (a).
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
6 (e)	The bond shall not be returned to the person taking the action unless and until the Minister is satisfied that the closure criteria specified in the approved Mine Closure Plan have been achieved.	Compliant	As per Condition 6 (a).
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
7	The person taking the action must prepare a Community Engagement Plan to enable open dialogue with stakeholders on compliance with the approval conditions. The action cannot commence operation until the Community Engagement Plan is approved by the Minister. The Community Engagement Plan must be implemented.	Compliant	A community engagement plan was approved by the Minister on 20 December 2016 by approval of the Four Mile MARP v3 in compliance with the EPBC Act. Under the Mining Act (SA) the MARP was updated to the Four Mile Program for Environment Protection and Rehabilitation (PEPR) v4 on 23 November 2023.
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
8	Within 14 days of commencement of the action, the person taking the action must advise the Department of the actual date of commencement.	Compliant	On 20 November 2013 Heathgate advised the DEH (C Twigg) and DSD (A M Smith) via email that the Four Mile Uranium Mine had commenced construction on 8 November 2013.
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
9	Within three months of every anniversary of the commencement of the action, or by a date otherwise agreed by the Minister, the person taking the action must provide a report to the Department addressing compliance with the conditions of this approval. The person taking the action must ensure that the report is publicly available on the internet within 30 days of it being submitted to the Minister. Reports must be provided until the Minister is satisfied that the closure outcomes in Condition 4 have been met.	Compliant	Demonstrated via this report.
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
10	If at any time after five years from the date of this approval, the Minister notifies the person taking the action in writing that the Minister is not satisfied that there has been substantial commencement of the action, the action must not thereafter be commenced without the written agreement of the Minister.	Compliant	On 20 November 2013 Heathgate advised the DEH (C Twigg) and DSD (A M Smith) via email that the Four Mile Uranium Mine had commenced construction on 8 November 2013.
Additional requirements			

N/A.

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
11	Upon the direction of the Minister, the person taking the action must ensure that an independent audit of compliance with the conditions of approval is conducted and a report submitted to the Minister. The independent auditor must be approved by the Minister prior to the commencement of the audit. Audit criteria must be agreed to by the Minister and the audit report must address the criteria to the satisfaction of the Minister.	Compliant	Accepted.
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
12	If the person taking the action wishes to carry out any activity otherwise than in accordance with the Plans referred to in Conditions 3, 4 and 7, the person taking the action must submit a revised Plan for the Minister's approval. If the Minister approves the revised Plan submitted, the person taking the action must implement this Plan instead of the Plan originally approved.	Compliant	Plans referred to in conditions 3, 4 and 7 were approved by the Minister on 20 December 2016 by approval of the Four Mile MARP v3 in compliance with the EPBC Act. Under the Mining Act (SA) the MARP was updated to the Four Mile Program for Environment Protection and Rehabilitation (PEPR) v4 on 23 November 2023.
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition
13	If the Minister believes that it is necessary or desirable for the better protection of the environment to do so, the Minister may request the person taking the action to make specified revisions to the Plan approved pursuant to Conditions 3, 4 and 7, and to submit a revised Plan for the Minister's approval. The person taking the action must comply with any such request. If the Minister approves the revised Plan pursuant to this paragraph, the person taking the action must implement this Plan instead of the Plan originally approved.	Compliant	The Minister has not directed for an independent audit to be undertaken since 2014.
Additional requirements			
N/A.			

Condition number	Condition	Compliance status	Evidence demonstrating compliance with condition

14	The person taking the action must maintain accurate records substantiating all activities associated with or relevant to the above conditions of approval and make them available upon request to the Department. Such records may be subject to audit by the Department and used to verify compliance with the conditions of approval.	Compliant	Accepted.
Additional requirements			
N/A.			

15. Exempt land

Table 15. 1 - Exempt Land Statement

All waivers for land relevant to the mining operation are in place, and compliant with exempt land provisions, in accordance with Section 9 of the ***Mining Act 1971***	N/A.

Notice has been given to the Mining Registrar that an exempt land agreement has been entered into	N/A.

Using Table 15.2, provide the status of exempt land, and a plan showing all exempt land relevant to the mining operations. The plan must detail the extent of mining operations at the end of the reporting period.

Table 15. 2 - Exempt Land Status

Name of person entitled to exemption	Certificate of title or crown land details	Reason for exemption	Area of exemption	Date waiver registered/obtained	Any relevant conditions
N/A.	N/A.	N/A.	N/A.	N/A.	N/A.

16. Complaints

Using Table 16.1, provide a summary of any complaints received during the reporting period and how they were resolved.

Table 16. 1 - Complaints

Date of complaint	Nature of the complaint	Complaint related to a noncompliance	What action was taken to address the complaint (or yet to be taken)	Resolution date
02/11/2024	Two (2) Adnyamathanha community representatives raised a complaint about the status of rehabilitation work being undertaken in an operational area on the Beverley North ML.	No	Areas of concern investigated by Heathgate management, with reminder to project staff to maintain good housekeeping practices. Response provided by Heathgate to the Adnyamathanha at the Beverley Advisory Committee meeting 04/12/2024, to inform the committee of the general status of rehabilitation in the area, and rehabilitation standard practices, and address other housekeeping concerns. The committee was satisfied with the information provided and a commitment to keep the committee informed in general on the status of rehabilitation in the area.	04/11/2024

17. Management system reviews

Using Table 17.1, provide a summary of any management system reviews undertaken during the reporting period to ensure compliance with relevant tenement conditions and environmental outcomes and objectives – including mine completion outcomes and objectives.

Table 17. 1 - Management System Reviews

Audit aspect	Date of audit	Auditor	Issues, recommendations for improvement noted	Corrective actions identified
ISO 14001:2015 & ISO 45001:2018 Gap analysis	23/09/2024	Intertek SAI Global	Update documentation	Documentation updated

Click + to repeat row

Issues identified
N/A

18. Verification of uncertainty

Table 18. 1 - Verification of Uncertainty

Description of assumption or uncertainty	Estimated date to resolve	Progress in reporting period	Confirmed?	Works proposed to be undertaken in next reporting period
Field verification of Natural Attenuation (NA) model	On an annual basis, commencing in 2018, field monitoring of natural attenuation in the Eyre Formation was used to verify the Natural Attenuation (NA) model used for the Beverley North and Four Mile MLs.	Field NA verification monitoring continued throughout 2024 with routine assessment of field results against modelled natural attenuation predictions.	Ongoing	Natural attenuation monitoring will continue at Beverley North during the next reporting period.

19. Changes to authorised operations and emerging environmental hazards

Table 19. 1 - Changes to Authorised Operations

Description of change to existing mining operation	Date submitted to the department	Department response	Date accepted by the department	Current status at the end of the reporting period
Beverley PEPR v.8	10/09/2024	Approved	15/11/2024	Beverley PEPR v.8 approved.
Beverley North PEPR v.14	10/09/2024	Approved	15/11/2024	Beverley North PEPR v.14 approved.

Provide a description of any new or emerging environmental hazards that apply, or appear to be arising, in relation to mining operations
N/A.

20. Technical reports

Studies and reports generated during the reporting period that support the achievement of tenement conditions and environmental outcomes in the approved PEPR are summarised in Table 20.1 below.

Table 20. 1 - Technical Reports

Report title	Author(s)
Beverley, Beverley North and Four Mile ML's Annual Fauna Monitoring 2024. Ecosphere Ecological Solutions Pty Ltd	Andrew Sinel, Imogen Marshall, Nina Maurovic
Beverley, Beverley North and Four Mile ML's Annual Flora Monitoring 2024. Ecosphere Ecological Solutions Pty Ltd	Andrew Sinel, Imogen Marshall, Alex Blackall

21. Voluntary information

Using the tables below, provide a summary list of additional information beyond the minimum required by legislation to demonstrate compliance. Inclusion of this information will enhance stakeholder relationships, maintain a social licence to operate and is strongly recommended.

Table 21. 1 - Voluntary Information

Item	Description
N/A.	

Table 21. 2 - Community Engagement

Community or wider environment support activities	Description
22 July 2024 Exploration Clearance Survey (ECS)	An Exploration Clearance Survey conducted with the Dieri Aboriginal Corporation for proposed operations on Exploration Leases 6274, 6338, 6337.
9 Sept 2024 Work Area Clearance (WAC)	A Work Area Clearance was undertaken with the Adnyamathanha Traditional Lands Association (ATLA) for proposed operations on the Four Mile Mineral Lease.
9 Dec 2024 Work Area Clearance (WAC)	A Work Area Clearance was conducted with the Adnyamathanha Traditional Lands Association for operations on Four Mile Mineral Lease and Exploration Lease 6028.
2024 Beverley Advisory Committee (BAC) meetings held during the year.	Four (4) Beverley Advisory Committee meetings were held between Heathgate Resources and the Adnyamathanha to discuss operations and the implementation of the Native Title Mining Agreement.
2024 Online community information sheets issued during the year.	Three (3) online community information sheets were prepared and issued for the Adnyamathanha community. These are published on ATLA's website and Facebook page.

A. Appendix A - Public liability insurance

Marsh

Lonetta Sheppard
Senior Account Executive

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30 August 2024

TO WHOM IT MAY CONCERN

Certificate of Currency
Public & Products Liability

Our Ref: 056303

This certificate of currency provides a summary of the policy cover and is current on the date of issue. It is not intended to amend, extend, replace or override the policy terms and conditions contained in the actual policy document. This certificate of currency is issued as a matter of information only and confers no rights upon the certificate holder. We accept no responsibility whatsoever for any inadvertent or negligent act, error or omission on our part in preparing these statements or in transmitting this Certificate by email or for any loss, damage or expense thereby occasioned to any recipient.

INSURED	Heathgate Resources Pty Ltd, Quasar Resources Pty Ltd, Beverley Resources Pty Ltd, General Atomics Australia Pty Ltd (formerly Winstead Resources) and/or its/their subsidiary and/or related bodies corporate, as defined in the Corporations Act 2001, (including those acquired or incorporated during the Period of Insurance) for their respective rights and interests.	
BUSINESS	In-Situ Recovery (ISR) uranium extraction and processing plant, exploration, exporting, property owners and occupiers. General Atomics Australia Pty Ltd is involved in business development activities for its US parent;.	
PERIOD OF INSURANCE	From: 1 September 2024 at 4 PM Local Standard Time To: 1 September 2025 at 4 PM Local Standard Time Any subsequent period for which the Insured has requested and the Insurer has accepted renewal.	
LIMITS OF LIABILITY	The Insurer's maximum liability in respect of any claim or any series of claims for Personal Injury, Property Damage or Advertising Liability caused by or arising out of any one Occurrence; and	$50,000,000
	The Insurer's total aggregate liability during any one Period of Insurance for all claims arising out of the Insured's Products	Not Insured

STD DOC [Policy Certificate of Currency for HEATHGAT - Policy 56303 - 30/08/2024 - BSERV]

SUB-LIMITS OF LIABILITY	Care, Custody and Control	$500,000 any one claim and In the aggregate any one period of insurance
POLICY FORM	This Policy is based on the Marsh BA General Liability QM8296-0923	

INSURER	PROPORTION	POLICY NUMBER
QBE Insurance (Australia) Ltd - GA	100.000%	AVA355366PLB

Loretta Sheppard
Senior Account Executive

STD DOC [Policy Certificate of Currency for HEATHGAT - Policy 56303 - 30/08/2024 - BSERV] 2

B. Appendix B - Exploration on mining leases

B.1 Exploration activities, exploration rehabilitation, exploration liabilities on the mining lease

Have any exploration activities been conducted during the current reporting period?	Yes	If yes, complete all sections of Appendix B.
Have rehabilitation activities been undertaken during the reporting period?	Yes	If yes, complete all sections of Appendix B.
Is there any outstanding rehabilitation from current or previous reporting periods to be undertaken?	Yes	If yes, complete all sections of Appendix B.

If no to all of above, no further information on exploration activities is required.

B.2 Summary of exploration activities and status of rehabilitation

Using Table B2.1, provide a summary of all exploration activities and the rehabilitation status of all exploration sites at the end of the current reporting period.

Table B2.1 Summary of exploration activities

Tenement number	Program notification submit date	Drillholes or sites	Rehabilitated drill sites	Drill lines / access tracks	Drill line/access track length (km)	Costeans	Costeans rehabilitated	Comments
EL5916	15/03/2024	5	5	5	3 km	N/A	N/A	Nil

Using Tables B2.2 to B2.4 (where applicable), detail the location and rehabilitation status of all exploration sites during the current reporting period and unrehabilitated sites from previous reporting periods.

Table B2.2 Drillhole or site rehabilitation status

Tenement number	Program notification submit date	Drillholes or sites	Date drilled	Drilling method*	Hole depth (m)	Number of sumps and dimensions	Drill pad size (m^2)	Easting (GDA 94)	Northing (GDA 94)	Zone	Rehabilitation date	Status†	Planned rehabilitation date	Comments
EL 5916	15/03/2024	AKDD001	30/04/2024	D	60	3 Sumps 3m(w) x 5m(l) x 1.5m(d)	40 m x 40 m	350862	6656739	54	05/08/2024	C	N/A	Nil

EL 5916	15/03/2024	AKDD002	02/05/2024	D	50	3 Sumps 3m(w) x 5m(l) x 1.5m(d)	40 m x 40 m	350661	6656629	54	05/08/2024	C	N/A	Nil
EL 5916	15/03/2024	AKDD003	04/05/2024	D	60	3 Sumps 3m(w) x 5m(l) x 1.5m(d)	40 m x 40 m	350560	6656524	54	05/08/2024	C	N/A	Nil
EL 5916	15/03/2024	AKDD004	05/05/2024	D	60	3 Sumps 3m(w) x 5m(l) x 1.5m(d)	40 m x 40 m	350819	6656918	54	05/08/2024	C	N/A	Nil
EL 5916	15/03/2024	AKDD005	06/05/2024	D	30.5	3 Sumps 3m(w) x 5m(l) x 1.5m(d)	40 m x 40 m	351499	6655849	54	05/08/2024	C	N/A	Nil

* AC aircore or vacuum; RM rotary mud; RC reverse circulation; RAB rotary air blast; D diamond; P percussion; V vibracore; O other.
† C drillsite completely rehabilitated; N no rehabilitation completed; PR partial rehabilitation – specify remaining rehabilitation to be completed within the comments section.

Table B2.3 Access track or drill line rehabilitation status

Tenement number	Program notification submit date	Track identification	Tracks or lines created (km)	Rehabilitated tracks or lines (km)	Area of disturbance (ha or m²)	Rehabilitation date	Rehabilitation method	Tracks or lines to be rehabilitated (km)	Planned rehabilitation date	Comments
EL 5916	15/03/2024	N/A	3 km	0	9000 m²	N/A	N/A	3 km	After program completion	All prospects identified for the 2024 drilling campaigns currently have active program notifications.

										Additionally, drilling is anticipated in 2025 to build upon the 2024 drilling results. As a result, access to the proposed 2025 drilling sites will utilise tracks established in 2024. These tracks will undergo progressive rehabilitation upon the conclusion of testing these specific regions.

Table B2.4 Costean rehabilitation status

Tenement number	Program notification submit date	Costean identification	Date excavated	Dimensions (length, width, depth)	Total area of disturbance	Easting (GDA2020)	Northing (GDA2020)	Zone	Rehabilitation status	Costean rehabilitation date	Planned rehabilitation date	Comments
N/A		N/A		N/A	N/A	N/A	N/A	N/A	N/A			N/A

Summarise rehabilitation activities planned for the next reporting period.

Progressive rehabilitation will be undertaken on all 2025 drilling programs.

Using Table B2.5, demonstrate how drillholes that intersect a single confined aquifer, multiple aquifers or artesian aquifers were abandoned in accordance with Information Sheet M21 ***Mineral exploration drillholes – general specifications for construction and abandonment***.

Table B2.5 Drillhole abandonment summary

Tenement number	Drillhole	Aquifer(s) intersected?	Backfilling requirements	Total depth (m)	Drilling completion date	Aquifer formation name	Aquifer interval (m)	Type of aquifer(s) intersected	Cementing interval (m)	Comments
EL 5916	AKDD001	No	Cuttings and cement	60	30/4/2024	N/A	N/A	N/A	0 - 60	Nil

EL 5916	AKDD002	No	Cuttings and cement	50	2/5/2024	N/A	N/A	N/A	0 - 50	Nil

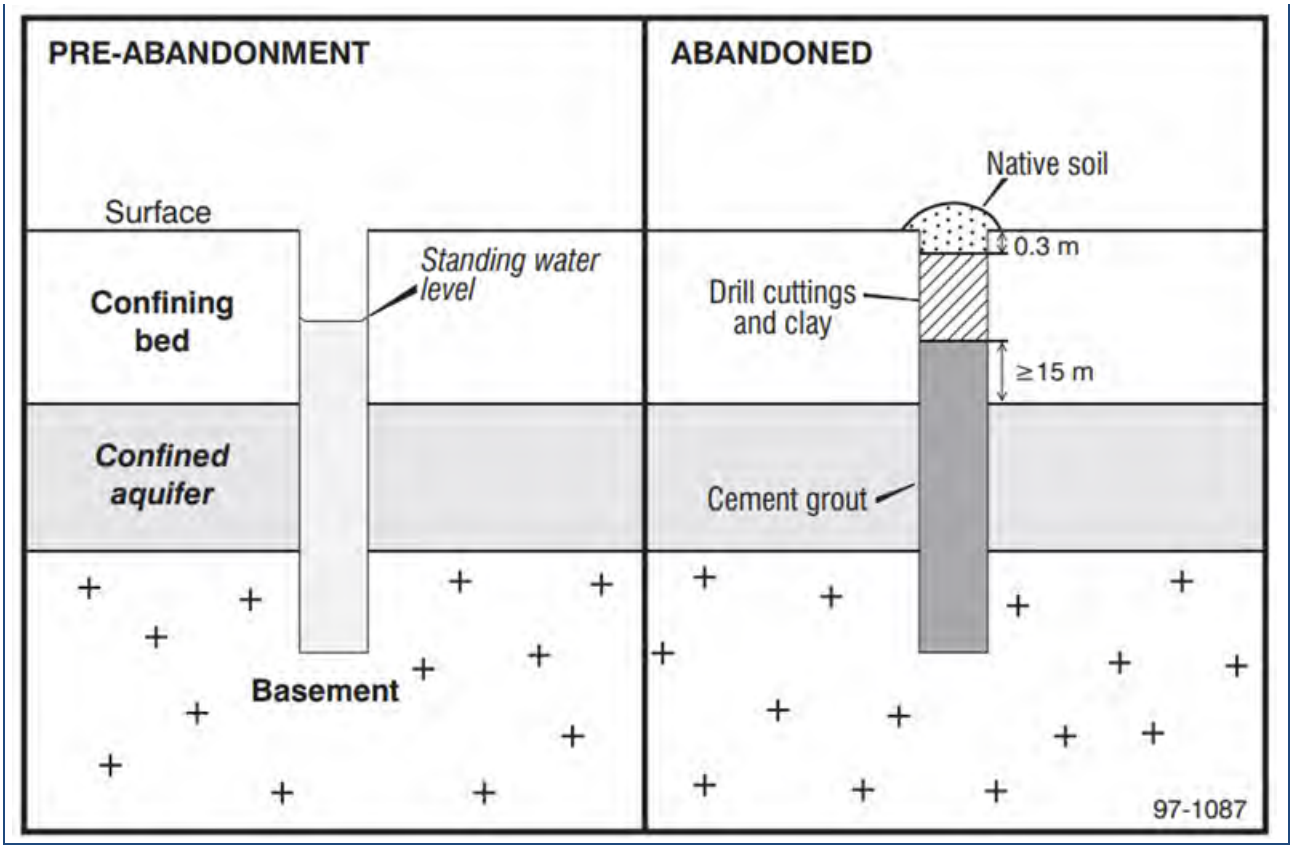
EL 5916	AKDD003	No	Cuttings and cement	60	4/5/2024	N/A	N/A	N/A	0 - 60	Nil

EL 5916	AKDD004	No	Cuttings and cement	60	5/4/2024	N/A	N/A	N/A	0 - 60	Nil

EL 5916	AKDD005	No	Cuttings and cement	30.5	6/4/2024	N/A	N/A	N/A	0 – 30.5	Nil

Table B2.6 Drillhole abandonment or completion diagram(s).

Date prepared	Location details	Comments
11/02/2025	All exploration drillholes	All drillholes cemented from bottom of hole to surface – Backfilled with cuttings as per Figure 2 – M21 Guidelines.



B.3 Photos

Table B3.1 outlines representative photos for site AKDD001 which demonstrates compliance with approved environmental outcomes.

Table B3.1 Photo monitoring

Site identification or details	Date taken	Easting (GDA2020)	Northing (GDA2020)	Zone	Comments
AKDD001	28/3/2024	350862	6656739	54	Pre disturbance

Site identification or details	Date taken	Easting (GDA2020)	Northing (GDA2020)	Zone	Comments
AKDD001	13/5/2024	350862	6656739	54	During Disturbance

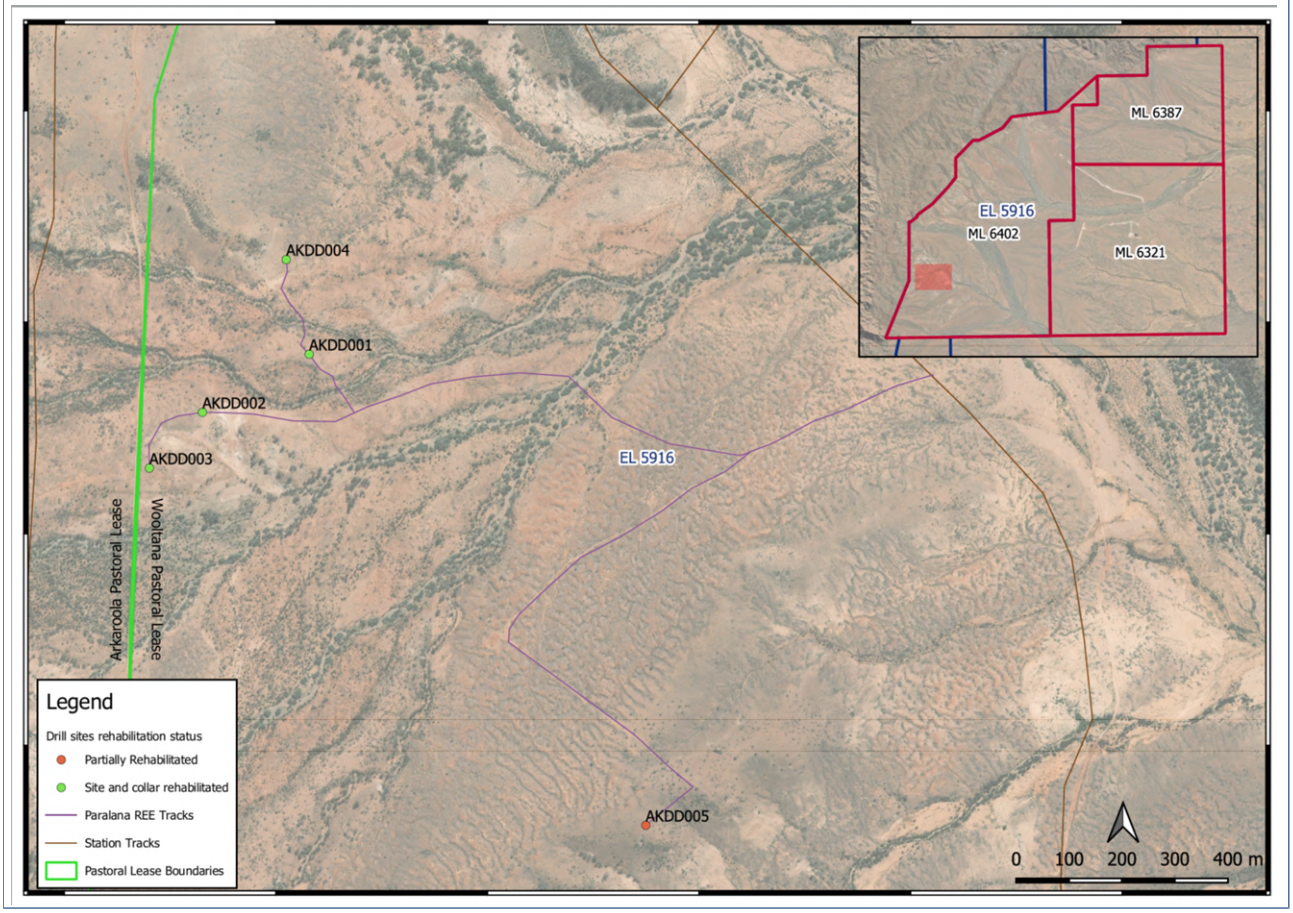
Site identification or details	Date taken	Easting (GDA2020)	Northing (GDA2020)	Zone	Comments
AKDD001	5/8/2024	350862	6656739	54	Post Rehabilitation

B.4 Maps

Table B4.1 shows the location of all exploration activities undertaken within the MLs during the reporting period and includes the rehabilitation status of each drill hole.

Table B4.1 Maps showing exploration activities

Date prepared	Site identification / details	Comments
11/02/2024	EL 5916 Paralana REE Prospect	Drillhole Location and Rehabilitation Status Map



C. Appendix C - Supporting reports

C.1 Annual Fauna Monitoring Report

ECOSPHERE
Ecological Solutions

Beverley, Beverley North and Four Mile ML's Annual Fauna Monitoring 2024

October 2024

Document Information and Distribution

Document Information	
Item	**Detail**
Project number	M40815
Document title	Beverley, Beverley North and Four Mile ML's Annual Fauna Monitoring
Client	Heathgate Resources Pty Ltd
Prepared by	Ecosphere Ecological Solutions
Document status	Final
Version number	2

Document Distribution				
Authors	**Document Status**	**Version Number**	**Date of Issue**	**Issued To**
Imogen Marshall Nina Maurovic Andrew Sinel	Draft	1	13/12/2024	Christian Knott, Heathgate Resources Mackenzie Bensch, Heathgate Resources
Imogen Marshall Nina Maurovic Andrew Sinel	Final	2	6/1/2025	Mackenzie Bensch, Heathgate Resources

This fauna assessment was undertaken on Adnyamathanha country. Ecosphere Ecological Solutions acknowledge the traditional owners of this country and pay our respects to their Elders past, present and emerging.

Acronyms and Definitions

Abbreviation	Description
BoM	Bureau of Meteorology
Ecosphere	Ecosphere Ecological Solutions Pty Ltd
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
Heathgate	Heathgate Resources Pty Ltd
ISR	In-situ Recovery
ML	Mining Lease
PEPR	Program for Environmental Protection and Rehabilitation
SA	South Australia

Executive Summary

Heathgate Resources Pty Ltd requires an annual fauna monitoring program to be conducted as per the Company Compliance Monitoring Plan which is specified in the Program for Environmental Protection and Rehabilitation (PEPR). Specific outcomes related to fauna include:

- No net adverse impacts from the site operations (including fire) on native fauna abundance or diversity in the lease area.
- No introduction of new species of weeds, plant pathogens or pests (including feral animals), nor increase in abundance of existing weed or pest species in the lease area compared to adjoining pastoral properties.
- Results of monitoring program show no reduction of native vertebrate density and diversity compared with local area background.

Seasonal conditions for the twelve-month period (November 1st, 2023 – October 31st, 2024) recorded a total of 137.4 mm of rainfall at the Beverley main weather station. This marks a slight increase from the previous year's total of 105.4 mm but remains below the Wooltana average of 195.6 mm. Rainfall in the six months preceding the fauna survey totalled 87.4 mm, with the majority falling in May and July (68.2 mm combined).

The annual fauna monitoring survey at Beverley, Beverley North, and Four Mile took place between October 22nd and October 27th, 2024. Eleven pitfall trapping sites (eight impact sites and three control sites) were surveyed in 2024 using methodology consistent with the past eight years. Pitfall traps were checked each morning and evening for a total of four nights per site. Additionally, avian point counts were conducted at 12 monitoring sites. Statistical analyses, including T-tests and one-way ANOVAs, were used to determine the significance of changes in abundance and species richness between control and impact sites and/or across survey years (2017–2024) for the suite of fauna assemblages systematically surveyed.

Daily temperatures during the survey ranged between 24.8 and 37.3 degrees Celsius during the day and 12.4 and 23.0 degrees Celsius overnight. The 2024 survey achieved a total trap effort of 527 trap nights (383 trap nights at impact sites and 144 at control sites). A reduction in control site trap effort occurred in 2024 compared to previous years due to the closure of one site at the end of the 2023 surveys.

During the fauna survey period, a total of 153 individuals were trapped representing 15 species (six mammals and nine reptiles). This yielded an average abundance of 13.91 individuals per site, up from

13.33 in 2023. The class abundances comprised 84 mammals and 69 reptiles. No significant differences in the mean abundance or species richness of small mammals and reptiles were observed between control and impact sites in 2024, consistent with trends over the past eight years. The only exception was in 2023, when small mammal abundance and species richness were significantly higher at impact sites. However, this deviation was not sustained in 2024, with metrics returning to the previous trend.

Avian surveys recorded 20 species within the point count sites in 2024. Avian abundance has gradually declined since 2021, and species richness has fluctuated without significant trends across the same period. No significant differences in the mean abundance or species richness of avian species were observed between control and impact sites in 2024, consistent with trends over the past eight years. One species of state conservation significance was opportunistically observed while onsite, the Black Falcon (*Falco subniger*, NPW: R).

Despite annual variations in small mammal, reptile, and avian abundance and species richness, no consistent differences have been detected between comparative control and impact sites across the eight-year survey period. The 2023 deviation, where small mammal abundance and richness were higher at impact sites, does not suggest adverse effects from mining activities, as impact sites demonstrated higher values. The return to no significant differences in 2024 further supports this conclusion. Overall, these findings suggest that mining operations are having a negligible effect on abundance and species richness across the three faunal groups locally and within the wider region.

Contents

List of Figures

List of Tables

1 Introduction

Ecosphere Ecological Solutions (Ecosphere) was contracted by Heathgate Resources Pty Ltd (Heathgate) to conduct the 2024 annual fauna monitoring assessment for the Beverley, Beverley North and Four Mile Mining Lease's (ML's). Heathgate Resources Pty Ltd (Heathgate) requires an annual fauna monitoring program to be conducted as per the Company Compliance Monitoring Plan which is specified in the Program for Environmental Protection and Rehabilitation (PEPR).

Heathgate operates the Beverley Mine ML (ML 6321), Beverley North Mine ML (ML 6387) and Four Mile Uranium Mine ML (ML 6402) tenements in northern South Australia. Mining is by in-situ recovery (ISR) method. The Beverley, Beverley North and Four Mile MLs are located approximately 520 km north north-east of the Adelaide Central Business District, in the north-east pastoral region of South Australia (SA) (Figure 1). The ML's are situated on the eastern side of the Gammon Ranges approximately 30 km north-east of the Arkaroola Village within the Wooltana Crown Lease (Volume 1289 Folio 38).

Specific outcomes related to fauna outlined in the relevant PEPR for each ML include:

- No net adverse impacts from the site operations (including fire) on native fauna abundance or diversity in the lease area.
- No introduction of new species of weeds, plant pathogens or pests (including feral animals), nor increase in abundance of existing weed or pest species in the lease area compared to adjoining pastoral properties.
- Results of monitoring program show no reduction of native vertebrate density and diversity compared with local area background.

1.1 Objectives

The objective of the fauna monitoring program aims to make comparative analysis of the abundance and diversity of fauna within impact sites adjacent to mining operations compared to control sites greater than 5 kms from impact sites by:

- Conducting a fauna trapping program to record the abundance and diversity of reptiles, small mammals and amphibians (if conditions allow) at control and impact sites.
- Conducting avian point counts to record the abundance and diversity of birds within control and impact sites.
- Setting camera traps to record the abundance and diversity of introduced/exotic fauna species of concern.

Figure 1. Location of the Beverley, Beverley North and Four Mile ML's

2 Background

2.1 Research Licensing

The fauna survey and research conducted in 2024 during the Beverley, Beverley North, and Four Mile annual fauna monitoring program were conducted under the following licences, in accordance with the *National Parks and Wildlife Act 1972* (NPW Act).

Mr A Sinel, Ecosphere Ecological Solutions Pty Ltd:

- Permit to undertake scientific research, State-wide Ongoing Scientific Permit for Fauna Surveys: Y27462-1.
- Wildlife Ethics Committee, One-year Statewide Fauna Survey Approval (Project Number: 15/2024)

2.2 Environmental Setting

2.2.1 Vegetation

The monitoring sites are situated within the dominant vegetation structure within the Beverley, Beverley North and Four Mile areas which is a self-mulching clay and stony plains landform predominantly covered by *Astrebla pectinata* (Mitchell Grass) and short-lived sub-shrubs of the genus *Sclerolaena.* The site grades from heavy clays at the base of the Gammon Ranges to flatter stony plains in the east.

2.2.2 Climate

Historical long term rainfall data (comparative mean monthly totals) are taken from the Gammon Ranges (Wooltana, 017056) station (BoM, 2024). This is the nearest and most reliable weather station from a historical perspective. Data has been collected at this site since 1877, which shows a long term mean annual rainfall of 195.3 mm, with the heaviest falls typically occurring between December and March (Figure 2). The wettest months historically correspond with the highest mean maximum temperatures.

Beverley has two local weather stations and annual conditions are recorded from the Beverley Main Mine Automatic Weather Station (AWS) which provides the most average conditions expected across the ML's.

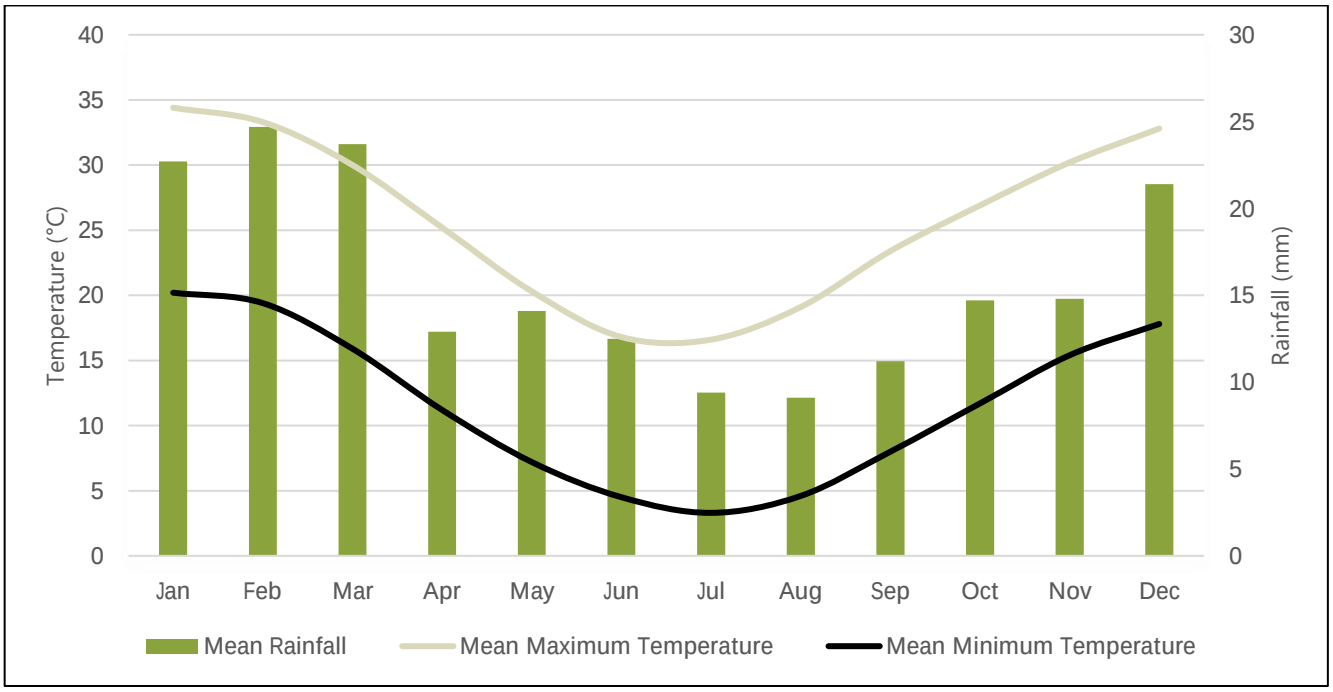


Figure 2. Long term climate data for Wooltana weather station (017056)

The twelve-month period leading up to the flora and fauna survey (November 1st, 2023 – October 31st, 2024) recorded 137.4 mm of rainfall at the Beverley weather station, below the annual average for Wooltana of 195.6 mm (Figure 3). The six-month period prior to the survey recorded 87.4 mm of rain, much of which occurred in May and July. The three-month period in the lead up to the survey recorded only 11.8 mm of rainfall. Mean monthly maximum temperatures were around the average for long-term conditions.

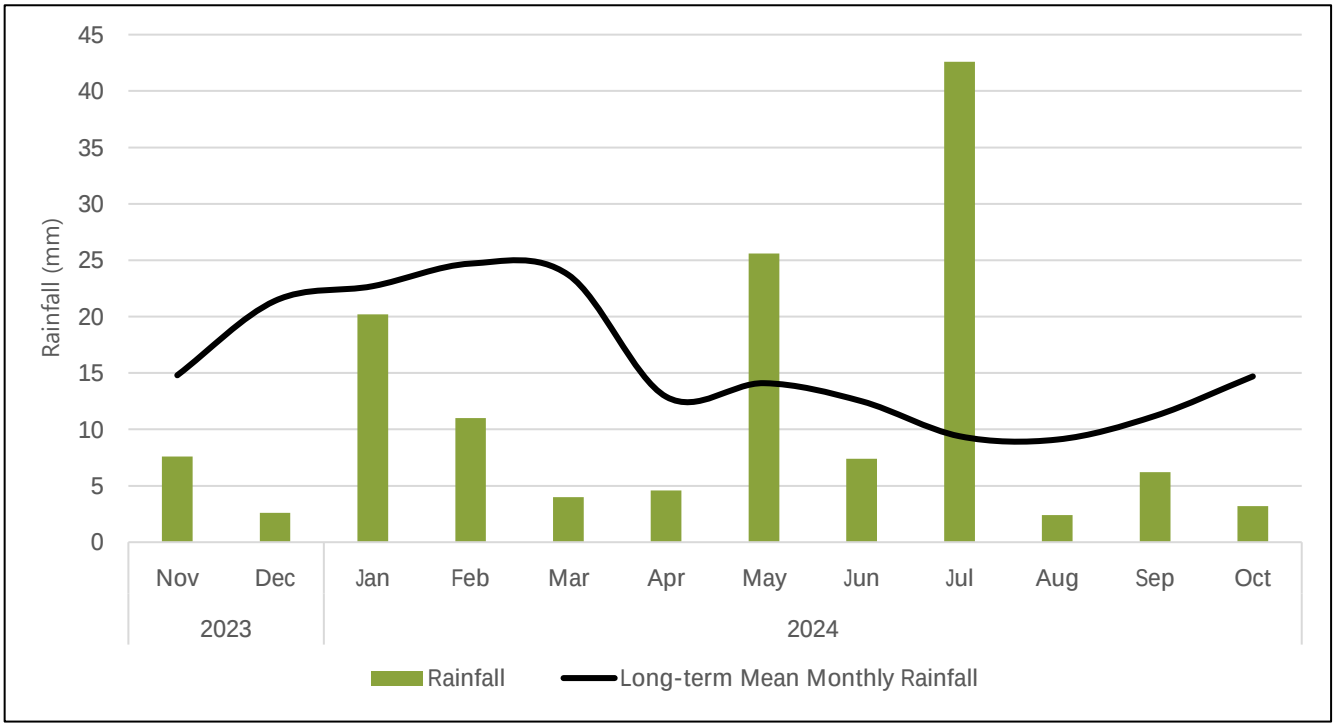


Figure 3. Rainfall for the 12-month period leading up to the 2024 surveys (Beverley Mine Main - Automatic Weather Station) compared to the Long-term Mean Monthly Rainfall (Wooltana weather station (017056)).

2.2.3 Previous Monitoring

Fauna surveys have been conducted annually since 2000. A review of the monitoring methodology was conducted prior to the 2017 fauna survey. The monitoring sites used to monitor fauna in the Beverley, Beverley North and Four Mile ML's were reviewed and changes implemented to align with operating ISR mining locations. The sites employed since 2017 have remained consistent through to 2024.

3 Methods

The Beverley, Beverley North and Four Mile annual fauna monitoring survey commenced on the 22nd of October 2024 and was concluded on the 27th of October 2024. Andrew Sinel was the survey team leader and co-ordinated the fauna monitoring survey. Two survey teams operated across the monitoring sites over the six-day survey period:

- Andrew Sinel, Sue Kenny and Alex Blackall undertook pitfall trap line installation, morning and afternoon pitfall trap checks, terrestrial fauna identification and pit line removal.
- Imogen Marshall, Nina Maurovic and Jai Bruggemans (Heathgate) undertook pitfall trap line installation, morning and afternoon pitfall trap checks, terrestrial fauna identification, and pit line removal.
- Imogen Marshall and Nina Maurovic also conducted avian point count surveys.

3.1 Mammal and Reptile Monitoring

A total of 11 pitfall trapping sites (eight impact and three control sites) were employed in 2024 (Table 1 & Figure 4). Control Site CON02 which has been employed in previous years was removed at the end of the 2023 surveys due to ethical concerns regarding broken trap lids.

Table 1. Summary of fauna monitoring locations at the Beverley, Beverley North and Four Mile areas 2024.

Site ID	Site location	Coordinates (UTM 54J)		Habitat type
		Easting	Northing	
BU14	Impact site	364945	6658189	Tableland
FOU003	Impact site	358017	6664148	Tableland
FOU004	Impact site	356219	6664908	Tableland
FOU005	Impact site	356172	6663291	Tableland
FM26	Impact site	359997	6666011	Tableland
NM10	Impact site	364343	6661883	Tableland
BN01	Impact site	360792	6666882	Tableland
BN03	Impact site	363861	6668351	Tableland
CON02*	Control site	361421	6650746	Tableland
CON03	Control site	372646	6657670	Tableland
PE18	Control site	369712	6665518	Tableland
BE25	Control site	361502	6653146	Tableland

*Site not employed for pitfall trapping in 2024

Figure 4. Locations of fauna monitoring sites 2024

Pitfall trapping lines were set-up and surveyed utilising the following methodology:

- Set-up: Two permanent 70 m transects, each with six pitfall buckets, placed at 10 m intervals along the transect. Pitfall buckets of 225 mm diameter and 600 mm deep were used to target small to medium sized mammals, reptiles and amphibians (if conditions allowed).
- Survey: Pitfall traps were each checked morning and evening for a total of four nights per site. Captured mammals and reptiles were temporarily marked with non-toxic texta along the underside of the tail to distinguish first and subsequent recapture of individuals. This enabled a better estimation of population sizes. Each captured individual was checked for the presence of previous texta markings. If present, the individual was recorded as a 'recapture.'

Datasheets were used to record the following capture data:

- Monitoring site number/identification
- date of trapping session
- trap session (morning or afternoon session)
- capture method (pitfall, other)
- species
- sex (mammals and selected reptile species only)
- age-class (adult, sub-adult, juvenile)
- first capture (no texta markings) or recapture (animal with marked tail).

3.2 Camera Trapping

Camera traps were used to assess the numbers and diversity of introduced species, particularly vertebrate predators during the fauna surveys (Figure 5). Four camera trap sites were used during the fauna surveys at Beverley since 2017 (Figure 5). In 2024, all four sites were used (CAM 01, 02, 03 and 04). A remote camera was set up for two nights at each location. This resulted in a total of eight trap nights for the cameras.

Motion activated cameras were set up on a peg which was secured into the ground. A photograph was taken of any animal within the field of view of the camera. All images were downloaded and analysed on a computer following the completion of the field survey.

Figure 5. Camera trap locations 2024

3.3 Avian Surveys

Avian point count surveys were conducted at all 12 fauna monitoring sites (Figure 4). Each site was surveyed twice, once in the morning and once in the afternoon. Each point count lasted 20 minutes. At each site, a single observer performed an area search, walking 100 meters around the perimeter of the pitfall trapping line. The surveyor recorded all birds that could be positively identified by sight or call within 100 meters of the marker, ensuring they were in the same habitat as the site. Birds observed more than 100 meters away from the marker, or those within different adjoining habitats, were recorded as off-site. Datasheets were used to record the following data:

- identification method (seen or heard)
- avian activity (e.g., flying overhead, flying over circling, resting or foraging on tree/shrub/ground)
- number of individuals observed
- distance from observer
- any other notable observations were also recorded

3.4 Field Survey Limitations

It is likely that not all fauna species present in the area were observed as part of the survey due to a range of factors. These may include low species abundance at the time of the survey, the behaviour of species (e.g., avoidance of unfamiliar objects such as traps, human disturbance, nocturnal birds) and movement patterns (e.g., small home ranges). Additionally, climatic conditions (e.g., prevailing weather conditions, rainfall, season and moon phase) and resource availability may reduce the likelihood of certain fauna species being detected during the monitoring period (e.g., amphibians). Capture results can therefore vary within and between survey periods due to such variables identified above. This highlights the need for long-term monitoring to observe and assess possible data trends in species abundance or diversity. Additionally, only gibber plains / stony plain tableland areas were systematically surveyed as these are the areas currently impacted by active mining operations.

4 Assessment Outcomes

4.1 Weather

Daily weather data was obtained from the Beverley Main weather station (Table 2). Daytime temperatures ranged from 24.8 to 37.3 degrees Celsius on trapping days. Overnight temperatures ranged from 12.4 to 23.0 degrees Celsius.

Table 2. Weather conditions during the survey period

Date	Maximum temp (°C)	Minimum temp (°C)	Average wind Speed (km/h)	Rainfall (mm)
22/10/2024	33.8	18.9	9.9	0
23/10/2024	37.3	23.0	14.2	0
24/10/2024	32.0	16.7	17.7	0
25/10/2024	24.8	13.6	19.0	0
26/10/2024	25.8	12.4	10.7	0
27/10/2024	29.0	18.4	9.1	0

4.2 Trap Effort

Eleven existing permanent pitfall lines were employed in 2024 (Table 3) for a total of 527 trap nights.

Table 3. Pitfall trapping effort for 2024 survey period

Treatment	Sites	Trap nights	Traps/site	Trap effort/site	Total trap effort
Control	3	4	12	48	144
Impact	8	4	12	48	383*
Total	11	4	12	48	527*

*One pitfall trap at site BU14 was closed on the final trap night due to ants.

4.3 Pitfall Trapping Overview

A total of 153 captured individuals were recorded during the 2024 pitfall trapping survey (22nd October - 27th October 2024) (Table 4). These were represented by 15 species from two classes (six mammal species and nine reptile species). This equated to an average abundance of 13.91 individuals per site, greater than the 2023 mean abundance per site of 13.33 individuals per site. Individual class abundances included 84 mammals and 69 reptiles. No fauna species of conservation significance were captured during the 2024 pitfall trapping survey.

Other general observations included the capture of 38 Eyrean Earless Dragons (*Tympanocryptis tetraporophora*), the most abundant species recorded in 2024. There was an increase in the abundance of both Fat-tailed Dunnarts (*Sminthopsis crassicaudata*, 23 up from 21 in 2023) and Stripe-faced Dunnarts (*Sminthopsis macroura*, 30 up from 23 in 2023) in 2024. There was also an increase in captures for the invasive House Mouse (*Mus musculus*) with two captured in 2024, compared to none in 2023. The number of Ctenotus species declined, with only five individuals across two species captured in 2024, down from eleven individuals across four species in 2023. Notably, one Eastern Hooded Scaly-foot (*Pygopus schraderi*) was recorded in 2024, marking the first record of this species in the annual fauna surveys since 2010.

Table 4. Pitfall trapping captures 2017-2024

Class	Groups	Scientific Name	Common Name	2017	2018	2019	2020	2021	2022	2023	2024*
MAMMALIA	RODENTS	*Leggadina forresti*	Central Short-tailed Mouse (Forrest's Mouse)	1	-	-	23	24	59	4	2
		Mus musculus	House Mouse	1	1		21	2	5	-	2
		Notomys fuscus	Dusky Hopping-mouse	-	-	-	1	-	1	-	-
		Pseudomys australis	Plains mouse	-	-	-	-	-	2	-	-
		Pseudomys hermannsburgensis	Sandy Inland Mouse	-	-	-	1		2	-	-
		Pseudomys bolami	Bolam's Mouse	-	-	-	-	1	-	-	-
	DASYURIDS	*Planigale gilesi*	Giles' Planigale (Paucident Planigale)	-	4	2	-	4	6	4	11
		Planigale sp.		-	1	-	-	-	-	-	-
		Planigale tenuirostris	Narrow-nosed Planigale	15	30	9	7	13	10	17	16
		Sminthopsis crassicaudata	Fat-tailed Dunnart	15	20	18	60	35	47	21	23
		Sminthopsis macroura	Stripe-faced Dunnart	5	7	21	22	38	46	23	30
REPTILIA	BLIND SNAKES	*Anilios bituberculatus*	Rough-nosed Blind Snake	-	-	-	1	-	-	-	-
		Anilios endoterus	Centralian Blind Snake	-	-	1	1	-	-	-	-
	DRAGONS	*Ctenophorus nuchalis*	Central Netted Dragon	1	1	-	-	-	-	-	-
		Pogona vitticeps	Central Bearded Dragon	7	3	3	4	3	6	5	8
		Tympanocryptis intima	Smooth-snouted Earless Dragon	-	-	1	-	-	-	-	-
		Tympanocryptis tetraporophora	Eyrean Earless Dragon	31	7	13	23	25	23	46	38
	SKINKS	*Ctenotus leonhardii*	Common Desert Ctenotus	1	-	-	2	-	-	2	-
		Ctenotus olympicus	Saltbush Ctenotus	4	-	-	-	-	-	2	2
		Ctenotus regius	Eastern Desert Ctenotus	-	-	-	2	-	-	-	-
		Ctenotus schomburgkii	Sandplain Ctenotus	3	-	-	-	-	-	-	-
		Ctenotus strauchii	Short-legged Ctenotus	2	1	2	5	-	6	6	3
		Ctenotus taeniatus	Eyrean Ctenotus	-	-	-	-	-	-	1	-
		Lerista labialis	Eastern Two-toed Slider	-	-	-	-	-	-	1	-
		Menetia greyii	Dwarf Skink	26	19	11	4	25	29	21	10

Class	Groups	Scientific Name	Common Name	2017	2018	2019	2020	2021	2022	2023	2024*
		Morethia adelaidensis	Adelaide Snake-eye	-	-	-	-	1	-	-	-
	PYGOPODS	*Delma tincta*	Black-necked Snake-lizard	1	-	1	-	-	-	-	-
		Lialis burtonis	Burton's Legless Lizard	1	-	-	-	-	-	-	-
		Pygopus schraderi	Eastern Hooded Scaly-foot	-	-	-	-	-	-	-	1
	GECKOS	*Diplodactylus tessellatus*	Tessellated Gecko	25	5	-	5	2	5	5	4
		Gehyra purpurascens	Robust Tree Dtella	-	-	-	-	1	-	-	-
		Heteronotia binoei	Bynoe's Gecko	-	-	2	1	-	-	-	2
		Lucasium damaeum	Beaded Gecko	-	-	-	1	-	-	-	-
		Nephrurus levis	Smooth Knob-tailed Gecko	1	-	-	-	-	-	-	-
		Rhynchoedura eyrensis	Eyre Basin Beaked Gecko	9	-	-	-	-	-	-	-
	ELAPIDS	*Suta suta*	Curl Snake	11	-	1	3	1	1	2	1
	MONITORS	*Varanus gouldii*	Sand Goanna	-	-	-	-	-	1	-	-
Total				**160**	**99**	**85**	**187**	**175**	**249**	**160**	**153**
Number of Sites				**12**	**12**	**12**	**12**	**12**	**12**	**12**	**11**
Mean (Per Site)				**13.33**	**8.25**	**7.08**	**15.58**	**14.58**	**20.75**	**13.33**	**13.91**
Species Richness				**19**	**12**	**13**	**19**	**14**	**16**	**15**	**15**

* NB: Only 11 pitfall sites employed in 2024 compared to 12 pitfall sites employed in 2017-2023.

4.4 Mammals

4.4.1 Trapping Analysis

A total of 84 mammals were trapped in the 2024 season. This included 23 individuals from three control sites and 61 individuals from eight impact sites (Table 5). The most abundant mammals captured across all sites were Fat-tailed Dunnarts *(Sminthopsis crassicaudata)* and Stripe-faced Dunnarts (*Sminthopsis macroura*) which is consistent with capture data from 2023 and all previous years. The mean abundance of small mammals captured at control sites (7.67 ± 1.45) was slightly higher than at impact sites (7.63 ± 1.50) (Table 5 & Figure 6). In contrast, the mean species richness of small mammals at control sites (3.00 ± 0.58) was slightly lower than at impact sites (3.25 ± 0.45) (Figure 7). However, no statistically clear difference was found in either mean abundance or mean species richness between control and impact sites in 2024. Therefore, the mean abundance and species richness of small mammals are considered comparable between the two site types in 2024.

Table 5. Abundance and species richness of small mammals captured at control and impact sites during the fauna trapping assessment within the Beverley, Beverley North and Four Mile ML's, spring 2024

Scientific Name	Common Name	Control	Impact	Total
Leggadina forresti	Central Short-tailed Mouse (Forrest's Mouse)	1	1	2
*Mus musculus**	House Mouse	0	2	2
Planigale gilesi	Giles' Planigale (Paucident Planigale)	0	11	11
Planigale tenuirostris	Narrow-nosed Planigale	3	13	16
Sminthopsis crassicaudata	Fat-tailed Dunnart	11	12	23
Sminthopsis macroura	Stripe-faced Dunnart	87	22	30
	Total abundance	**23**	**61**	**84**
	Mean abundance	**7.67**	**7.63**	**7.64**
	Total Species Richness	**4**	**6**	**6**
	Mean Species Richness	**3.00**	**3.25**	**3.18**

*Invasive

4.4.2 All Years

There was an overall increasing trend in mean abundance and mean species richness of small mammal captures from 2017 to 2022. A decline was then observed in both mean abundance and mean species richness from 2022 to 2023, with values remaining similar between 2023 and 2024 (Figure 7 & Figure 8). In most years (2017, 2018, 2019, 2020, 2022, and 2024), mean abundance and species richness were comparable between control and impact sites with no statically clear differences observed within years. Exceptions occurred in 2021, when a small significant difference in mean species richness between control and impact sites was detected, and in 2023, when significant differences were observed in both mean abundance and mean species richness.

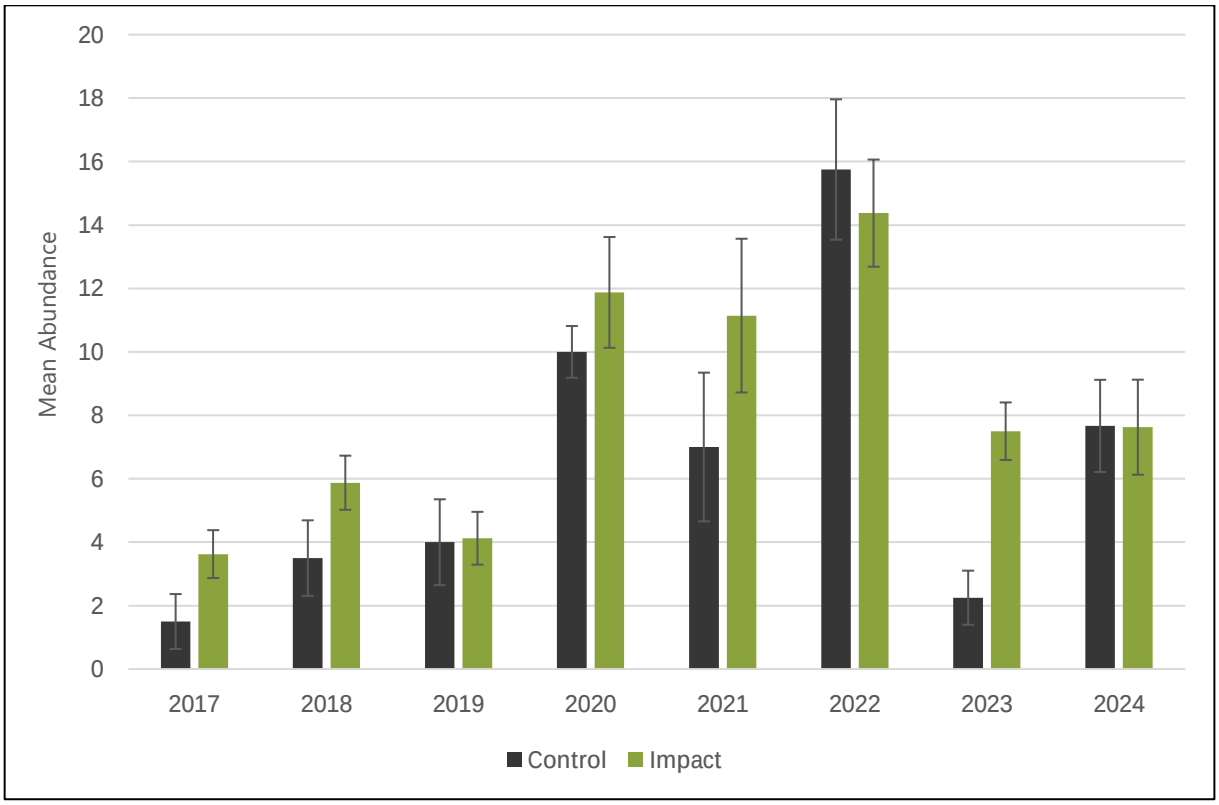


Figure 6. Mean abundance (+/- standard error) of small mammals at control and impact sites in 2017-2024

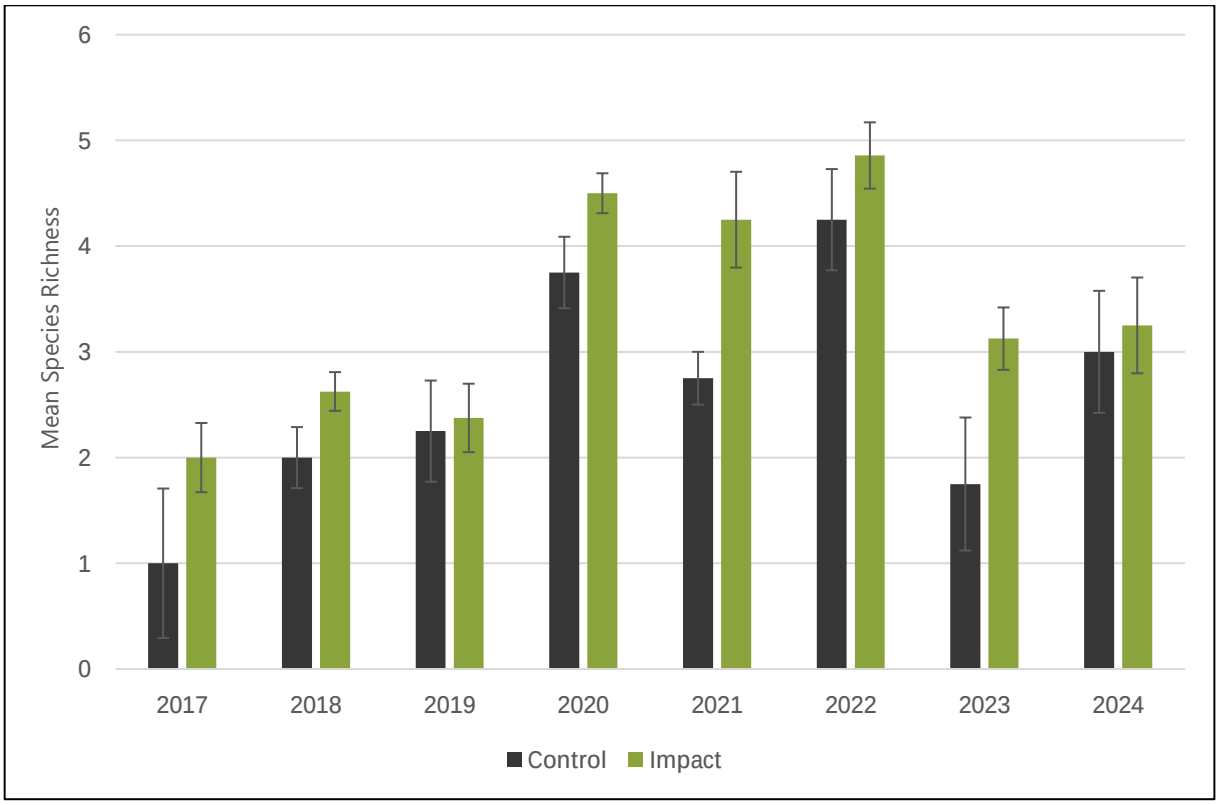


Figure 7. Mean species richness (+/- standard error) of small mammals at control and impact sites 2017-2024

Figure 8. Fat-tailed Dunnart (*Sminthopsis crassicaudata*)

Figure 9. Giles' Planigale (*Planigale gilesi*)

4.5 Reptiles

4.5.1 Trapping analysis

A total of 69 reptiles were trapped during the 2024 season. This included 21 individuals from three control sites and 48 individuals from eight impact sites (Table 5). The most abundant reptiles captured across all sites were the Eyrean Earless Dragon (*Tympanocryptis tetraporophora*) and the Dwarf Skink (*Menetia greyii*) which is consistent with capture data from 2023. The mean abundance and mean species richness of reptiles captured at control sites (7.00 ± 2.52 and 3.67 ± 0.67 respectively) was greater than at impact sites (6.00 ± 2.29 and 2.38 ± 0.32 respectively) (Table 6, Figure 10 & Figure 11). However, no statistically clear difference was found in either mean abundance or mean species richness between control and impact sites in 2024. Therefore, the mean abundance and species richness of reptiles are considered comparable between the two site types in 2024.

An additional opportunistic observation of a Strap-snouted Brown Snake (*Pseudonaja aspidorhyncha*) was recorded when driving between trapping sites.

Table 6. Abundance and species richness of reptile species captured at control and impact sites during the fauna trapping assessment within the Beverley, Beverley North and Four Mile MLs, spring 2024.

Scientific Name	Common Name	Control	Impact	Total
Ctenotus olympicus	Saltbush Ctenotus	2	0	2
Ctenotus strauchii	Short-legged Ctenotus	3	0	3
Diplodactylus tessellatus	Tessellated Gecko	2	2	4
Heteronotia binoei	Bynoe's Gecko	0	2	2
Menetia greyii	Dwarf Skink	0	10	10
Pogona vitticeps	Central Bearded Dragon	0	8	8
Pygopus schraderi	Eastern Hooded Scaly-foot	1	0	1
Suta suta	Curl Snake	1	0	1
Tympanocryptis tetraporophora	Eyrean Earless Dragon	12	26	38
	Total Abundance	**21**	**48**	**69**
	Mean Abundance	**7.00**	**6.00**	**6.27**
	Total Species Richness	**6**	**5**	**9**
	Mean Species Richness	**3.67**	**2.38**	**2.73**

4.5.2 All Years

Mean abundance and mean species richness of reptiles were highest in 2017 before showing a notable decline in 2018 (Figure 10 & Figure 11). Mean abundance and species richness subsequently showed a general fluctuating but increasing trend from 2018 to 2023, with a slight decrease observed from 2023 to 2024, though values remained consistently below 2017 levels. Mean abundance and mean species richness were comparable between control and impact sites within years with no statically clear differences observed in any given year from 2017-2024.

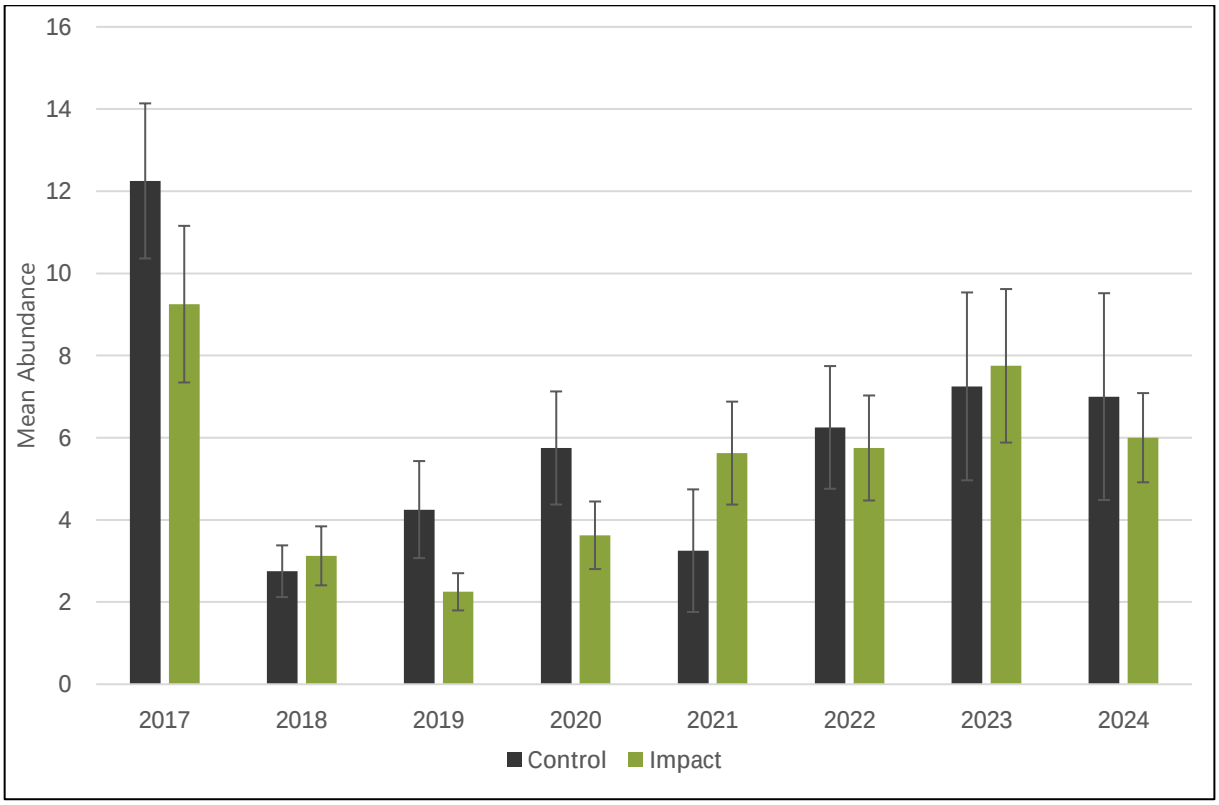


Figure 10. Mean abundance of reptiles (+/- standard error) at control and impact sites 2017-2024

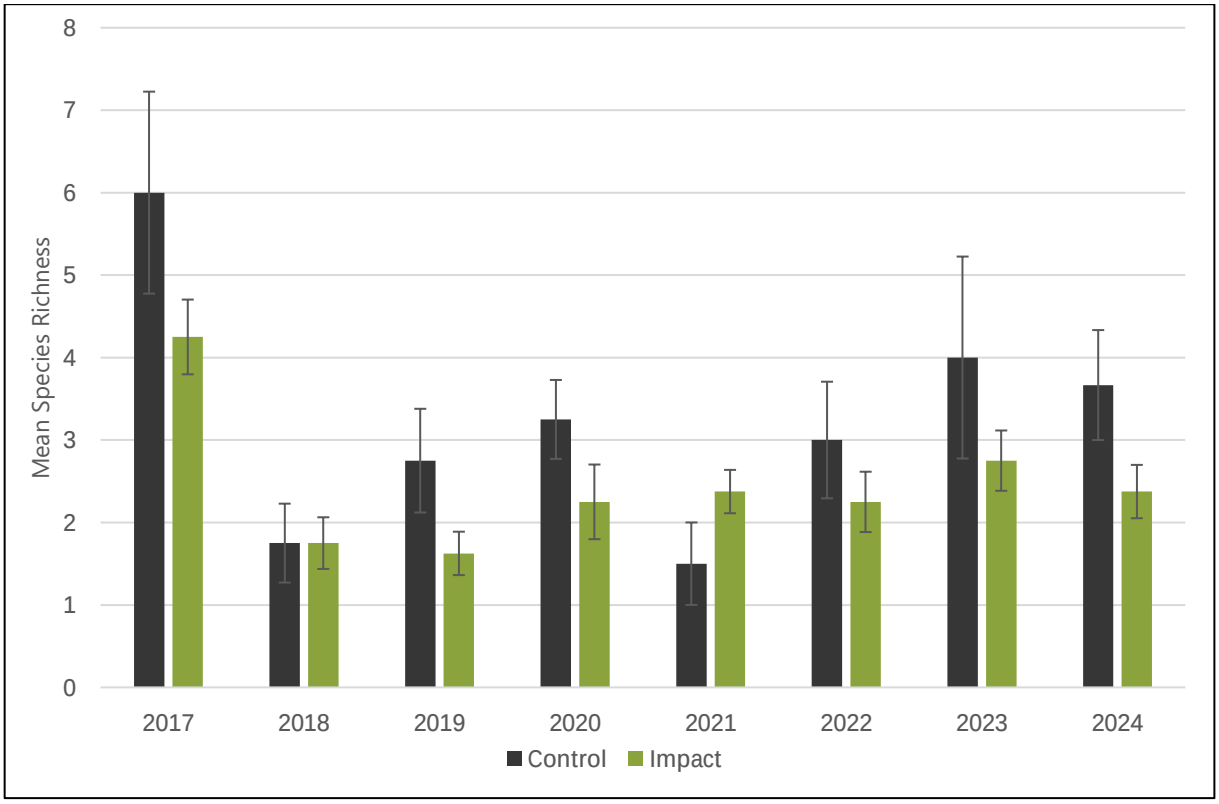


Figure 11. Mean species richness of reptiles (+/- standard error) at control and impact sites 2017-2024

Figure 12. Eastern Hooded Scaly-foot (*Pygopus schraderi*)

Figure 13. Eyrean Earless Dragon (*Tympanocryptis tetraporophora*)

4.5.3 Skinks

Overall skink species abundance showed a general decline from 2017 to 2019, followed by a gradual increase from 2020 to 2023 (Figure 15). However, abundance decreased again between 2023 and 2024. The abundance of Ctenotus skink species has varied across years with large fluctuations observed. While no Ctenotus species were observed in 2021, one species was recorded in 2022 (six individuals), and four species were recorded (11 individuals) in 2023 (Figure 16). However, in 2024 Ctenotus abundance declined again, with two species recorded (five individuals).

Figure 14. *Ctenotus olympicus* (Saltbush Ctenotus)

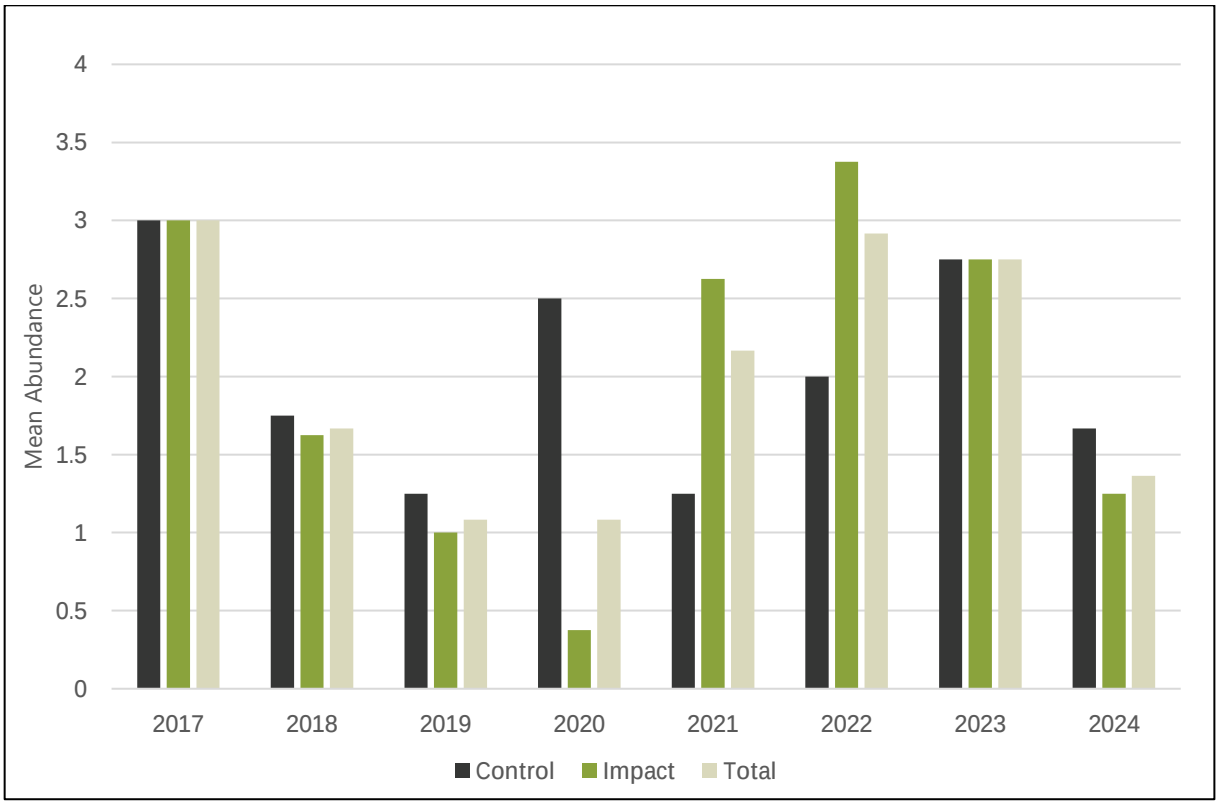


Figure 15. Mean abundance of skink species at control and impact sites 2017-2024

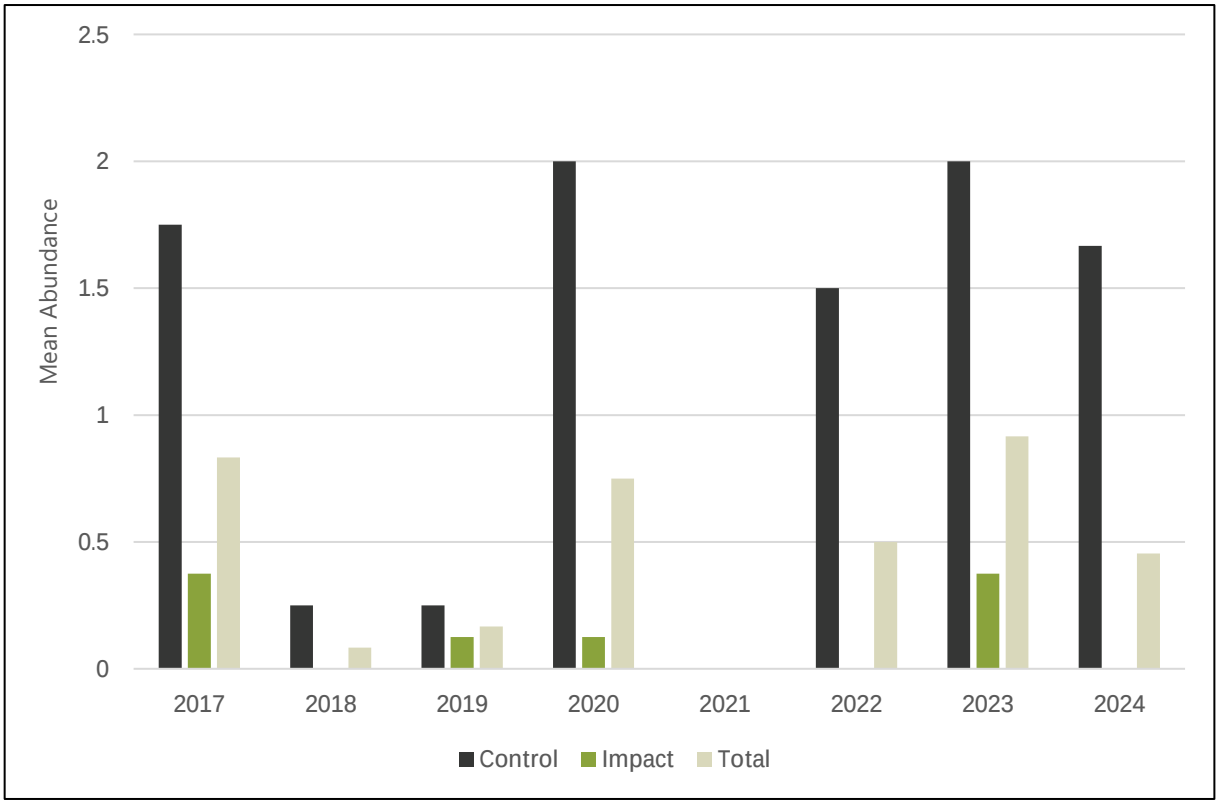


Figure 16. Mean abundance of Ctenotus skink species at control and impact sites 2017-2024

4.6 Birds

4.6.1 Point Count Analysis

Twenty avian species were recorded from within point count sites in the 2024 surveys (Table 7). The most abundant species were the Zebra Finch (*Taeniopygia guttata*) (total 39 individuals) which were recorded across six sites (one control and five impact) and the Galah (*Eolophus roseicapilla*) (total 34 individuals) which were recorded across five sites (two control and three impact). Crested Pigeon (*Ocyphaps lophotes*), Budgerigar (*Melopsittacus undulatus*) and Emu (*Dromaius novaehollandiae novaehollandiae*) were also relatively abundant. The mean abundance of birds at impact sites (18 ± 6.33) was greater than at control sites (10.25 ± 3.47) (Figure 13). In contrast, the mean species richness of birds was lower at impact sites (3.63 ± 0.96) than at control sites (3.75 ± 1.11). However, no statistically clear difference was found in either mean abundance or mean species richness between control and impact sites in 2024. Therefore, the mean abundance and species richness of birds are considered comparable between the two site types in 2024.

Table 7. Abundance and species richness of avian species observed at control and impact sites during the fauna assessment within the Beverley, Beverley North and Four Mile MLs, spring 2024.

Scientific Name	Common Name	Control	Impact	Total
Anthus australis	Australian Pipit	2	1	3
Aquila audax	Wedge-tailed Eagle	1	0	1
Artamus cinereus	Black-faced Woodswallow	0	1	1
Cacatua sanguinea gymnopis	Little Corella	0	4	4
Dromaius novaehollandiae novaehollandiae	Emu	2	14	16
Eolophus roseicapilla	Galah	9	25	34
Epthianura tricolor	Crimson Chat	1	0	1
Falco cenchroides	Nankeen Kestrel	2	1	3
Gavicalis virescens sonorous	Singing Honeyeater	3	3	6
Geopelia cuneata	Diamond Dove	0	1	1
Malurus leucopterus leuconotus	Wing-winged Fairywren	8	0	8
Melopsittacus undulatus	Budgerigar	0	20	20
Milvus migrans affinis	Black Kite	2	0	2
Ocyphaps lophotes lophotes	Crested Pigeon	3	24	27
Psephotellus varius	Mulga Parrot	0	3	3
Psophodes cristatus	Chirruping Wedgebill	0	1	1
Rhipidura leucophrys leucophrys	Willie Wagtail	0	2	2
Stiltia isabella	Australian Pratincole	5	6	11
Taeniopygia guttata castanotis	Zebra Finch	3	36	39
Todiramphus pyrrhopygius	Red-backed Kingfisher	0	2	2

Scientific Name	Common Name	Control	Impact	Total
	Total Abundance	**41**	**144**	**185**
	Mean Abundance	**10.25**	**18.00**	**15.42**
	Total Species Richness	**12**	**16**	**20**
	Mean Species Richness	**3.75**	**3.625**	**3.67**

4.6.2 All Years

Mean abundance and mean species richness of birds were low in 2017-2019 before dramatically increasing in 2020 (Figure 18 & Figure 19). Mean abundance and species richness then decreased in 2021 but remained higher than in 2017-2019. Mean abundance shows a gradual decrease from 2021 to 2023 but remained similar between 2023 and 2024. However, mean species richness fluctuates at similar levels between 2021 and 2024. Mean abundance and mean species richness of birds were comparable between control and impact sites within years with no statically clear differences observed in any given year from 2017-2024.

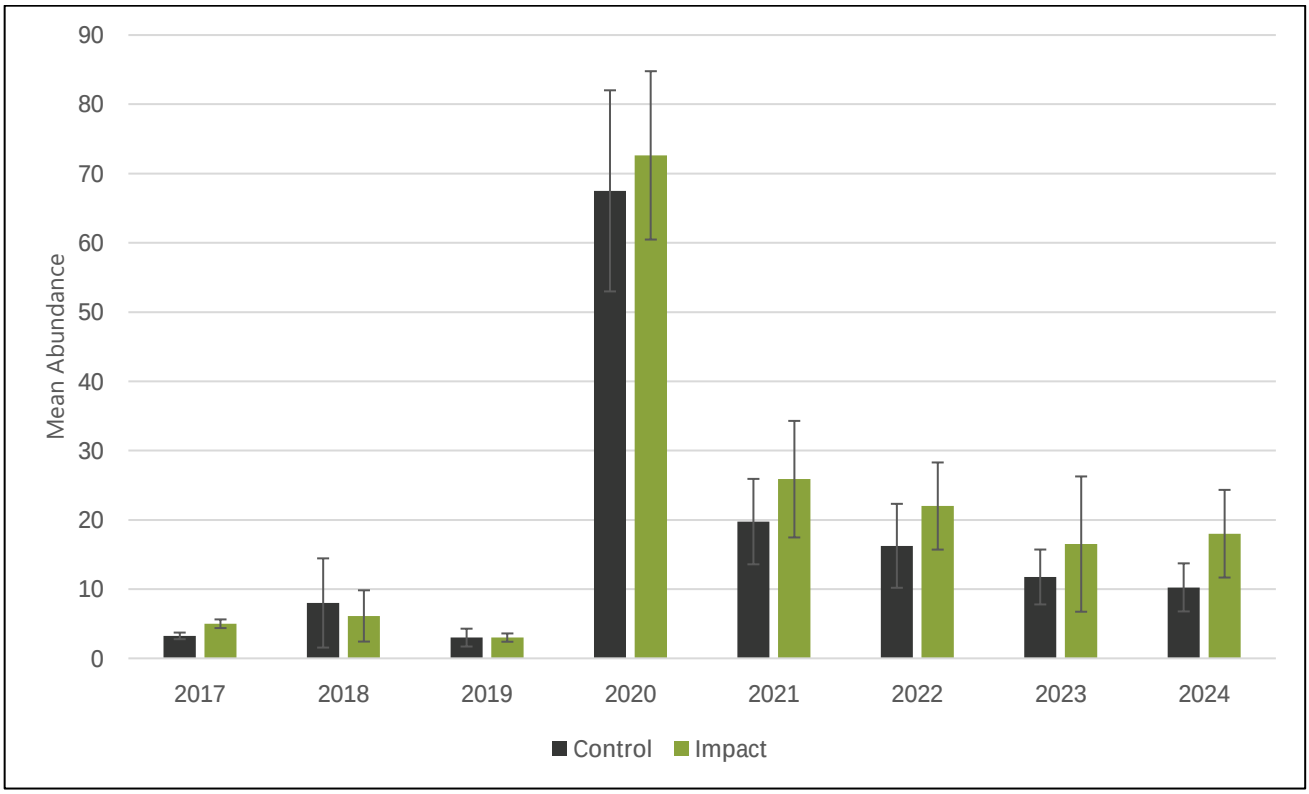


Figure 17. Mean abundance (+/- standard error) of avian species at control and impact sites 2017-2024

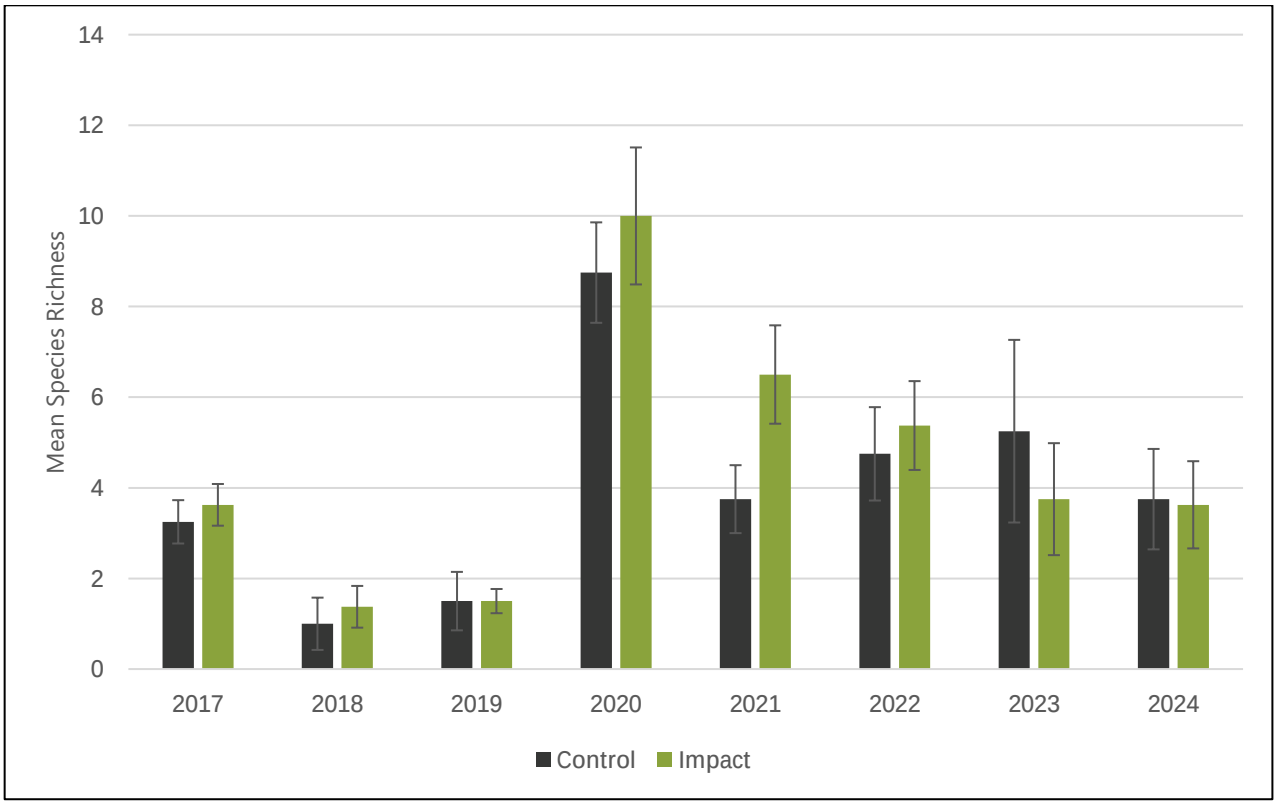


Figure 18. Mean species richness (+/- standard error) of avian species at control and impact sites 2017-2024

Figure 19. Emu (*Dromaius novaehollandiae*)

4.6.3 Opportunistic observations

Additional avian species opportunistically observed whilst onsite are listed in Table 8. This includes one species of state conservation significance, the Black Falcon (*Falco subniger*, NPW: R). An increased species richness was noted when driving through well vegetated areas such as creek lines.

Table 8. Additional avian species opportunistically observed.

Scientific Name	Common Name
Acanthagenys rufogularis	Spiny-cheeked Honeyeater
Accipiter fasciatus fasciatus	Brown Goshawk
Anthus australis	Australian Pipit
Aquila audax audax	Wedge-tailed Eagle
Artamus cinereus	Black-faced Woodswallow
Artamus personatus	Masked Woodswallow
Barnardius zonarius	Australian Ringneck
Cacatua sanguinea gymnopis	Little Corella
Chenonetta jubata	Australian Wood Duck
Coracina novaehollandiae	Black-faced Cuckoo-shrike
Dromaius novaehollandiae	Emu
Eolophus roseicapilla	Galah
Epthianura tricolor	Crimson Chat
Falco berigora berigora	Brown Falcon
Falco cenchroides cenchroides	Nankeen Kestrel
Falco peregrinus macropus	Peregrine Falcon
Falco subniger	Black Falcon
Gavicalis virescens	Singing Honeyeater
Geopelia cuneata	Diamond Dove
Geopelia placida placida	Peaceful Dove
Gymnorhina tibicen	Australian Magpie
Haliastur sphenurus	Whistling Kite
Malurus assimilis assimilis	Purple-backed Fairywren
Malurus leucopterus leuconotus	White-winged Fairywren
Melanodryas cucullata	Hooded Robin
Melopsittacus undulatus	Budgerigar
Merops ornatus	Rainbow Bee-eater
Milvus migrans	Black Kite
Neophema elegans elegans	Elegant Parrot
Neopsephotus bourkii	Bourke's Parrot
Ocyphaps lophotes lophotes	Crested Pigeon
Pachycephala rufiventris rufiventris	Rufous Whistler
Passer domesticus domesticus	House Sparrow

Scientific Name	Common Name
Petrochelidon nigricans	Tree Martin
Phaps chalcoptera	Common Bronzewing
Poodytes gramineus goulburni	Little Grassbird
Psephotellus varius	Mulga Parrot
Psophodes cristatus	Chirruping Wedgebill
Ptilotula penicillata	White-plumed Honeyeater
Purnella albifrons	White-fronted Honeyeater
Rhipidura leucophrys leucophrys	Willie Wagtail
Stiltia isabella	Australian Pratincole
Taeniopygia guttata castanotis	Zebra Finch
Todiramphus pyrrhopygius	Red-backed Kingfisher

Figure 20. Chirruping Wedgebill (*Psophodes cristatus*)

Figure 21. Australian Pratincole (*Stiltia isabella*)

Figure 22. Mulga Parrot (*Psephotellus varius*)

Figure 23. Wedge-tailed Eagle nest with chicks (*Aquila audax audax*)

4.7 Camera Trapping Results

Camera traps were primarily placed near artificial water sources, including the Four Mile Tanks (CAM02), the reverse osmosis outlet wetland (CAM03), and the North Mulga Bore (CAM04), although the latter functioned for only 30 minutes before ceasing operation for the remainder of the survey. An additional camera trap was positioned at Pannikin Creek (CAM01). These locations were strategically chosen as the most likely to detect feral predators, such as cats and foxes, within the lease areas. The primary aim of the camera trapping was to monitor any significant changes or increases in the abundance of feral predators to inform and guide targeted management actions, including trapping, shooting, or baiting.

Results from the camera traps did not detect any feral pest species at the four surveyed locations. Key native species recorded included kangaroos (both Euros and Red Kangaroos), Emus, and various avian species, which were generally observed accessing the water points for drinking and foraging (Table 9). See Appendix 5 for additional camera trapping photographs.

Table 9. Fauna species observed via camera trapping

Location	Scientific Name	Common Name
Pannikin Creek (CAM01)	*Artamus sp.*	Woodswallow sp.
	Gymnorhina tibicen	Australian Magpie
	Macropus robustus	Euro

Location	Scientific Name	Common Name
	Macropus rufous	Red Kangaroo
	Rhipidura leucophrys	Willie Wagtail
Four Mile Water Tanks (CAM02)	*Cacatua sanguinea*	Little Corella
	Corvus sp.	Corvid sp.
	Dromaius novaehollandiae	Emu
	Eolophus roseicapilla	Galah
	Macropus rufous	Red Kangaroo
	Ocyphaps lophotes	Crested Pigeon
Wetlands (CAM03)	*Aquila audax*	Wedge-tailed Eagle
	Cacatua sanguinea	Little Corella
	Corvus sp.	Corvid sp.
	Dromaius novaehollandiae	Emu
	Eolophus roseicapilla	Galah
	Grallina cyanoleuca	Magpielark
	Macropus rufus	Red Kangaroo
	Ocyphaps lophotes	Crested Pigeon
	Taeniopygia guttata castanotis	Zebra Finch
North Mulga Bore (CAM04)	Nil	Nil

Figure 24. CAM01: Pannikin Creek – Euro

Figure 25. CAM02: Four Mile Water Tanks - Red Kangaroos

Figure 26. CAM02: Four Mile Water Tanks - Emus

Figure 27. CAM03: Wetlands: Wedge-tailed Eagle and Corvid sp.

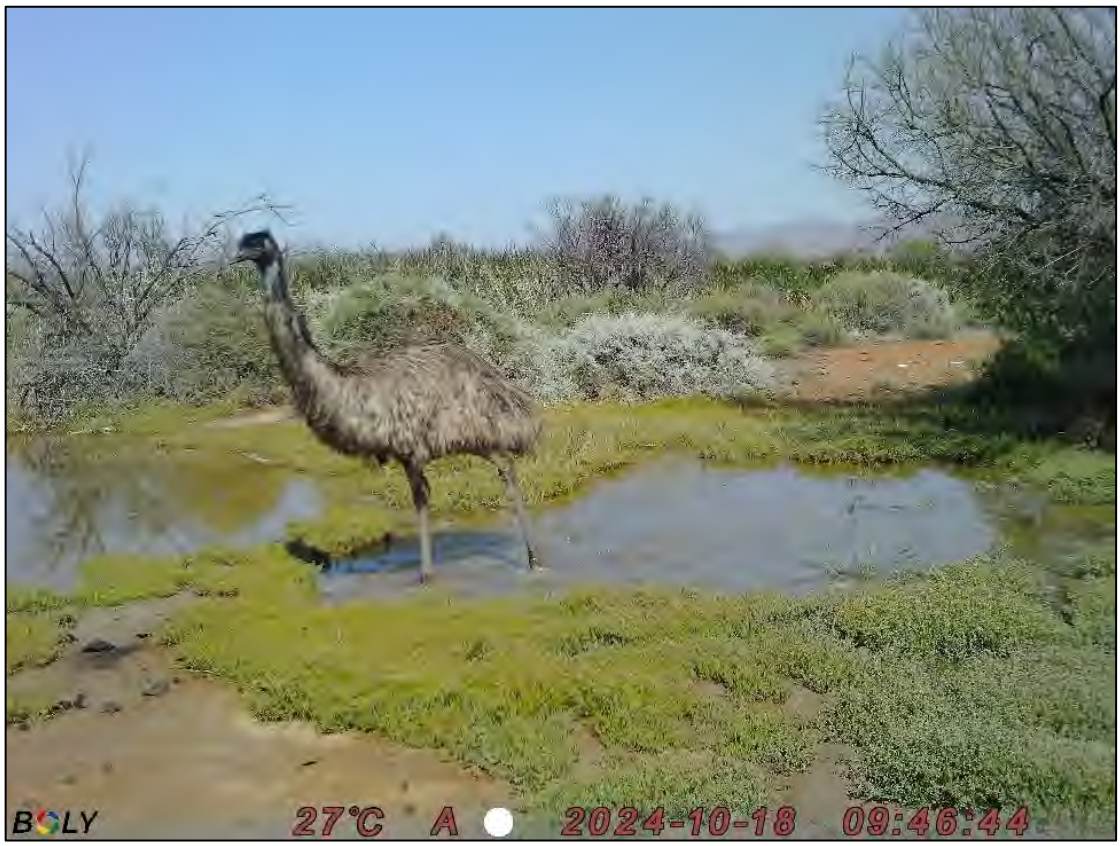


Figure 28. CAM03: Wetlands - Emu

5 Discussion

5.1 Mammals

In 2024, small mammal populations at the Beverley, Beverley North, and Four Mile MLs remained relatively consistent with trends observed in 2023. This stability follows a sharp decline in both abundance and species richness between 2022 and 2023, which occurred after a population boom driven by above-average rainfall in 2021 and 2022. The consistent patterns observed between 2023 and 2024 suggest that the boom-and-bust cycles seen in previous years may have stabilised following the population peaks of 2021–2022. These cycles, influenced heavily by rainfall and resource availability, align with previous research on the ecological drivers of small mammal dynamics (e.g., Dickman et al., 1999; Greenville et al., 2013).

Importantly, small mammal mean abundance and mean species richness were comparable between control and impact sites in 2024, with no statistically clear differences observed - a trend consistent across most years. The deviation observed in 2023, where small mammal abundance and species richness were notably higher at impact sites compared to control sites, does not raise concerns regarding the impact of mining activities given that values were higher at impact sites and the deviation was not sustained into 2024.

Although mean species richness was comparable between control and impact sites in 2024, impact sites did exhibit a slightly higher species richness than control sites. Notably, Giles' Planigale (*Planigale gilesi*) and Narrow-nosed Planigale (*Planigale tenuirostris*) were more abundant at impact sites, a trend consistent with previous years. This may indicate a local response to habitat heterogeneity or resource availability, or it could reflect the closer proximity of impact sites to the ranges compared to control sites. In contrast, species like the Fat-tailed Dunnart (*Sminthopsis crassicaudata*) showed a more uniform distribution across both site types. The consistently high capture rates of both Fat-tailed Dunnarts and Stripe-faced Dunnarts (*Sminthopsis macroura*) across all years underscore these species as dominant components of the small mammal assemblage in the study area, highlighting their significance as target species for ongoing monitoring. Further investigation into site-specific factors, such as vegetation structure, impacts of cattle and prey-predator interactions, could help explain the differences in capture rates of certain species between site types.

Continued monitoring will help assess whether these trends persist and detect any subtle, long-term effects of mining operations on small mammal populations. As in previous years, the current survey methodology and the comparable metrics observed between control and impact sites in 2024 (and across most years) suggest that mining operations are not having a discernible impact on the abundance or species richness of small mammals both in the local and wider regional areas.

5.2 Reptiles

In 2024, reptile populations showed a slight decrease in mean abundance and species richness compared to 2023, continuing to remain below levels recorded in 2017. This decline was consistent across both control and impact sites, with no statistically clear differences detected in mean abundance or species richness between site types. The Dwarf Skink (*Menetia greyii*) and the Eyrean Earless Dragon (*Tympanocryptis tetraporophora*) remained the most frequently captured species, reflecting patterns observed in previous years. Additionally, while overall Ctenotus abundance decreased compared to 2023, the consistent presence of the Saltbush Ctenotus (*Ctenotus olympicus*) and the Short-legged Ctenotus (*Ctenotus strauchii*) suggests a degree of resilience within this genus despite annual fluctuations.

The observed decreases in reptile abundance and species richness in 2024 may be partially attributed to environmental conditions during the survey period. Previous research highlights the influence of weather, particularly temperature, on reptile activity and trap success (Spence-Bailey et al., 2010). Cooler or otherwise less favourable conditions during the 2024 trapping period when compared to the 2023 survey period may have contributed to reduced overall capture rates.

A notable highlight of the 2024 survey was the capture of an Eastern Hooded Scaly-foot (*Pygopus schraderi*), the first recorded individual of this species during the annual fauna monitoring surveys since 2010. This finding underscores the value of long-term monitoring in detecting infrequently encountered species.

Continued monitoring will help assess whether these trends persist and detect any subtle, long-term effects of mining operations on reptile populations. As in previous years, the current survey methodology and the comparable metrics observed between control and impact sites in 2024 (and across most years) suggest that mining operations are not having a discernible impact on the abundance or species richness of reptiles both in the local and wider regional areas.

5.3 Birds

In 2024, mean avian abundance remained similar to 2023 values while mean species richness showed a slight decrease from 2023 values. Although mean abundance was slightly higher at impacts sites and mean species richness was slightly higher at control sites, no statistically clear differences were observed with both metrics comparable between control and impact sites in 2024 - a trend consistent across all previous years. The most abundant species recorded in 2024 was the Zebra Finch (*Taeniopygia guttata*) consistent with trends observed in previous years. Zebra Finches were particularly dominant at impact sites, accounting for 36 of the 39 individuals of the species recorded. The dominance of certain species, such as Zebra Finches, at impact sites

could warrant further investigation to determine whether local habitat modifications are influencing species composition.

Long-term trends indicate a gradual decrease in avian abundance and species richness from 2021 to 2024, though these values remain consistently higher than those recorded during the 2017–2019 surveys. This pattern suggests a stabilising avian community following population increases driven by above-average rainfall in previous years. Wetter conditions likely enabled populations to disperse more broadly across the landscape, while drier periods in 2020 may have concentrated populations around the Beverley area where artificial water sources are present, and annual rainfall increases with increased proximity to the ranges.

Additionally, opportunistic observations continued to highlight increased species richness in well-vegetated habitats such as creek lines emphasising the importance of these areas for local avian populations.

Continued monitoring will help assess whether these trends persist and detect any subtle, long-term effects of mining operations on avian populations. As in previous years, the current survey methodology and the comparable metrics observed between control and impact sites in 2024 (and across all previous years) suggest that mining operations are not having a discernible impact on the abundance or species richness of birds both in the local and wider regional areas.

5.4 Amphibians

No amphibians were observed during the 2024 season. This was as expected due to the dry conditions directly preceding and during the survey.

5.5 Invasive Species

Two invasive House Mice (*Mus musculus*) were captured during the pitfall trapping surveys. This is comparatively low compared to the 21 House Mice captured in 2020. No invasive species were observed through the camera trapping surveys. Therefore, based on existing survey knowledge under the current methodology, there are no results that suggest the mine operations are having any discernible impacts on the abundance or spread of invasive species within the mine site or wider area.

5.6 Flora Fauna Interactions

In terms of naturally occurring fluctuations, mean vegetation cover exhibits a moderate correlation with both mean mammal abundance (0.46) and mean reptile abundance (0.51) when analysed across all sites (Figure 29). Reptiles, show slower fluctuations in abundance likely due to distinct breeding patterns and less reactive response times to favourable conditions. In contrast, small mammals can breed multiple times per year and can undergo rapid changes in abundance over shorter time periods when favourable seasonal conditions occur. As

discussed in Ecosphere (2024), vegetation cover is also closely correlated with rainfall occurring during the summer months.

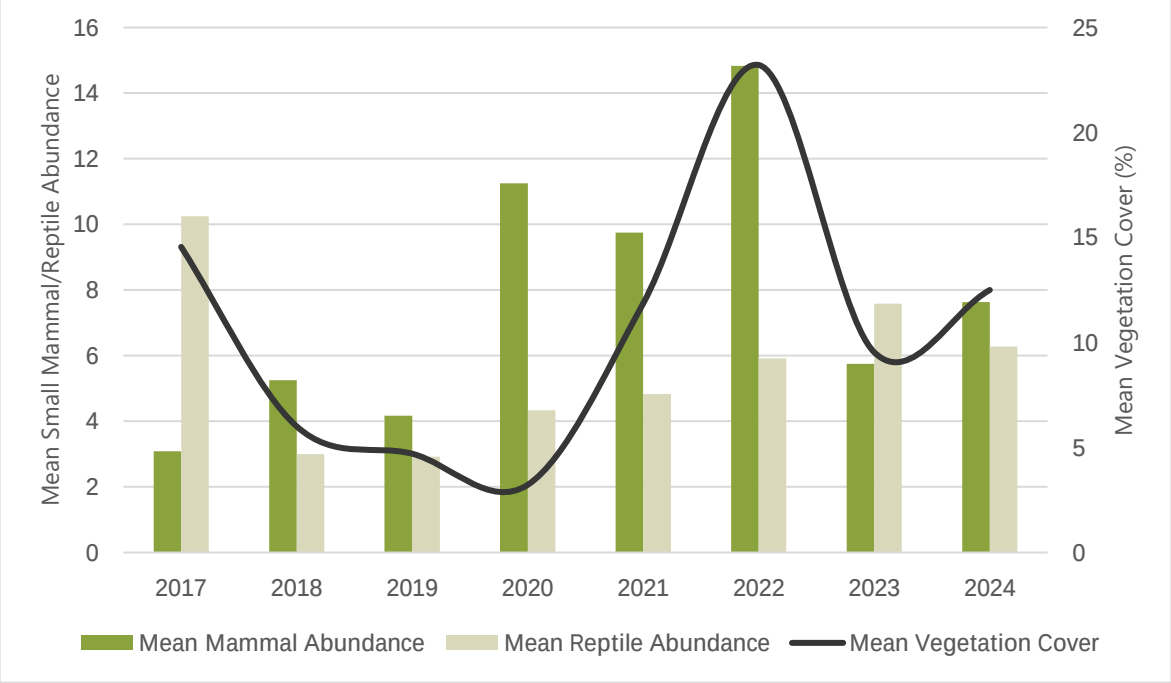


Figure 29. Changes in mean small mammal and reptile abundances and mean vegetation cover 2017-2024.

5.7 Pitfall Trapping Ethical Conditions

Due to ethical concerns regarding damage to pit lids caused by cattle and the likelihood of ongoing damage from their proximity to a water point, all permanent pitfall traps at fauna site CON02 were removed following the completion of the 2023 surveys. Pitfall traps at all other fauna sites remained in situ. For the three remaining control sites accessible to cattle, protective covers were fitted to prevent further damage. These covers consist of steel plates securely fastened with Tek screws to the top of each pitfall lid. Fauna sites are now checked every six months, as well as after any significant environmental events, such as heavy rainfall, to ensure the traps remain intact and do not pose a risk to wildlife.

The trial of the protective covers has been successful, with no damage to pit lids observed at control sites over the past year, despite evidence of cattle using the survey areas. The results of both the protective cover trial and the six-monthly checks have been submitted to the South Australian Wildlife Ethics Committee in accordance with the updated permit conditions.

5.8 Summary

In 2024, small mammal, reptile, and avian abundance and species richness were relatively consistent with results from 2023. While fluctuations in these metrics have been observed across years, there has been minor difference between comparative control and impact sites in any given year. The deviation noted in 2023, where small mammal abundance and species richness were higher at impact sites compared to control sites does not raise concerns regarding the impact of mining activities, given that values were higher at impact sites and the deviation did not continue into 2024. Overall, these findings suggest that mining operations are having a negligible effect on abundance and species richness across the three faunal groups surveyed locally and within the wider region.

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7 Appendices

Appendix 1. Fauna monitoring pitfall trapping data mammals 2024.

Scientific Name	BE25	CON03	PE18	BN01	BN03	BU14	FM26	FOU003	FOU004	FOU005	NM10	Total
Leggadina forresti	1	-	-	-	-	1	-	-	-	-	-	**2**
Mus musculus	-	-	-	1	-	-	-	1	-	-	-	**2**
Planigale gilesii	-	-		2	-	-	2	2	5	-	-	**11**
Planigale tenuirostris	1	1	1	3	1	4	2	1	1	-	1	**16**
Sminthopsis crassicaudata	7	4	-	-	1	2	2	3	-	-	4	**23**
Sminthopsis macroura	1	3	4	8		2	2	5	1	2	2	**30**
Total	**10**	**8**	**5**	**14**	**2**	**9**	**8**	**12**	**7**	**2**	**7**	**84**

Appendix 2. Fauna monitoring pitfall trapping data reptiles 2024.

Scientific Name	BE25	CON03	PE18	BN01	BN03	BU14	FM26	FOU003	FOU004	FOU005	NM10	Total
Ctenotus olympicus	-	-	2	-	-	-	-	-	-	-	-	**2**
Ctenotus strauchii	1	1	1	-	-	-	-	-	-	-	-	**3**
Diplodactylus tessellatus	1	1	-	-	2	-	-	-	-	-	-	**4**
Heteronotia binoei	-	-	-	-	-	-	1	-	-	-	1	**2**
Menetia greyii	-	-	-	2	-	3	1	1	-	2	1	**10**
Pogona vitticeps	-	-	-	-	-	-	-	2	-	4	2	**8**
Pygopus schraderi	-	-	1	-	-	-	-	-	-	-	-	**1**
Suta suta	-	-	1	-	-	-	-	-	-	-	-	**1**
Tympanocryptis tetraporophora	2	3	7	4	10	3	3	-	2	2	2	**38**
Total	**4**	**5**	**12**	**6**	**12**	**6**	**5**	**3**	**2**	**8**	**6**	**69**

Appendix 3. Avian point count data, 2024.

Scientific Name	BE25	CON02	CON03	PE18	BN01	BN03	BU14	FM26	FOU003	FOU004	FOU005	NM10	Total
Anthus australis	1	-	1	-	-	-	-	1	-	-	-	-	**3**
Stiltia isabella	-	-	5	-	-	-	-	2	-	-	-	4	**11**
Milvus migrans affinis	-	-	2	-	-	-	-	-	-	-	-	-	**2**
Artamus cinereus	-	-	-	-	-	-	-	-	1	-	-	-	**1**
Melopsittacus undulatus	-	-	-	-	-	-	-	20	-	-	-	-	**20**
Psophodes cristatus	-	-	-	-	-	1	-	-	-	-	-	-	**1**
Ocyphaps lophotes lophotes	-	3	-	-	-	20	-	-	3	1	-	-	**27**
Epthianura tricolor	-	-	1	-	-	-	-	-	-	-	-	-	**1**
Geopelia cuneata	-	-	-	-	-	1	-	-	-	-	-	-	**1**
Dromaius novaehollandiae novaehollandiae	-	2	-	-	-	2	-	9	3	-	-	-	**16**
Eolophus roseicapilla	-	6	-	3	4	16	-	-	5	-	-	-	**34**
Cacatua sanguinea gymnopis	-	-	-	-	-	-	-	4	-	-	-	-	**4**
Psephotellus varius	-	-	-	-	-	-	-	3	-	-	-	-	**3**
Falco cenchroides	2	-	-	-	-	-	-	-	-	1	-	-	**3**
Todiramphus pyrrhopygius	-	-	-	-	-	-	-	-	-	-	1	1	**2**
Gavicalis virescens sonorus	3	-	-	-	2	1	-	-	-	-	-	-	**6**
Aquila audax	-	1	-	-	-	-	-	-	-	-	-	-	**1**
Malurus leucopterus leuconotus	-	6	2	-	-	-	-	-	-	-	-	-	**8**
Rhipidura leucophrys leucophrys	-	-	-	-	-	2	-	-	-	-	-	-	**2**
Taeniopygia guttata castanotis	-	-	3	-	6	5	-	4	-	11	-	10	**39**
Total	**6**	**18**	**14**	**3**	**12**	**48**	**0**	**43**	**12**	**13**	**1**	**15**	**185**

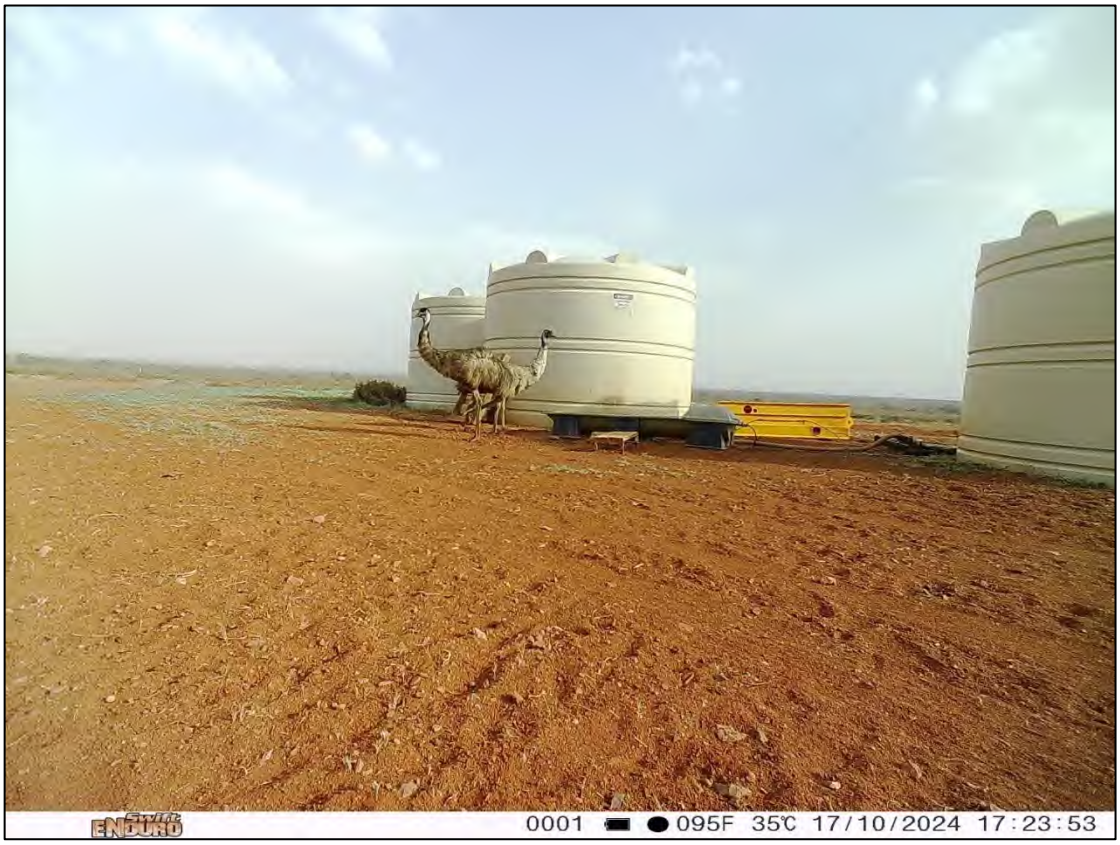
Appendix 4. Individual site summary all captures.

	Survey Site No.	Mammalia	Reptilia	Total
Control	BE25	10	4	14
	CON03	8	5	13
	PE18	5	12	17
Impact	BN01	14	6	20
	BN03	2	12	14
	BU14	9	6	15
	FM26	8	5	13
	FOU03	12	3	15
	FOU04	7	2	9
	FOU05	2	8	10
	NM10	7	6	13
	Total	**84**	**69**	**153**

Appendix 5. Camera trap photos

CAM01 – Pannikin Creek

CAM02 - Four Mile Water Tanks




0001 096F 35℃ 17/10/2024 17:38:34


0001 075F 23℃ 17/10/2024 22:22:56


0001 083F 28℃ 18/10/2024 08:53:43


0001 086F 30℃ 18/10/2024 17:34:37

CAM03 - Wetlands


BOLY
34°C A
2024-10-18 14:01:24


BOLY
19°C A
2024-10-19 00:01:26


BOLY
24℃ A
2024-10-19 11:41:52

C.2 Annual Flora Monitoring Report

E SPHERE
Ecological Solutions

Beverley, Beverley North and Four Mile ML's Annual Flora Monitoring, 2024

September 2024

Document information and distribution

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Alex Blackall	Final	2	6/1/2025	Christian Knott, Heathgate Resources Mackenzie Bensch, Heathgate Resources

This flora assessment was undertaken on Adnyamathanha country. Ecosphere Ecological Solutions acknowledge the traditional owners of this country and pay our respects to their Elders past, present and emerging.

Glossary

Abbreviation	Description
AWS	Automatic Weather Station
BoM	Bureau of Meteorology
Ecosphere	Ecosphere Ecological Solutions Pty Ltd
Heathgate	Heathgate Resources Pty Ltd
ISR	In-situ recovery
ML	Mining Lease
PEPR	Program for Environmental Protection and Rehabilitation
SA	South Australia

Executive Summary

Ecosphere Ecological Solutions (Ecosphere) was engaged by Heathgate Resources Pty Ltd (Heathgate) to conduct the 2024 annual flora monitoring assessment for the Beverley, Beverley North and Four Mile Mining Leases (ML's). Heathgate requires an annual flora monitoring program to be conducted as per the Company Compliance Monitoring Plan which is specified in the Program for Environmental Protection and Rehabilitation (PEPR). Specific outcomes related to flora include:

- No loss of abundance or diversity on or off the Beverley ML's to native vegetation through clearance or any other damage unless prior approval under the relevant legislation is obtained.
- No introduction of new weeds, plant pathogens or pests, including feral animals, nor increase in abundance of existing weed or pest species in the lease area compared to adjoining pastoral properties.

Flora surveys commenced on Monday 30th September and concluded on Thursday 3rd October 2024. Twenty-nine flora monitoring sites were assessed during the survey period which included ten control sites and 19 operational sites (i.e., impact sites).

Seasonal conditions for the twelve-month period leading up to the survey (1st October 2023 to 30th September 2024) recorded a total of 146.8 mm of rainfall at the Beverley Main Automated Weather Station (AWS), a slight decrease from the previous year's total of 162.6 mm for the same period and lower than the average annual rainfall of 195.6 mm recorded at the nearby Gammon Ranges (Wooltana) weather station (no. 017056). Rainfall in the six-month period leading up to the flora survey totalled 88.8 mm, with the majority falling in May and July, for a combined total of 68.2 mm.

Overall, both vegetation cover and species richness increased in 2024 relative to 2023. This increase was largely driven by a greater cover and diversity of annuals and short-lived perennials which increased in response to significant, above-average rainfall received during the preceding winter, particularly in July 2024 (42.6 mm). Importantly, similar overall trends in mean percentage vegetation cover and species richness were recorded across both control and impact sites from 2023 to 2024, and there was no statistically clear difference between control and impact sites in mean vegetation cover or species richness in 2024, suggesting no overt impacts from mining operations on the overall cover of vegetation or number of species.

Ultimately, the condition of vegetation within the general Beverley mine area, as measured by vegetation cover and species richness, continues to be maintained at levels that are largely consistent with the wider region. In particular, the ability of the surveyed sites to gain vegetation cover and the significant increase in species richness observed following the higher-than-average rainfall in July 2024 suggests that ecosystems are functioning as expected and are not subject to a longer-term loss of condition within the ML's relative to the surrounding area.

Contents

List of Figures

List of Tables

1 Introduction

Ecosphere Ecological Solutions (Ecosphere) was contracted by Heathgate Resources Pty Ltd (Heathgate) to conduct the 2024 annual flora monitoring assessment for the Beverley, Beverley North and Four Mile Mining Lease's (ML's). Heathgate requires an annual flora monitoring program to be conducted as part of its Programs for Environmental Protection and Rehabilitation (PEPR).

Heathgate operates the Beverley ML (ML 6321), Beverley North ML (ML 6387) and Four-Mile Uranium Mine (Four Mile) ML (ML 6402) tenements in northern South Australia (SA). Mining is undertaken by in-situ recovery (ISR) method. The Four Mile, Beverley and Beverley North ML's are located approximately 520 km north north-east of the Adelaide Central Business District, in the north-east pastoral region of SA. The mine is situated on the eastern side of the Gammon Ranges approximately 30 km north-east of Arkaroola Village (Figure 1) within the Wooltana Crown Lease (Volume 1289 Folio 38).

Specific outcomes related to vegetation outlined in the relevant PEPRs include:

- No permanent loss of abundance or diversity to native vegetation on or off the Beverley, Beverley North and Four Mile ML's, through clearance, dust contaminant deposition, fire or other damage unless prior approval under the relevant legislation is obtained.
- No introduction of new weeds, plant pathogens or pests, including feral animals, nor increase in abundance of existing weed or pest species in the lease areas compared to adjoining pastoral areas.

As a result of these desired outcomes, Heathgate assesses annually a total of 29 5 x 2 m cover abundance plots (i.e., sites). Nineteen of these sites are located on lease and within close proximity to operational areas and are designated as impact sites. A further ten sites are situated greater than 5 km from operational areas and are designated as control sites. Comparisons between control and impact sites allow potential impacts of mining activities on vegetation condition to be quantified.

1.1 Objectives

The overall objective of the flora monitoring survey is to demonstrate compliance with conditions as stated under the relevant ML's PEPR.

Specifically, the aims of the flora monitoring report were to:

- make a comparative analysis between operational mining (i.e., impact) sites and undisturbed (i.e., control) sites
- provide quantitative analysis on the vegetation cover values at control and impact sites for the flora species recorded
- provide quantitative analysis on plant species richness at control and impact sites for the flora species recorded
- assess the presence and abundance of target alien species within the ML's

Figure 1. General location of the Beverley, Beverley North and Four Mile ML's.

2 Background

2.1 Environmental setting

2.1.1 Vegetation

Floristic diversity and vegetation cover in the general Beverley area has been shown to fluctuate substantially over time. Flora assessments have been undertaken since 1996 and the results of these assessments clearly show rainfall as the major factor driving both species richness and vegetation cover present at any given time. Additional trends that have emerged through this continued site monitoring include the influence of grazing pressure by kangaroos on vegetation cover and the influence of both the timing and extent of rainfall during the year on the emergence of differing floristic lifeforms (i.e., the diversity of forb, grass, shrub, and sub-shrub species). Thus, rainfall statistics for the 12 months preceding an assessment are a key variable for the interpretation of seasonal flora survey results. Furthermore, site topography at a more localised level impacts rainfall within the general Beverley area, with rainfall varying considerably with proximity to the nearby Gammon Ranges. In particular, the Four Mile monitoring sites can sometimes receive significantly higher rainfall totals than the other sites further from the Gammon Ranges.

2.2.2 Climate

Historical long term rainfall data consisting of comparative mean monthly totals are taken from the Gammon Ranges (Wooltana) weather station (no. 017056) (BOM, 2023). This is the nearest and most reliable weather station to the Beverley area from a historical perspective, with data collected at the station since 1877. Data at the station shows a long term mean annual rainfall of 195.6 mm, with the heaviest falls typically occurring between December and March (Figure 2). The wettest months historically correspond with the highest mean maximum and minimum temperatures.

Beverley mine also has two local weather stations and annual conditions are recorded from the Beverley Main Mine Automatic Weather Station (AWS) which provides a measure of the most average conditions across the ML's.

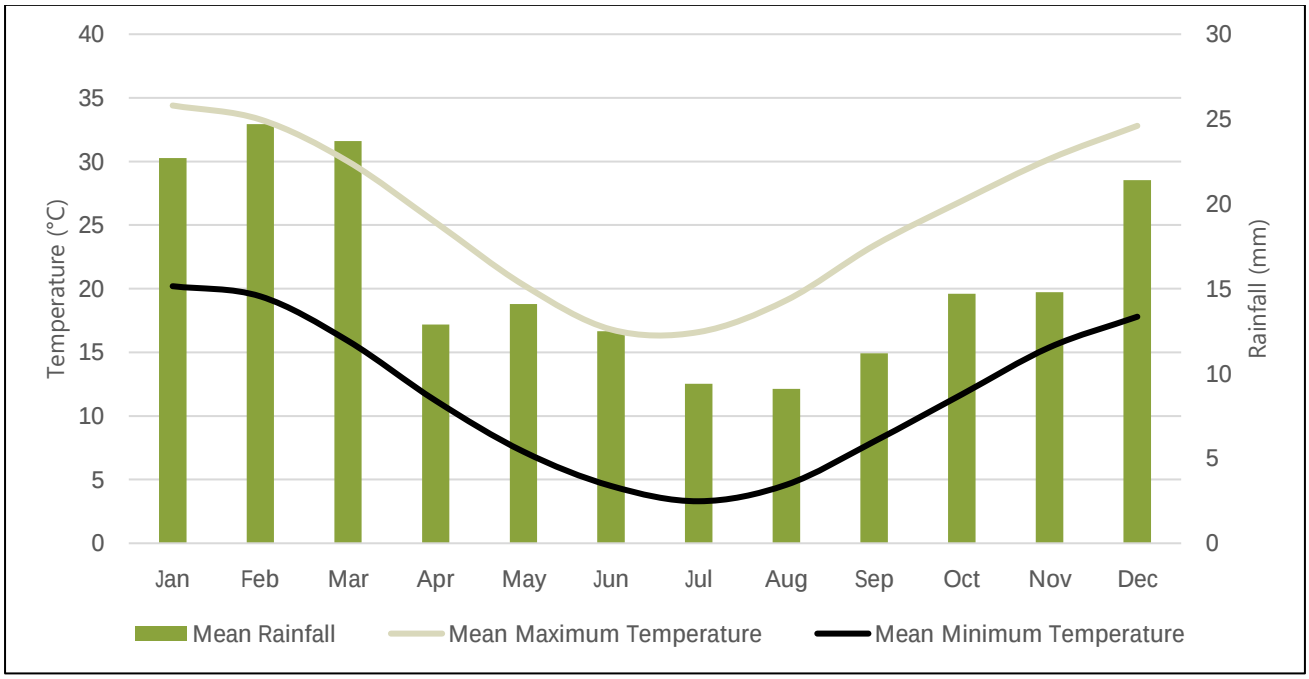

Figure 2. Long-term climate data for the Gammon Ranges (Wooltana) weather station (no. 017056).

The twelve-month period leading up to the flora survey (1st October 2023 to 30th September 2024) recorded 146.8 mm of rainfall at the Beverley AWS. This figure is slightly below the previous year's total rainfall of 162.6 mm for the same period and lower than the annual average rainfall recorded by the Gammon Ranges (Wooltana) weather station of 195.6 mm. The six-month period leading up to the survey recorded 88.8 mm of rain, much of which occurred in May and July. In particular, the rainfall total for July was significantly above-average (Figure 3). The three-month period in the lead up to the survey recorded 51.2 mm of rainfall, with 42.6 mm falling in July. Mean monthly maximum temperatures were around the average for long-term conditions for the general area.

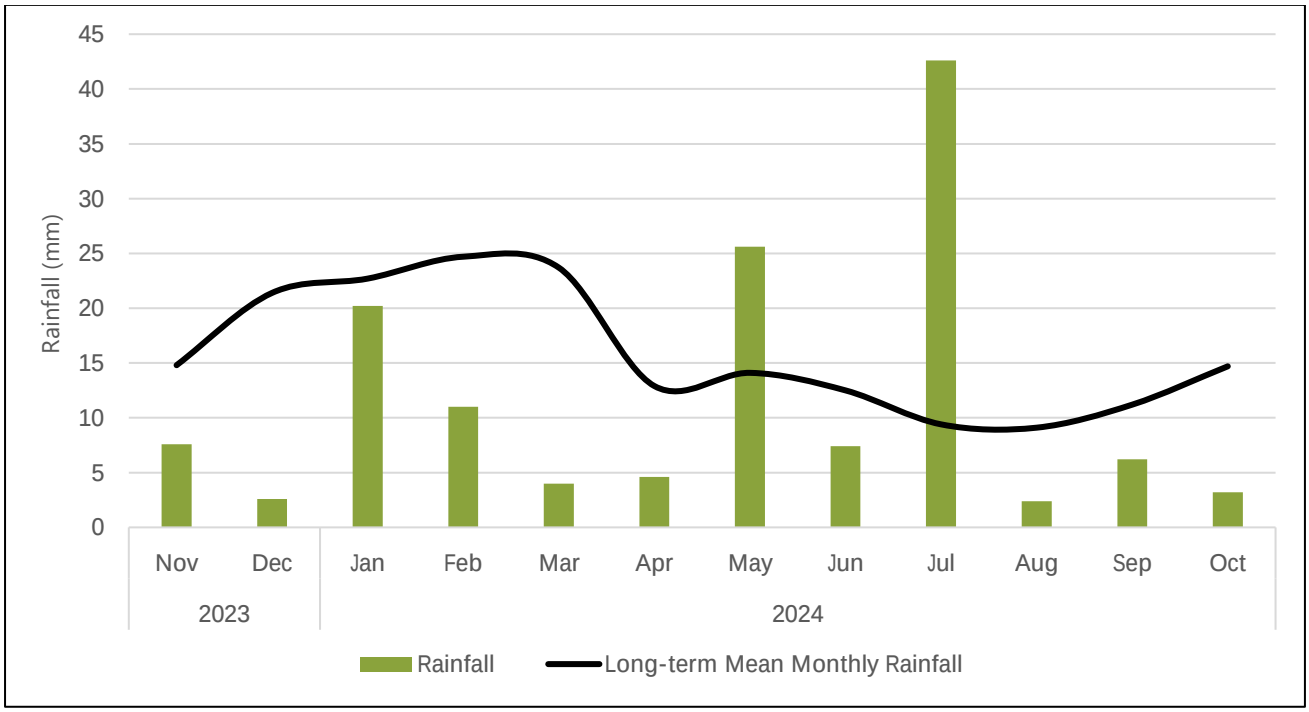

Figure 3. Monthly rainfall totals leading up to the 2024 survey recorded by the Beverley Mine Main Automatic Weather Station (AWS) versus the long-term mean monthly rainfall totals recorded by the Gammon Ranges (Wooltana) weather station (no. 017056).

3 Methods

Flora surveys commenced on Monday 30th September and concluded on Thursday 3rd October 2024. Flora surveys were undertaken by Ecosphere ecologist Alex Blackall.

3.1 Floristics

Twenty-nine flora monitoring sites were assessed during the survey period which included ten control sites and 19 operational sites (i.e., impact sites) (Table 1 and Figure 4). The flora assessment methods remained consistent with those employed historically.

The annual flora assessment is comprised of four components:

- plant species vegetation cover calculated as a percentage total across 10 individual 1m^2 subplots comprising the 10 m^2 monitoring plots / sites
- plant species richness recorded as the number of species per 10 m^2 monitoring plot / site
- photo point monitoring undertaken at each individual monitoring plot / site
- weed assessment of areas targeting likely vector points for new incursions and locations likely to provide suitable conditions for non-indigenous species such as stormwater outlets and tanks

In addition, to account for varying land use, control and impact sites are further defined by land use / impact. The following categories are associated with control and impact sites, respectively:

Impact sites include:

- wellfield
- transport corridor

Control sites include:

- inside lease outside wellfield
- external lease outside wellfield (non-pastoral)
- pastoral

3.1.1 Vegetation cover

Vegetation cover was measured using 5 x 2 m monitoring plots (i.e., sites). Vegetation cover was recorded for all flora species within each of the ten 1 m^2 subplots which formed each individual 5 x 2 m monitoring plot / site. Subplots were aligned on either side of a 5 m measuring tape strung between two 500 mm marker pegs, with the initial marker peg located 5 m from the photo peg. Photo pegs were identified by a 1500 mm galvanised star dropper displaying the site name. The sites are permanently marked with star droppers to ensure ongoing consistency for size and location each year. All flora species within each subplot were quantified with a percentage cover score, which is a measure of the percentage of above-ground parts of a plant species when

viewed from directly above (i.e., the percentage of ground within the subplot occupied by the vertical projection of the species). The percentage cover for each species within individual subplots were totalled and divided by ten to give an overall site vegetation cover score per species. These scores were totalled to give an overall percentage vegetation cover score for the site. Given that vegetation may be layered, it is possible for the cover of all species combined for a site to total greater than 100 %. Mean percentage vegetation cover per site was calculated as the mean of the overall percentage cover of vegetation across all sites.

3.1.2 Species richness

All flora species within the 10 m^2 monitoring plots were recorded and totalled as an overall species richness for the site. Mean species richness per site was calculated as the mean of the total number of species recorded across all sites. To allow further interpretation, species richness was also categorised by life cycle and life-form:

- life-form was allocated as forb, grass, shrub or subshrub
- life cycle was allocated as long-lived perennial, short-lived perennial, or annual

The allocation of flora species to life-form and life cycle was based on both knowledge of the local life history traits of the plant species as well as site specifics, as life-form can vary depending on local conditions.

3.1.3 Photo point monitoring

Photo point monitoring enables the visual assessment of changes in vegetation condition over time. Standardised photographs were taken from the existing photo peg site markers. The comparison of photographs can allow for assessment and documentation of any clear visual changes in the vegetation. Elements assessed include:

- general health of vegetation in whole vegetation zone
- evidence of natural regeneration in whole vegetation zone
- signs of disturbance either by stock or humans in whole vegetation zone
- any impacts from mining activities in whole vegetation zone

3.1.4 Weed monitoring

Weed monitoring was undertaken via an opportunistic survey. Weed species in the arid zone are typically introduced via vectors which carry seed mixed in with mud or soil into new areas or are introduced via flooding events when seed stock travels downstream. As such, areas such as creeks or drainage zones adjacent to roadsides, reverse osmosis outlet sites, shakedown areas for transport vehicles, and junctions where vehicles consistently stop have a higher-than-average likelihood of infiltration by exotic species. These areas were identified and targeted for weed assessment during the 2024 survey period.

3.1.5 Field survey limitations

Although overall rainfall in the lead up to the survey was below average, the significant above-average rainfall experienced in July allowed for the detection of a relatively high diversity of annual and shot-lived perennial species which appear in response to heavy rainfall events. Nevertheless, identification of some flora was limited due to a lack of distinguishing identification features such as flowers or fruits.

Table 1. Flora sites assessed in 2024.

	Flora site	Land use	UTM zone	Easting	Northing	Assessed in 2024
Control	BE19	Pastoral	54J	370571	6662554	Yes
	BE23	Pastoral	54J	364657	6652574	Yes
	BE25	Pastoral	54J	368486	6650847	Yes
	BE27	Pastoral	54J	372571	6657557	Yes
	BE30	Pastoral	54J	361461	6650573	Yes
	BE34	Pastoral	54J	359802	6654035	Yes
	BE36	Pastoral	54J	372350	6659309	Yes
	PE18	Inside lease outside wellfield	54J	369712	6665518	Yes
	PE19	External lease outside wellfield	54J	370531	6668475	Yes
	PE20	Inside lease outside wellfield	54J	370056	6670243	Yes
Impact	BE08	Transport corridor	54J	367084	6657382	Yes
	BE16	Transport corridor	54J	361221	6663134	Yes
	BE37	Transport corridor	54J	362648	6662437	Yes
	BE38	Transport corridor	54J	364410	6661795	Yes
	BU04	Wellfield	54J	365023	6659080	Yes
	BU14	Wellfield	54J	364721	6658311	Yes
	BU20	Wellfield	54J	364867	6659817	Yes
	FM04	Wellfield	54J	360119	6664062	Yes
	FM05	Wellfield	54J	358389	6663374	Yes
	FM06	Wellfield	54J	358283	6664289	Yes
	FM07	Wellfield	54J	358777	6664303	Yes
	FM08	Wellfield	54J	358731	6665559	Yes
	FM14	Wellfield	54J	356664	6662981	Yes
	FM16	Wellfield	54J	355827	6662726	Yes
	FM23	Wellfield	54J	354945	6664505	Yes
	FM24	N/A	54J	355391	6663633	Discontinued
	FM25	Wellfield	54J	358303	6664824	Yes
	FM26	Wellfield	54J	360175	6665871	Yes
	FM27	Wellfield	54J	361294	6667962	Yes
	PE09	Wellfield	54J	360760	6666813	Yes

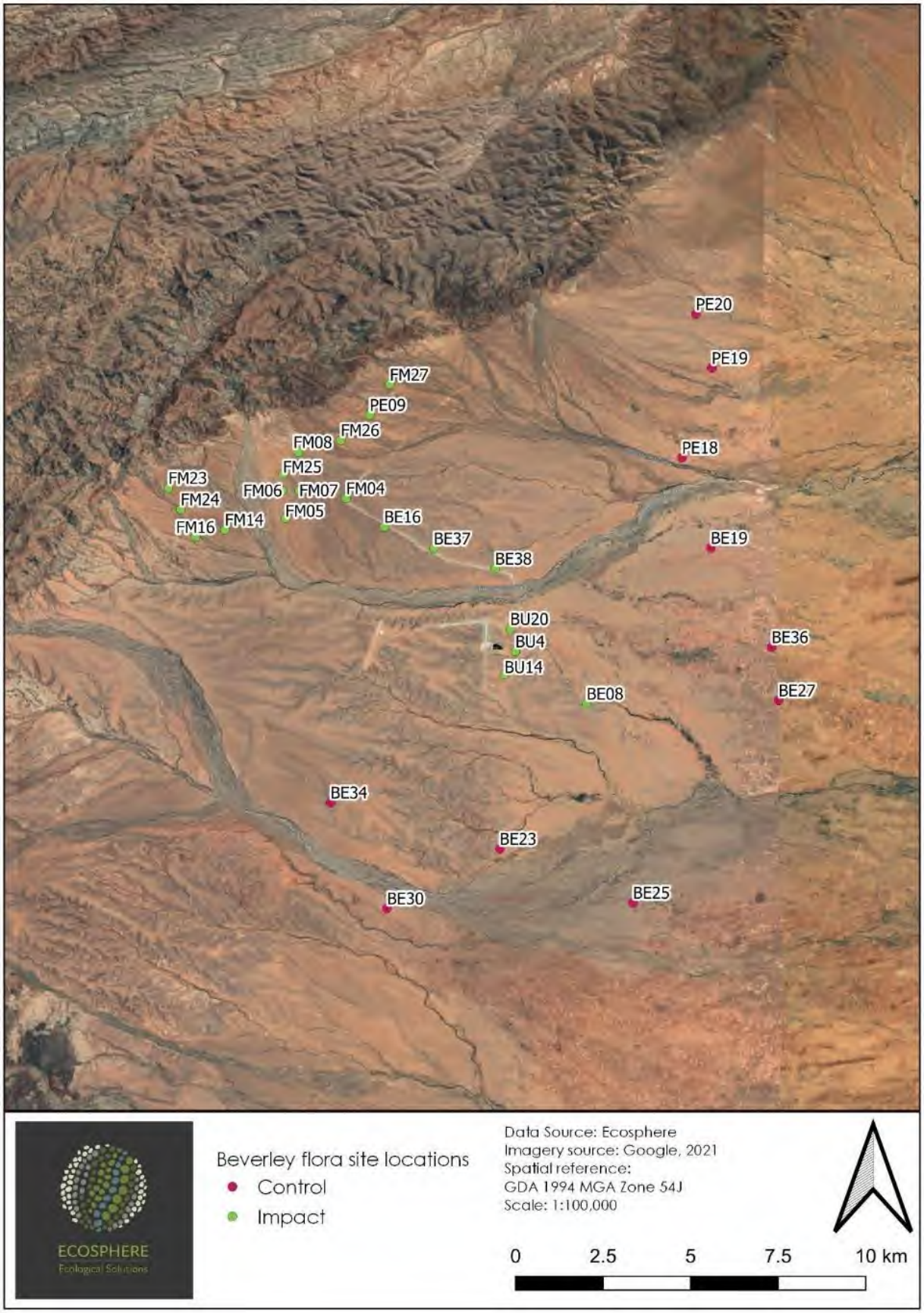

Figure 4. Location of flora monitoring sites assessed in 2024.

4 Assessment outcomes

4.1 Vegetation cover

4.1.1 Overall vegetation cover

Mean percentage vegetation cover per site in 2024 increased across both control and impact sites relative to 2023, with mean percentage vegetation cover per site in 2024 within the range of values previously recorded for the sites surveyed since 2011 (Table 2 and Figure 5). Percentage vegetation cover values between control and impact sites in 2024 showed no statistically clear difference (Figure 5Figure 2). Thus, mean percentage vegetation cover per site was comparable between control and impact sites in 2024.

Table 2. Mean percentage vegetation cover per site for control and impact sites from 2011 to 2024.

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Control	36.27	32.27	20.60	11.98	14.32	9.78	16.20	6.42	5.33	3.91	15.93	23.20	8.93	13.26
Impact	28.76	20.62	15.68	7.29	8.14	11.08	12.90	5.59	4.08	2.54	7.80	23.61	9.96	12.10

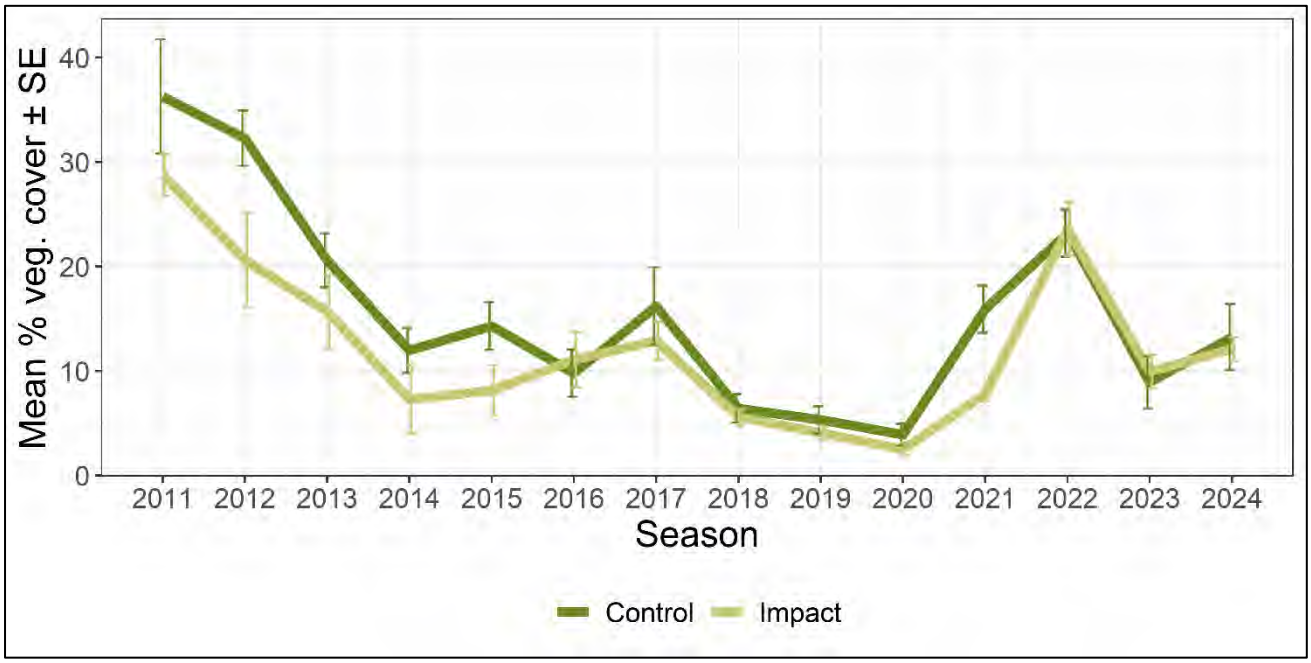

Figure 5. Mean percentage vegetation cover per site ± standard error (SE) for control and impact sites from 2011 to 2024.

The highest recorded mean percentage cover value for a flora species at control sites was provided by the annual forb *Neobassia proceriflora* (6.68 %) followed by the annual forb *Rhodanthe uniflora* (5.40 %), which was absent from impact sites (Table 3). The highest recorded mean percentage cover value for a flora species at impact sites was provided by the sub-shrub *Sclerolaena intricata* (10.53 %) followed by the congeneric sub-shrub *Sclerolaena divaricata* (5.25 %) (Table 3). Overall, percentage vegetation cover in 2024 was largely provided by short-lived perennial sub-shrubs of the genus *Sclerolaena* and a diversity of short-lived mostly annual forbs which respond to significant rainfall events (Table 3).

Table 3. Mean percentage cover values for flora species recorded at control and impact sites in 2024. Species are ordered from highest to lowest total mean percentage cover. Calculations of mean percentage cover values per species excluded sites in which the species was not recorded.

Species	Mena cover (%)		
	Control	Impact	Total
Rhodanthe uniflora	5.40	-	5.41
Sclerolaena intricata	0.78	10.53	4.96
Sclerolaena divaricata	2.96	5.25	4.56
Sclerolaena longicuspis	1.37	5.02	4.02
Sclerolaena ventricosa	2.57	2.48	2.53
Neobassia proceriflora	6.68	1.00	2.20
Astrebla pectinata	2.72	1.16	1.71
Roepera prismatotheca	-	1.15	1.15
Sclerolaena brachyptera	0.25	1.87	0.94
Gnephosis arachnoidea	0.91	-	0.91
Rhodanthe stricta	1.80	0.32	0.82
Pimelea simplex	1.70	0.15	0.82
Dissocarpus biflorus	0.81	-	0.81
Malacocera tricornis	-	0.70	0.70
Sclerolaena cuneata	-	0.70	0.70
Rhodanthe floribunda	0.19	1.13	0.66
Calotis hispidula	0.98	0.43	0.61
Maireana coronata	0.55	-	0.55
Salsola australis	0.39	0.51	0.47
Enneapogon avenaceus	0.43	0.30	0.40
Sclerolaena parallelicuspis	0.39	-	0.39
Dissocarpus paradoxus	0.40	0.30	0.35
Arabidella nasturtium	-	0.30	0.30
Bulbine alata	-	0.30	0.30
Atriplex holocarpa	0.43	0.10	0.26
Atriplex angulata	0.23	-	0.23
Daucus glochidiatus	0.06	0.25	0.21
Euphorbia stevenii	0.38	0.13	0.20
Euphorbia tannensis	-	0.20	0.20
Tetragonia eremaea	0.20	-	0.20
Tetragonia moorei	0.20	-	0.20
Sida trichopoda	0.38	0.04	0.19
Compositae sp.	-	0.16	0.16
Convolvulus remotus	0.03	0.18	0.16
Nicotiana velutina	-	0.16	0.16
Roepera humillima	0.10	0.17	0.16

Species	Mena cover (%)		
	Control	Impact	Total
Abutilon malvaefolium	-	0.15	0.15
Goodenia fascicularis	0.15	-	0.15
Rhodanthe microglossa	0.16	0.14	0.15
Vittadinia eremaea	0.09	0.16	0.15
Lepidium phlebopetalum	0.12	0.13	0.13
Ixiochlamys cuneifolia	-	0.12	0.13
Roepera aurantiaca	0.11	-	0.11
Plantago drummondii	0.11	0.10	0.11
Euphorbia drummondii	-	0.10	0.10
Leiocarpa leptolepis	0.10	-	0.10
Streptoglossa adscendens	0.03	0.12	0.08
Arabidella glaucescens	0.06	0.07	0.06
Bulbine semibarbata	-	0.06	0.06
Swainsona sp.	-	0.06	0.06
Abutilon halophilum	-	0.05	0.05
Sclerolaena diacantha	0.05	-	0.05
Lotus cruentus	0.05	0.03	0.03
Aristida contorta	0.01	-	0.01
Hibiscus brachysiphonius	-	0.01	0.01
Portulaca sp.	-	0.01	0.01

4.1.2 Vegetation cover by land use

Percentage vegetation cover per site by land use was determined by assessing individual land use types within and external to the ML's. Trends were consistent across the differing land use types in 2024, with all land use types showing a similar increase in the mean percentage vegetation cover per site from 2023 to 2024 (Figure 6). However, mean percentage vegetation cover values between impact sites located in the wellfield (13.52 %) and impact sites located in the transport corridor (7.15 %) showed a statistically clear difference in 2024. Thus, mean percentage vegetation cover per site was measurably higher within wellfield sites than transport corridor sites in 2024.

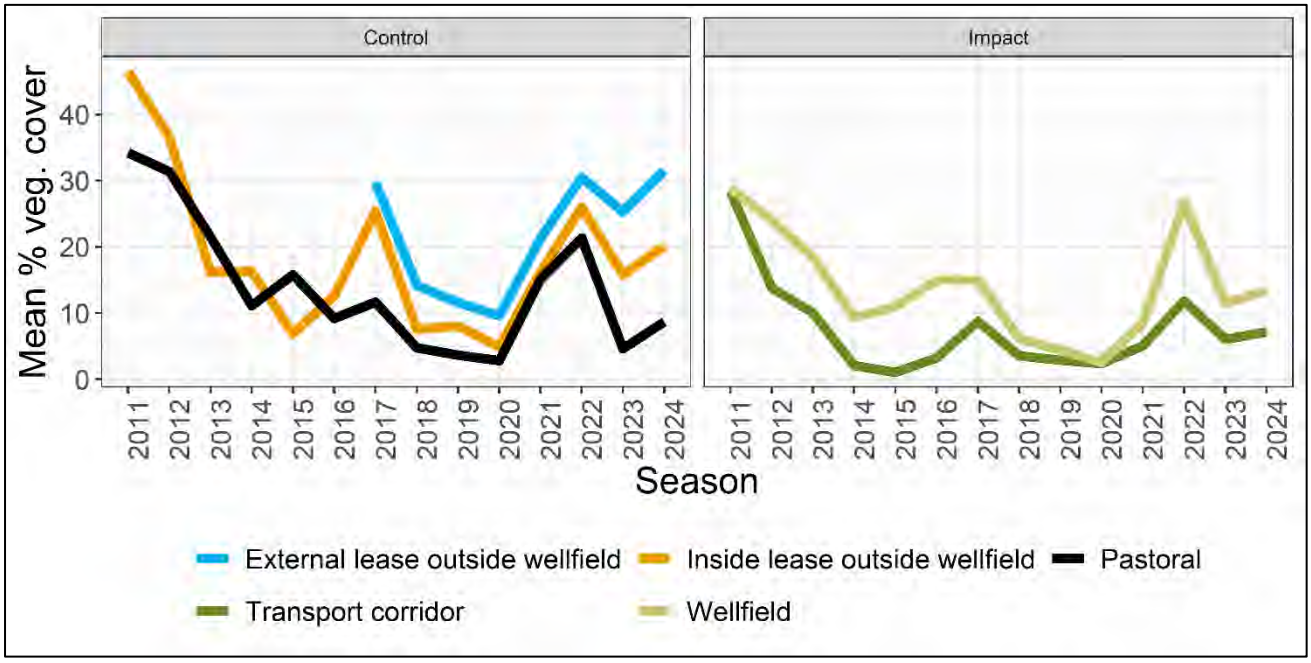

Figure 6. Mean percentage vegetation cover per site in control and impact sites and categorised by land use from 2011 to 2024.

4.1.3 Vegetation cover by life cycle

Percentage vegetation cover by life cycle was determined by categorising species into one of three categories (i.e., annual, biennial / short-lived perennial, and long-lived perennial). Mean percentage vegetation cover per site in 2024 was provided predominately by annual species at control sites (6.84 %) and biennial / short-lived perennial species at impact sites (8.84 %) (Figure 7). Long-lived perennial species showed a decrease in mean cover per site from 2023 to 2024 at both control (6.49 % versus 2.97 %) and impact sites (2.44 % versus 1.03 %), while all other life cycles exhibited an increase in mean percentage cover across both control and impact sites in 2024 (Figure 7). Annual species showed the greatest increase in mean percentage cover per site from 2023 to 2024 at both control (1.64 % versus 6.84 %) and impact sites (0 % versus 2.50 %) (Figure 7). Overall, the direction of each trend in the mean percentage vegetation cover per site by lifecycle was consistent between control and impact sites in 2024, although the magnitude of these directional changes appeared different for both annual and long-lived perennial species and greater for annuals across control sites relative to impact sites (Figure 7). Nevertheless, there was no statistically clear interaction between lifecycle, control versus impact sites, and season (i.e., 2023 versus 2024) on mean percentage vegetation cover, suggesting that the observed changes in mean percentage cover per site of these life cycles were comparable between control and impact sites.

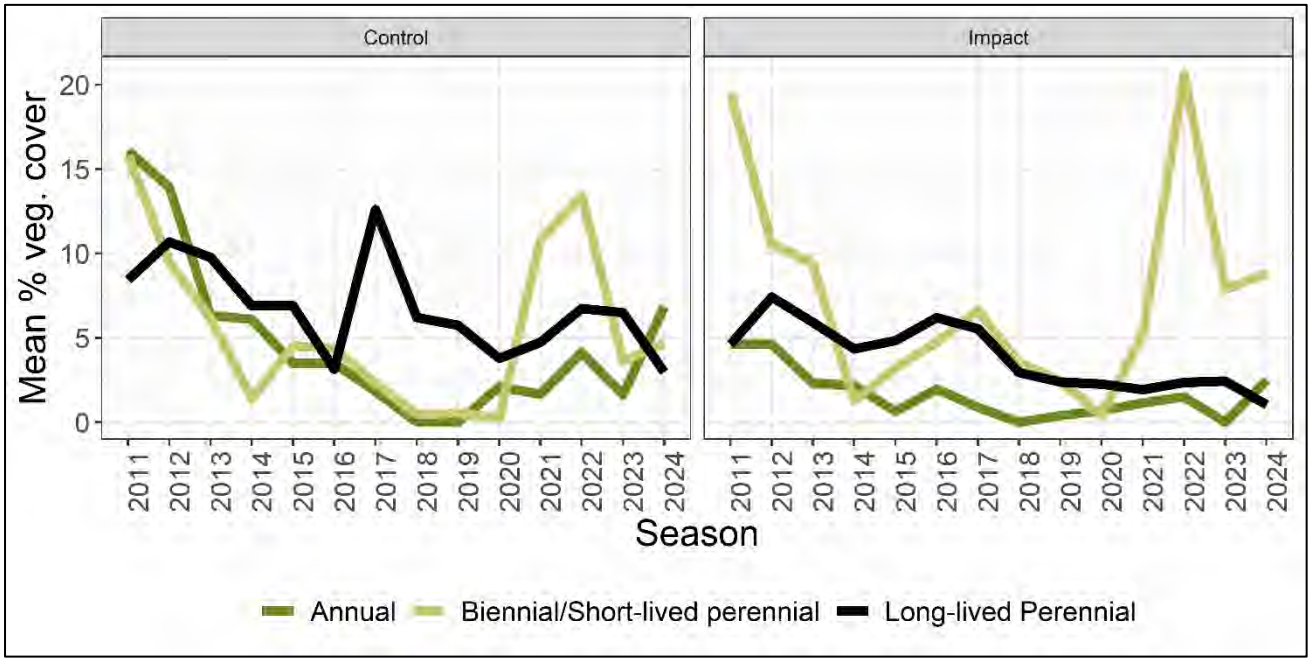

Figure 7. Mean percentage vegetation cover in control and impact sites and categorised by life cycle from 2011 to 2024. Note that calculations of mean percentage cover excluded sites in which particular life cycles were not recorded.

4.1.4 Vegetation cover by life-form

Percentage vegetation cover by life-form was determined by categorising species into one of four categories (i.e., forb, grass, shrub, and sub-shrub). Forbs provided the highest mean percentage cover by life-form at control sites (8.85 %), while sub-shrubs continued to provide the highest percentage cover at impact sites in 2024 (7.81 %) (Figure 8). Shrubs continued to be absent from impact sites in 2024 (Figure 8).

The direction and magnitude of change in the mean percentage cover of forb, grass, and sub-shrub species was visually different in control versus impact sites in 2024 (Figure 8). In particular, while the mean percentage cover of sub-shrubs slightly increased across impact sites in 2024 (7.21 % to 7.81 %), the mean percentage cover of sub-shrubs slightly decreased across control sites (4.13 % versus 3.78 %). Additionally, while the direction of change was the same for both annual and grass species between control and impact sites in 2024, the magnitude of this change appeared greater for control sites (Figure 8). Nevertheless, there was no statistically clear interaction between life-form, control versus impact sites, and season (i.e., 2023 versus 2024) on mean percentage vegetation cover, suggesting that the observed changes in the mean percentage cover per site of these life-forms were comparable between control and impact sites.

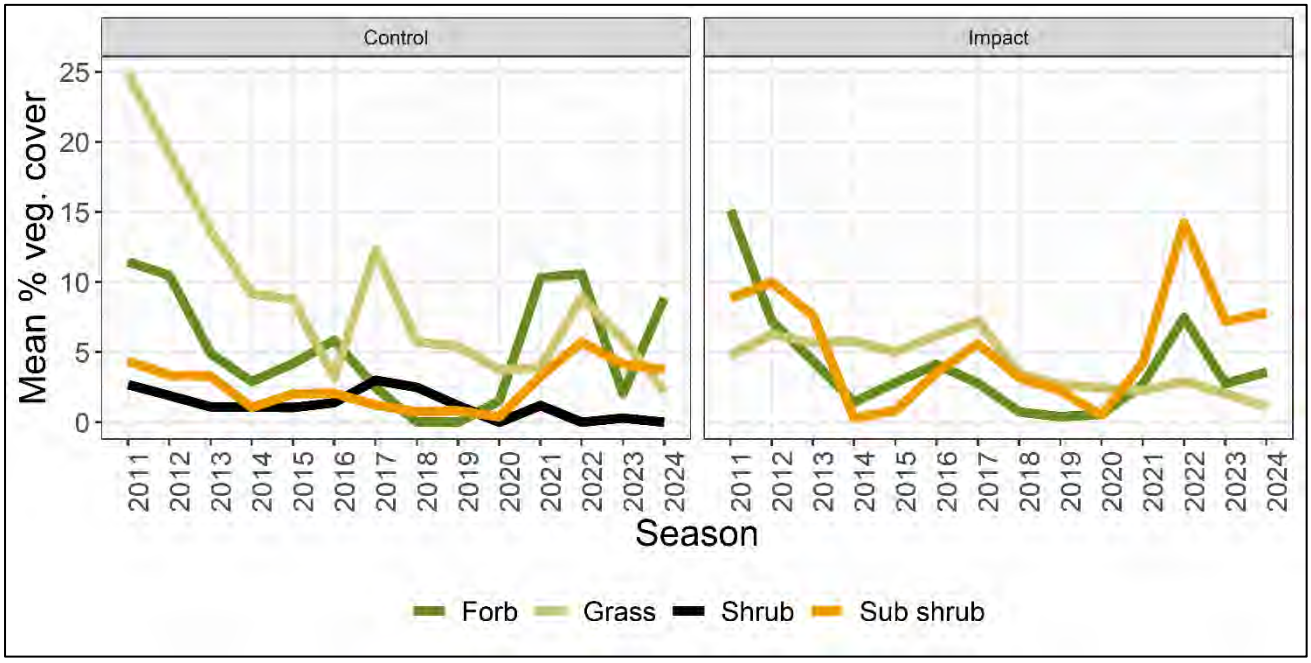

Figure 8. Mean percentage vegetation cover in control and impact sites and categorised by life-form from 2011 to 2024. Note that calculations of mean percentage cover excluded sites in which particular life-forms were not recorded.

4.1.5 *Astrebla pectinata* (Mitchell Grass) cover

Astrebla pectinata (Mitchell Grass) is a key perennial stabilising species present at Beverley and to a slightly lesser extent at Four Mile. *Astrebla pectinata* (Mitchell Grass) has been recorded one or more times at all but three sites since 2011 (i.e., absent from sites BE25 (control), FM16 (impact), and FM23 (impact)). Thus, *A. pectinata* (Mitchell Grass) represents an ideal indicator species for the overall area, with mean percentage cover able to be calculated from the full range of sites surveyed per year, excluding sites BE25, FM16, and FM23 where *A. pectinata* (Mitchell Grass) has been absent for an extended period of time.

Astrebla pectinata (Mitchell Grass) showed a decrease in mean percentage cover per site at both control and impact sites in 2024 relative to 2023 (Table 4 and Figure 9). However, percentage cover values between control and impact sites in 2024 showed no statistically clear difference (Figure 9). Thus, mean percentage cover of *A. pectinata* (Mitchell Grass) per site was comparable between control and impact sites in 2024.

Table 4. Mean percentage cover of *Astrebla pectinata* (Mitchell Grass) per site for control and impact sites from 2011 to 2024.

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Control	6.75	7.38	7.42	5.68	7.48	2.56	13.02	5.69	5.40	3.69	3.51	5.84	5.17	1.81
Impact	3.10	5.36	4.75	4.31	4.80	5.15	5.59	2.85	2.38	2.16	1.80	1.98	2.03	0.75

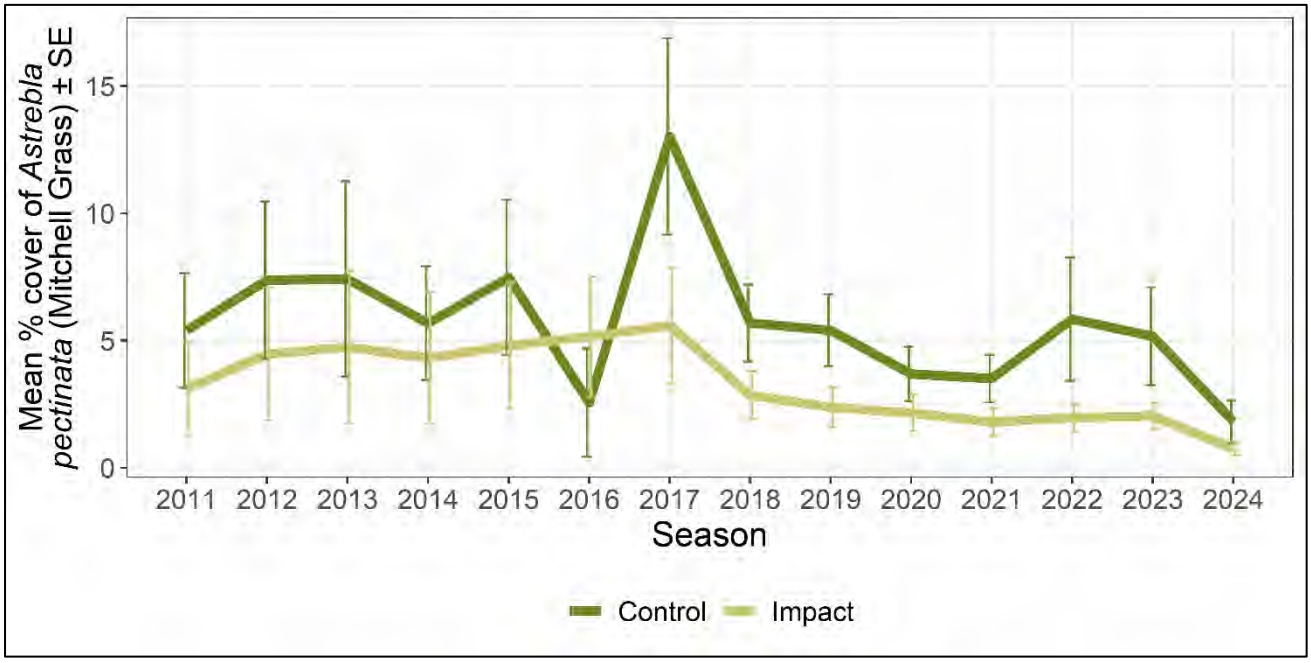

Figure 9. Mean percentage cover of *Astrebla pectinata* (Mitchell Grass) per site ± standard error (SE) for control and impact sites from 2011 to 2024.

4.2 Species richness

4.2.1 Overall species richness

Mean species richness per site increased in 2024 relative to 2023 with a mean richness of 12.40 species per control site in 2024 versus a lower 3.70 in 2023 and a mean richness of 11.11 species per impact site in 2024 versus a lower 3.29 in 2023 (Table 5 and Figure 10). This substantial increase was due to a diversity of short lived mostly annual forbs which increased in abundance across both control and impact sites following significant, above-average rainfall in July 2024.

Species richness between control and impact sites in 2024 showed no statistically clear difference (Figure 10). Thus, mean species richness per site was comparable between control and impact sites in 2024.

Table 5. Mean species richness per site for control and impact sites from 2011 to 2024.

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Control	9.83	14.33	10.33	6.67	10.50	10.67	7.10	2.11	1.70	2.10	6.20	8.30	3.70	12.40
Impact	7.20	12.17	8.00	8.14	4.86	8.67	5.83	2.74	2.42	2.68	4.95	5.79	3.29	11.11

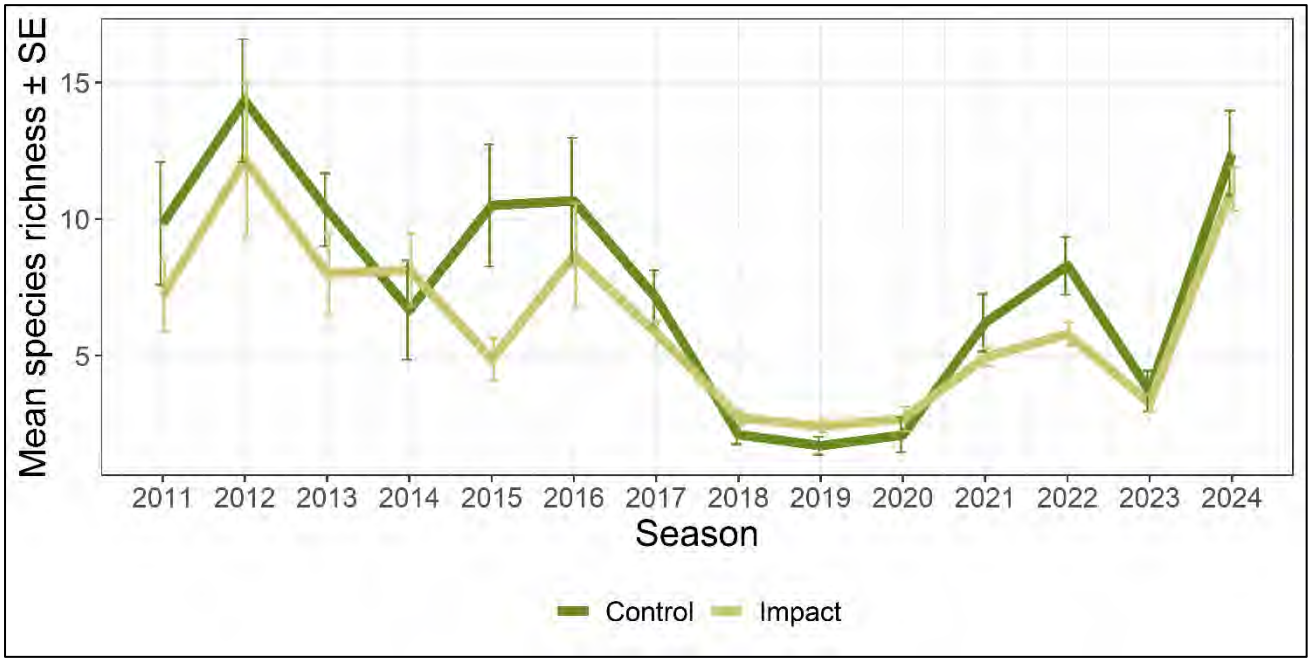

Figure 10. Mean species richness per site ± standard error (SE) for control and impact sites from 2011 to 2024.

A total of 56 flora species were recorded across all sites in 2024 (Table 6). This compares to a lower total of 17 flora species recorded across those sites surveyed in 2023. This substantial increase was due to a diversity of short lived mostly annual forbs which increased in abundance across both control and impact sites, likely in response to significant, above-average rainfall occurring in July 2024.

Overall, the annual forb *Calotis hispidula* was the most widespread flora species being recorded at a total of 86.21 % of sites surveyed (Table 6). *Calotis hispidula* was also the most common species recorded at impact sites, being present at 89.47 % of impact sites surveyed. The annual forb *Plantago drummondii* was the most common species recorded at control sites, being present at 90.00 % of control sites surveyed. Other commonly recorded annual forbs across both control and impact sites included *Salsola australis*, *Neobassia proceriflora*, and *Lepidium phlebopetalum*. The short-lived perennial *Sclerolaena divaricata* was the most common sub-shrub across all sites surveyed while the long-lived perennial grass *Astrebla pectinata* (Mitchell Grass) was also relatively common across sites.

Table 6. Percentage of sites in which individual species were present during the 2024 survey.

Species	% of Sites		
	Control	Impact	Total
Calotis hispidula	80.00	89.47	86.21
Salsola australis	80.00	84.21	82.76
Sclerolaena divaricata	60.00	73.68	68.97
Neobassia proceriflora	40.00	78.95	65.52
Astrebla pectinata	60.00	57.89	58.62
Plantago drummondii	90.00	42.11	58.62
Lepidium phlebopetalum	60.00	42.11	48.28
Euphorbia stevenii	40.00	47.37	44.83
Convolvulus remotus	20.00	52.63	41.38
Sclerolaena longicuspis	30.00	42.11	37.93
Sclerolaena ventricosa	60.00	26.32	37.93
Vittadinia eremaea	20.00	42.11	34.48
Sida trichopoda	40.00	26.32	31.03
Rhodanthe floribunda	40.00	21.05	27.59
Arabidella glaucescens	20.00	26.32	24.14
Pimelea simplex	30.00	21.05	24.14
Sclerolaena brachyptera	40.00	15.79	24.14
Sclerolaena intricata	40.00	15.79	24.14
Roepera humillima	10.00	26.32	20.69
Bulbine semibarbata	0.00	26.32	17.24
Lotus cruentus	10.00	21.05	17.24
Nicotiana velutina	0.00	26.32	17.24
Streptoglossa adscendens	20.00	15.79	17.24
Atriplex holocarpa	20.00	10.53	13.79
Compositae sp.	0.00	21.05	13.79
Daucus glochidiatus	10.00	15.79	13.79
Dissocarpus biflorus	40.00	0.00	13.79
Enneapogon avenaceus	30.00	5.26	13.79
Rhodanthe microglossa	10.00	15.79	13.79
Sclerolaena parallelicuspis	40.00	0.00	13.79
Swainsona sp.	0.00	21.05	13.79
Atriplex angulata	30.00	0.00	10.34
Gnephosis arachnoidea	30.00	0.00	10.34
Maireana coronata	30.00	0.00	10.34
Rhodanthe stricta	10.00	10.53	10.34
Bulbine alata	0.00	10.53	6.90
Dissocarpus paradoxus	10.00	5.26	6.90
Ixiochlamys cuneifolia	0.00	10.53	6.90
Malacocera tricornis	0.00	10.53	6.90
Rhodanthe uniflora	20.00	0.00	6.90
Sclerolaena cuneata	0.00	10.53	6.90
Abutilon halophilum	0.00	5.26	3.45
Abutilon malvaefolium	0.00	5.26	3.45
Arabidella nasturtium	0.00	5.26	3.45
Aristida contorta	10.00	0.00	3.45
Euphorbia drummondii	0.00	5.26	3.45

Species	% of Sites		
	Control	Impact	Total
Euphorbia tannensis	0.00	5.26	3.45
Goodenia fascicularis	10.00	0.00	3.45
Hibiscus brachysiphonius	0.00	5.26	3.45
Leiocarpa leptolepis	10.00	0.00	3.45
Portulaca sp.	0.00	5.26	3.45
Roepera aurantiaca	10.00	0.00	3.45
Sclerolaena diacantha	10.00	0.00	3.45
Tetragonia eremaea	10.00	0.00	3.45
Tetragonia moorei	10.00	0.00	3.45
Roepera prismatothecum	0.00	5.26	3.45

4.2.2 Species richness by land use

Mean species richness per site increased since 2023 across all land use types and the magnitude of this increase was similar across land use types (Figure 11).

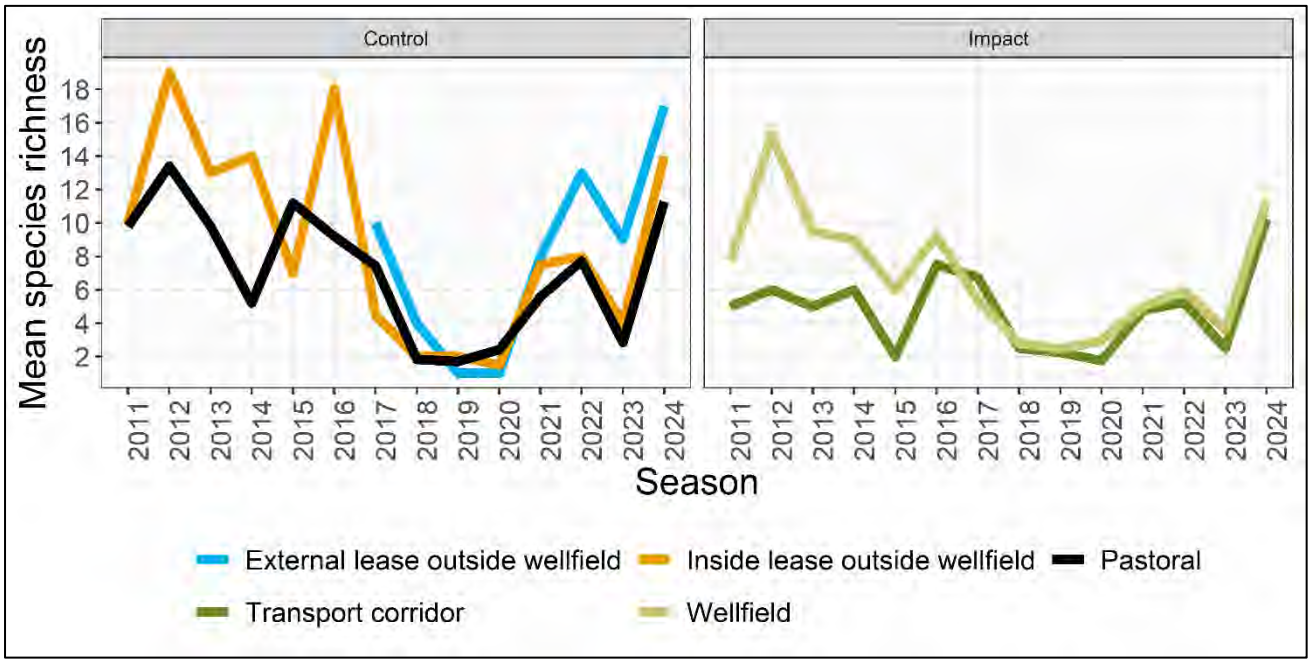

Figure 11. Mean species richness per site in control and impact sites and categorised by land use from 2011 to 2024.

4.2.3 Species richness by life cycle

Annuals provided the highest mean species richness by life cycle at both control (7.40 species) and impact sites (7.11 species) in 2024 (Figure 12). This was followed by biennial / short-lived perennials at both control (4.00 species) and impact sites (3.00 species) (Figure 12). Mean species richness of annuals and biennial / short-lived perennials increased similarly across both control sites (annual: 1.60 versus 7.40 species; biennial / short-lived perennials: 2.12 versus 4.00 species) and impact sites (annual: 0.00 versus 7.11 species; biennial / short-lived perennials: 1.86 versus 3.00 species), with annuals in particular showing a substantial increase in mean species richness per site relative to 2023 (Figure 12). In contrast, while the mean species richness of long-lived perennials increased at control sites (1.50 versus 1.67 species), mean species richness declined at impact sites (1.67 versus 1.36 species). However, these changes in the mean species richness of long-lived perennials per site were small and there was no statistically clear difference between control and impact sites for the species richness of long-lived perennials in 2024. There was also no statistically clear interaction between life cycle, control versus impact sites, and season (i.e., 2023 versus 2024) on mean species richness, suggesting that the observed changes in the mean species richness of life cycles per site were comparable between control and impact sites.

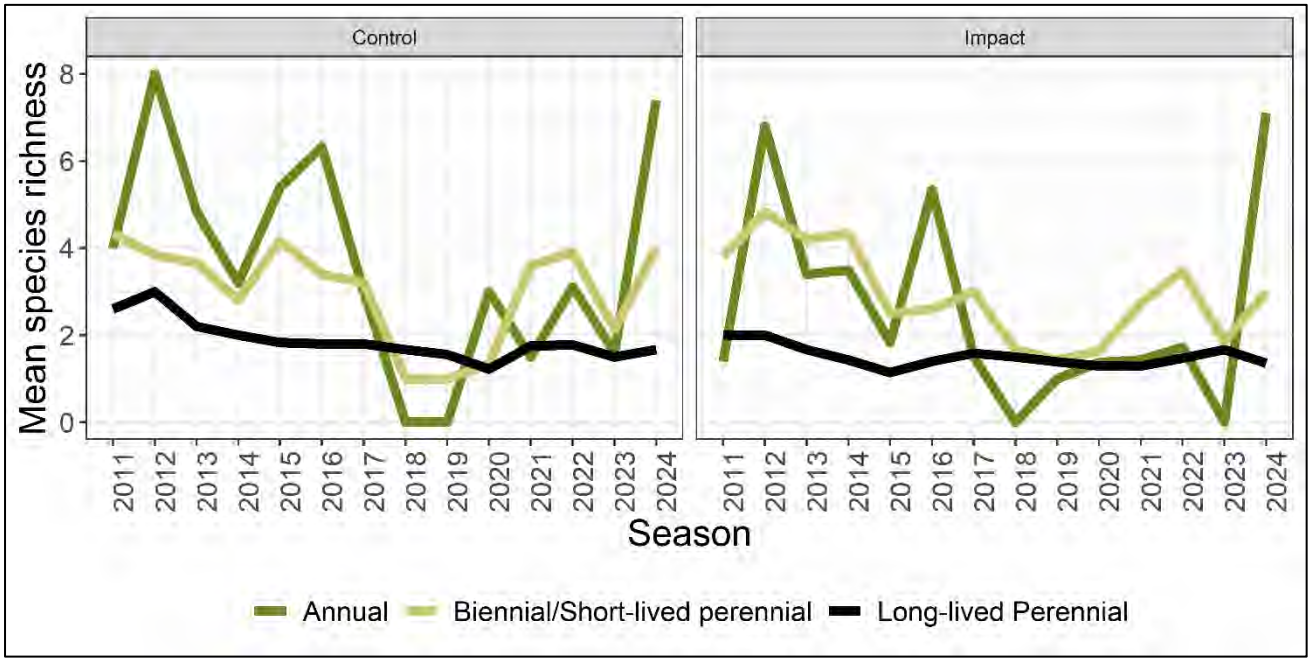

Figure 12. Mean species richness per site in control and impact sites and categorised by life cycle from 2011 to 2024. Note that calculations of mean species richness excluded sites in which particular life cycles were not recorded.

4.2.4 Species richness by life-form

Forbs provided the highest mean species richness by life-form at both control (9.70 species) and impact sites (8.58 species) in 2024 (Figure 13). This was followed by sub-shrubs at both control (2.43 species) and impact sites (1.89 species) (Figure 13). Mean species richness of sub-shrubs and grasses per site were comparable between control and impact sites in 2024 with little change from values recorded in 2023 (Figure 13). In contrast, the species richness of forbs increased substantially in 2024 relative to 2023, with a similar magnitude of increase observed across both control (1.75 versus 9.70 species) and impact sites (1.40 versus 8.58 species). No shrubs were recorded at control sites in 2024 while shrubs continued to be absent from impact sites in 2024 (Figure 13). In contrast to species richness by life cycle, there was a statistically clear interaction between life-form, control versus impact sites, and season (i.e., 2023 versus 2024) on mean species richness. However, this interaction was largely driven by a detectable difference in the mean species richness of forbs between control and impact sites in 2023. There was no detectable difference in the mean species richness of forbs between control and impact sites in 2024, suggesting species richness of forbs was comparable between control and impact sites in 2024.

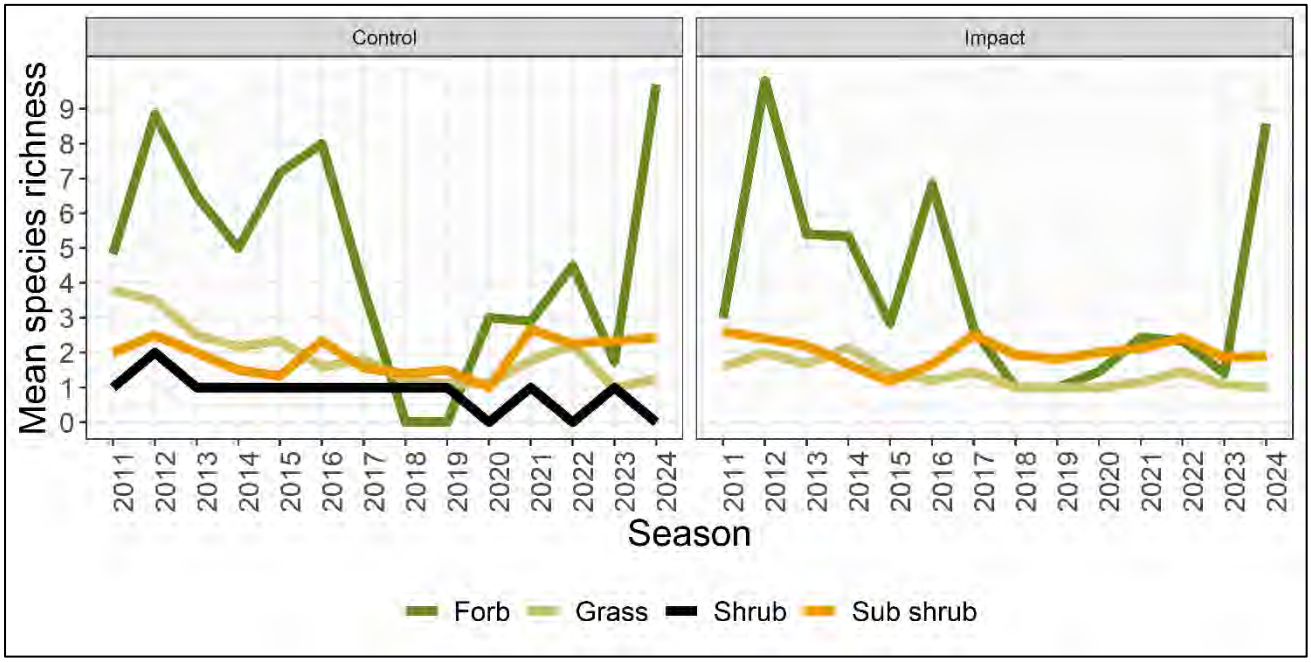

Figure 13. Mean species richness per site in control and impact sites and categorised by life-form from 2011 to 2024. Note that calculations of mean species richness excluded sites in which particular life-forms were not recorded.

4.3 Alien species

The opportunistic survey of weeds around areas such as tanks, office complexes, the main camp, warehouses, laydown yards, and washdown bays yielded the standard range of species commonly occurring and naturalised throughout the arid region. Common weed species observed included *Solanum nigrum* (Black Nightshade), *Sisymbrium* spp. (London Rocket), and *Sonchus oleraceus* (Common Sow-thistle). These weeds were generally restricted to environments associated with infrastructure, although *Sisymbrium* spp. (London Rocket) was observed within some ephemeral watercourses along with *Rumex vesicarius* (Ruby Dock). However, most of these weeds were not observed spreading into and outcompeting native vegetation communities away from where preferable conditions existed. As such, no alien species were observed within the monitoring plots. No recommendations are made regarding these weeds except to monitor and destroy if outbreaks exceed the normal distribution expected for these species. For example, targeted weed control should occur if successful spread and establishment within surrounding natural environments is observed or abundance is considered abnormally high.

4.4 Photo point monitoring

No major disturbance impact(s) on vegetation were evident via photo point comparisons from 2018 to 2024 (see Appendix 1 in Appendices for photo points).

5 Discussion

Both mean vegetation cover per site and mean species richness per site increased in 2024 relative to 2023. Given there is a significant positive relationship between total rainfall in the preceding 12-month period prior to each annual flora survey and mean percentage vegetation cover per site (Figure 14), the higher mean percentage vegetation cover recorded in 2024 may be somewhat unexpected given that rainfall in the 12-month period prior to the 2024 survey was slightly lower than in 2023. However, this observed increase in the mean percentage vegetation cover appeared to be primarily driven by a greater cover of annuals and short-lived perennials which likely increased in response to significant, above-average rainfall received in July 2024.

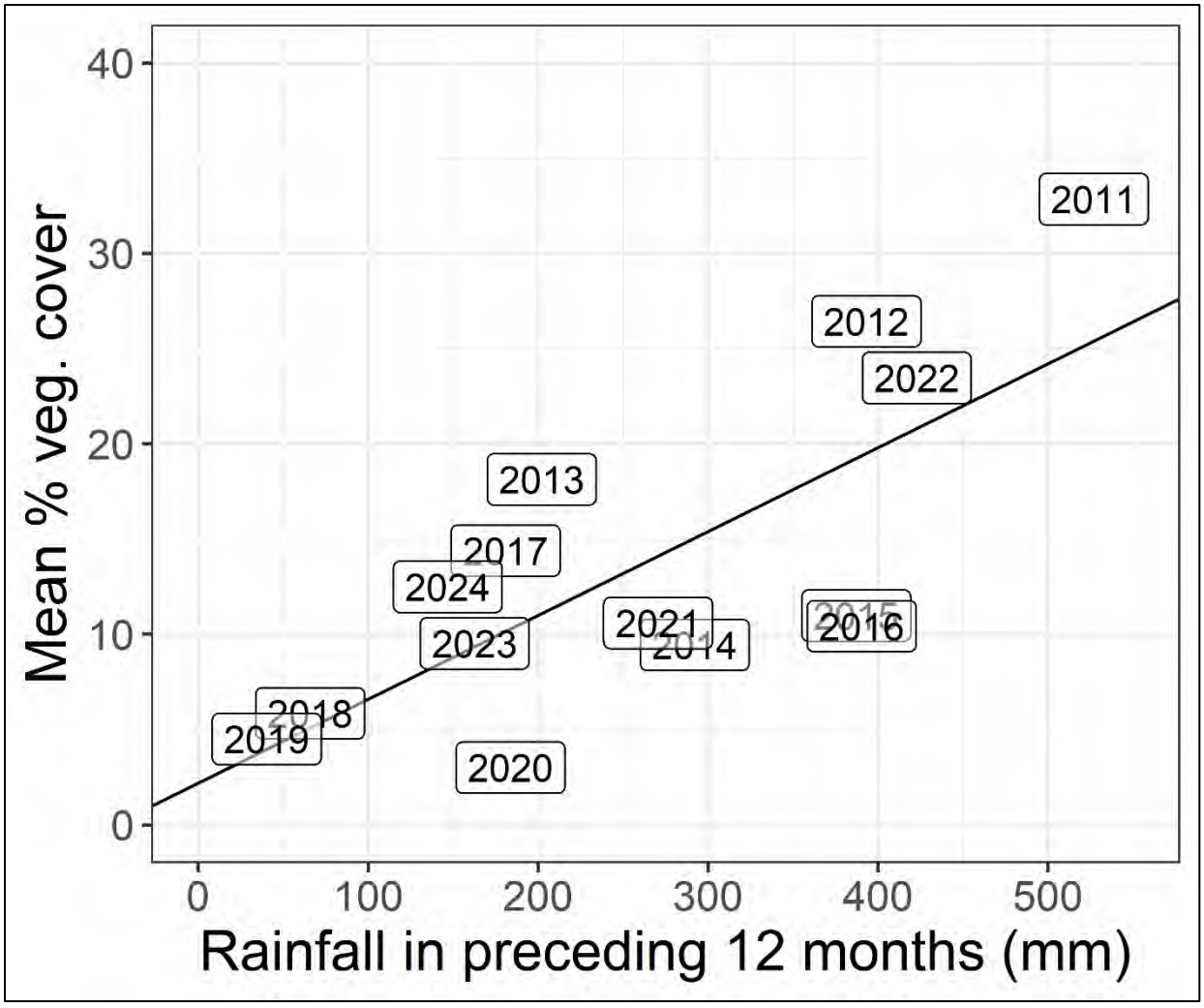

Figure 14. Mean percentage vegetation cover per site from 2011 to 2024 against the total rainfall recorded in the preceding 12-month period (taken as 1st October to 30th September). Plotted trend line equals the line of best fit from a regression of the two variables.

Importantly, similar overall trends in mean percentage vegetation cover were recorded across both control and impact sites from 2023 to 2024, and there was no statistically clear difference between control and impact sites in mean vegetation cover in 2024, suggesting no overt impacts from mining operations on the overall cover of vegetation.

Regarding species richness, there is likewise a significant positive relationship between total rainfall in the preceding 12-month period leading up to each annual survey and mean species richness per site (Figure 15). Thus, given the lower rainfall total recorded in the 12-month period prior to the 2024 survey compared to 2023, the higher mean species richness per site observed in 2024 may also be somewhat unexpected. In particular, mean species richness per site in 2024 was substantially greater than what may be predicted based on the plotted relationship in Figure 15, with mean species richness per site considerably higher than previous years with similar rainfall amounts.

The higher-than-expected mean species richness per site in 2024 is likely in response to the significant, above-average rainfall received in July 2024. In support of this interpretation, species richness in 2024 was primarily driven by the presence of annuals and short-lived perennials which largely germinate in response to significant rainfall events. In particular, of the frequently recorded species across sites, the annual forbs of *Bulbine semibarbata*, *Calotis hispidula* (which was the most commonly recorded species in 2024), *Lepidium phlebopetalum*, and *Rhodanthe floribunda* are all known to respond favourably to heavy, cool season rainfall events (Cunningham et al., 2011; Kutsche et al., 2023). Moreover, the abundance of the commonly recorded annuals and short-lived perennial forbs of *Convolvulus remotus*, *Euphorbia stevenii*, *Neobassia proceriflora*, *Pimelea simplex*, and *Salsola australis* also respond positively to heavy rainfall events (Kutsche et al., 2023; Pers. Obs.). Similarly, although not recorded commonly across sites, the annual forbs of *Gnephosis arachnoidea* and *Rhodanthe uniflora*, which were of high abundance at particular sites, also respond to significant rainfall events (Cunningham et al., 2011; Kutsche et al., 2023). In particular, dense mats of *Rhodanthe uniflora* were observed within and around some sites during the survey. These typically form in low lying areas where water pools following heavy rainfall (Cunningham et al., 2011). Thus, many of the common and abundant plant species present in 2024 are those expected to occur in response to significant, heavy rainfall. Moreover, only two of these species were recorded in the previous year of 2023, further suggesting that conditions were markedly different in the lead-up to the flora survey in 2024. Ultimately, the timing and duration of rainfall events plays an important role in determining the cover and richness of flora species in arid zones, with the germination and establishment of differing species of annuals and short-lived perennials exhibiting variable responses to differing rainfall patterns (Facelli et al., 2005). Thus, the timing and duration of rainfall events is likely to account for a significant proportion of the variation observed around the trend lines in Figure 14 and Figure 15. It should also be noted that the particular dates on which annual surveys were undertaken is also likely to explain some variation around the trend line given annual surveys have not been conducted at the same time relative to the 30th of September.

Importantly, similar overall trends in species richness were recorded across both control and impact sites from 2023 to 2024, and there was no statistically clear difference between control and impact sites in mean species richness in 2024, suggesting no overt impacts from mining operations on the overall number of flora species.

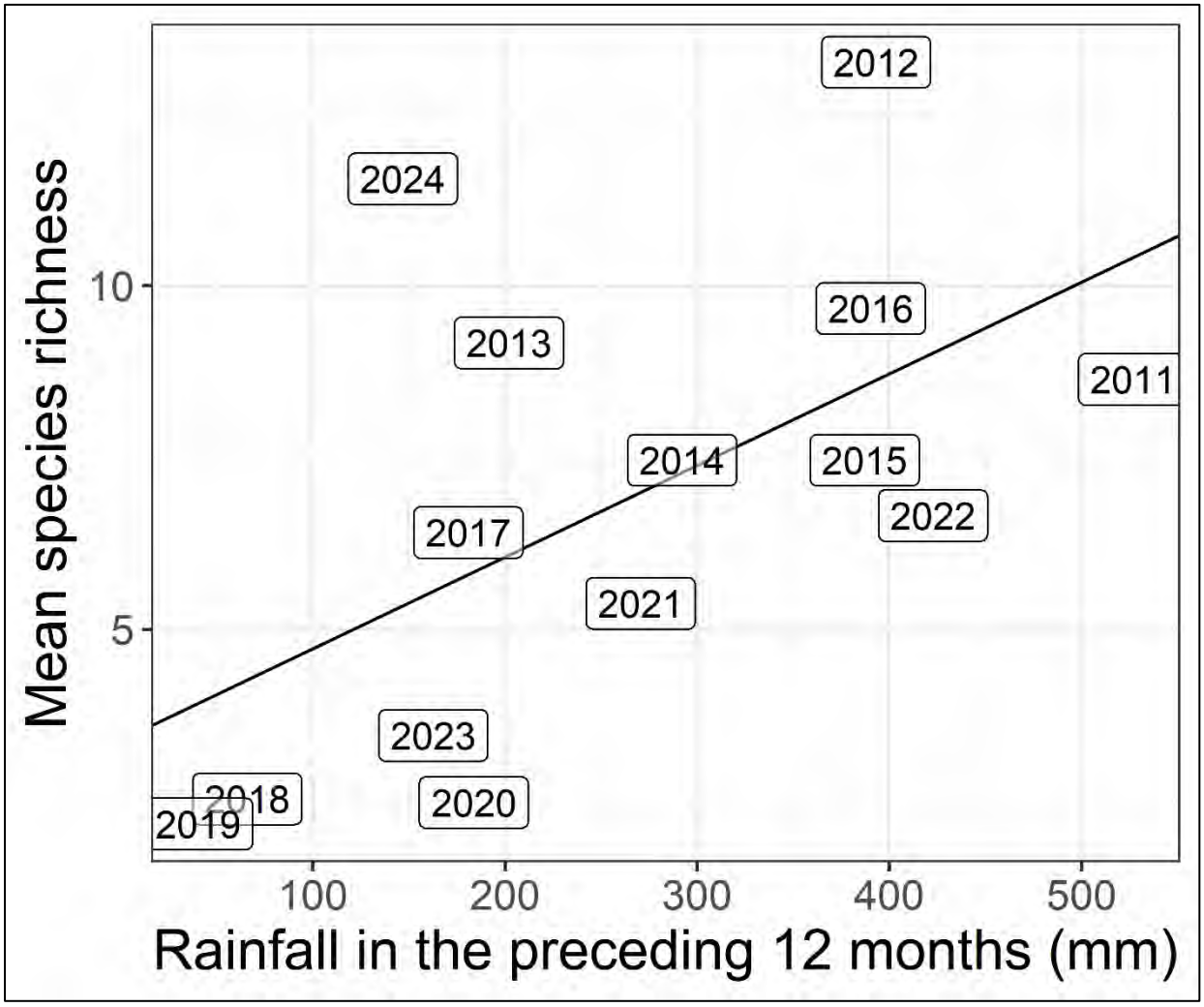

Figure 15. Mean species richness per site from 2011 to 2024 against the total rainfall recorded in the preceding 12-month period (taken as 1st October to 30th September). Plotted trend line equals the line of best fit from a regression of the two variables.

Land management practices can have a significant influence on vegetation cover and community composition. In particular, in 2024, mean vegetation cover was lowest in pastoral areas for control sites and within the transport corridor for impact sites. In pastoral areas, diminished cover is likely attributed to the impact of grazing and trampling by cattle, with grazing having an overall negative impact on biodiversity within the arid zone (Eldridge et al., 2016). Moreover, relative to pastoral sites, mean percentage vegetation cover was higher for sites sampled either inside the lease but outside the wellfield or external to the lease but outside the wellfield. However, only two sites are located inside the lease but outside the wellfield and only one site is located external to the lease but outside the wellfield. Thus, greater replication would be required to analyse statistically if a difference is evident between these land use categories. In the transport corridor, diminished cover may be a consequence of increased levels of dust and erosion and associated negative impact(s) on nearby vegetation. Indeed, there was a statistically clear difference between wellfield and transport corridor sites in mean vegetation cover, with higher mean vegetation cover occurring on average within wellfield sites versus transport corridor sites. There was also no statistically clear difference in mean vegetation cover between transport corridor sites

and surrounding pastoral sites, suggesting that vegetation cover in transport corridor sites was comparable to that of pastoral areas in 2024. Continued monitoring will be required to determine if the lower cover of vegetation recorded in transport corridor sites represents a permanent loss of vegetation in transport corridor sites versus wellfield sites or a transient difference. Importantly, vegetation cover and species richness increased across transport corridor sites in 2024, suggesting these sites were able to positively respond to the significant rainfall received in July 2024, and mean species richness of transport corridor sites was comparable to wellfield sites in 2024.

Astrebla pectinata (Mitchell Grass) is a perennial, summer growing tussock grass able to survive prolonged drought periods via a root stock formed of drought resistant rhizomes (Orr 1975; Kutsche et al., 2023). Due to this capability to reshoot under suitable conditions following long dry periods, *A. pectinata* (Mitchell Grass) represents a key perennial stabilising species present within the Beverley area. In 2024, *A. pectinata* (Mitchell Grass) occurred in 58.62 % of the surveyed sites, with 60.00 % of control sites and 57.89 % of impact sites containing *A. pectinata* (Mitchell Grass), respectively. This figure is lower than in previous years which averaged a percentage presence of 81.60 % across surveyed sites for the period of 2011 to 2023. Nevertheless, the percentage presence of *A. pectinata* (Mitchell Grass) across the surveyed sites in 2024 was similar between control and impact sites, suggesting that any decline in the percentage presence of *A. pectinata* (Mitchell Grass) is unrelated to mining activities within the ML's. Percentage cover was also similarly lower for *A. pectinata* (Mitchell Grass) across both control and impact sites in 2024. Ultimately, *A. pectinata* (Mitchell Grass) requires heavy summer rainfall to initiate growth (Kutsche et al., 2023) which did not occur in the summer of 2023 / 2024, with monthly summer rainfall totals being below average. The cover and abundance of *A. pectinata* (Mitchell Grass) naturally fluctuates with seasonal rainfall conditions (Orr, 1975) and would be expected to increase again in the Beverley area following suitable summer rainfall.

Ultimately, vegetation condition within the general mine area continues to be maintained at levels that are largely consistent with the wider region and mining activities within Beverely at present do not appear to be having a significant impact on vegetation cover and regional species biodiversity outside of those areas directly impacted (i.e., active work areas and infrastructure footprints). No clear evidence of indirect disturbances on vegetation, such as dust impacts, erosion, weed invasion, or breakdown of ecosystem function was supported by the findings of this assessment. Although lower vegetation cover in transport corridor sites warrants continued monitoring. In particular, the ability of the surveyed sites to gain vegetation cover and the significant increase in species richness observed following the higher-than-average rainfall in July 2024 suggests that ecosystems are functioning as expected and are not subject to a longer-term loss of condition within the ML's relative to the surrounding area.

6 References

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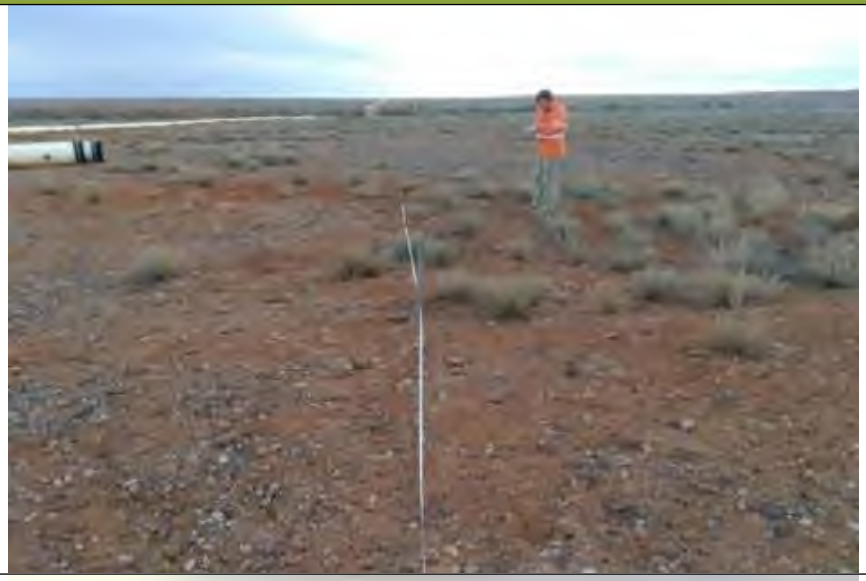
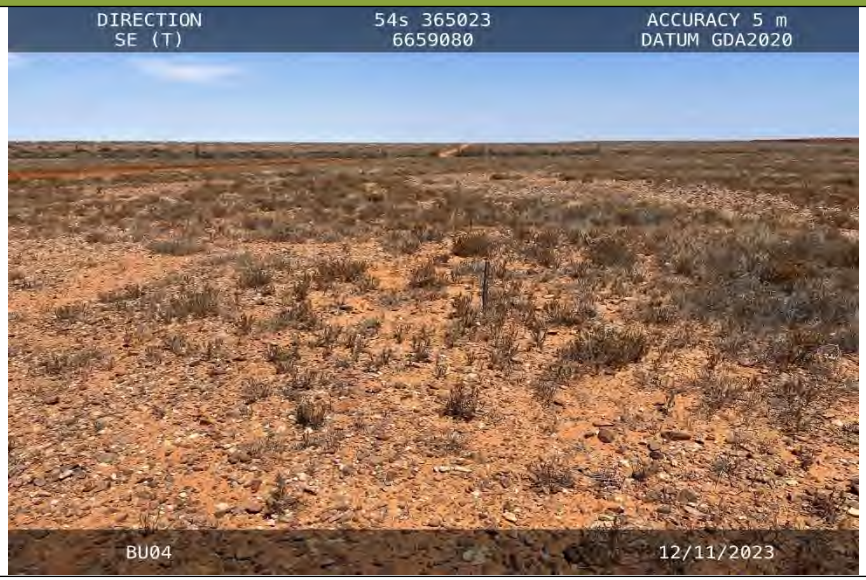
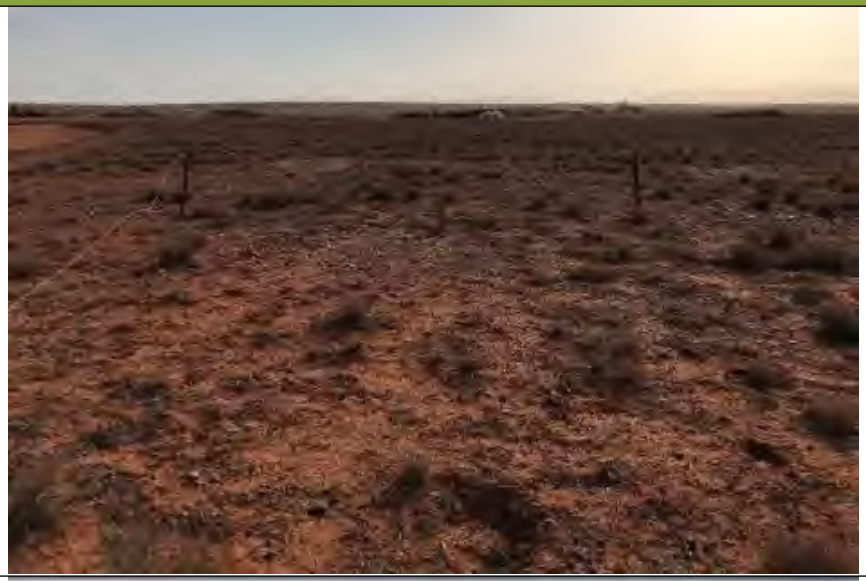
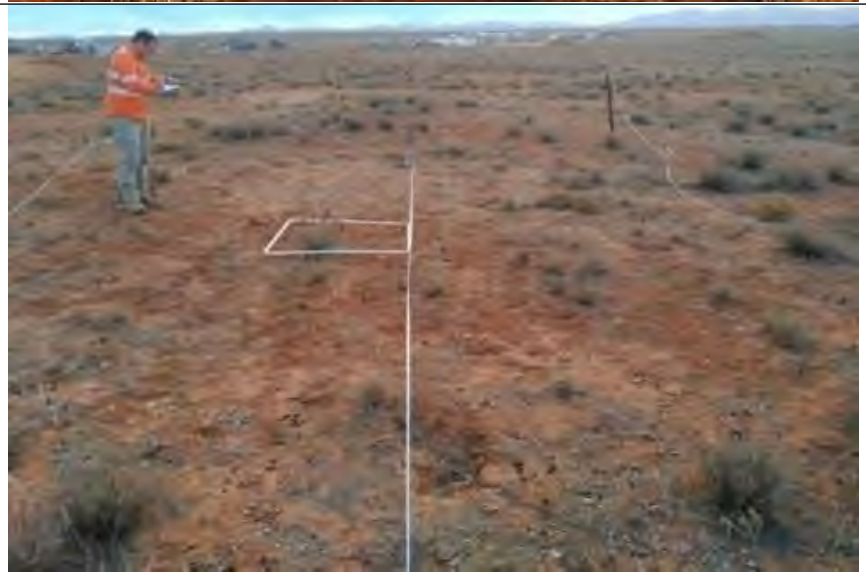
7 Appendices

Appendix 1. Photo point site monitoring photos from 2018, 2019, 2020, 2021, 2022, 2023, and 2024 annual flora monitoring.

Site: BU04			
2018		2019	
2020		2021	

Site: BU04			
2022		2023	
2024			

Site: BU14			
2018		2019	
2020		2021	

Site: BU14			
2022		2023	

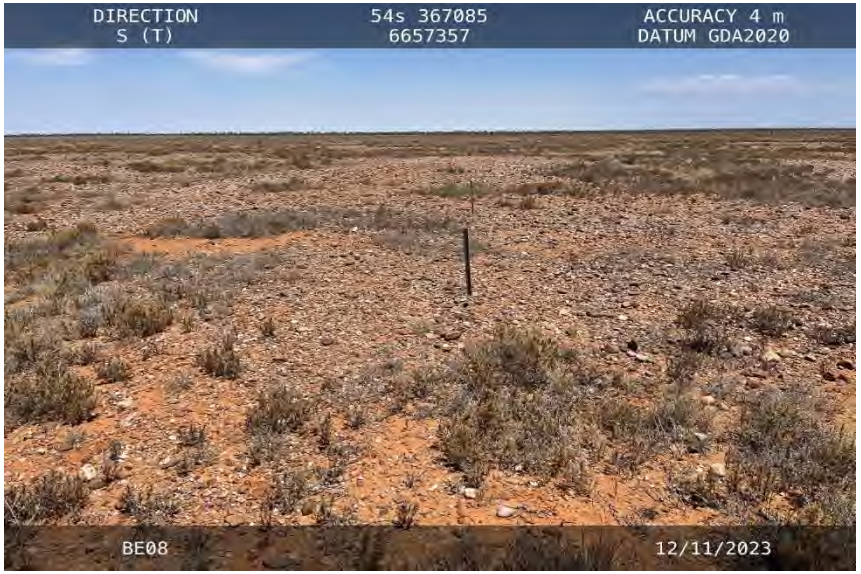
Site: BU14			
2024			

Site: BU20			
2018		2019	
2020		2021	

Site: BU20			
2022		2023	

Site: BU20			
2024			

Site: BE08			
2018		2019	
2020		2021	

Site: BE08			
2022		2023	

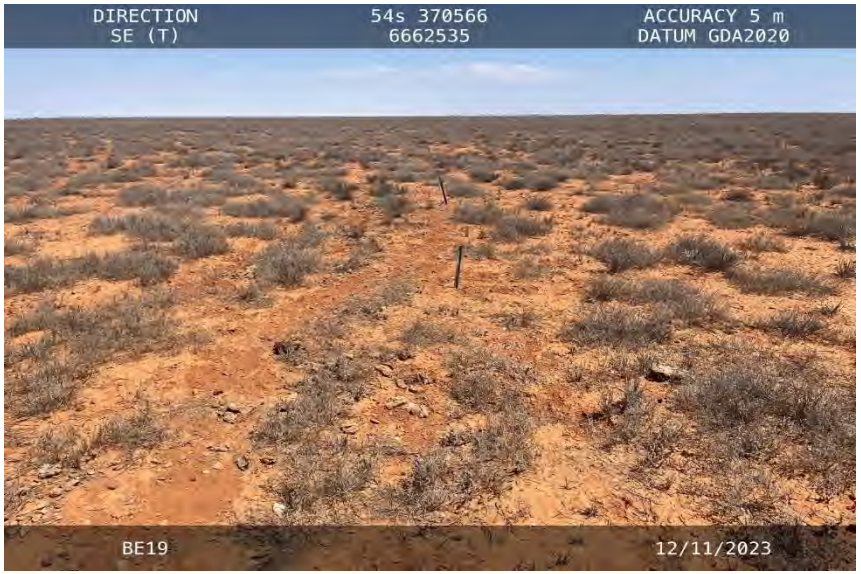
Site: BE08			
2024			

Site: BE16			
2018		2019	
2020		2021	

Site: BE16			
2022		2023	

Site: BE16			
2024			

Site: BE19			
2018		2019	
2020		2021	

Site: BE19			
2022		2023	

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2024			

Site: BE23			
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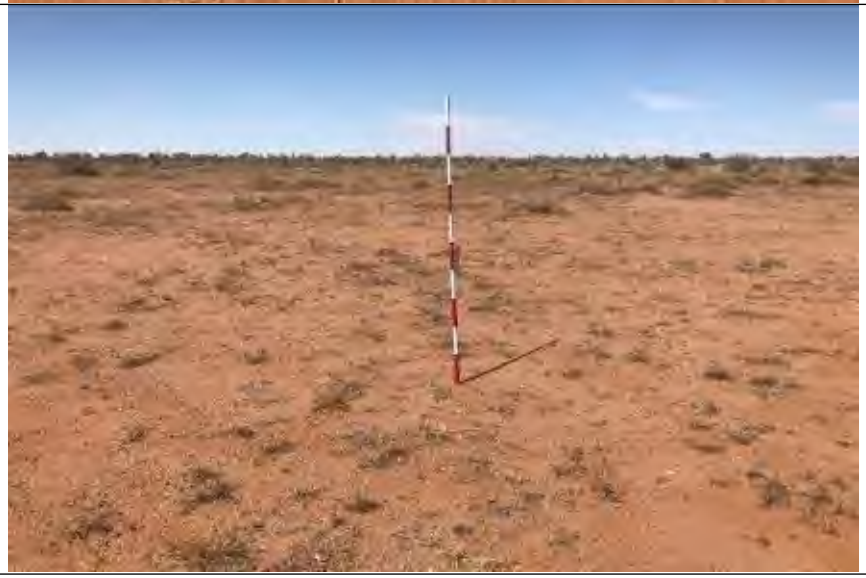
2020		2021	

Site: BE23			
2022		2023	

Site: BE23			
2024			

Site: BE25			
2018		2019	
2020		2021	

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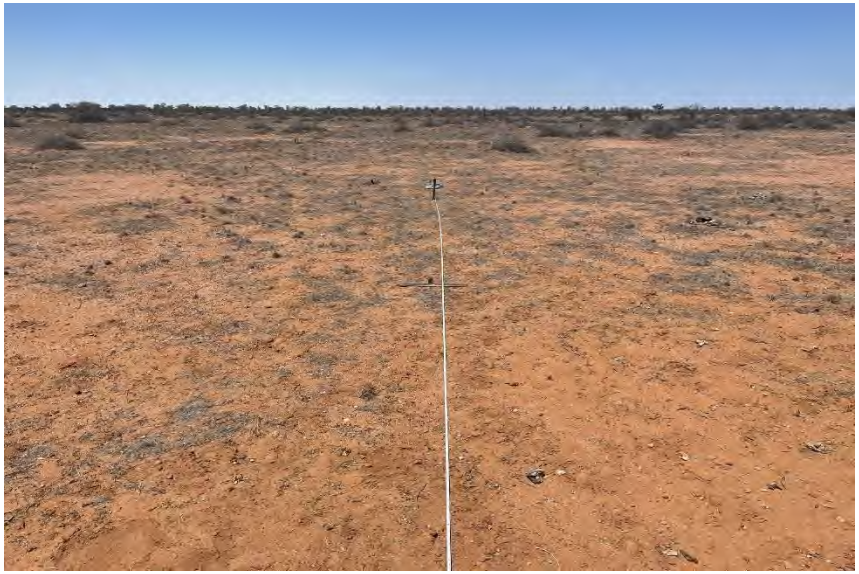
2022		2023	

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2024			

Site: BE27			
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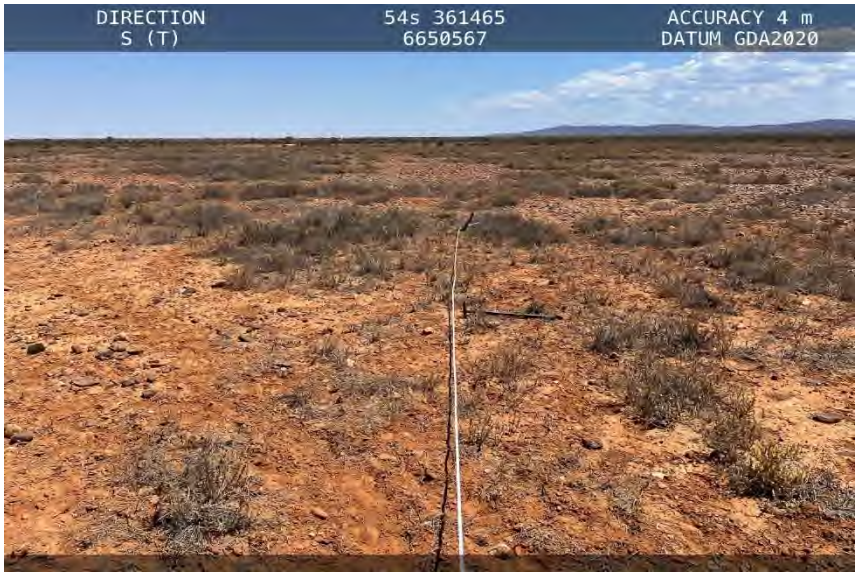
2020		2021	

Site: BE27			
2022		2023	

Site: BE27			
2024			

Site: BE30			
2018		2019	
2020		2021	

Site: BE30			
2022		2023	

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2024			

Site: BE34			
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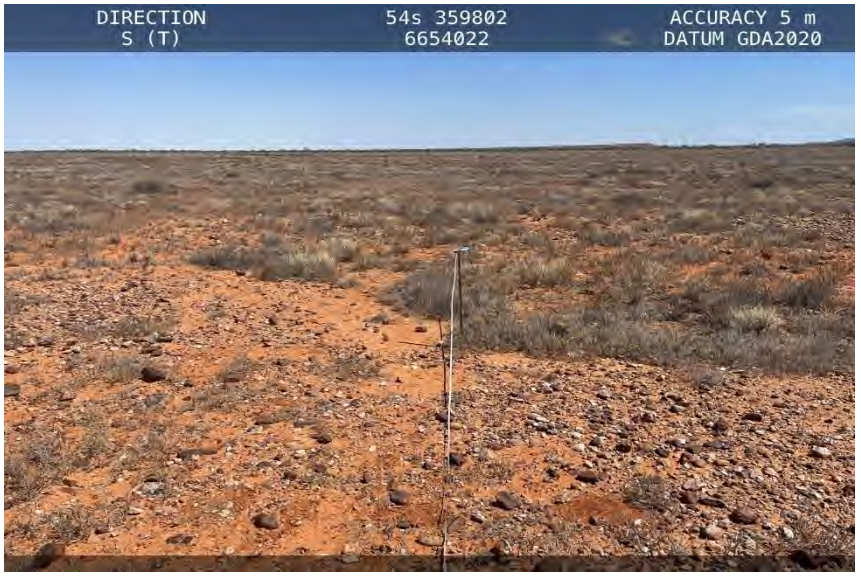
Site: BE34			
2022		2023	

Site: BE34			
2024			

Site: BE36			
2018		2019	
2020		2021	

Site: BE36			
2022		2023	

Site: BE36			
2024			

Site: BE37			
2018		2019	
2020		2021	

Site: BE37			
2022		2023	

Site: BE37			
2024			

Site: BE38			
2018	n/a	2019	n/a
2020	n/a	2021	

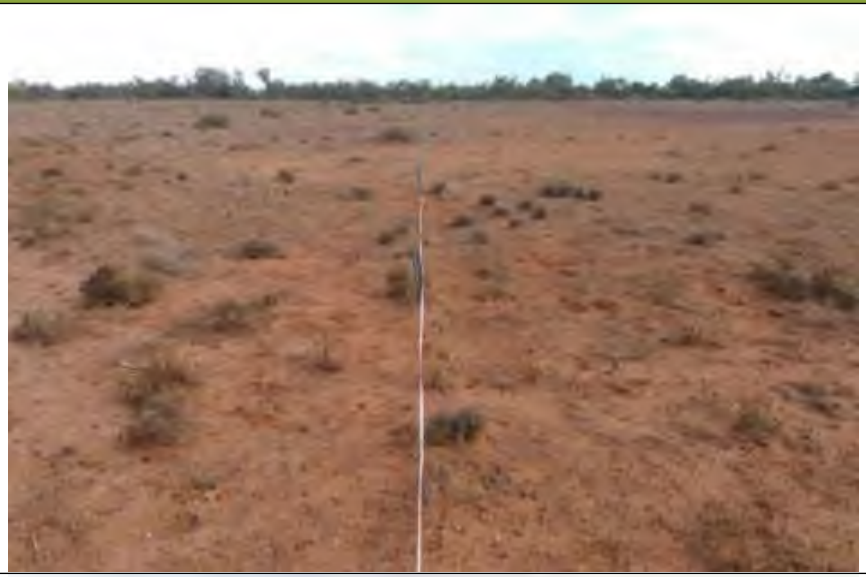
Site: BE38			
2022		2023	

Site: BE38			
2024			

Site: PE09			
2018		2019	
2020		2021	

Site: PE09			
2022		2023	

Site: PE09			
2024			

Site: PE18			
2018		2019	
2020		2021	

Site: PE18			
2022		2023	

Site: PE18			
2024			

Site: PE19			
2018		2019	
2020		2021	

Site: PE19			
2022		2023	

Site: PE19			
2024			

Site: PE20			
2018	n/a	2019	
2020		2021	

Site: PE20			
2022		2023	

Site: PE20			
2024			

Site: FM04			
2018		2019	
2020		2021	

Site: FM04			
2022		2023	

Site: FM04			
2024			

Site: FM05			
2018		2019	
2020		2021	

Site: FM05			
2022		2023	

Site: FM05			
2024			

Site: FM06			
2018		2019	
2020		2021	

Site: FM06			
2022		2023	n/a

Site: FM06			
2024			

Site: FM07			
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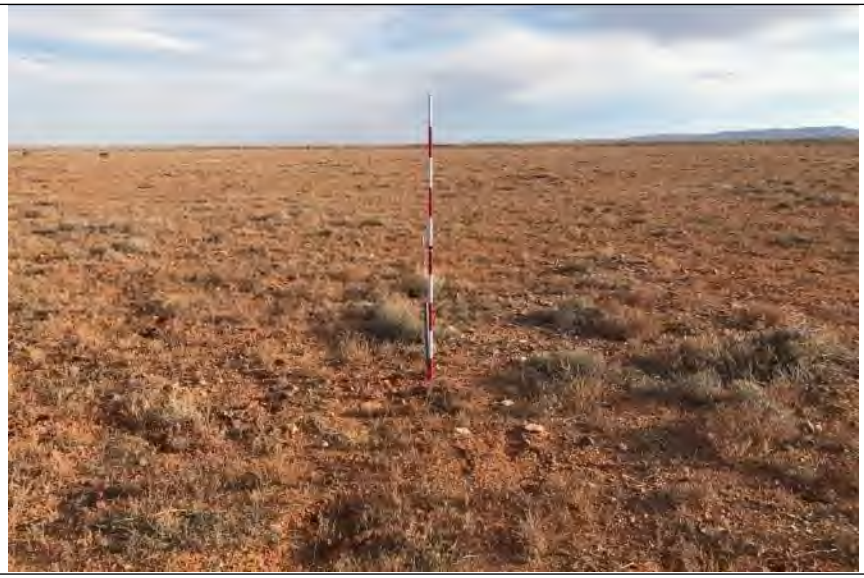
2020	n/a	2021	

Site: FM07			
2022		2023	

Site: FM07			
2024			

Site: FM08			
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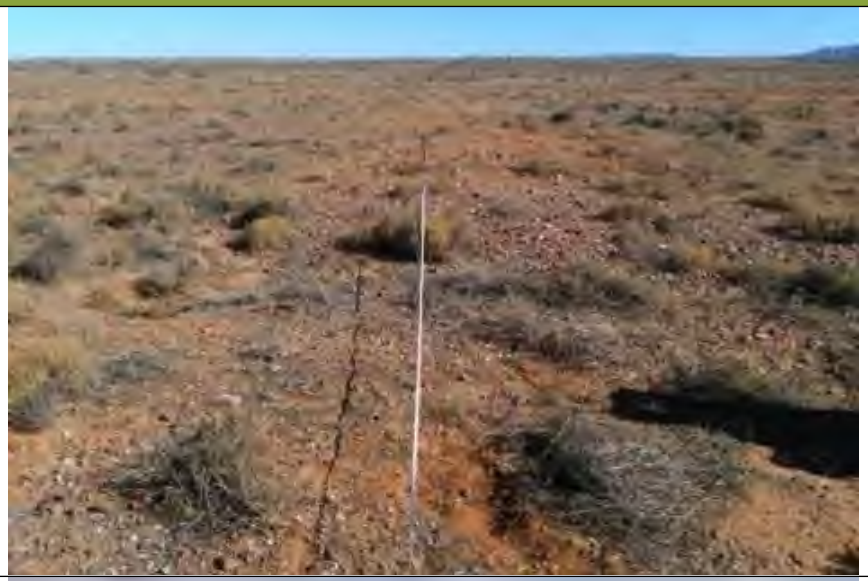
2020		2021	

Site: FM08			
2022		2023	n/a

Site: FM08			
2024			

Site: FM14			
2018	n/a	2019	
2020		2021	

Site: FM14			
2022		2023	n/a

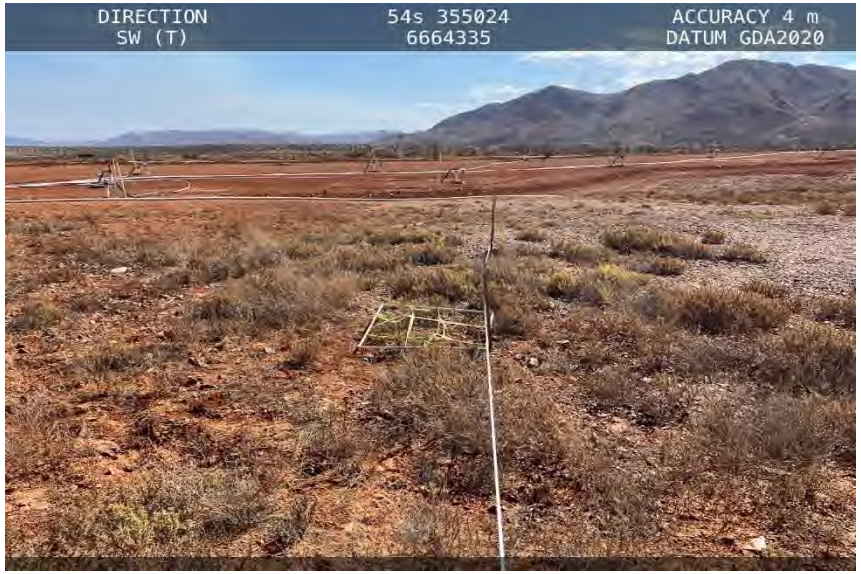
Site: FM14			
2024			

Site: FM16			
2018	n/a	2019	
2020		2021	

Site: FM16			
2022		2023	

Site: FM16			
2024			

Site: FM23			
2018	n/a	2019	n/a
2020	n/a	2021	

Site: FM23			
2022		2023	

Site: FM23			
2024			

Site: FM25			
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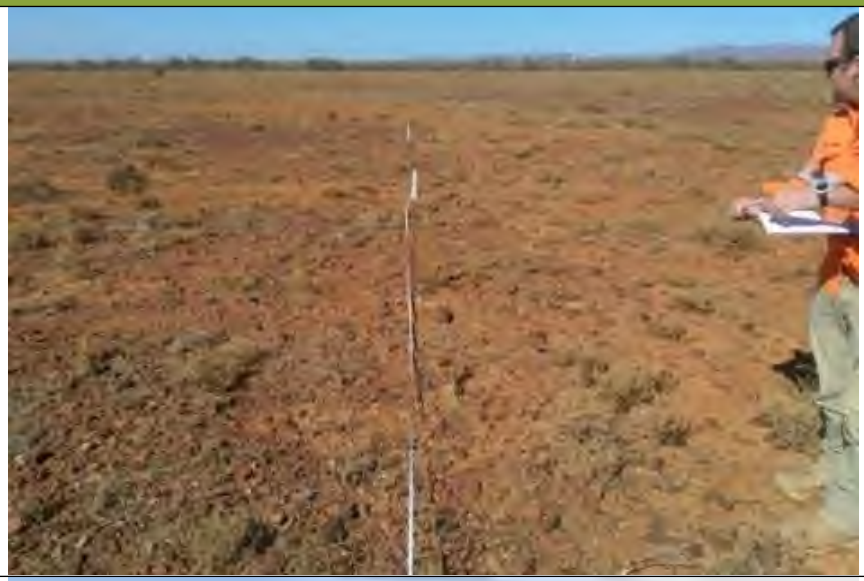
2020		2021	

Site: FM25			
2022		2023	n/a

Site: FM25			
2024			

Site: FM26			
2018	n/a	2019	
2020		2021	

Site: FM26			
2022		2023	

Site: FM26			
2024			

Site: FM27			
2018		2019	
2020		2021	

Site: FM27			
2022		2023	n/a

Site: FM27			
2024			

C.3 Waste Repository Groundwater Seepage Monitoring

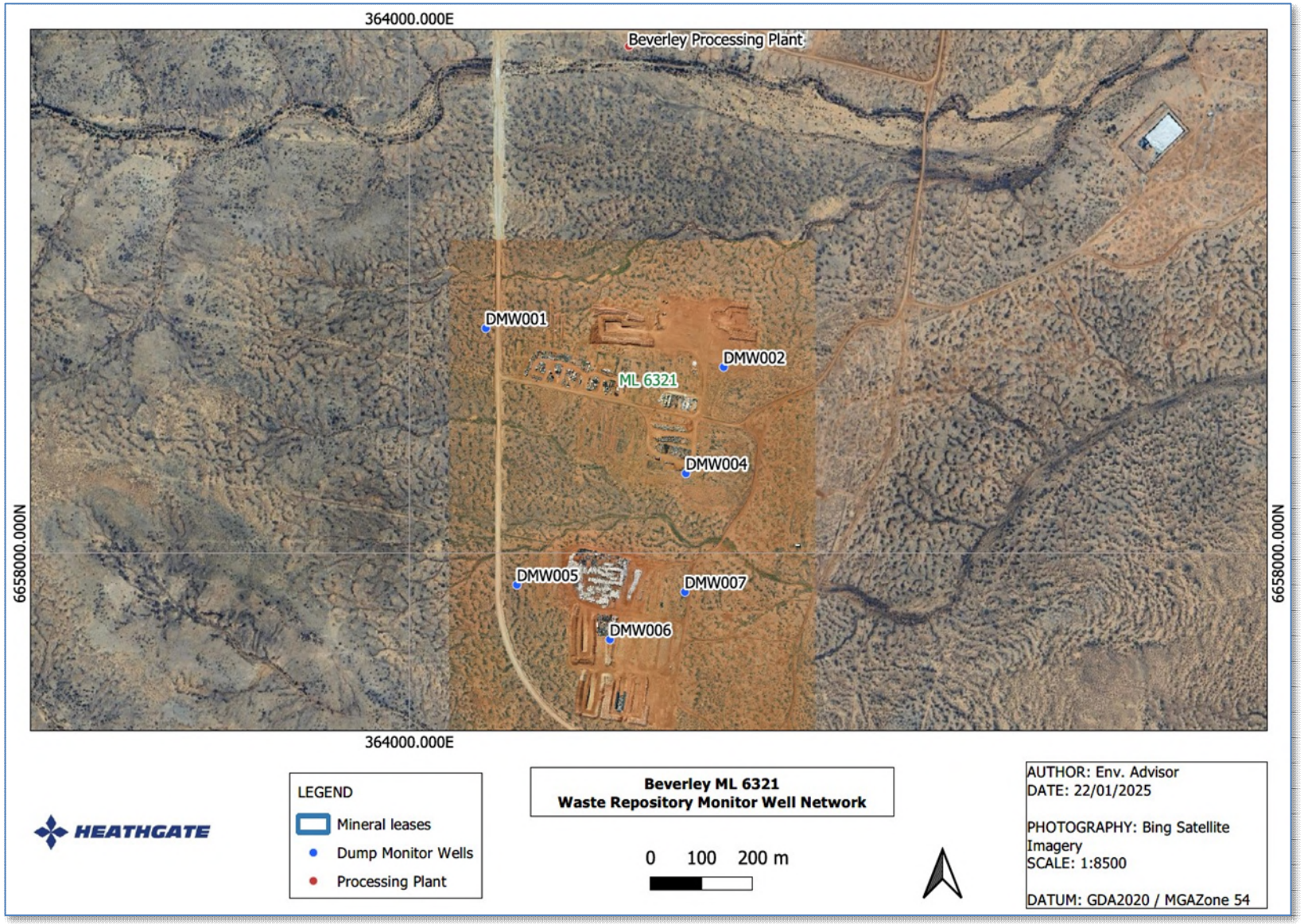


Figure C.3.1 - Waste Repository Monitor Well Locations

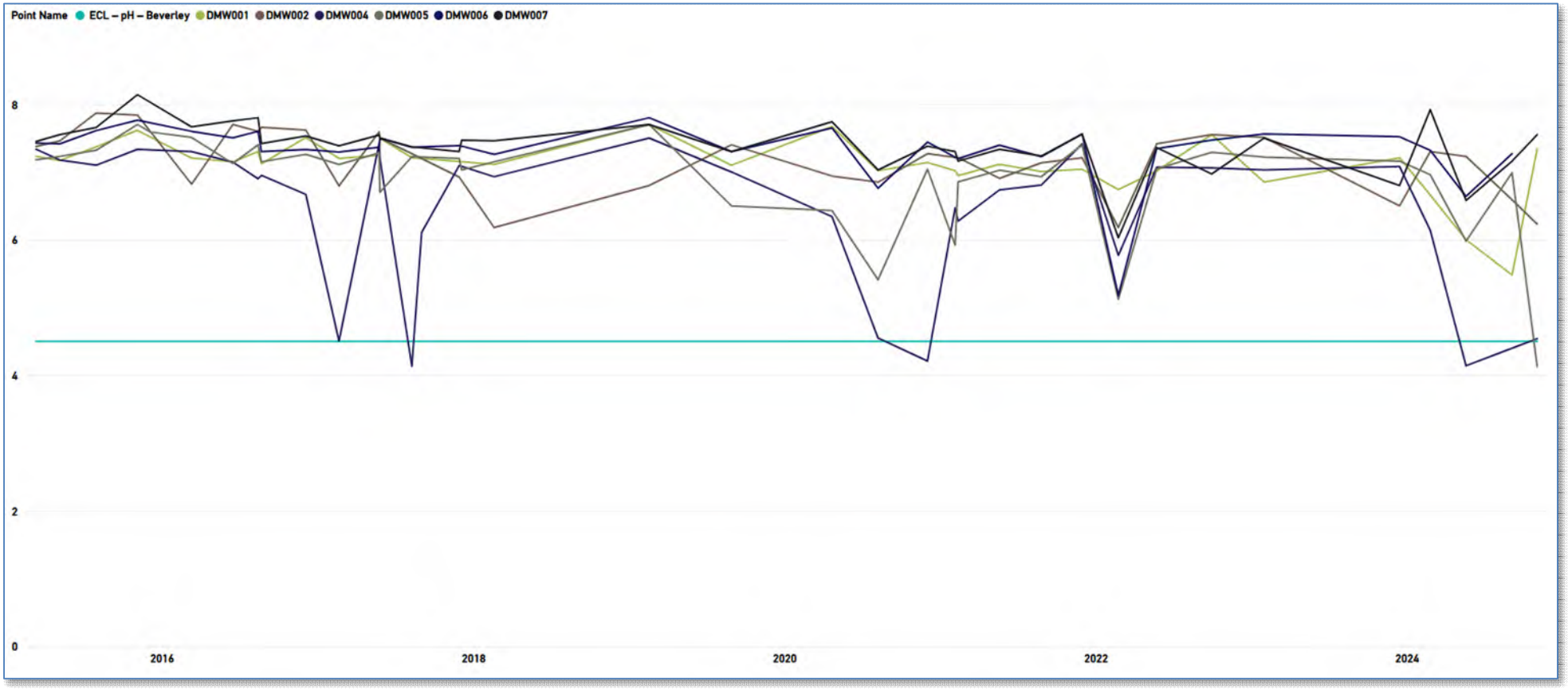


Figure C.3.2 - Waste Repository Monitor Wells - pH

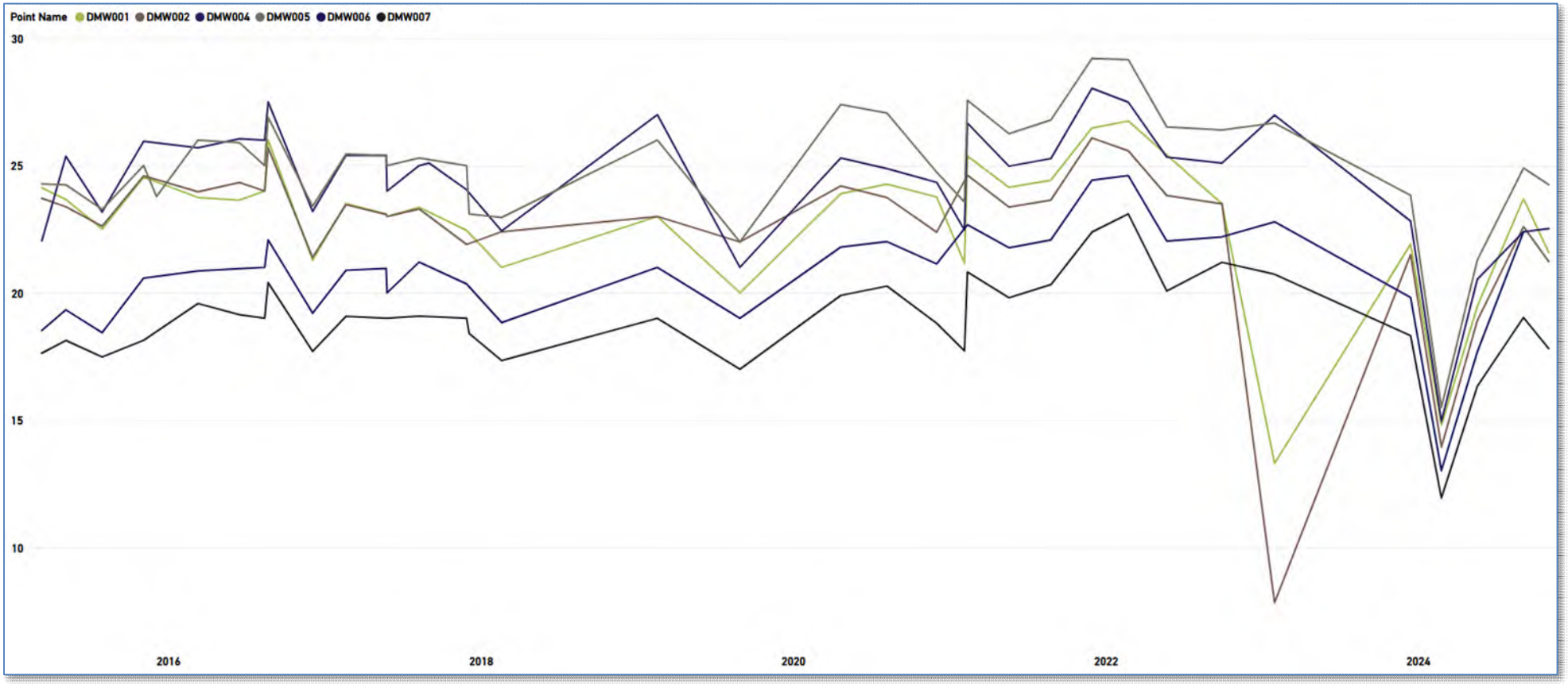


Figure C.3.3 - Waste Repository Monitor Wells - Electrical Conductivity (mS/cm)

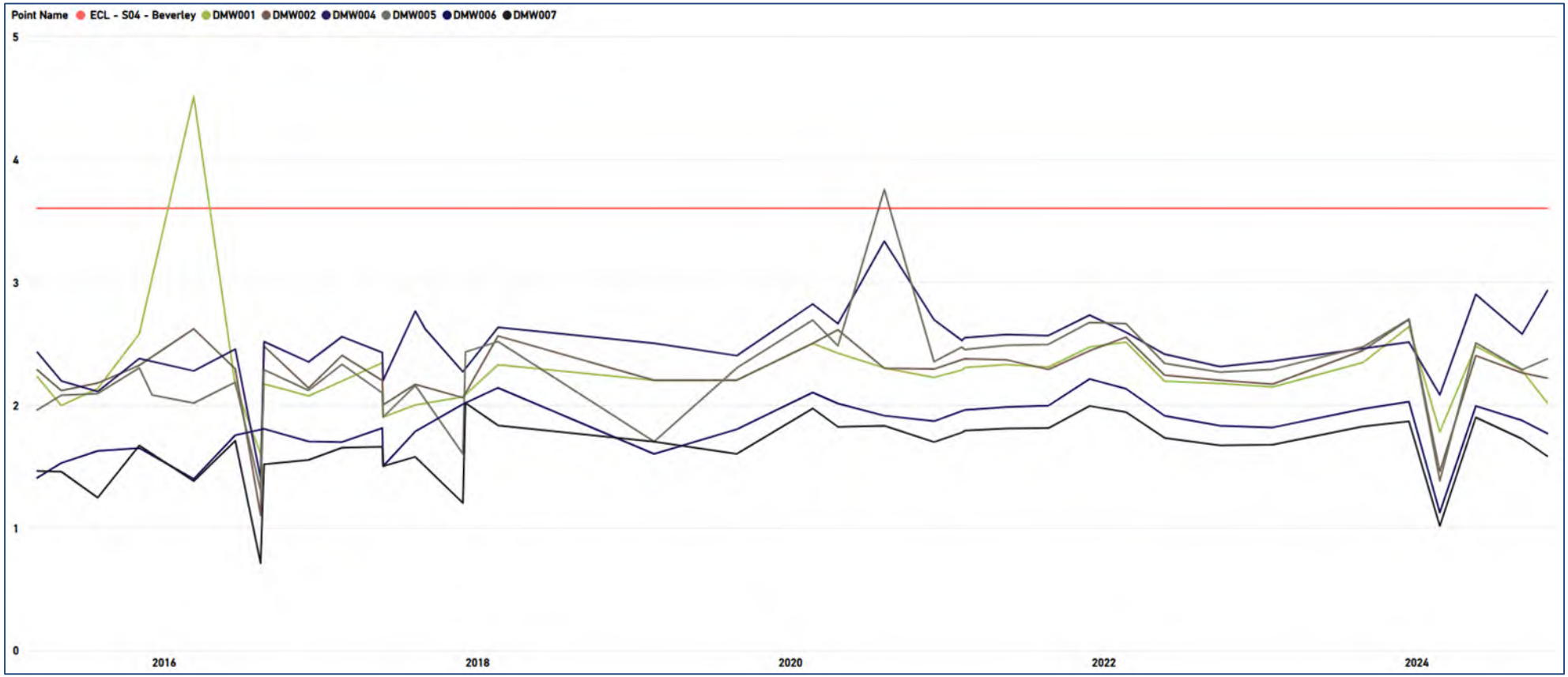


Figure C.3.4 - Waste Repository Monitor Wells - Sulphate (g/L)

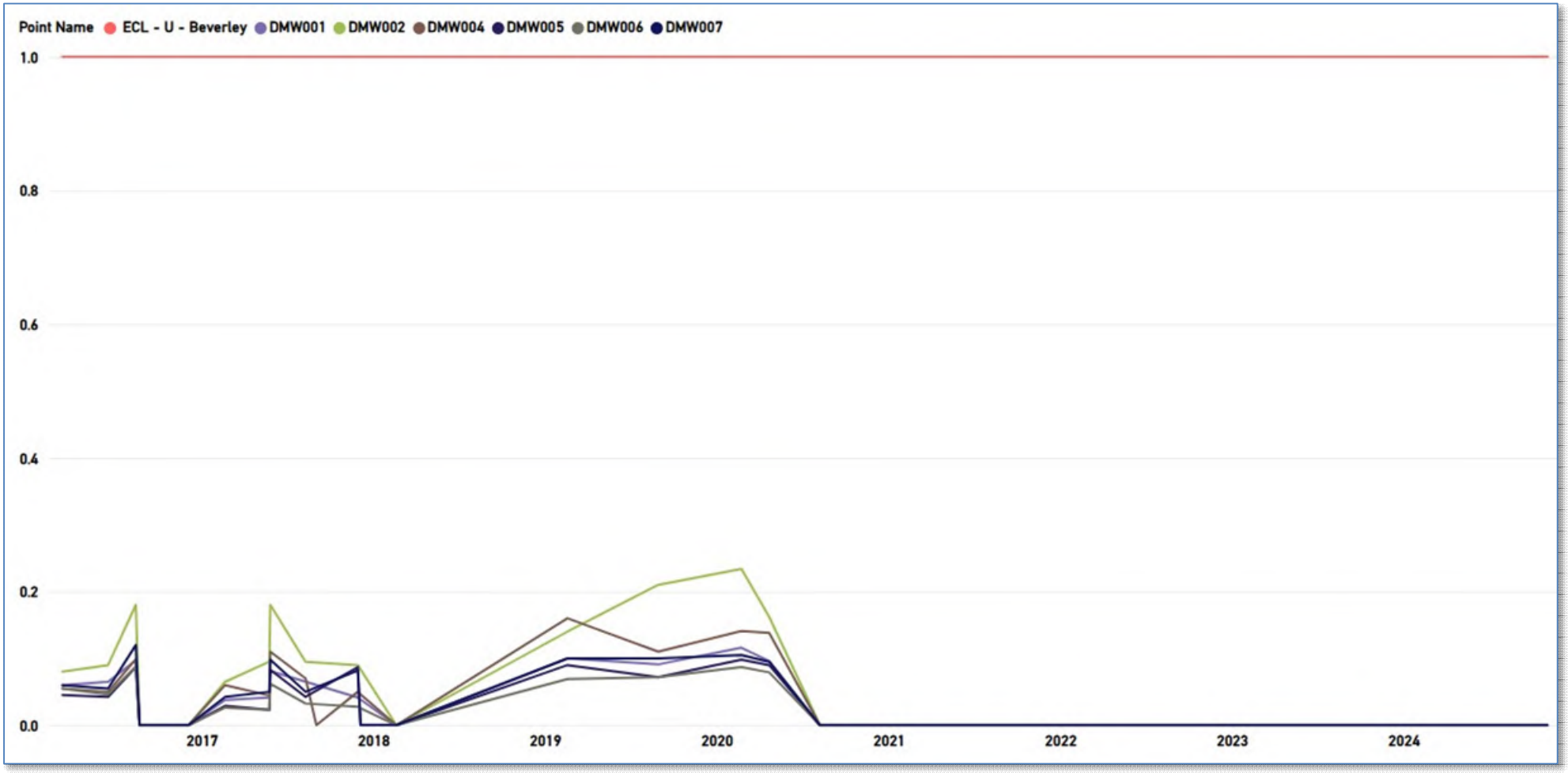


Figure C.3.5 - Waste Repository Monitor Wells - Uranium (mg/L)

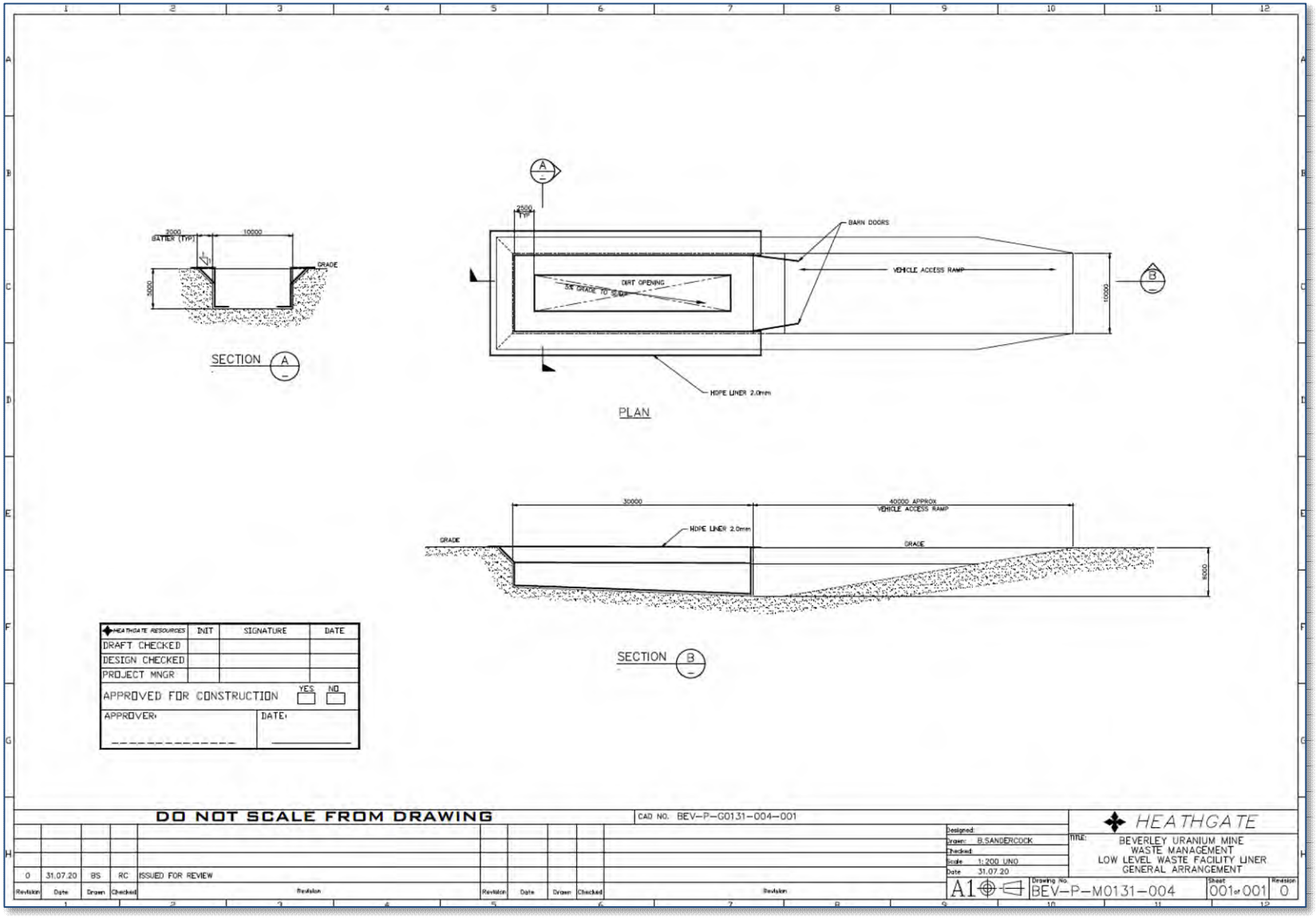


Figure C.3.6 - Waste Repository Design

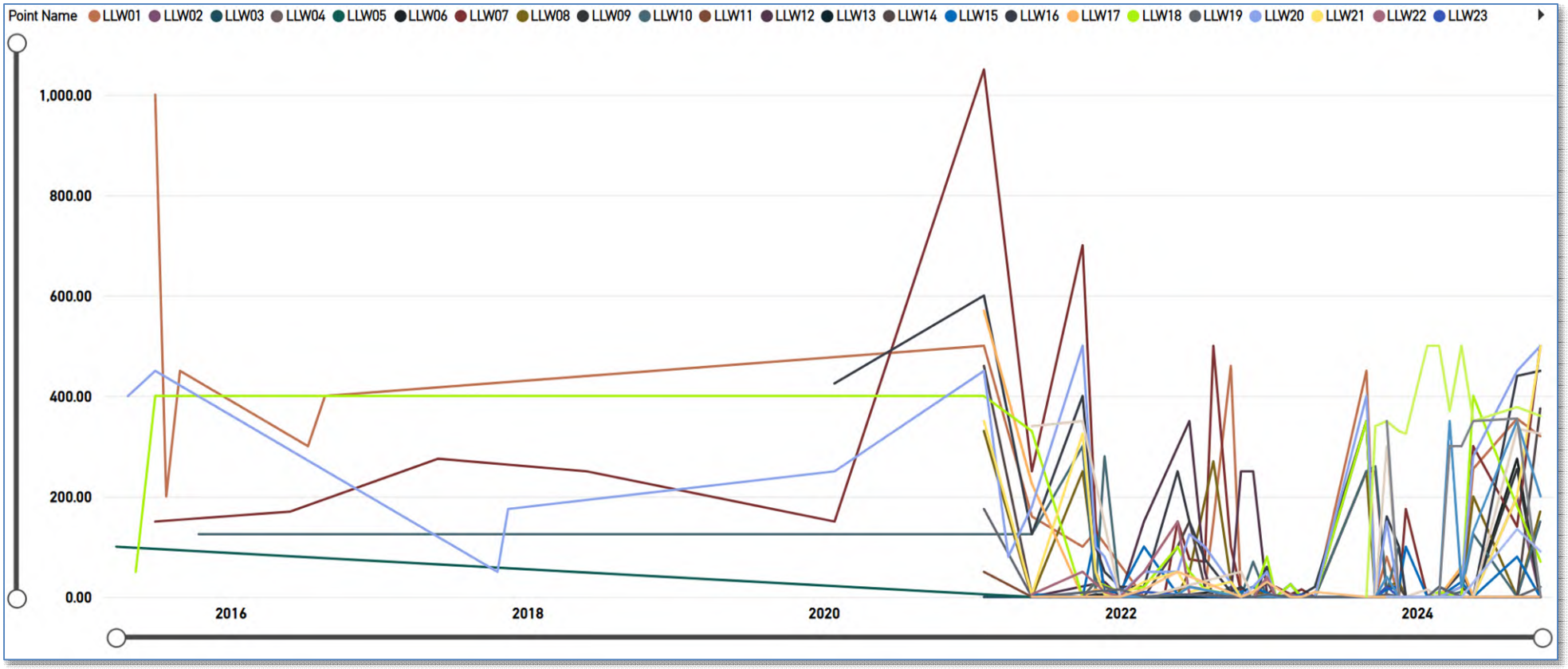


Figure C.3.7 - Low Level Waste Cell Sump - Leachate Volumes (ml)

C.4 Great Artesian Basin (GAB) Groundwater Monitoring Results

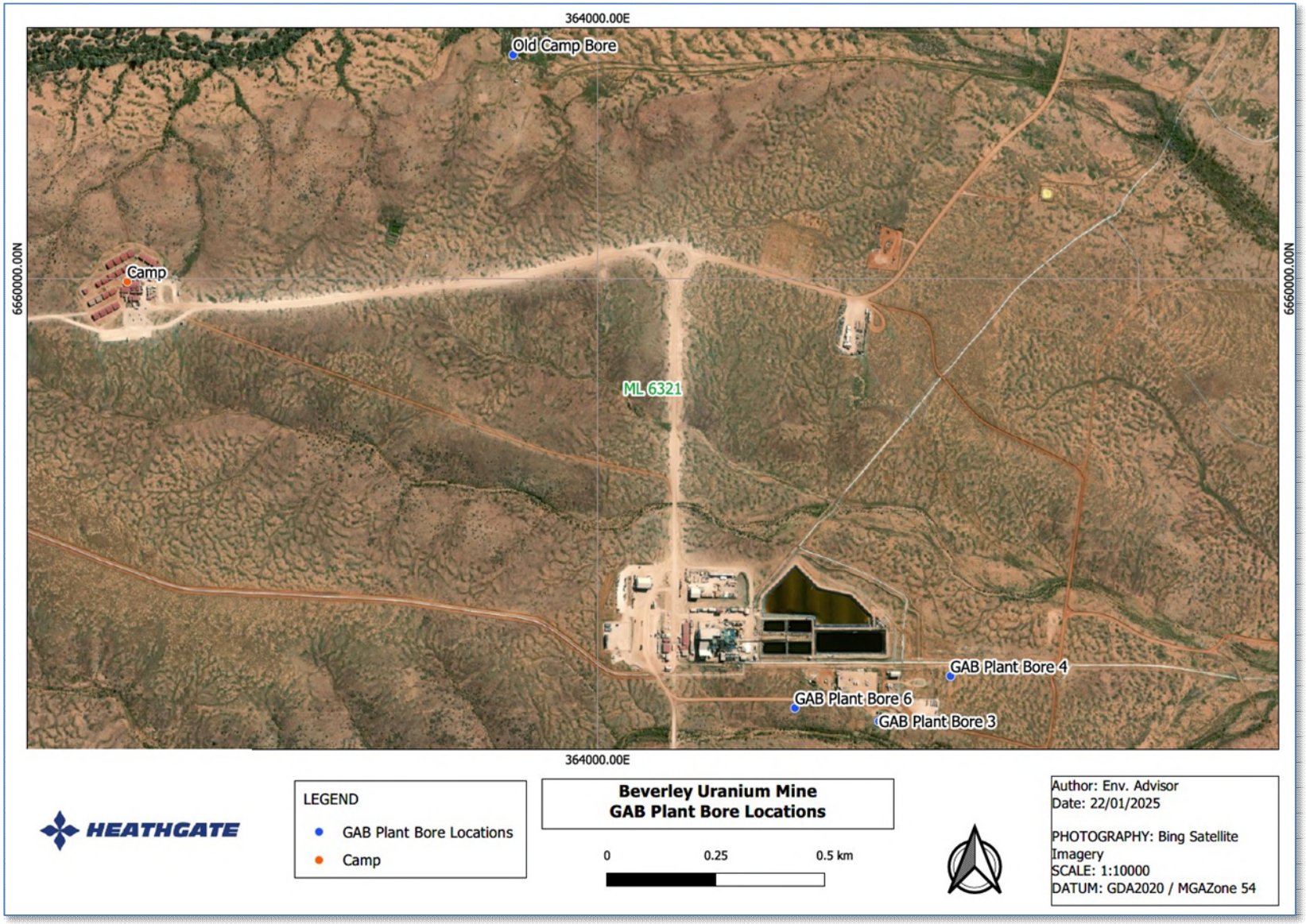


Figure C.4.1 - Beverley Mine GAB Plant Bore Locations

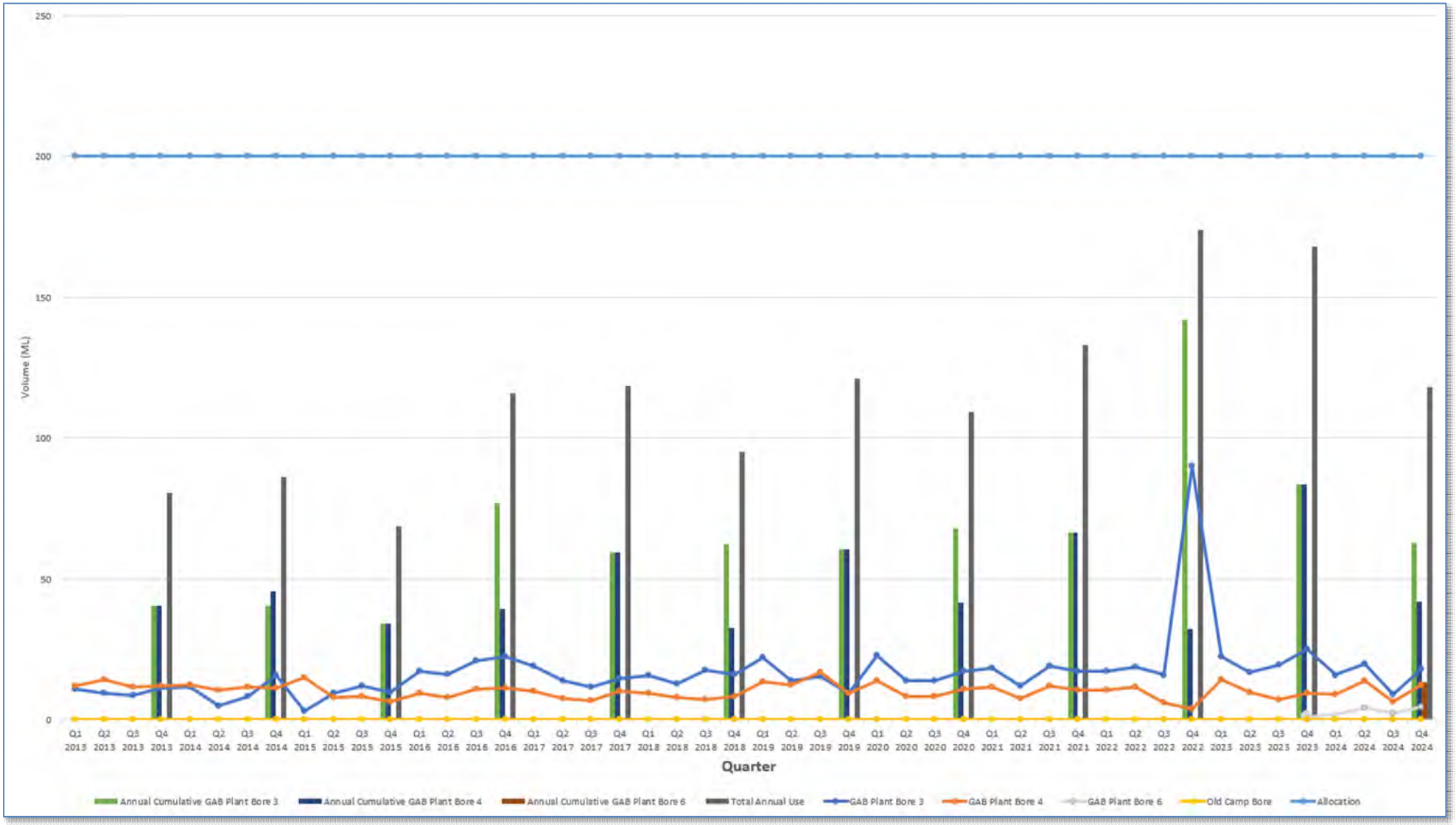


Figure C.4.2 - GAB Plant Bore Extraction Volumes (ML) 2013 - 2024

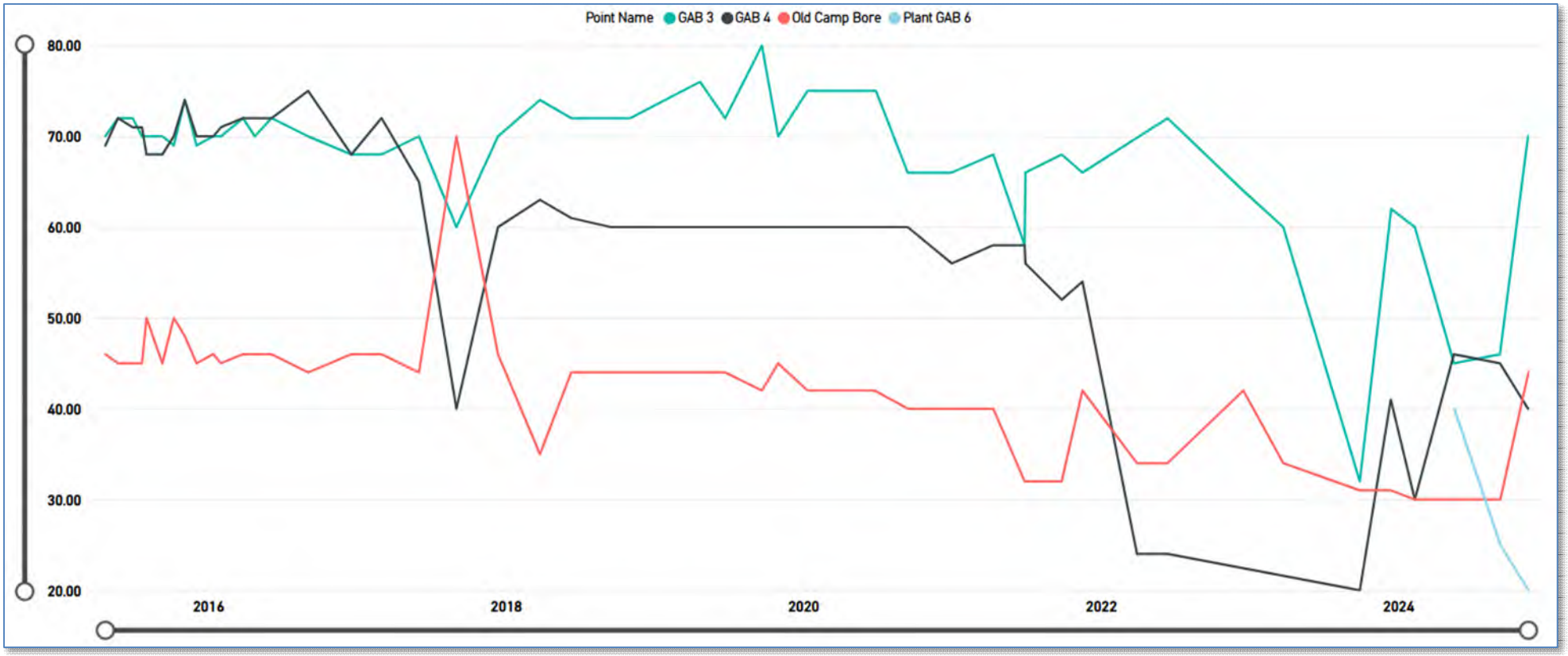


Figure C.4.3 - Pressure of GAB Bores (kPa) 2013 -2024

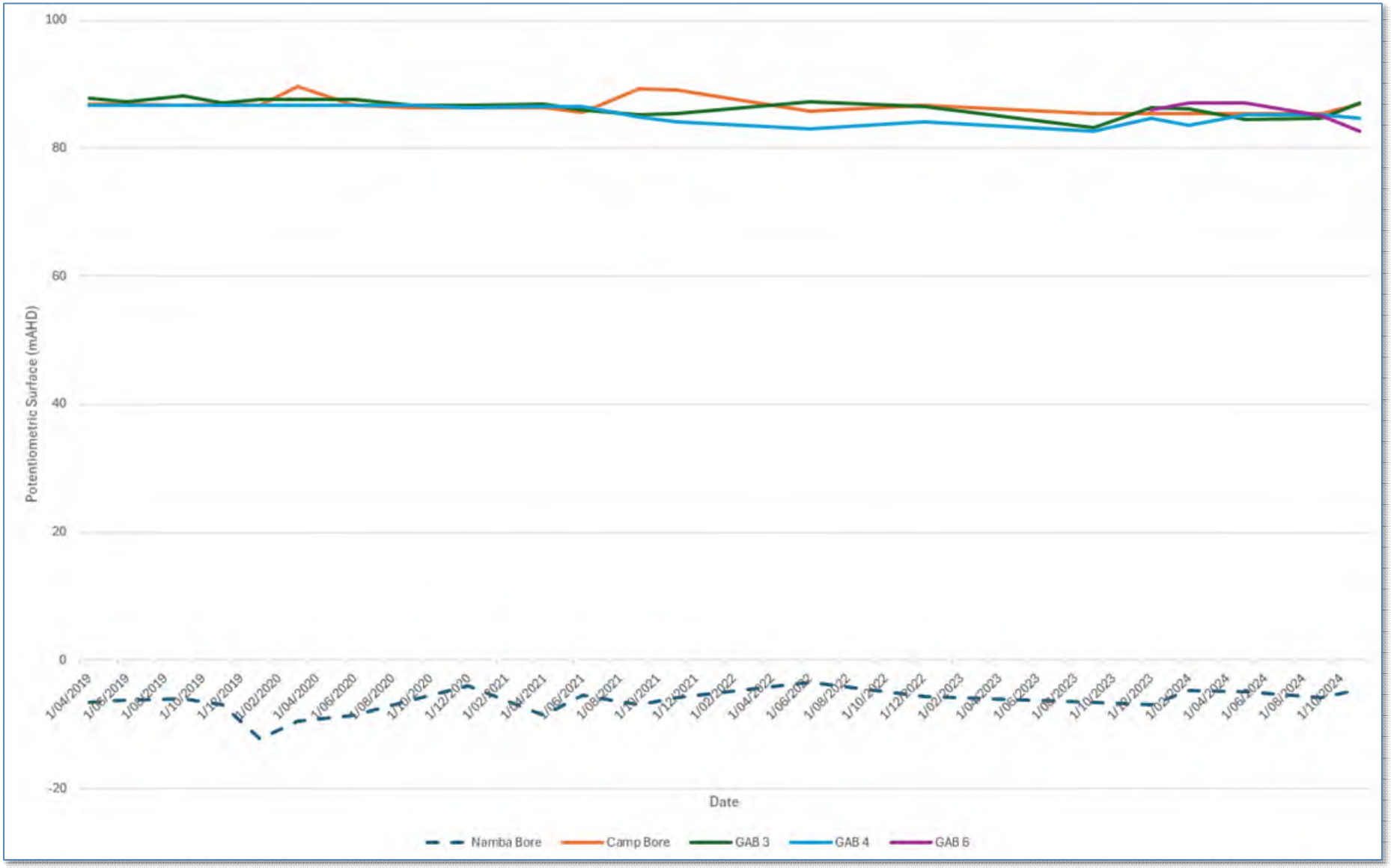


Figure C.4.4 – Potentiometric Surface of Namba and GAB aquifers (mAHD) 2013 -2024

Figure C.4.5 - Electrical Conductivity (EC) (µS/cm) of GAB Bores 2013 - 2024

C.5 Beverley ML Groundwater Monitoring Results

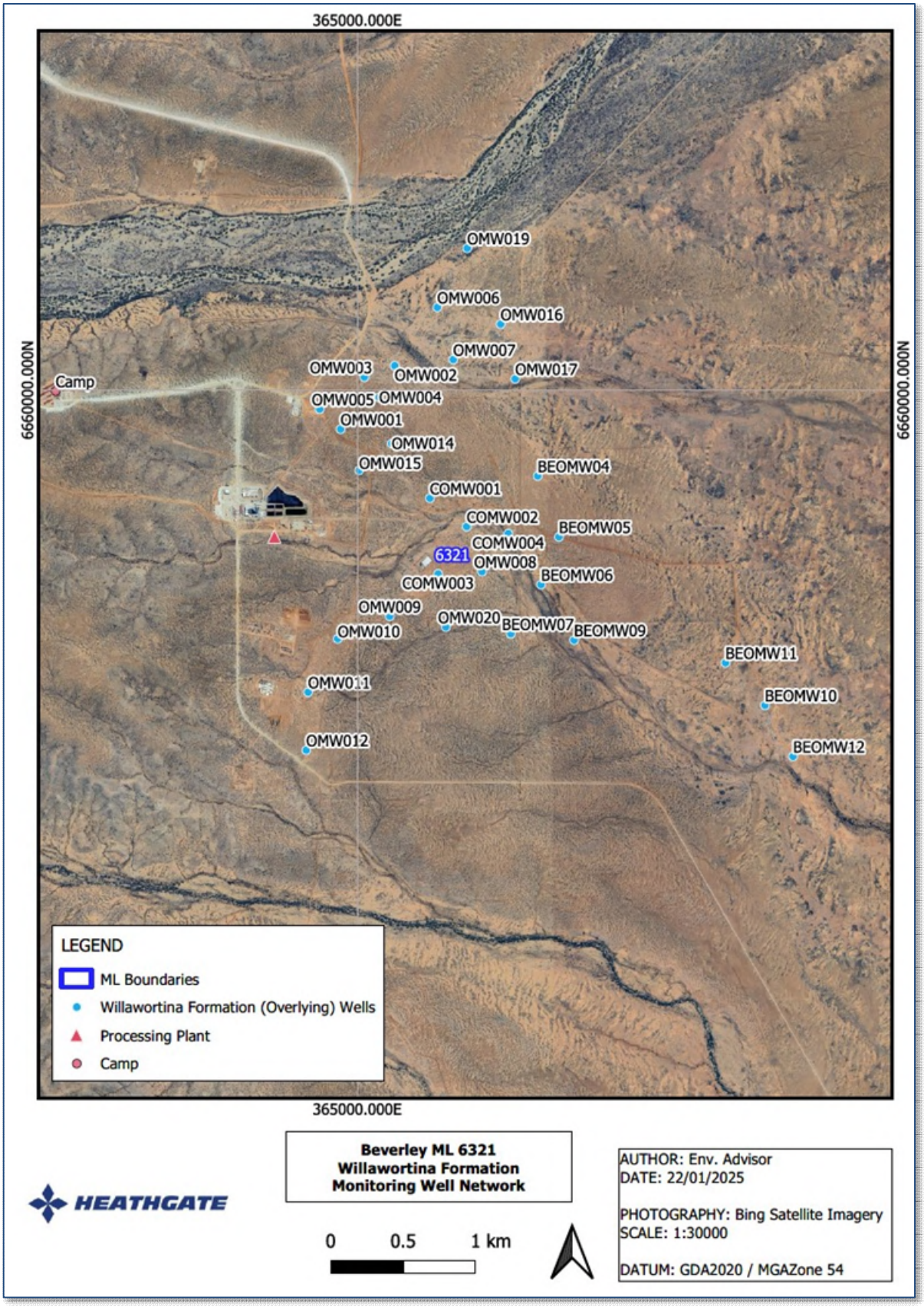


Figure C.5.1 - Beverley ML - Willawortina Formation Monitor Well Locations

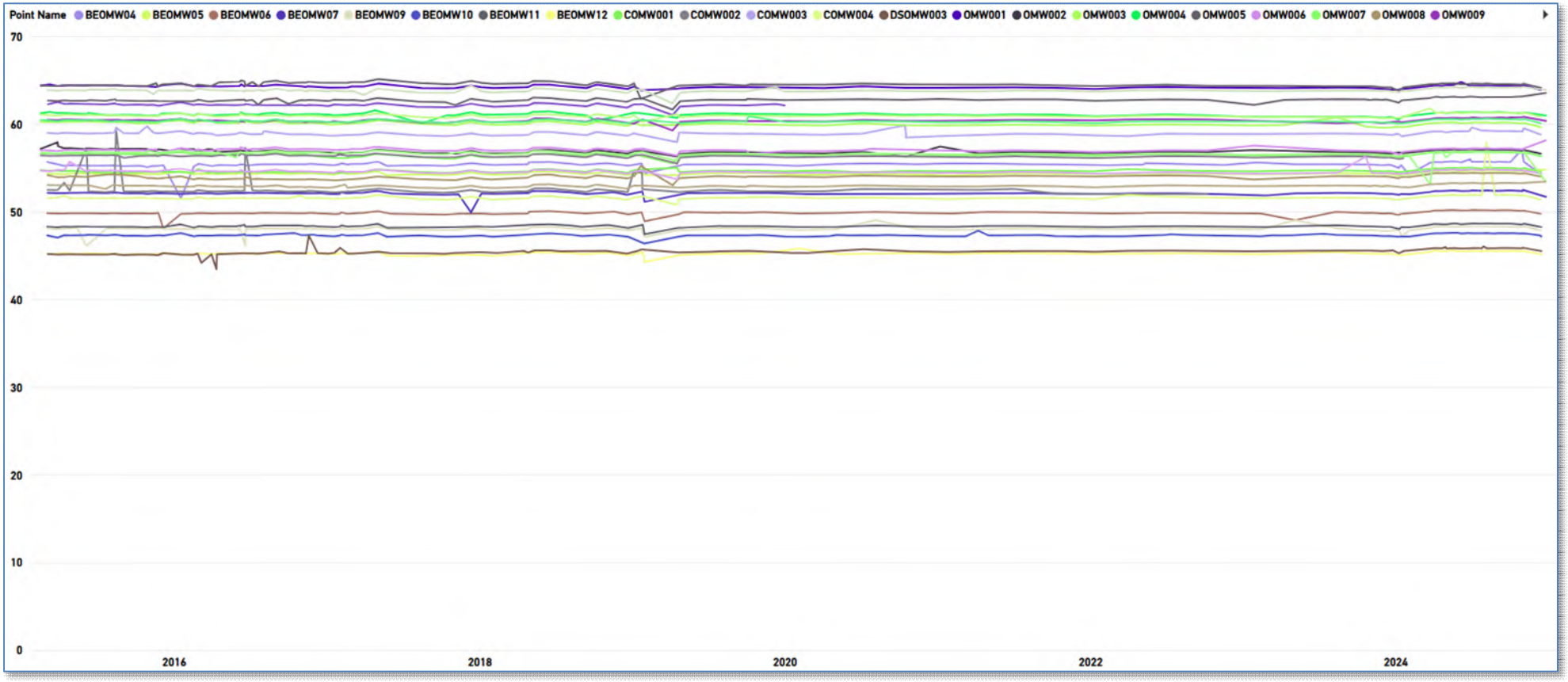


Figure C.5.2 - Beverley Willawortina Monitor Wells - Water Levels (m BGL)

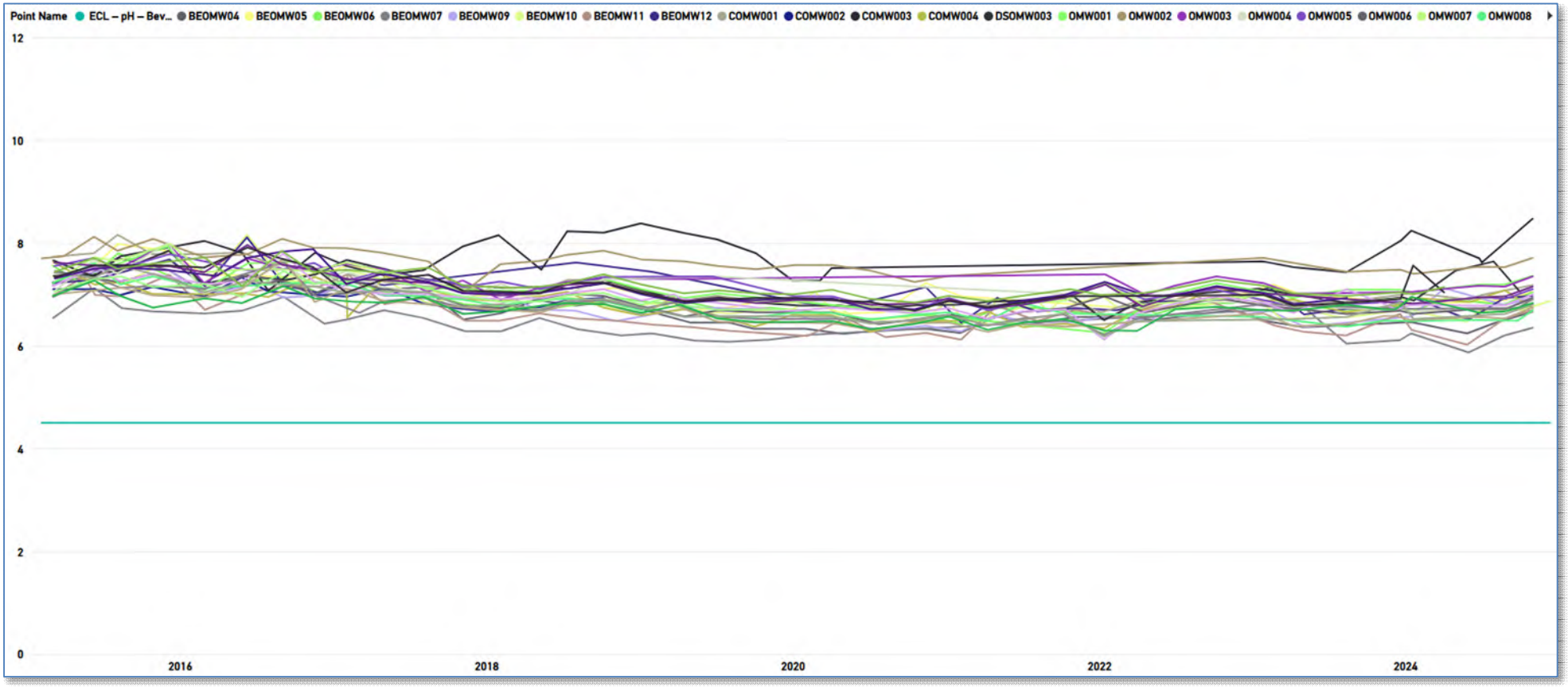


Figure C.5.3 - Beverley Willawortina Monitor Wells - pH

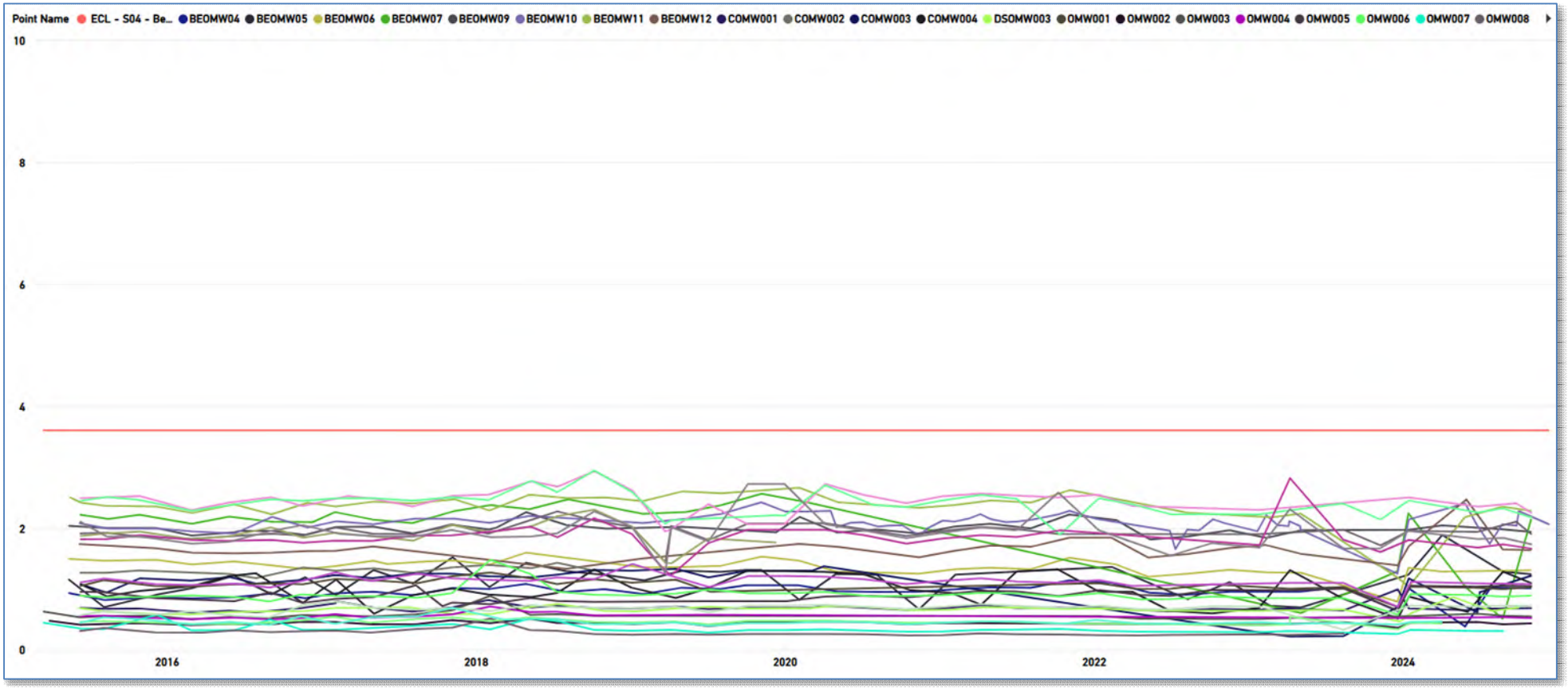


Figure C.5.4 - Beverley Willawortina Monitor Wells - Sulphate (g/L)

Figure C.5.5 - Beverley Willawortina Monitor Wells - Uranium (mg/L)

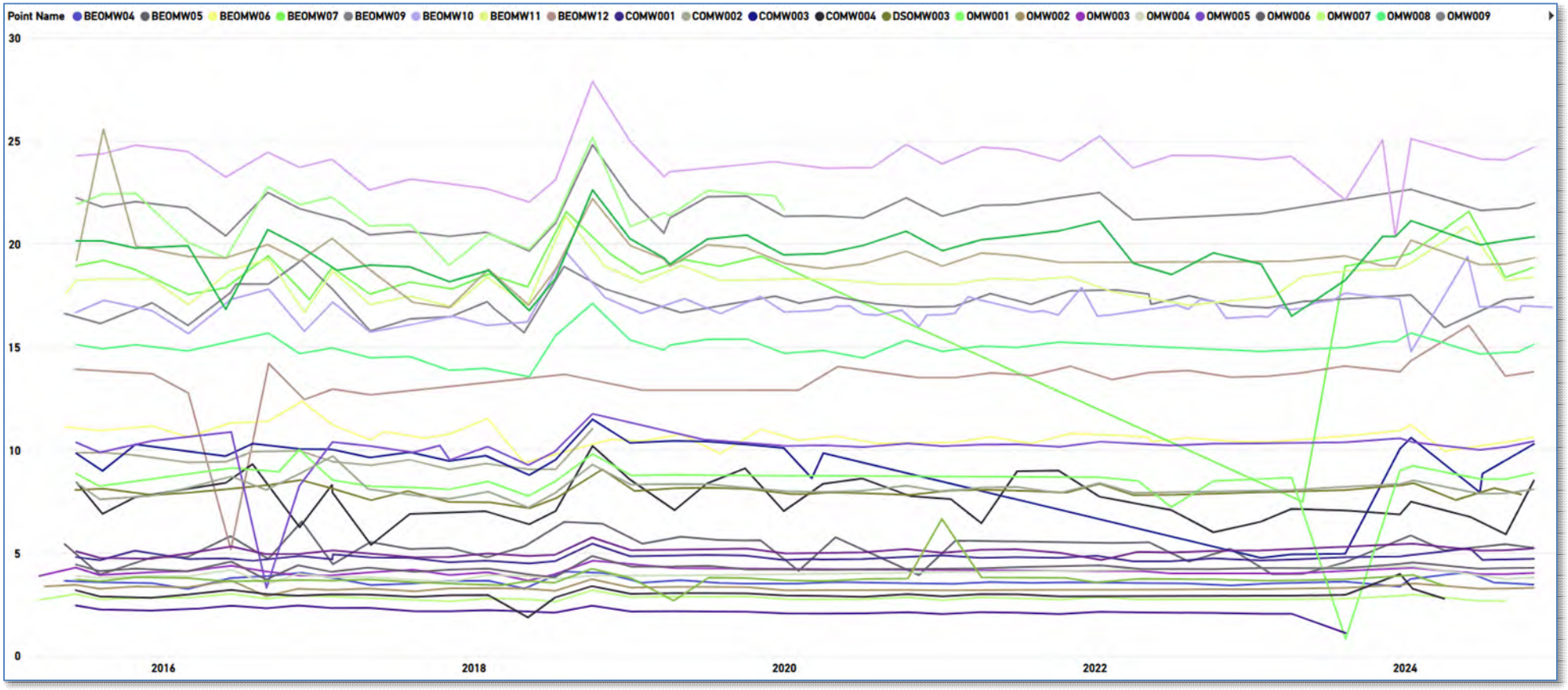


Figure C.5.6 - Beverley Willawortina Monitor Wells - EC (mS/cm)

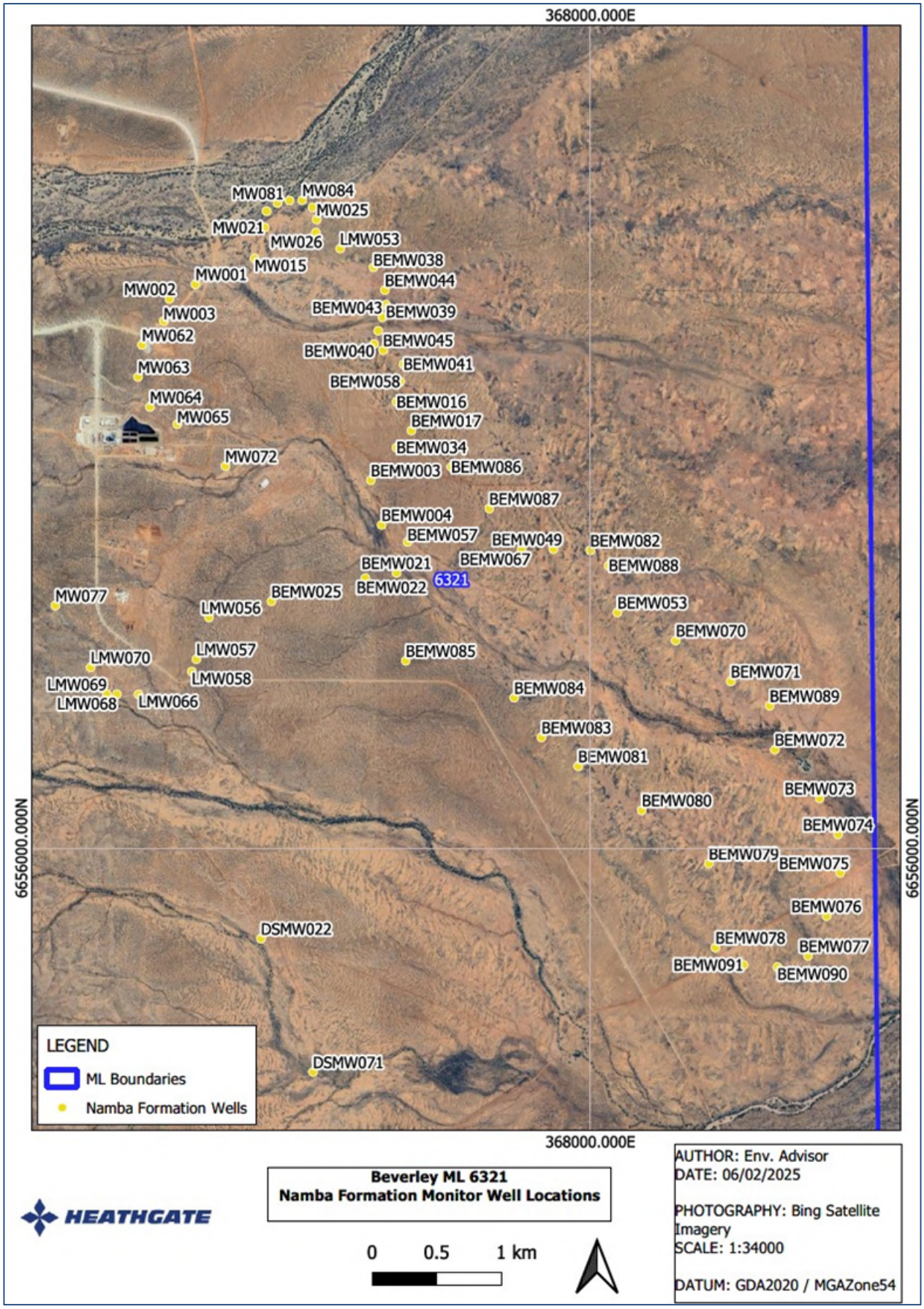


Figure C.5.7 - Beverley ML - Namba Formation Monitor Well Locations

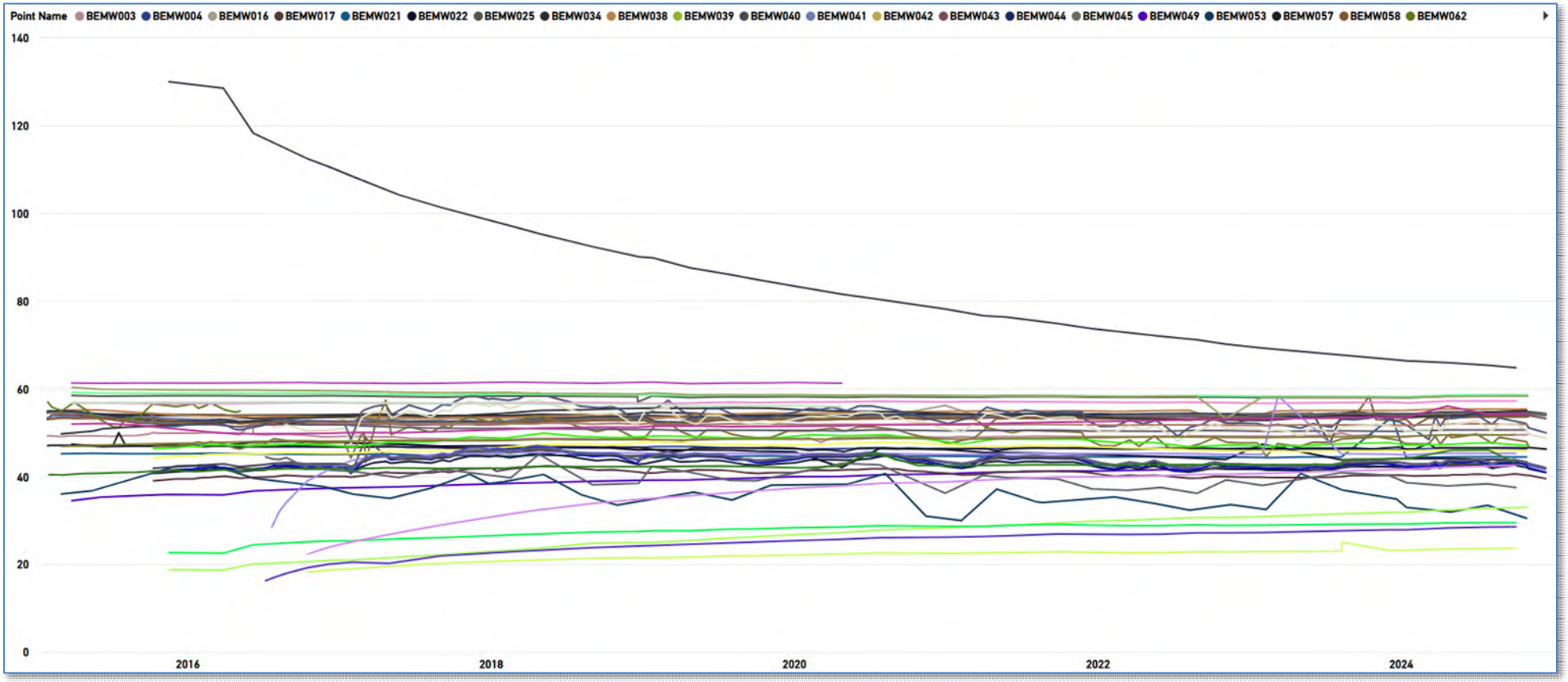


Figure C.5.8 - Beverley Namba Monitor Wells - Water Levels (m BGL)

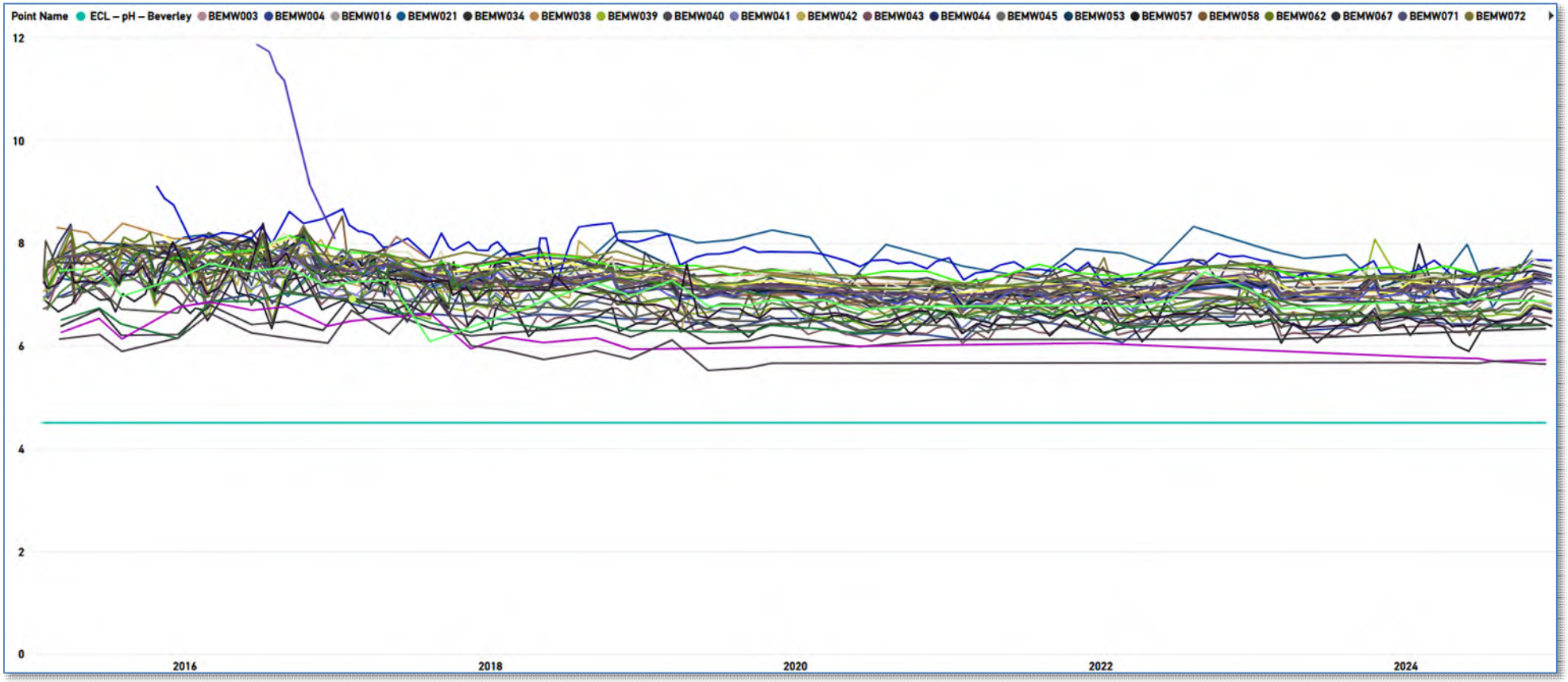


Figure C.5.9 - Beverley Namba Monitor Wells - pH

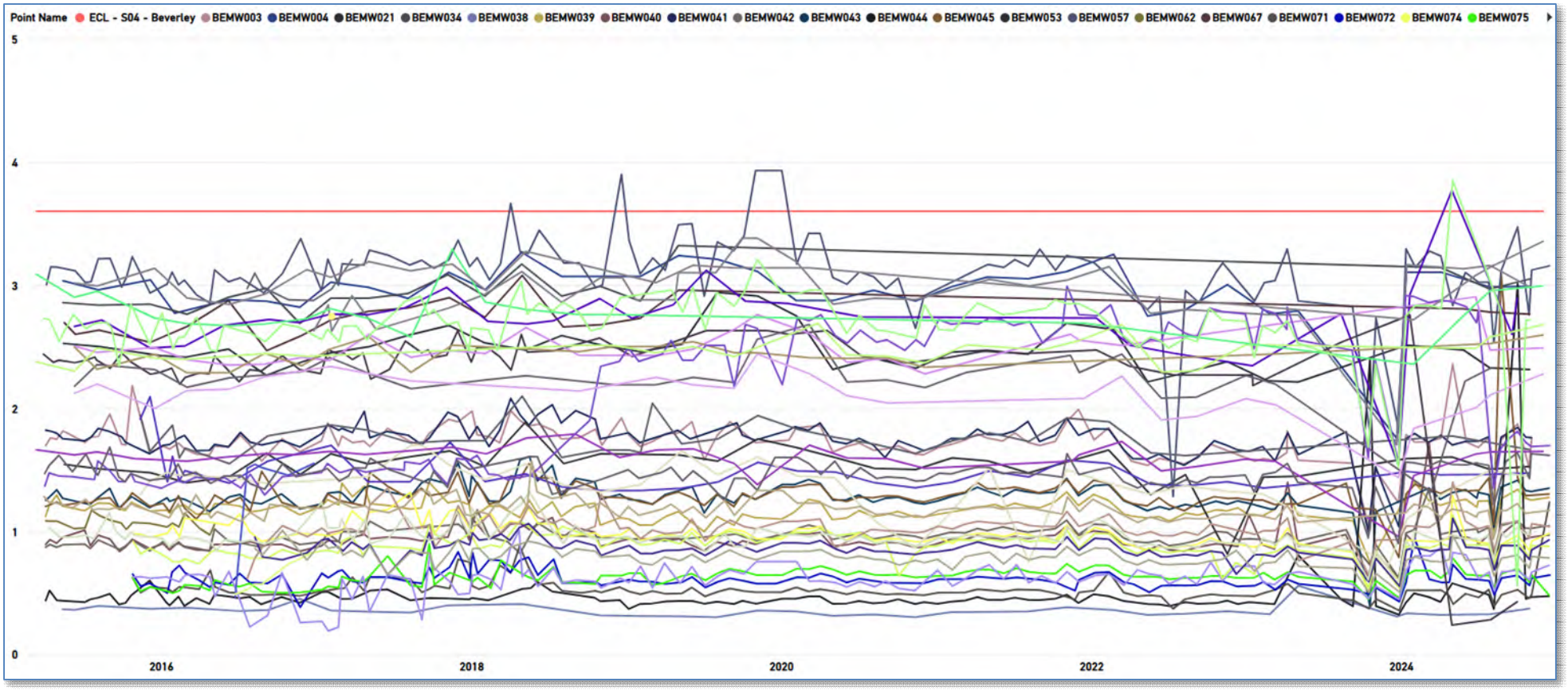


Figure C.5.10 - Beverley Namba Monitor Wells - Sulphate (g/L)

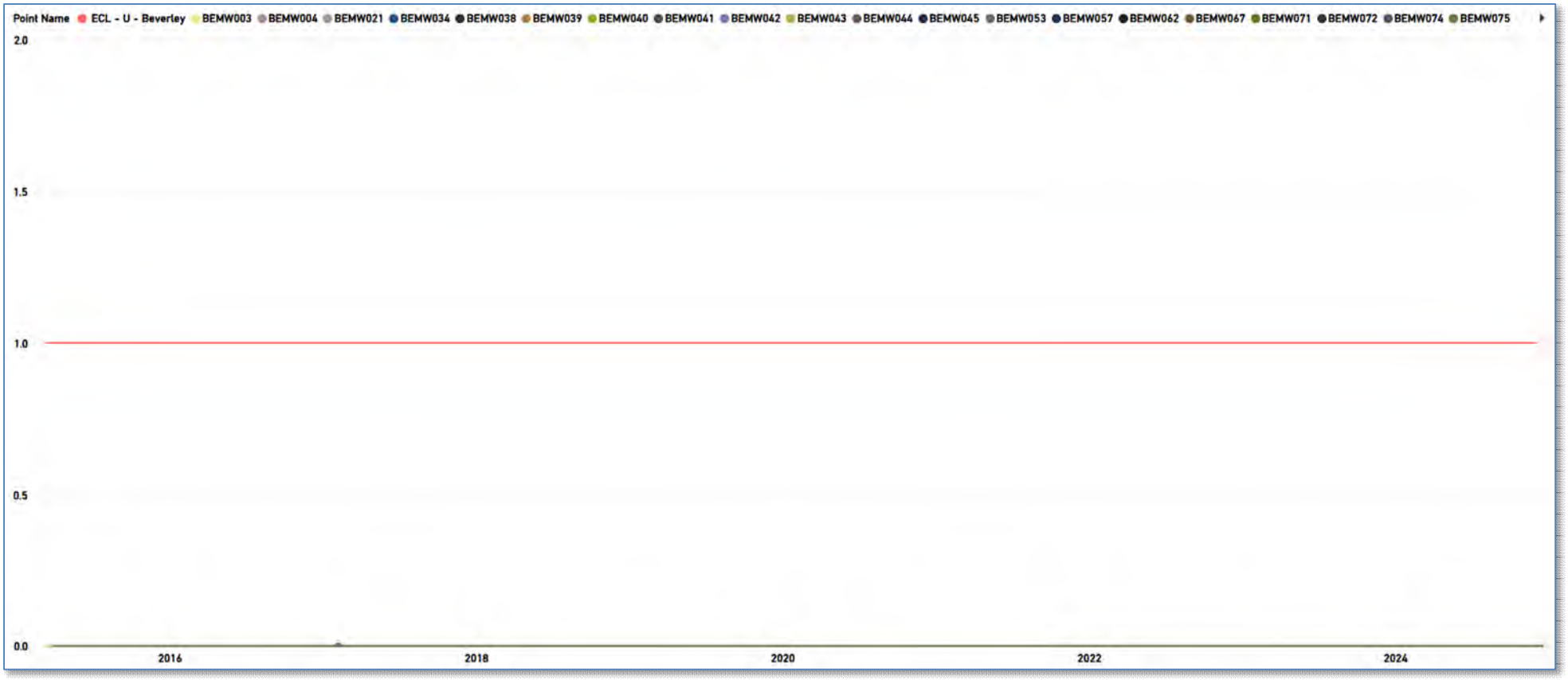


Figure C.5.11 - Beverley Namba Monitor Wells - Uranium (mg/L)

C.6 Beverley North ML Groundwater Monitoring Results

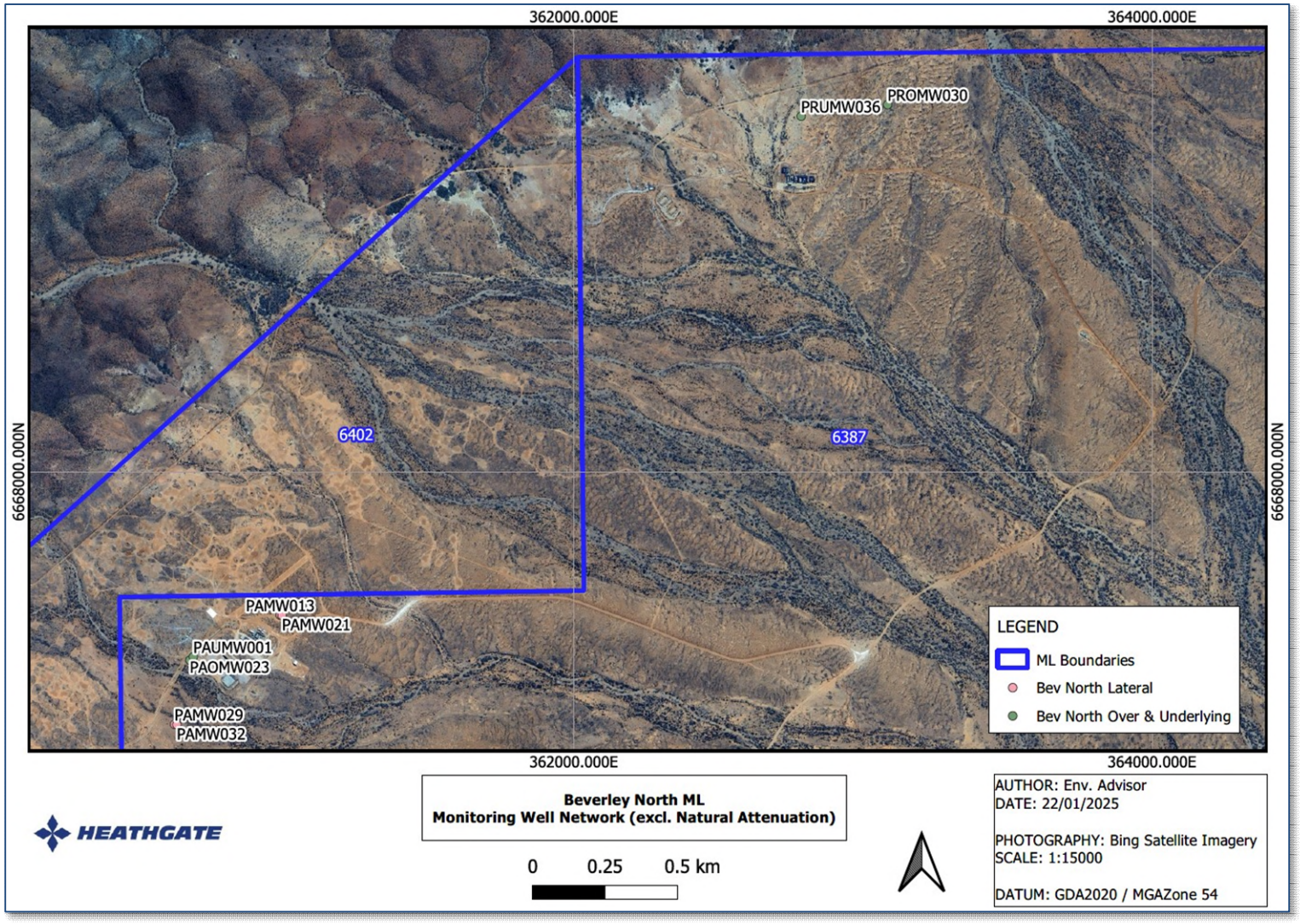


Figure C.6.1 - Beverley North ML - Monitoring Well Locations (Overlying, Lateral and Underlying)

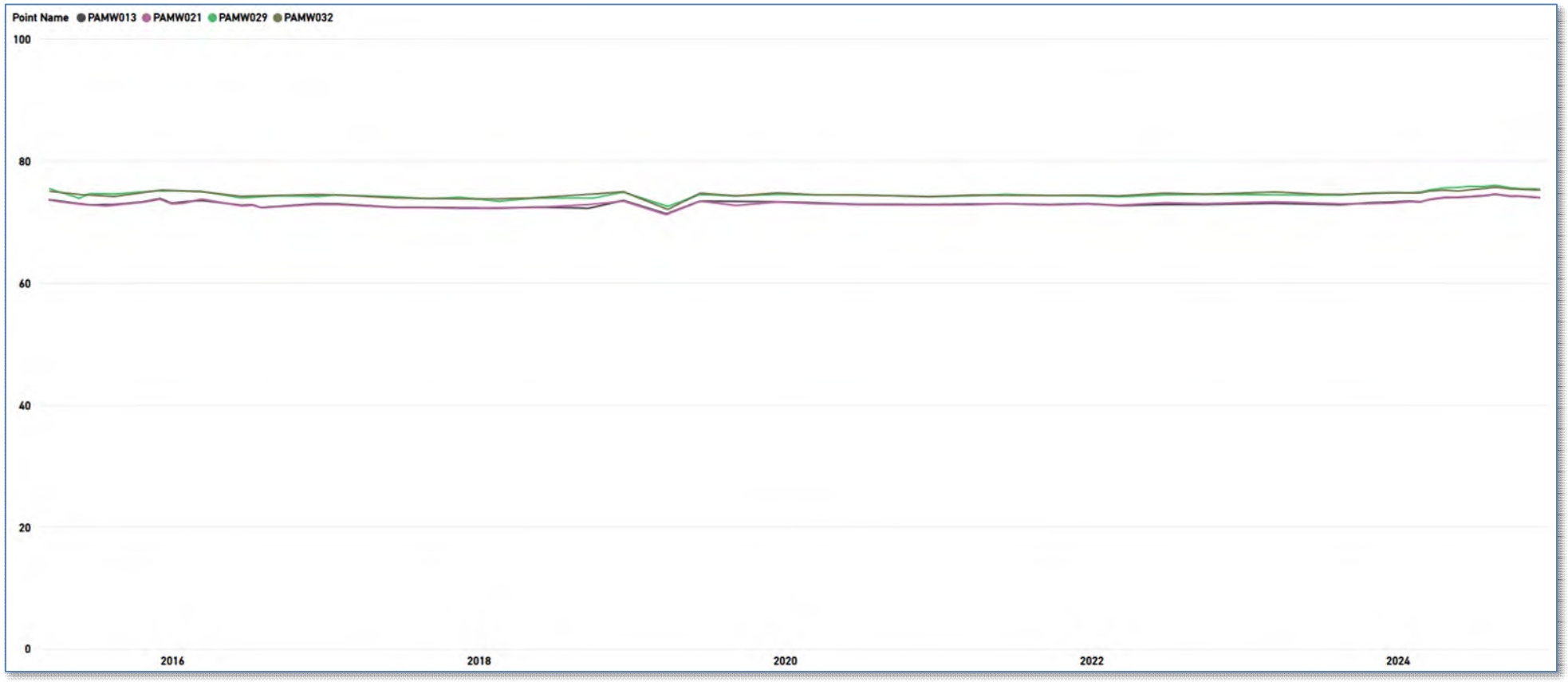


Figure C.6.2 – Beverley North Lateral Monitor Wells – Water Level (m BGL)

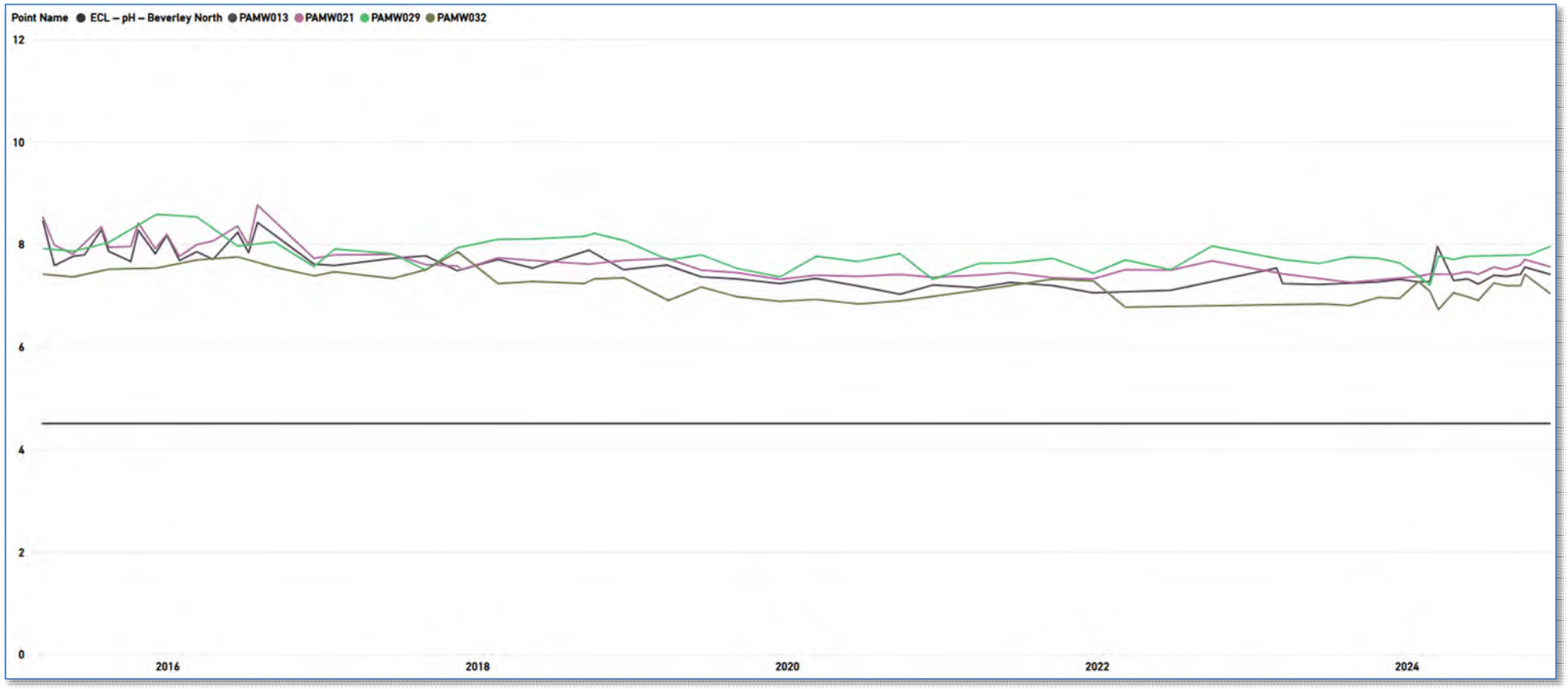


Figure C.6.3 – Beverley North Lateral Monitor Wells – pH

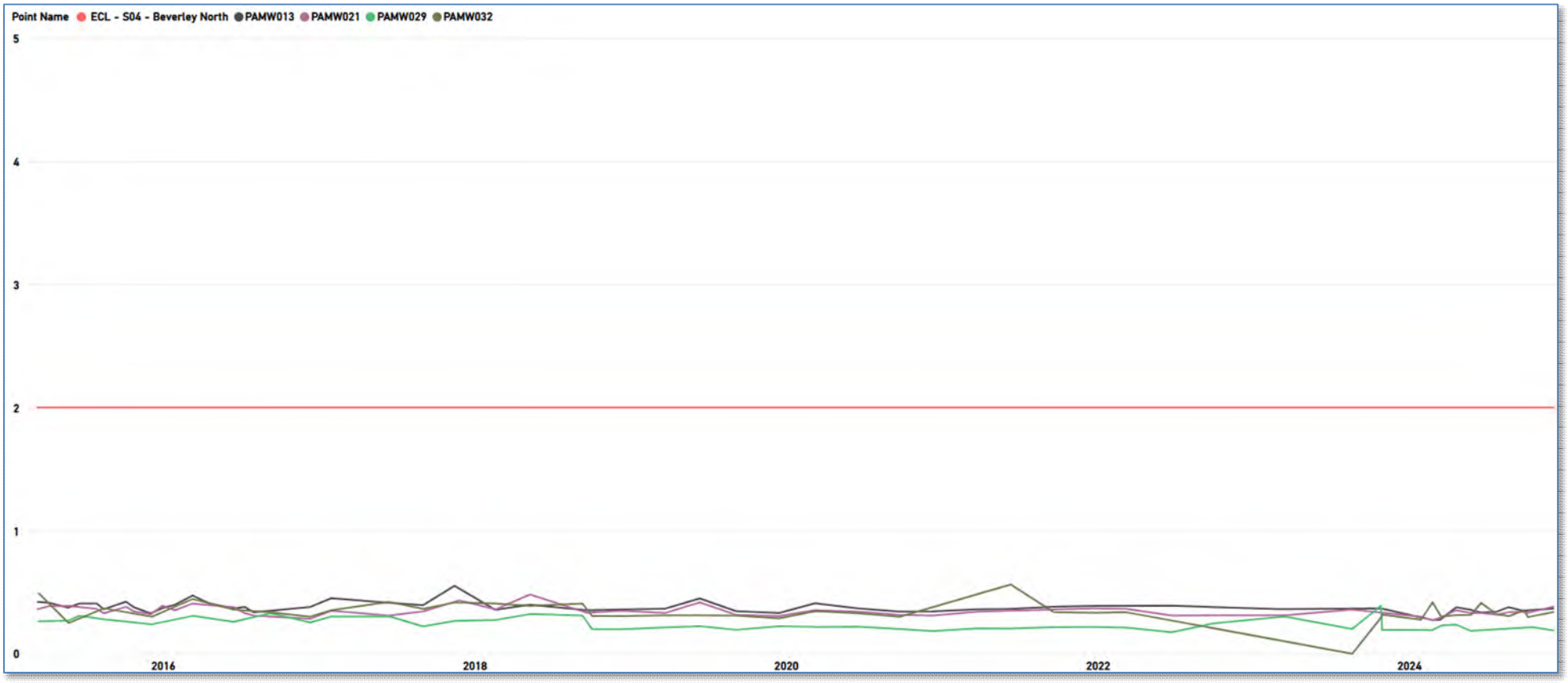


Figure C.6.4 – Beverley North Lateral Monitor Wells – Sulphate (g/L)

Figure C.6.5 – Beverley North Lateral Monitor Wells – Uranium (mg/L)

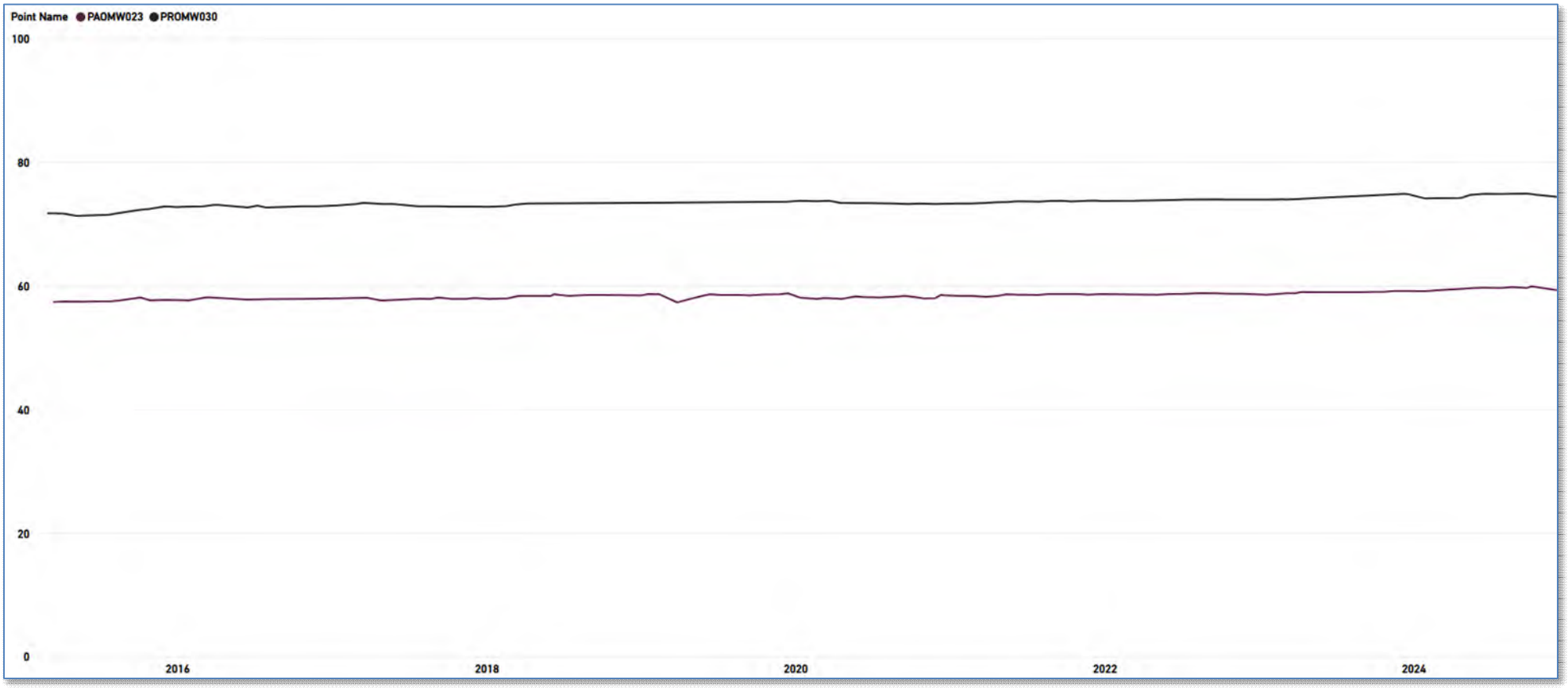


Figure C.6.6 – Beverley North Overlying Monitor Wells – Water Level (m BGL)

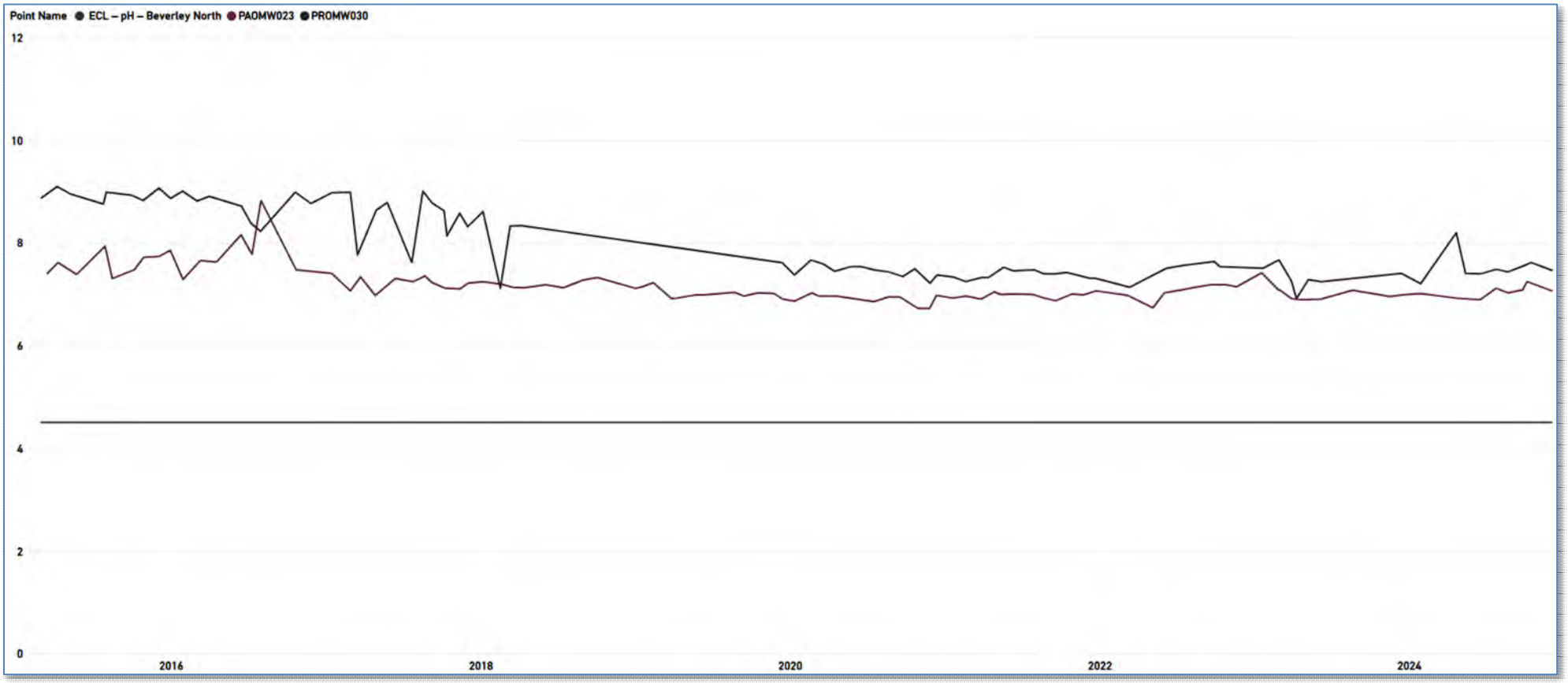


Figure C.6.7 – Beverley North Overlying Monitor Wells – pH

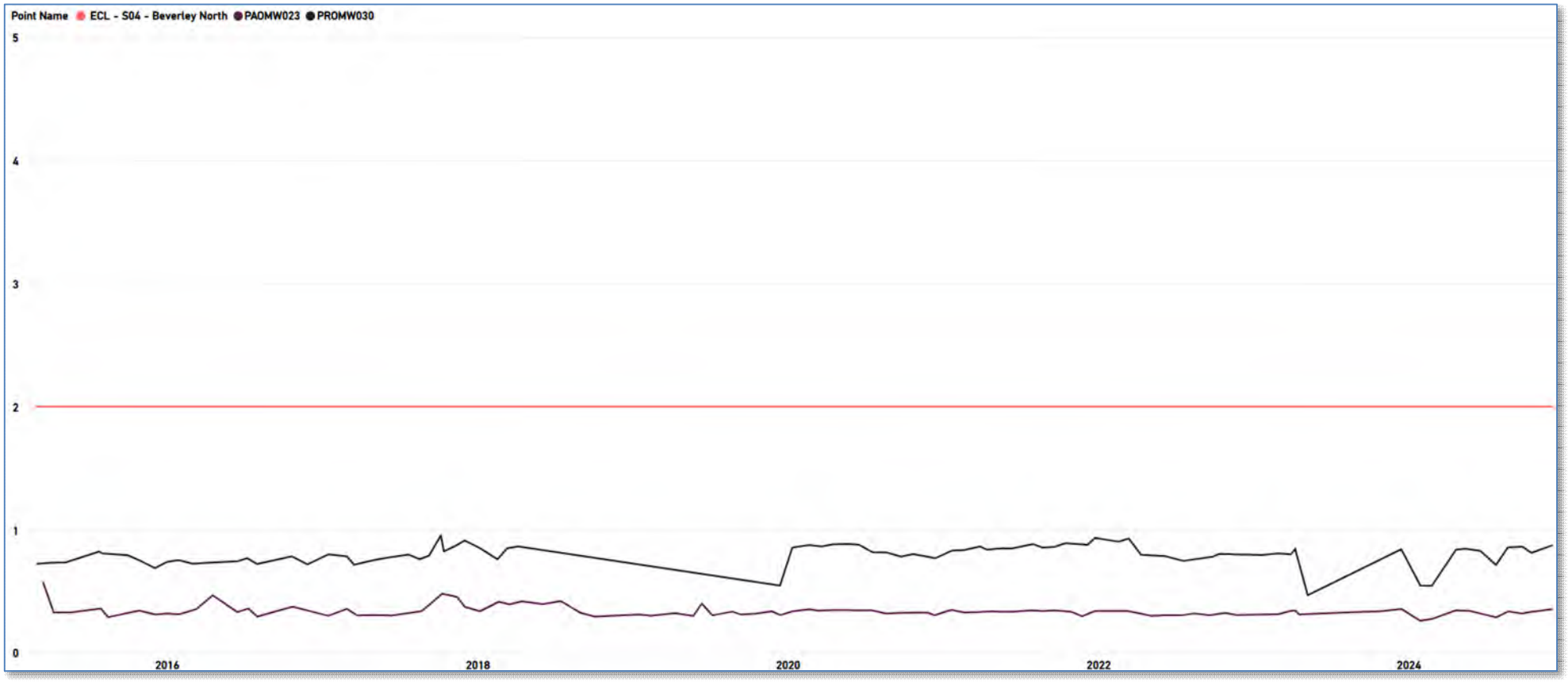


Figure C.6.8 – Beverley North Overlying Monitor Wells – Sulphate (g/L)

Figure C.6.9 – Beverley North Overlying Monitor Wells – Uranium (mg/L)

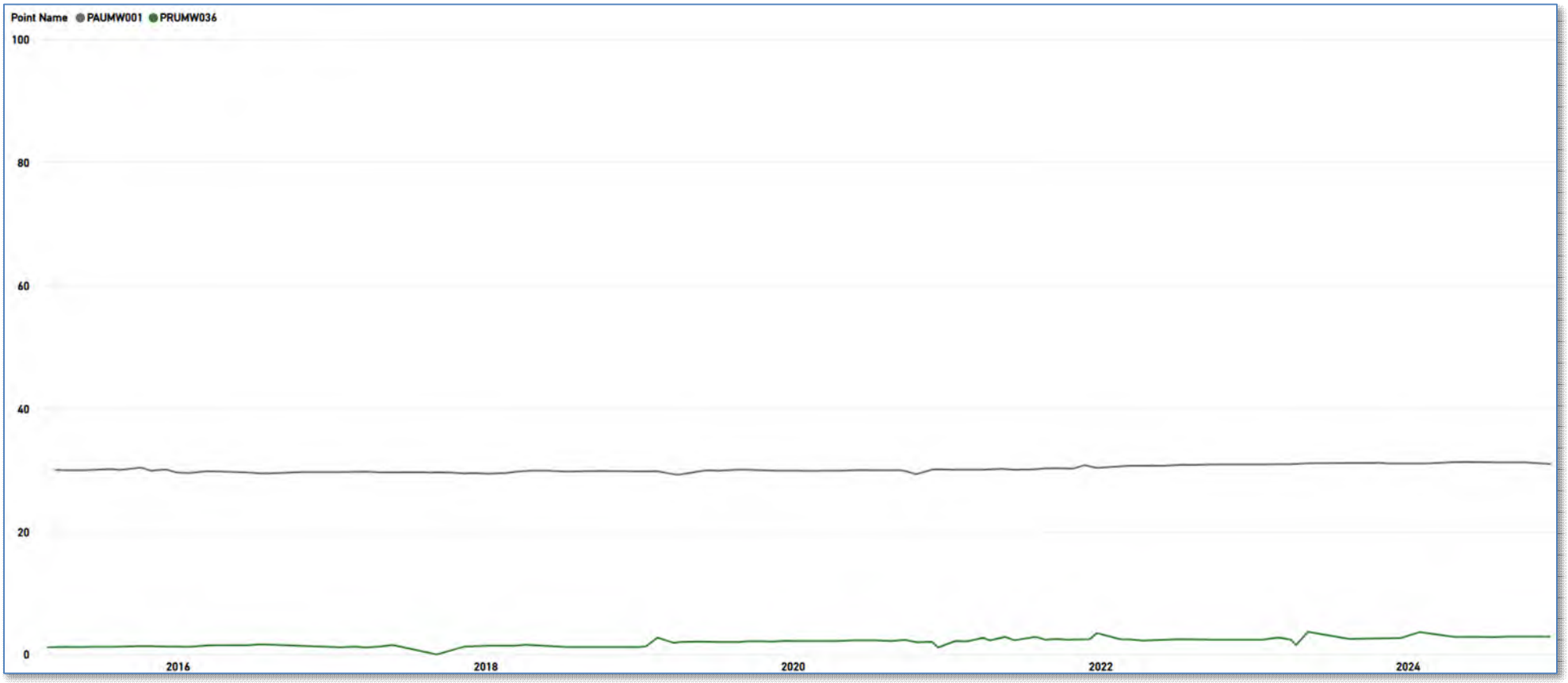


Figure C.6.10 – Beverley North Underlying Monitor Wells – Water Level (mBGL)

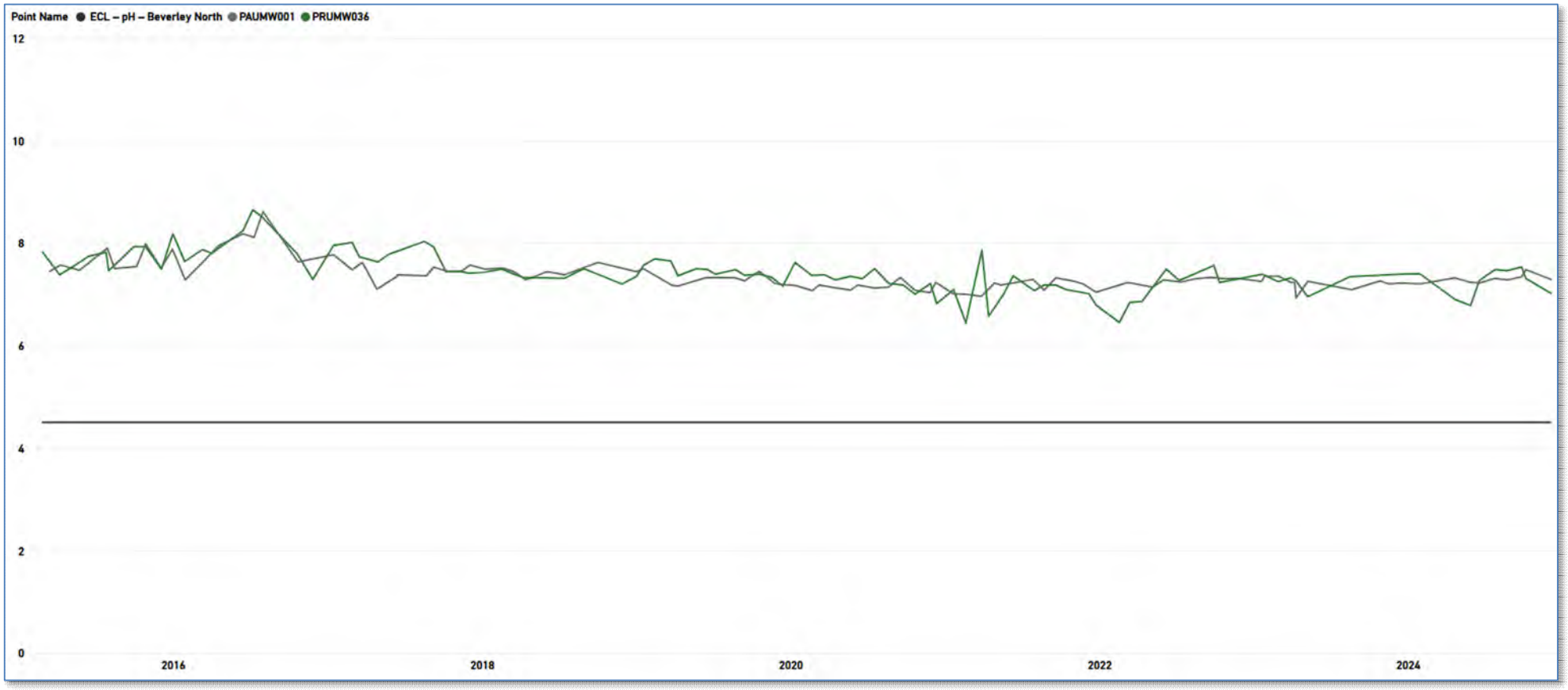


Figure C.6.11 – Beverley North Underlying Monitor Wells – pH

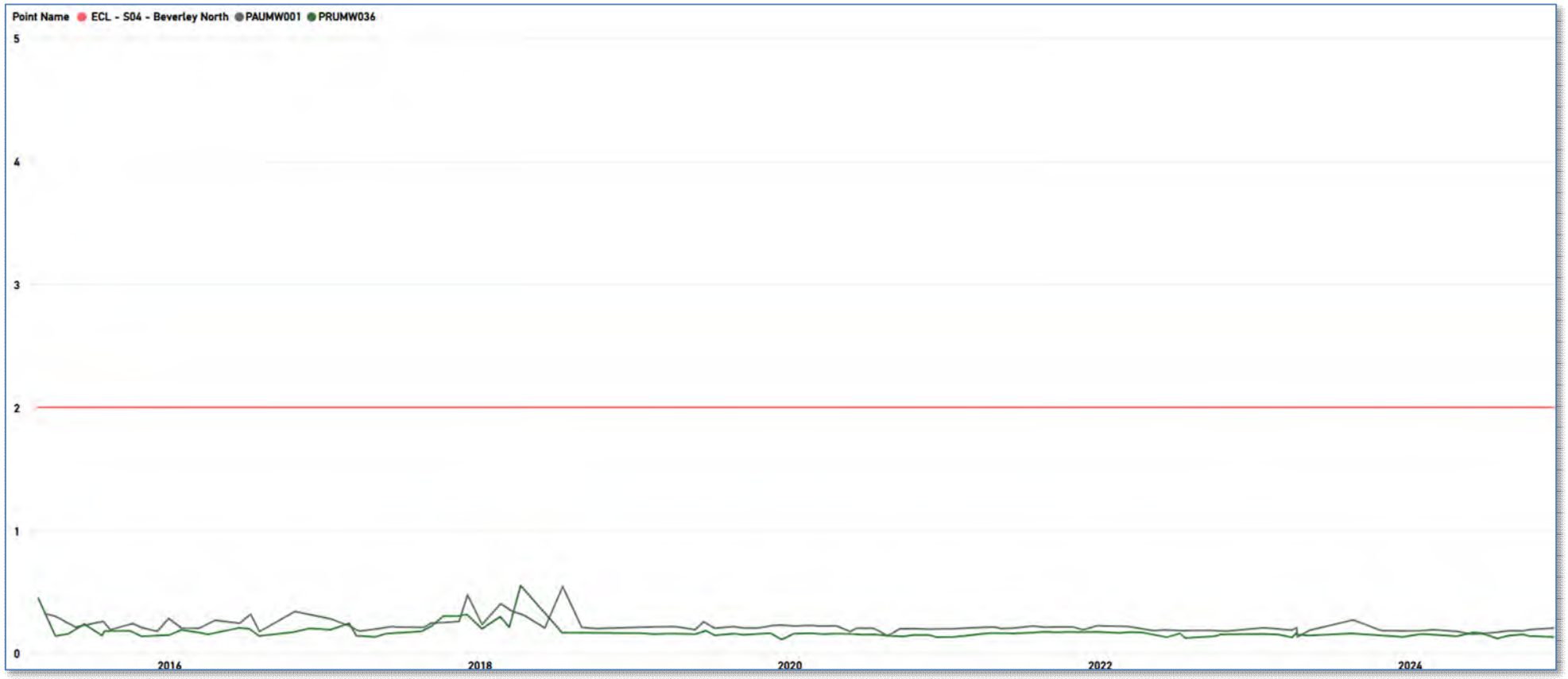


Figure C.6.12 – Beverley North Underlying Monitor Wells – Sulphate (g/L)

Figure C.6.13 – Beverley North Underlying Monitor Wells – Uranium (mg/L)

C.7 Four Mile ML Groundwater Monitoring Results

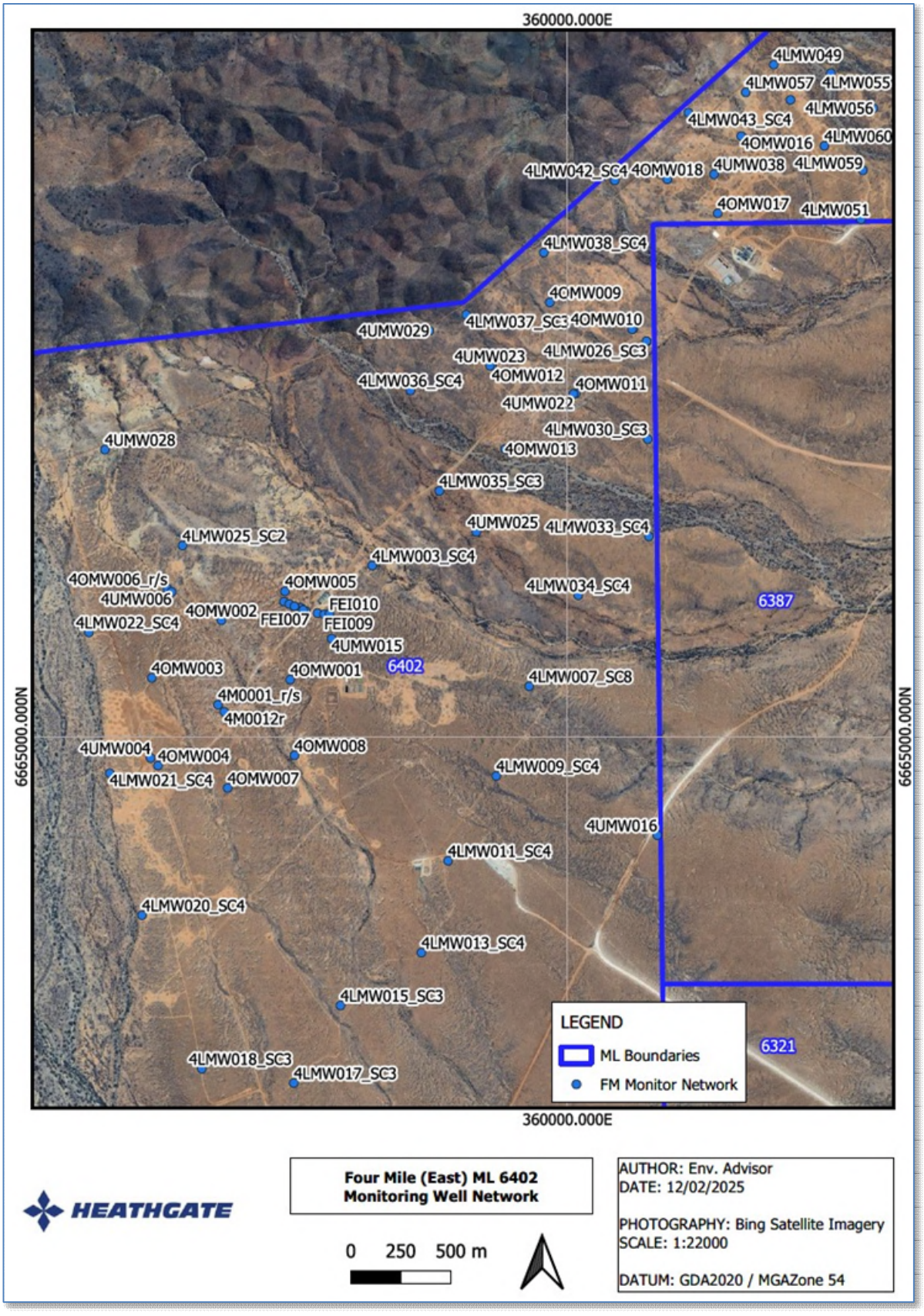


Figure C.7.1 - Four Mile (East) ML Monitoring Well Locations

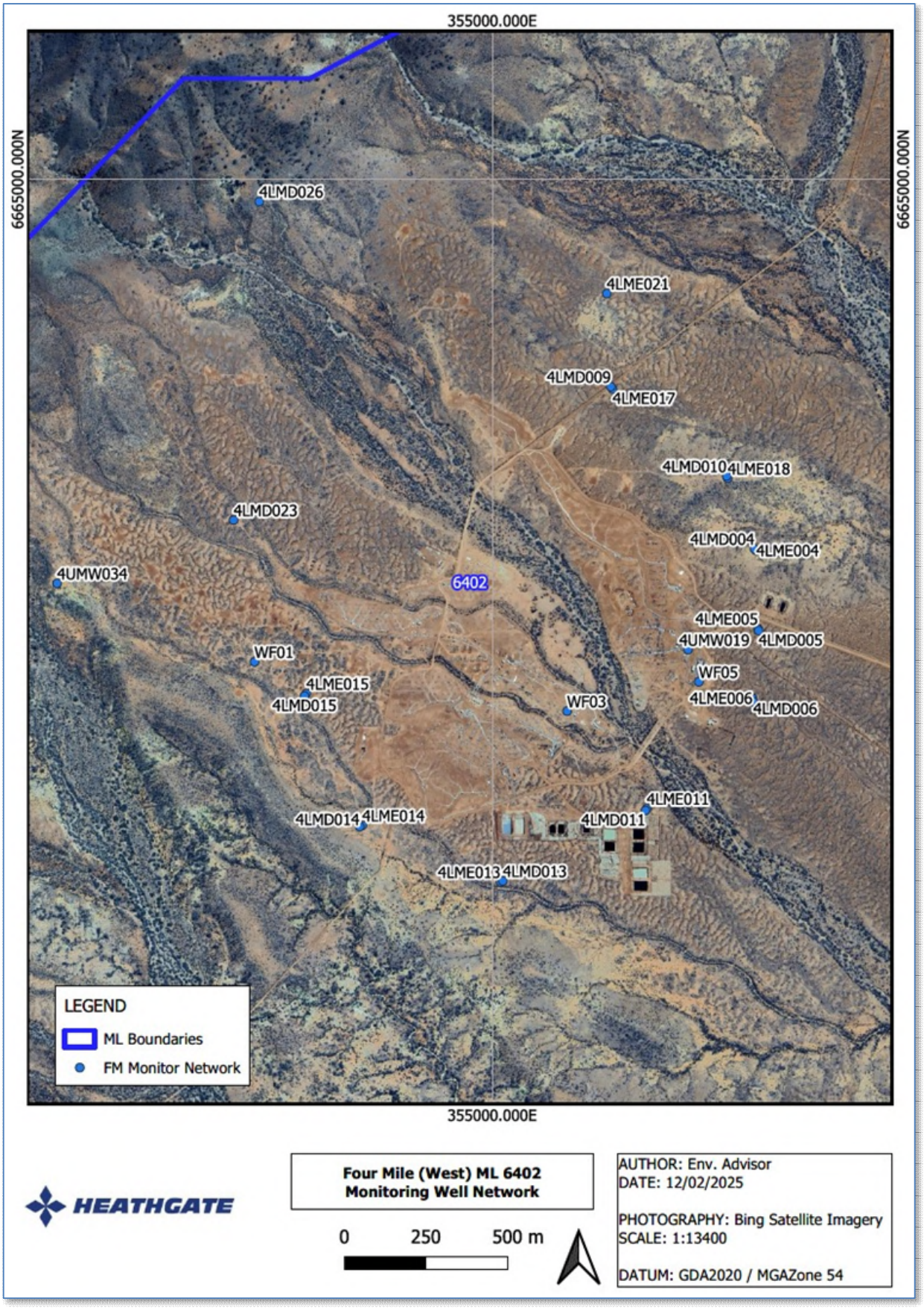


Figure C.7.2 - Four Mile (West) ML Monitoring Well Locations

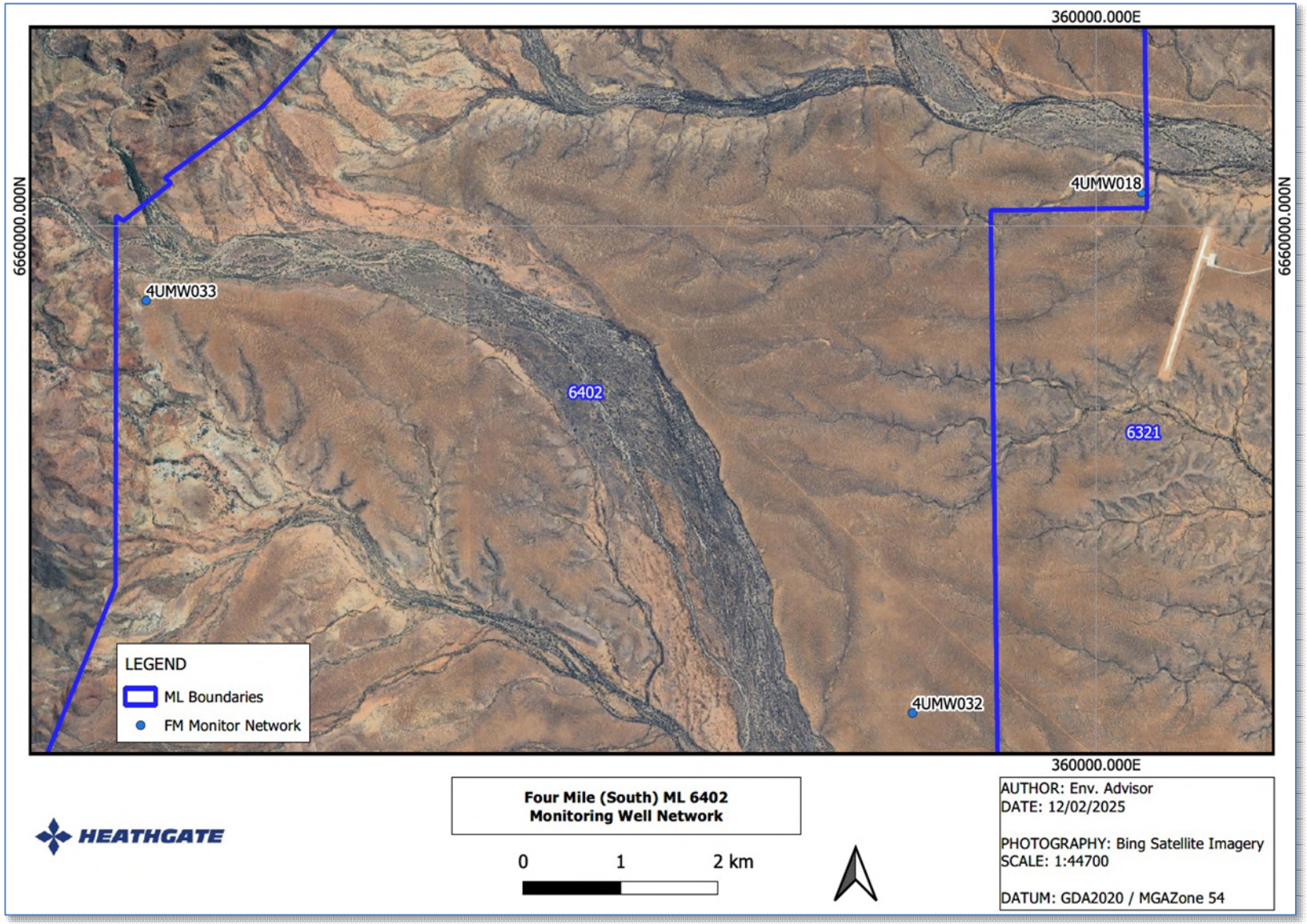


Figure C.7.3 - Four Mile (South) ML Monitoring Well Locations

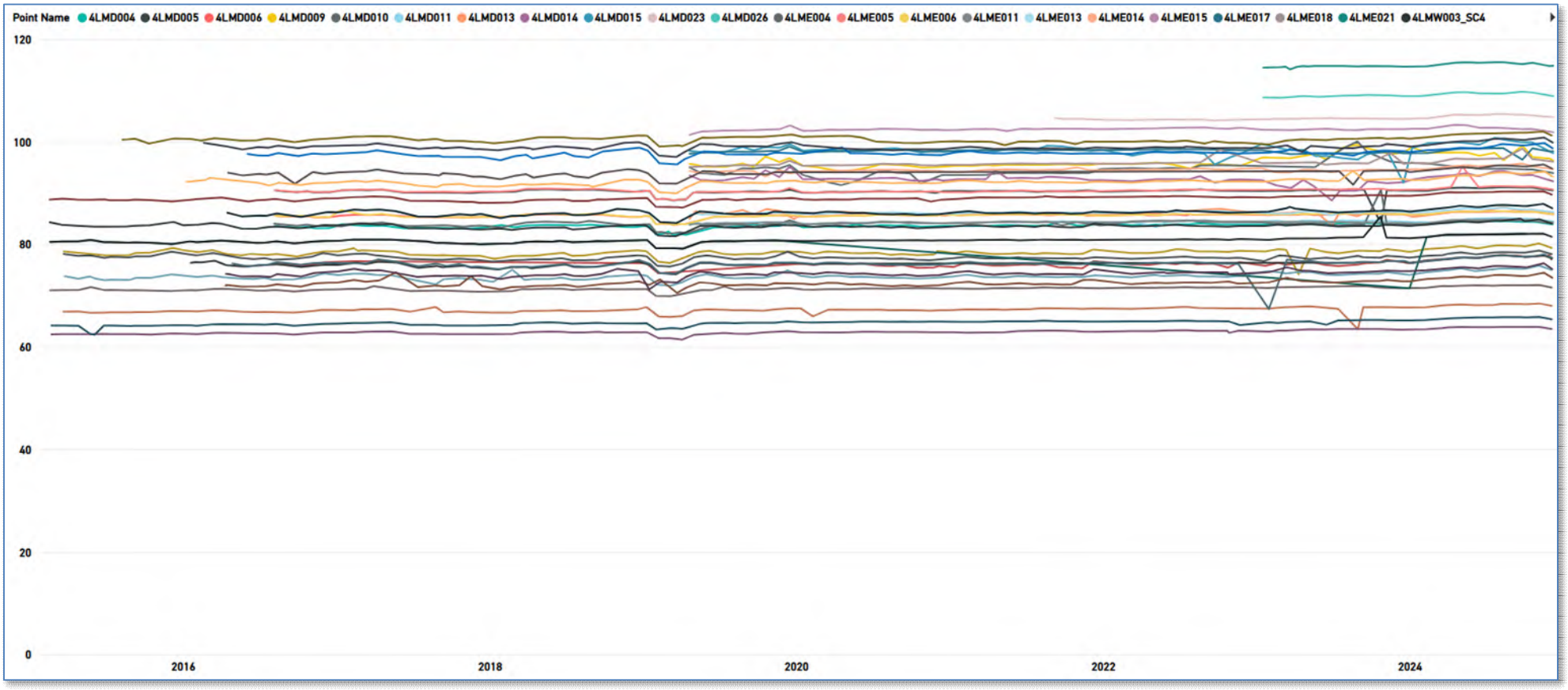


Figure C.7.4 - Four Mile Lateral Monitoring Wells – Water Level (mBGL)

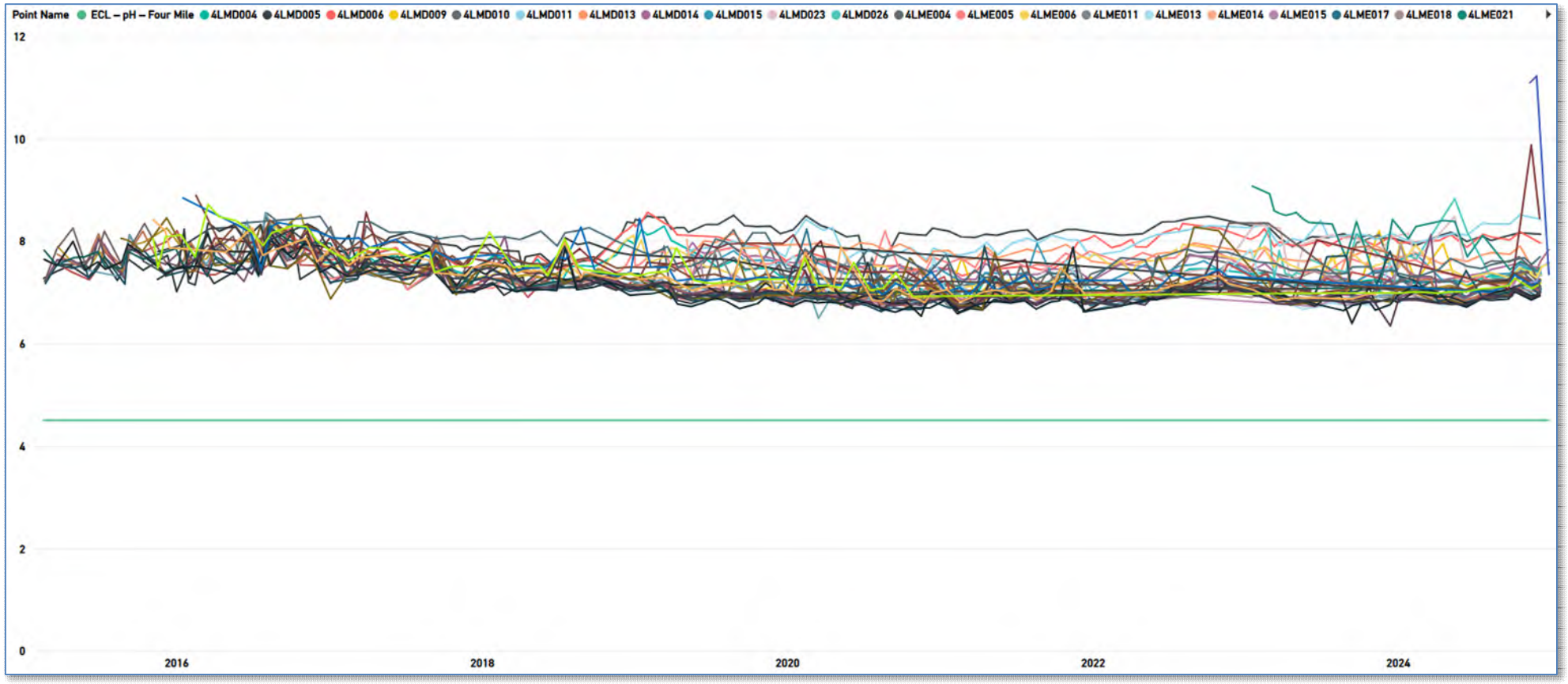


Figure C.7.5 - Four Mile Lateral Monitoring Wells – pH

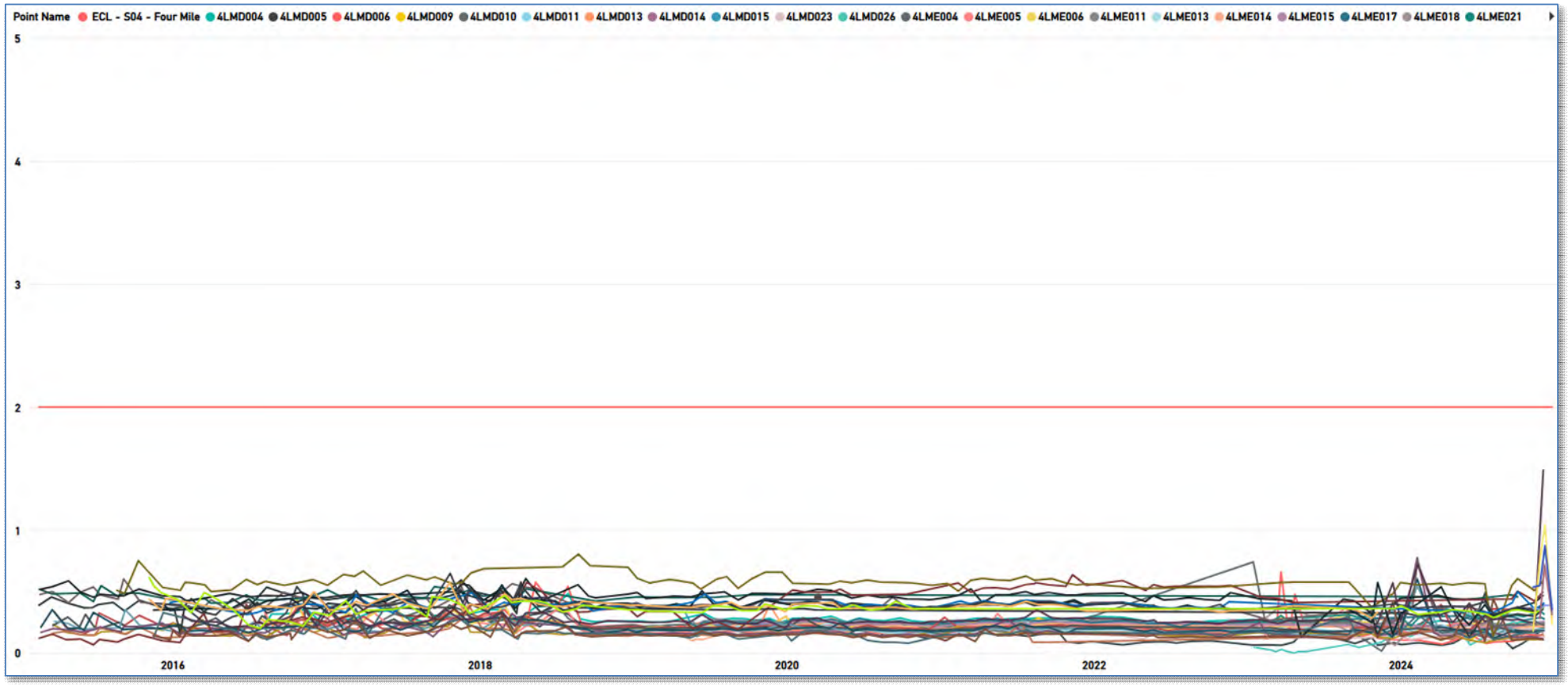


Figure C.7.6 - Four Mile Lateral Monitoring Wells – Sulphate (g/L)

Figure C.7.7 - Four Mile Lateral Monitoring Wells – Uranium (mg/L)

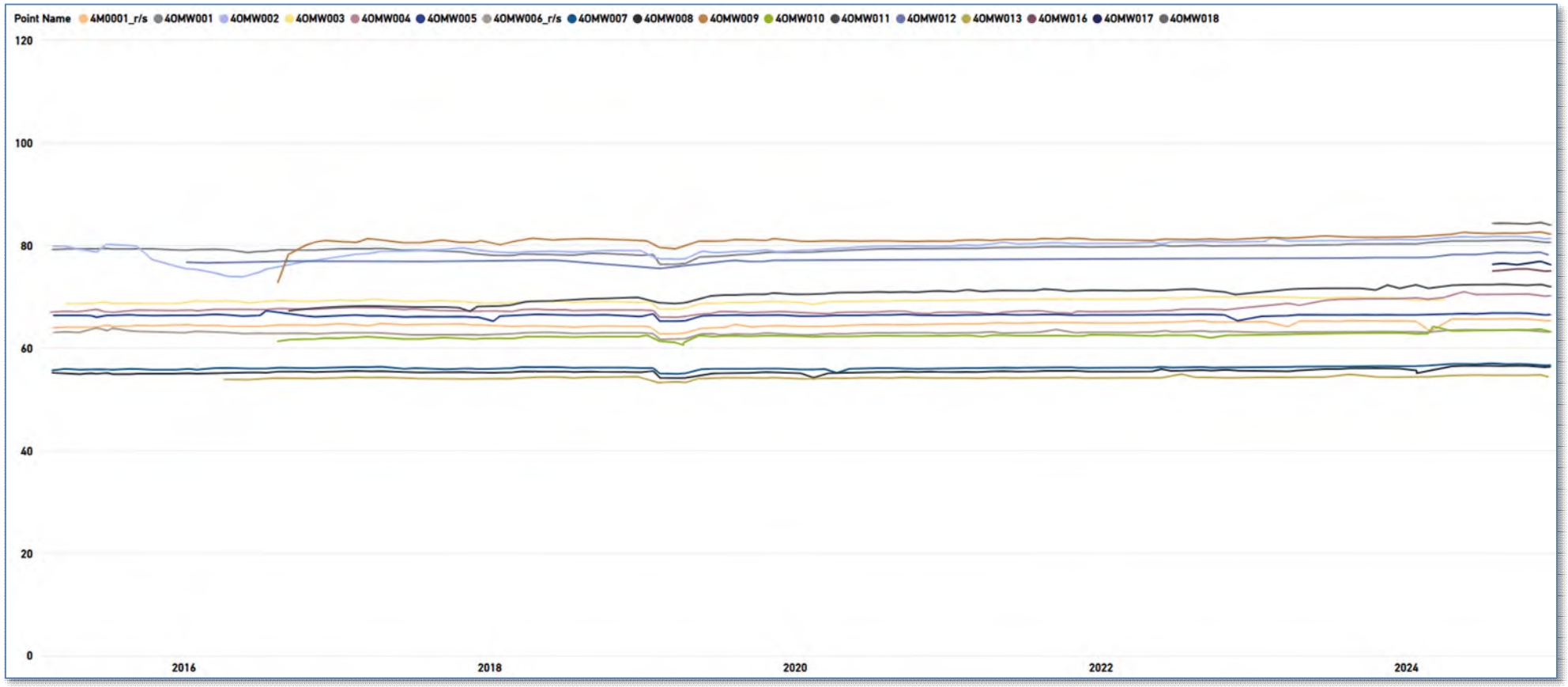


Figure C.7.8 - Four Mile Overlying Monitoring Wells – Water Level (mBGL)

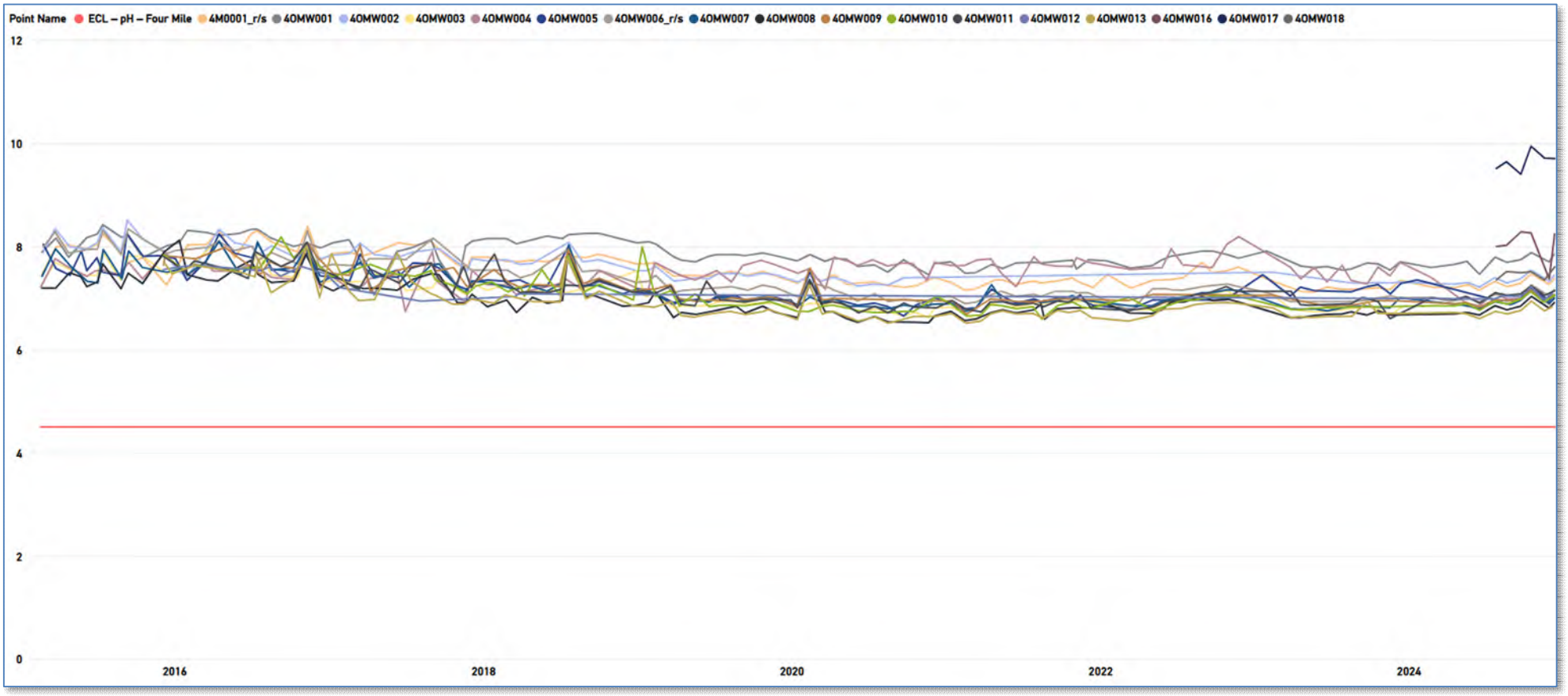


Figure C.7.9 - Four Mile Overlying Monitoring Wells – pH

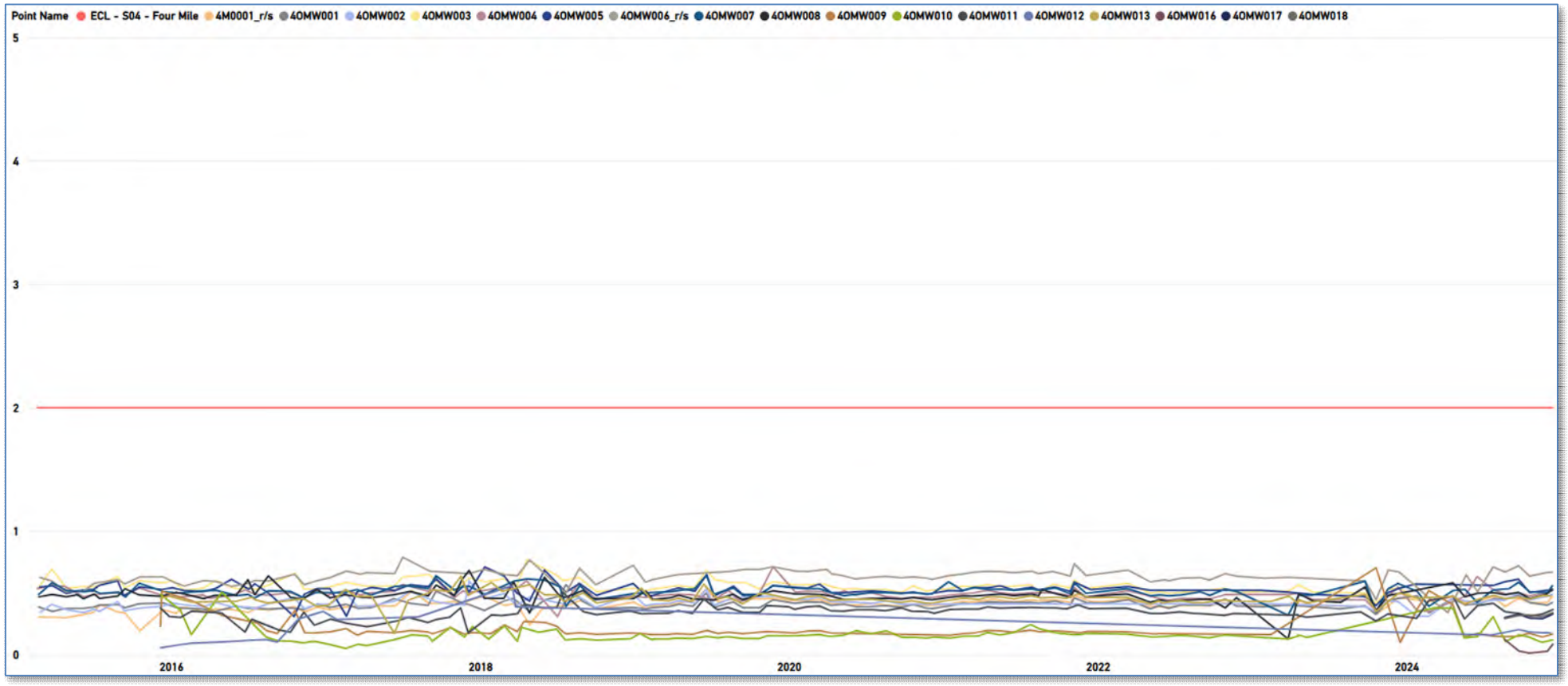


Figure C.7.10 - Four Mile Overlying Monitoring Wells – Sulphate (g/L)

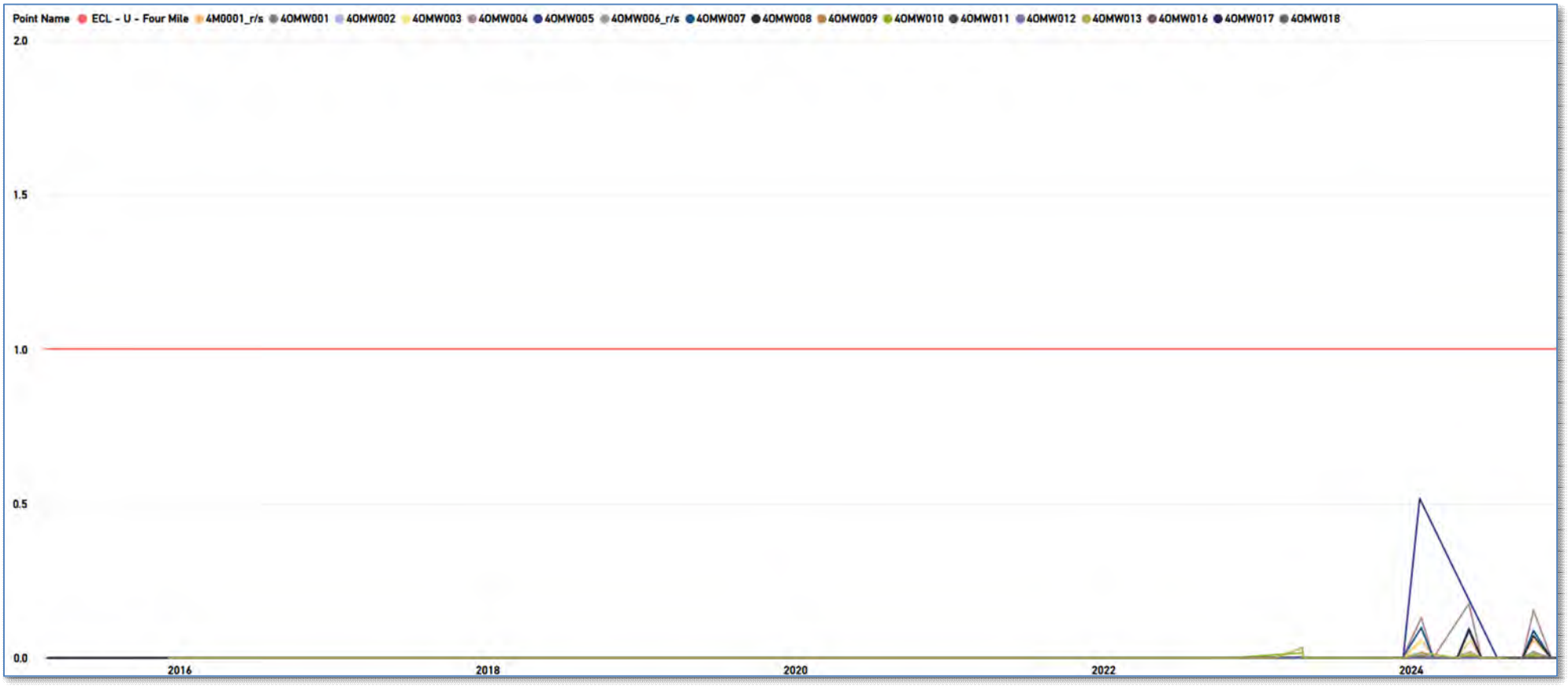


Figure C.7.11 - Four Mile Overlying Monitoring Wells – Uranium (mg/L)

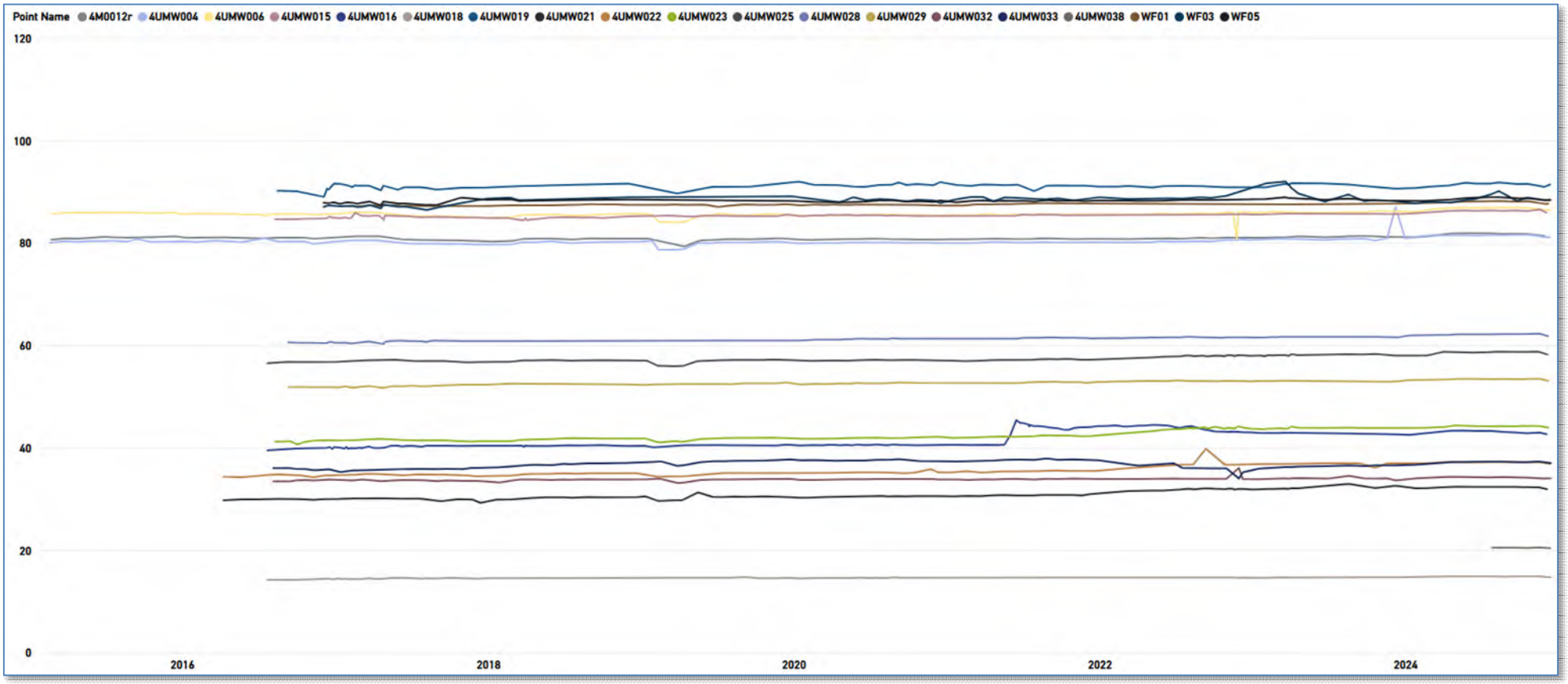


Figure C.7.12 - Four Mile Underlying Monitoring Wells – Water Level (m BGL)

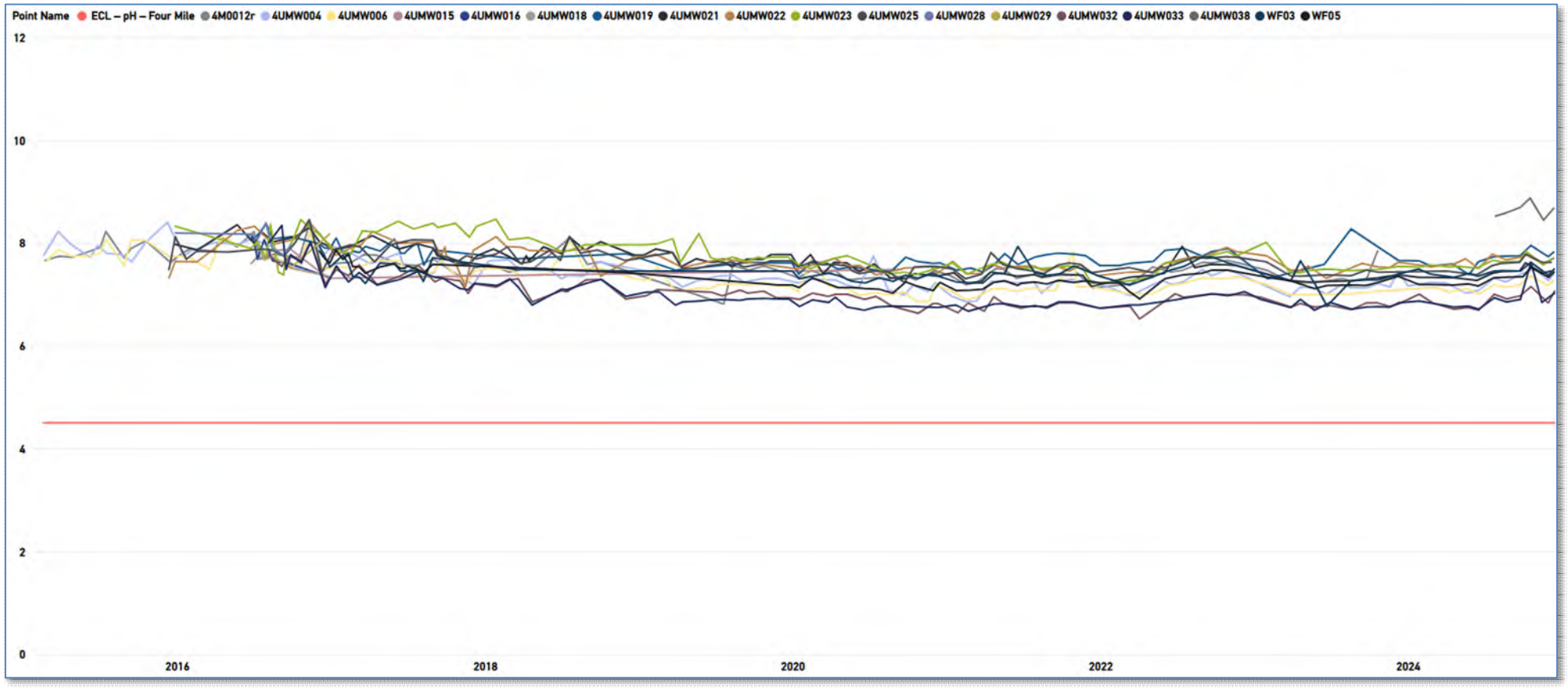


Figure C.7.13 - Four Mile Underlying Monitoring Wells – pH

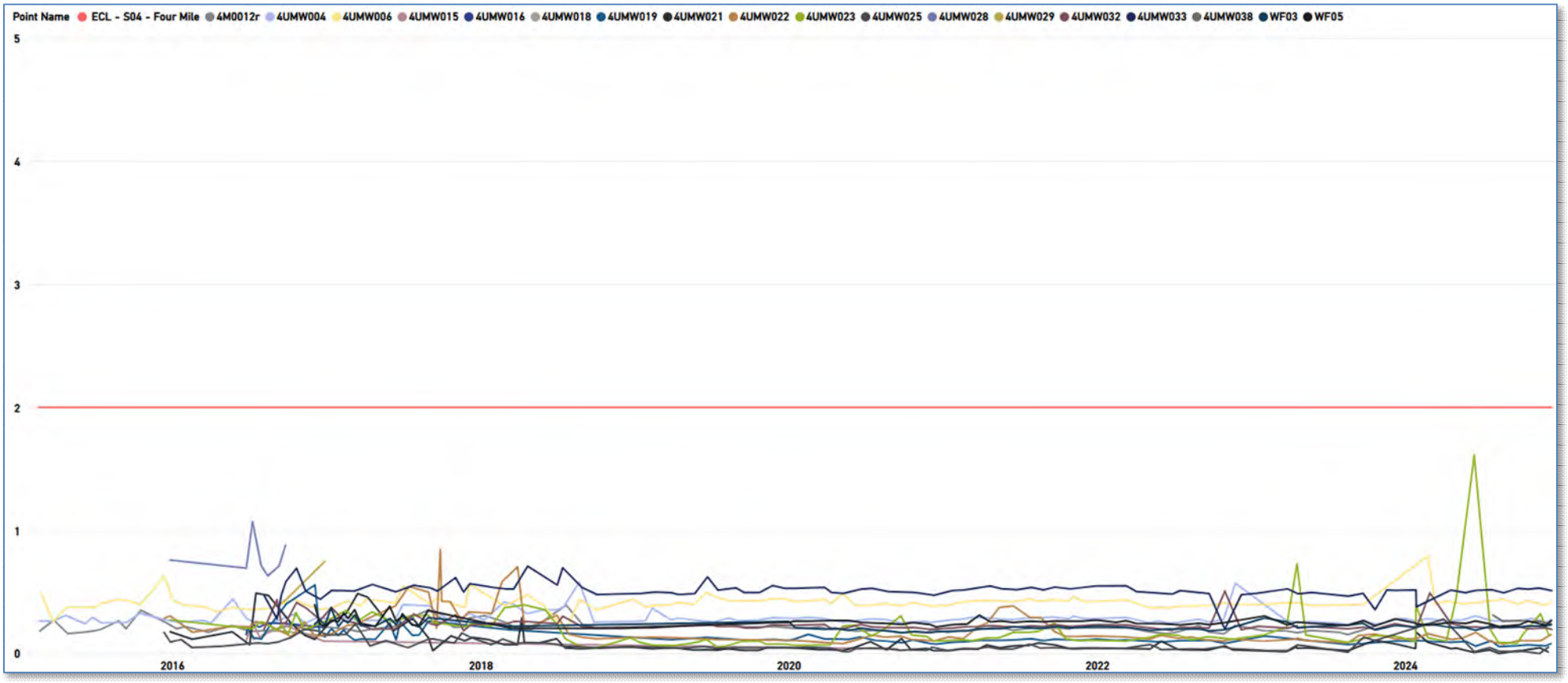


Figure C.7.14 - Four Mile Underlying Monitoring Wells – Sulphate (g/L)

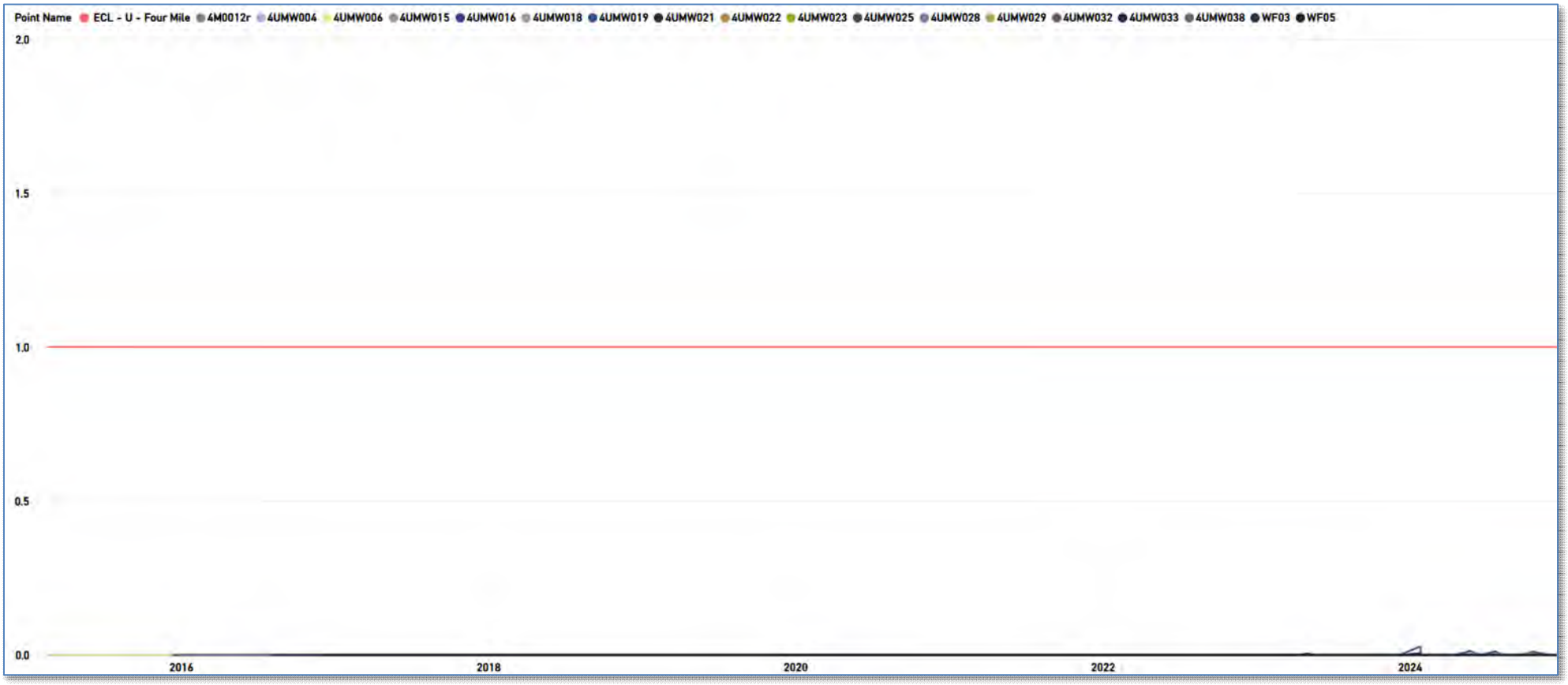


Figure C.7.15 - Four Mile Underlying Monitoring Wells – Uranium (mg/L)

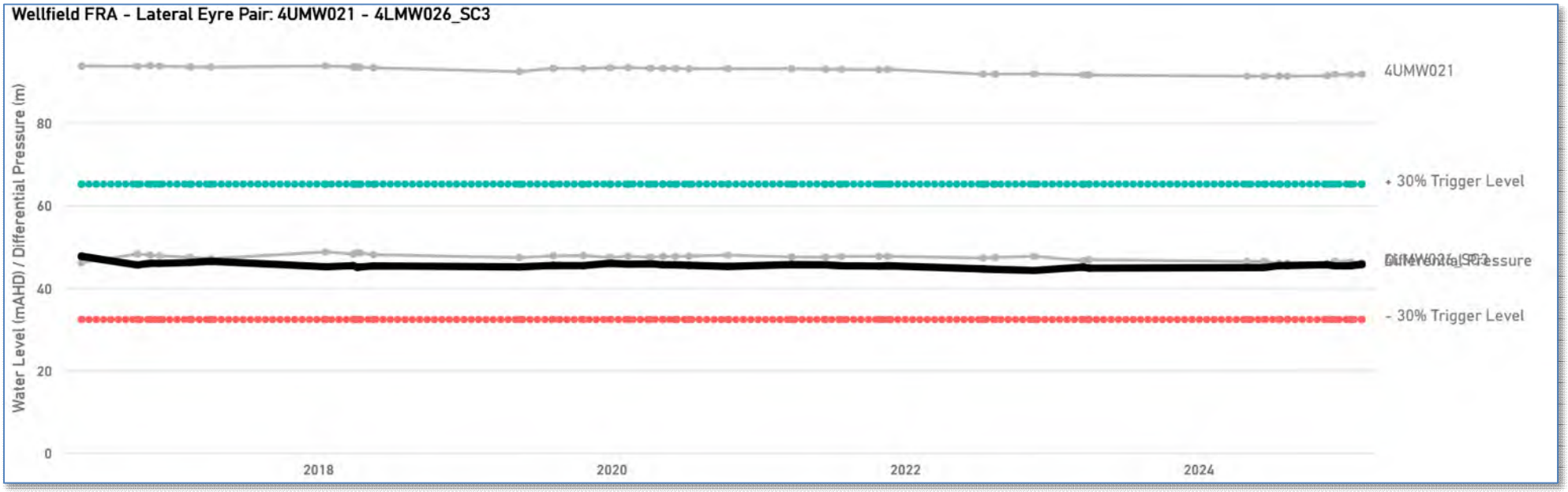


Figure C.7.16 - Four Mile Northeast (Unconnected) Monitor Wells Pressure Differential – 4UMW021 & 4LMW026

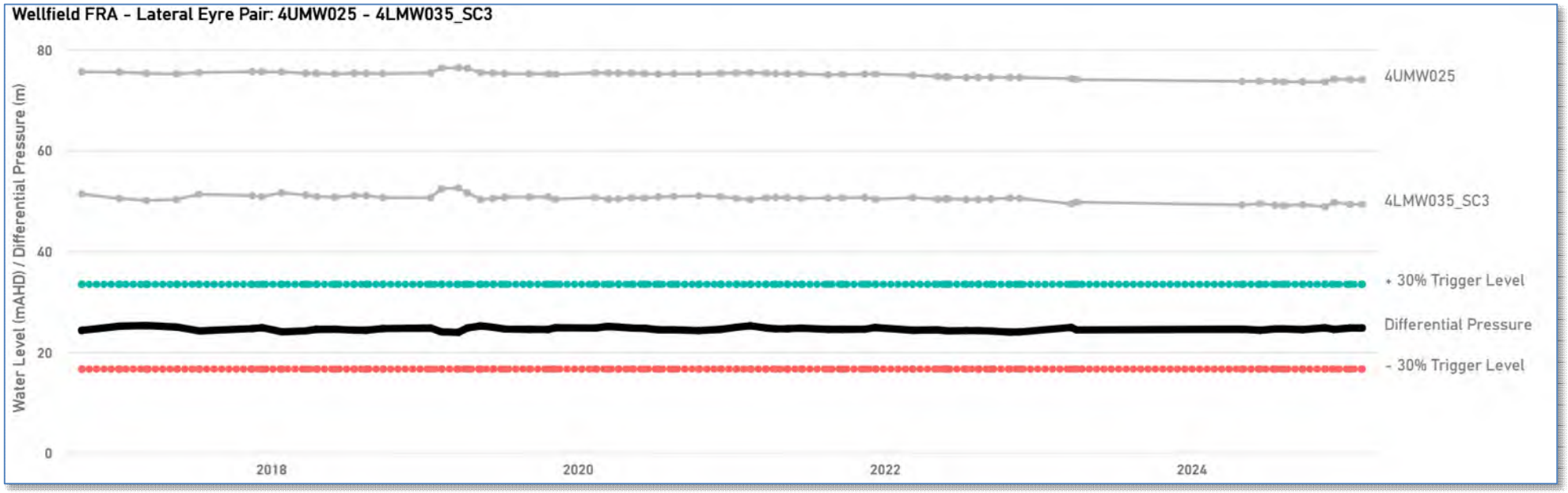


Figure C.7.17 - Four Mile Northeast (Unconnected) Monitor Wells Pressure Differential – 4UMW025 & 4LMW035

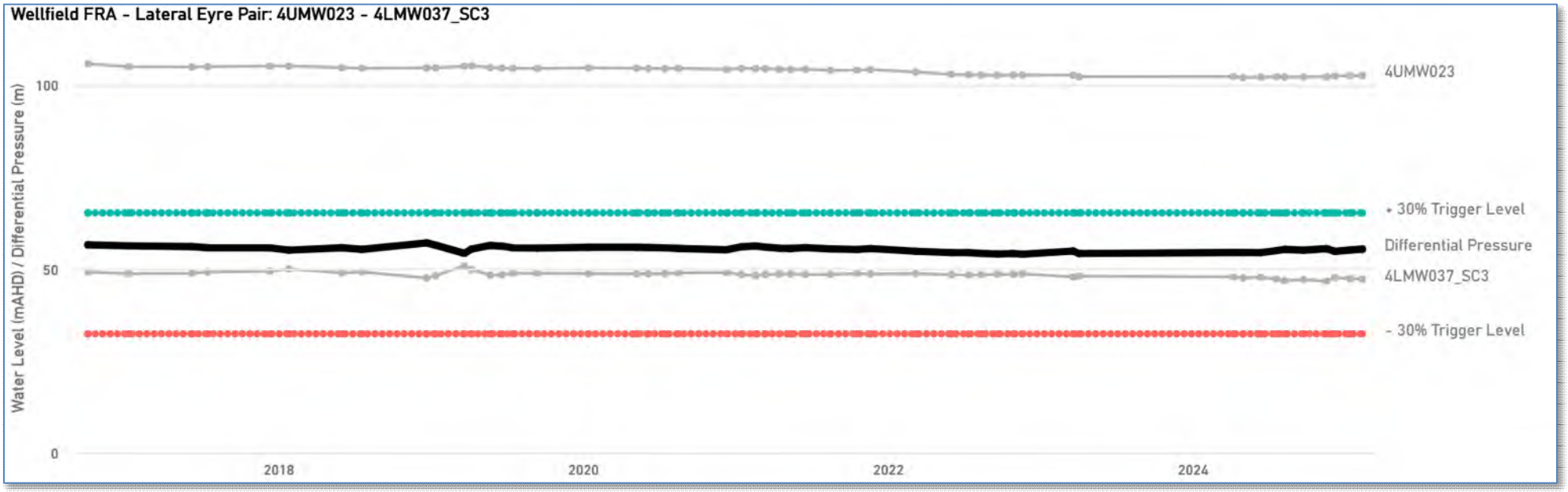


Figure C.7.18 - Four Mile Northeast (Unconnected) Monitor Wells Pressure Differential – 4UMW023 & 4LMW037

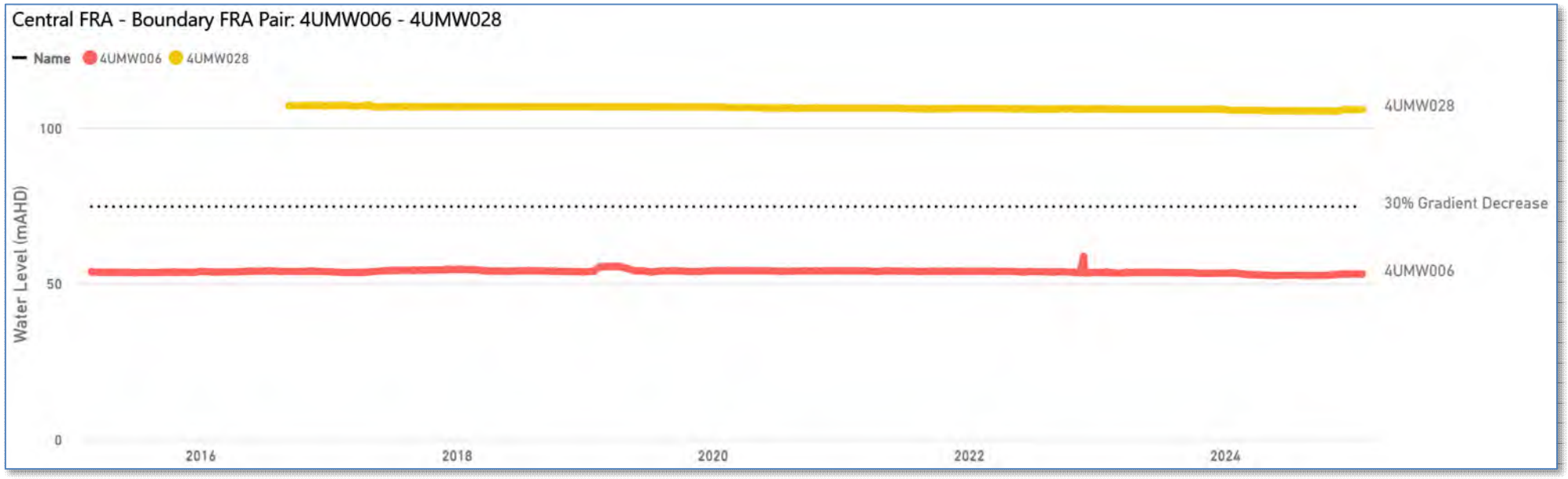


Figure C.7.19 - Four Mile East and West Variably Connected Monitor Wells Pressure Differential – 4UMW006 & 4UMW028

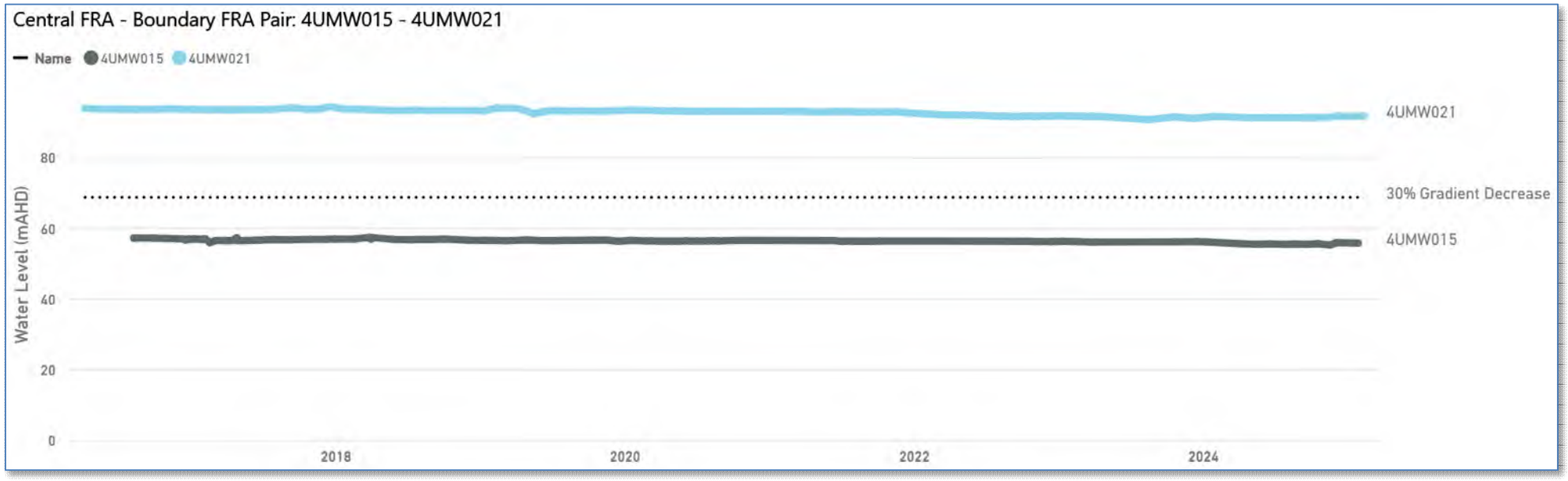


Figure C.7.20 - Four Mile East and West Variably Connected Monitor Wells Pressure Differential – 4UMW015 & 4UMW021

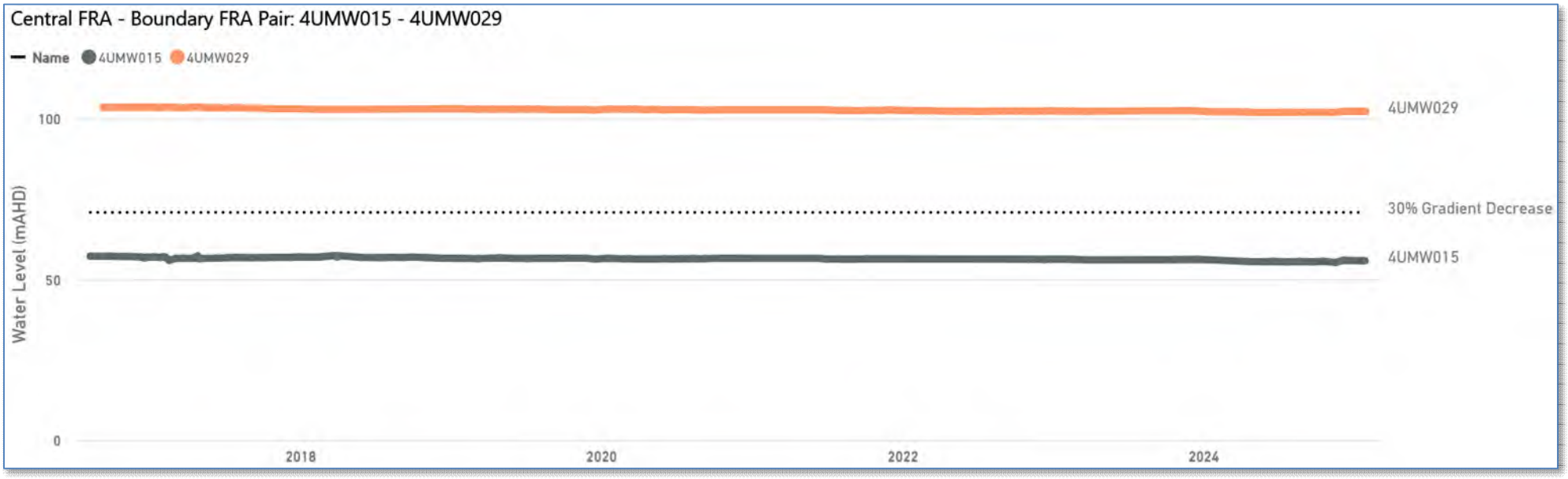


Figure C.7.21 - Four Mile East and West Variably Connected Monitor Wells Pressure Differential – 4UMW015 & 4UMW029

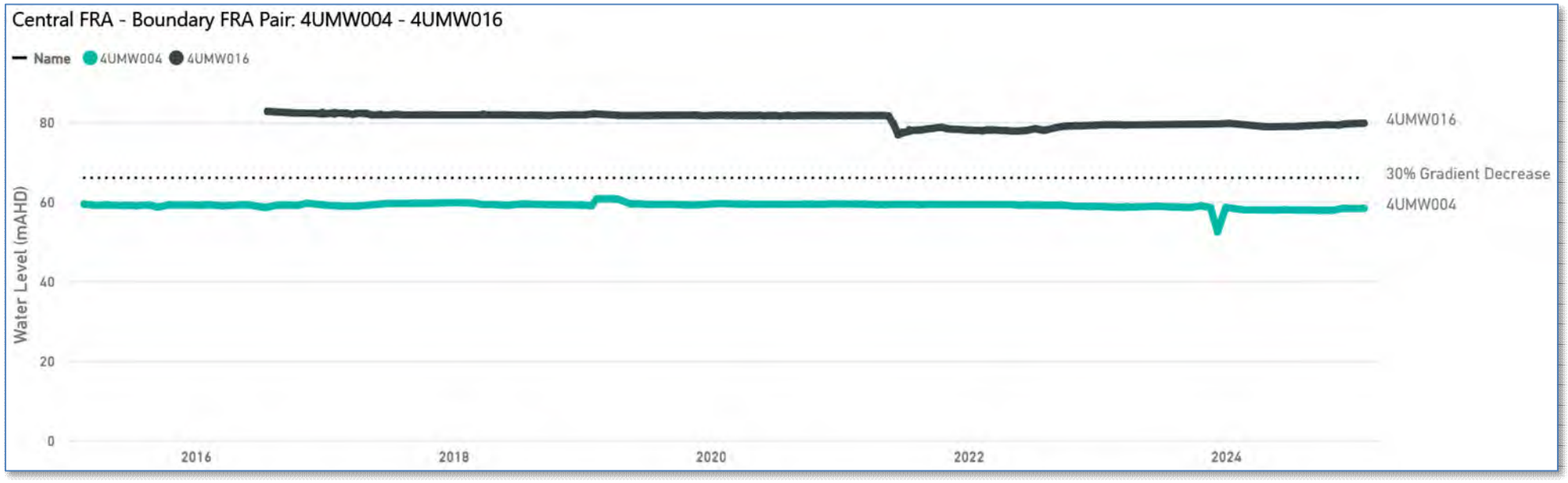


Figure C.7.22 **- Four Mile East and West Variably Connected Monitor Wells Pressure Differential – 4UMW004 & 4UMW016**

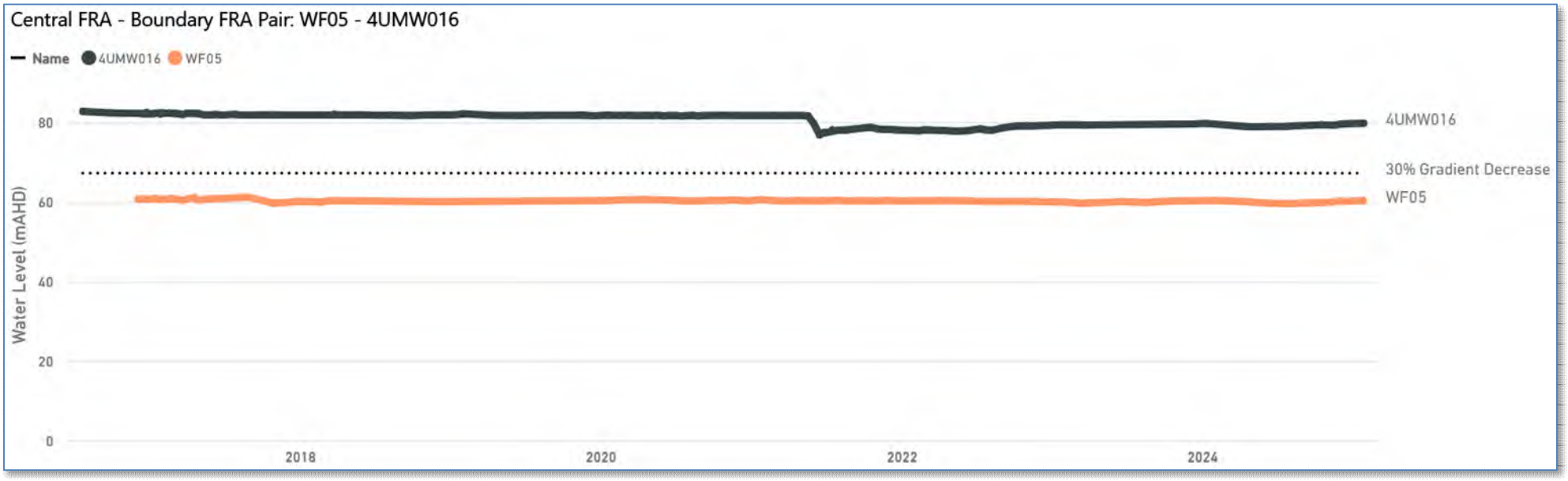


Figure C.7.23 **- Four Mile East and West Variably Connected Monitor Wells Pressure Differential – WF05 & 4UMW016**

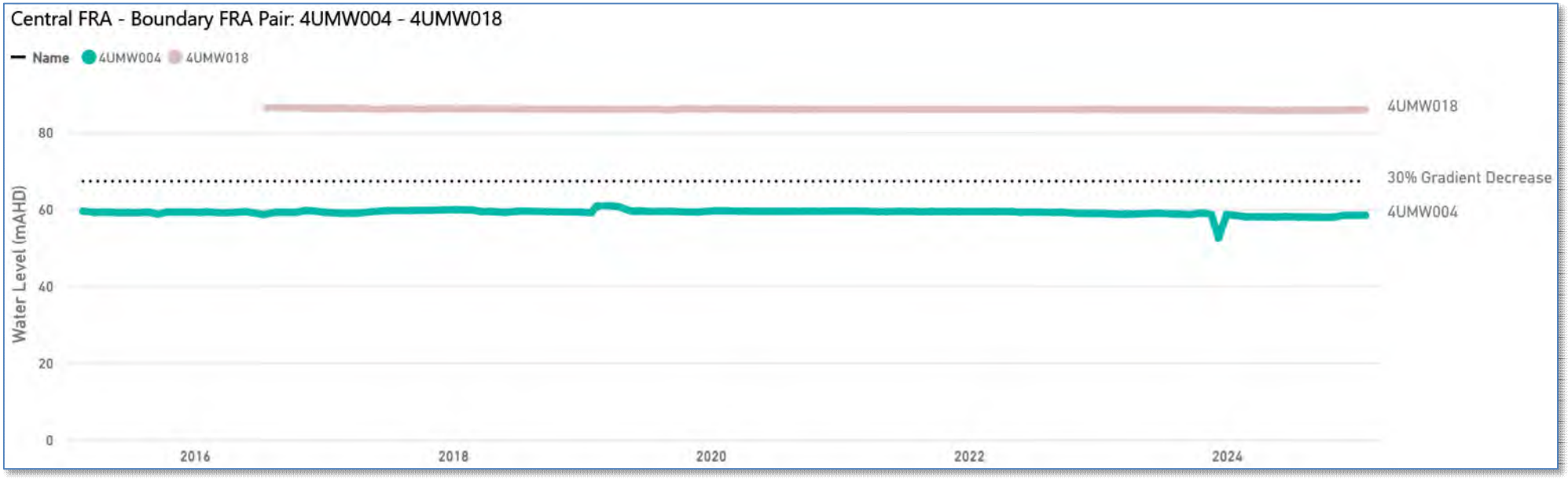


Figure C.7.24 - Four Mile East and West Variably Connected Monitor Wells Pressure Differential – 4UMW004 & 4UMW018

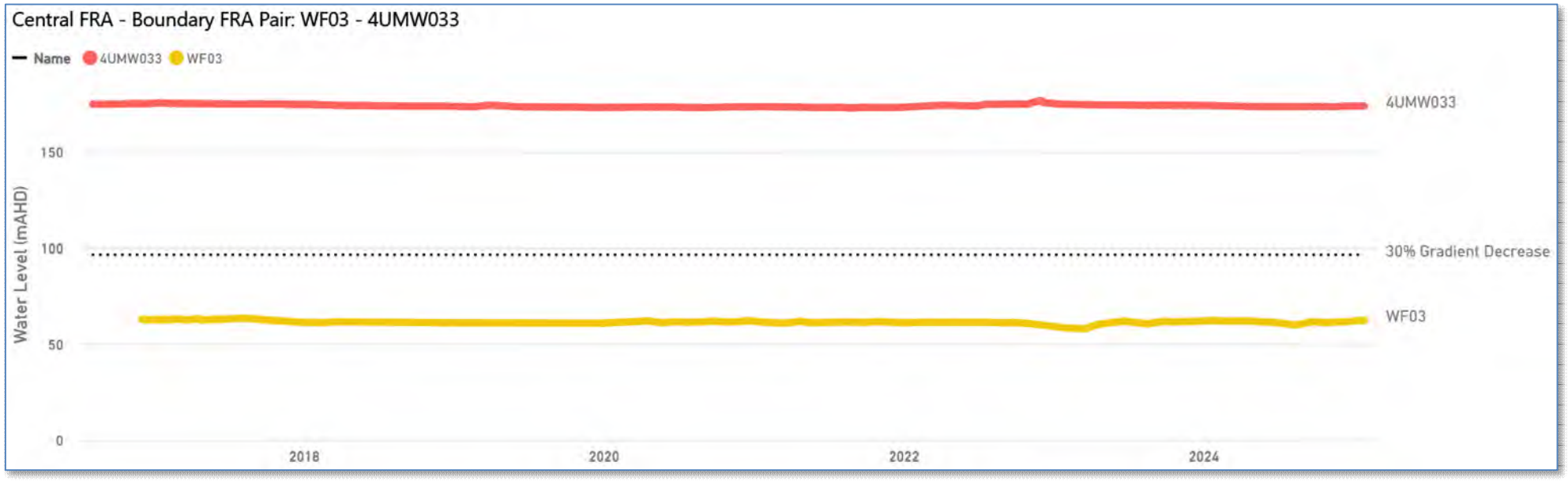


Figure C.7.25 - Four Mile East and West Variably Connected Monitor Wells Pressure Differential – WF03 & 4UMW033

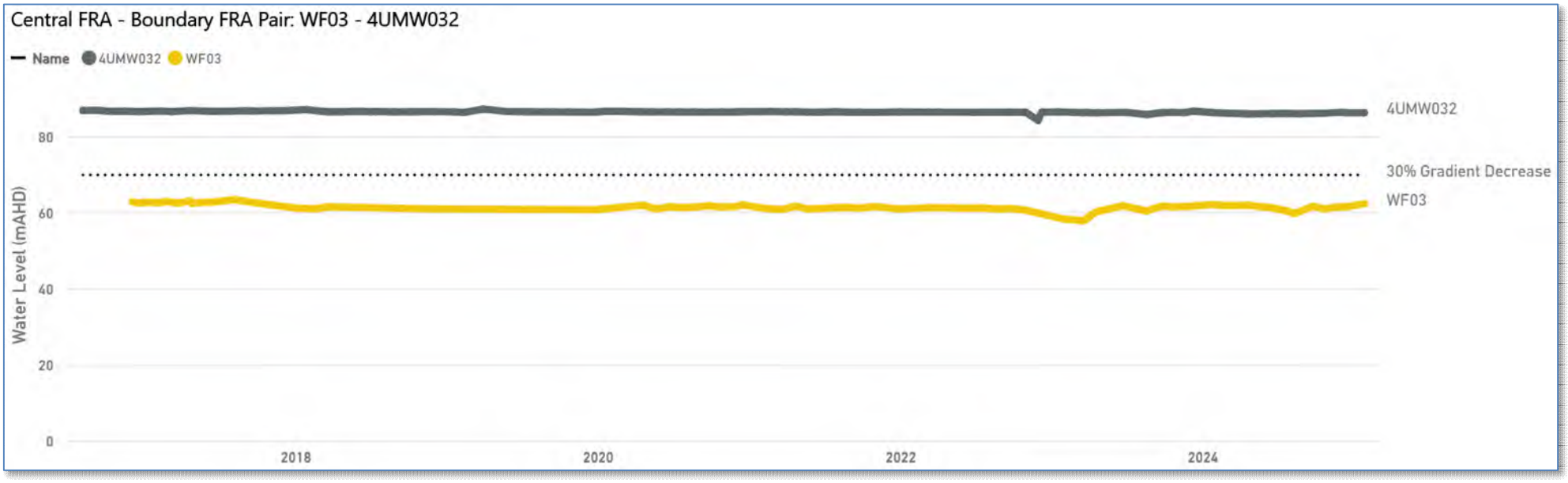


Figure C.7.26 - Four Mile East and West Variably Connected Monitor Wells Pressure Differential – WF03 & 4UMW032

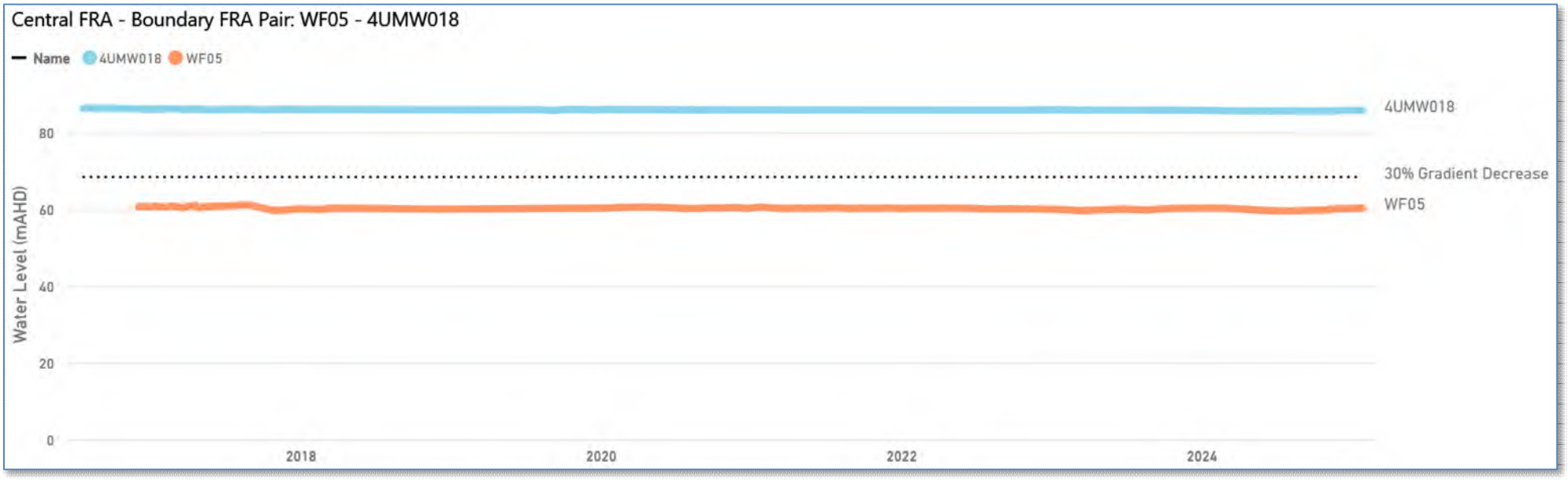


Figure C.7.27 - Four Mile East and West Variably Connected Monitor Wells Pressure Differential – WF05 & 4UMW018

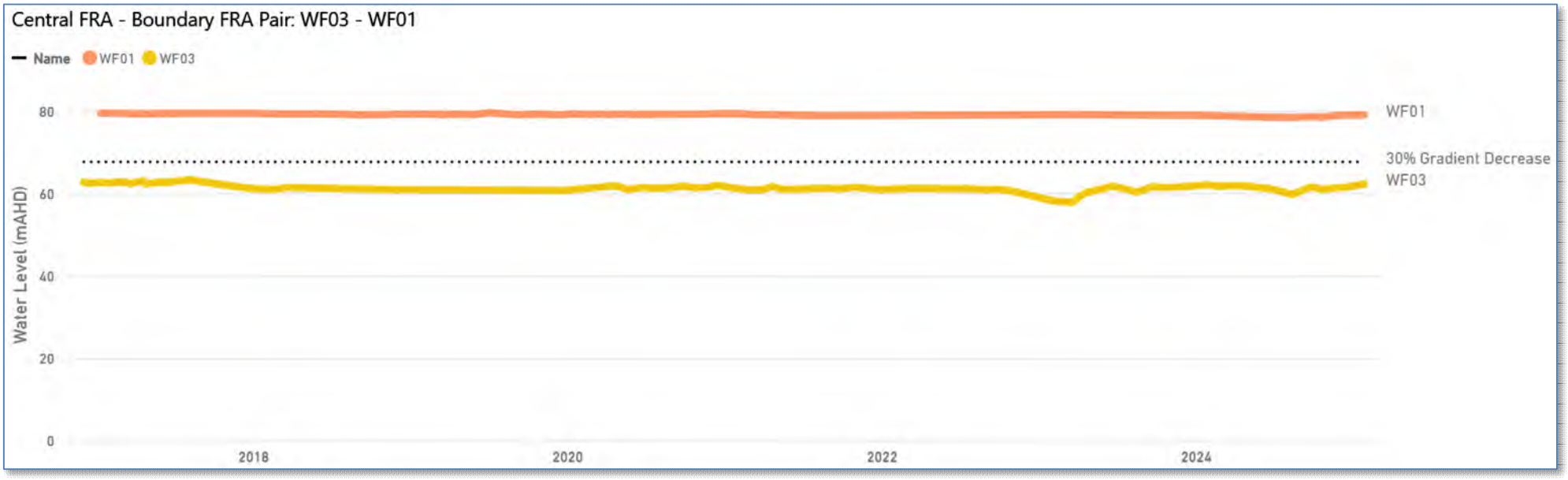


Figure C.7.28 - Four Mile East and West Variably Connected Monitor Wells Pressure Differential – WF03 & WF01

C.8 Airborne Radionuclide Concentrations & Dose Assessment

Radon Decay Products

The Potential Alpha Energy Concentration (PAEC) of radon decay products (RDP) was measured throughout the plant and wellfield areas.

Monitoring was conducted according to the Radioactive Waste Management Plan (RWMP).

RDP monitoring (Table C.8.1) showed PAEC remained consistently low, well below the action level of 7.0 μJ/m^3.

Table C.8.1 - Radon Decay Product PAEC in the Plant Wellfield - 2024

Location	PAEC (μJ.m^{-3})	
	Average	Max
Environmental	0.10	0.90
Plant Clean	0.05	0.19
Plant Supervised	0.07	3.27
Wellfield	0.07	0.54

Long Lived Alpha Activity

Long Lived Alpha Activity (LLAA) sampling was conducted throughout the plant and wellfield areas.

Monitoring was conducted according to the RWMP.

LLAA monitoring (Table C.8.2) showed dust activity concentrations remained consistently low, well below the action level of 1.3 Bq/m^3.

Table C.8.2 - LLAA Concentration from Dust at the Plant and Wellfield - 2024

Location	LLAA (Bq.m^{-3})			
	Average	Max	Min	Std Dev
Plant Clean	0.02	0.05	0.00	0.01
Plant Supervised	0.02	0.08	0.00	0.02
Wellfield	0.08	0.41	0.00	0.14

C.9 Dose Assessment

The public dose calculated includes contributions from Beverley, Beverley North and Four Mile operations. The estimated dose to a person living at the Beverley accommodation camp is 0.68 mSv (excluding the contribution from natural background radon). Below shows the separation of dust and radon dose in mSv. The nearest residence occupied by a member of public is the North Mulga outstation, and considering the distance from Beverley Mine, the annual dose received by a person living there will be less than 0.68 mSv, well below the applicable annual dose limit of 1 mSv.

Table C.9. 1 - Public Dose Details

Parameter	Dose (mSv)
Dust dose (including natural background)	0.02
Radon dose (excluding background)	0.66
Total dose	0.68
Percentage of the Public Dose limit (annual)	68%

C.10 Soil Analysis Laboratory Reports

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS		LABORATORY DETAILS	
Contact	Mackenzie Bensch	Manager	Adam Atkinson
Client	HEATHGATE RESOURCES PTY LTD	Laboratory	SGS Melbourne EH&S
Address	SUITE 1, LEVEL 4 25 GRENFELL STREET ADELAIDE SA 5001	Address	10/585 Blackburn Road Notting Hill Victoria 3168
Telephone	08 81100500	Telephone	+61395743200
Facsimile	61 08 82125559	Facsimile	+61395743399
Email	Mackenzie.bensch@heathgate.com.au	Email	Au.SampleReceipt.Melbourne@sgs.com
Project	**Soil Analysis**	SGS Reference	**ME369723 R0**
Order Number	**TBA**	Date Received	09 Jan 2025
Samples	18	Date Reported	12 Mar 2025

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562 (14420).

Metals: Sample spike recovery is outside the acceptance criteria because the sample was analysed with a dilution, when the dilution factor is taken into account the Sample Spike recovery is within acceptance criteria.
Uranium and Thorium subcontracted to SGS Minerals Services , 28 Reid Road Perth Airport WA 6105, not NATA Accredited, WM215826

SIGNATORIES

Christopher BENNETT
Team Leader (Inorganics/Metals)

Christopher TUCKER
Radiochemistry Team Leader

Parameter	Units	LOR	Sample Number Sample Matrix Sample Date Sample Name ME369723.001 Soil 29 Dec 2024 S_01	ME369723.002 Soil 10 Dec 2024 S_02	ME369723.003 Soil 22 Dec 2024 S_03	ME369723.004 Soil 29 Dec 2024 S_04
Sulfate (water extractable) in Soil Method: AN275 Tested: 6/3/2025						
Sulfate (1:5 water extractable), SO4*	mg/kg	5	12	17	45	6
Metals/Elements in Solids Method: MA1400_1 Tested: 14/1/2025						
Sulfur*	mg/kg	1,000	<1000	<1000	<1000	<1000
Uranium 238 and Thorium 232 in Soil by Activity Conversion from Elemental Concentrations Method: AS106 Tested: 10/2/2025						
Thorium-232*	Bq/kg	-	59 ±9	110 ±14	78 ±11	130 ±16
Uranium-238*	Bq/kg	-	31 ±11	61 ±14	38 ±11	71 ±15
Radionuclides by Gamma Ray Spectrometry in solids Method: AS303/AS406 Tested: 23/1/2025						
Thorium-234	Bq/kg	-	35 ±8	72 ±11	39 ±8	71 ±10
Radium-226	Bq/kg	-	32 ±3	96 ±7	57 ±4	66 ±5
Lead-210	Bq/kg	-	45 ±9	120 ±17	63 ±9	72 ±10
Radium-228	Bq/kg	-	57 ±5	100 ±8	72 ±6	160 ±12
pH in soil (1:5) Method: AN101 Tested: 14/1/2025						
pH*	pH Units	0.1	7.6	7.6	7.8	7.3
Metals in soil by Four Acid digest, ICPMS Method: IMS40Q Tested: 10/2/2025						
Thorium, Th*	ppm	0.05	15 ±2	27 ±3	19 ±3	33 ±4
Uranium, U*	ppm	0.05	2.5 ±0.9	5.0 ±1.1	3.1 ±0.9	5.7 ±1.2

Parameter	Units	LOR	Sample Number Sample Matrix Sample Date Sample Name ME369723.005 Soil 10 Dec 2024 S_05	ME369723.006 Soil 10 Dec 2024 S_06	ME369723.007 Soil 29 Dec 2024 S_07	ME369723.008 Soil 29 Dec 2024 S_08
Sulfate (water extractable) in Soil Method: AN275 Tested: 6/3/2025						
Sulfate (1:5 water extractable), SO4*	mg/kg	5	<5	10	<5	<5
Metals/Elements in Solids Method: MA1400_1 Tested: 14/1/2025						
Sulfur*	mg/kg	1,000	<1000	<1000	<1000	<1000
Uranium 238 and Thorium 232 in Soil by Activity Conversion from Elemental Concentrations Method: AS106 Tested: 10/2/2025						
Thorium-232*	Bq/kg	-	110 ±14	83 ±11	110 ±13	49 ±7
Uranium-238*	Bq/kg	-	61 ±14	43 ±12	60 ±14	29 ±11
Radionuclides by Gamma Ray Spectrometry in solids Method: AS303/AS406 Tested: 23/1/2025						
Thorium-234	Bq/kg	-	59 ±10	52 ±11	52 ±8	28 ±5
Radium-226	Bq/kg	-	48 ±4	56 ±5	42 ±3	26 ±2
Lead-210	Bq/kg	-	57 ±10	87 ±14	52 ±8	28 ±5
Radium-228	Bq/kg	-	93 ±7	86 ±8	77 ±6	40 ±3
pH in soil (1:5) Method: AN101 Tested: 14/1/2025						
pH*	pH Units	0.1	6.8	7.4	7.2	6.6
Metals in soil by Four Acid digest, ICPMS Method: IMS40Q Tested: 10/2/2025						
Thorium, Th*	ppm	0.05	26 ±3	20 ±3	26 ±3	12 ±2
Uranium, U*	ppm	0.05	4.9 ±1.1	3.5 ±1.0	4.8 ±1.1	2.4 ±0.9

Parameter	Units	LOR	Sample Number: ME369723.009 Sample Matrix: Soil Sample Date: 29 Dec 2024 Sample Name: S_09	ME369723.010 Soil 29 Oct 2024 S_11	ME369723.011 Soil 22 Oct 2024 S_12	ME369723.012 Soil 21 Dec 2024 S_13
Sulfate (water extractable) in Soil Method: AN275 Tested: 6/3/2025						
Sulfate (1:5 water extractable), SO4*	mg/kg	5	20	<5	<5	<5
Metals/Elements in Solids Method: MA1400_1 Tested: 14/1/2025						
Sulfur*	mg/kg	1,000	<1000	<1000	<1000	<1000
Uranium 238 and Thorium 232 in Soil by Activity Conversion from Elemental Concentrations Method: AS106 Tested: 10/2/2025						
Thorium-232*	Bq/kg	-	76 ±10	64 ±9	92 ±12	49 ±7
Uranium-238*	Bq/kg	-	39 ±11	35 ±11	45 ±12	34 ±11
Radionuclides by Gamma Ray Spectrometry in solids Method: AS303/AS406 Tested: 23/1/2025						
Thorium-234	Bq/kg	-	72 ±13	47 ±8	41 ±6	36 ±6
Radium-226	Bq/kg	-	55 ±4	39 ±3	33 ±2	34 ±3
Lead-210	Bq/kg	-	89 ±14	48 ±7	37 ±6	43 ±8
Radium-228	Bq/kg	-	110 ±9	96 ±8	66 ±5	56 ±5
pH in soil (1:5) Method: AN101 Tested: 14/1/2025						
pH*	pH Units	0.1	7.1	6.8	6.8	6.9
Metals in soil by Four Acid digest, ICPMS Method: IMS40Q Tested: 10/2/2025						
Thorium, Th*	ppm	0.05	19 ±3	16 ±2	23 ±3	12 ±2
Uranium, U*	ppm	0.05	3.2 ±0.9	2.9 ±0.9	3.7 ±1.0	2.8 ±0.9

Parameter	Units	LOR	Sample Number: ME369723.013 Sample Matrix: Soil Sample Date: 29 Dec 2024 Sample Name: S_14	ME369723.014 Soil 10 Dec 2024 S_15	ME369723.015 Soil 29 Dec 2024 S_16	ME369723.016 Soil 29 Dec 2024 S_17
Sulfate (water extractable) in Soil Method: AN275 Tested: 6/3/2025						
Sulfate (1:5 water extractable), SO4*	mg/kg	5	10	12	<5	<5
Metals/Elements in Solids Method: MA1400_1 Tested: 14/1/2025						
Sulfur*	mg/kg	1,000	<1000	<1000	<1000	<1000
Uranium 238 and Thorium 232 in Soil by Activity Conversion from Elemental Concentrations Method: AS106 Tested: 10/2/2025						
Thorium-232*	Bq/kg	-	66 ±9	67 ±9	75 ±10	84 ±11
Uranium-238*	Bq/kg	-	35 ±11	35 ±11	44 ±12	49 ±12
Radionuclides by Gamma Ray Spectrometry in solids Method: AS303/AS406 Tested: 23/1/2025						
Thorium-234	Bq/kg	-	48 ±8	39 ±6	54 ±11	54 ±7
Radium-226	Bq/kg	-	46 ±4	42 ±3	59 ±4	41 ±3
Lead-210	Bq/kg	-	66 ±9	53 ±7	99 ±14	53 ±9
Radium-228	Bq/kg	-	91 ±7	70 ±5	78 ±7	69 ±6
pH in soil (1:5) Method: AN101 Tested: 14/1/2025						
pH*	pH Units	0.1	7.4	7.9	7.1	6.3
Metals in soil by Four Acid digest, ICPMS Method: IMS40Q Tested: 10/2/2025						
Thorium, Th*	ppm	0.05	16 ±2	17 ±2	19 ±3	21 ±3
Uranium, U*	ppm	0.05	2.9 ±0.9	2.9 ±0.9	3.6 ±1.0	4.0 ±1.0

Parameter	Units	LOR	Sample Number: ME369723.017 Sample Matrix: Soil Sample Date: 21 Dec 2024 Sample Name: S_18	Sample Number: ME369723.018 Sample Matrix: Soil Sample Date: 10 Dec 2024 Sample Name: QC1
Sulfate (water extractable) in Soil Method: AN275 Tested: 6/3/2025				
Sulfate (1:5 water extractable), SO4*	mg/kg	5	<5	<5
Metals/Elements in Solids Method: MA1400_1 Tested: 14/1/2025				
Sulfur*	mg/kg	1,000	<1000	<1000
Uranium 238 and Thorium 232 in Soil by Activity Conversion from Elemental Concentrations Method: AS106 Tested: 10/2/2025				
Thorium-232*	Bq/kg	-	49 ±7	110 ±14
Uranium-238*	Bq/kg	-	32 ±11	65 ±15
Radionuclides by Gamma Ray Spectrometry in solids Method: AS303/AS406 Tested: 23/1/2025				
Thorium-234	Bq/kg	-	39 ±7	78 ±10
Radium-226	Bq/kg	-	30 ±2	53 ±4
Lead-210	Bq/kg	-	41 ±7	58 ±8
Radium-228	Bq/kg	-	53 ±5	120 ±8
pH in soil (1:5) Method: AN101 Tested: 14/1/2025				
pH*	pH Units	0.1	6.4	7.1
Metals in soil by Four Acid digest, ICPMS Method: IMS40Q Tested: 10/2/2025				
Thorium, Th*	ppm	0.05	12 ±2	26 ±3
Uranium, U*	ppm	0.05	2.6 ±0.9	5.3 ±1.2

MB blank results are compared to the Limit of Reporting
LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.
DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula : ***the absolute difference of the two results divided by the average of the two results as a percentage.*** Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

Metals/Elements in Solids **Method: MA1400_1**

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery	MSD %RPD
Sulfur*	LB084620	mg/kg	1000	<1000	0 - 1%	NA	NA	NA

pH in soil (1:5) **Method: ME-(AU)-[ENV]AN101**

Parameter	QC Reference	Units	LOR	DUP %RPD
pH*	LB084641	pH Units	0.1	1 - 2%

METHOD	METHODOLOGY SUMMARY
AN101	pH in Soil Sludge Sediment and Water: pH is measured electrometrically using a combination electrode and is calibrated against 3 buffers purchased commercially. For soils, sediments and sludges, an extract with water (or 0.01M CaCl2) is made at a ratio of 1:5 and the pH determined and reported on the extract. Reference APHA 4500-H+.
AN275	sulfate by DA following 1:5 DI water extraction: sulfate is precipitated in an acidic medium with barium chloride. The resulting turbidity is measured photometrically at 405nm and compared with standard calibration solutions to determine the sulfate concentration in the sample. Reference APHA 4500-SO42-. Internal reference AN275.
ARS-SOP-AS106	Uranium-238 activity concentration is calculated from the uranium mass concentration using a conversion factor of 12.3474 Bq/mg.
ARS-SOP-AS106	Thorium-232 activity concentration is calculated from the thorium mass concentration using a conversion factor of 4.0711 Bq/mg.
ARS-SOP-AS106	The uranium-235 activity concentration is calculated from the uranium mass concentration using a conversion factor of 0.5688 Bq/mg
ARS-SOP-AS106	The potassium-40 activity concentration is calculated from the potassium mass concentration using a conversion factor of 31.72 Bq/g.
AS303/406	Analysis of radionuclides in solid samples by high resolution gamma ray spectrometry after preparation to meet standard calibrated geometries. Preparation involves drying, crushing and sieving, and setting in an epoxy resin where necessary.
IMS40Q	Sample solutions (from Four Acid Digest) are analysed by Inductively Coupled Plasma-Mass Spectrometry (ICP-MS) against matched standards.
MA1400_1	A weighed portion of as received sample is extracted in concentrated acid using microwave heating by the Microwave Digestion system. The sample and acid are placed in a microwave vessel (TFM), which is then capped and heated in the microwave unit. After cooling,the vessel contents are diluted with DI water, then filtered, centrifuged, or allowed to settle and analysed by ICP-MS.

FOOTNOTES

IS	Insufficient sample for analysis.	LOR	Limit of Reporting
LNR	Sample listed, but not received.	↑↓	Raised or Lowered Limit of Reporting
*	NATA accreditation does not cover the performance of this service.	QFH	QC result is above the upper tolerance
		QFL	QC result is below the lower tolerance
**	Indicative data, theoretical holding time exceeded.	-	The sample was not analysed for this analyte
***	Indicates that both * and ** apply.	NVL	Not Validated

Unless it is reported that sampling has been performed by SGS, the samples have been analysed as received.
Solid samples expressed on a dry weight basis.

Where "Total" analyte groups are reported (for example, Total PAHs, Total OC Pesticides) the total will be calculated as the sum of the individual analytes, with those analytes that are reported as <LOR being assumed to be zero. The summed (Total) limit of reporting is calcuated by summing the individual analyte LORs and dividing by two. For example, where 16 individual analytes are being summed and each has an LOR of 0.1 mg/kg, the "Totals" LOR will be 1.6 / 2 (0.8 mg/kg). Where only 2 analytes are being summed, the " Total" LOR will be the sum of those two LORs.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

If reported, measurement uncertainty follow the ± sign after the analytical result and is expressed as the expanded uncertainty calculated using a coverage factor of 2, providing a level of confidence of approximately 95%, unless stated otherwise in the comments section of this report.

Results reported for samples tested under test methods with codes starting with ARS-SOP, radionuclide or gross radioactivity concentrations are expressed in becquerel (Bq) per unit of mass or volume or per wipe as stated on the report. Becquerel is the SI unit for activity and equals one nuclear transformation per second.
Note that in terms of units of radioactivity:

a. 1 Bq is equivalent to 27 pCi
b. 37 MBq is equivalent to 1 mCi

For results reported for samples tested under test methods with codes starting with ARS-SOP, less than (<) values indicate the detection limit for each radionuclide or parameter for the measurement system used. The respective detection limits have been calculated in accordance with ISO 11929.

The QC and MU criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: www.sgs.com.au/en-gb/environment-health-and-safety.

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS		LABORATORY DETAILS	
Contact	Mackenzie Bensch	Manager	Adam Atkinson
Client	HEATHGATE RESOURCES PTY LTD	Laboratory	SGS Melbourne EH&S
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Telephone	08 81100500	Telephone	+61395743200
Facsimile	61 08 82125559	Facsimile	+61395743399
Email	Mackenzie.bensch@heathgate.com.au	Email	Au.SampleReceipt.Melbourne@sgs.com
Project	**Soil Analysis**	SGS Reference	**ME369722 R0**
Order Number	**TBA**	Date Received	09 Jan 2025
Samples	9	Date Reported	12 Mar 2025

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562 (14420).

SO4: The Limit of Reporting (LOR) has been raised due to interferences from the sample matrix.
Uranium and Thorium subcontracted to SGS Minerals Services, 28 Reid Road Perth Airport WA 6105, not NATA Accredited, WM215825

SIGNATORIES

Anya-Marie CONNETT
Senior Laboratory Technician

Christopher BENNETT
Team Leader (Inorganics/Metals)

Christopher TUCKER
Radiochemistry Team Leader

Parameter	Units	LOR	Sample Number: ME369722.001 Sample Matrix: Soil Sample Date: 30 Nov 2024 Sample Name: BN_01	ME369722.002 Soil 30 Nov 2024 BN_02	ME369722.003 Soil 30 Nov 2024 BN_03	ME369722.004 Soil 30 Nov 2024 BN_04
Sulfate (water extractable) in Soil Method: AN275 Tested: 6/3/2025						
Sulfate (1:5 water extractable), SO4*	mg/kg	5	<5	<5	<25↑	<5
Metals/Elements in Solids Method: MA1400_1 Tested: 14/1/2025						
Sulfur*	mg/kg	1,000	<1000	<1000	1000	<1000
Uranium 238 and Thorium 232 in Soil by Activity Conversion from Elemental Concentrations Method: AS106 Tested: 10/2/2025						
Thorium-232*	Bq/kg	-	160 ±19	140 ±16	150 ±18	280 ±30
Uranium-238*	Bq/kg	-	96 ±17	90 ±17	100 ±17	180 ±26
Radionuclides by Gamma Ray Spectrometry in solids Method: AS303/AS406 Tested: 23/1/2025						
Thorium-234	Bq/kg	-	110 ±11	120 ±13	110 ±13	160 ±17
Radium-226	Bq/kg	-	75 ±5	81 ±6	100 ±7	140 ±9
Lead-210	Bq/kg	-	85 ±10	91 ±11	120 ±14	140 ±15
Radium-228	Bq/kg	-	150 ±11	140 ±10	150 ±11	240 ±17
pH in soil (1:5) Method: AN101 Tested: 14/1/2025						
pH*	pH Units	0.1	6.9	7.1	7.5	6.6
Metals in soil by Four Acid digest, ICPMS Method: IMS40Q Tested: 10/2/2025						
Thorium, Th*	ppm	0.05	40 ±5	33 ±4	38 ±4	68 ±7
Uranium, U*	ppm	0.05	7.8 ±1.4	7.3 ±1.4	8.1 ±1.4	15 ±2

Parameter	Units	LOR	Sample Number Sample Matrix Sample Date Sample Name ME369722.005 Soil 30 Nov 2024 BN_05	ME369722.006 Soil 30 Nov 2024 BN_06	ME369722.007 Soil 30 Nov 2024 BN_07	ME369722.008 Soil 30 Nov 2024 BN_08
Sulfate (water extractable) in Soil Method: AN275 Tested: 6/3/2025						
Sulfate (1:5 water extractable), SO4*	mg/kg	5	10	<5	7	<5
Metals/Elements in Solids Method: MA1400_1 Tested: 14/1/2025						
Sulfur*	mg/kg	1,000	<1000	<1000	<1000	<1000
Uranium 238 and Thorium 232 in Soil by Activity Conversion from Elemental Concentrations Method: AS106 Tested: 10/2/2025						
Thorium-232*	Bq/kg	-	950 ±98	240 ±27	350 ±38	180 ±21
Uranium-238*	Bq/kg	-	280 ±36	110 ±19	180 ±26	95 ±17
Radionuclides by Gamma Ray Spectrometry in solids Method: AS303/AS406 Tested: 23/1/2025						
Thorium-234	Bq/kg	-	460 ±40	130 ±14	160 ±16	120 ±16
Radium-226	Bq/kg	-	310 ±22	110 ±7	130 ±9	78 ±6
Lead-210	Bq/kg	-	330 ±34	110 ±13	120 ±13	100 ±15
Radium-228	Bq/kg	-	1100 ±78	270 ±19	240 ±17	180 ±14
pH in soil (1:5) Method: AN101 Tested: 14/1/2025						
pH*	pH Units	0.1	7.7	7.6	6.8	6.7
Metals in soil by Four Acid digest, ICPMS Method: IMS40Q Tested: 10/2/2025						
Thorium, Th*	ppm	0.05	230 ±24	60 ±7	86 ±9	44 ±5
Uranium, U*	ppm	0.05	22 ±3	9.0 ±1.5	15 ±2	7.7 ±1.4

Parameter	Units	LOR	Sample Number ME369722.009 Sample Matrix Soil Sample Date 30 Nov 2024 Sample Name Blind-30-11/24
Sulfate (water extractable) in Soil Method: AN275 Tested: 6/3/2025			
Sulfate (1:5 water extractable), SO4*	mg/kg	5	28
Metals/Elements in Solids Method: MA1400_1 Tested: 14/1/2025			
Sulfur*	mg/kg	1,000	<1000
Uranium 238 and Thorium 232 in Soil by Activity Conversion from Elemental Concentrations Method: AS106 Tested: 10/2/2025			
Thorium-232*	Bq/kg	-	270 ±29
Uranium-238*	Bq/kg	-	180 ±25
Radionuclides by Gamma Ray Spectrometry in solids Method: AS303/AS406 Tested: 23/1/2025			
Thorium-234	Bq/kg	-	170 ±17
Radium-226	Bq/kg	-	140 ±10
Lead-210	Bq/kg	-	150 ±18
Radium-228	Bq/kg	-	240 ±17
pH in soil (1:5) Method: AN101 Tested: 14/1/2025			
pH*	pH Units	0.1	6.9
Metals in soil by Four Acid digest, ICPMS Method: IMS40Q Tested: 10/2/2025			
Thorium, Th*	ppm	0.05	65 ±7
Uranium, U*	ppm	0.05	14 ±2

MB blank results are compared to the Limit of Reporting
LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.
DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula : ***the absolute difference of the two results divided by the average of the two results as a percentage.*** Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

Metals/Elements in Solids **Method: MA1400_1**

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Sulfur*	LB084619	mg/kg	1000	<1000	13%	NA

pH in soil (1:5) **Method: ME-(AU)-[ENV]AN101**

Parameter	QC Reference	Units	LOR	DUP %RPD
pH*	LB084640	pH Units	0.1	1 - 2%

METHOD	METHODOLOGY SUMMARY
AN101	pH in Soil Sludge Sediment and Water: pH is measured electrometrically using a combination electrode and is calibrated against 3 buffers purchased commercially. For soils, sediments and sludges, an extract with water (or 0.01M CaCl2) is made at a ratio of 1:5 and the pH determined and reported on the extract. Reference APHA 4500-H+.
AN275	sulfate by DA following 1:5 DI water extraction: sulfate is precipitated in an acidic medium with barium chloride. The resulting turbidity is measured photometrically at 405nm and compared with standard calibration solutions to determine the sulfate concentration in the sample. Reference APHA 4500-SO42-. Internal reference AN275.
ARS-SOP-AS106	Uranium-238 activity concentration is calculated from the uranium mass concentration using a conversion factor of 12.3474 Bq/mg.
ARS-SOP-AS106	Thorium-232 activity concentration is calculated from the thorium mass concentration using a conversion factor of 4.0711 Bq/mg.
ARS-SOP-AS106	The uranium-235 activity concentration is calculated from the uranium mass concentration using a conversion factor of 0.5688 Bq/mg
ARS-SOP-AS106	The potassium-40 activity concentration is calculated from the potassium mass concentration using a conversion factor of 31.72 Bq/g.
AS303/406	Analysis of radionuclides in solid samples by high resolution gamma ray spectrometry after preparation to meet standard calibrated geometries. Preparation involves drying, crushing and sieving, and setting in an epoxy resin where necessary.
IMS40Q	Sample solutions (from Four Acid Digest) are analysed by Inductively Coupled Plasma-Mass Spectrometry (ICP-MS) against matched standards.
MA1400_1	A weighed portion of as received sample is extracted in concentrated acid using microwave heating by the Microwave Digestion system. The sample and acid are placed in a microwave vessel (TFM), which is then capped and heated in the microwave unit. After cooling,the vessel contents are diluted with DI water, then filtered, centrifuged, or allowed to settle and analysed by ICP-MS.

FOOTNOTES

IS	Insufficient sample for analysis.	LOR	Limit of Reporting
LNR	Sample listed, but not received.	↑↓	Raised or Lowered Limit of Reporting
*	NATA accreditation does not cover the performance of this service.	QFH	QC result is above the upper tolerance
		QFL	QC result is below the lower tolerance
**	Indicative data, theoretical holding time exceeded.	-	The sample was not analysed for this analyte
***	Indicates that both * and ** apply.	NVL	Not Validated

Unless it is reported that sampling has been performed by SGS, the samples have been analysed as received.
Solid samples expressed on a dry weight basis.

Where "Total" analyte groups are reported (for example, Total PAHs, Total OC Pesticides) the total will be calculated as the sum of the individual analytes, with those analytes that are reported as <LOR being assumed to be zero. The summed (Total) limit of reporting is calcuated by summing the individual analyte LORs and dividing by two. For example, where 16 individual analytes are being summed and each has an LOR of 0.1 mg/kg, the "Totals" LOR will be 1.6 / 2 (0.8 mg/kg). Where only 2 analytes are being summed, the " Total" LOR will be the sum of those two LORs.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

If reported, measurement uncertainty follow the ± sign after the analytical result and is expressed as the expanded uncertainty calculated using a coverage factor of 2, providing a level of confidence of approximately 95%, unless stated otherwise in the comments section of this report.

Results reported for samples tested under test methods with codes starting with ARS-SOP, radionuclide or gross radioactivity concentrations are expressed in becquerel (Bq) per unit of mass or volume or per wipe as stated on the report. Becquerel is the SI unit for activity and equals one nuclear transformation per second.
Note that in terms of units of radioactivity:

a. 1 Bq is equivalent to 27 pCi
b. 37 MBq is equivalent to 1 mCi

For results reported for samples tested under test methods with codes starting with ARS-SOP, less than (<) values indicate the detection limit for each radionuclide or parameter for the measurement system used. The respective detection limits have been calculated in accordance with ISO 11929.

The QC and MU criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: www.sgs.com.au/en-gb/environment-health-and-safety.

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS		LABORATORY DETAILS	
Contact	Mackenzie Bensch	Manager	Adam Atkinson
Client	HEATHGATE RESOURCES PTY LTD	Laboratory	SGS Melbourne EH&S
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Project	**Soil Analysis**	SGS Reference	**ME369721 R0**
Order Number	**TBA**	Date Received	09 Jan 2025
Samples	9	Date Reported	12 Mar 2025

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562 (14420).

SO4: The Limit of Reporting (LOR) has been raised due to interferences from the sample matrix.
Uranium and Thorium subcontracted to SGS Minerals Services, 28 Reid Road Perth Airport WA 6105, not NATA Accredited, WM215824

SIGNATORIES

Anya-Marie CONNETT
Senior Laboratory Technician

Christopher BENNETT
Team Leader (Inorganics/Metals)

Christopher TUCKER
Radiochemistry Team Leader

Parameter	Units	LOR	Sample Number: ME369721.001 Sample Matrix: Soil Sample Date: 21 Dec 2024 Sample Name: FMS_01	ME369721.002 Soil 21 Dec 2024 FMS_02	ME369721.003 Soil 21 Dec 2024 FMS_03	ME369721.004 Soil 20 Dec 2024 FMS_04
Sulfate (water extractable) in Soil Method: AN275 Tested: 6/3/2025						
Sulfate (1:5 water extractable), SO4*	mg/kg	5	57	6	<5	18
Metals/Elements in Solids Method: MA1400_1 Tested: 14/1/2025						
Sulfur*	mg/kg	1,000	<1000	<1000	<1000	<1000
Uranium 238 and Thorium 232 in Soil by Activity Conversion from Elemental Concentrations Method: AS106 Tested: 10/2/2025						
Thorium-232*	Bq/kg	-	140 ±17	310 ±34	93 ±12	180 ±21
Uranium-238*	Bq/kg	-	140 ±22	160 ±23	67 ±14	85 ±16
Radionuclides by Gamma Ray Spectrometry in solids Method: AS303/AS406 Tested: 23/1/2025						
Thorium-234	Bq/kg	-	170 ±18	250 ±25	68 ±9	85 ±10
Radium-226	Bq/kg	-	200 ±13	220 ±14	59 ±5	81 ±6
Lead-210	Bq/kg	-	300 ±31	230 ±24	66 ±9	77 ±10
Radium-228	Bq/kg	-	180 ±12	470 ±32	84 ±6	180 ±13
pH in soil (1:5) Method: AN101 Tested: 14/1/2025						
pH*	pH Units	0.1	7.8	6.7	8.2	7.8
Metals in soil by Four Acid digest, ICPMS Method: IMS40Q Tested: 10/2/2025						
Thorium, Th*	ppm	0.05	35 ±4	77 ±8	23 ±3	45 ±5
Uranium, U*	ppm	0.05	12 ±2	13 ±2	5.4 ±1.1	6.9 ±1.3

Parameter	Units	LOR	Sample Number: ME369721.005 Sample Matrix: Soil Sample Date: 20 Dec 2024 Sample Name: FMS_05	ME369721.006 Soil 09 Dec 2024 FMS_06	ME369721.007 Soil 09 Dec 2024 FMS_07	ME369721.008 Soil 20 Dec 2024 FMS_10
Sulfate (water extractable) in Soil Method: AN275 Tested: 6/3/2025						
Sulfate (1:5 water extractable), SO4*	mg/kg	5	15	<5	<25↑	<5
Metals/Elements in Solids Method: MA1400_1 Tested: 14/1/2025						
Sulfur*	mg/kg	1,000	<1000	<1000	<1000	1100
Uranium 238 and Thorium 232 in Soil by Activity Conversion from Elemental Concentrations Method: AS106 Tested: 10/2/2025						
Thorium-232*	Bq/kg	-	150 ±18	180 ±21	83 ±11	97 ±12
Uranium-238*	Bq/kg	-	86 ±16	98 ±17	56 ±14	78 ±16
Radionuclides by Gamma Ray Spectrometry in solids Method: AS303/AS406 Tested: 23/1/2025						
Thorium-234	Bq/kg	-	81 ±11	140 ±15	74 ±10	85 ±10
Radium-226	Bq/kg	-	110 ±8	100 ±7	77 ±6	120 ±8
Lead-210	Bq/kg	-	120 ±14	110 ±13	130 ±15	140 ±15
Radium-228	Bq/kg	-	150 ±11	260 ±18	100 ±8	120 ±9
pH in soil (1:5) Method: AN101 Tested: 14/1/2025						
pH*	pH Units	0.1	8.1	6.5	7.5	6.2
Metals in soil by Four Acid digest, ICPMS Method: IMS40Q Tested: 10/2/2025						
Thorium, Th*	ppm	0.05	37 ±4	45 ±5	20 ±3	24 ±3
Uranium, U*	ppm	0.05	6.9 ±1.3	8.0 ±1.4	4.5 ±1.1	6.4 ±1.3

Parameter	Units	LOR	Sample Number: ME369721.009 Sample Matrix: Soil Sample Date: 20 Dec 2024 Sample Name: QC2-20/12/24
Sulfate (water extractable) in Soil Method: AN275 Tested: 6/3/2025			
Sulfate (1:5 water extractable), SO4*	mg/kg	5	14
Metals/Elements in Solids Method: MA1400_1 Tested: 14/1/2025			
Sulfur*	mg/kg	1,000	<1000
Uranium 238 and Thorium 232 in Soil by Activity Conversion from Elemental Concentrations Method: AS106 Tested: 10/2/2025			
Thorium-232*	Bq/kg	-	150 ±17
Uranium-238*	Bq/kg	-	77 ±15
Radionuclides by Gamma Ray Spectrometry in solids Method: AS303/AS406 Tested: 23/1/2025			
Thorium-234	Bq/kg	-	83 ±11
Radium-226	Bq/kg	-	120 ±8
Lead-210	Bq/kg	-	130 ±15
Radium-228	Bq/kg	-	150 ±11
pH in soil (1:5) Method: AN101 Tested: 14/1/2025			
pH*	pH Units	0.1	7.9
Metals in soil by Four Acid digest, ICPMS Method: IMS40Q Tested: 10/2/2025			
Thorium, Th*	ppm	0.05	36 ±4
Uranium, U*	ppm	0.05	6.2 ±1.2

MB blank results are compared to the Limit of Reporting
LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.
DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula : ***the absolute difference of the two results divided by the average of the two results as a percentage.*** Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

Metals/Elements in Solids **Method: MA1400_1**

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Sulfur*	LB084619	mg/kg	1000	<1000	13%	NA

pH in soil (1:5) **Method: ME-(AU)-[ENV]AN101**

Parameter	QC Reference	Units	LOR	DUP %RPD
pH*	LB084640	pH Units	0.1	1 - 2%

METHOD	METHODOLOGY SUMMARY
AN101	pH in Soil Sludge Sediment and Water: pH is measured electrometrically using a combination electrode and is calibrated against 3 buffers purchased commercially. For soils, sediments and sludges, an extract with water (or 0.01M CaCl2) is made at a ratio of 1:5 and the pH determined and reported on the extract. Reference APHA 4500-H+.
AN275	sulfate by DA following 1:5 DI water extraction: sulfate is precipitated in an acidic medium with barium chloride. The resulting turbidity is measured photometrically at 405nm and compared with standard calibration solutions to determine the sulfate concentration in the sample. Reference APHA 4500-SO42-. Internal reference AN275.
ARS-SOP-AS106	Uranium-238 activity concentration is calculated from the uranium mass concentration using a conversion factor of 12.3474 Bq/mg.
ARS-SOP-AS106	Thorium-232 activity concentration is calculated from the thorium mass concentration using a conversion factor of 4.0711 Bq/mg.
ARS-SOP-AS106	The uranium-235 activity concentration is calculated from the uranium mass concentration using a conversion factor of 0.5688 Bq/mg
ARS-SOP-AS106	The potassium-40 activity concentration is calculated from the potassium mass concentration using a conversion factor of 31.72 Bq/g.
AS303/406	Analysis of radionuclides in solid samples by high resolution gamma ray spectrometry after preparation to meet standard calibrated geometries. Preparation involves drying, crushing and sieving, and setting in an epoxy resin where necessary.
IMS40Q	Sample solutions (from Four Acid Digest) are analysed by Inductively Coupled Plasma-Mass Spectrometry (ICP-MS) against matched standards.
MA1400_1	A weighed portion of as received sample is extracted in concentrated acid using microwave heating by the Microwave Digestion system. The sample and acid are placed in a microwave vessel (TFM), which is then capped and heated in the microwave unit. After cooling,the vessel contents are diluted with DI water, then filtered, centrifuged, or allowed to settle and analysed by ICP-MS.

FOOTNOTES

IS	Insufficient sample for analysis.	LOR	Limit of Reporting
LNR	Sample listed, but not received.	↑↓	Raised or Lowered Limit of Reporting
*	NATA accreditation does not cover the performance of this service.	QFH	QC result is above the upper tolerance
		QFL	QC result is below the lower tolerance
**	Indicative data, theoretical holding time exceeded.	-	The sample was not analysed for this analyte
***	Indicates that both * and ** apply.	NVL	Not Validated

Unless it is reported that sampling has been performed by SGS, the samples have been analysed as received.
Solid samples expressed on a dry weight basis.

Where "Total" analyte groups are reported (for example, Total PAHs, Total OC Pesticides) the total will be calculated as the sum of the individual analytes, with those analytes that are reported as <LOR being assumed to be zero. The summed (Total) limit of reporting is calcuated by summing the individual analyte LORs and dividing by two. For example, where 16 individual analytes are being summed and each has an LOR of 0.1 mg/kg, the "Totals" LOR will be 1.6 / 2 (0.8 mg/kg). Where only 2 analytes are being summed, the " Total" LOR will be the sum of those two LORs.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

If reported, measurement uncertainty follow the ± sign after the analytical result and is expressed as the expanded uncertainty calculated using a coverage factor of 2, providing a level of confidence of approximately 95%, unless stated otherwise in the comments section of this report.

Results reported for samples tested under test methods with codes starting with ARS-SOP, radionuclide or gross radioactivity concentrations are expressed in becquerel (Bq) per unit of mass or volume or per wipe as stated on the report. Becquerel is the SI unit for activity and equals one nuclear transformation per second.
Note that in terms of units of radioactivity:

a. 1 Bq is equivalent to 27 pCi
b. 37 MBq is equivalent to 1 mCi

For results reported for samples tested under test methods with codes starting with ARS-SOP, less than (<) values indicate the detection limit for each radionuclide or parameter for the measurement system used. The respective detection limits have been calculated in accordance with ISO 11929.

The QC and MU criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: www.sgs.com.au/en-gb/environment-health-and-safety.