BHP

Olympic Dam Smelter and Refinery Expansion Project

Environmental Impact Statement

Appendix C1 and Appendix C2

October 2026

BHP

Olympic Dam Smelter and Refinery Expansion Project

Environmental Impact Statement

Appendix C1 and Appendix C2

October 2026

Appendices

Appendix A Regulatory framework

Appendix A1. Impact Assessed Development declaration
Appendix A2. Assessment Requirements
Appendix A3. Assessment Requirements checklist
Appendix A4. Contributions and project team
Appendix A5. Stakeholder Communication and Engagement Strategy and Plan

Appendix B Proposed operation (source)

Appendix B1. Indicative engineering site layout drawings and sections

Appendix C Environmental assessments (pathway)

Appendix C1. Soil and groundwater
Appendix C2. Noise and vibration
Appendix C3. Air quality
Appendix C4. Radiation
Appendix C5. Greenhouse gas
Appendix C6. Surface water
Appendix C7. Land use and planning
Appendix C8. Traffic

Appendix D Impact assessments (receptor)

Appendix D1. Ecology
Appendix D2. Social
Appendix D3. Economic
Appendix D4. Historic heritage (non-indigenous)
Appendix D5. Visual amenity

Appendix E Consolidated impact assessment and risk register

Appendix E1. Environmental impact assessment framework
Appendix E2. Environmental impact assessment tables
Appendix E3. Risk register

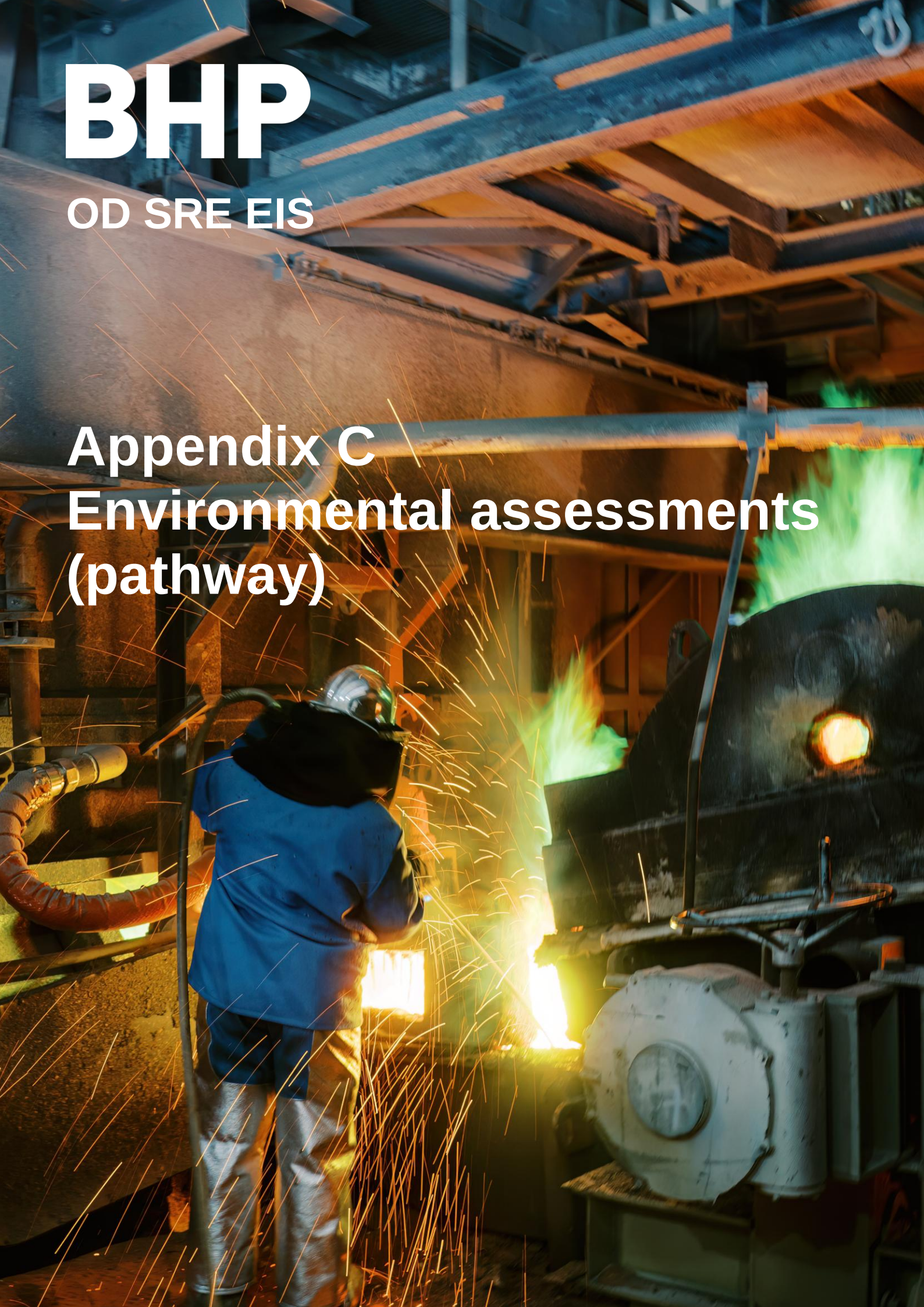
Appendix F Other legislative requirements

Appendix F1. EPBC Act Notice of Referral Decision

BHP

OD SRE EIS

Appendix C Environmental assessments (pathway)



BHP

Appendix C1.
Soil and groundwater

Soil and Groundwater Impact Assessment

Olympic Dam Smelter and Refinery Expansion Project

Prepared for BHP Olympic Dam Corporation Pty Ltd

October 2026

Soil and Groundwater Impact Assessment

Olympic Dam Smelter and Refinery Expansion Project

BHP Olympic Dam Corporation Pty Ltd

October 2026

Approved by

Joel Georgiou
Associate Director
7 October 2026

Level 4 74 Pirie Street
Adelaide SA 5000
ABN: 28 141 736 558

This report has been prepared in accordance with the brief provided by BHP Olympic Dam Corporation Pty Ltd and, in its preparation, EMM has relied upon the information collected at the times and under the conditions specified in this report. All findings, conclusions or recommendations contained in this report are based on those aforementioned circumstances. This report is to only be used for the purpose for which it has been provided. Except as permitted by the *Copyright Act 1968* (Cth) and only to the extent incapable of exclusion, any other use (including use or reproduction of this report for resale or other commercial purposes) is prohibited without EMM's prior written consent. Except where expressly agreed to by EMM in writing, and to the extent permitted by law, EMM will have no liability (and assumes no duty of care) to any person in relation to this document, other than to BHP Olympic Dam Corporation Pty Ltd (and subject to the terms of EMM's agreement with BHP Olympic Dam Corporation Pty Ltd).

© EMM Consulting Pty Ltd, Level 10, 201 Pacific Highway, St Leonards NSW 2065. 2026.
ABN: 28 141 736 558

Executive summary

BHP Olympic Dam Corporation Pty Ltd (BHP) is proposing to develop the Smelter and Refinery Expansion Project (SRE Project) at the Olympic Dam mining operations, in the far north of South Australia (SA) (Figure 1.1).

EMM Consulting Pty Ltd and Lathwida Environmental Pty Ltd (EMM-Lathwida) are preparing an Environmental Impact Statement (EIS) for the SRE Project in accordance with EIS assessment requirements and Practice Direction 17 Impact Assessed Development under the *Planning, Development and Infrastructure Act 2016* (PDI Act) (SA).

EMM was commissioned by BHP to undertake a soil and groundwater impact assessment (SGIA), including a targeted soils and geochemistry sampling program[1], of the proposed construction and operation related SRE Project activities to:

- determine if the activities have the potential to result in changes to the baseline soil and geochemistry environmental conditions (baseline condition assessment in Chapter 2 of this report)
- determine the likely magnitude of the change to the surrounding soils and geochemistry as a result of the SRE Project (assessment of effects in Chapter 3 of this report).

This report supports the EIS, which will be submitted to the Government of South Australia's Minister for Energy and Mining as the relevant Minister for the SRE Project under the *Roxby Downs (Indenture Ratification) Act 1982* (SA).

ES1 Baseline condition assessment

The SRE Project is located on the far north of South Australia, approximately 580 kilometres (km) north of Adelaide and 15 km north of Roxby Downs, with access via the Olympic Dam Highway to the existing mine site. The local topography is generally flat, with elevations of approximately 100 metres Australian Height Datum (mAHD), located within the Roxby land system. Local soils are part of the sand dunes with interdunal clays pans soil unit.

Previous soil surveys did not indicate metal and nutrients concentrations above the National Environment Protection (Assessment of Site Contamination) Measure (as amended in May 2013) (ASC NEPM 2013) health and ecological guidelines and no potential acid sulphate soils (ASS) occur regionally or around the existing Olympic Dam mine.

Groundwater within the broader Olympic Dam region generally occurs in the fractured rocks tens of meters below the surface. Groundwater generally moves very slowly, from west to east, and ultimately discharges to Lake Torrens, a regional evaporative sink approximately 30 km to the east (BHP 2009). The primary aquifers with the ability to transmit groundwater relevant to the SRE Project are the Andamooka Limestone Aquifer (ALA) and the deeper Tent Hill Aquifer (THA). This report determined the SRE Area, being the primary location for proposed smelter and refinery expansion infrastructure (i.e. heavy mining and industrial activities), to be the Study Area and undertook targeted site investigation of the local soils and geochemistry in key infrastructure locations of the SRE Project.

Baseline groundwater quality was characterised using long-term monitoring data from site-based and regional monitoring bores. Groundwater in both aquifers is naturally saline to hypersaline, with sulphate, total dissolved solids and magnesium concentrations exceeding livestock guideline values. Median pH values are neutral to slightly alkaline. Most metals are generally present at low concentrations, commonly near laboratory limits of reporting. Overall, groundwater quality statistics for site-based and regional bores are broadly comparable for both the ALA and THA, with minor differences attributable to local conditions and dataset limitations.

[1] Radiological samples were also collected for a separate radiation impact assessment for the SRE Project.

Additional post-baseline groundwater quality data collected between 2012 and 2022, and from a subsequent monitoring event in April 2026 were reviewed to assess consistency with baseline conditions. This data was obtained from monitoring bores located within and hydraulically downgradient of the SRE Area, being the primary location for proposed smelter and refinery expansion infrastructure for the SRE Project. Although the monitoring networks differ between baseline and post-baseline datasets, metals concentrations are generally consistent with baseline groundwater quality. Iron and manganese show lower median concentrations and reduced variability compared to baseline. Other metals are broadly comparable to or lower than baseline concentrations.

The groundwater assessment is based on the historical and newer information available for the ALA and THA. These datasets were collected over different periods and for different operational and assessment purposes. Due to this, limitations remain in relation to the completeness and comparability of the available dataset. BHP will continue groundwater monitoring through the existing site-wide monitoring program and will seek to address relevant data and monitoring gaps through future review of the program with regard to EPA Guideline 3 (EPA 2024).

Groundwater monitoring bores within and adjacent to the SRE Area were also sampled and assessed for per- and polyfluoroalkyl substances (PFAS). PFAS concentrations were reported above laboratory limits of reporting in 22 of the 24 bores sampled, indicating that PFAS is present in groundwater within and adjacent to the SRE Area. A Section 83A notification was provided to EPA in June 2019 regarding the detection of PFAS.

Separately, JBS&G (2026b) completed a Stage 1 Detailed Site Investigation (DSI) to assess the nature and extent of PFAS contamination across the broader operational areas of Olympic Dam. The investigation targeted 19 areas and included soil, concrete, sediment and surface water sampling. Groundwater investigations were excluded from the Stage 1 DSI and are proposed as part of the future Stage 2 investigation.

The Stage 1 DSI identified existing PFAS source areas and affected material across the site. The main soil source areas identified were the pilot plant, current solvent extraction (SX) plant, former SX plant, emergency response shed, and the smelter. PFAS-affected concrete and contaminated runoff water were also identified as secondary sources. Complete worker exposure pathways through direct contact with affected soil and incidental digestion or inhalation of contaminated dust were identified at the pilot plant and current SX plant.

Sensitive receptors were identified as the future construction and mine operations workers involved in the development and operation of the SRE Project, visitors, groundwater and ecological receptors, including terrestrial and aquatic ecosystems and groundwater dependent ecosystems (GDEs).

Considering that this assessment targets the SRE Area, potential sources of contamination included the current Olympic Dam operation of the mineral processing plant, smelter tipping bays, smelter support yard, general operations and roads around these locations. The associated contaminants of potential concern (CoPC) were identified as total recoverable hydrocarbons (TRH), benzene, toluene, ethylene, xylene and naphthalene (BTEXN), polyaromatic hydrocarbons (PAH), metals and PFAS. PFAS contamination is considered as a pre-existing site condition, with the assessment considering whether SRE Project activities could disturb, mobilise or increase exposure to affected material.

A conceptual site model (CSM) for the SRE Area has been developed based on, and consistent with, BHP's existing Olympic Dam site-wide hydrogeological conceptual model (CDM Smith 2024; SRK 2020).

The baseline condition assessment identified the need for additional data to characterise the current soil conditions and geochemistry with the SRE Area prior to construction of the SRE Project (i.e. the purpose of this report).

ES2 Assessment of effects

A preliminary identification of potential impact events was undertaken, identifying eight contamination related events for the SRE Project. An assessment of effects was undertaken, focusing on:

- SRE Project related existing and potential soil and groundwater contamination during construction and operation, such as the release of chemicals and or hydrocarbons to the environment.

A targeted soils and geochemistry sampling program was undertaken to provide contamination, geochemistry and ASS data to characterise the existing soils and geochemistry environment within the existing SRE Area given this location is proposed to be the primary location for the smelter, refinery and associated infrastructure for the SRE Project.

The General Infrastructure Area, Water Infrastructure Area and Electricity Infrastructure Area of the SRE Project were not part of the scope of direct soil assessment; however, given the typical construction activities proposed in these location (i.e. ancillary infrastructure comprising water storage dams, water pipelines, soil stockpiles, laydown areas and access roads) and their proximity away from existing Olympic Dam mine operations it considered that additional investigations can be undertaken as part of the construction contract scope.

ES2.1 Soil assessment

The soil assessment collected a total of 38 primary samples from 19 locations (two samples per test pit), submitted for contamination laboratory analysis for TRH, BTEX, PAH and metals.

All concentrations for the contaminants analysed as part of the November 2024 targeted soil assessment were below the adopted human health and ecological site assessment criteria (SAC). PFAS was not included in this analytical program and is considered separately by the Stage 1 PFAS DSI completed by JBS&G (2026b).

Trace concentrations of metals (arsenic, chromium, copper, nickel and zinc) were detected in all analysed samples. Arsenic, copper and lead exceeded the background values taken in the *Field Geologist Manual, Monograph 9* (AIMM 2011).

Based on the November 2024 targeted soil and geochemistry investigation, risks associated with the contaminants assessed at the 19 test pit locations were considered low. The CSM was subsequently further refined to incorporate the findings of the Stage 1 PFAS DSI, including existing PFAS source areas and complete or potentially complete exposure and migration pathways.

ES2.2 Geochemistry

All soil samples analysed were non-acid forming (NAF) with low metal and metalloid concentrations, with the exceptions of arsenic and copper contents, which were targeted during subsequent leachate testing. A slag sample was also classified as NAF, with negligible net acid generation (NAG) values (<0.5 kg H_2SO_4/t), indicating no potential for net acidity upon oxidation. Copper leachate concentrations displayed a reasonable correlation with the corresponding whole-sample (solid) copper content and suggested that leachate copper may become more significant as whole-sample copper concentrations reach and exceed ~5,000 milligrams per kilogram (mg/kg) (0.5% Cu). This value may be used as a ‘cut-off’ for onsite management of enriched copper samples as the SRE Project proceeds as part of existing Olympic Dam site management plan.

All other analyte leachate concentrations, including arsenic concentrations, were reported at or below LORs (with the exception of two zinc leachate contents of 0.2 milligrams per litre (mg/L), which were marginally above the LOR of 0.1 mg/L), indicating that the overall risk of leachate from the disturbed material is low. The slag sample returned detectable leachate concentrations for a subset of enriched elements (notably cobalt, copper, molybdenum, and uranium); however, these results are based on toxicity characteristic leaching procedure (TCLP) testing, which represents an acidic, landfill-type leaching environment and is more aggressive than typical field conditions (e.g. rainfall). Given the non-acid forming nature of the slag (as indicated by NAG results), leachability under site conditions is expected to be lower.

Comparison of the laboratory results with monitored surface water and groundwater concentrations showed that water around site is already variable and characterised in many places as containing high levels of salinity. Although metal and metalloid concentrations are generally low, exceedances are reported in guideline values for metals such as manganese.

Any leaching from material disturbed by SRE Project activities is likely to have less of an impact on the receiving environment than mine affected water already present on site (such as the tailings storage facility) and can be appropriately managed in accordance with Olympic Dam's waste management plan.

ES3 Conclusion

This soil and groundwater impact assessment, comprising preliminary site investigation and associated targeted soils and geochemistry sampling program, concluded the following:

- No exceedances of the adopted human health and ecological SAC were identified for the contaminants analysed as part of the November 2024 targeted EMM soil investigation at the 19 test pit locations. PFAS was not included in that analytical program and was subsequently assessed by JBS&G (2026b) as part of their Stage 1 PFAS DSI.

- The Stage 1 PFAS DSI identified soil source areas at the pilot plant, current SX plant, former SX plant, emergency response shed and smelter. PFAS-affected concrete and pilot plant runoff water were also identified as potential secondary sources. Further investigation is proposed through the Stage 2 DSI to address remaining groundwater data gaps.

- Available baseline and post-baseline groundwater quality data indicate that groundwater within and downgradient of the SRE Area has remained generally consistent for the parameters assessed. Groundwater in the ALA and THA is naturally saline to hypersaline, with neutral to slightly alkaline pH and generally low dissolved metal concentrations. Relevant data and monitoring gaps with respect to the EPA (2024) Guideline 3 will continue to be considered through BHP's ongoing groundwater monitoring program.

- The revised CSM acknowledges existing PFAS contamination and associated exposure and migration pathways. The Stage 1 PFAS DSI identified complete worker exposure pathways through direct contact and incidental ingestion or inhalation of PFAS-affected soil/dust at existing source areas. These represent existing site conditions, rather than impacts generated by the SRE Project.

- Existing PFAS impacts identified through the Stage 1 DSI are pre-existing site conditions. The potential for SRE Project construction and operation to interact with these areas will depend on the final disturbance footprint and excavation requirements. Additional contamination risks associated with the SRE Project are expected to be manageable through targeted pre-construction sampling and implementation of material management controls.

- Any leaching from material disturbed by SRE Project activities is likely to have less of an impact on the receiving environment than mine affected water already present on site (such as the TSF; excluding PFAS) and can be appropriately management in accordance with Olympic Dam's waste management plan.

- Whilst no targeted sampling was undertaken within the General Infrastructure Area, Water Infrastructure Area and Electricity Infrastructure Area of the SRE Project, given the typical construction activities proposed in these location (i.e. ancillary infrastructure comprising water storage dams, water pipelines, soil stockpiles, laydown areas and access roads) it considered that additional investigations can be undertaken as part of the construction contract scope and subsequently managed in accordance with site construction waste management procedures.

Irrespective of the soil assessment outcomes, the following proposed management and mitigation measures should be applied, aimed at reducing any potential impact event significance to as low as reasonably achievable (ALARA):

- All hydrocarbon and chemical storage locations should be bunded for containment in accordance with relevant Australian Standards in order to prevent discharge in the event of a spill.

- Development of a site-specific construction environmental management plan (CEMP) including an unexpected find protocol to manage ground disturbance during SRE project development works.

- Targeted pre-construction PFAS soil sampling should be undertaken where proposed ground disturbance intersects, or has the potential to interact with, known or potential PFAS-affected areas. Sampling locations and depths will be informed by the disturbance footprint, footing depths and identified PFAS source areas.

- Where practical, SRE Project design and construction should avoid interception or disturbance of identified PFAS-affected soil, concrete and water. Where disturbance cannot be avoided, affected materials should be appropriately characterised, segregated and managed to prevent mixing with unaffected material and uncontrolled migration.

- Clean stormwater should be diverted away and/or around from known or potentially PFAS-affected areas, with potentially affected runoff appropriately contained and managed.

- Implementation of BHP's hydrocarbon and chemical spills procedure.

- Soils identified during construction with elevated copper concentrations (whole-sample copper contents exceed 5,000 mg/kg; 0.5% Cu), should be managed in accordance with existing management procedures. This may include segregation from general fill, controlled handling and placement, and minimisation of contact with water to reduce the potential for copper leaching.

- Ensuring best practice engineering controls, bunding of chemical and hydrocarbon storage, spill response procedures and implementation of BHP's site contamination management systems to further reduce the likelihood of contaminant migration to groundwater.

- Groundwater quality should continue to be monitored under BHP's existing site-wide groundwater monitoring program. As the program is reviewed and updated, BHP will seek to address relevant groundwater data and monitoring gaps identified through this assessment, having regard to EPA (2024) Guideline 3. Monitoring results will continue to be reviewed through BHP's standard environmental reporting and used to progressively refine the understanding of groundwater conditions.

TABLE OF CONTENTS

Executive summary **ES.1**

1 Introduction **1**

1.1 Project area definitions 1

1.2 Regulatory context 2

1.3 Project description 4

2 Baseline condition assessment **12**

2.1 Environmental context 12

2.2 Baseline environment 19

2.3 Conceptual site model 35

2.4 Conclusion 39

3 Assessment of effects **40**

3.1 Potential impact events 40

3.2 Assessment of effects 43

3.3 Site assessment criteria 44

3.4 Assessment results 52

References **84**

Abbreviations and acronyms **86**

Annexures

Annexure A	Groundwater quality plots	A.1
Annexure B	Calibration certificate	B.1
Annexure C	Test pit logs	C.1
Annexure D	Data validation report	D.1
Annexure E	Analytical results table	E.1
Annexure F	Laboratory documentation	F.1
Annexure G	Photographic record of activities	G.1
Annexure H	Assessment requirements	H.1
Annexure I	PSI checklist	I.1

Tables

Table 1.1	Project stages and timing	5
Table 1.2	Key characteristics of the SRE Project	7
Table 2.1	Land tenure associated with the SRE Project within the SML	12
Table 2.2	Key HSUs local to Olympic Dam	14
Table 2.3	Summary of potential sources of existing contamination and CoPC for the SRE Project	19
Table 2.4	Groundwater summary statistics – Andamooka Limestone Aquifer	28
Table 2.5	Groundwater summary statistics – Tent Hill Aquifer	29
Table 2.6	Groundwater hydrocarbon summary statistics – Andamooka Limestone Aquifer (post-baseline dataset)	34
Table 2.7	CoPC and applicable exposure pathways	37
Table 3.1	Preliminary SPR assessment – potential impact events	41
Table 3.2	Site assessment criteria	44
Table 3.3	Soil analytical suite	48
Table 3.4	Sample naming convention	52
Table 3.5	Sub-surface conditions	52
Table 3.6	Soil test pit PID details	53
Table 3.7	Summary of the quantifiable metal concentrations in soil (mg/kg)	54
Table 3.8	Topsoil soil characteristics results summary	55
Table 3.9	Topsoil Emerson aggregate test and particle size analysis results	56
Table 3.10	Subsoil soil characteristics results summary	57
Table 3.11	Subsoil particle size analysis results	57
Table 3.12	Olympic Dam laboratory acid-base accounting results	59
Table 3.13	Olympic dam whole-sample metal/metalloids concentrations	62
Table 3.14	Slag sample laboratory acid-base accounting results	67
Table 3.15	Slag sample net acid generation leachate results	67
Table 3.16	Slag sample whole-sample metal/metalloids concentrations	69
Table 3.17	Slag sample TCLP leachate results	69
Table 3.18	Preliminary qualitative risk assessment matrix	71
Table 3.19	SPR assessment	73
Table 3.20	Final SPR assessment – confirmed impact events	78
Table H.1	Assessment requirements	H.1
Table I.1	PSI checklist (EPA 2019)	I.1

Figures

Figure 1.1	SRE Project Area - regional locality	9
Figure 1.2	SRE Project Area - SML Area	10
Figure 1.3	SRE Project Area - EIGR Areas	11
Figure 2.1	Stuart Shelf hydrostratigraphy (adapted from BHP 2009)	15
Figure 2.2	Sensitive ecological receptors	18
Figure 2.3	ALA groundwater level contours (mAHD) circa April 2026	23
Figure 2.4	THA groundwater level contours (mAHD) circa June 2025	24
Figure 2.5	ALA and THA pH values – Box and whisker plot	30
Figure 2.6	ALA and THA TDS concentrations (mg/L) – Box and whisker plot	30
Figure 2.7	Piper diagram comparing site and regional-based ALA and THA bores	31
Figure 2.8	Conceptual site model	38
Figure 3.1	Test pit locations	47
Figure 3.2	MPA versus ANC for Olympic Dam samples	58
Figure 3.3	Copper whole rock concentrations vs copper leachate concentrations	65
Figure 3.4	MPA versus ANC for slag sample	66
Figure 3.5	GAIs for parameters associated with slag sample	68

1 Introduction

BHP Olympic Dam Corporation Pty Ltd (BHP) is proposing to develop the Smelter and Refinery Expansion Project (SRE Project) at the Olympic Dam mining operations, in the far north of South Australia (SA) (Figure 1.1).

EMM Consulting Pty Ltd and Lathwida Environmental Pty Ltd (EMM-Lathwida) are preparing an Environmental Impact Statement (EIS) for the SRE Project in accordance with EIS assessment requirements and Practice Direction 17 Impact Assessed Development under the *Planning, Development and Infrastructure Act 2016* (PDI Act) (SA).

EMM Consulting Pty Limited (EMM) was commissioned by BHP to undertake a soil and groundwater impact assessment (SGIA), including a targeted soils and geochemistry sampling program, of the proposed construction and operation related SRE Project activities to:

- determine if the activities have the potential to result in changes to the baseline soil and geochemistry environmental conditions (baseline condition assessment in Chapter 2 of this report)
- determine the likely magnitude of the change to the surrounding soils and geochemistry as a result of the SRE Project (assessment of effects in Chapter 3 of this report).

The soil sampling program collected samples from 19 test pit excavations that were completed by WSP as part of the geotechnical investigations in November 2024, with EMM collecting soil and geochemistry data[2] as part of a targeted soil assessment sampling program.

This report supports the EIS, which will be submitted to the Government of South Australia's Minister for Energy and Mining as the relevant Minister for the SRE Project under the *Roxby Downs (Indenture Ratification) Act 1982* (SA).

1.1 Project area definitions

To maintain consistency throughout the EIS and supporting technical assessments, the following terminology related to project infrastructure have been defined for the SRE Project is defined at the boundary around the SRE Project for which BHP is seeking approval, including:

- **Special Mining Lease (SML) Area**, located within the SML (Figure 1.2), which is further delineated by the following areas:
  - **SRE Area**: the extent of the proposed SRE Project infrastructure required for construction and operation of the SRE Project within the SML. Includes the existing brownfield plant area, proposed facility relocation(s), proposed plant and laydown areas.
  - **General Infrastructure Area**: the extent of the proposed ancillary infrastructure and ancillary activities required for construction and operation within the SML. Includes the proposed infrastructure laydown areas, proposed stormwater dam location, proposed topsoil and subsoil storage areas.
  - **Water Infrastructure Area**: the extent of the proposed water infrastructure and ancillary activities required for construction and operation within the SML. Includes the proposed water pipeline and water storage dam locations.

[2] Radiological samples were also collected for a separate radiation impact assessment for the SRE Project

- **Electricity Infrastructure Ground Re-Profiling Area (EIGR Area)**: the extent of the isolated proposed vegetation disturbance required to maintain regulatory clearance distances between the 275 kilovolt (kV) transmission line and the ground surface within Clause 28 land. It is noted that the transmission line and infrastructure are already in place, but additional electricity loads required for the SRE Project will result in increased transmission line temperature and more pronounced line sagging and, therefore, changes to existing clearance distances to enable safe operation (Figure 1.3).

1.2 Regulatory context

The SRE Project was declared an Impact Assessed development pursuant to section 108(1)(c) and 108(7) of the PDI Act on 29 August 2024. The declaration reflects the nature, scale and significance of the SRE Project to SA.

Impact Assessed Development is the most rigorous level of development assessment prescribed under the PDI Act.

Specifically, the Minister made the following declaration:

> Pursuant to Section 108(1)(c) and Section 108(7) of the Planning Development and Infrastructure Act 2016, having taken into account those principles prescribed under Regulation 27(2) of the Planning, Development and Infrastructure (General) Regulations 2017 (the Regulations) and having given consideration to the matters under Regulation 27(3) of the Regulations, I declare that all development of a kind specified in the Schedule to this Notice, to the extent that it is undertaken on land identified in Clause 28(1) of the Indenture as impact assessed development and that references to "development" include a project.

The majority of the SRE Project activities, with the exception of ground re-profiling within the Electricity Infrastructure Area, would be located wholly within the existing SML but does not include business-as-usual (BAU) operations (operations which enable existing approved production of up to approximately 200,000 tonnes per annum (tpa) total copper production) or activities associated with scheduled campaign maintenance 2027 (SCM27) works. These activities are subject to separate regulation (e.g. Environment Protection Authority (EPA) licensing) and approval. The SRE Project may also be supported by low impact development outside the SML, which could include, for example, minor road works and upgrades to accommodation infrastructure. It is proposed that any approvals required for these activities would be sought on an as-needs basis under applicable legislation and guidelines.

1.2.1 Planning Development and Infrastructure Act 2016 (SA)

Development approval is required for the SRE Project under the PDI Act.

i Ministerial declaration – impact assessed development

The declaration subjects the SRE Project to an EIS process requiring detailed environmental, social and economic assessment.

A Scoping Application was prepared by BHP to inform the development of EIS Assessment Requirements by the State Planning Commission (SPC). The EIS Assessment Requirements issued by the SPC summarise all potential issues needing to be addressed by BHP and highlight any further information required by the Minister to enable a proper assessment of the proposed SRE Project.

Due to the operation of the *Roxby Downs (Indenture Ratification) Act 1982*, the Minister for Energy and Mining is the relevant Minister for the SRE Project.

Specific assessment requirements for site and groundwater contamination (Annexure H) are as summarised as follows:

- Describe the historical land use and potential for contamination of soils and sediments within the SRE development footprint and describe any known or suspected soil contamination that could be re-suspended, released or otherwise disturbed as a result of the development.
- Provide a detailed description of the soils, landform and geology in the area of the development including the potential for water and wind erosion, soil salinity, acid sulphate soils and soil contamination.
- Identify the risks of contamination of land from spills of fuel (or other toxic substances). Describe measures for the prevention and containment of spills, describe the contingency plans to be implemented in the event of spills, and comment on their expected effectiveness.
- Describe the known groundwater related environmental conditions including level, quality and significance of groundwater in the area underneath the development and any surrounding area potentially affected by the proposed development's activities.

This SGIA addresses the above requirements by:

- baselining existing soil, contamination and acid sulphate soils (ASS) conditions to characterise the materials within and adjacent the SRE Project
- undertaking geochemical characterisation to determine potential:
    - metals and ions of potential concern that may be present in stockpiled material and slag
    - potential for the identified materials to be mobilised by water
    - reactions that may occur and products that could be formed following exposure to oxygen and water under anticipated pH conditions
- assessing results against relevant environmental criteria.

1.2.2 Guidelines for preparation of the assessment

EMM note the process for considering site contamination in development assessment is set out in State Planning Commission Practice Direction 14 (Site Contamination Assessment) 2021, the Planning, Development and Infrastructure (General) Regulations 2017 and the Planning and Design Code (the Code).

However, these processes are only relevant in circumstances where a change to a more sensitive land use is proposed and does not apply to the SRE Project which proposes to carry on an existing land use (i.e. development within an established mining industrial setting and infrastructure corridors).

The following guidelines have informed the preparation of this assessment and have, in whole or in part, determined the nature and level of detail required and presented:

- Soils and contamination:
    - National Environment Protection (Assessment of Site Contamination) Measure (as amended in May 2013) (ASC NEPM 2013).
    - PFAS NEMP 3.0 Guidelines (2025).

- *Environment Protection Act 1993* and (EPA) *Guidelines for the assessment and remediation of site contamination* (revised November 2019).

This consolidated soils, geochemistry and groundwater assessment demonstrates how the relevant Preliminary Site Investigation (PSI) and Stage 1 Detailed Site Investigation (DSI) requirements have been addressed with reference to the National Environment Protection (Assessment of Site Contamination) Measure 1999 (ASC NEPM) and the EPA *Guidelines for the assessment and remediation of site contamination* (2019), with a checklist identifying where the relevant requirements are addressed provided in Annexure I.

- Geochemistry:
  - *National Acid Sulfate Soils Guidance from Water Quality Australia*: Sullivan, L, Ward, N, Toppler, N and Lancaster, G (2018).
  - *National Acid Sulfate Soils Guidance: National acid sulfate soils identification and laboratory methods manual*, Department of Agriculture and Water Resources, Canberra, ACT.CC By 4.0.
  - *ARD Test Handbook*, AMIRA (2000).
- Groundwater:
  - SA EPA *Guideline 3 – Establishing baseline groundwater quality* (EPA 2024).
  - PFAS NEMP 3.0 Guidelines (2025).

1.3 Project description

The objective of the SRE Project is to expand BHP's smelter and refinery capacity, enabling the Copper SA growth plan by:

- increasing copper production capacity up to 650,000 tpa of total copper (plus associated products) from the current average production of approximately 200,000 tpa
- delivering a sustainable, highly productive, and more resilient smelting and refining flowsheet
- ensuring the Cu:S ratio is resolved at Olympic Dam for copper concentrate production
- delivering reliable and predictable production outcomes following the 2023 acquisition of OZ Minerals' Carrapateena and Prominent Hill mining operations to realise Copper SA province opportunities.

Key elements of the SRE Project are:

- expansion of, and additions to, the existing smelter and refinery to enable total production of up to 650,000 tpa copper plus associated products
- introduction of a two-stage smelting involving the installation of a new primary flash smelting furnace (FSF) to produce copper matte, adding material smelting capacity
- conversion of the existing direct-to-blister flash furnace (DBF) to a flash-converting furnace (FCF), which would process the matte into blister
- addition of an acid plant of similar nature and scale to the existing acid plant and subsequent upgrade of the existing acid plant

- expansion of the electrorefinery and precious metals recovery facilities to produce cathode copper, gold, and silver.

Associated with these key elements, the SRE Project would require new supporting facilities, infrastructure and services and the upgrade, removal and/or relocation of existing facilities and services within the SML Area (Figure 1.2).

External to the SML Area, electricity would be supplied to the SRE Project through the existing 275 kV line from Davenport substation (near Port Augusta) to Olympic Dam mine, located within Clause 28 land[3] (EIGR Areas). Whilst the transmission line and infrastructure are already in place, additional electricity loads required for the SRE Project will result in increased transmission line temperature and more pronounced line sagging, reducing the existing electrical clearances that are required to enable safe operation. The maintenance of the required electrical clearances between the 275 kV line and the ground surface would necessitate isolated areas of land disturbance and associated vegetation clearance (Figure 1.3).

The SRE Project would be constructed and operated in a staged manner to enable production capacity up to 650,000 tpa of total copper and associated products, with stages detailed in Table 1.1.

This technical assessment has been prepared based upon the maximum potential impacts associated with Stage 2 (i.e. the greatest impact scenario) to ensure that the full extent of all potential impacts is identified and assessed.

The indicative location of key infrastructure is shown in Figure 1.2 and Figure 1.3, while the key project characteristics are outlined in Table 1.2.

Table 1.1 Project stages and timing

Stage	Smelter concentrate throughput (tpa)	Description	Anticipated timing
Stage 1a	1,100,000	Stage 1a includes: • an increase of smelter throughput to approximately 1,100,000 tpa of concentrate producing an output of approximately 390,000 tpa of total copper • a new regional concentrate receiving, handling and blending facility • upgrade and expansion of the existing smelter feed preparation, including additional concentrate storage, blending and a new steam dryer • installation of a new primary FSF to produce copper matte and conversion of the existing DBF to an FCF to convert matte to blister, including additional anode furnace and anode casting infrastructure and decommissioning of the existing electric slag reduction furnace (EF) if required • expansion of the brownfield slag concentrator supported by FSF slag cooling pits, a new interim slag stockpile and associated environmental management infrastructure • new off-gas management infrastructure, including additional gas and dust handling equipment • a new acid plant, additional acid storage, and an associated acid loading station to allow the export of acid • a new electrorefinery and associated anode preparation infrastructure • a new slimes treatment plant • expansion of the precious-metals refinery (PMR) facility.	2028 to 2032

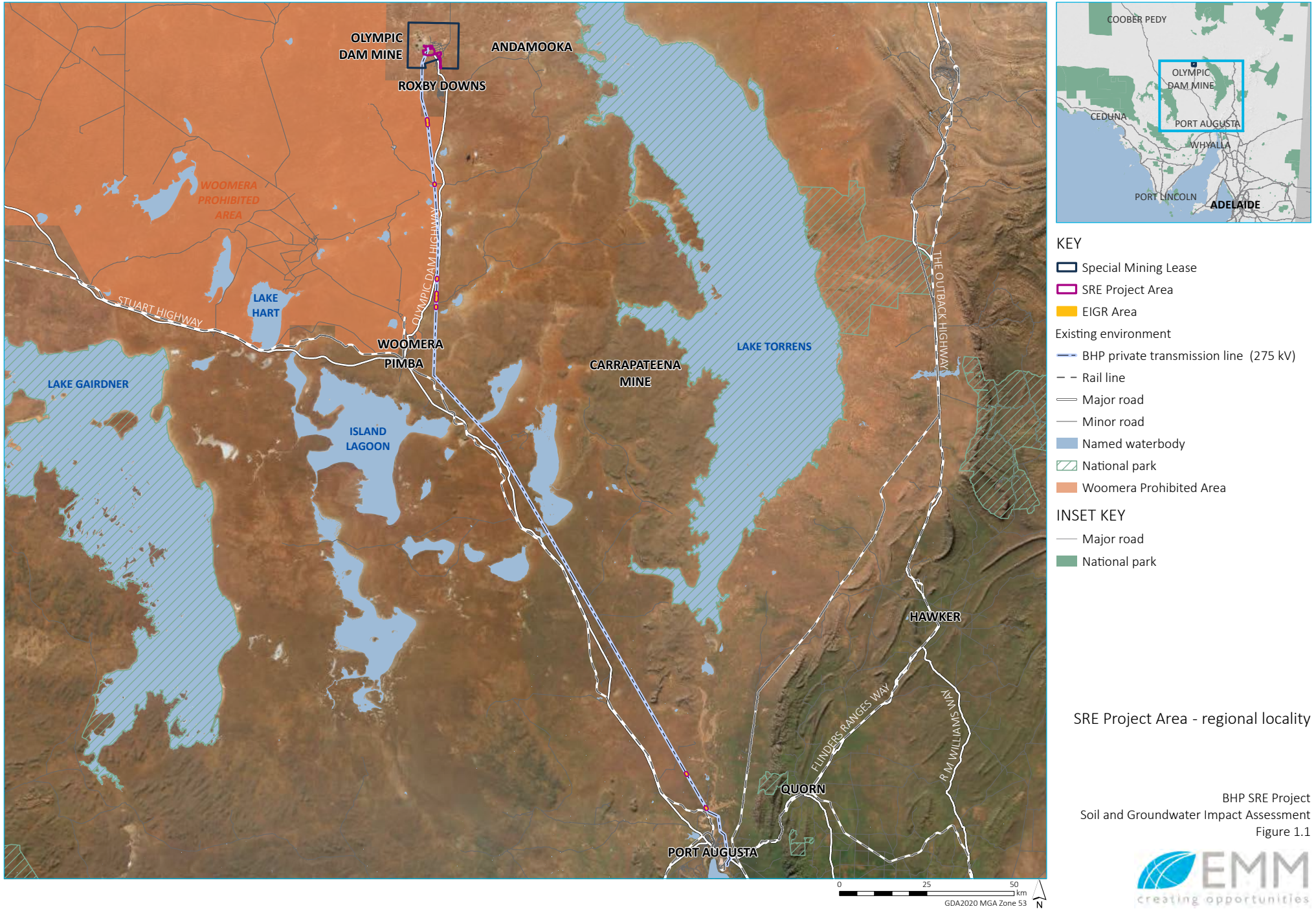
3 Clause 28 land as defined under the *Roxby Downs (Indenture Ratification) Act 1982* (SA)

Stage	Smelter concentrate throughput (tpa)	Description	Anticipated timing
Stage 1b	1,400,000	Stage 1b includes: • an increase in smelter throughput to approximately 1,400,000 tpa of concentrate producing an output of approximately 500,000 tpa of total copper • installation of additional concentrate leach thickening and filtration infrastructure • development of greenfield slag concentrator and associated stockpile and decommissioning of brownfield slag concentrator • incremental expansion of Stage 1a infrastructure and services, including: – the installation of additional electrorefinery modules – expansion of feed preparation, FCF feed system (including lime addition), off-gas management, acid plant, slimes treatment and PMR capacities.	2032 to 2036
Stage 2	2,000,000	Stage 2 includes: • an increase in smelter throughput to approximately 2,000,000 tpa of concentrate producing an output of approximately 650,000 tpa of total copper • installation of new concentrate leach circuit for treatment of imported concentrate • incremental expansion of Stage 1b infrastructure and services, including: – the installation of additional electrorefinery modules – the installation of an additional anode furnace and associated off-gas management infrastructure – expansion of feed preparation, FSF and FCF feed systems, off-gas and slag management, acid plant, slimes treatment and PMR capacities.	2038 to closure

Table 1.2 Key characteristics of the SRE Project

Project element	Summary
Smelter and refinery expansion and additions	Expansion of, and additions to, the existing smelter and refinery to enable production of up to 650,000 tpa copper plus associated products (gold, silver, and acid). This would include: • a new concentrate handling and blending facility • additional concentrate leach capacity • upgrade and expansion of the existing smelter feed preparation • installation of a new primary FSF to produce copper matte and conversion of the existing DBF to a FCF to convert matte to blister, including additional anode furnace and anode casting infrastructure • upgrade of the existing slag concentrator circuit and subsequent development of a new slag concentrator circuit • new off-gas management infrastructure, including additional gas and dust handling equipment • a new acid plant and upgrade of the existing acid plants • a new electrorefinery and associated infrastructure • a new slimes treatment plant • expansion of PMR facility • slag stockpile and treatment.
Electricity demand, supply and distribution	An electricity demand of up to 68 mega volt-amperes (MVA) net load increase would be required for the SRE Project. The additional electrical demand due to the SRE Project would be met by capacity from the national grid via the existing 275 kV transmission line (noting potential for below line land disturbance and associated vegetation clearance outside of the SML). Minor augmentation of existing onsite electricity supply infrastructure at Olympic Dam within the SML would be to ensure the additional capacity could be achieved and maintained. New high voltage and low voltage power supply and reticulation infrastructure would be required to all smelter infrastructure.
Water demand	Water demand of between 2 and 16 megalitres per day (ML/d) required for the SRE Project in addition to the existing supply for current operations.
Water supply and distribution	The SRE Project proposes no additional water abstraction from the Great Artesian Basin (GAB) above daily average BAU volumes. Water supply for the SRE Project would nominally be provided from the Department for Infrastructure and Transport (DIT) Northern Water Project (NWP) infrastructure, following commissioning of the initial 90 ML/d capacity of the NWP. This would require new water storage and distribution infrastructure to connect the SRE Project to the NWP connection point at the SML boundary. The NWP water supply may be supplemented or offset by the provision of local groundwater supply (subject to further approvals). This water supply would occur via existing process storage dams, the desalination plant at the Olympic Dam site, and/or through the distribution of the existing water supply within daily average BAU volumes. The additional water supplies are likely to require augmentation of the existing desalination water treatment plant and water distribution network, and a demineralised water plant will be required to support the SRE Project operations.
Supporting infrastructure	Supporting infrastructure includes: • civil infrastructure works, such as roads and stormwater infrastructure • new offices and crib rooms • new workshops • new laydown areas • process control system upgrades • concrete batching • other supporting infrastructure as required to facilitate the implementation and operation of the SRE Project.

<table>
<tr><th>Project element</th><th>Summary</th></tr>
<tr><td>Waste management</td><td>Development of the SRE Project may require decommissioning of the existing processing plant components including dryers, the electric furnace and the existing concentrate storage and transfer system. Some of the decommissioned infrastructure would be retained in-situ to preserve operational flexibility or for future management under the site Closure Management and Rehabilitation Plan; however, some elements may require disposal as a component of the SRE Project.
Waste generated during construction would be managed as follows:
• where practicable, demolition materials would be removed from site and recycled
• materials not suitable for removal from site would be managed on the SML via existing waste management facilities.
All waste generated from construction of the SRE Project would be managed in accordance with existing site procedures and approved management plans.
Operational wastes associated with the SRE Project consist of processing and non-processing wastes where:
• processing wastes are limited to low-copper slags generated from the smelting and slag concentrator operations that are not suitable for reprocessing and effluent streams from various process operations that are directed to tailings, including from the PMR and smelter off-gas systems
• non-processing wastes including reagent packaging wastes and operational consumables.</td></tr>
<tr><td>Workforce</td><td>100% fly-in/fly-out (FIFO) workforce is assumed for construction and the SRE operational workforce. Estimated peak construction workforce numbers (in full time equivalents (FTE)) are summarised below.
<table>
<tr><th>Construction stage</th><th>Average FTE</th><th>Peak FTE</th></tr>
<tr><td>Stage 1a</td><td>~708</td><td>~1,313</td></tr>
<tr><td>Stage 1b</td><td>~260</td><td>~515</td></tr>
<tr><td>Stage 2</td><td>~519</td><td>~978</td></tr>
</table>
Following construction, the SRE Project would require the permanent operational workforce summarised below:
<table>
<tr><th>Operational stage</th><th>Additional SRE Project operational workforce</th><th>Total Olympic Dam Smelter and Refinery workforce</th></tr>
<tr><td>Stage 1a</td><td>~207</td><td>766</td></tr>
<tr><td>Stage 1b</td><td>~57 (additional to Stage 1a)</td><td>823</td></tr>
<tr><td>Stage 2</td><td>~244 (additional to Stage 1b)</td><td>1,067</td></tr>
</table>
SRE Project construction and operational workforce is proposed to utilise existing and new accommodation to be established by BHP for the scheduled campaign maintenance 2027 (SCM27) shutdown, Olympic Dam future campaign maintenance accommodation, and/or greenfield accommodation (subject to separate approvals).</td></tr>
<tr><td>Concentrate import</td><td>Import of copper concentrate from Prominent Hill and Carrapateena mining operations, as well as possible future mining operations (e.g. Oak Dam), and maintain the ability to receive copper concentrate from other third-party suppliers.
Prominent Hill concentrate may be passed through concentrate leach to remove fluorides prior to smelter feed preparation. Carrapateena concentrate to pass directly to smelter feed preparation. Other, third-party concentrates may be passed through concentrate leach to remove deleterious elements (e.g. fluorides) prior to smelter feed preparation as required.</td></tr>
<tr><td>Production and export</td><td>Total production volumes of up to:
• ~650,000 tpa of cathode copper
• ~893,000 ounces per annum of gold
• ~3,950,000 ounces per annum of silver
• ~4,900 tpa of uranium oxide concentrate; note that the SRE Project does not materially change existing uranium production, with an increase of approximately 1% expected as a result of the leaching of Prominent Hill concentrate to remove fluoride. No upgrade or modification of uranium production facilities is proposed as a part of the SRE Project
• ~1,700,000 to 1,900,000 tpa of 98% sulphuric acid (H_2SO_4), of which up to approximately 810,000 tpa may be exported from Olympic Dam (i.e. operations become ‘net’ sulphuric acid producer).</td></tr>
</table>



KEY

- Special Mining Lease
- SRE Project Area
- EIGR Area

Existing environment

- BHP private transmission line (275 kV)
- Rail line
- Major road
- Minor road
- Named waterbody
- National park
- Woomera Prohibited Area

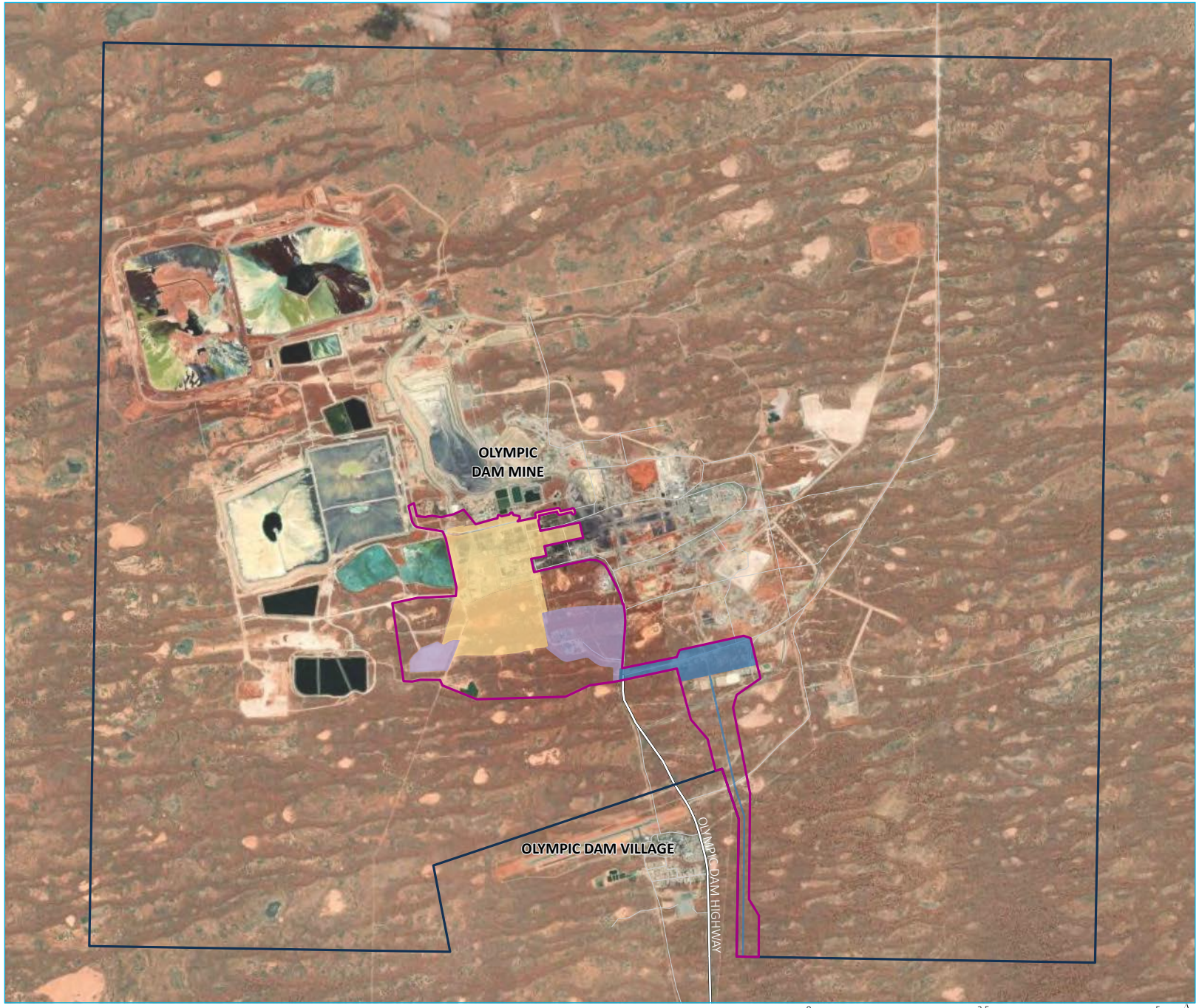
INSET KEY

- Major road
- National park

SRE Project Area - regional locality

BHP SRE Project
Soil and Groundwater Impact Assessment
Figure 1.1

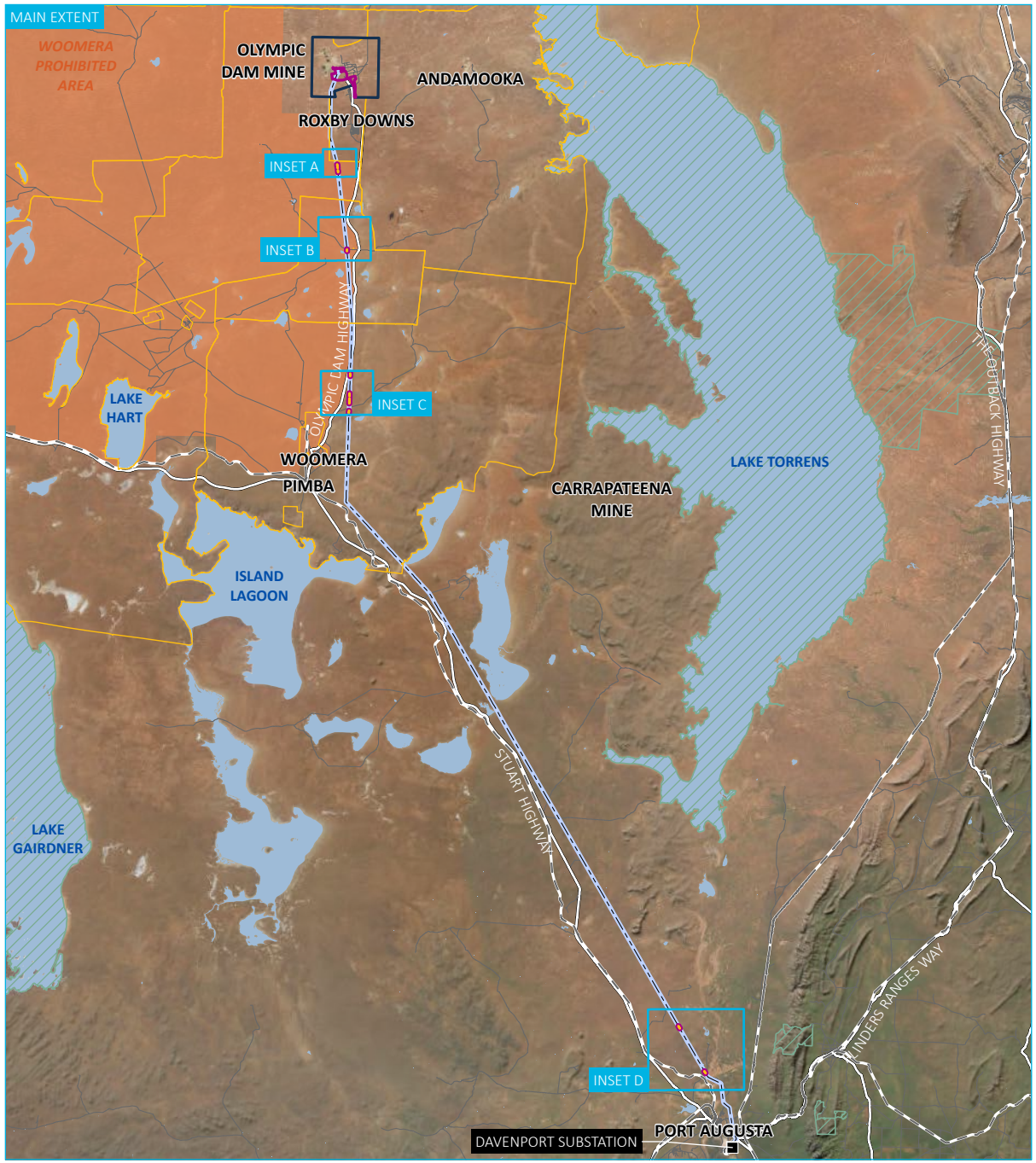
EMM
creating opportunities

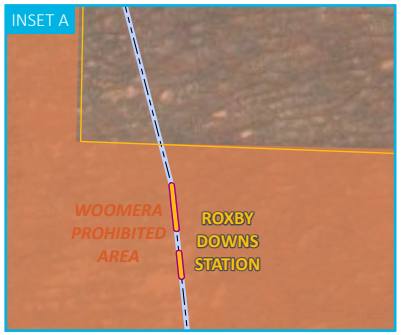


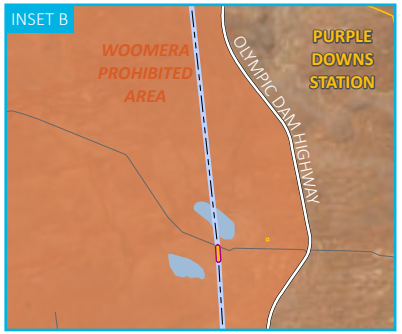
SRE Project Area - SML Area

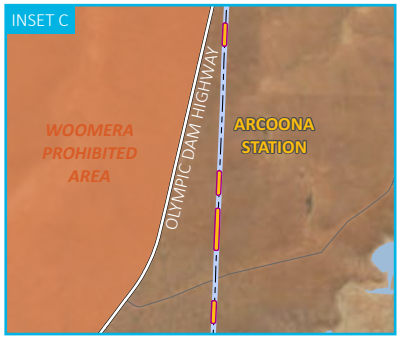
BHP SRE Project
Soil and Groundwater Impact Assessment
Figure 1.2

EMM
creating opportunities



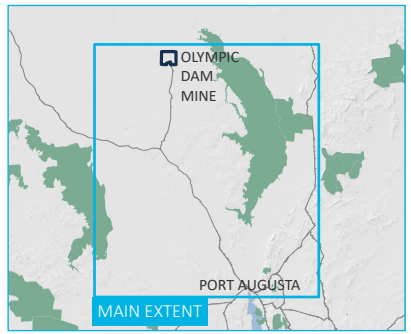








0 25 50 km
GDA2020 MGA Zone 53
N



KEY

- Special Mining Lease
- SRE Project Area
- EIGR Area

Existing environment

- Transmission substation
- BHP private transmission line (275 kV)
- Rail line
- Major road
- Minor road
- Named waterbody
- National park
- Pastoral station
- Woomera Prohibited Area

INSET KEY

- Major road
- National park

SRE Project Area - EIGR Areas

BHP SRE Project
Soil and Groundwater Impact Assessment
Figure 1.3

EMM creating opportunities

2 Baseline condition assessment

2.1 Environmental context

2.1.1 Study area

The soil assessment considered the SRE Area as the study area, being the primary location for proposed smelter and refinery expansion infrastructure and undertook targeted sampling investigations in key infrastructure locations for the SRE Project (Figure 1.2).

No targeted sampling was undertaken within the General Infrastructure Area, Water Infrastructure Area and Electricity Infrastructure Area of the SRE Project; however, given the typical construction activities proposed in these location (i.e. ancillary infrastructure comprising water storage dams, water pipelines, soil stockpiles, laydown areas and access roads) it considered that additional investigations can be undertaken as part of the construction contract scope.

2.1.2 Environmental setting

i Site location

The SRE Project is located at the Olympic Dam mining operations, approximately, 580 km north of Adelaide in the far north of South Australia (Figure 1.1).

The existing BHP Olympic Dam includes a mining concentrator, smelter and refinery, with the smelter treating high grade copper concentrates through a single stage DBF smelter, with an average output of approximately 200,000 tpa of total copper (and associated products).

Site access is via Olympic Dam Highway to the existing Olympic Dam mine site. The SRE Project is serviced by internal (and proposed new) access road, with public access restricted at the main entrance to the mine site. Olympic Dam airport is located approximately 6 km south of the existing Olympic Dam mine. The closest township is Roxby Downs which is approximately 15 km south of the mine site.

The majority of the SRE Project would be located within the Olympic Dam SML. The land tenure details are summarised in Table 2.1.

Table 2.1 Land tenure associated with the SRE Project within the SML

Tenement type	Description
Tenure	SML
Tenure description	SML1 overlays the freehold tenure (CT 5140/575)
Tenure holder	BHP Olympic Dam Corporation Pty Ltd
Purpose	Operating Olympic Dam mine (Copper; Uranium Oxide; Dolomite; Sand; Gold; Silver; Limestone)
Location of land	580 Km north of Adelaide in the Far North of South Australia
Area	Approximately 17,800 hectares (ha)

ii Topography

The SRE Project is located within the Gawler Interim Biogeographic Regionalisation of Australia (IBRA) Bioregion which spans approximately 123,605 km^2.

The Gawler Bioregion is characterised by semi-arid to arid flat to rounded landscapes, rocky hills, plains and salt-encrusted lake beds. The native vegetation across the area is generally relatively intact, but highly disturbed in some areas particularly near stock watering points or infrastructure.

The surrounding landscape of the SRE Project includes the Olympic Dam operations, Airport, and Olympic Dam Village and the nearby township of Roxby Downs, which is connected by a network of established roads. Beyond this, there are large areas of native vegetation to which are subject to pastoral leasing.

Olympic Dam is located within the Roxby land system, comprising extensive dunefield over a calcareous plain. The study area sits within the Olympic Dam area where the landscape consists of small undulating plains covered with intermittent native vegetation, sand dunes and claypans. The topography is generally flat with slight undulations with elevations of approximately 100 m Australian Height Datum (AHD), dunes up to 8 m in height trending east west, and swales and clay pans forming the local landscape.

iii Groundwater flow systems and hydrostratigraphic units (HSU)

a Local groundwater system

Groundwater within the broader Olympic Dam region generally occurs in the fractured rocks tens of meters below the surface. Groundwater generally moves very slowly, from west to east, and ultimately discharges to Lake Torrens, a regional evaporative sink approximately 30 km to the east (BHP 2009).

Although the Olympic Dam ore body is located within the fracture basement of the Gawler Craton, it is the Stuart Shelf that is important hydrogeologically (BHP 2009). Within the SML, the two primary aquifers with the ability to transmit groundwater, are the Andamooka Limestone Aquifer (ALA) and the deeper Tent Hill Aquifer (THA). The regionally extensive Pandurra Formation is a known fractured rock aquifer and is the source of the Carrapateena Mine's water supply. It is located beneath the Tregolana/Woomera Shale; however, it is absent beneath Olympic Dam's SML and is known to exist further south.

The primary aquitards which impede groundwater flow are the Arcoona Quartzite and the Tregolana/Woomera Shale. Table 2.2 summarise the main hydrostratigraphic unit's (HSU's) within the Olympic Dam region, while Figure 2.1 illustrates the stratigraphy and hydrostratigraphy.

Groundwater level responses differ between the shallow ALA and the deeper THA. In the ALA, seepage from the existing tailings storage facilities (TSFs) through the unsaturated Quaternary sediments has produced groundwater mounding approximately 10 to 20 m above pre-mining baseline levels. The regional ALA water table sits at approximately 48 mAHD, compared to levels of up to 60 mAHD beneath the TSFs. The available monitoring data from the ALA does not show a groundwater level response to water supply abstraction from the THA or depressurisation of the THA associated with underground mining.

The THA is affecting by existing underground mining, which acts as a groundwater sink and has led to the development of a groundwater cone of depression. Drainage to raise bores intersecting the THA and abstraction from the existing saline wellfield are also identified as potential contributors to THA drawdown. The contrasting ALA mounding and THA depressurisation supports the interpretation that the Arcoona Quartzite limits hydraulic connection between the two aquifers.

The groundwater level dataset presented in Section 2.2.2ii indicates ALA levels of approximately 55 to 68 mAHD within the SRE Area, corresponding to depths of 35 to 48 metres below ground level (m bgl). THA groundwater levels in the vicinity of the SRE Area are approximately -20 to 0 mAHD, with levels below -80 mAHD measured near the underground mine. These are existing operational conditions, rather than groundwater changes attributed to the proposed SRE Project.

More details related to the HSUs, groundwater flow and overall site hydrogeological conceptual model are discussed in Section 2.2.2vi.

Table 2.2 Key HSUs local to Olympic Dam

Province	Hydrostratigraphic Unit	Description
Stuart Shelf	Andamooka aquifer (ALA)	Limestone, grey, off-white, brown, buff, pink, recrystallised, commonly dolomitised, locally sandy or pyritic. Represents the regional water table, becoming confined by the Yarra Wurta and Bulldog Shale to the north. Typically, saline to hypersaline.
	Arcoona Quartzite aquitard	Highly resistant, metamorphose sandstone composed predominantly of quartz grains. Considered a highly cemented aquitard which separates the ALA from the underlying THA but can yield water if secondary porosity is induced.
	Tent Hill aquifer (THA)	Collectively, includes the Corraberra Sandstone and lower (white) Arcoona Quartzite units, as well as transition zone in the upper Tregolana Shale and equivalents. Moderate permeability aquifer with variable degree of secondary porosity. Can be high yielding in association with major structures and high groundwater pressures. Provides saline water supply for Olympic Dam, typically ranging between 0.3 to 5.7 ML/d. Typically hosts saline groundwater but beneath and adjacent to Lake Torrens to the east, hosted groundwater can be hypersaline (brines).
	Tregolana Shale aquitard	Equivalent to the Woomera Shale, this unit comprises reddish-brown laminated shale and siltstone, minor ripple cross-laminated sandstone; flute casts. Semi-confining unit that separates the THA from basement rocks.
	Nuccaleena (Basal) aquifer	Laminated to well-bedded dolomite, pink and cream to buff-yellow, weathering to pale yellow-brown. Generally considered an aquifer which sits unconformably on basement.
Basement	Olympic Dam Breccia Complex, Roxby Downs Granite and other HSUs, considered as aquitards	Typically, the crystalline basement rocks of the region form saline/hypersaline aquifers only where fractured. For the most part, basement rocks can be considered as aquitards. Depressurisation of the basement HSUs driven by: a) pressure response to depressurisation/dewatering of overlying HSUs b) hydraulic response due to interaction with development voids.

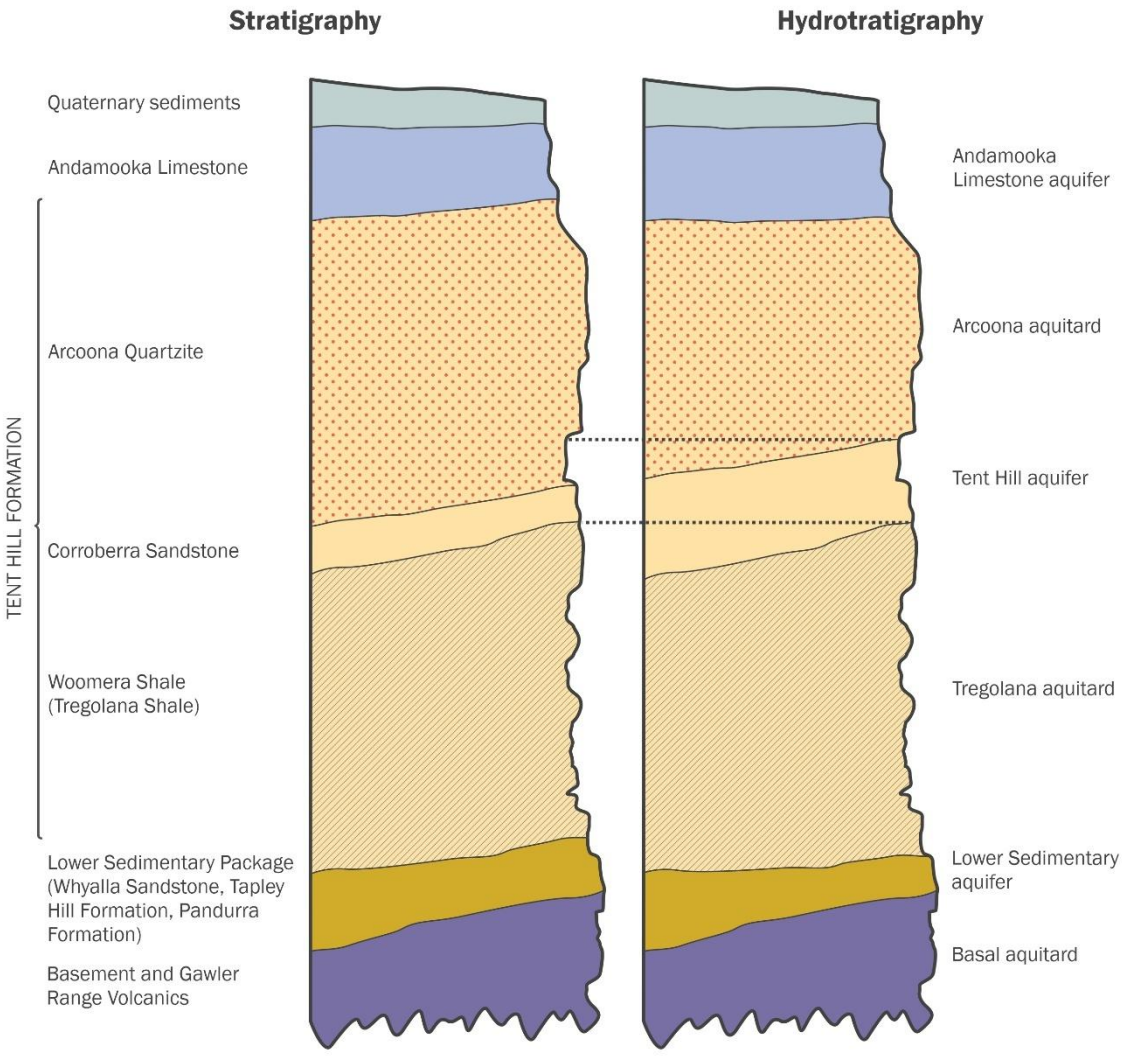


Figure 2.1 Stuart Shelf hydrostratigraphy (adapted from BHP 2009)

b Great Artesian Basin

Regional water supply for the Olympic Dam operation is sourced from the GAB. Two wellfields (Wellfield A and Wellfield B) abstract groundwater from confined GAB aquifers located approximately 100 km north of Olympic Dam at the south-western margin of the basin (Wellfield A), and a further 80 km to the north-east (Wellfield B).

The GAB aquifers are regionally extensive, confined sandstone systems that are hydraulically distinct from the Stuart Shelf aquifers underlying the SML. There is no direct hydraulic connectivity between the GAB wellfields and the local ALA or THA aquifers at Olympic Dam. Groundwater abstraction from the GAB is managed according to long-term monitoring and environmental management criteria, with observed drawdown and spring flow responses generally consistent with historical predictions and compliance requirements (BHP 2023a).

iv Soil description

As part of the previous EIS (BHP 2009), baseline soil characterisation was performed via desktop and historic field survey investigations. Soils around Olympic Dam mine operation form part of the sand dunes with interdunal clays pans soil unit, with general descriptions encompassing:

- red to reddish brown sand dunes
- interdunal clayey soils with gibber surface gibber surface rock and little vegetation
- clay pans generally with no surface rock and devoid of vegetation.

The sands are highly permeable and alkaline, while the clays are expansive and have low permeability when wet.

No direct samples were taken within the Olympic Dam mine area in the 2009 EIS, with soil samples previously taken along the gas pipeline and infrastructure corridor. Samples were tested for field pH, electrical conductivity, metals and nutrients, compared to the National Environmental Protection (Assessment of Site Contamination) Measure (NEPM) health and ecological based investigation levels (NEPEC 1999).

The soil samples reported background level concentrations of metals. No concentration was above the NEPEM health and ecological guidelines. Nutrients concentrations and organic matter were low to very low, typical of soil in arid and semi-arid environments of low natural fertility.

Previous soil description, contamination or geochemistry sampling data related to the original pastoral baseline conditions were not available on the documents made available to EMM, including the Olympic Dam Project EIS (RMS 1982).

It is noted that there is some uncertainty in the baseline soil conditions due to the spatially limited nature of the 2009 EIS sampling program, the absence of original pastoral data, and the time elapsed since those investigations, during which laboratory analytical methodologies and detection limits have improved. Updated soil sampling undertaken as part of the current investigation provides a recent dataset for the SRE Area (Section 3.2.1).

v Acid sulphate soils

The previous EISs did not identify the presence of potential acid sulphate soil (ASS) areas in and around the Olympic Dam mine location, and the South Australian Department for Environment and Water's acid sulphate soil potential mapping (DEW 2020) does not show any land susceptible to the development of ASS within the region.

vi Olympic Dam contaminated site register

The 3 ML tank area within the SML is a known contaminated site associated with historical hydrocarbon leakage from diesel storage tanks, first identified in 2002.

The tanks were decommissioned in 2003, and environmental investigations and remediation activities have been undertaken by BHP since that time. Ongoing groundwater monitoring is conducted at three-year intervals. A S83A notification was submitted to the EPA in 2019.

The 3 ML tank was demolished and removed in late 2021. Soil sampling undertaken beneath the former tank footprint identified no evidence of residual hydrocarbon contamination.

The site is managed in accordance with BHP's internal site contamination management procedures (IMS Element 8 – Site Contamination Management) and is not related to the SRE Project. Accordingly, it has been excluded from the SRE assessment of affects scope.

2.1.3 Sensitive receptors

Sensitive receptors potentially impacted by the SRE Project and possible soil contamination include:

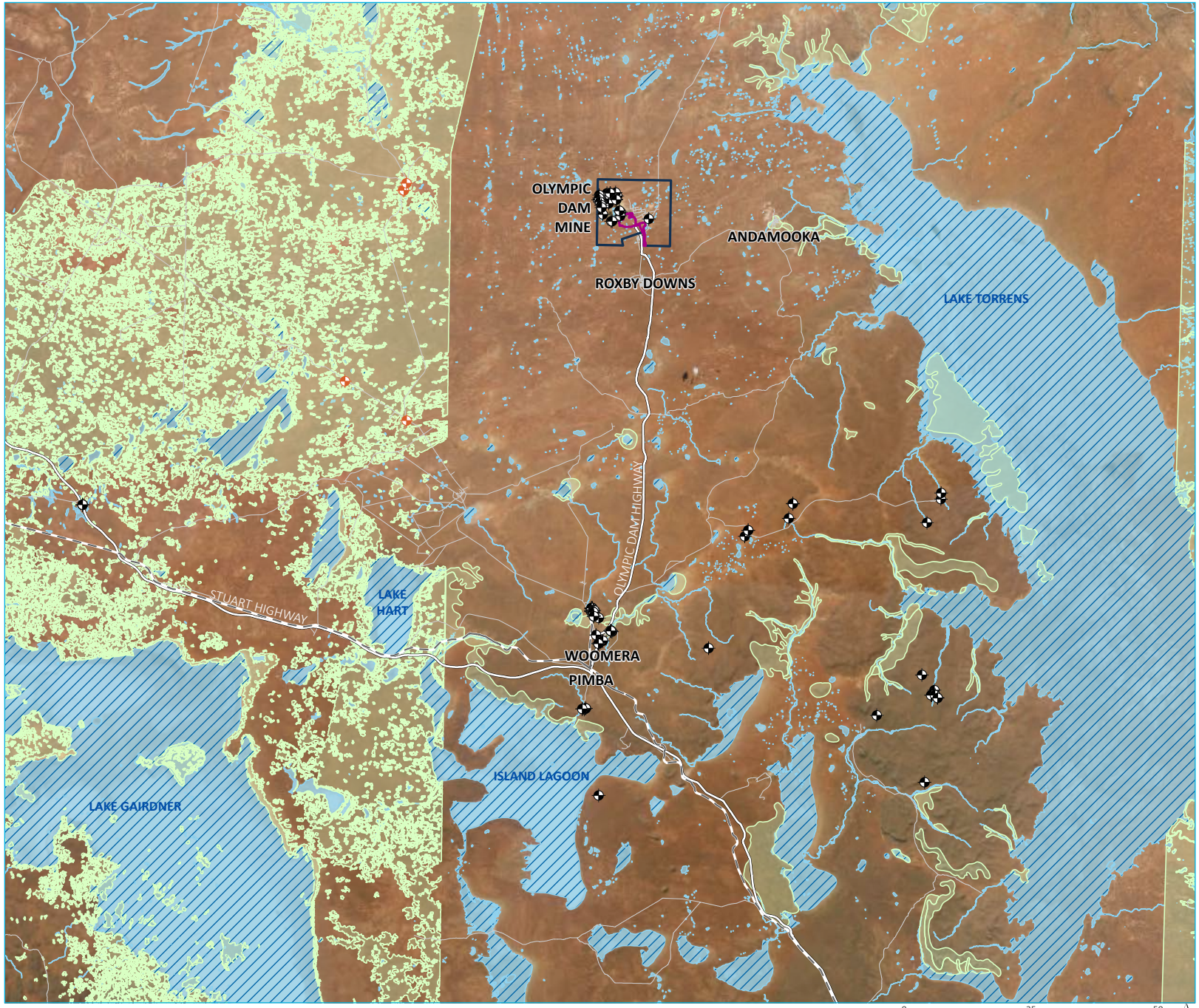
- future construction workers and visitors involved in infrastructure development
- future and current operation mine workers and visitors
- groundwater and ecological receptors, including terrestrial, aquatic ecosystems and potential groundwater dependent ecosystems (GDEs).

No third-party groundwater users and aquatic ecosystems are located in proximity to the SRE Project. Potential aquatic GDEs were identified the study area associated with accumulation of sediments that can hold water for a period of time within the SML (e.g. claypans) – refer Figure 2.2. Regionally, Lake Torrens is the largest sensitive receptor for groundwater discharge with a number of hypersaline springs and seeps, including the Yarra Wurta Spring Group (BHP 2009), as well Coorlay Lagoon, Salt Creek and Bosworth Creek drainage lines (OZL 2018). These receptor locations are over 30 km from the SML and, thus, are unlikely to be affected by any SRE Project activities.

A separate ecological impact assessments is being prepared for the SRE Project to assess potential impacts to ecological receptors.

2.1.4 Annual compliance reporting

BHP prepare annual Environmental Protection and Management Program reports which present data on the environmental management of Olympic Dam operations, including any significant site contamination and associated reporting under the EP Act for actual or potential environmental material harm.





KEY

- Special Mining Lease
- SRE Project Area - SML Area
- Groundwater well
- Monitoring bore

Groundwater Dependent Ecosystem (GDE)

- Aquatic
- Terrestrial

Existing environment

- Rail line
- Major road
- Minor road
- Named waterbody

INSET KEY

- Major road
- National park

Sensitive ecological receptors

BHP SRE Project
Soil and Groundwater Impact Assessment
Figure 2.2

EMM creating opportunities

2.2 Baseline environment

2.2.1 Soils and related potential sources of contamination

Previous soil quality and characterisation information is presented in Section 2.1.2iii and based on the findings of the Olympic Dam EIS (1982), Olympic Dam Expansion Draft EIS (2009), Olympic Dam contaminated site register (March 2025), the PFAS Preliminary Site Investigation (JBS&G 2026a) and the PFAS Stage 1 Detailed Site Investigation (JBS&G 2026b). The review of previous contamination investigations within the SML Area was limited to the above-mentioned documents.

There are three known contaminated sites related to the broader Olympic Dam mine operation within the SML Area that are being investigated and managed under separate processes. Where findings from those investigations are relevant to the SRE Project, the have been considered in this assessment.

Based on the results of the previous soil quality baseline assessments, at the time of the investigation, regional soils surrounding the SRE Area did not contain identified potential sources of contamination or metals and nutrients associated contaminants of potential concern (CoPC).

The existing Olympic Dam mine and SRE operation, however, is a source of potential contamination to local soils and groundwater. Table 2.3 presents a summary of the potential sources of contamination and CoPC associated with existing Olympic Dam mine operation[4] and SRE Project. These CoPCs were identified to inform development of the targeted sampling program.

Table 2.3 Summary of potential sources of existing contamination and CoPC for the SRE Project

Existing source	CoPC	Comments
Historical use of the study area for mining and mining related activities include road access	[1]TRH, [2]BTEXN, [3]PAHs, [4]metals, ASS[5]	General Olympic Dam mine operation and roads could potentially result in: • possible leaks and spills of hydrocarbons/chemicals from machinery storage and equipment use • possible leaks and spills of raw materials/chemicals used at the mine.
Smelter tipping bays	[1]TRH, [2]BTEXN, [3]PAHs, [4]metals, ASS[5]	Location of tipping bays used to cool down the hot slag generated in the Smelter. This operation could result in: • possible leaks and spills of hydrocarbons from machinery and equipment use • minor heavy metal leaching from cooling bed.
Smelter support yard	[1]TRH, [2]BTEXN, [3]PAHs, [4]metals, ASS[5]	Location used to stockpile cooled hot slag generated in the Smelter. This operation could result in: • possible leaks and spills of hydrocarbons from machinery and equipment use • minor heavy metal leaching from stockpiles.
Undisturbed SRE Area	[1]TRH, [2]BTEXN, [3]PAHs, [4]metals, ASS[5]	Location is an undisturbed area with a few piles of sand and equipment. Potential contaminants in this area are related to possible leaks and spills of hydrocarbons from machinery and equipment use.

[4] Environmental radiation/uranium in soils has been assessed as part of the Radiation Impact Assessment

Existing source	CoPC	Comments
SRE new operations	[1]TRH, [2]BTEXN, [3]PAHs, [4]metals, ASS[5]	BHP general operation and roads could potentially result in: • possible leaks and spills of hydrocarbons from machinery storage and equipment use • possible leaks and spills of raw materials/chemicals used at BHP • minor heavy metal leaching from stockpiles and cooling beds.
Historical and current firefighting, aqueous film forming foam (AFFF) use and storage areas	PFAS[6]	Historical AFFF storage, firefighting, fire-training and fixed fire-suppression activities have resulted in PFAS impacts at a number of operation areas. The Stage 1 DSI identified principal soil source areas at the pilot plant, current solvent extraction (SX) plant, former SX plant, emergency response shed and smelter, with lower-level impacts at other operational areas (JBS&G 2026b).
PFAS-affected concrete within operational areas	PFAS[6]	PFAS was detected in concrete associated with historical AFFF storage/use and fixed fire-suppression systems. Leachate testing indicates affected concrete may act as a secondary source to surrounding soils and potentially groundwater (JBS&G 2026b).
Pilot plant fire-training runoff infrastructure	PFAS[6]	Elevated PFAS concentrations were identified in water contained in tanks receiving runoff from the historical pilot plant fire-training area. The affected water was identified as a potential secondary source to surrounding soils and groundwater (JBS&G 2026b).

Notes: 1. TRH – Total Recoverable Hydrocarbons.
2. BTEXN – Benzene, Toluene, Ethylene, Xylene and Naphthalene.
3. PAHs – Polyaromatic Hydrocarbons.
4. Metals including arsenic (As), cadmium (Cd), chromium (Cr), copper (Cu), nickel (Ni), lead (Pb), zinc (Zn), mercury (Hg).
5. ASS – Acid Sulphate Soils.
6. PFAS – Per- and polyfluoroalkyl substances

i PFAS Detailed Site Investigation

JBS&G (2026b) completed a Stage 1 Detailed Site Investigation (DSI) to assess the nature and extent of PFAS contamination across operational areas of Olympic Dam. The investigation was undertaken to address data gaps identified in the PSI, refine the PFAS Conceptual Site Model (CSM), characterise known and potential source areas, and to assess potential source-pathway-receptor linkages.

Stage 1 field investigations were undertaken during June and July 2025 and targeted 19 areas of environmental concern associated with known or potential past PFAS storage, use or discharge. These included the pilot plant/fire training area, current and former SX plants, smelter, electrorefining areas, workshops, wash bays, emergency response facilities and waste storage areas. The investigation comprised of soil bores to a maximum depth of approximately 3 m bgl, shallow soil sampling, concrete sampling and sampling of sediment and surface water from selected dams, tanks and sumps. Groundwater assessment was excluded from Stage 1 and will be undertaken during the subsequent Stage 2 DSI so that groundwater investigation areas can be targeted to the source areas identified during Stage 1.

All samples were analysed for a standard suite of PFAS compounds, with selected soil and concrete samples also subjected to leachate testing to assess the potential for mobilisation to surrounding soils and groundwater. Soil and sediment results were assessed against the PFAS NEMP human health investigation levels for commercial/industrial and public open space land uses, and relevant ecological guideline values. Water results were compared against recreational and aquatic ecosystem criteria.

The Stage 1 DSI identified PFAS across the operational mine areas assessed. The greatest soil concentrations were identified at the pilot plant, current SX plant, former SX plant, emergency response shed and smelter. Within the smelter area, eight soil samples from four locations were analysed. Maximum PFOS and combined PFHxS/PFOS concentrations were 1.76 milligrams per kilogram (mg/kg) and 1.96 mg/kg, respectively. No exceedances of the adopted commercial/industrial human health criteria were identified, but one sample exceeded the public open space criterion, and six samples exceeded one or more of the ecological screening criteria.

PFAS was also detected in all concrete samples analysed. The highest concrete concentrations were associated with the current SX plant and emergency response shed, with lower concentrations reported at the pilot plant, former SX plant, mills area, electrorefining infrastructure and underground fuel storage area. Leachate testing indicated the PFAS present in concrete is potentially mobile and that affected concrete may act as an ongoing secondary source of contamination to adjacent soil and potentially groundwater.

Elevated PFAS concentrations were also identified in water contained within two tanks at the pilot plant that receive runoff from the former fire-training area. These results exceeded the adopted recreational and ecological water criteria and were considered to represent a potential ongoing secondary source to surrounding soil and groundwater. Lower PFAS concentrations were detected at the other surface water locations sampled, with no exceedances of the adopted criteria noted.

The DSI refined the PFAS CSM and identified affected soil, concrete and surface water as existing source media. Leaching of PFAS from shallow soils and concrete across the site presents an exposure pathway to groundwater. It is noted, however, that vertical profiling shows that concentrations generally reduce with soil depth (up to 3 m bgl). The Stage 1 DSI did not assess groundwater and therefore did not determine the presence or extent of groundwater impacts or determine if there is a linkage between PFAS concentrations in soils and the groundwater system. The Stage 2 DSI plans to address data gaps identified during the Stage 1 DSI investigation, including lateral and vertical delineation of selected soil source areas, and the assessment of potential groundwater impacts.

The updated CSM also identified complete exposure pathways for site workers through direct contact with PFAS-affected soils and water, and through incidental ingestion and inhalation of contaminated dust generated from affected soils. These exposure pathways are expected to be incidental and are currently being managed through existing BHP WHS requirements. The implications of the Stage 1 DSI findings for the SRE Project, including requirements for management and mitigation of PFAS-affected materials, are discussed in Section 3.4.5iii.

2.2.2 Groundwater

The primary aquifers relevant to the SRE project are the ALA and THA, as outlined in Section 2.1.2. Baseline groundwater sampling for these aquifers was previously undertaken as part of the Olympic Dam Expansion EIS (BHP 2009).

Groundwater levels and quality within the ALA and THA are subject to an ongoing operational monitoring program (BHP 2024b). Monitoring includes annual groundwater level and quality measurements across an established network of site and regional bores. These bores are regularly inspected and maintained and are in suitable condition for sampling. This program is reviewed annually and updated as required.

The groundwater baseline presented in this assessment has been developed using the historical and newer groundwater data available for the ALA and THA, including data collected through previous investigations and BHP's ongoing operational groundwater monitoring program. These datasets were collected over different periods and for varying operational and assessment purposes and were not established to be able to address every item identified in the SA EPA *Guideline 3 – Establishing baseline groundwater quality* (EPA 2024). Some limitations and data gaps therefore remain in relation to the completeness and comparability of the available baseline dataset.

Groundwater monitoring will continue through BHP's existing site-wide monitoring program. As the monitoring program is reviewed and updated, BHP will seek to address relevant groundwater data and monitoring gaps identified through this assessment with respect to EPA Guideline 3.

While the ALA and THA represent the primary aquifers underlying the SML, regional water supply for the Olympic Dam operation is sourced from the GAB, which is hydrogeologically distinct from the local Stuart Shelf aquifers.

i Groundwater supply

The SRE Project would require an additional water demand of up to 16 ML/d. However, no increase in groundwater abstraction from the GAB above current Olympic Dam BAU volumes is proposed. Additional supply requirements would be met via DIT's NWP infrastructure.

The Olympic Dam site water balance was reviewed in the SRE Project surface water assessment (EMM 2026). This assessment indicates that BAU operational water demand averaged 30.3 ML/d between FY19 and FY23. The NWP is expected to supply an additional 90 ML/d of water, which is more than sufficient to meet the incremental water demand of up to 16 ML/d associated with the SRE Project. Due to this, no new abstraction from site groundwater or increase in abstraction from the GAB borefield is proposed for the SRE Project.

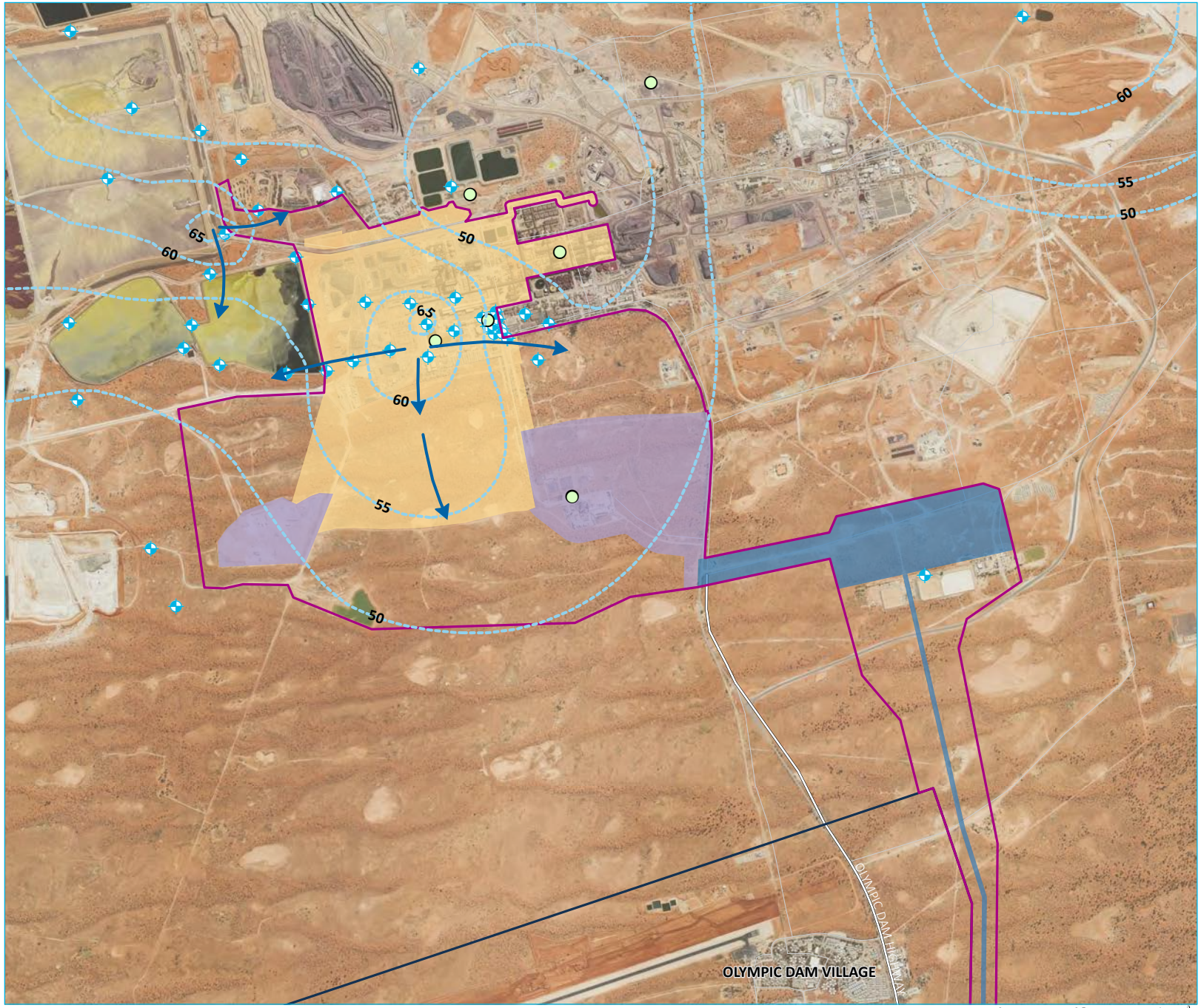
On this basis, the SRE Project would not change or influence the current groundwater regime of existing Olympic Dam operations and, thus, no additional water affecting activities are anticipated on the SRE Project site.

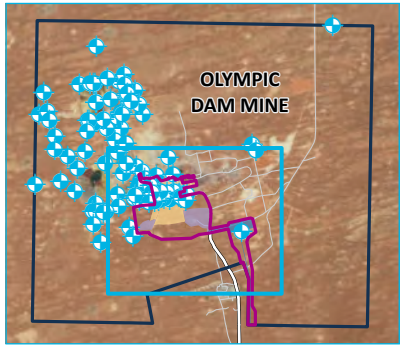
ii Groundwater levels

Groundwater level contours based on water level measurements collected primarily in June 2025 are presented in Figure 2.3 and Figure 2.4 for the ALA and THA, respectively. From these figures, the following is noted:

- Within the ALA, notable mounding is present underneath and adjacent to the TSFs within the SML, where water levels are 10 to 20 m higher than the surrounding area. Water levels of up to 68 mAHD are present below these facilities, compared to groundwater levels of approximately 50 mAHD surrounding the project area. Within the SRE Area, ALA groundwater levels range from 55 to 68 mAHD due to mounding in the nearby TSF. It is noted that although groundwater levels in the SRE area are elevated due to mounding, depth to groundwater remains significant at approximately 35 to 48 m bgl.

- Within the THA, significant drawdown in present in the vicinity of the underground mine void, where groundwater levels below -80 mAHD are measured. Groundwater levels at the SRE Area boundary range from 20 mAHD at the south-west to -50 mAHD at the north-east, suggesting groundwater flows toward the underground workings. In the vicinity of the SRE area, THA groundwater levels range from approximately -20 to 0 mAHD.





KEY

- Special Mining Lease
- SRE Project Area- SML Area
- SRE Area
- General Infrastructure Area
- Water Infrastructure Area
- Contaminated site
- Groundwater bore - ALA
- Groundwater contour - ALA
- Flow direction arrow - ALA

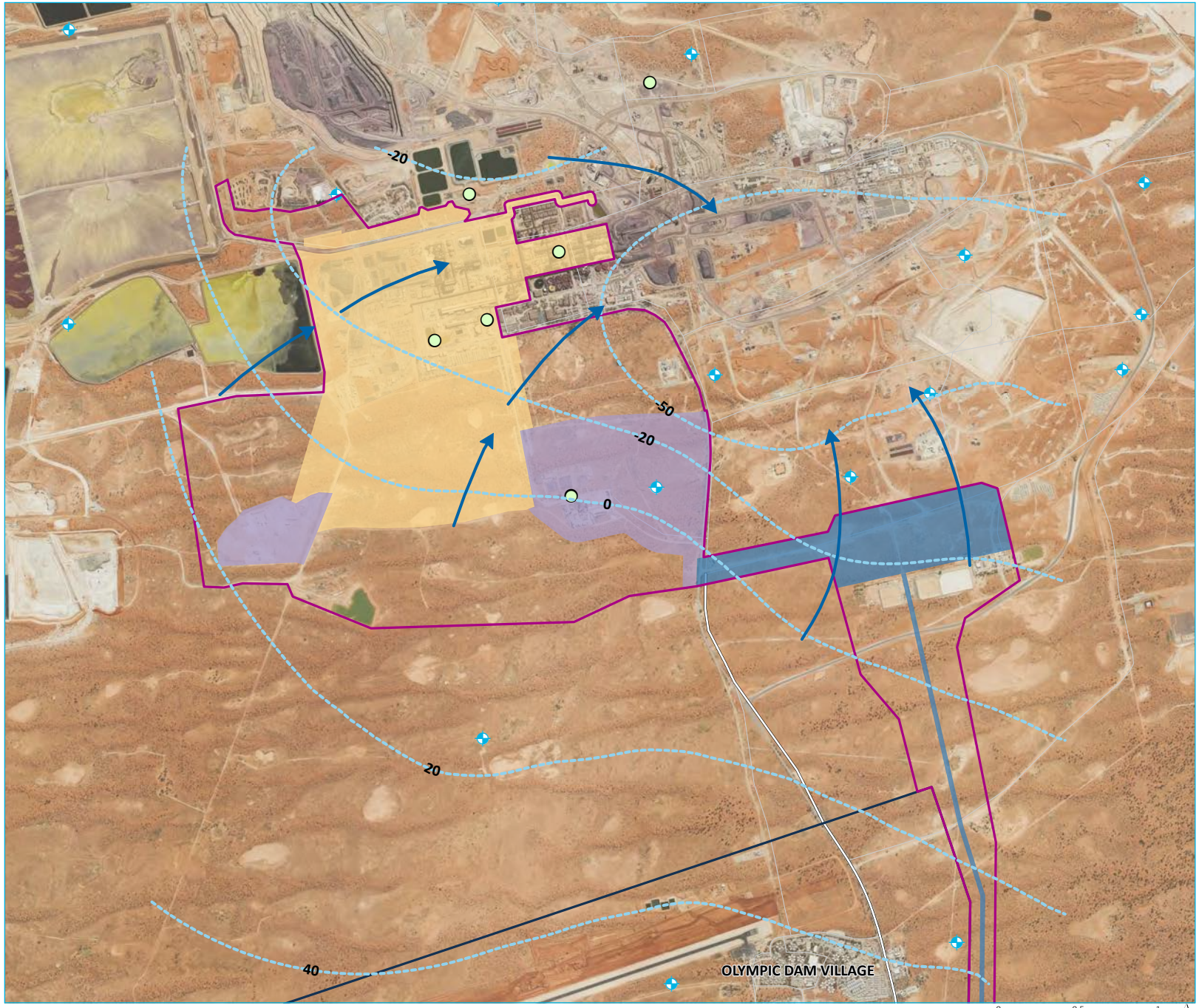
Existing environment

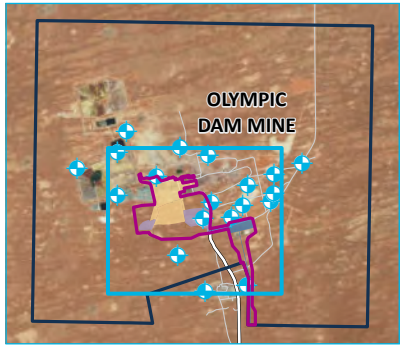
- Major road
- Minor road

ALA groundwater contours
(April 2026)

BHP SRE Project
Soil and Groundwater Impact Assessment
Figure 2.3

EMM
creating opportunities





KEY

- Special Mining Lease
- SRE Project Area- SML Area
- SRE Area
- General Infrastructure Area
- Water Infrastructure Area
- Contaminated site
- Groundwater bore - THA
- Groundwater contour - THA
- Flow direction arrow - THA

Existing environment

- Major road
- Minor road

0 0.5 1 km

GDA2020 MGA Zone 53

N

THA groundwater contours

BHP SRE Project
Soil and Groundwater Impact Assessment
Figure 2.4

EMM
creating opportunities

iii Groundwater quality

For the purpose of presenting the groundwater quality data, bores have been classified as either 'site' or 'regional' to provide an understanding of the aquifer properties both adjacent to the SRE Project and in a regional context. Site bores are those located within or adjacent to the SML, while regional bores are those located further from the site (generally third-party bores). Annual monitoring for copper, uranium, manganese, chloride, sulphate, calcium, iron, pH, total dissolved solids and electrical conductivity has been undertaken for 34 site-based bores from 2008 onwards. Additionally, groundwater monitoring data was collected as part of the Olympic Dam Expansion EIS (BHP 2009), where 58 bores were sampled between July 2006 and August 2007.

Baseline groundwater statistics for site and regional ALA bores are presented in Table 2.4, while statistics for site and regional THA bores are presented in Table 2.5. It is noted that for the purpose of calculating statistics, measurements which were below the laboratory limit of reporting (LOR) were assumed to be equal to the LOR. Box and whisker plots for key analytes are presented in Figure 2.5 and Figure 2.6, noting that results are only shown where 10 or more samples are available. Water chemistry has also been compared using a Piper diagram for all samples with sufficient data in Figure 2.7.

a Andamooka Limestone

From these tables and figures, the following is noted for the ALA results:

- Median ALA pH values for the regional and site-based bores are neutral to slightly alkaline, with values of 7.6 and 7.2, respectively.
- Median total alkalinity concentrations for the regional and site-based ALA bores are comparable, with values of 231 mg/L and 226 mg/L as $CaCO_3$, respectively. Regional bore concentrations ranged from <1 to 254 mg/L, compared with 101 to 515 mg/L for the site-based bores. The range of alkalinity concentrations for the site-based bores demonstrates strong buffering capacity in the local groundwater system attributed to the host rock being predominately limestone.
- The median ALA total dissolved solids (TDS) concentration is lower for site-based bores, with a median of 26,100 mg/L compared to 43,400 mg/L for the regional bores. In both cases, the range of TDS values displayed are saline to hypersaline.
- For both bore groups, sulphate, TDS and magnesium concentrations naturally exceed the livestock guidelines (ANZECC 2000). Despite the difference in median TDS concentrations, median sulphate and magnesium concentrations are comparable between the site-based and regional bores.
- Where measured, most metals were present in negligible concentrations which were usually near or below the laboratory LOR. Notable exceptions include copper, manganese, uranium and zinc.
- Median copper concentrations are low for both groups of bores, with regional bores having a median concentration of 0.013 mg/L compared to the site-based median of 0.004 mg/L. Site-based bores had a higher maximum copper concentration of 0.079 mg/L.
- Median manganese concentrations are 0.37 mg/L for the regional bores and 0.57 mg/L for the site-based bores. The 80th percentile and maximum values for the site-based bores were also higher than measured in the regional bores, but this is likely due to the limited dataset available for regional bores (11 samples for manganese, compared to 322 site-based measurements).

- Uranium concentrations are higher in the site-based bores, with the 80th percentile and maximum uranium concentrations being 0.135 mg/L and 0.92 mg/L, respectively. These elevated concentrations compared to regional bores are likely due to localised seepage from mine water storage locations which are targeted with ongoing groundwater monitoring (see Figure 3.1).

- Elevated zinc concentrations up to 1.4 mg/L were noted in the regional bores, whereas site-based bores contained negligible zinc concentrations up to 0.05 mg/L.

- Overall, site-based and regional groundwater quality statistics for the ALA are comparable, with the only notable differences being lower TDS and zinc concentrations, along with higher manganese and uranium concentrations observed on site.

b Tent Hill Aquifer

The following is noted for the THA results:

- Median THA pH values for the regional and site-based bores are neutral to slightly alkaline, with values of 6.9 and 7.5 respectively.

- Median total alkalinity concentrations are higher in the site-based THA bores, with a median of 238 mg/L as $CaCO_3$ compared with 138 mg/L for the regional bores. Regional bore concentrations ranged from <1 to 216 mg/L, compared with 50 to 302 mg/L for site-based bores.

- The median TDS concentration for the regional bores (29,700 mg/L) is slightly higher than the site-based bores (23,500 mg/L).

- For both bore groups, sulphate, TDS and magnesium concentrations naturally exceed the livestock guidelines (ANZECC 2000). Median sulphate and magnesium concentrations are slightly higher in the regional bores.

- Where measured, most metals were present in negligible concentrations which were usually near or below the laboratory LOR.

- Median manganese concentrations are 0.81 mg/L for the regional bores and 0.77 mg/L for the site-based bores. The 80th percentile and maximum values for the site-based bores were slightly higher than measured in the regional bores, with concentrations up to 1.39 mg/L and 1.69 mg/L measured in regional and site-based bores, respectively. These small differences are likely due to the limited datasets, with only 8 regional and 17 site-based measurements available.

- No iron measurements were available for the regional bores. The median iron concentration for the site-based bores is approximately 5 mg/L, with concentrations up to 13.8 mg/L measured.

- Overall, site-based and regional groundwater quality statistics for the THA are comparable, with minor differences likely explained by the limited data available.

c Baseline comparison and considerations

The groundwater baseline dataset discussed above includes monitoring locations within and surrounding the SML ('site' bores) as well as regional investigation bores. The broad range of EC and TDS values identified therefore combines different locations, depths and hydrostratigraphic settings, and does not represent variation within a single bore or within the SRE Area.

Major ion chemistry provides an additional basis for assessing the comparability of the site and regional baseline datasets. A Piper diagram presenting samples with sufficient major ion data is presented in Figure 2.7. Groundwater from both the ALA and THA is predominantly characterised by sodium and chloride dominated chemistry, with sulphate generally forming the main secondary anion. Site and regional samples from each aquifer show substantial overlap on the Piper diagram, with no distinct separation between the site and regional data. This is consistent with the statistical comparisons presented in Table 2.4 and Table 2.5 and indicates that, at the scale of the available baseline dataset, groundwater adjacent to the SRE Project is broadly comparable to the major ion chemistry observed regionally within the same aquifers.

The Piper diagram also demonstrates that natural variability occurs within the regional dataset. Two regional samples plot away from the main cluster. Dog Hollow Well, a shallow bore targeting the THA, has a substantially greater relative contribution from calcium, magnesium and bicarbonate, and a lower chloride contribution than the majority of the THA samples. This is consistent with its comparatively fresh groundwater, including the lowest EC recorded in the baseline dataset (0.5 microsiemens per centimetre (mS/cm)), and indicates a locally distinct hydrochemical setting rather than a site-related effect. A regional Purple Downs ALA sample also plots outside the main ALA cluster, with a greater relative contribution from both calcium, magnesium and sulphate, and a lower sodium-chloride dominance. Both outlying samples are from the regional dataset and therefore illustrate the range of naturally occurring groundwater compositions represented by the broader baseline.

The maximum ALA EC of 404 mS/cm and TDS of 261,000 mg/L are reported for regional bore RT-5b, located near the northern portion of Lake Torrens. BHP (2009) describes evaporative concentration of salts in this area. The shallower RT-5a monitoring bore in the same location also recorded an elevated EC of 99.6 mS/cm. The lowest EC measurement of 0.5 mS/cm was recorded in Dog Hollow Well, which is a 22 m deep bore targeting the THA.

These measurements represent natural variation and varying settings within the wider region and do not reflect site-based contamination.

Table 2.4 Groundwater summary statistics – Andamooka Limestone Aquifer

	pH	Total Alk.	EC	TDS	SO_4	Cl	Ca	Mg	Na	K	As	Cd	Cr	Co	Cu	Pb	Mn	Hg	Ni	U	Zn	Fe	Al
	-	mg/L	mS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Regional bores																							
Sample count	9	10	10	19	10	10	10	10	10	10	9	1	1	9	9	9	11	1	1	9	9	0	8
Minimum	7.2	<1	5.9	3,000	864	1,030	198	135	625	9	0.001	-	-	0.001	0.007	0.001	0.004	-	0.002	0.001	0.009	-	0.01
20th percentile	7.5	52.4	30	21,060	4,170	9,000	547	352	6,580	59	0.002	-	-	0.003	0.008	0.001	0.171	-	0.002	0.007	0.014	-	0.01
Median	7.6	230.5	52	43,400	4,770	20,050	889	860	12,650	107	0.004	0.0001	0.001	0.007	0.013	0.001	0.366	0.0001	0.002	0.01	0.053	-	0.025
80th percentile	7.7	244.0	92	62,280	5,722	34,440	986	1,438	22,140	150	0.007	-	-	0.009	0.017	0.001	0.708	-	0.002	0.037	0.174	-	0.112
Maximum	7.8	254.0	404	261,000	13,500	146000	1,930	5,880	94,200	347	0.017	-	-	0.011	0.036	0.002	3.28	-	0.002	0.076	1.4	-	0.37
Livestock guideline[1]	-	-	-	500	500	-	1,000	125	-	-	0.025	-	-	-	-	-	10	-	-	0.2	-	-	-
Site bores																							
Sample count	326	9	8	334	322	322	322	7	7	7	7	7	7	7	347	7	322	7	7	343	7	315	0
Minimum	5.9	101	15	5,570	140	2,700	146	279	2,920	38	0.001	0.0001	0.001	0.001	0.001	0.001	0.001	0.0001	0.001	0.002	0.01	0.01	-
20th percentile	6.8	128.8	27	22,300	3,960	9,726	788	459	5,034	44.8	0.001	0.0001	0.001	0.002	0.001	0.001	0.077	0.0001	0.001	0.024	0.011	0.05	-
Median	7.2	226.0	37	26,100	5,065	12,050	923	820	6,730	62	0.004	0.0001	0.002	0.002	0.004	0.001	0.574	0.0001	0.004	0.046	0.015	0.29	-
80th percentile	7.53	271.8	42	32,695	5,828	14,780	1,020	853	8,920	73.6	0.009	0.0002	0.008	0.006	0.014	0.013	1.40	0.0001	0.012	0.135	0.023	1.8	-
Maximum	8.05	515.0	51	73,500	8,930	34,900	2,180	932	12,000	77	0.02	0.001	0.01	0.01	0.079	0.04	10.7	0.003	0.013	0.92	0.05	34	-
Livestock guideline[1]	-	-	-	500	500	-	1,000	125	-	-	0.025	-	-	-	-	-	10	-	-	0.2	-	-	-

Note: 1. ANZECC (2000) livestock guidelines

Table 2.5 Groundwater summary statistics – Tent Hill Aquifer

	pH	Total Alk.	EC	TDS	SO_4	Cl	Ca	Mg	Na	K	As	Cd	Cr	Co	Cu	Pb	Mn	Hg	Ni	U	Zn	Fe	Al
	-	mg/L	mS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Regional bores																							
Sample count	11	11	12	19	7	7	7	7	7	7	8	5	5	8	8	8	8	5	5	7	3	0	3
Minimum	4.4	<1	0.5	234	35	89	12	8	61	3	0.001	0.0001	0.001	0.001	0.001	0.001	0.002	0.0001	0.001	0.001	0.005	-	0.01
20th percentile	6.5	44.0	7.8	7,986	1,678	8,056	774	357	3,968	23	0.002	0.0001	0.001	0.002	0.007	0.001	0.457	0.0001	0.001	0.003	0.012	-	0.022
Median	6.9	138.0	43	29,700	5,160	23,400	983	1,160	14,400	104	0.008	0.001	0.01	0.01	0.019	0.006	0.809	0.0001	0.01	0.01	0.023	-	0.04
80th percentile	7.9	183.0	83	65,220	11,648	54,800	1,104	2,372	31,480	176	0.01	0.001	0.01	0.01	0.02	0.01	0.975	0.0001	0.01	0.017	0.081	-	0.076
Maximum	9.8	216.0	328	203,000	12,900	136,000	1,150	5,170	86,800	368	0.034	0.001	0.01	0.014	0.04	0.01	1.39	0.0001	0.01	0.029	0.119	-	0.1
Livestock guideline[1]	-	-	-	500	500	-	1,000	125	-	-	0.025	-	-	-	-	-	10	-	-	0.2	-	-	-
Site bores																							
Sample count	17	5	5	21	17	17	17	5	5	5	5	5	5	5	19	5	17	5	5	19	4	12	0
Minimum	6.4	50.0	7.6	4,953	3,810	9,850	269	572	6,160	63	0.002	0.0001	0.001	0.003	0.001	0.001	0.19	0.0001	0.01	0.001	0.012	0.05	-
20th percentile	7.0	90.0	28	21,775	4,160	10,420	430	652	6,464	72	0.008	0.0008	0.008	0.009	0.001	0.008	0.58	0.0001	0.01	0.001	0.035	0.05	-
Median	7.5	238.0	44	23,500	4,390	10,700	540	706	10,800	74	0.01	0.001	0.01	0.01	0.005	0.01	0.77	0.0001	0.01	0.002	0.05	4.97	-
80th percentile	7.7	262.0	53	32,300	4,866	13,940	593	1,016	12,120	81	0.01	0.001	0.01	0.01	0.016	0.01	1.32	0.0001	0.028	0.01	0.05	11.6	-
Maximum	8.4	302.0	60	46,700	6,520	25,000	1,030	1,270	13,400	99	0.01	0.001	0.01	0.01	0.044	0.01	1.69	0.0001	0.034	0.01	0.05	13.8	-
Livestock guideline[1]	-	-	-	500	500	-	1,000	125	-	-	0.025	-	-	-	-	-	10	-	-	0.2	-	-	-

Note: 1. ANZECC (2000) livestock guidelines

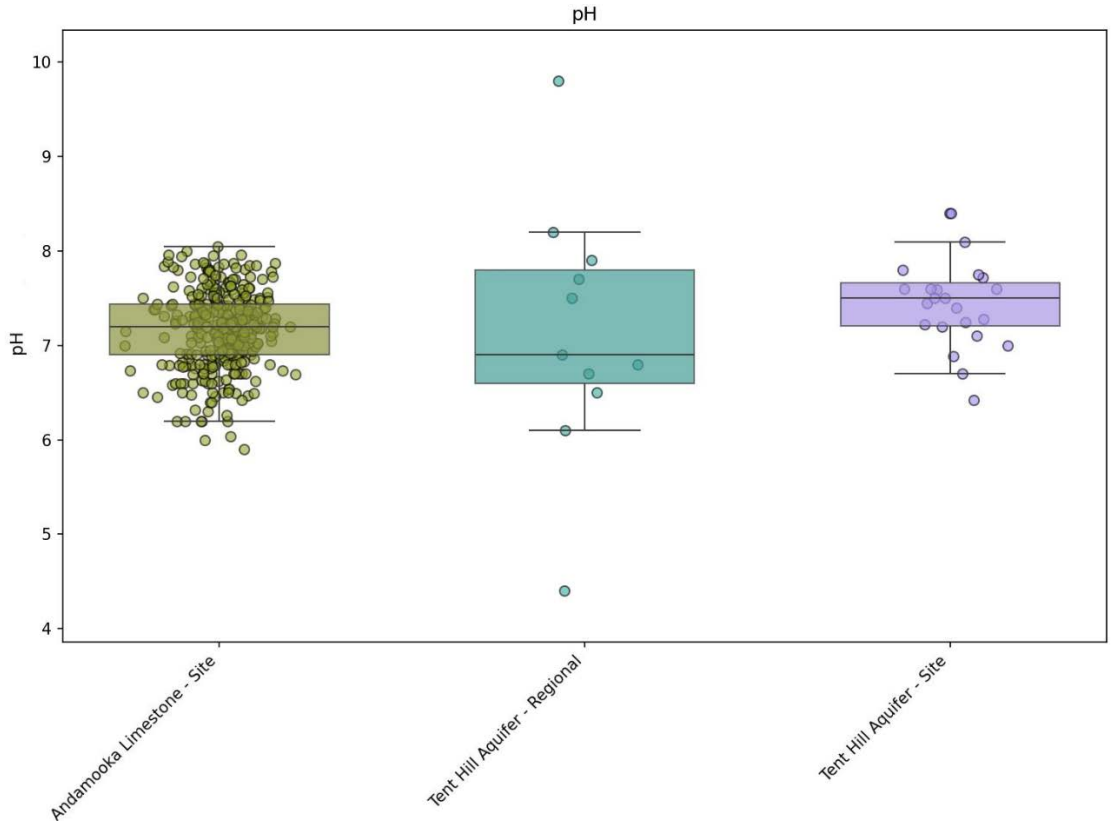


Figure 2.5 **ALA and THA pH values – Box and whisker plot**

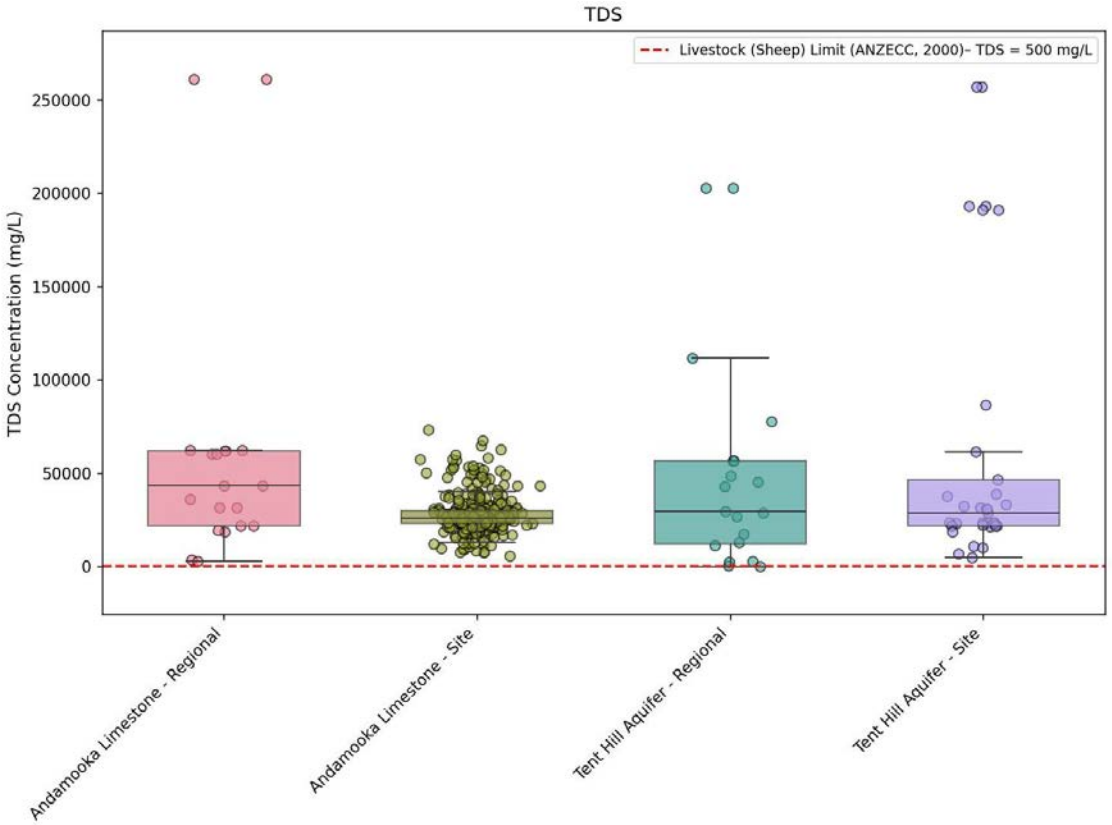


Figure 2.6 **ALA and THA TDS concentrations (mg/L) – Box and whisker plot**

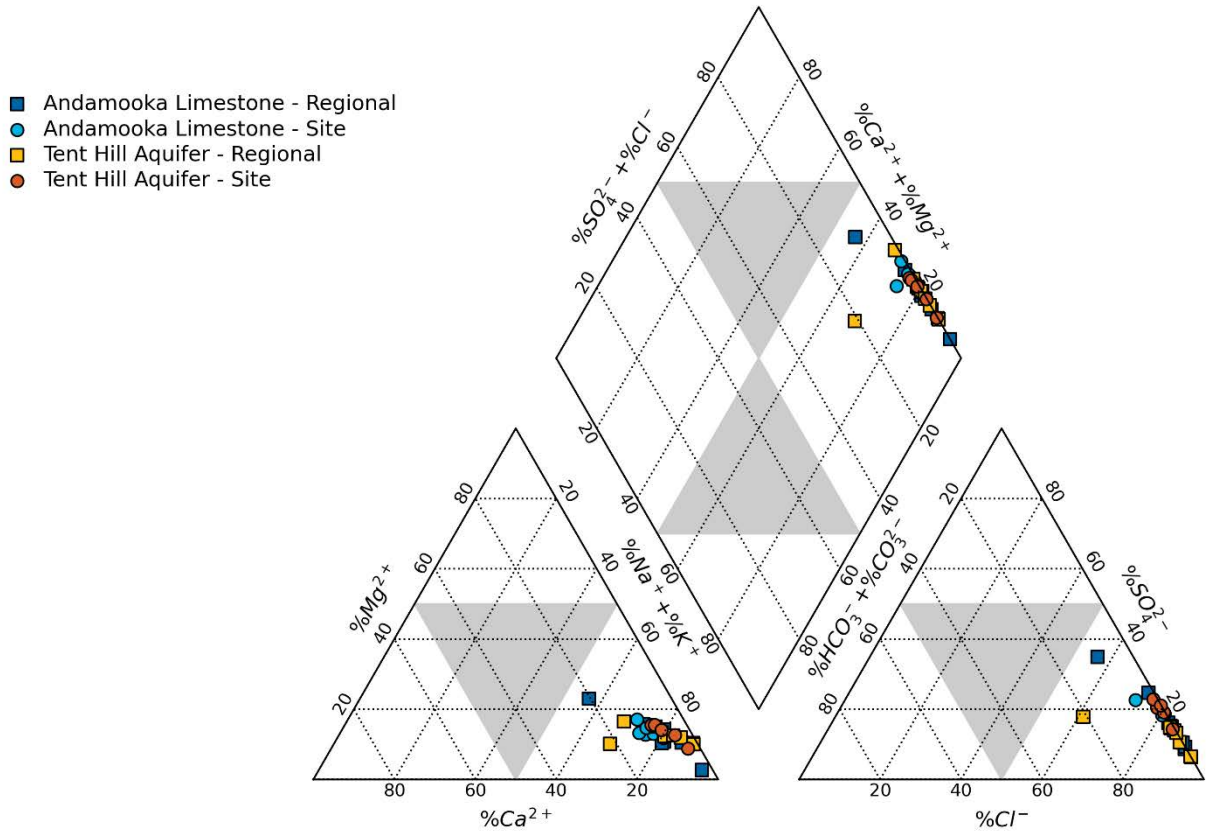


Figure 2.7 Piper diagram comparing site and regional-based ALA and THA bores

iv Additional (post-baseline) groundwater quality data

Additional post-baseline groundwater quality data provided by BHP was reviewed to assess whether groundwater quality within and downgradient of the SRE area has remained consistent with the baseline groundwater quality characterisation presented in Section 2.1.2iii. Two datasets are considered as part of this review: a post-baseline monitoring dataset comprising groundwater samples collected between 2012 and 2022, and a groundwater monitoring event undertaken by JBS&G in April 2026.

The post-baseline dataset comprises groundwater samples collected from ten LM-series monitoring bores screened in the ALA: LM05, LM07, LM09, LM13, LM14, LM16, LM28, LM30, LM31 and LM36. Bores LM05, LM07, LM14 and LM16 are located within the SRE area, while the remaining bores are hydraulically downgradient to the east, at distances up to approximately 650 m from the SRE area. The post-baseline dataset includes analysis of dissolved metals, petroleum hydrocarbons (TRH fractions), BTEX compounds and PAHs. It is noted that the monitoring bore network contributing to the post-baseline dataset differs from the baseline dataset, with no bores in common across both datasets.

The 2026 groundwater monitoring event involved sampling of six LM-series monitoring bores within the SRE area, screened in the ALA: LM02, LM15, LM16, LM18, LM19 and LM20. These bores were gauged for light non-aqueous phase liquids (LNAPL) and samples collected from these bores were analysed for pH, EC and dissolved metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc).

a pH and electrical conductivity

Field and laboratory measurements from the 2026 groundwater monitoring event indicate circum-neutral groundwater conditions within the SRE area, with pH values ranging from 7.01 to 7.74. EC values range from 5.4 to 11.8 mS/cm.

These values are consistent with baseline groundwater quality data presented for the site bores (Table 2.4), where pH ranges from 5.9 to 8.05 (median 7.2). The measured EC values are all lower than the minimum baseline value reported for EC (15 mS/cm). It is noted, however, that the baseline EC dataset comprises only eight samples. When considered in the context of the more comprehensive baseline TDS dataset (334 samples), the 2026 results are consistent with baseline groundwater salinity observed across the site bores.

b Metals

Iron and manganese were analysed most frequently in the post-baseline dataset, with 66 results each across multiple bores and sampling events. A broader dissolved metals suite (including arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc) is represented by 15 results per analyte, reflecting fewer targeted monitoring events.

Box and whisker plots comparing baseline and post-baseline concentrations (Annexure A) indicate that, for most analytes, post-baseline groundwater quality is consistent with baseline conditions. Iron and manganese show the largest number of samples in both datasets for comparison. Post-baseline iron concentrations are generally lower and less variable than baseline results for ALA, with the median value at the lower end of the baseline distribution. Manganese concentrations in the post-baseline dataset are also lower overall, with reduced variability and fewer high-concentration values compared with baseline conditions. These results indicate no evidence of increasing concentrations over time for either parameter.

All other metals measured, with the exception of nickel, have broadly comparable or lower concentrations than baseline. Median values are similar or lower, and post-baseline results generally fall within the interquartile ranges of the baseline datasets. Several analytes (particularly cadmium and mercury) remain clustered near detection limits in both datasets, with limited variability. While noting that the datasets are limited, with 7 baseline and 15 post-baseline measurements, there is no indication of deterioration in groundwater quality relative to baseline conditions.

Nickel is the only analyte for which post-baseline concentrations are notably higher than the baseline median, with a wider overall concentration range. However, the majority of post-baseline results still overlap the baseline data. The difference between these two datasets may be due to the differing monitoring networks sampled and the limited dataset sizes.

The 2026 groundwater monitoring results are consistent with the post-baseline dataset observations and with baseline site bore statistics (Table 2.4). Dissolved metals concentrations are low overall, with most analytes reported below LORs or at low concentrations. Arsenic and mercury were not detected in any of the samples analysed, while cadmium and chromium were detected in one sample each. Other metals which were detected include nickel (two samples), lead (three samples), zinc (four samples) and copper (six samples). In each of these cases, the measured concentrations were generally within the baseline 20th to 80th percentile ranges, with one outlier value each for copper (0.055 mg/L) and lead (0.014 mg/L) falling between the 80th percentile and maximum baseline values. These results support the interpretation that groundwater quality within the SRE area remains consistent with baseline conditions.

c Hydrocarbons and PAHs

The post-baseline dataset also includes analysis of petroleum hydrocarbons (TRH fractions), BTEX compounds and PAHs, which were not characterised as part of the baseline assessment. Results for these analytes are summarised in Table 2.6. Measurements are predominantly below LORs, with occasional isolated detections in individual bores, likely related to historic contamination events. Detections significantly above LORs were noted in bores LM09 and LM29, which align with contaminated sites presented in Figure 3.1. These isolated detections are not spatially or temporally consistent and are not indicative of widespread impact.

During the 2026 groundwater monitoring event, the bores were gauged for LNAPL using an oil/water interface probe, and none was detected.

Despite differences in monitoring bore locations and the time interval between datasets, the post-baseline groundwater quality results are generally consistent with baseline groundwater chemistry in the ALA.

v PFAS

PFAS investigations have been undertaken separately across Olympic Dam. A PFAS-specific PSI was completed in 2019, following by a Stage 1 PFAS DSI completed by JBS&G (2026b), as summarised in Section 2.2.2i. The Stage 1 DSI assessed soil, concrete, sediment and surface water within operational areas. Separately, groundwater monitoring undertaken by JBS&G (2026a) included sampling of 24 groundwater monitoring bores within and adjacent to the SRE Area. PFAS concentrations were reported above laboratory limits of reporting in 22 of the 24 bores sampled, indicating that PFAS is present in groundwater within and adjacent to the SRE Area.

Of the bores sampled, nine reported PFAS concentrations exceeding the NEMP recreational water quality criteria, while five reported concentrations exceeding the NEMP marine water quality criteria for 90% species protection in highly disturbed ecosystems. SA EPA was notified of these exceedances in June 2019 with an S83A notice, and further investigation separate to the SRE Project is currently being undertaken to assess the nature, extent and potential significance of PFAS impacts in the area.

Table 2.6 Groundwater hydrocarbon summary statistics – Andamooka Limestone Aquifer (post-baseline dataset)

Bore name	TRH C6-C10 mg/L	TRH C10-36 (Total) mg/L	Benzene mg/L	Toluene mg/L	Ethylbenzene mg/L	Xylenes – Total mg/L	Naphthalene mg/L	Total PAH mg/L
Sample count	103	104	52	52	52	31	103	8
Median	<0.02	<0.1	<0.001	<0.001	<0.001	<0.003	<0.01	<0.001
Maximum	0.1	226.9	0.006	-	0.001	-	0.01	0.018
Values above LOR	3%	11%	12%	0%	2%	0%	2%	25%

vi Seasonal variation

Groundwater level and water quality trends were compared with monthly rainfall recorded at the nearest weather station (Olympic Dam Aerodrome; BoM 2026) to assess whether seasonal rainfall variability influences groundwater conditions. Time-series plots comparing groundwater quality and levels to rainfall are presented in Annexure A.2.

Groundwater levels do not show a consistent seasonal or rainfall-driven response across the monitoring network. Individual bores exhibit rising, falling or relatively stable groundwater levels under similar rainfall conditions, and comparisons with rainfall trends identified weak or inconsistent relationships. While some individual bores show possible responses after heavy rainfall periods, these patterns are not widespread and do not indicate an aquifer-wide recharge trend. In addition, many of the increasing groundwater level trends observed in on-site monitoring bores are associated with known groundwater mounding beneath TSF infrastructure.

Water quality results similarly do not show a clear seasonal relationship. A reduction in TDS was observed across several bores between 2010 and 2011 following comparatively wet conditions, which may indicate rainfall-related freshening. However, comparable changes were not consistently observed following other wet periods, and trends in TDS, chloride, sulphate pH and metals vary between bores.

The ability to assess seasonality is limited by the frequency of the available monitoring data. Rainfall data is available at a daily resolution, whereas many groundwater levels are measured at a monthly or lower frequency. The available groundwater quality data comprises results from annual sampling events. Consequently, short-duration responses to individual rainfall events, seasonal recharge pulses or changes occurring between monitoring events may not be captured.

2.3 Conceptual site model

A conceptual site model (CSM) has been developed for the SRE Project to identify existing known sources and areas of contamination, associated potential impacts to human health and ecological receptors, and to identify exposure source, pathway, receptor (SPR) linkages for the SRE Project (Figure 2.8).

The preliminary sources of contamination have been discussed in Section 2.2 and potential environmental receptors in Section 2.1.3. The possible pathways, which link sources to receptors, are discussed in Section 2.3.1.

The CSM for the SRE Project has been developed in alignment with BHP's existing Olympic Dam site-wide hydrogeological conceptual model (SRK 2020; CDM Smith 2024). The CSM applies the established model to the SRE Area and updates the SPR linkages to reflect the proposed SRE Project infrastructure. The hydrogeological framework remains consistent with the approved conceptualisation.

The main features of the CSM are as follows:

- Surface activities which are a source of contamination include the smelter support yard, smelter tipping bays and various SRE Project operations, such as possible leaks, spills and metal leaching from stockpiles and cooling beds.
- The main HSUs beneath Olympic Dam, from shallow to deepest include surface topsoils and sub-soils, the Andamooka Limestone Aquifer, the Arcoona Quartzite aquitard, the THA, and the Woomera/Tregolana Shale aquitard, which is then underlain by various basement fractured rock materials largely considered to be aquitards.
- There is a considerable vertical hydraulic gradient between the ALA and THA, yet the mounding within the ALA does not appear to interact with the drawdown within the THA, suggesting that the Arcoona Quartzite aquitard forms an effective hydraulic barrier between the two main aquifers, which would limit the migration and movement of any potential contamination.

- The SRE Project proposes no additional water extraction from the GAB above current Olympic Dam daily average BAU volumes, with additional water supply via the DIT's NWP infrastructure. On this basis, the SRE Project would not change existing abstraction-related drawdown within the GAB system related to Olympic Dam operations.

- Terrestrial vegetation considered to be potential GDEs within the SML are typically associated with an accumulation of sediments that can hold water for a period of time (e.g. claypans). The groundwater opportunistically accessed by GDEs is hydraulically separate from the ALA and THA, with most GDEs unable to utilise the high salinity groundwater and are, therefore, considered unlikely to be affected by SRE Project activities.

- From a regional perspective, sensitive receptors outside of the SML include Lake Torrens and potential watercourse springs which may have some reliance on groundwater associated with Lake Torrens. Given the locations of these sensitive receptors are over 30 km to the east, they are considered unlikely to be affected by SRE Project activities.

- Groundwater utilisation by landholders is limited. Where groundwater is used, it is predominately sourced from quaternary sediments that host shallow and perched groundwater lenses. There are no active third-party landholder bores within 30 km of the SML. Given the location of these landholder bores is over 30 km to the west, they are considered unlikely to be affected by SRE Project activities.

- Surface water drainage is proposed to be captured and managed within the SRE Area with zero discharge off-site. No impacts are expected to occur in the surface water environment due to stormwater design and management (refer Surface Water Assessment; EMM 2026).

- The connection between surface water and groundwater within the SRE Project can be considered limited due to the depth of the shallowest water table (approximately 50 mAHD within the SRE Area, equating to an approximate depth of 35 to 48 m bgl) and limited surface water infiltration rates (refer Surface Water Assessment; EMM 2026).

- The PFAS Stage 1 DSI (JBS&G 2026b) improved understanding of existing PFAS sources and pathways within the operational mine area. Confirmed or potential PFAS sources include impacted soils associated with historical AFFF use and storage, PFAS-affected concrete that may act as a secondary source through leaching, and PFAS-affected surface water associated with the pilot plant fire-training area.

2.3.1 Pathways and receptors

The following transport mechanisms related to local soils impacted within the SRE Area could occur:

- Surface run-off of CoPCs into downgradient water bodies.

- Vertical leaching of contaminants through the soil profile and/or to groundwater due to infiltration of surface water (i.e. rainfall).

- Migration of contaminated groundwater through site aquifers, including the ALA and THA.

- Excavation and re-location of soil/fill during future development activities.

- Migration and infiltration of vapours from contaminants in soil, groundwater and/or surface water.

- Atmospheric dispersion (aeolian transport) of dust, derived from contaminated soil that may be disturbed during future development activities.

Identified potential exposure pathways for possible contaminants include:

i) direct contact and incidental ingestion with impacted surface water and sediment

ii) dermal contact and incidental ingestion of impacted soil

iii) dermal contact and incidental ingestion of impacted groundwater

iv) inhalation of dust (including soil derived)

v) plant uptake by terrestrial vegetation via aquifer transport of contamination and/or ingestion by animals via multiple transport mechanisms, including surface water, groundwater and from directly impacted soils

vi) inhalation of dust and/or vapour in outdoor air and/or a construction trench

vii) inhalation of vapour in indoor air.

Based on the physical and chemical features of the CoPC identified, the exposure pathways that may be applicable to each CoPC at the study area are presented in Table 2.7 and are also shown in Figure 2.8.

As noted in Sections 2.1.3 and 2.2.2vi, the are no third-party groundwater users and or aquatic ecosystems located in close proximity to the SRE Project. Regionally, Lake Torrens and associated drainage lines like Bosworth Creek are the largest, sensitive receptors for groundwater discharge. These features are located over 30 km away and, thus, are unlikely to be affected by any SRE Project activities.

Table 2.7 CoPC and applicable exposure pathways

CoPC	Applicable pathways
TRH/BTEXN	i, ii, iii, iv, v, vi, vii
PAHs	i, ii, iii, iv, v, vi
Metals	i, ii, iii, iv, v, vi
PFAS	i, ii, iii, iv, v, vi

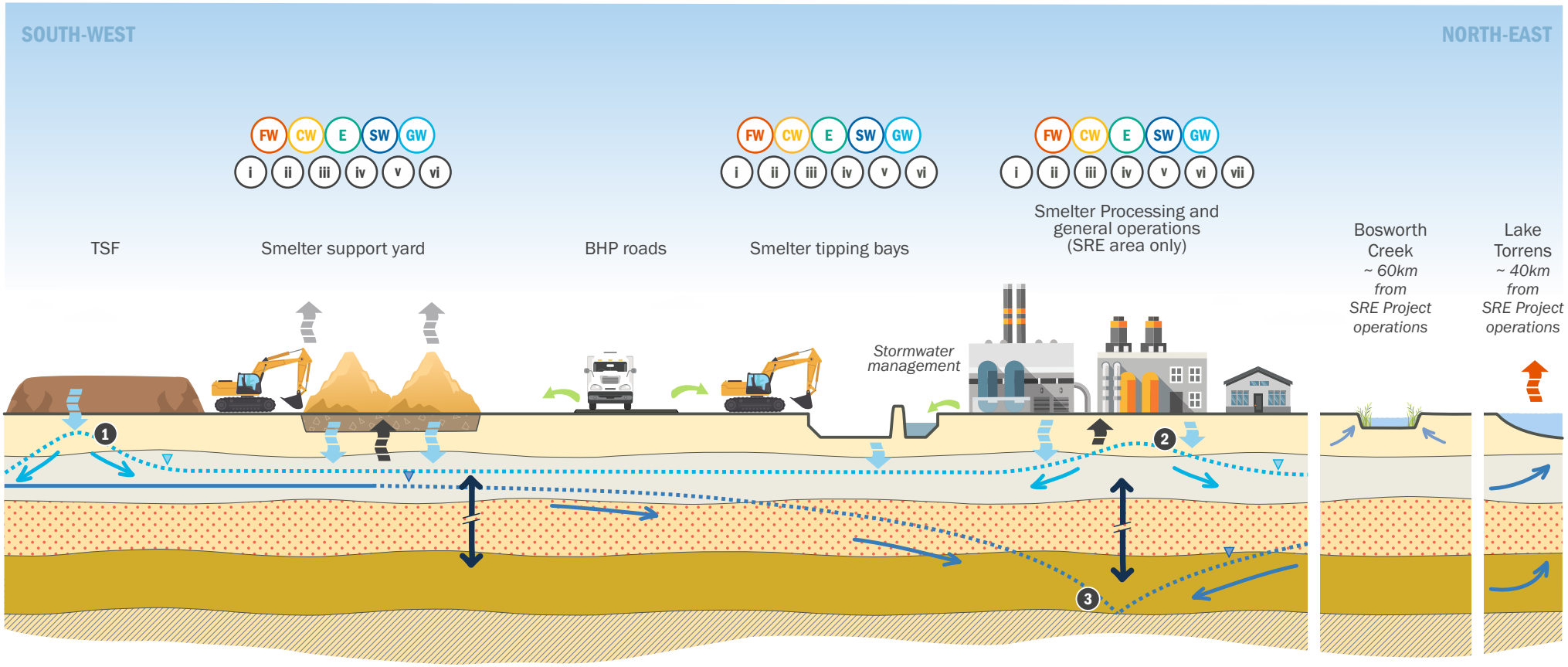


Figure 2.8 Conceptual site model

EMM creating opportunities

2.4 Conclusion

Based on the results of the previous soil quality baseline assessments, regional soils surrounding the SRE Area do not contain identified potential sources of contamination or metals and nutrients identified as CoPCs.

The PFAS Stage 1 DSI identified PFAS contamination at various operational areas (JBS&G 2026b). The greatest soil impacts were associated with the pilot plant, current SX plant, former SX plant and emergency response shed, with additional PFAS impacts identified at the smelter and other operational areas. PFAS-affected concrete and pilot plant runoff were also identified as potential secondary sources.

Baseline groundwater quality data indicate that groundwater in both the ALA and THA is naturally saline to hypersaline, with neutral to slightly alkaline pH and generally low dissolved metal concentrations, with some locally elevated parameters (e.g. manganese, uranium and iron) in site-based bores associated with known mine water influences that are subject to ongoing monitoring. Overall, groundwater quality characteristics are broadly comparable between site-based and regional bores.

Review of additional post-baseline groundwater quality data collected between 2012 and 2022 from monitoring bores within and downgradient of the SRE Area indicates that groundwater quality has remained generally consistent with baseline conditions, with no evidence of widespread deterioration in metals or hydrocarbon-related parameters. Isolated detections of hydrocarbons and metals are associated with known historic contamination areas and are not widespread.

Additional soils and geochemistry data targeting the SRE Area were obtained to characterise the current soil conditions prior to construction and operation of the SRE Project and identify possible SPR linkages and impacted areas requiring management and mitigation.

The groundwater quality interpretation presented in this assessment is based on the historical and newer monitoring information available. Limitations in the available dataset are acknowledged, and relevant data gaps will be considered through future reviews of BHP's ongoing groundwater monitoring program, with regard to EPA Guideline 3 (EPA 2024). BHP is undertaking separate PFAS groundwater investigations, which are being progressed through the staged PFAS assessment program in consultation with the EPA (JBS&G 2026b).

3 Assessment of effects

3.1 Potential impact events

BHP has identified eight potential impact events associated with likely changes to the baseline soils and geochemistry environment as a result of the implementation of the SRE Project. These events represent scenarios for which there is, or is likely to be, a linkage between SRE Project activities (sources), surface water or groundwater (pathways) and the identified receptors.

To ensure a consistent approach to impact assessment for the SRE Project, sources, pathways, and receptors (SPR) are defined and applied in this assessment as follows:

- Source – the SRE Project activities (i.e. potential impact event) which, alone or in combination, has the potential to impact a receptor.
- Pathway – the pathway (i.e. surface water, groundwater), means or route (with consideration of any natural barriers) by which the receptor can be exposed to, or may reasonably be expected to be impacted by, the source.
- Receptor – the receptor that may be impacted by the source via the pathway.

The detailed list of potential impact events is provided in the Environmental Impact Assessment Tables Appendix of the EIS and are summarised for the soils and geochemistry pathways in Table 3.1. The scope of this assessment of effects presented herein has considered these identified potential impact events.

Table 3.1 Preliminary SPR assessment – potential impact events

Impact ID	Potential impact event	Source	Pathway	Receptor	Linkage
GW1	During operations, additional water demand from the GAB or local groundwater wellfields to meet SRE water demand results in aquifer drawdown, impacting groundwater availability to aquatic ecology	SRE Project activities (operations)	Groundwater (quantity)	Ecology (aquatic ecology)	No linkage Refer Ecological Impact Assessment
GW2	During operations, additional water demand from the GAB or local groundwater wellfields to meet SRE water demand results in aquifer drawdown, reducing groundwater availability to groundwater dependant ecosystems	SRE Project activities (operations)	Groundwater (quantity)	Ecology (groundwater dependent ecosystems)	No linkage Refer Ecological Impact Assessment
GW3	During operations, additional water demand from the GAB or local groundwater wellfields to meet SRE water demand results in aquifer drawdown, limiting groundwater availability to third party users	SRE Project activities (operations)	Groundwater (quantity)	Third parter users (resource availability)	No linkage Refer Ecological Impact Assessment
GW4	During operations, additional water demand from the GAB or local groundwater wellfields to meet SRE water demand results in aquifer drawdown, reducing groundwater availability to future users	SRE Project activities (operations)	Groundwater (quantity)	Future users (resource availability)	No linkage Refer Ecological Impact Assessment
GW5	During operations, infiltration of chemicals and/or hydrocarbons used in SRE Project operations, including metals mobilised via acid rock drainage from stockpiles and/or the TSF or effluent released from WWTPs, result in changes to groundwater quality, impacting aquatic ecology	SRE Project activities (operations)	Groundwater (quality)	Ecology (aquatic ecology)	Unconfirmed
GW6	During operations, infiltration of chemicals and/or hydrocarbons used in SRE Project operations, including metals mobilised via acid rock drainage from stockpiles and/or the TSF or effluent released from WWTPs, results in changes to groundwater quality, impacting groundwater dependent ecosystems	SRE Project activities (operations)	Groundwater (quality)	Ecology (groundwater dependent ecosystems)	Unconfirmed
GW7	During operations, release of chemicals and/or hydrocarbons used in SRE Project beyond containment areas, results in changes to groundwater quality, impacting third party users	SRE Project activities (operations)	Groundwater (quality)	Third parter users (resource availability)	Unconfirmed

Impact ID	Potential impact event	Source	Pathway	Receptor	Linkage
GW8	During operations, release of chemicals and/or hydrocarbons used in SRE Project beyond containment areas, results in changes to groundwater quality, impacting future users	SRE Project activities (operations)	Groundwater (quality)	Future users (resource availability)	Unconfirmed

3.2 Assessment of effects

An assessment of effects was undertaken to determine the change in the existing soils, groundwater and geochemistry environment conditions as a result of the proposed SRE Project activities. The assessment of effects included the following works:

- Obtaining input data (i.e. baseline environment) for the development of an SRE-specific CSM and soil assessment.
- Review of the SRE Project activities and identified potential impact events to determine representative scenarios for effects assessment.
- Completion of effects assessment to determine the likely magnitude of the change to the soils, groundwater and geochemistry environment conditions as a result of the SRE Project.

3.2.1 Targeted soil sampling and analysis

The targeted soils and geochemistry sampling program was completed by Simony Sakamoto, Senior Environmental Scientist of EMM between 25 to 29 November 2024.

Prior to the commencement of the field program, EMM developed a Sampling and Analysis Quality Plan (SAQP) which outlined the scope of field investigations to be undertaken at the study area to achieve the project objective.

Specifically, the SAQP detailed the following:

- Data quality objectives (DQOs) and data quality indicators (DQIs) to ensure data collected is of appropriate quality for the purposes of assessing contamination and making decisions regarding potential risks to future study area users.
- Distribution of sampling locations, to target identified areas of potential concern (AoPC) and provides coverage of the study area.
- Analytical suite and schedule, including CoPC.
- Sampling and laboratory methodologies, field and laboratory quality assurance and quality control (QA/QC).

The targeted soil sampling and analysis program described in this section provides field investigation data to support the wider site contamination assessment presented in this report, and it is not intended to constitute a standalone PSI. The broader assessment incorporates the desktop review, identification of potential contamination sources, conceptual site model, groundwater assessment, targeted investigation results and relevant findings of the PFAS Stage 1 DSI. A checklist identifying where the relevant PSI requirements of the ASC NEPM and EPA *Guidelines for the assessment and remediation of site contamination* are addressed is provided in Annexure I.

3.2.2 Field investigation and reporting

The scope of the field program included:

- collecting of soil and geochemistry samples from 19 geotechnical investigation test pits within the SRE Area
- a total of 12 test pits were located within the undisturbed area and seven were located in the current Olympic Dam operational areas of the mine. The sampling design, rationale and methodology are further discussed in Section 0
- laboratory analysis of selected samples for a range the CoPC, including the one listed in Section 2.2
- analysis of field and laboratory data, including comparison of laboratory analytical results against site assessment criteria (SAC) appropriate for the intended land use
- geochemical characterisation to assess whether disturbed material may generate acidic, saline or neutral drainage (collectively termed acid and metalliferous drainage or AMD)
- assessment of the geochemical characteristics of the surface water and groundwater currently monitored onsite to compare to the leachate test results and determine how the leachate concentrations compared to the receiving environment and whether impacts would be likely
- preparation of this SGIA documenting the works undertaken and the results of the sampling program.

3.3 Site assessment criteria

Laboratory results have assessed against SAC, which have been selected based on the continued use of the study area for mining and infrastructure related activities. The SAC are outlined in Table 3.2.

Table 3.2 Site assessment criteria

Adopted criteria	Rational for selection
Health Investigation Levels (HILs), Amended ASC NEPM (NEPC 2013)	The ASC NEPM HILs provides a framework for the use of investigation and screening levels. The framework is applicable for assessing human health risk via all relevant pathways of exposure and covers a broad range of metals and organic substances. The proposed study area land use is for the continued use of the study area for mining and infrastructure related operations. Therefore, the analytical results from this investigation have been compared to the ASC NEPM Commercial/Industrial HIL D.
Health Screening Levels (HSLs), ASC NEPM	The ASC NEPM HSLs for petroleum compounds have been derived through consideration of risks to human health, with the main focus being on the vapour exposure pathway. The HSLs have been calculated using parameters that generally correspond to data available and as such aim to provide levels that are realistic rather than overly conservative. The analytical results from this investigation have been compared to the ASC NEPM Commercial/Industrial D. The criteria for commercial and industrial land use are considered relevant for the upper 2 m of soil.

Adopted criteria	Rational for selection
Ecological Investigation Levels (EILs) ASC NEPM	The ASC NEPM EILs have been developed for selected metals and organic substances and are applicable for assessing risk to terrestrial ecosystems. EILs depend on specific soil physicochemical properties and land use scenarios. It is noted that EILs take into consideration the depth of contamination, soil texture and age of the impacts. EILs apply principally to contaminants in the top 2 m of soil at the surface/ground level which corresponds to the root zone and habitation zone of many terrestrial flora and fauna species. The proposed study area land use is for the continued use of the for mining and infrastructure related operations. Therefore, the analytical results from this investigation have been compared to the guideline for 'commercial and industrial'. It is noted that the ASC NEPM states that EILs are not applicable to agricultural soils which need evaluation in relation to crop toxicity, plant contaminant uptake and detailed consideration of soil type. Whilst the proposed SRE area is located wholly within BHP's approved SML, the analytical results have been screened against these guidelines as a conservative risk-based approach (i.e. future closure and rehabilitation of Olympic Dam would need to consider potential for uptake of contaminants into plants as part of the data analysis). As samples within the top 2 m bgl have been analysed, these guidelines have been adopted for this investigation.
Ecological screening Levels (ESLs) ASC NEPM	The ASC NEPM ESLs were developed to be protective of environmental concerns by determining the reasonable maximum exposure from study area sources for a range of petroleum hydrocarbon compounds and TRH fractions commonly encountered on contaminated sites and are applicable for assessing risk to terrestrial ecosystems. ESLs broadly apply to coarse- and fine-grained soils and various land uses. They are generally applicable to the top 2 m of soil and 3 m in arid regions. The analytical results from this investigation have been compared to the ASC NEPM ESLs for commercial and industrial land uses. The study area is located within the South Australian Arid Land Regions (LSA SAAL 2022); therefore, ESL guidelines are applicable to tup to 3 m. The screening strata have been selected based on the subsurface conditions encountered (i.e. mixture of silts, sands and clays – in which case the most conservative criteria has been applied (sand/coarse)).
Aesthetic issues	In accordance with the ASC NEPM, the aesthetic state of study area is required to be taken into consideration. Aesthetic issues generally relate to the presence of materials with a negligible risk or non-hazardous inert foreign material in soil or fill resulting from human activity. Sites that have been assessed as being acceptable from a human health and environmental perspective may still contain such foreign material. An assessment of the site aesthetics requires consideration of the natural state of soil, and a comparison between it and the soil encountered during investigation works. In particular, soils should not exhibit discolouration (staining), a malodorous nature (odours) or abnormal consistency (rubble and asbestos). As such, aesthetic considerations (odour) have been considered throughout the fieldwork for soil sampling and noted in field notes when observed.
PFAS NEMP 3.0 (HEPA 2025)	Relevant human-health and ecological criteria for PFAS adopted by JBS&G (2026b) include commercial/industrial HILs for the current operational land use, public open-space HILs for consideration of post-closure exposure, and applicable ecological guideline values. Recreational and aquatic ecosystem criteria were adopted for water.

3.3.1 Field investigation

i Rationale

The scope of the targeted soils and geochemistry sampling program was designed to investigate potential soil contamination within the SRE Area. Test pit locations were selected by BHP to target areas encompassing the proposed SRE Project smelter, refinery and associated infrastructure. The most recent groundwater levels were provided by BHP and were not sampled by EMM staff.

ii Service clearance and utility avoidance

WSP was the responsible entity for conducting sub surface clearance of all services and test pitting activities at the study area, including engagement and direction of excavator contractor.

iii Test pitting

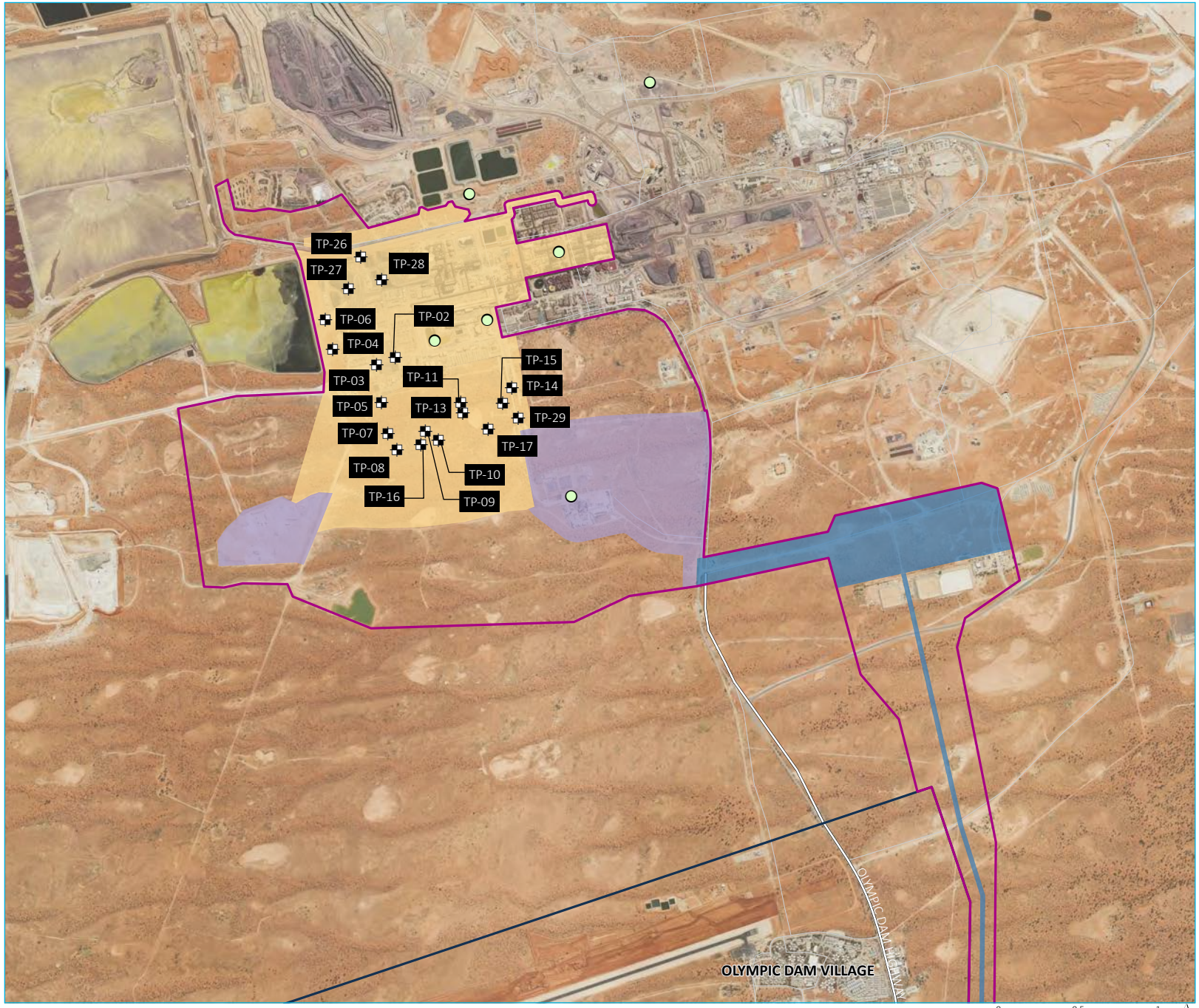
Test pitting was undertaken by WSP and attended by an experienced EMM Environmental Scientist who:

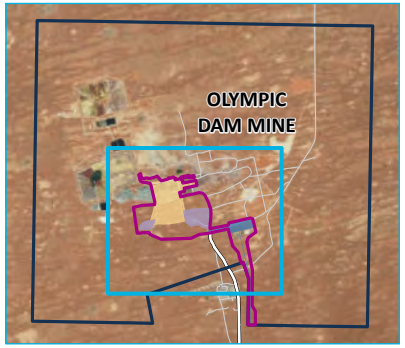
- logged the test pits
- made ongoing observations and field screening of soils for the presence of CoPC, including the use of a photoionisation detector (PID) calibrated with 100 parts per million (ppm) isobutylene gas (certificate presented in Annexure B).

Subsurface conditions were logged in general accordance with the United Soil Classification System (USCS), and included any observations of potential contamination, such as staining and odours.

Test pits were advanced to the target depth or refusal (whichever occurred first). The test pits were advanced to depths between 0.9 to 2.2 m bgl. BHP provided appropriate disposal options during works for waste produced as part of the sampling program.

The test pit locations are shown Figure 3.1 and the test pit logs are provided in Annexure C.





KEY

- Special Mining Lease
- SRE Project Area- SML Area
- SRE Area
- General Infrastructure Area
- Water Infrastructure Area
- Contaminated site
- Test pit

Existing environment

- Major road
- Minor road

Environmental monitoring locations

BHP SRE Project
Soil and Groundwater Impact Assessment
Figure 3.1

EMM
creating opportunities

3.3.2 Soil sample collection

Soil samples were obtained via direct grab sampling from segregated temporary stockpiles created during the excavation.

Samples in general were obtained from the following intervals:

- 0.0 to 0.15 m bgl
- 0.4 to 0.5 m bgl
- 1.0 to 1.1 m bgl
- 2.0 to 2.1 m bgl
- at changes in lithology, or
- where potential contamination was observed.

A sample was also collected at the base of the test pit.

Each sample was collected using a new pair of nitrile gloves to avoid cross-contamination. Samples were placed directly into laboratory supplied sample jars for transport to the nominated laboratories.

All samples were placed in an insulated rigid container with ice and transported to the analysing laboratory under chain of custody (CoC) protocol.

i Laboratory analysis

All samples will be transferred to National Association of Testing Authorities (NATA) laboratories under CoC conditions. Select samples for quality assurance and quality control (QA/QC) purposes were taken to a secondary laboratory.

The nominated primary laboratory was Australian Laboratory Services (ALS), and the nominated secondary laboratory was Envirolab Services (Envirolab).

The soil analytical schedule is summarised in Table 3.3.

Table 3.3 Soil analytical suite

CoPC	Soil
Contamination	
TRH, BTEXN, PAH, Metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)	19 primary samples
NEPM screen schedule B1 Table 1A (1) HIL	19 primary samples
Soil characterisation	
Topsoil suite – pH (water), pH (CaCl2), Electrical conductivity (EC), Chloride, Exchangeable cations and anions (calcium (Ca), magnesium (Mg), sodium (Na), potassium (K), aluminium (Al)), cation exchange capacity (CEC) (NH4Cl or Ammonium Acetate), Organic Carbon and Organic Matter (Walkley and Black), Phosphorus (Colwell), Sulphate Sulphur, Total P, Total N, Nitrate N, Ammonium nitrate, Boron(B), ESP (Emmerson Aggregate Test), Total nutrients in soil (Al, Ca, iron (Fe), Mg, manganese (Mn), K, Na, sulphur (S))	11 primary samples
Subsoil suite – pH (Water), pH (CaCl2), EC, Chloride, Exchangeable cations and anions (Ca, Mg, Na, K, Al)	12 primary samples
Particle Size Analysis (Sand/Silt/Clay calculated from texture)	17 primary samples

CoPC	Soil
Geochemistry	
Acid-base screening (chromium reducible suite and net acid production potential [NAPP]) on the same samples, with 10% assumed for metal leachate testing	37 primary samples
Metal leachate testing	6 primary samples

Notes: TRH – Total recoverable hydrocarbons.

BTEXN – Benzene, toluene, ethylene, xylene and naphthalene.

PAH – Polycyclic aromatic hydrocarbons.

ii Sample selection rationale

The following rationale was followed when selecting samples for laboratory analysis:

- Contamination:
  - The sample with the highest PID or suspected contamination (i.e. odours or staining) was analysed for the comprehensive NEPM 2013 schedule B1 Table 1A (1) HIL suite. If no indications of contaminations were observed, the sample closest to a possible source was chosen, i.e. surface sample for superficial activities or subsoil samples in the presence of underground sources.
  - The sample with the second highest PID or suspected contamination was analysed for TRH, BTEXN, PAH and metals. Similar to the abovementioned, if no indications of contamination were observed, samples were chosen to assess the vertical profile, selecting either the superficial or deepest locations.
- Soil characterisation:
  - One sample representative of the topsoil and subsoil was sent for analysis for the respective suite as indicated in Table 3.3 for the 12 test pits located within the undisturbed area.
  - One representative sample of the predominant soil profile of each test pit was analysed for particle size analysis. Samples were also chosen to assess the vertical profile of the test pit. If the soil profile was observed to be homogenous in regions of the study area, the frequency of this analysis was reduced to less than one sample per test pit.
- Geochemistry:
  - One topsoil and subsoil sample per location was analysed for acid-base screening.
  - Leachate testing on samples identified as containing elevated concentrations elements of potential concern to determine the mobility of these elements if exposed to the receiving environment (e.g. subjected to rainfall).

3.3.3 Geochemical characterisation

A geochemical characterisation was undertaken by EMM at the Olympic Dam SRE site to assess the potential for material disturbed during project activities to negatively impact the receiving environment. The primary aim of the characterisation was to assess whether disturbed material may generate acidic, saline or neutral drainage (collectively termed acid and metalliferous drainage or AMD), which may then impact surface water and/or groundwater on site. The assessment consisted of:

- sampling and geochemical analysis of potentially disturbed samples from the proposed disturbance footprint to determine the primary geochemical characteristics of the material and highlight any potential sources of AMD
- leachate testing on samples identified as containing elevated concentrations elements of potential concern to determine the mobility of these elements if exposed to the receiving environment (e.g. subjected to rainfall)
- assessment of the geochemical characteristics of the surface water and groundwater currently monitored on site to compare to the leachate test results and determine how the leachate concentrations compared to the receiving environment and whether impacts would be likely.

The geochemical characterisation is outlined in the following sections.

i Laboratory analysis

Laboratory testing was undertaken by ALS Melbourne and consisted of the tests outlined in the following subsections.

a Acid-base accounting

The potential for disturbed material to negatively impact the receiving environment was assessed by acid-base accounting (ABA), which evaluates the balance between acid generation processes and acid neutralising processes (AMIRA 2002). The maximum potential acidity (MPA in kg H_2SO_4/t) is a measure of the highest acidity that a sample will generate assuming all sulphur within the sample is oxidised and available to form sulphuric acid. It is defined from the stoichiometry of pyrite (sulphide) oxidation and is calculated as:

$$MPA = S\% \; x \; 30.6 \text{ (AMIRA 2002)}$$

A sample containing 1% S has the potential to generate 30.6 kg of H_2SO_4 per tonne of sample (30.6 kg H_2SO_4/t). This is a conservative indication of the maximum acid generating capacity within each sample.

The acid neutralising capacity (ANC) of a sample is a measure of the capacity of the material within the sample (e.g. carbonates) to buffer the acidity produced. ANC is generally expressed in units of kg H_2SO_4/t (i.e. equivalent to MPA units).

The net acid production potential (NAPP in kg H_2SO_4/t) records the balance within the sample of the acidity generated versus its intrinsic buffering capacity and provides an indication of the potential for a sample to generate acidity. It is defined as:

$$NAPP = MPA - ANC \text{ (AMIRA 2002)}$$

Where MPA is less than ANC, NAPP is negative, indicating that the sample may have sufficient buffering capacity to prevent AMD. A positive NAPP (MPA>ANC) indicates that the material may potentially generate net acidity under the appropriate conditions. In addition, the neutralisation potential ratio (NPR) is used to provide an indication of the acidity versus buffering of a sample. NPR is calculated as:

$$NPR = \frac{ANC}{MPA}$$

Classifications in this report adhere to the conventions in (Price 2009) with the following divisions:

- NPR>2 = Non-acid forming (NAF).
- NPR<1 = Potentially acid forming (PAF).
- 1≤NPR≤2 = Uncertain (UC).

b Elemental analysis

The samples were analysed for whole-sample elemental concentrations. Concentrations were assessed with reference to the geochemical abundance index (GAI). The GAI compares the concentration of an analyte in a sample with a reference value to determine the level of enrichment in the sample and, thus, to highlight analytes that may act as sources of contamination in AMD. For this verification exercise, global median soil concentrations were used following the standard convention ((GARD 2009); (Bowen 1979); (Berkman 1976)). The GAI is calculated as follows:

$$\mathrm{GAI} = \log 2\left[\frac{\mathrm{Conc}_{\mathrm{Sample}}}{1.5 \times \mathrm{Conc}_{\mathrm{Median}}}\right]$$

GAI values are reported as integers and range between 0 (the sample analyte concentration is similar to or less than the reference concentration) to 6 (the sample analyte concentration is enriched to approximately 100 times the reference content).

c Leachate testing

Samples shown to contain elevated metal/metalloid contents as determined by the elemental analysis underwent leachate testing using the Australian Standard Leaching Procedure (ASLP) to provide an indication of the likelihood of leaching contaminants of potential concern under acidic, saline or neutral drainage conditions.

One sample from the general operations, two samples from the slag bay and three samples from the support yard underwent testing.

3.3.4 Quality assurance/quality control

Field and laboratory QA/QC measures were adopted for the investigation to ensure the integrity of the dataset. This included the collection and analysis of the following samples:

- duplicate and triplicate samples at a rate one per 20 samples analysed
- one trip blank and trip spike sample at a rate of one per sampling event.

No rinsate samples were collected due to reuseable field sampling equipment not being used.

Sample naming abbreviations and QA/QC sample naming conventions are summarised in Table 3.4. Test pit location IDs were allocated prior to the reduction in scope and, therefore, there are gaps in the IDs for the completed test pits. IDs for the completed test pits were TP02–TP11, TP13–TP17 and TP26–TP29.

Table 3.4 Sample naming convention

Sample type	Naming convention
Soil sampling test pits	*TP##_upper sample depth_date (YYMMDD) starting at TP02_upper sample depth_YYMMDD*
Duplicate	*QC1XX_YYMMDD*
Triplicate	*QC2XX_YYMMDD*
Trip blank	*QC4XX_YYMMDD*
Trip spike	*QC6XX_YYMMDD*

Details of the QA/QC data validation are presented in Annexure D with the results tables of the QA/QC samples provided in Annexure E.

3.4 Assessment results

3.4.1 Field observations

Predominant sub-surface conditions encountered within undisturbed and disturbed areas of the study area are described in Table 3.5 and the soil PID results are provided in Table 3.6. Test pit logs are included in Annexure C, while plates illustrating the completed works as presented in Annexure G.

Table 3.5 Sub-surface conditions

Area	TP related	Description
BHP general operations and roads	TP-02 and TP-03	The observed lithological profile indicated an initial layer (0.0–0.3 m bgl) of either natural clayey or gravelly sands, loose, red to light brown, fine to medium grained with fine to medium sized gravel and slightly moist. A more predominantly gravelly sand layer with similar characteristics to the above lithology was noted between 0.4–0.8 m bgl. From 0.8–2.1 m bgl the lithology became a gravelly to clayey sand, medium dense, with low plasticity clay, red brown, fine to medium grained sand, fine to medium sized gravel and dry. No odour, staining, or asbestos containing material was observed.
Smelter tipping bays	TP-26 and TP-28	The slag tipping bay area presented an initial layer (0.0–0.3 m bgl) layer of fill material, composed of brown gravelly to clayey sand of low plasticity clay, fine to medium grained sand and medium sized gravel. At depth (0.3 m bgl and beyond) the material evolved to natural light brown gravelly sand (very loose to loose, fine to medium grained and fine to medium sized gravel). No odour, staining, or asbestos containing material was observed.
Smelter Support Yard	TP-04, TP-06 and TP-27	The initial lithological layer (0.0–0.3 m bgl) comprising gravelly to gravelly to clayey sand fill material (low plasticity clay, loose, red brown to dark brown, fine to medium grained sands, and medium to coarse sized gravel). At depth (0.3 m bgl and beyond) the material evolved to natural light red brown gravelly sand (very loose, fine to medium grained and fine to medium sized gravel). No odour, staining, or asbestos containing material was observed.

Area	TP related	Description
Undisturbed SRE Area	TP-05, TP-07, TP-08, TP-09, TP-10, TP-11, TP-13, TP-14, TP-15, TP-16, TP-17 and TP-29	The initial lithological layer (0.0–0.5 m bgl) was observed as natural gravelly to clayey sand or gravelly sand, loose, with low plasticity clay, red to light brown, fine to medium grained, with fine to medium sized gravel, slightly moist or dry. At depth (0.3 m bgl and beyond) the profile changed to predominantly gravelly sand to sand, loose to very loose, light brown to light red brown, fine to medium grained and fine to medium sized gravel. No odour, staining, or asbestos containing material was observed.

Table 3.6 Soil test pit PID details

Test pit ID	Total depth (m bgl)	Maximum PID reading	Main geology encountered
TP-02	2.0	1.5 (2.0–2.1 m bgl)	Gravelly to clayey sand
TP-03	2.0	1.5 (2.0–2.1 m bgl)	Gravelly to clayey sand
TP-04	1.4	1.6 (1.3–1.4 m bgl)	Gravelly sand
TP-05	2.1	1.3 (0.0–0.15 m bgl)	Gravelly to clayey sand
TP-06	1.6	1.5 (0.0–0.15 m bgl and 1.6 m bgl)	Gravelly to clayey sand
TP-07	1.1	1.3 (0.0–0.15 m bgl)	Clayey sand and gravelly sand
TP-08	1.2	1.5 (1.0–1.2 m bgl)	Gravelly sand
TP-09	2.1	1.3 (0.0–0.15 m bgl)	Gravelly sand
TP-10	1.3	1.9 (1.0–1.1 m bgl)	Gravelly sand
TP-11	2.1	1.2 (0.4–0.5 m bgl)	Clayey sand
TP-13	0.9	1.6 (0.0–0.15 m bgl, 0.3–0.4 m bgl and 0.8–0.9 m bgl)	Gravelly to clayey sand
TP-14	2.0	4.3 (2.0–2.1 m bgl)	Gravelly sand
TP-15	2.1	4.2 (1.0–1.1 m bgl and 2.0–2.1 m bgl)	Sand
TP-16	1.1	1.4 (1.0–1.1 m bgl)	Sand
TP-17	2.1	1.5 (2.0–2.1 m bgl)	Clayey sand
TP-26	2.1	1.3 (0.0–0.15 m bgl)	Gravelly to clayey sand
TP-27	1.2	1.6 (0.4–0.5 m bgl and 2.0–2.1 m bgl)	Gravelly sand
TP-28	1.3	1.4 (0.4–0.5 m bgl)	Gravelly sand
TP-29	2.2	1.6 (0.0–0.15 m bgl)	Sand

3.4.2 Soil analytical results

i Contamination

A total of 38 primary samples from 19 test pit locations (two samples per test pit) were submitted for laboratory analysis as part of this preliminary site investigation.

All concentrations for the analytes included in the November 2024 EMM analytical program were below the adopted human health and ecological SAC. Trace concentrations of metals (As, Cr, Cu, Pb, Ni and Zn) were detected in all analysed samples. PFAS was not included in this analytical program. Results from the separate PFAS Stage 1 DSI are summarised in Section 2.2.2i.

Comparing the metal concentrations with the background ranges taken from the 'Field Geologist Manual, Monograph 9' (AIMM, 2011) arsenic, copper and lead exceeded the background range; however, all concentrations were below the adopted human health and ecological SAC as outlined on Table 3.7.

Table 3.7 Summary of the quantifiable metal concentrations in soil (mg/kg)

Parameter	Arsenic	Chromium	Copper	Lead	Nickel	Zinc
Maximum concentration	54	28	13,000	35	26	27
Background ranges[1]	2–15	40–1,000	10–100	0.001–0.03	10–600	15–200
Environmental investigation level (NEPM 2013)	160	-	-	-	-	-
Health investigation levels (NEPM 2013)	3,000	900	240,000	1,500	6,000	400,000

Notes: 1. Background range taken from the 'Field Geologist Manual, Monograph 9', compiled by DA Berkam, Fifth Edition, 2011, The Australian Institute of Mining & Metallurgy.

All concentrations of TRH, BTEXN, PAHs, Organo-Chlorine (OCP)/Organo-Phosphate Pesticides (OPPs) and phenols were below the laboratory LOR.

The complete table of soil results is presented in Annexure E. The laboratory analytical reports and certificates of analysis are presented in Annexure F.

ii Soil characterisation

A total of 23 primary samples from 12 test pits located within the Undisturbed SRE Area were submitted for laboratory analysis related to soil characterisation of the topsoil and subsoil[5].

All concentrations were below the adopted human health and ecological SAC, when available. The laboratory analytical reports and certificates of analysis are presented in Annexure F, and a summary of results is provided in Table 3.8, Table 3.9, Table 3.10 and Table 3.11.

5 Soil analyses for topsoil and subsoil were performed in all locations, except for topsoil from TP09 due to lack of sample quantity.

a Topsoil

Table 3.8 Topsoil soil characteristics results summary

Parameters	unit	Health investigation levels (NEPM 2013)	Average concentration	Maximum	Minimum
pH (Lab)	-	-	8.57	9.20	6.9
Moisture Content	%	-	7.01	11.40	2.7
Electrical Conductivity (Lab)	µS/cm	-	1,044	4,980	33
Cation Exchange Capacity	meq/100 g	-	7.34	15.00	1.5
Exchangeable Calcium	meq/100 g	-	4.25	6.60	1.2
Exchangeable Magnesium	meq/100 g	-	1.50	3.90	0.4
Exchangeable Potassium	meq/100 g	-	0.54	1.30	0.2
Exchangeable Sodium	meq/100 g	-	1.76	5.40	0.3
Total Organic Carbon	%	-	0.7	0.7	0.7
Ammonia as N	mg/kg	-	-	<20	<20
Kjeldahl Nitrogen Total	mg/kg	-	201	550	40
Nitrate (as N)	mg/kg	-	6	16.8	0.4
Nitrite (as N)	mg/kg	-	-	<0.1	<0.1
Nitrogen (Total Oxidised)	mg/kg	-	6	16.8	0.4
Nitrogen (Total)	mg/kg	-	206	560	40
Chloride	mg/kg	-	1,406	6,080	10
Total Phosphorus as P (Organic Phosphate as P)	mg/kg	-	116	292	32
Bicarbonate Ext. P (Colwell)	mg/kg	-	7	10	5
Sulphate	mg/kg	-	544	2,870	60
Sulphur as S	mg/kg	-	704	3,170	130
Aluminium	mg/kg	-	6,548	15,100	1790
Boron	mg/kg	300,000	-	<50	<50
Calcium	mg/kg	900	45,010	121,000	390
Iron	mg/kg	-	9,083	19,300	4500
Magnesium	mg/kg	-	6,578	46,900	300
Manganese	mg/kg	60,000	74	268	18
Potassium	mg/kg	-	1,415	3,120	440
Sodium	mg/kg	-	1,801	4,180	260

Table 3.9 Topsoil Emerson aggregate test and particle size analysis results

Location	Depth	Texture	Colour (Munsell)	Emerson Class number	Sample description	Median particle size (mm)
TP-02	0.4–0.5	-	-		Sand, gravel, fines	0.276
TP-05	1.0–1.1	Sandy Clay Loam	Red (2.5YR 5/6)	2	Sand, gravel, fines	0.242
TP-07	0.4–0.5	Clayey Sand	Red (2.5YR 5/6)	4	Gravel, sand, fines	0.495
TP-08	0.4–0.5	Sandy Loam	Light Reddish Brown (5YR 6/4)	4	Gravel, sand, fines	0.890
TP-09	1–1.5	Clayey Sand	Light Reddish Brown (5YR 6/4)	4	-	-
TP-10	0–0.3	Clayey Sand	Red (2.5YR 5/8)	7	-	-
TP-11	0.4–0.5	Sand	Red (2.5YR 4/8)	8	Sand, gravel, fines	0.232
TP-13	0.3–0.4	Clayey Sand	Red (2.5YR 5/6)	7	Gravel, sand, fines	4.352
TP-14	0.4–0.5	Sandy Clay Loam	Light Reddish Brown (5YR 6/4)	4	Sand, gravel, fines	0.321
TP-15	0.4–0.5	Loamy Sand	Reddish Brown (2.5YR 4/4)	7	-	-
TP-16	0.4–0.5	Sandy Clay Loam	Light Reddish Brown (5YR 6/4)	4	-	-
TP-17	0.4–0.5	Sand	Red (2.5YR 4/8)	8	-	-
TP-28	0.4–0.5	-	-		Sand, fines, gravel	0.197
TP-29	0.4–0.5	Loamy Sand	Red (2.5YR 5/6)	7	-	-

b Subsoil

Table 3.10 Subsoil soil characteristics results summary

Parameters	unit	Average concentration	Maximum	Minimum
pH (Lab)	-	8.9	9.3	8.6
Moisture Content	%	6.9	15.4	2.5
Electrical Conductivity (Lab)	µS/cm	1,147	4,940	13
Cation Exchange Capacity	meq/100 g	7.9	15.6	2.1
Exchangeable Calcium	meq/100 g	4.2	8.7	1.3
Exchangeable Magnesium	meq/100 g	1.5	3.9	0.4
Exchangeable Potassium	meq/100 g	0.5	1.3	0.2
Exchangeable Sodium	meq/100 g	1.9	5.8	0.3
Chloride	mg/kg	1,575	5,450	60

Table 3.11 Subsoil particle size analysis results

Location	Depth	Sample description	Median particle size (mm)
TP-03	1.0–1.1	Gravel, sand, fines	1.770
TP-04	1.0–1.1	Sand, fines, gravel	0.075
TP-06	1.0–1.1	Sand, gravel, fines	0.195
TP-10	1.0–1.1	Gravel, sand, fines	4.352
TP-15	1.0–1.15	Sand, vegetation	0.246
TP-16	1.0–1.1	Sand, gravel, fines	0.483
TP-17	1.0–1.1	Sand, fines	0.239
TP-27	1.0–1.1	Gravel, fines, sand	10.739
TP-29	1.0–1.1	Sand, vegetation	0.242

3.4.3 Geochemical analytical results

i Acid-base characteristics

ABA results are shown in Table 3.12. All samples tested are non-acid forming (NAF), with negative NAPP values and high NPRs, due to each sample containing low sulphur concentrations (≤0.29% S) with correspondingly low values of MPA (≤0.88 kg H_2SO_4/t), and relatively high values of ANC (≥4.31 kg H_2SO_4/t; Figure 3.2). Values of pH are consistent with the NAF nature of the samples reflecting the absence of potentially readily available acid-generating material and range between 6.8 to 9.8. Values of EC range between 13 and 6,070 mS/cm.

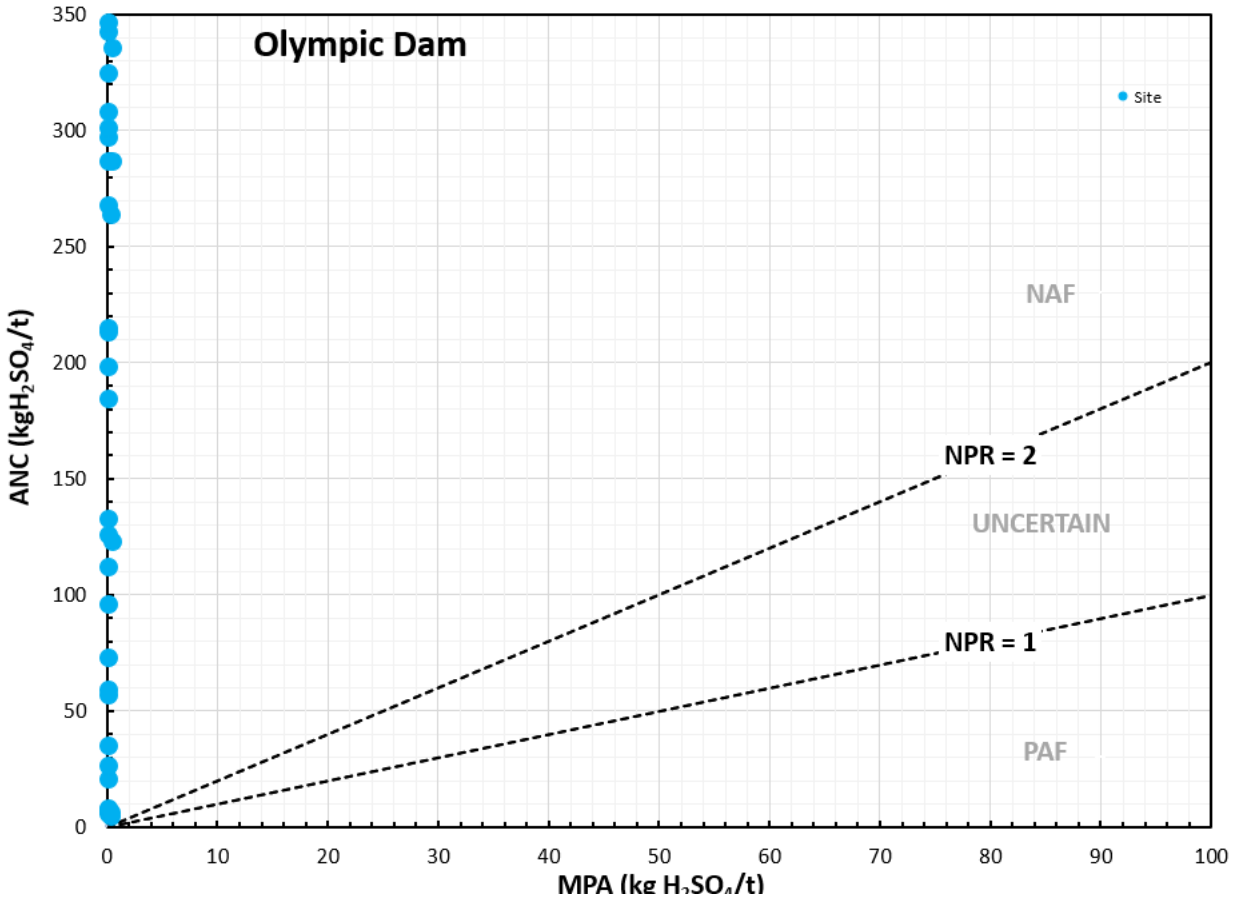


Figure 3.2 MPA versus ANC for Olympic Dam samples

Table 3.12 Olympic Dam laboratory acid-base accounting results

Sample	Date	pH	EC	Total sulphur	MPA	ANC	NAPP	NPR	Price (2009) classification
			µS/cm	%	Kg H_2SO_4/t	Kg H_2SO_4/t	Kg H_2SO_4/t	-	
TP02_0.4–0.5_241128	28 Nov 2024	-	-	0.029	0.88	553.70	-552.82	626.98	NAF
TP02_1.0–1.1_241128	28 Nov 2024	-	-	0.008	0.25	125.44	-125.19	511.35	NAF
TP03_0.4–0.5_241128	28 Nov 2024	-	-	0.021	0.64	678.16	-677.52	1,063.27	NAF
TP03_1.0–1.1_241128	28 Nov 2024	-	-	0.018	0.54	335.16	-334.62	621.03	NAF
TP04_0.4–0.5_241129	29 Nov 2024	8.2	4,940	0.019	0.59	286.16	-285.57	486.05	NAF
TP04_1.0–1.1_241129	29 Nov 2024	-	-	0.008	0.25	58.80	-58.55	239.70	NAF
TP05_1.0–1.1_241127	27 Nov 2024	9.1	1,450	0.008	0.25	34.89	-34.64	142.22	NAF
TP05_2.0–2.1_241127	27 Nov 2024	9	1,800	0.008	0.25	56.25	-56.01	229.31	NAF
TP06_0.4–0.5_241127	27 Nov 2024	-	-	0.008	0.25	95.45	-95.21	389.11	NAF
TP06_1.0–1.6_241127	27 Nov 2024	-	-	0.008	0.25	700.70	-700.45	2,856.38	NAF
TP07_0.4–0.5_241125	25 Nov 2024	8.8	316	0.008	0.25	111.72	-111.47	455.42	NAF
TP07_1.0–1.1_241125	25 Nov 2024	8.8	419	0.008	0.25	307.72	-307.47	1,254.41	NAF
TP08_0.4–0.5_241126	26 Nov 2024	8.6	1,700	0.008	0.25	267.54	-267.29	1,090.62	NAF
TP08_1.0–1.2_241126	26 Nov 2024	9	939	0.008	0.25	286.16	-285.91	1,166.52	NAF
TP09_1.0–1.5_241125	25 Nov 2024	9	180	0.008	0.25	214.62	-214.37	874.89	NAF
TP10_0.0–0.3_241126	26 Nov 2024	8.8	283	0.008	0.25	324.38	-324.13	1,322.33	NAF
TP10_1.0–1.3-241126	26 Nov 2024	8.8	1,140	0.016	0.49	263.62	-263.13	537.32	NAF
TP11_0.4–0.5_241127	27 Nov 2024	8.4	52	0.008	0.25	5.29	-5.05	21.57	NAF
TP11_2.0–2.1_241127	27 Nov 2024	9.3	111	0.008	0.25	6.76	-6.52	27.57	NAF

Sample	Date	pH	EC	Total sulphur	MPA	ANC	NAPP	NPR	Price (2009) classification
			µS/cm	%	Kg H_2SO_4/t	Kg H_2SO_4/t	Kg H_2SO_4/t	-	
TP13_0.3–0.4_241126	26 Nov 2024	8.6	314	0.008	0.25	342.02	-341.77	1,394.23	NAF
TP13_0.8–0.9_241126	26 Nov 2024	8.7	515	0.008	0.25	345.94	-345.69	1,410.21	NAF
TP14_0.4–0.5_241128	28 Nov 2024	8.4	4,980	0.008	0.25	448.84	-448.59	1,829.68	NAF
TP14_1.0–1.1_241128	28 Nov 2024	8.8	1,220	0.008	0.25	72.42	-72.18	295.23	NAF
TP15_0.4–0.5_241129	29 Nov 2024	6.9	33	0.008	0.25	7.35	-7.10	29.96	NAF
TP15_1.0–1.1_241129	29 Nov 2024	8.6	13	0.016	0.49	4.31	-3.82	8.79	NAF
TP16_0.4–0.5_241126	26 Nov 2024	8.8	1,520	0.008	0.25	296.94	-296.69	1,210.47	NAF
TP16_1.0–1.1_241126	26 Nov 2024	8.7	1,980	0.008	0.25	212.66	-212.41	866.90	NAF
TP17_0.4–0.5_241126	26 Nov 2024	8.7	97	0.008	0.25	20.38	-20.14	83.09	NAF
TP17_1.0–1.1_241126	26 Nov 2024	8.8	195	0.008	0.25	26.26	-26.02	107.06	NAF
TP26_0.3–1.0_241127	27 Nov 2024	-	-	0.008	0.25	184.24	-183.99	751.05	NAF
TP26_1.0–2.0_241127	27 Nov 2024	-	-	0.008	0.25	132.30	-132.05	539.32	NAF
TP27_0.40–0.50_241129	29 Nov 2024	-	-	0.019	0.59	122.50	-121.91	208.07	NAF
TP27_1.0–1.1_241129	29 Nov 2024	-	-	0.019	0.59	682.08	-681.49	1,158.53	NAF
TP28_0.4–0.5_241128	28 Nov 2024	-	-	0.008	0.25	197.96	-197.71	806.98	NAF
TP28_1.0–1.1_241128	28 Nov 2024	-	-	0.008	0.25	300.86	-300.61	1,226.45	NAF
TP29_0.4–0.5_241128	28 Nov 2024	9.2	744	0.008	0.25	7.45	-7.20	30.36	NAF
TP29_1.0–1.1_241128	28 Nov 2024	9.2	486	0.016	0.49	5.88	-5.39	11.98	NAF

ii Elemental analysis

A large number of metal and metalloid concentrations are reported at or below the laboratory LOR, as shown in Table 3.13.

Calculated GAIs are zero for almost all measured analytes, indicating that the samples are not enriched compared to global median soil contents. Two analytes record slightly elevated contents, and one analyte (copper) shows significant enrichment, as may be expected given the nature of the Olympic Dam resource:

- GAIs for cobalt ranged between 1 and 2 (indicating an enrichment of approximately 2 to 4 times the global median soil concentration).
- GAIs for arsenic in two samples indicated approximately 6 times the enrichment of global median soil content.
- Across all samples, GAIs for copper ranged between 1 and 8 (indicating an enrichment of approximately 3 to 340 times the global median soil concentration) with the highest values reported at 10,200 mg/kg.

The GAIs were used to develop a program of leach testing focussed on arsenic and copper as potentially enriched analytes of concern (refer Leachate concentrations below).

Table 3.13 Olympic dam whole-sample metal/metalloids concentrations

Analyte	Al	As	B	Ba	Ca	Cd	Co	Cr	Cu	Fe	Hg	K	Mg	Mn	Ni	Pb	Se
Limit of reporting	0.005	5	50	10	0.005	0.4	2	1	5	0.005	0.1	0.005	0.005	1	2	5	5
Units	%	mg/kg	mg/kg	mg/kg	%	mg/kg	mg/kg	mg/kg	mg/kg	%	mg/kg	%	%	mg/kg	mg/kg	mg/kg	mg/kg
TP02_0.0–0.15_241128	-	<LOR	-	-	-	<LOR	-	5	434	-	<LOR	-	-	-	<LOR	7	-
TP02_2.0–2.1_241128	-	9	<LOR	210	-	<LOR	6	15	210	-	<LOR	-	-	145	8	7	<LOR
TP03_1.0–1.1_241128	-	11	-	-	-	<LOR	-	14	92	-	<LOR	-	-	-	8	5	-
TP03_2.0–2.1_241128	-	17	60	470	-	<LOR	6	12	14	-	<LOR	-	-	89	7	6	<LOR
TP04_0.4–0.5_241129	-	10	-	-	-	<LOR	-	11	5,760	-	<LOR	-	-	-	6	9	
TP04_1.4_241129	-	54	<LOR	330	-	<LOR	40	24	6,050	-	<LOR	-	-	180	26	31	<LOR
TP05_0.0–0.15_241127	-	<LOR	-	-	-	<LOR	-	12	11	-	<LOR	-	-	-	7	<LOR	-
TP05_1.0–1.1_241127	1.51	<LOR	<LOR	90	1.30	<LOR	4	16	12	1.93	<LOR	0.31	0.48	125	9	5	<LOR
TP06_0.0–0.15_241127	-	<LOR	-	-	-	<LOR	-	7	1,020	-	<LOR	-	-	-	5	5	-
TP06_1.0–1.1_241127	-	13	<LOR	160	-	<LOR	10	6	862	-	<LOR	-	-	300	5	22	<LOR
TP07_0.0–0.15_241125	-	<LOR	-	-	-	<LOR	-	11	111	-	<LOR	-	-	-	5	<LOR	-
TP07_0.4–0.5_241125	0.80	-	<LOR	-	1.73	-	-	-	-	1.14	-	0.17	0.28	71	-	-	-
TP07_1.0–1.1_241125	-	<LOR	<LOR	140	-	<LOR	3	10	66	-	<LOR	-	-	64	5	<LOR	<LOR
TP08_0.0–0.15_241126	-	<LOR	-	-	-	<LOR	-	10	15	-	<LOR	-	-	-	6	<LOR	-
TP08_0.4–0.5_241126	0.89	-	<LOR	-	11.3	-	-	-	-	1.03	-	0.15	0.43	59	-	-	-
TP08_1.0–1.2_241126	-	<LOR	<LOR	400	-	<LOR	4	10	14	-	<LOR	-	-	50	6	<LOR	<LOR
TP09_0.0–0.15_241126	-	<LOR	<LOR	40	-	<LOR	<LOR	6	178	-	<LOR	-	-	53	2	<LOR	<LOR
TP09_0.4–0.5_241125	-	<LOR	<LOR	70	-	<LOR	2	9	21	-	<LOR	-	-	63	4	<LOR	<LOR

Analyte	Al	As	B	Ba	Ca	Cd	Co	Cr	Cu	Fe	Hg	K	Mg	Mn	Ni	Pb	Se
Limit of reporting	**0.005**	**5**	**50**	**10**	**0.005**	**0.4**	**2**	**1**	**5**	**0.005**	**0.1**	**0.005**	**0.005**	**1**	**2**	**5**	**5**
Units	**%**	**mg/kg**	**mg/kg**	**mg/kg**	**%**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**%**	**mg/kg**	**%**	**%**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**
TP09_1.0–1.1_241125	-	<LOR	-	-	-	<LOR	-	8	18	-	<LOR	-	-	-	4	<LOR	-
TP09_1.0–1.5_241125	0.53	-	<LOR	-	6.21	-	-	-	-	0.64	-	0.10	0.26	38	-	-	-
TP09_2.0–2.1_241125	-	<LOR	<LOR	240		<LOR	3	8	25	-	<LOR	-	-	43	4	<LOR	<LOR
TP10_0.0–0.3_241126	0.81	-	<LOR	-	5.82	-	-	-	-	1.01	-	0.21	0.31	80	-	-	-
TP10_0.4–0.5_241126	-	<LOR	-	-	-	<LOR	-	9	78	-	<LOR	-	-	-	6	<LOR	-
TP10_1.0–1.3-241126	-	<LOR	<LOR	180	-	<LOR	4	6	21	-	<LOR	-	-	31	6	<LOR	<LOR
TP11_0.4–0.5_241127	0.18	<LOR	<LOR	<LOR	0.05	<LOR	<LOR	5	6	0.45	<LOR	0.04	0.03	20	<LOR	<LOR	<LOR
TP11_1.0–1.1_241127	-	<LOR	-	-	-	<LOR	-	5	76	-	<LOR	-	-	-	<LOR	<LOR	-
TP13_0.0–0.15_241126	-	<LOR	-	-	-	<LOR	-	9	48	-	<LOR	-	-	-	6	<LOR	-
TP13_0.3–0.4_241126	0.91	-	<LOR	-	7.42	-	-	-	-	1.00	-	0.25	0.36	66	-	-	-
TP13_0.8–0.9_241126	-	<LOR	<LOR	340	-	<LOR	4	10	75	-	<LOR	-	-	58	6	<LOR	<LOR
TP14_0.0–0.15_241128	-	<LOR	-	-	-	<LOR	-	7	89	-	<LOR	-	-	-	6	5	-
TP14_0.4–0.5_241128	0.44	-	<LOR	-	9.61	-	-	-	-	0.84	-	0.11	4.69	268	-	-	-
TP14_2.0–2.1_241128	-	<LOR	<LOR	90	-	<LOR	4	15	30	-	<LOR	-	-	135	8	6	<LOR
TP15_0.0–0.15_241129	-	<LOR	-	-	-	<LOR	-	6	7	-	<LOR	-	-	-	<LOR	<LOR	-
TP15_0.4–0.5_241129	0.21	-	<LOR	-	0.04	-	-	-	-	0.45	-	0.05	0.04	18	-	-	-
TP15_2.0–2.1_241129	-	<LOR	<LOR	10	-	<LOR	<LOR	6	<LOR	-	<LOR	-	-	22	<LOR	<LOR	<LOR
TP16_0.0–0.15_241126	-	<LOR	-	-	-	<LOR	-	11	10	-	<LOR	-	-	-	7	<LOR	-
TP16_0.4–0.5_241126	0.89	<LOR	<LOR	500	12.1	<LOR	4	10	13	1.00	<LOR	0.13	0.47	56	6	<LOR	<LOR

Analyte	Al	As	B	Ba	Ca	Cd	Co	Cr	Cu	Fe	Hg	K	Mg	Mn	Ni	Pb	Se
Limit of reporting	**0.005**	**5**	**50**	**10**	**0.005**	**0.4**	**2**	**1**	**5**	**0.005**	**0.1**	**0.005**	**0.005**	**1**	**2**	**5**	**5**
Units	**%**	**mg/kg**	**mg/kg**	**mg/kg**	**%**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**%**	**mg/kg**	**%**	**%**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**
TP17_0.4–0.5_241126	0.23	<LOR	<LOR	20	0.08	<LOR	<LOR	5	37	0.53	<LOR	0.06	0.05	28	<LOR	<LOR	<LOR
TP17_2.0–2.1_241126	-	<LOR	-	-	-	<LOR	-	6	13	-	<LOR	-	-	-	<LOR	<LOR	-
TP26_0.0–0.15_241127	-	<LOR	<LOR	120	-	<LOR	54	9	3,750	-	<LOR	-	-	345	5	10	<LOR
TP26_1.0–1.1_241127	-	17	<LOR	680	-	<LOR	7	12	90	-	<LOR	-	-	93	7	6	<LOR
TP27_0.40–0.50_241129	-	14	-	-	-	<LOR	-	12	1,800	-	<LOR	-	-	-	7	8	-
TP27_1.0–1.1_241129	-	6	<LOR	270	-	<LOR	16	8	631	-	<LOR	-	-	146	6	<LOR	<LOR
TP28_0.0–0.1_241128	-	11	-	-	-	<LOR	-	9	10,200	-	<LOR	-	-	-	6	18	-
TP28_0.4–0.5_241128	-	12	<LOR	100	-	<LOR	16	8	330	-	<LOR	-	-	56	4	6	<LOR
TP29_0.0–0.15_241128	-	<LOR	<LOR	180	-	<LOR	3	6	334	-	<LOR	-	-	38	2	<LOR	<LOR
TP29_0.4–0.5_241128	0.36	-	<LOR	-	0.07	-	-	-	-	0.62	-	0.07	0.10	28	-	-	-
TP29_2.0–2.3_241128	<LOR	<LOR	-	-	-	<LOR	-	6	<LOR	-	<LOR	-	-	-	2	<LOR	-

Notes: <LOR: value reported at or below the laboratory limit of reporting.

iii Leachate concentrations

Leachate test results indicate the following:

- All samples recorded leachate concentrations at or below LORs for arsenic, cadmium lead, mercury and nickel.
- One sample at the slag bay and one sample at the support yard recorded low levels of zinc, both at 0.2 mg/L; all other zinc leachate concentrations were at or below LORs (<0.1 mg/L).
- Copper concentrations were all above LORs and ranged from 0.2 mg/L to 122 mg/L.

For the analytes of concern, the leachate concentrations were compared to the elemental analysis of each sample to determine whether correlations existed between solid sample contents and corresponding leachate, which may indicate the potential for neutral drainage as high initial (solid) concentrations may provide more opportunity for readily-leachable material to be mobilised.

No correlations were found between the elemental concentration and its corresponding leachate for any of the analytes, except for copper, which showed some correlation (Figure 3.3). Due to the nature of operations onsite and given that copper is a mined resource at Olympic Dam, elevated copper concentrations are expected. The correlation between whole-sample copper and potentially leachable copper does, however, allow for management of high copper concentrations: samples found to have copper concentrations in excess of 5,000 mg/L (0.5% Cu) can be managed appropriately to reduce the risk of copper leaching into the receiving environment in accordance with BHP's mine waste management plan.

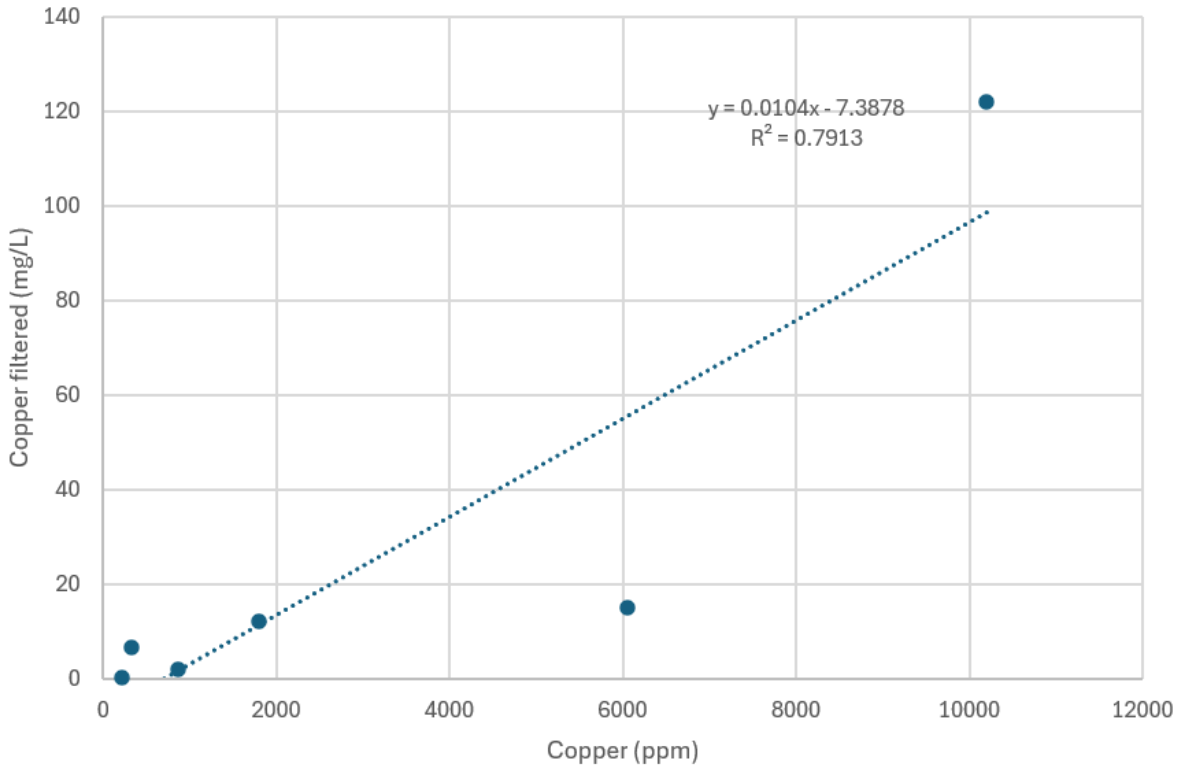


Figure 3.3 Copper whole rock concentrations vs copper leachate concentrations

iv Slag geochemical testing

Geochemical characterisation, comprising ABA, NAG testing, elemental abundance analysis (total digest), and TCLP, was performed on an uncrushed Flash Furnace slag sample. This suite of static testing was used to evaluate the potential for AMD and the risk of trace element mobilisation associated with this material.

A plot of MPA versus ANC is provided in Figure 3.4, with the corresponding ABA data tabulated in Table 3.14. The sample possesses a very low total sulphur concentration of 0.03%, paired with an ANC of 29 kg H_2SO_4/t, resulting in a calculated NAPP of -28 kg H_2SO_4/t. This produces a high NPR of 29, placing the sample decisively within the NAF domain. These findings are corroborated by the NAG testing results (Table 3.15). The NAG, NAG (pH 4.5), and NAG (pH 7.0) values all remained below the analytical detection limit of 0.5 kg H_2SO_4/t indicating that the material is not expected to generate net acidity upon complete oxidation of its mineral constituents.

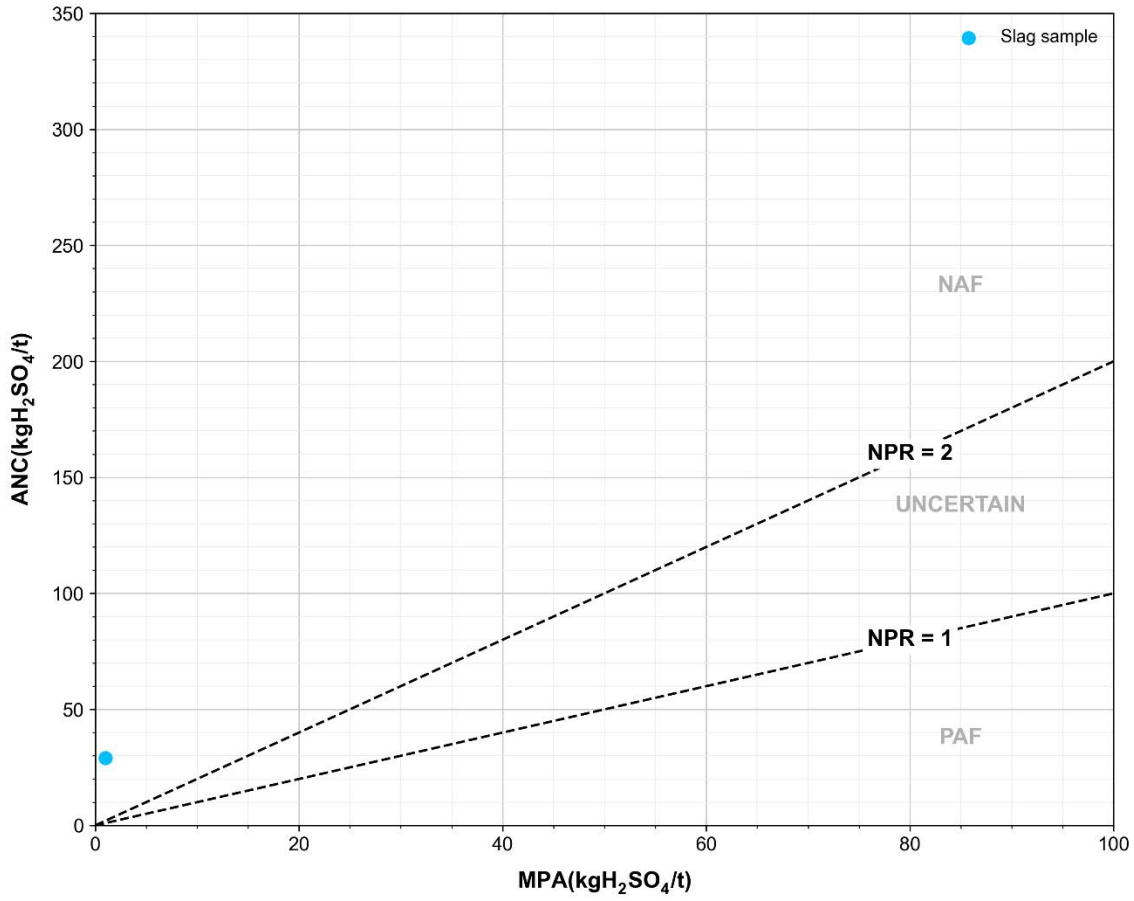


Figure 3.4 MPA versus ANC for slag sample

Table 3.14 Slag sample laboratory acid-base accounting results

Sample	Date	pH	EC	Total sulphur	MPA	ANC	NAPP	NPR	Price (2009) classification
			µS/cm	%	kg H_2SO_4/t	kg H_2SO_4/t	kg H_2SO_4/t	-	
Flash Furnace Slag	11/02/2026	9.77	393	0.03	1	29	-28	29	NAF

Table 3.15 Slag sample net acid generation leachate results

	NAG	NAG (pH 4.5)	NAG (pH 7.0)
Units	**kg H_2SO_4/tonne**	**kg H_2SO_4/tonne**	**kg H_2SO_4/tonne**
Detection Limit	**0.5**	**0.5**	**0.5**
Flash Furnace Slag	<0.5	<0.5	<0.5

The elemental composition of the slag sample was determined using a four-acid digest, followed by analysis via inductively coupled plasma optical emission spectrometry (ICP-OES) and inductively coupled plasma mass spectrometry (ICP-MS). The full analytical results are provided in Table 3.16. To evaluate the degree of enrichment, GAIs were calculated for each parameter by comparing measured concentrations against average crustal abundances. A GAI of 3 or greater indicates significant enrichment (at least 12 times the crustal average), identifying these elements as CoPCs regarding leaching risk. The analysis indicates that the slag is significantly enriched (GAI ≥3) in several trace elements, most notably copper (Cu), bismuth (Bi), silver (Ag), molybdenum (Mo), uranium (U), lead (Pb), arsenic (As), cobalt (Co), and tungsten (W). The relative enrichment of these parameters is illustrated in Figure 3.5; however, it is noted that elemental abundance alone does not directly indicate leachability, which is controlled by the reactivity of the phases hosting the elements and their interaction with solution chemistry.

The results of the TCLP for the slag sample are summarised in Table 3.17. Most trace elements remained below the analytical detection limits in the leachate. However, detectable concentrations were recorded for barium (Ba), cobalt (Co), copper (Cu), manganese (Mn), molybdenum (Mo), strontium (Sr), uranium (U), and zinc (Zn), with copper producing a notable result of 655 mg/L. TCLP results represent leaching under acidic conditions and are intended as a screening-level indicator of leachable fractions rather than a direct predictor of environmental water quality. The NAG results suggest that the slag material will not generate acidity under natural conditions and, therefore, leachability is expected to be lower in situ.

The partial alignment between the analytes detected in the leachate and those exceeding GAI ≥3 in the solid phase suggests that bulk composition may influence the inventory of potentially leachable constituents, although actual leaching behaviour will depend on site-specific geochemical conditions and material weathering processes.

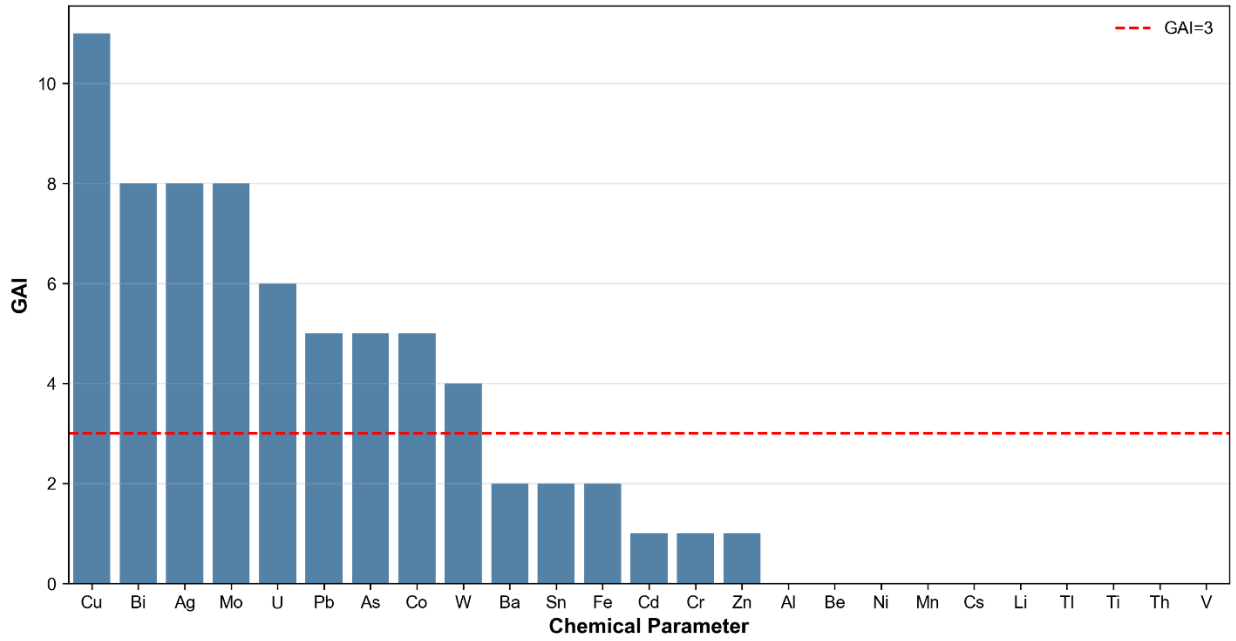


Figure 3.5 GAIs for parameters associated with slag sample

Table 3.16 Slag sample whole-sample metal/metalloids concentrations

	Ag	Al	As	Ba	Be	Bi	Cd	Co	Cr	Cs	Cu	Fe	Li	Mn	Mo	Ni	Pb	Sn	Th	Ti	Tl	U	V	W	Zn
Limit of reporting	**0.2**	**100**	**1**	**2**	**0.5**	**0.1**	**0.5**	**1**	**10**	**0.1**	**2**	**100**	**10**	**2**	**0.5**	**5**	**1**	**0.1**	**0.1**	**50**	**0.1**	**0.1**	**5**	**0.5**	**2**
Units	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**
Flash Furnace Slag	14.6	11900	85	3150	1	50.8	<0.5	1610	220	0.4	189000	364000	<10	50	550	55	664	18	17.6	750	0.6	308	15	47.5	204

Table 3.17 Slag sample TCLP leachate results

	Ag	Al	As	Ba	Cd	Co	Cr	Cs	Cu	Fe	Hg	Li	Mn	Mo	Ni	Pb	Se	Sr	U	Zn
Limit of Reporting	**0.1**	**0.5**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**
Units	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**
Flash Furnace Slag	<0.1	<0.5	<0.1	1.8	<0.1	0.3	<0.1	<0.1	655	<0.1	<0.1	<0.1	0.5	0.2	<0.1	<0.1	<0.1	0.8	0.2	0.2

v Surface water and groundwater quality

Surface water quality monitoring[6] from around the existing site indicates a wide range in EC in the waterbodies associated with Olympic Dam, with values ranging from very low (20 µS/cm) to as high as 40,000 µS/cm. Values of pH are generally neutral to alkaline (~6.5 to 9). Dissolved metal and metalloid concentrations are generally low and below SA EPA EPP (Water Quality) 2003 Potable Use Guidelines.

Groundwater quality monitoring[7] generally reflects the regional characteristics of the SRE Project's location with wide ranges in EC (<1,000 to >400,000 µS/cm), primarily influenced by sulphate, chloride and sodium. Most metal concentrations are recorded below the SA EPA exceedance levels, with manganese exceedances most common, followed by arsenic and lead. No copper exceedances have been reported.

As a representative of mine affected water, the TSF reports high EC (>30,000 µS/cm), high sulphate (30,000 to 100,000 mg/L), acidic pH (<2), and elevated metals (e.g. copper concentrations of 1,000 to 2,000 mg/L). Although, due to differences in scale and sampling conditions, direct comparisons of laboratory leachate test results and monitored TSF water quality should not be compared, the relatively low leachate copper values reported in the ALSP tests indicate low potential impact to surface water and groundwater receptors following appropriate management of disturbed material in accordance with existing Olympic Dam waste management plan.

vi Summary

The geochemical characterisation consisted of a determination of the acid-base, elemental, and leachate characteristics of samples collected from the SRE area and a slag sample. These results were followed by a comparison to monitored surface water and groundwater quality, to assess whether disturbance during SRE Project activities would likely impact surface water and groundwater environmental values.

All SRE area soil samples analysed were NAF with low metal and metalloid concentrations, with the exceptions of arsenic and copper contents. The slag sample was also classified as NAF (NPR = 29), with negligible NAG values (<0.5 kg H_2SO_4/t) indicating no potential for net acidity upon oxidation.

Copper leachate concentrations in samples from the SRE Area displayed a reasonable correlation with the corresponding whole-sample (solid) copper content and suggested that leachate copper may become more significant as whole-sample copper concentrations reach and exceed ~ 5,000 mg/kg (0.5% Cu). This value may be used as a 'cut-off' for onsite management of enriched copper samples as the SRE Project proceeds as part of existing Olympic Dam site management plan.

All other SRE Area soil sample analyte leachate concentrations, including arsenic concentrations, were reported at or below LORs (with the exception of two zinc leachate results of 0.2 mg/L, which were marginally above the LOR of 0.1 mg/L), indicating that the overall risk of leachate from the disturbed material is low.

Meanwhile, the slag sample exhibited significant elemental enrichment (GAI ≥3) in several parameters, including copper, bismuth, silver, molybdenum, uranium, lead, arsenic, cobalt, and tungsten, with subsequent TCLP leachate testing identifying detectable concentrations of several of the same analytes (notably cobalt, copper, molybdenum, and uranium). The partial overlap between elevated GAI values and detectable leachate concentrations suggests that elemental abundance exerts a first-order control on leaching potential. It is noted that the slag leachate test was undertaken under acidic conditions (TCLP), which are designed to identify contaminants of potential concern and are not representative of typical field exposure conditions (e.g. rainfall). The NAG results indicate that the slag material will not generate acidity under natural conditions and, therefore, leachability is expected to be lower in situ.

6 BHP (2009). Olympic Dam Expansion Draft Environmental Impact Statement 2009: Appendix J Surface Water.

7 BHP (2009). Olympic Dam Expansion Draft Environmental Impact Statement 2009: Appendix K Groundwater and Geochemistry.

Comparison of the laboratory results with monitored surface water and groundwater concentrations showed that water around site is already variable and characterised in many places as containing high levels of salinity. Although metal and metalloid concentrations are generally low, exceedances are reported in guideline values for metals such as manganese.

Any leaching from material disturbed by SRE Project activities is likely to have less of an impact on the receiving environment than mine affected water already present on site (such as the TSF) and can be appropriately management in accordance with Olympic Dam's waste management plan.

3.4.4 Preliminary risk assessment

i Preliminary qualitative risk assessment methodology

EMM has quantified potential contamination risks using a risk assessment matrix. Each identified contamination issue was assessed in terms of the potential consequence for the proposed SRE Project and final land use, using the matrix of consequences and likelihoods in Table 3.18.

Table 3.18 Preliminary qualitative risk assessment matrix

Consequence	Likelihood of soil, surface water, sediment or groundwater contamination to be present				
	Rare (1) – Very unlikely at concentrations above the relevant assessment criteria and limited in extent.	**Unlikely (2) – Potentially present at concentrations above the relevant assessment criteria and limited in extent.**	**Possible (3) – Potentially present at concentrations above the relevant assessment criteria and widespread.**	**Likely (4) – Most likely present at concentrations above the relevant assessment criteria and widespread.**	**Almost certain (5) – Known to be present at concentrations above the relevant assessment criteria and widespread.**
Insignificant (1) – No or highly unlikely exposure pathway for human or ecological receptors under planned land use.	Low 1	Low 2	Low 3	Low 4	Moderate 5
Minor (2) – Unlikely exposure pathway for human or ecological receptors under planned use.	Low 2	Low 4	Low 6	Moderate 8	Moderate 10
Moderate (3) – Exposure pathway for human or ecological receptors may be present and complete under planned land use.	Low 3	Low 6	Moderate 9	Moderate 12	High 15
High (4) – Exposure pathway for human or ecological receptors likely to be present and complete under planned land use.	Low 4	Moderate 8	Moderate 12	High 16	High 20
Significant (5) – Exposure pathway for human or ecological receptors present and are considered complete under planned land use.	Moderate 5	Moderate 10	High 15	High 20	High 25

ii Source-pathway-receptor risk assessment

Table 3.19 presents the results of the SPR assessment, which uses the information from the baseline soil and geochemical conditions, the development of the conceptual site model (Chapter 2) and assessment of the likely changes to the baseline soils and geochemistry environment as a result of the implementation of the SRE Project (Chapter 3).

Table 3.19 SPR assessment

Source area	CoPC	Mechanism	Pathway	Receptor	Consequence of exposure pathway	Likelihood of widespread soil, surface water, sediment or groundwater contamination to be present	Tier 1 preliminary risk assessment[8]
BHP general operations and roads Smelter Support Yard Smelter tipping bays Undisturbed SRE Area	TRH, BTEXN, PAHs, metals, ASS, PFAS	Surface run-off (water and sediment).	Plant uptake and/or ingestion by animals.	Ecological: • Terrestrial and aquatic ecosystems. • GDEs.	Moderate – No aquatic ecosystems or moderate to high potential GDEs are located in proximity to the SRE Project (Figure 2.2); however, there is potential for contaminants to migrate via surface water and groundwater. BHP operational control measurements can reduce exposure.	Rare – Potential activities are ongoing onsite, however no concentrations of CoPC were detected above SAC in local soils. Local soils were classified as NAF, with generally low metal and metalloid concentrations and low risk of leachate. The only exception is copper leachate concentrations that suggested that leachate copper may become more significant as whole-sample copper concentrations reach and exceed ~ 5,000 mg/kg (0.5% Cu).	Low 3
		Vertical seepage into the underlying soils and into the local groundwater system.					
		Migration via groundwater transport.					
		Surface run-off (water and sediment).	Dermal contact and incidental ingestion of impacted surface water and sediment.	Human Health: • Future construction workers involved in the development of the SRE Project and visitors. • Future and current mine workers and visitors.	Minor – There is potential contact with potentially contaminated soils and surface water; however, BHP operational control measurements can reduce exposure. Groundwater direct exposure is not expected to occur involving current SRE operations as no additional water effecting activities are expected to occur	Rare – Potential activities are ongoing on site; however, no concentrations of CoPC were detected above SAC in local soils. As no soil contamination was observed no soil vapour are generated related to the source area. Local soils were classified as NAF, with generally low metal and metalloid concentrations and low risk of leachate. The only exception is copper leachate concentrations that suggested that leachate copper may become more significant as whole-sample copper concentrations reach and exceed ~ 5,000 mg/kg (0.5% Cu). The potential PFAS contamination risk, related to SRE Project operations, are considered low. The potential for contamination can be appropriately mitigated and managed in accordance with relevant Australian Standards, construction environmental management and operational control measures, and relevant environmental legislation, guidelines and policies, all of which are currently in place at Olympic Dam. The SRE Project proposes no additional water extraction above current Olympic Dam daily average BAU volumes with additional water supply via the Office of Northern Water Delivery's NWP infrastructure. On this basis, the SRE Project would not change or influence the current groundwater regime (e.g. the groundwater depths, flow directions or volumes) of existing Olympic Dam operations. The CSM also suggests low to no connectivity between any potential surface run-off and/or seepage of contaminants due to the depth of groundwater and no interaction of the ALA aquifer with the ecological and human receptors. Surface water drainage is proposed is to be captured and managed within the SRE Area with zero discharge off-site. No impacts are expected to occur in the surface water environment due to stormwater design and management (refer Surface Water Assessment). An Air Quality Impact Assessment for the EIS has assessed atmospheric dispersion of dust for the SRE Project (refer Air Quality Assessment).	Low 2
		Excavation and re-location of soil during future activities.	Dermal contact and incidental ingestion of soil.				
		Migration and infiltration of vapours from contaminants in soil, groundwater and/or surface water.	Inhalation of soil, groundwater flow via site aquifers, and/or surface water vapours.				
		Atmospheric dispersion (aeolian transport) of dust, derived from contaminated soil.	Inhalation of dust.				
SRE Project construction and operation	TRH, BTEXN, PAHs, metals, ASS	Surface run-off (water and sediment).	Plant uptake and/or ingestion by animals.	Ecological • Terrestrial and aquatic ecosystems. • GDEs.	Minor – No third-party groundwater users and aquatic ecosystems are located in proximity to the SRE (Figure 2.2); however, there is potential for contaminants to migrate via surface water and groundwater.	Unlikely – Future activities could incur in limited contaminations; however, no concentrations of CoPC were detected above SAC in local soils or geochemistry. Local soils were classified as NAF, with generally low metal and metalloid concentrations and low risk of leachate. The only exception is copper leachate concentrations that suggested that leachate copper may become more significant	Low 6
		Vertical seepage into the underlying soils and into the local groundwater system.					

Source area	CoPC	Mechanism	Pathway	Receptor	Consequence of exposure pathway	Likelihood of widespread soil, surface water, sediment or groundwater contamination to be present	Tier 1 preliminary risk assessment[8]
		Migration via groundwater transport.			Terrestrial vegetation considered to be potential GDEs within the SML are typically associated with an accumulation of sediments that can hold water for a period of time (e.g. claypans). The groundwater opportunistically accessed by GDEs is hydraulically separate from local aquifer (ALA and THA), with most GDEs unable to utilise the high salinity groundwater and are, therefore, considered unlikely to be affected by SRE Project activities. SRE Project design, construction and operational control measurements can reduce exposure.	as whole-sample copper concentrations reach and exceed ~ 5,000 mg/kg (0.5% Cu). Widespread contamination was also not observed in the mine current operation. The potential PFAS contamination risk, related to SRE Project construction and operations, are considered low. The potential for contamination can be appropriately mitigated and managed in accordance with relevant Australian Standards, construction environmental management and operational control measures, and relevant environmental legislation, guidelines and policies, all of which are currently in place at Olympic Dam. The SRE Project proposes no additional water extraction above current Olympic Dam daily average BAU volumes with additional water supply via the Office of Northern Water Delivery's NWP infrastructure. On this basis, the SRE Project would not change or influence current groundwater regime (e.g. the groundwater depths, flow directions or volumes) of existing Olympic Dam operations. The CSM also suggests low to no connectivity between any potential surface run-off and/or seepage of contaminants due to the depth of groundwater and no interaction of the ALA aquifer with the ecological and human receptors.	
SRE Project construction and operation	TRH, BTEXN, PAHs, metals, ASS	Surface run-off (water and sediment).	Dermal contact and incidental ingestion of impacted surface water and sediment.	Human Health: • Future construction workers involved in the development of the SRE Project and visitors. • Future and current mine workers and visitors.	Minor – There is potential contact with potentially contaminated soils; however, the SRE Project design, construction and operational control measurements can reduce exposure.	Unlikely – Future activities could incur in limited contaminations; however, no concentrations of CoPC were detected above SAC in local soils. Widespread contamination was also not observed in the mine current operation. As no soil contamination was observed no soil vapour are generated related to the source area. Local soils were classified as NAF, with generally low metal and metalloid concentrations and low risk of leachate. The only exception is copper leachate concentrations that suggested that leachate copper may become more significant as whole-sample copper concentrations reach and exceed ~ 5,000 mg/kg (0.5% Cu). The potential PFAS contamination risk, related to SRE Project construction and operations, are considered low. The potential for contamination can be appropriately mitigated and managed in accordance with relevant Australian Standards, construction environmental management and operational control measures, and relevant environmental legislation, guidelines and policies, all of which are currently in place at Olympic Dam. Surface water drainage is proposed is to be captured and managed within the SRE Area with zero discharge off-site. No impacts are expected to occur in the surface water environment due to stormwater design and management (refer Surface Water Assessment). The CSM also suggests low to no connectivity between surface water and surface contamination to groundwater. The ALA aquifer has no receptors, and the THA has no connection to the overlying ALA. Groundwater reporting to the underground workings from the THA will not change from current BUA conditions as a result of the SRE Project. An Air Quality Impact Assessment for the EIS has assessed atmospheric dispersion of dust for the SRE Project (refer Air Quality Assessment).	Low 4
		Excavation and re-location of soil during future activities.	Dermal contact and incidental ingestion of soil.				
		Migration and infiltration of vapours from contaminants in soil, groundwater and/or surface water.	Inhalation of soil, groundwater flow via site aquifers, and/or surface water vapours.				
		Atmospheric dispersion (aeolian transport) of dust, derived from contaminated soil.	Inhalation of dust.				
Pilot plant Former fire-training area Current and former SX plants	PFAS	Surface run-off (water and sediment).	Dermal contact and incidental ingestion of impacted surface water and sediment.	Human Health: • Future construction workers involved in the development of the SRE Project and visitors. • Future and current mine workers and visitors.	Existing PFAS contamination has been identified in operational areas. Worker exposure may occur where affected soil or concrete is disturbed. Existing WHS/PPE controls and project-specific investigation and management measures reduce exposure and migration potential.	The Stage 1 DSI (JBS&G 2026b) confirmed PFAS contamination within a number of operational areas. The likelihood of SRE interaction with these existing sources depends on the overlap between the proposed disturbance and the affected areas, and further contamination will depend on effective mitigation measures. Applying the mitigation measures described in Section 3.4.5iii, it is considered unlikely that the PFAS contamination will spread.	
		Excavation and re-location of soil during future activities.	Dermal contact and incidental ingestion of soil.				
		Migration and infiltration of vapours from contaminants in soil, groundwater and/or surface water.	Inhalation of soil, groundwater flow via site aquifers, and/or surface water vapours.				

Source area	CoPC	Mechanism	Pathway	Receptor	Consequence of exposure pathway	Likelihood of widespread soil, surface water, sediment or groundwater contamination to be present	Tier 1 preliminary risk assessment[8]
Emergency response shed Smelter Pilot plant runoff water		Atmospheric dispersion (aeolian transport) of dust, derived from contaminated soil.	Inhalation of dust.				

3.4.5 Assessment results

Table 3.20 presents the revised SPR assessment with respect to this soil, groundwater and geochemistry assessment, with a summary provided below.

i Contamination

Based on the collected from the targeted soils and geochemistry sampling program, the following conclusions are made:

- The EMM November 2024 targeted investigation did not identify exceedances of the adopted SAC for the contaminants analysed in the 19 test pits. It is noted that PFAS was not included in that analytical program. The separate PFAS Stage 1 DSI identified existing PFAS contamination at a number of operational areas. Complete worker exposure pathways were described for the pilot plant and current SX plant through direct contact with PFAS-affected soils and incidental ingestion or inhalation of contaminated dust. The PFAS impacts identified by the Stage 1 DSI represent existing site contamination associated with historical and operational activities rather than contamination caused by the proposed SRE Project.

- Where SRE works have the potential to interact with known or potentially PFAS-affected areas, project-specific investigation, design avoidance, construction management and material handling measures will be applied as described in Section 3.4.5iii.

- The potential contamination risk related SRE Project operations and construction is considered low and can be appropriately mitigated and managed in accordance with best practice to relevant Australian Standards, construction environmental management and operational control measures (e.g. BHP's Environment Protection Management Plan, Olympic Dam site operating procedures and Site Contamination Management Plan) to relevant environmental legislation, guidelines and policies.

- Whilst no targeted sampling was undertaken within the General Infrastructure Area, Water Infrastructure Area and Electricity Infrastructure Area of the SRE Project, given the typical construction activities proposed in these location (i.e. ancillary infrastructure comprising water storage dams, water pipelines, soil stockpiles, laydown areas and access roads), consideration of additional investigations should be made as part of the construction contract scope.

ii Geochemistry and groundwater

All soil samples analysed were NAF with low metal and metalloid concentrations, with the exceptions of arsenic and copper contents. These were targeted during subsequent leachate testing. A slag sample was also classified as NAF (NPR = 29), with negligible NAF values (<0.5 kg H_2SO_4/t), indicating no potential for net acidity upon oxidation, although it exhibited elevated concentrations of several elements relative to SRE materials.

Copper leachate concentrations displayed a reasonable correlation with the corresponding whole-sample (solid) copper content and suggested that leachate copper may become more significant as whole-sample copper concentrations reach and exceed ~5,000 mg/kg (0.5% Cu). This value may be used as a 'cut-off' for onsite management of enriched copper samples as the SRE Project proceeds as part of existing Olympic Dam site management plan.

All other analyte leachate concentrations, including arsenic concentrations, were reported at or below LORs (with the exception of two zinc leachate contents of 0.2 mg/L, which were marginally above the LOR of 0.1 mg/L), indicating that the overall risk of leachate from the disturbed material is low. In contrast, the slag sample showed detectable leachate concentrations for a subset of enriched elements (notably cobalt, copper, molybdenum and uranium). However, it is noted that the slag leachate test was undertaken under acidic conditions (TCLP), which are designed to identify contaminants of potential concern and are not representative of typical field exposure conditions (e.g. rainfall). The NAG results indicate that the slag material will not generate acidity under natural conditions and, therefore, leachability is expected to be lower in situ.

Comparison of the soil leachate results with existing surface water and groundwater monitoring data indicates that waters across the Olympic Dam site are naturally variable and commonly characterised by elevated salinity. While some guideline exceedances for metals (e.g. manganese) occur in monitored waters, these conditions reflect existing site-wide groundwater characteristics rather than project-specific influences. Baseline groundwater quality in both the ALA and THA is characterised by saline to hypersaline conditions, neutral to slightly alkaline pH, and generally low dissolved metal concentrations, with localised elevations in manganese, uranium and iron in some site-based bores associated with known mine water influences that are subject to ongoing monitoring.

Review of post-baseline groundwater quality data collected between 2012 and 2022 from monitoring bores located within and hydraulically downgradient of the SRE Area indicates that groundwater quality has remained generally consistent with baseline conditions, with no evidence of widespread or systematic deterioration in metals or hydrocarbon-related parameters. Hydrocarbon (TRH), BTEX and PAH analytes were predominantly below laboratory limits of reporting, with isolated detections limited to individual bores associated with known historic contamination areas.

The depth to groundwater beneath the SRE Area, typically greater than 35 m, substantially limits the potential for downward migration of contaminants from surface soils to groundwater. Surface water within the SRE Project footprint will be captured and managed under a zero-discharge design, reducing the potential for contaminant mobilisation via infiltration or runoff. In addition, best practice engineering controls, bunding of chemical and hydrocarbon storage, spill response procedures and implementation of BHP's site contamination management systems further reduce the likelihood of contaminant migration to groundwater.

Any leaching from material disturbed by SRE Project activities is likely to have less of an impact on the receiving environment than mine affected water already present on site (such as past seepage from the TSF) and can be appropriately management in accordance with Olympic Dam's waste management plan. The SRE Project proposes no additional water extraction from the GAB above current Olympic Dam daily average BAU volumes with additional water supply via the DIT's NWP infrastructure. On this basis, the SRE Project would not change or influence the current groundwater regime of existing Olympic Dam operations and, thus, no additional water affecting activities are anticipated on the Project site.

Table 3.20 Final SPR assessment – confirmed impact events

Impact ID	Potential impact event	Receptor	Proposed mitigation measures	Linkage post mitigation measure	Linkage justification
GW5	During operations, infiltration of chemicals and/or hydrocarbons used in SRE Project operations, including metals mobilised via acid rock drainage from stockpiles and/or the TSF or effluent released from WWTPs, result in changes to groundwater quality, impacting aquatic ecology	Ecology (aquatic ecology)	The SRE Project propose to implement best practice engineering to relevant Australian Standards, construction environmental management and operational control measures to satisfy environmental legislation, guidelines and policies to avoid potential impacts to flora and vegetation – refer to Ecology Impact Assessment. All hydrocarbon and chemical storage locations would be bunded for containment in the event of a spill in order to prevent discharge. A spills procedure would also be in place. In the event of a spill, rain would need to occur soon after for mobilisation to occur prior to clean up. BHP Site Contamination Management also provides guidelines for site contamination management. Where whole-sample copper concentrations exceed 5,000 mg/kg (0.5% Cu), onsite management in accordance with existing procedures will minimise leachate generation and prevent mobilisation to groundwater. Existing PFAS contamination has been identified within a number of operational areas at Olympic Dam through the Stage 1 PFAS DSI (JBS&G 2026b). Where proposed SRE works have the potential to interact with known or potentially PFAS-affected areas, targeted pre-construction investigation will be undertaken. Project controls will include design avoidance, segregation, controlled handling, diversion of stormwater, management of potentially contaminated runoff, management of seepage and appropriate treatment, reuse or disposal of PFAS-affected material (Section 3.4.5iii)	No linkage	Existing PFAS impacts identified by the Stage 1 DSI represent pre-existing site contamination rather than contamination generated by the proposed SRE Project. The potential for SRE activities to increase exposure to or mobilise existing PFAS contamination will be managed through targeted investigation, design avoidance, and operational controls. Where PFAS-affected material is encountered, the measures described in Section 3.4.5iii will be implemented to minimise additional contaminant migration. Surface water drainage is proposed to be captured and managed within the SRE Area with zero discharge off-site. No impacts are expected to occur within the surface water environment due to stormwater design and management (refer Surface Water Assessment). Terrestrial vegetation within the SML is typically associated with an accumulation of sediments that can hold water for a period of time (e.g. claypans). The groundwater opportunistically accessed by terrestrial vegetation is hydraulically separated from the ALA water table by an unsaturated soil thickness of at least 35 m, with most vegetation unable to utilise the high salinity groundwater and are, therefore, considered unlikely to be affected by SRE Project activities. The proposed mitigation measures would break any SPR linkage. Refer Ecological Impact Assessment

Impact ID	Potential impact event	Receptor	Proposed mitigation measures	Linkage post mitigation measure	Linkage justification
GW6	During operations, Infiltration of chemicals and/or hydrocarbons used in SRE Project operations, including metals mobilised via acid rock drainage from stockpiles and/or the TSF or effluent released from WWTPs, results in changes to groundwater quality, impacting groundwater dependent ecosystems	Ecology (groundwater dependent ecosystems)	The SRE Project propose to implement best practice engineering to relevant Australian Standards, construction environmental management and operational control measures to satisfy environmental legislation, guidelines and policies to avoid potential impacts to flora and vegetation – refer Ecology Impact Assessment. All hydrocarbon and chemical storage locations would be bunded for containment in the event of a spill in order to prevent discharge. A spills procedure would also be in place. In the event of a spill, rain would need to occur soon after for mobilisation to occur prior to clean up. BHP Site Contamination Management also provides guidelines for site contamination management. Where whole-sample copper concentrations exceed 5,000 mg/kg (0.5% Cu), onsite management in accordance with existing procedures will minimise leachate generation and prevent mobilisation to groundwater. Existing PFAS contamination has been identified within a number of operational areas at Olympic Dam through the Stage 1 PFAS DSI (JBS&G 2026b). Where proposed SRE works have the potential to interact with known or potentially PFAS-affected areas, targeted pre-construction investigation will be undertaken. Project controls will include design avoidance, segregation, controlled handling, diversion of stormwater, management of potentially contaminated runoff, management of seepage and appropriate treatment, reuse or disposal of PFAS-affected material (Section 3.4.5iii)	No linkage	Existing PFAS impacts identified by the Stage 1 DSI represent pre-existing site contamination rather than contamination generated by the proposed SRE Project. The potential for SRE activities to increase exposure to or mobilise existing PFAS contamination will be managed through targeted investigation, design avoidance, and operational controls. Where PFAS-affected material is encountered, the measures described in Section 3.4.5iii will be implemented to minimise additional contaminant migration. Surface water drainage is proposed to be captured and managed within the SRE Area with zero discharge off-site. No impacts are expected to occur within the surface water environment due to stormwater design and management (refer Surface Water Assessment). Terrestrial vegetation considered to be potential GDEs within the SML are typically associated with an accumulation of sediments that can hold water for a period of time (e.g. claypans). The groundwater opportunistically accessed by terrestrial vegetation is hydraulically separated from the ALA water table by an unsaturated soil thickness of at least 35 m, with most vegetation unable to utilise the high salinity groundwater and are, therefore, considered unlikely to be affected by SRE Project activities. The proposed mitigation measures would break any SPR linkage. Refer Ecological Impact Assessment

Impact ID	Potential impact event	Receptor	Proposed mitigation measures	Linkage post mitigation measure	Linkage justification
GW7	During operations, release of chemicals and/or hydrocarbons used in SRE Project beyond containment areas, results in changes to groundwater quality, impacting third party users	Third party users (resource availability)	The SRE Project propose to implement best practice engineering to relevant Australian Standards, construction environmental management and operational control measures to satisfy environmental legislation, guidelines and policies to avoid potential impacts to aquatic ecology – refer to Ecology Impact Assessment. All hydrocarbon and chemical storage locations would be bunded for containment in the event of a spill in order to prevent discharge. A spills procedure would also be in place. In the event of a spill, rain would need to occur soon after for mobilisation to occur prior to clean up. BHP Site Contamination Management also provides guidelines for site contamination management. Where whole-sample copper concentrations exceed 5,000 mg/kg (0.5% Cu), onsite management in accordance with existing procedures will minimise leachate generation and prevent mobilisation to groundwater. Existing PFAS contamination has been identified within a number of operational areas at Olympic Dam through the Stage 1 PFAS DSI (JBS&G 2026b). Where proposed SRE works have the potential to interact with known or potentially PFAS-affected areas, targeted pre-construction investigation will be undertaken. Project controls will include design avoidance, segregation, controlled handling, diversion of stormwater, management of potentially contaminated runoff, management of seepage and appropriate treatment, reuse or disposal of PFAS-affected material (Section 3.4.5iii)	No linkage	Existing PFAS impacts identified by the Stage 1 DSI represent pre-existing site contamination rather than contamination generated by the proposed SRE Project. The potential for SRE activities to increase exposure to or mobilise existing PFAS contamination will be managed through targeted investigation, design avoidance, and operational controls. Where PFAS-affected material is encountered, the measures described in Section 3.4.5iii will be implemented to minimise additional contaminant migration. The SRE Project proposes no additional water extraction from the GAB above current Olympic Dam daily average BAU volumes with additional water supply via DIT's NWP infrastructure. On this basis, the SRE Project would not change or influence the current groundwater regime of existing Olympic Dam operations. From a regional perspective, sensitive receptors outside of the SML include third party pastoral bores, Lake Torrens and potential watercourse springs and drainage lines such as Bosworth Creek, which may have some reliance on the presence of groundwater. Given the location of these sensitive receptors is over 30 km to the east, they are considered unlikely to be affected by SRE Project activities. The proposed mitigation measures would break any SPR linkage.

Impact ID	Potential impact event	Receptor	Proposed mitigation measures	Linkage post mitigation measure	Linkage justification
GW8	During operations, release of chemicals and/or hydrocarbons used in SRE Project beyond containment areas, results in changes to groundwater quality, impacting future users	Future users (resource availability)	No third-party users access groundwater within proximity to the SRE Project. The SRE Project propose to implement best practice engineering to relevant Australian Standards, construction environmental management and operational control measures to satisfy environmental legislation, guidelines and policies to avoid potential impacts to surface water and groundwater – refer to Surface Water Assessment. BHP Site Contamination Management also provides guidelines for site contamination management. Where whole-sample copper concentrations exceed 5,000 mg/kg (0.5% Cu), onsite management in accordance with existing procedures will minimise leachate generation and prevent mobilisation to groundwater. Existing PFAS contamination has been identified within a number of operational areas at Olympic Dam through the Stage 1 PFAS DSI (JBS&G 2026b). Where proposed SRE works have the potential to interact with known or potentially PFAS-affected areas, targeted pre-construction investigation will be undertaken. Project controls will include design avoidance, segregation, controlled handling, diversion of stormwater, management of potentially contaminated runoff, management of seepage and appropriate treatment, reuse or disposal of PFAS-affected material (Section 3.4.5iii)	No linkage	Existing PFAS impacts identified by the Stage 1 DSI represent pre-existing site contamination rather than contamination generated by the proposed SRE Project. The potential for SRE activities to increase exposure to or mobilise existing PFAS contamination will be managed through targeted investigation, design avoidance, and operational controls. Where PFAS-affected material is encountered, the measures described in Section 3.4.5iii will be implemented to minimise additional contaminant migration. The SRE Project proposes no additional water extraction above current Olympic Dam daily average BAU volumes with additional water supply via DIT's NWP infrastructure. On this basis, the SRE Project would not change or influence the current groundwater regime of existing Olympic Dam operations. Groundwater utilisation by landholders is sparse. Where groundwater is used, it is predominately sourced from quaternary sediments that host shallow and perched groundwater lenses. There are no active third-party landholder bores within 30 km of the SML. Given the location of landholder bores is over 30 km to the west, they are considered unlikely to be affected by SRE Project activities. The proposed mitigation measures would break any SPR linkage.

iii Mitigation and management

Irrespective of the soil and groundwater impact assessment outcome, the unconfirmed impact events are proposed to have management and mitigation measure applied, aimed at reducing any potential impact significance to as low as reasonably achievable (ALARA).

On this basis, EMM recommend:

- all hydrocarbon and chemical storage locations should be bunded for containment in accordance with relevant Australian Standards in order to prevent discharge in the event of a spill
- development of a site-specific construction environmental management plan (CEMP) including an unexpected find protocol to manage ground disturbance during SRE project development works
- implementation of BHP's hydrocarbon and chemical spills procedure
- application of BHP's Site Contamination Management framework to guide identification, investigation and management of any contamination encountered during construction or operation
- soils identified during construction with elevated copper concentrations (whole-sample copper contents exceed 5,000 mg/kg; 0.5% Cu), should be managed in accordance with existing management procedures. This may include segregation from general fill, controlled handling and placement, and minimisation of contact with water to reduce the potential for copper leaching
- ensuring best practice engineering controls, bunding of chemical and hydrocarbon storage, spill response procedures and implementation of BHP's site contamination management systems to further reduce the likelihood of contaminant migration to groundwater
- groundwater quality should continue to be monitored under BHP's existing site-wide groundwater monitoring program. As the program is reviewed and updated, BHP will seek to address relevant data and monitoring gaps identified in the available groundwater baseline, regarding EPA *Guideline 3 – Establishing baseline groundwater quality*. Monitoring results will continue to be reviewed as part of BHP's standard environmental reporting and used to refine the understanding of baseline and post-baseline groundwater conditions
- potential for PFAS contamination to be appropriately mitigated and managed in accordance with relevant Australian Standards, construction environmental management and operational control measures, and relevant environmental legislation, guidelines and policies, all of which are currently in place at Olympic Dam.

A CEMP will be developed prior to construction, including targeted PFAS soil sampling where disturbance areas overlap known or potential PFAS-affected areas, with consideration of the following:

- Sampling locations and depths will be informed by the proposed infrastructure engineering design and footing depths.
- Analysis will cover the current suite of PFAS analytes recommended under the PFAS NEMP, with results assessed against the applicable soil and water guideline values, updated to reflect the current Australian Drinking Water Guidelines (NHMRC 2025) and Australian and New Zealand guidelines (ANZG) for fresh and marine water quality (2026).
- Should PFAS be detected at concentrations exceeding the relevant screening levels, a human health and ecological risk assessment would be undertaken to assess site-specific risks.

- Where an unacceptable risk is identified, management of PFAS-impacted soils will be undertaken in accordance with the PFAS NEMP remediation hierarchy, prioritising treatment and reuse over disposal, and having regard to relevant South Australian EPA guidance on PFAS management and waste classification, e.g.:
    - segregating excavated PFAS-affected material to prevent mixing with unaffected material
    - stormwater diversion around PFAS-affected areas and containment of potentially affected runoff
    - groundwater and seepage controls to minimise seepage into the soil during construction
    - characterisation of potentially affected soils and water for reuse, treatment or disposal.
- Any long-term residual PFAS impacts will be addressed through an environmental management plan, including ongoing monitoring and reporting requirements.

3.4.6 Conclusion

This soil and groundwater impact assessment, comprising preliminary site investigation and associated targeted soils and geochemistry sampling program, concluded the following:

- No exceedances of CoPC above the adopted human health and ecological SAC were identified within the 19 test pits investigated as part of the November 2024 targeted EMM soil program. PFAS was not included in this program and was investigated by JBS&G (2026b) during the Stage 1 PFAS DSI. This investigation identified PFAS contamination at a number of areas, including exceedances of SAC at the pilot plant and current SX plant, and lower-level detections in other areas. Further PFAS assessment is proposed through the Stage 2 DSI to address remaining data gaps surrounding the vertical and lateral extent of the contamination, as well as any risk associated with PFAS leaching into the groundwater system.
- All soils assessed were classified as non-acid forming, with generally low metal and metalloid concentrations.
- Baseline and post-baseline groundwater quality data indicate that groundwater within and downgradient of the SRE Area has remained generally consistent over time. Groundwater in the ALA and THA is naturally saline to hypersaline, with neutral to slightly alkaline pH and generally low dissolved metal concentrations.
- The potential contamination risk related SRE Project operations and construction are considered low risk and can be appropriately mitigated and managed in accordance with best practice to relevant Australian Standards, construction environmental management and operational control measures to relevant environmental legislation, guidelines and policies.
- Any leaching from material disturbed by SRE Project activities is likely to have less of an impact on the receiving environment than mine affected water already present on site (such as the TSF) and can be appropriately management in accordance with Olympic Dam's waste management plan.
- Whilst no targeted sampling was undertaken within the General Infrastructure Area, Water Infrastructure Area and Electricity Infrastructure Area of the SRE Project, given the typical construction activities proposed in these location (i.e. ancillary infrastructure comprising water storage dams, water pipelines, soil stockpiles, laydown areas and access roads) it considered that additional investigations can be undertaken as part of the construction contract scope.

References

AIMM, Berkman, D. A. (Donald Alexander) & Australasian Institute of Mining and Metallurgy 2011, *Field geologist's manual*. Australasian Institute of Mining and Metallurgy Carlton, Vic.

AMIRA 2002. *ARD Test Handbook*. Ian Wark Research Institute; Environmental Geochemistry International Pty Ltd.

ANZECC & ARMCANZ 2000. Australian and New Zealand Guidelines for Fresh and Marine Water Quality. Canberra: Australian and New Zealand Environment and Conservation Council and Agriculture and Resource Management Council of Australia and New Zealand.

ASC NEPM 2013, National Environment Protection Council (NEPC) (1999) *National Environment Protection (Assessment of Site Contamination) Measure* (as amended in May 2013).

Berkman, D. A. 1976. *Field Geologists' Manual.* Melbourne: Australian Institute of Mining and Metallurgy.

BHP, BHP Olympic Dam Corporation Pty Ltd 2009, *Olympic Dam Expansion Draft Environmental Impact Statement.*

BHP Olympic Dam Corporation Pty Ltd (BHP) 2023a, *Great Artesian Basin wellfields report*.

BHP Olympic Dam Corporation Pty Ltd (BHP) 2023b*, IMS Element 8 – Groundwater Monitoring Program*, Document No. 000036173 V.1.

Bowen, H. J. M. 1979. *Environmental Chemistry of the Elements.*

Bureau of Meteorology (BoM) 2026, *Climate Data Online - Roxby Downs (Olympic Dam Aerodrome), Station 016096*, Australian Government Bureau of Meteorology, accessed 6 October 2026.

CDM Smith 2024, *Olympic Dam SMAD groundwater modelling,* prepared for BHP Group Pty Ltd, report no. 1001780 V.1.

Department of Agriculture and Water Resources 2018, Canberra, ACT.CC By 4.0, *National Acid Sulfate Soils Guidance: National acid sulfate soils identification and laboratory methods manual.*

Department for Environment and Water (DEW), *Acid sulfate soil potential mapping*, <https://data.sa.gov.au>, Government of South Australia.

EMM 2026, Surface Water Assessment: Olympic Dam Smelter and Refinery Expansion Project, prepared for BHP Olympic Dam Corporation Pty Ltd.

Environment Protection Act 1993 (SA), South Australian Legislation.

Environment Protection Authority (EPA) 2018, *Guidelines for the assessment and remediation of site contamination* (as amended in November 2019).

Environment Protection Authority (EPA) 2024, *Guideline 3 – Establishing baseline groundwater quality*, Government of South Australia, Australia.

GARD 2009, *Global Acid Rock Drainage Guide.* The International Network for Acid Prevention (INAP).

Heads of EPA Australia and New Zealand (HEPA) (2025) *PFAS National Environmental Management Plan Version 3.0*, National Chemicals Working Group, Department of Climate Change, Energy, the Environment and Water, Australian Government, Canberra.

JBS&G Australia Pty Ltd (JBS&G) 2026a, *Groundwater quality sampling at the Olympic Dam Mine Site baseline 2026*, prepared for BHP Olympic Dam Corporation Pty Ltd.

JBS&G Australia Pty Ltd (JBS&G) 2026b, *Detailed Site Investigation, Olympic Dam PFAS Assessment – Stage 1*, prepared for BHP Olympic Dam Corporation Pty Ltd.

Landscape South Australia SA Arid Land (LSA SAAL) 2022, *Districts and bioregions.*

OZ Minerals 2017, *Carrapateena Project Mining Lease Proposal and Miscellaneous Purposes Licence Management Plans*. May 2017. OZ Minerals, South Australia, Adelaide.

Price, W. A. 2009, *Prediction Manual for Drainage Chemistry from Sulfidic Geologic Materials*. MEND.

Roxby Management Services Pty Ltd (RMS) 1982, *Olympic Dam Project Draft Environmental Impact Statement.*

SRK Consulting 2020, *Olympic Dam Resource Development Strategy: Assessment of Potential Local Groundwater Impacts,* prepared for JBS&G Australia Pty Ltd.

Sullivan, L, Ward, N, Toppler, N and Lancaster, G, 2018, *National Acid Sulfate Soils Guidance from Water Quality Australia.*

Abbreviations and acronyms

Acronym	Expansion
ABA	Acid-base accounting
ALARA	As low as reasonably achievable
ANC	Acid neutralising capacity
AoPC	Areas of potential concern
ASS	Acid Sulphate Soils
ANZECC	Australian and New Zealand Environment and Conservation Council
ASC NEPM	National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended in 2013
BAU	Business-as-usual
BHP	BHP Olympic Dam Corporation Pty Ltd
BTEX	Benzene, toluene, ethylbenzene, xylene
COC	Chain of custody
CoPC	Contaminants of Potential Concern
Copper SA	Copper South Australia
CSM	Conceptual site model
CEMP	Construction Environmental Management Plan
DBF	Direct-to-blister flash furnace
DSI	Detailed site investigation
DQO	Data quality objective
DQIs	Data quality indicators
EIL	Ecological investigation level
EIS	Environment Impact Statement
ESL	Ecological screening level
EMM	EMM Consulting Pty Limited
EPA	Environmental Protection Authority
FIFO	Fly-in/fly-out
GAI	Geochemical abundance index
HIL	Health investigation level
HSL	Health screening level
L	Litre
LNAPL	Light non-aqueous phase liquids
LOR	Limit of Reporting
m	Metres

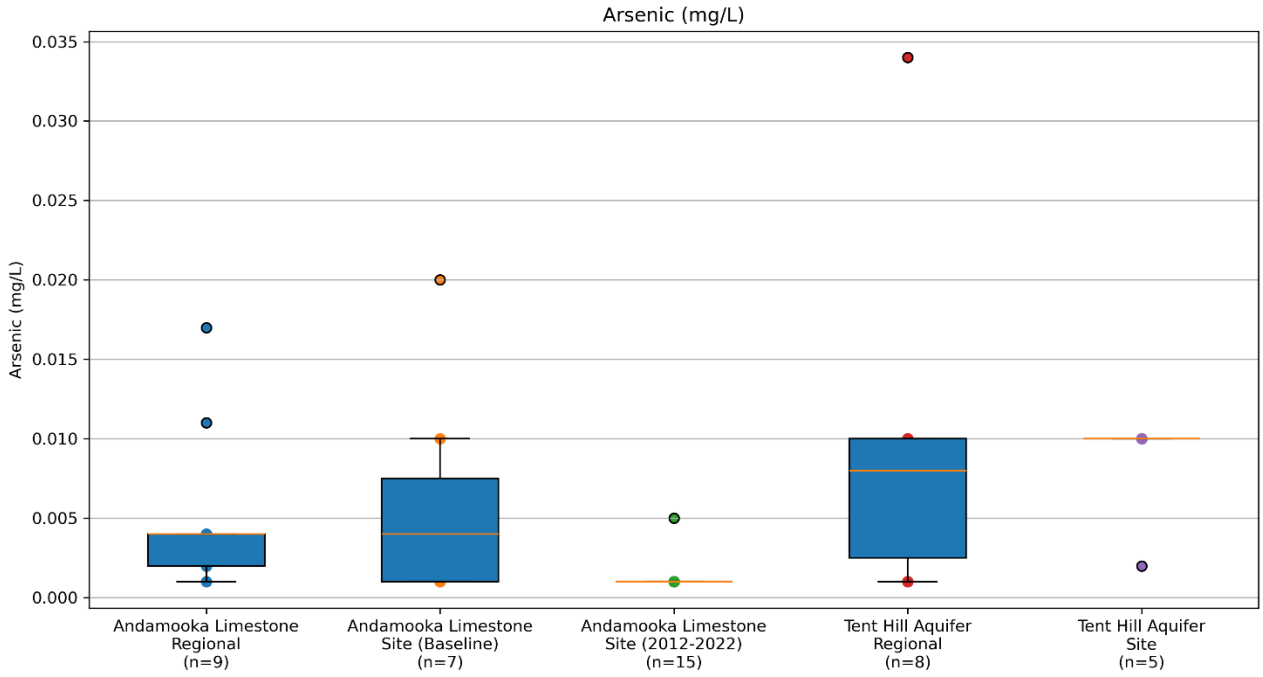
Acronym	Expansion
m2	Square metres
m AHD	Metres Australian Height Datum
m bgl	Metres below ground level
MPA	Maximum potential acidity
NA	Not applicable
NAF	Non-acid-forming
NAG	Net acid generation
NATA	National Association of Testing Authorities
NPR	Neutralisation potential ratio
OCP	Organo-Chlorine
OPP	Organo-Phosphate
PAF	Potentially acid-forming
PAH	Polycyclic aromatic hydrocarbon
PFAS	per- and polyfluoroalkyl substances
PID	Photoionisation detector
PDI Act	Planning, Development and Infrastructure Act 2017 (South Australia)
ppm	Parts per million
PSI	Preliminary site investigation
QA/QC	Quality assurance/quality control
SA	South Australia
SAQP	Sampling and Analysis Quality Plan
SAC	Site assessment criteria
SX	Solvent extraction
SML	Special Mining Lease
SPR	Source-pathway-receptor
SRE	Smelter and Refinery Expansion
TCLP	Toxicity characteristic leaching procedure
tpa	Tonnes per annum
TRH	Total recoverable hydrocarbons

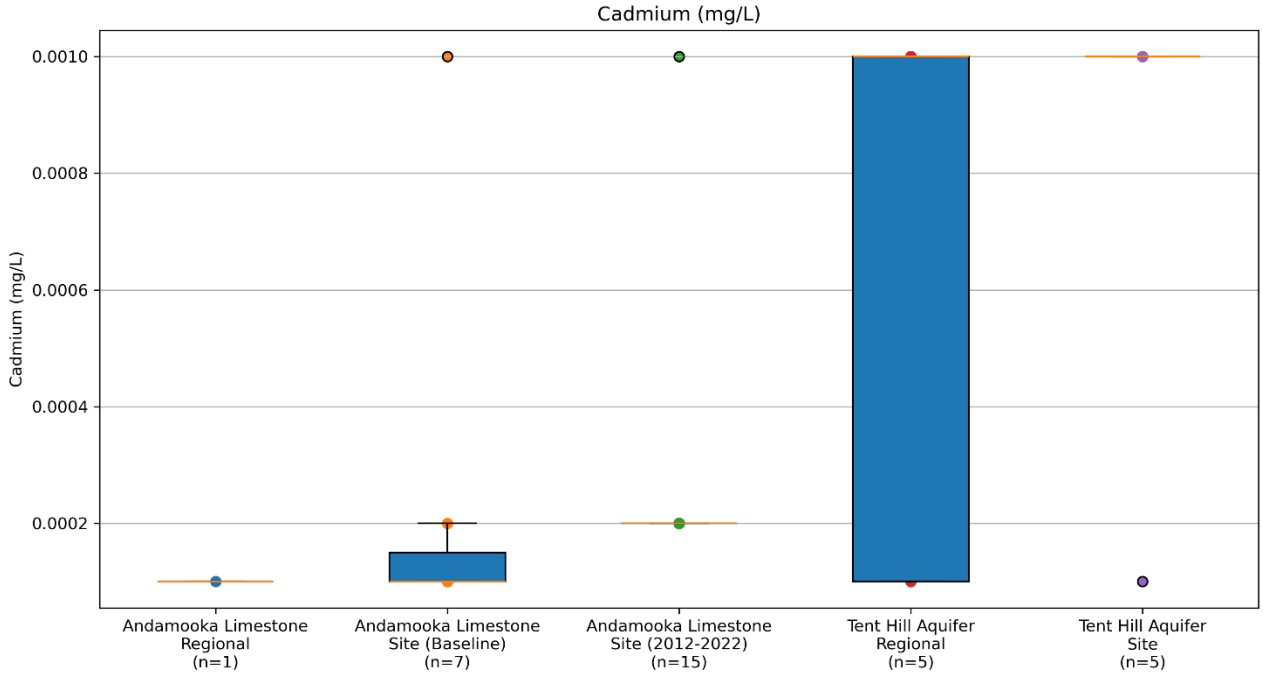
Annexure A

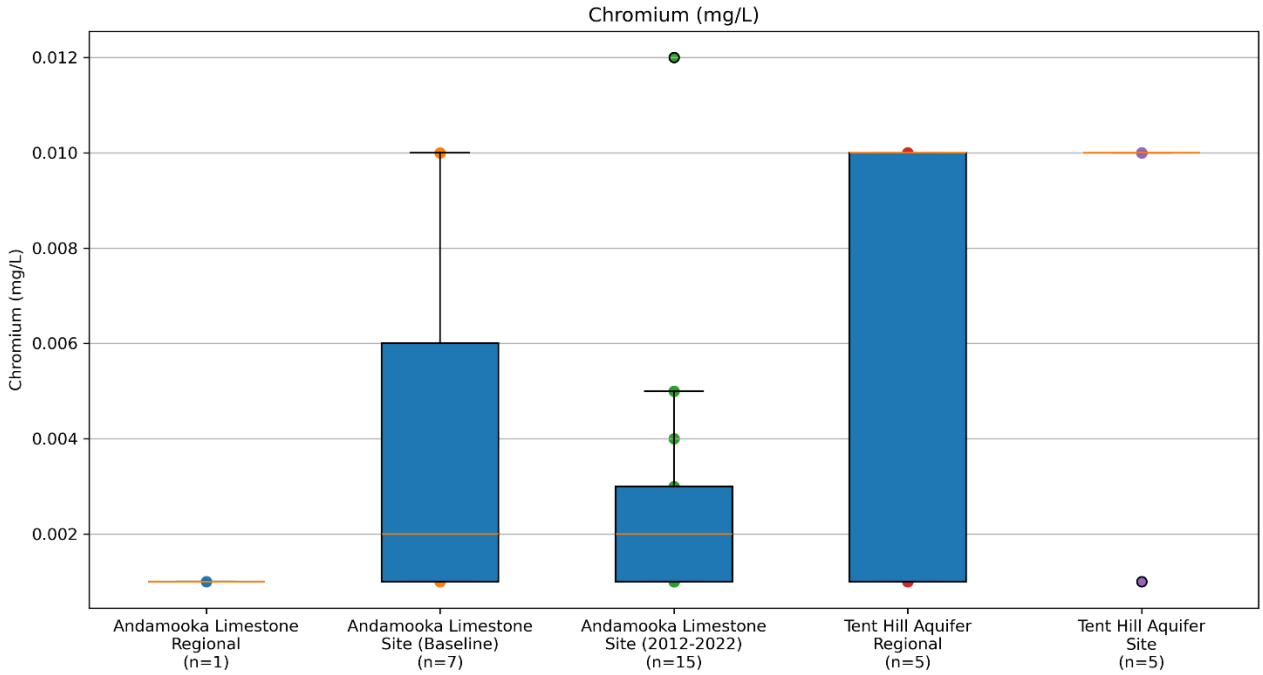
Groundwater quality plots

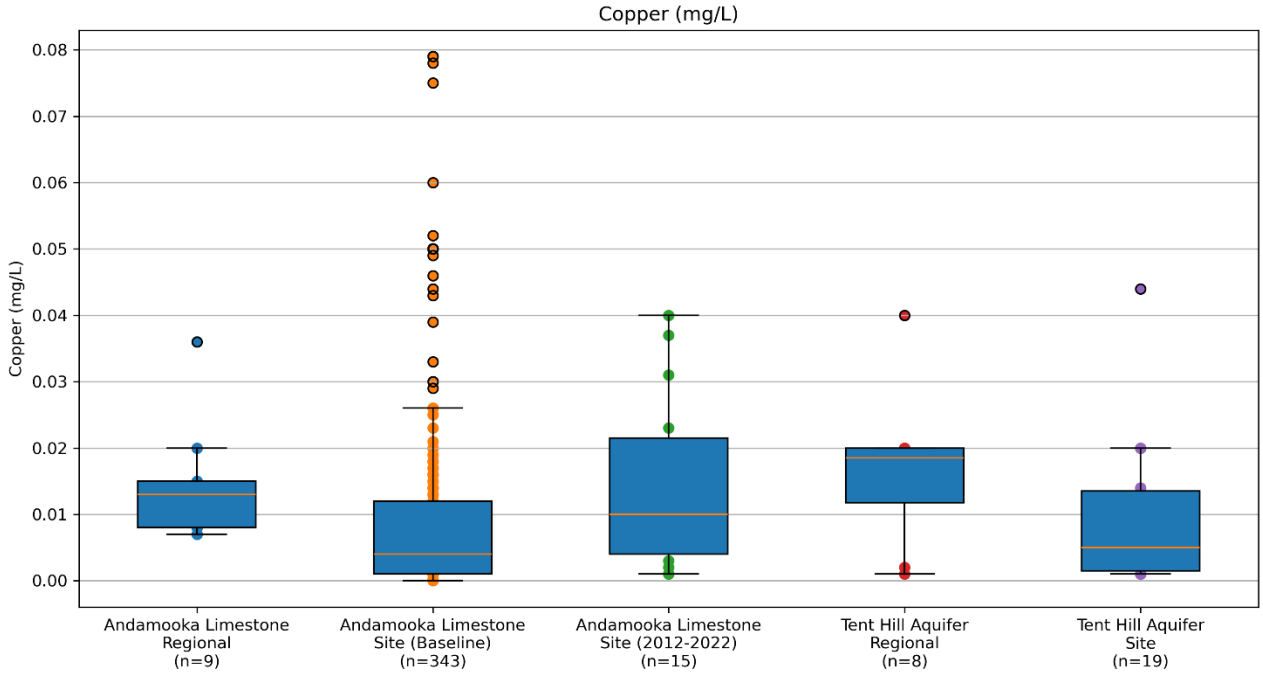
EMM
creating opportunities

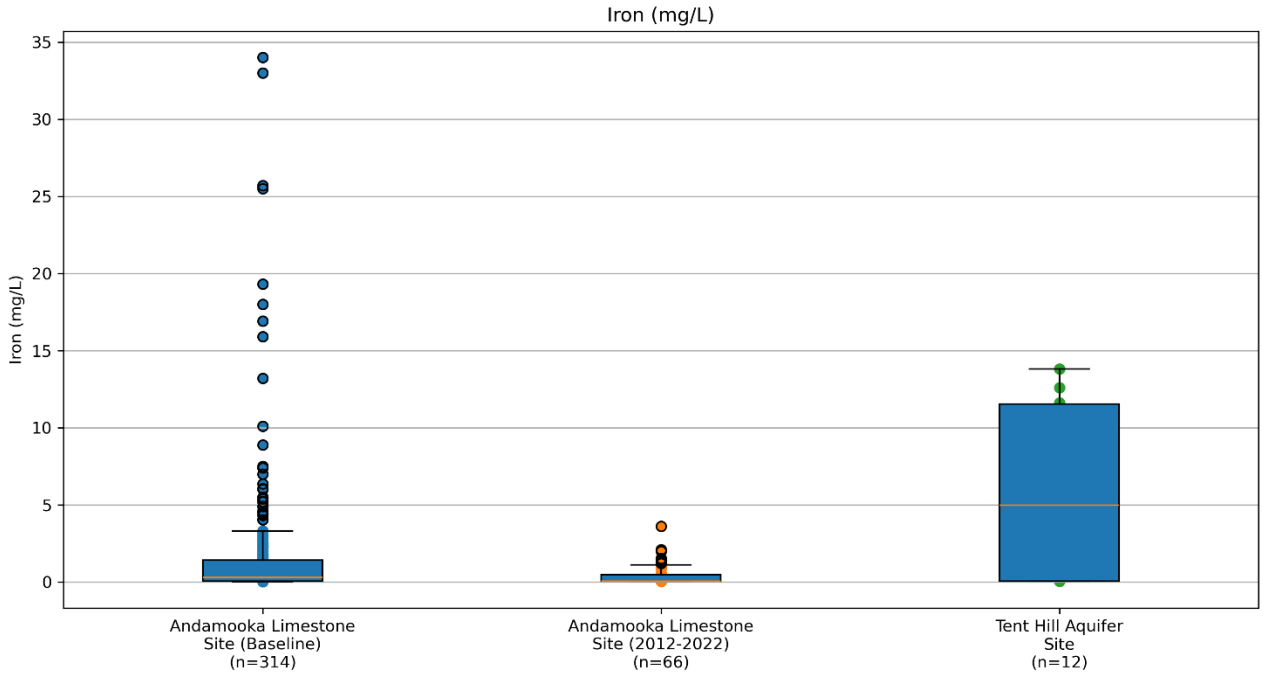
A.1 Box and whisker plots

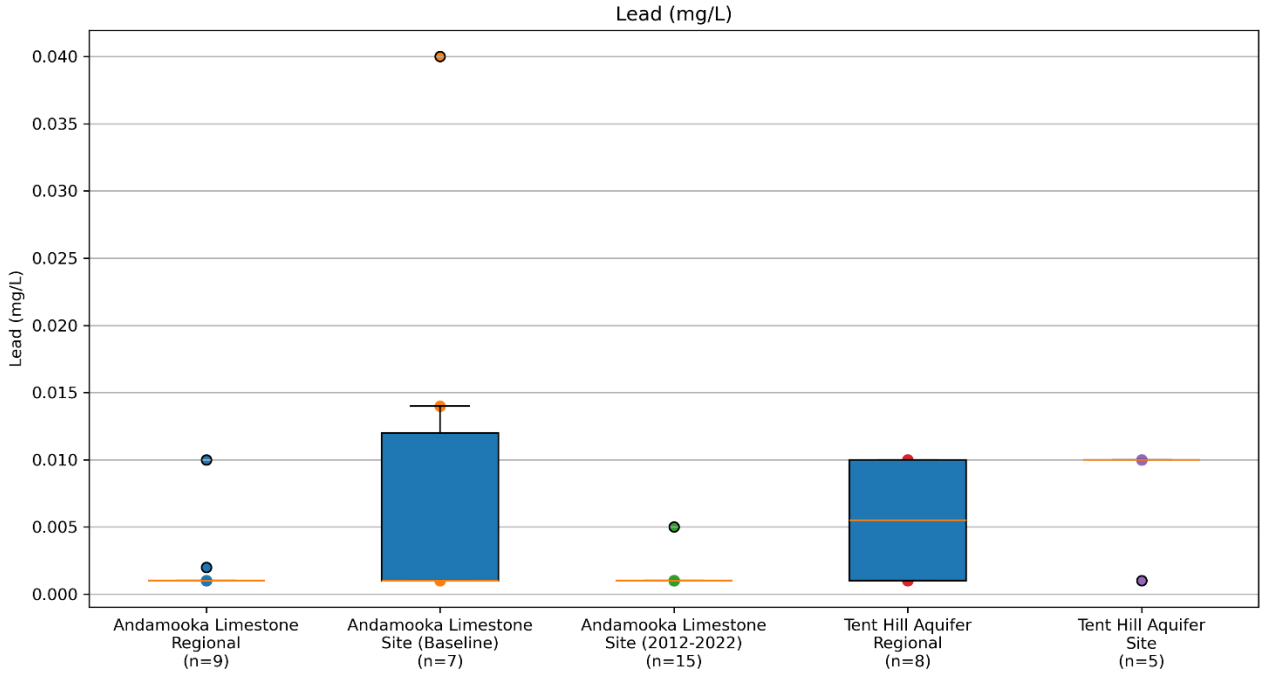


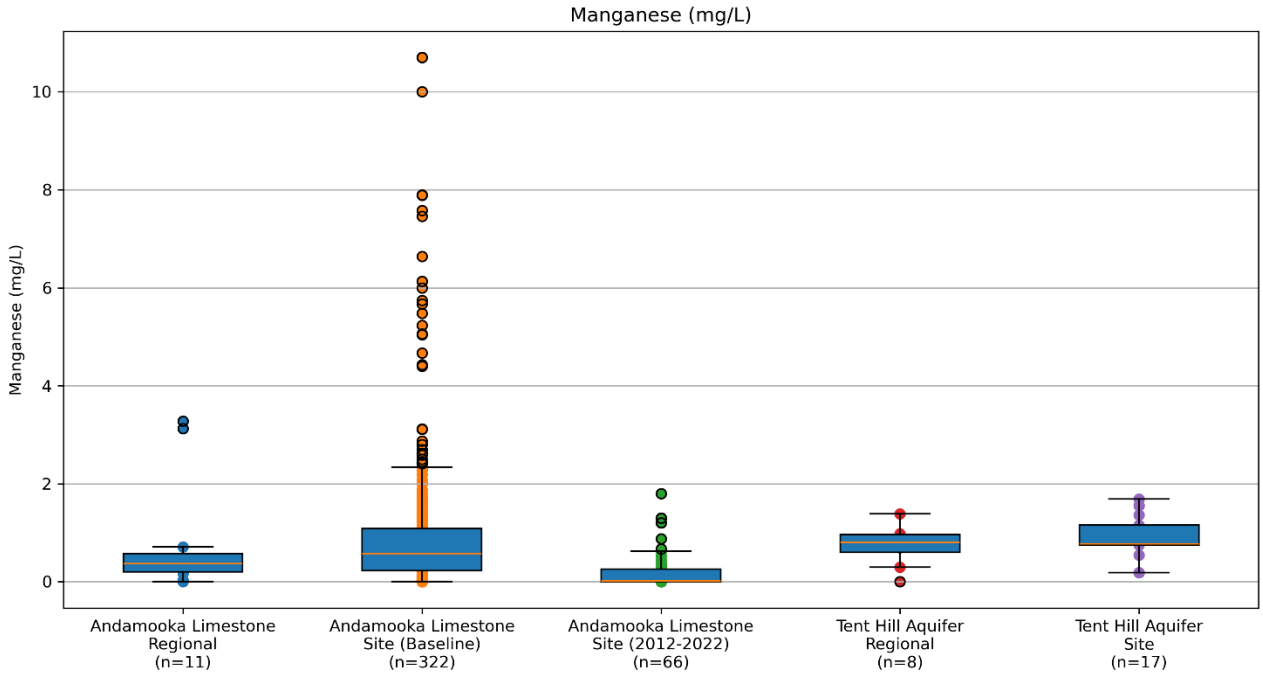


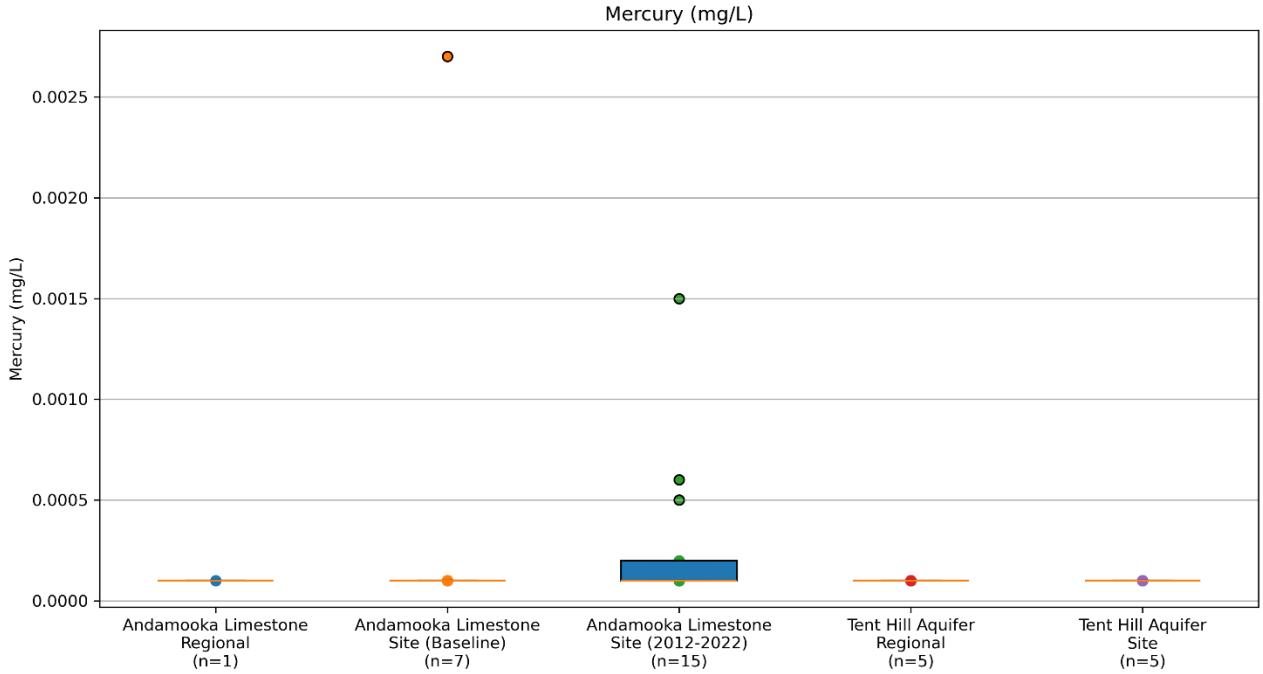

Chromium (mg/L)
Chromium (mg/L)
0.012
0.010
0.008
0.006
0.004
0.002
Andamooka Limestone Regional (n=1)
Andamooka Limestone Site (Baseline) (n=7)
Andamooka Limestone Site (2012-2022) (n=15)
Tent Hill Aquifer Regional (n=5)
Tent Hill Aquifer Site (n=5)

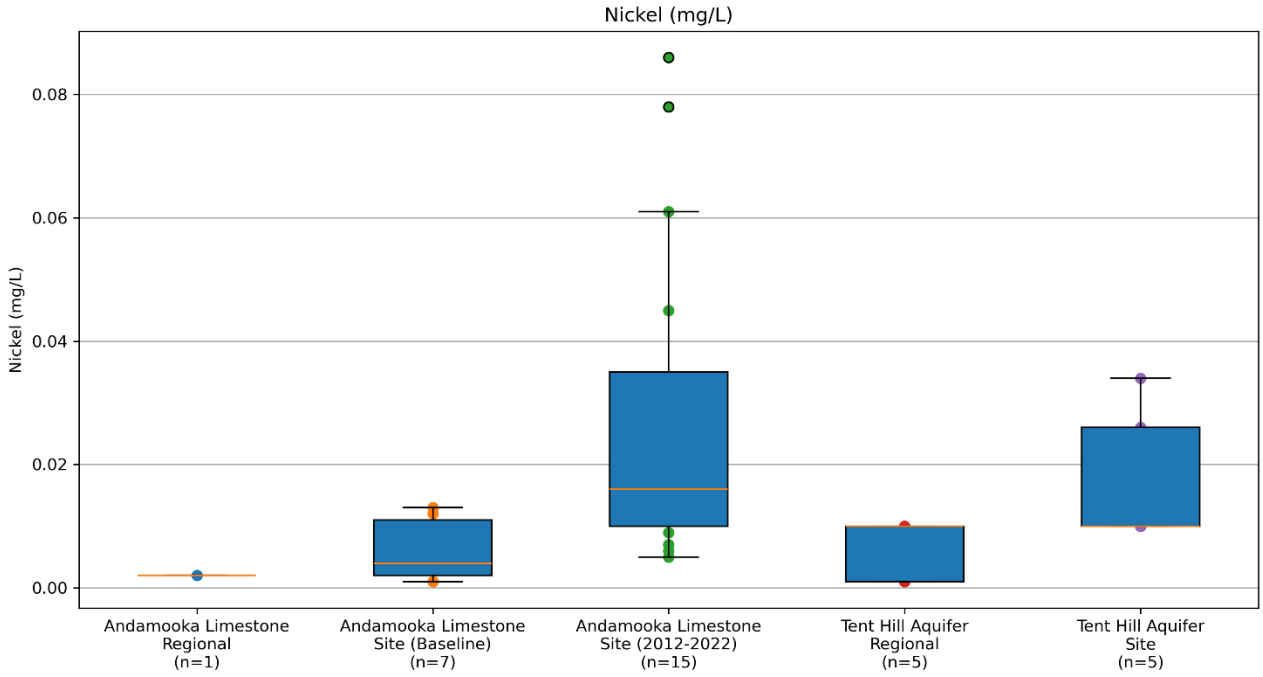

Copper (mg/L)
Copper (mg/L)
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0.00
Andamooka Limestone Regional (n=9)
Andamooka Limestone Site (Baseline) (n=343)
Andamooka Limestone Site (2012-2022) (n=15)
Tent Hill Aquifer Regional (n=8)
Tent Hill Aquifer Site (n=19)

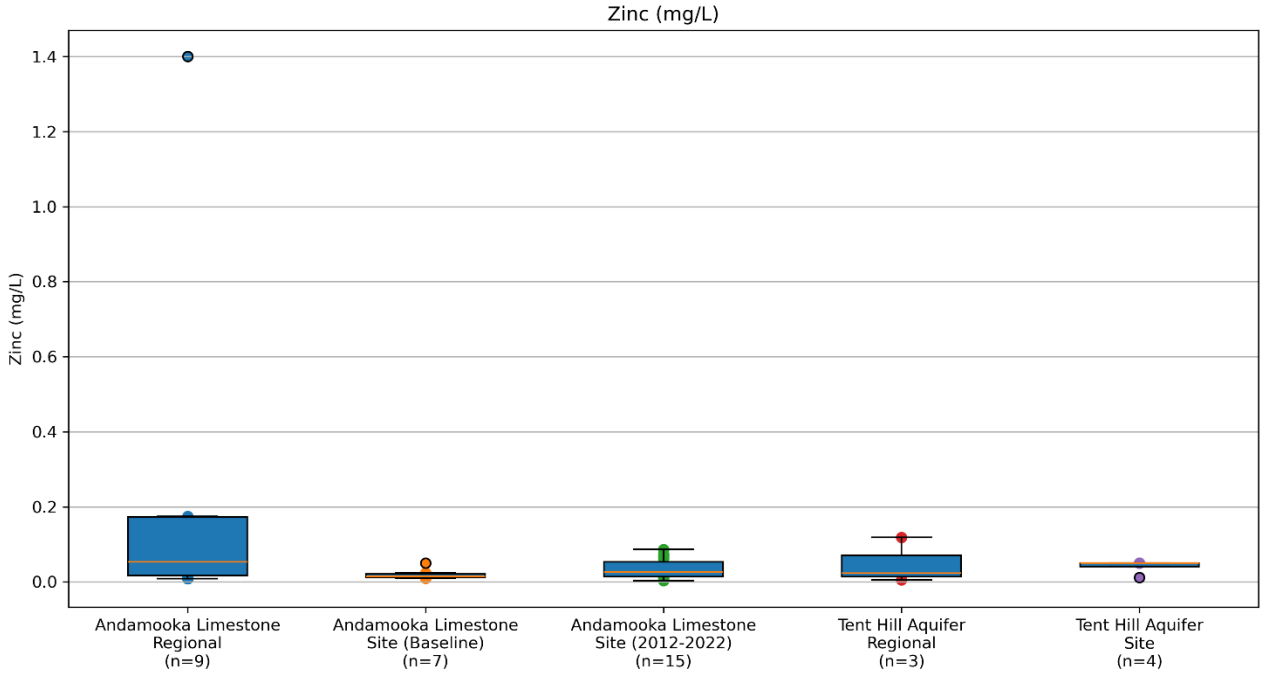

Iron (mg/L)
Iron (mg/L)
35
30
25
20
15
10
5
0
Andamooka Limestone Site (Baseline) (n=314)
Andamooka Limestone Site (2012-2022) (n=66)
Tent Hill Aquifer Site (n=12)


Lead (mg/L)
Lead (mg/L)
0.040
0.035
0.030
0.025
0.020
0.015
0.010
0.005
0.000
Andamooka Limestone Regional (n=9)
Andamooka Limestone Site (Baseline) (n=7)
Andamooka Limestone Site (2012-2022) (n=15)
Tent Hill Aquifer Regional (n=8)
Tent Hill Aquifer Site (n=5)

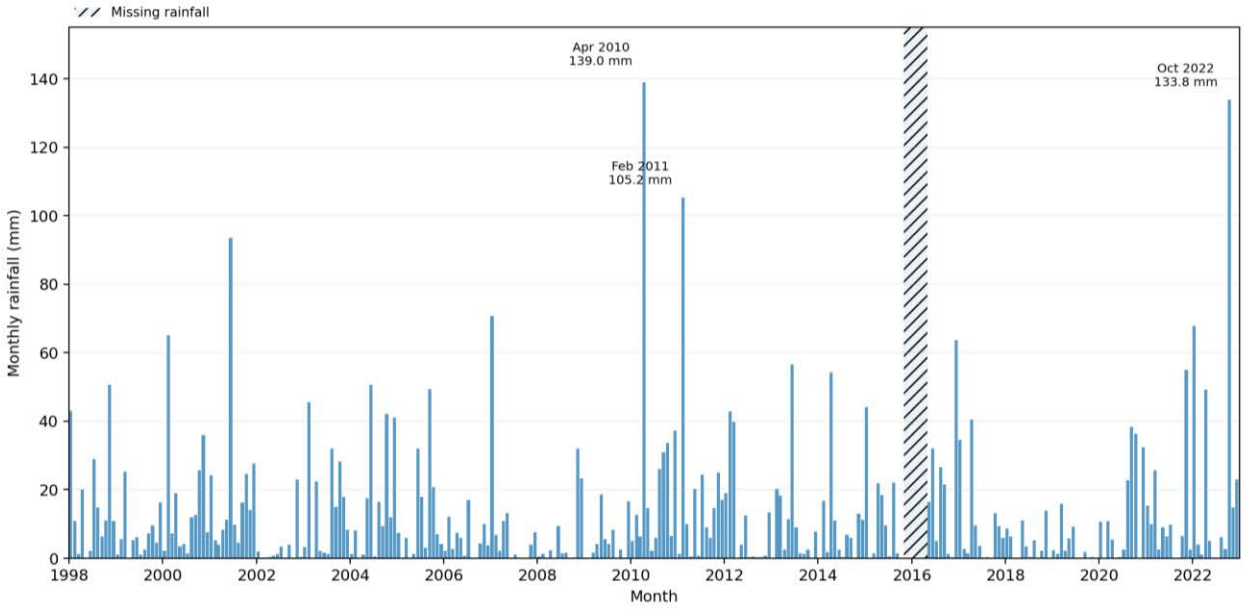

Manganese (mg/L)
Manganese (mg/L)
10
8
6
4
2
0
Andamooka Limestone Regional (n=11)
Andamooka Limestone Site (Baseline) (n=322)
Andamooka Limestone Site (2012-2022) (n=66)
Tent Hill Aquifer Regional (n=8)
Tent Hill Aquifer Site (n=17)

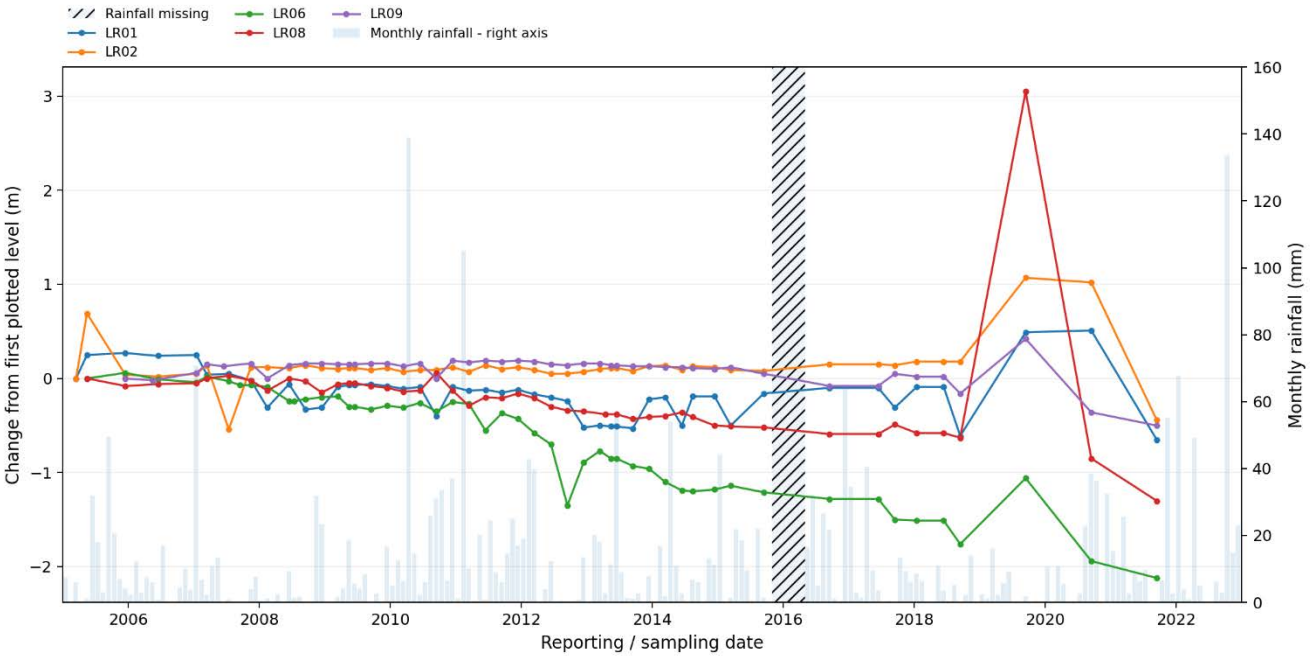

Mercury (mg/L)
Mercury (mg/L)
0.0025
0.0020
0.0015
0.0010
0.0005
0.0000
Andamooka Limestone Regional (n=1)
Andamooka Limestone Site (Baseline) (n=7)
Andamooka Limestone Site (2012-2022) (n=15)
Tent Hill Aquifer Regional (n=5)
Tent Hill Aquifer Site (n=5)

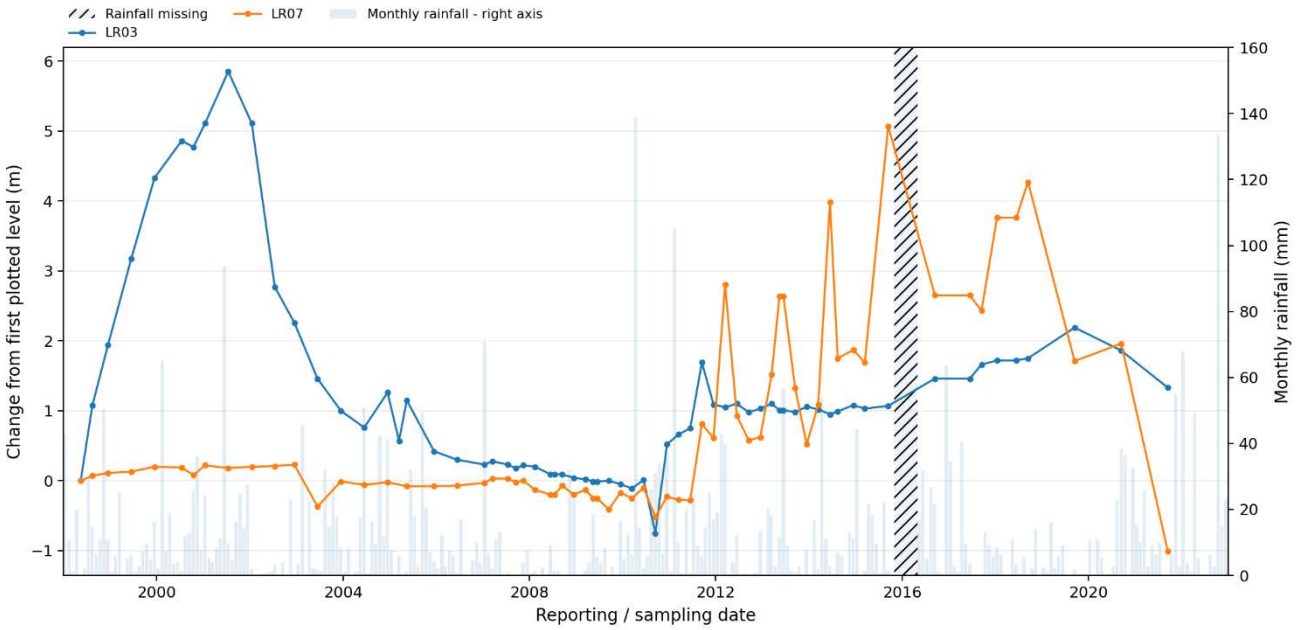

Nickel (mg/L)
Nickel (mg/L)
0.08
0.06
0.04
0.02
0.00
Andamooka Limestone Regional (n=1)
Andamooka Limestone Site (Baseline) (n=7)
Andamooka Limestone Site (2012-2022) (n=15)
Tent Hill Aquifer Regional (n=5)
Tent Hill Aquifer Site (n=5)

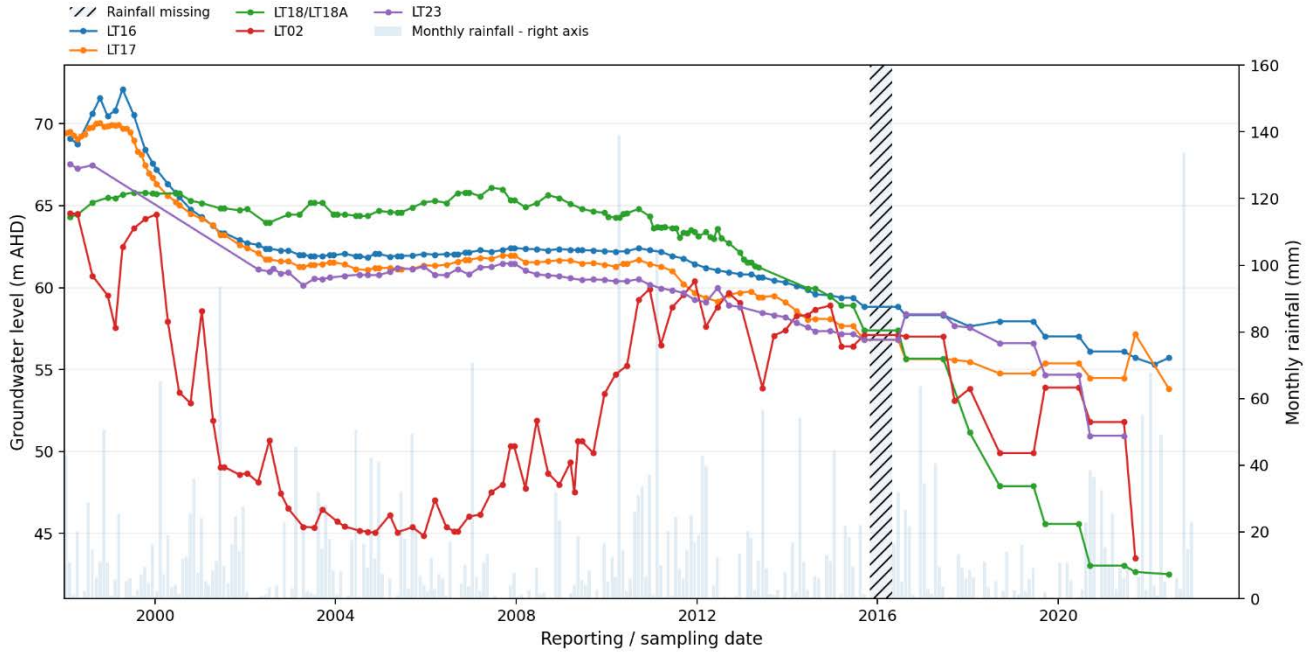

Zinc (mg/L)
Zinc (mg/L)
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
Andamooka Limestone Regional (n=9)
Andamooka Limestone Site (Baseline) (n=7)
Andamooka Limestone Site (2012-2022) (n=15)
Tent Hill Aquifer Regional (n=3)
Tent Hill Aquifer Site (n=4)

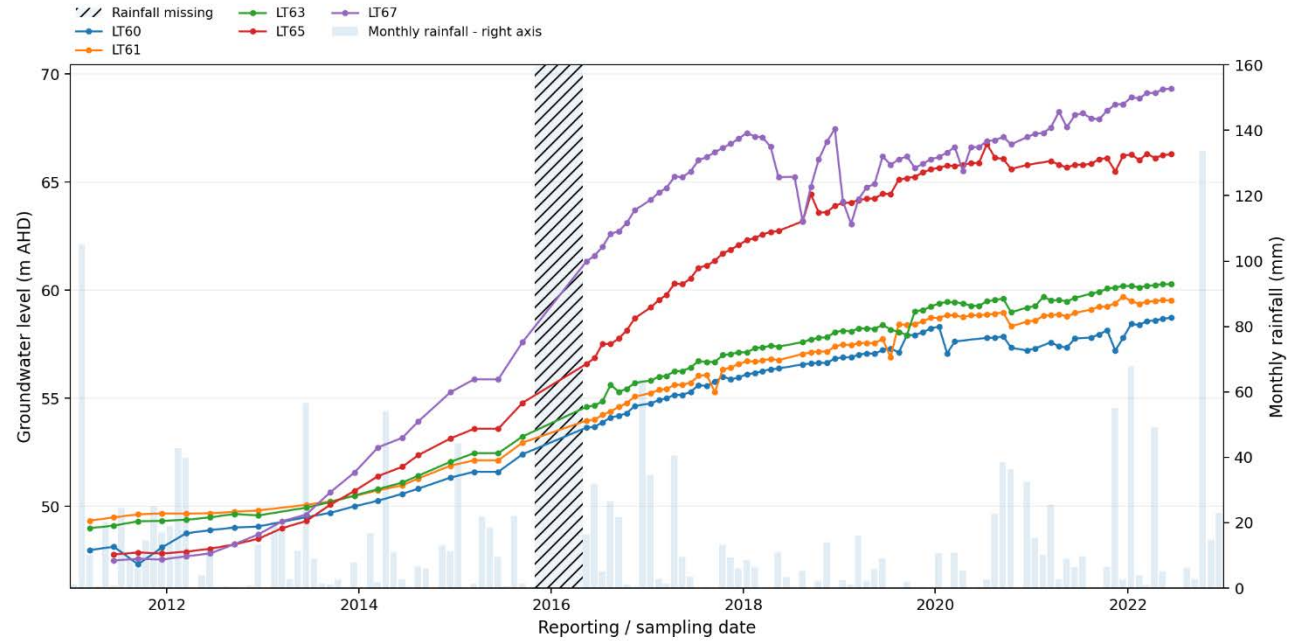
A.2 Seasonal analysis

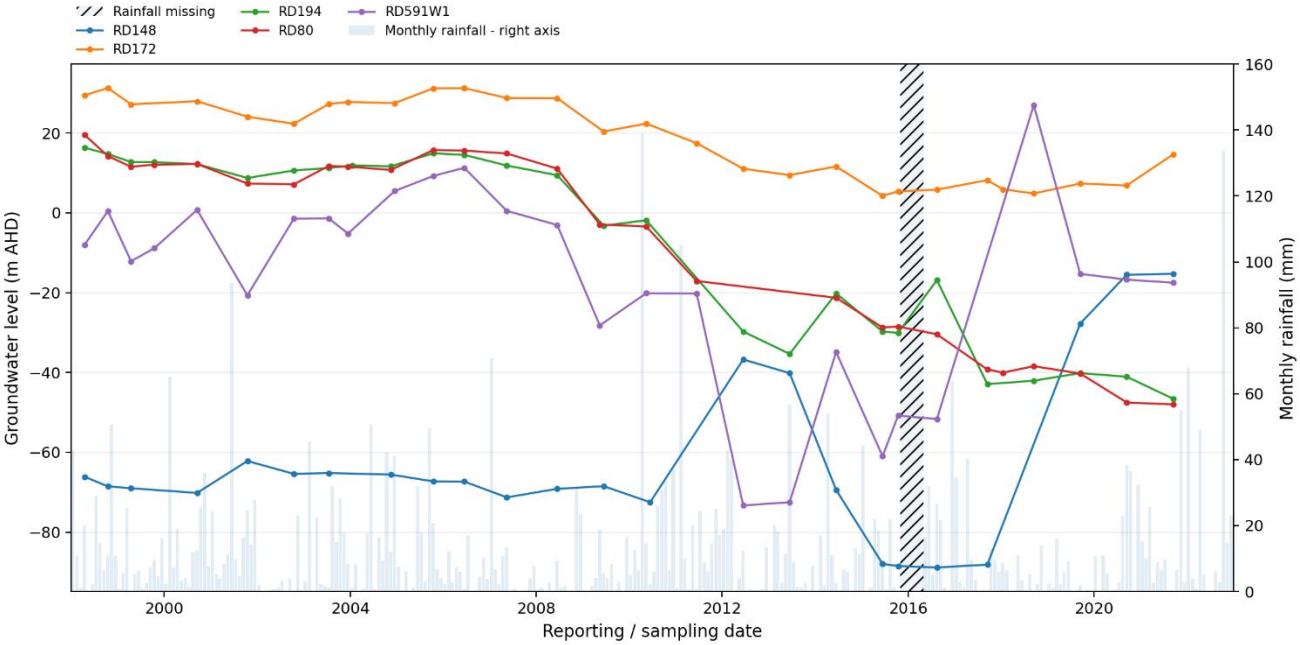


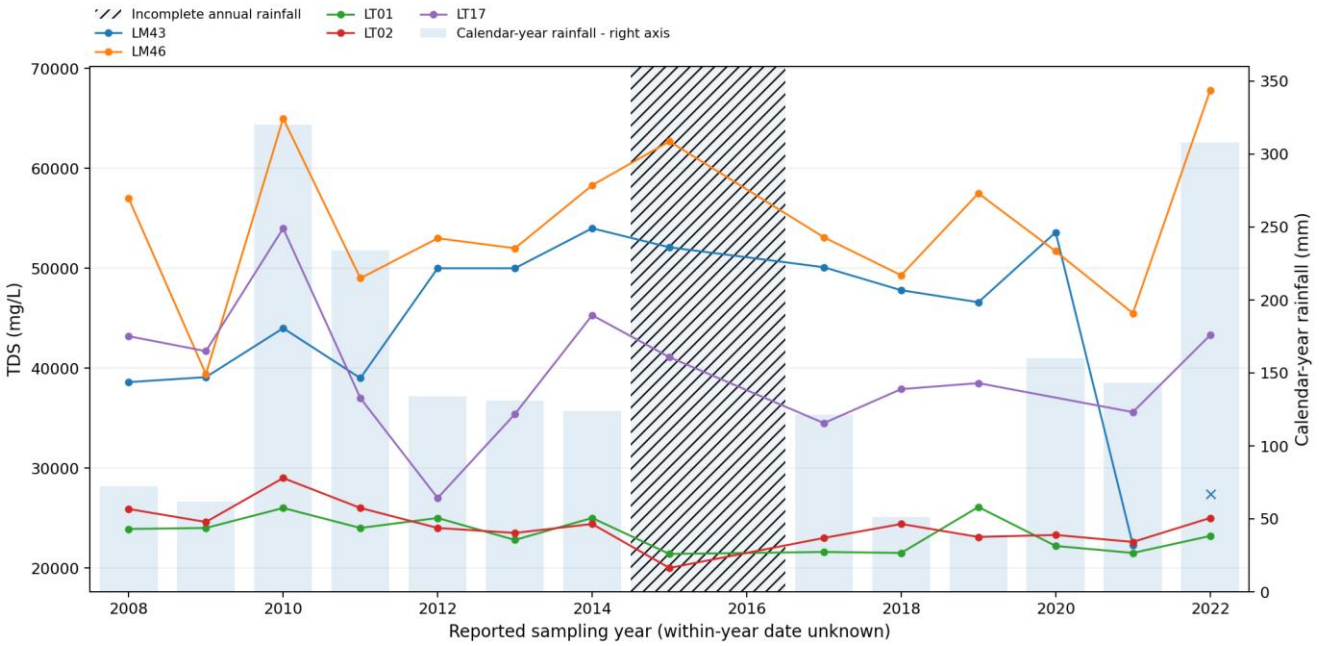


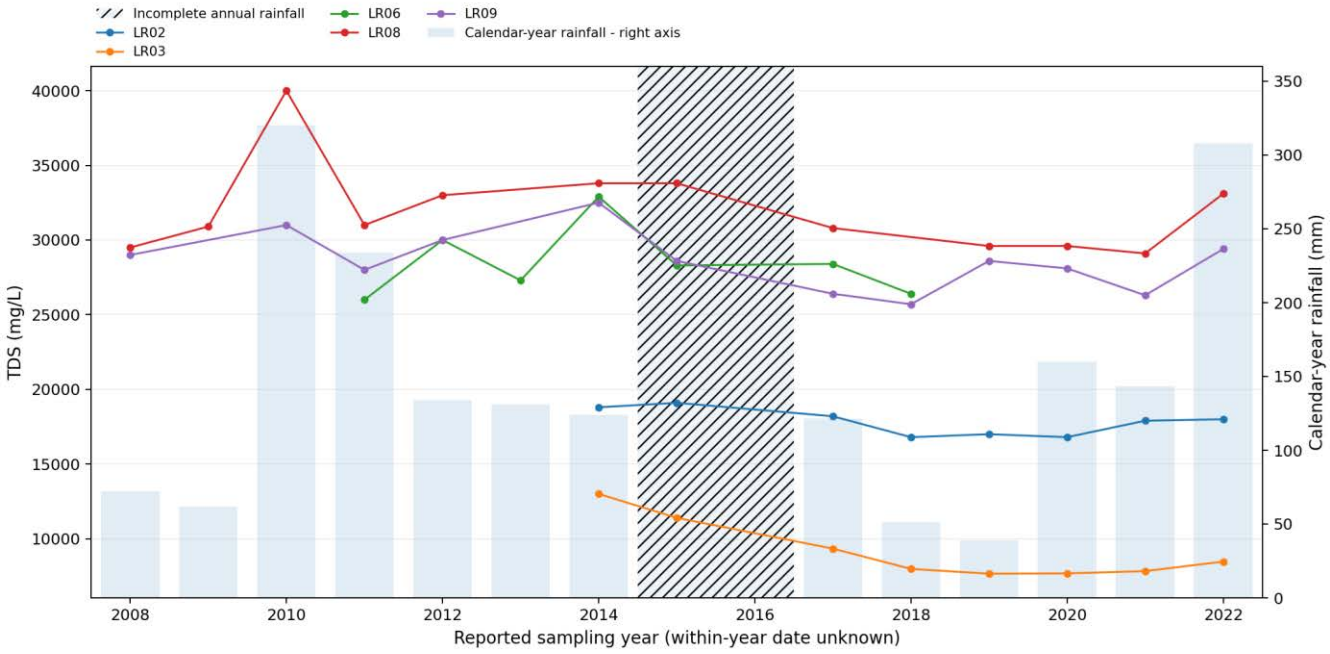

Rainfall missing
LR07
Monthly rainfall - right axis
LR03
Change from first plotted level (m)
Monthly rainfall (mm)
Reporting / sampling date

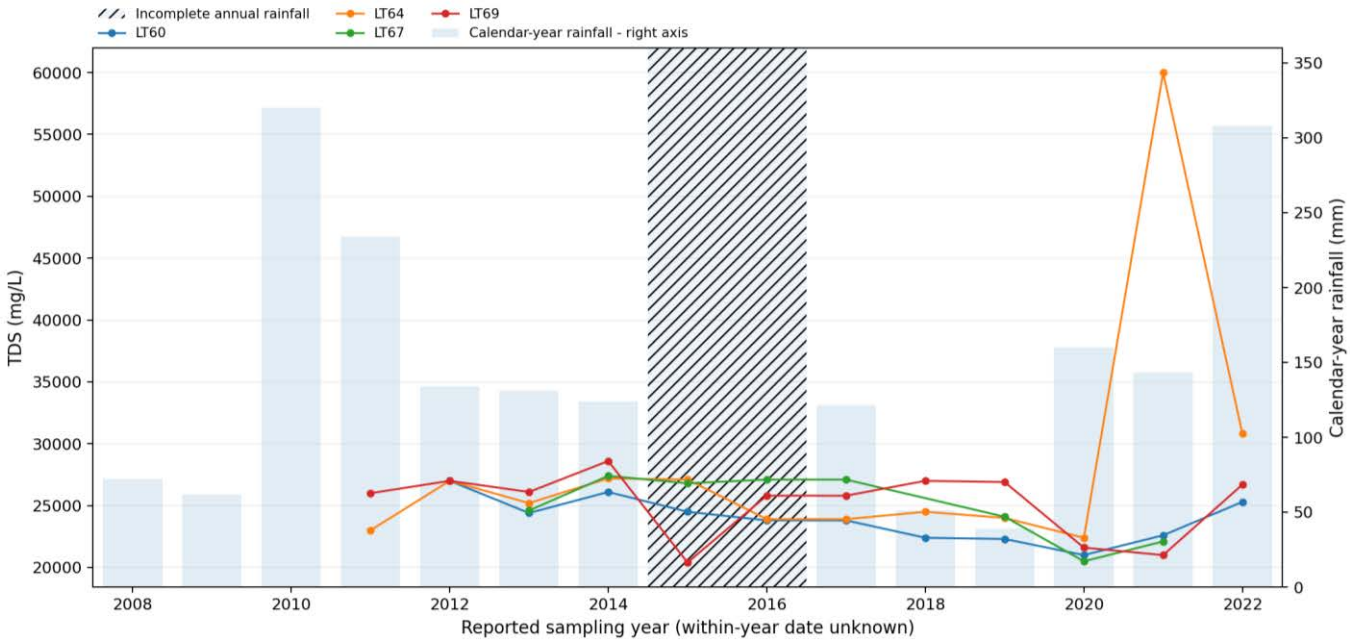

Rainfall missing
LT18/LT18A
LT23
LT16
LT02
Monthly rainfall - right axis
LT17
Groundwater level (m AHD)
Monthly rainfall (mm)
Reporting / sampling date

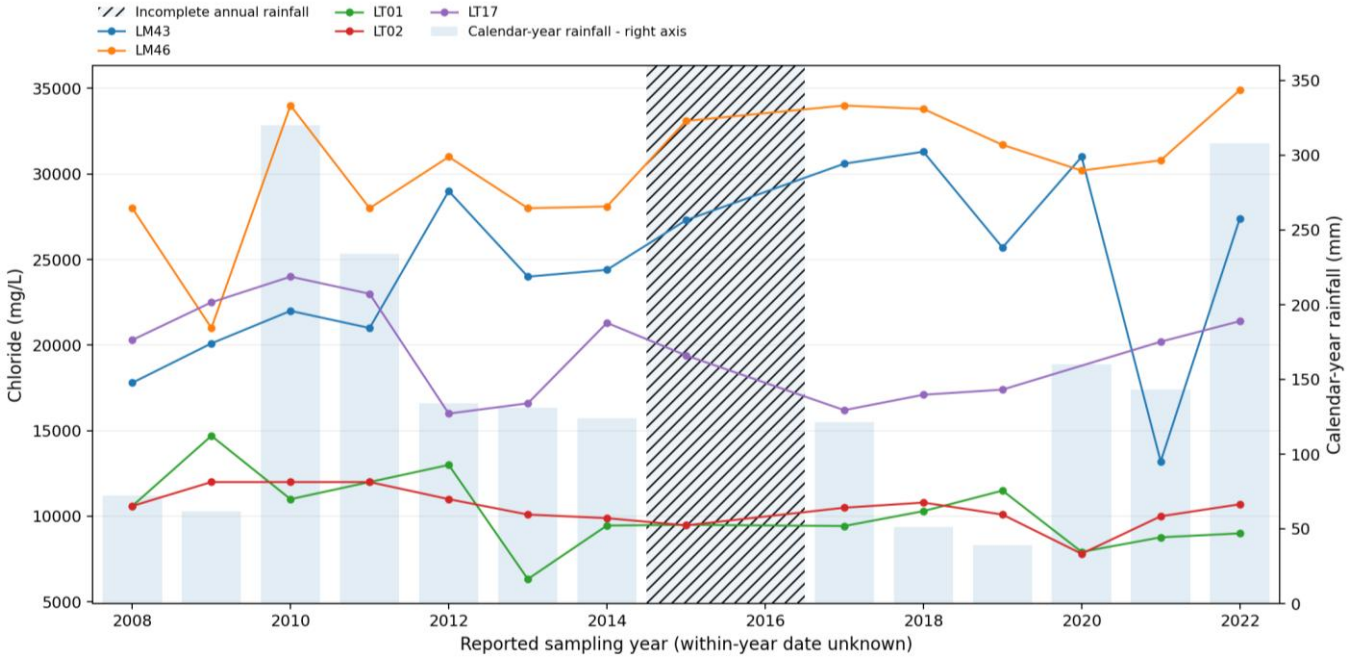

Rainfall missing
LT60
LT61
LT63
LT65
LT67
Monthly rainfall - right axis
Groundwater level (m AHD)
Monthly rainfall (mm)
Reporting / sampling date

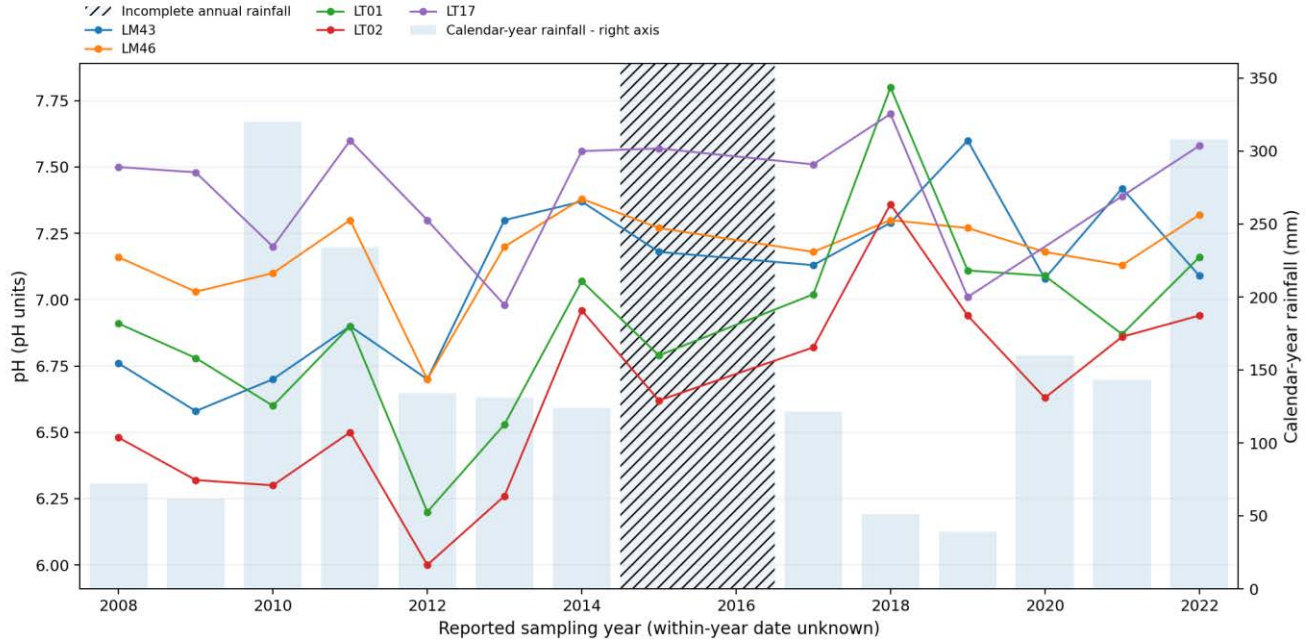

Rainfall missing
RD148
RD172
RD194
RD80
RD591W1
Monthly rainfall - right axis
Groundwater level (m AHD)
Monthly rainfall (mm)
Reporting / sampling date

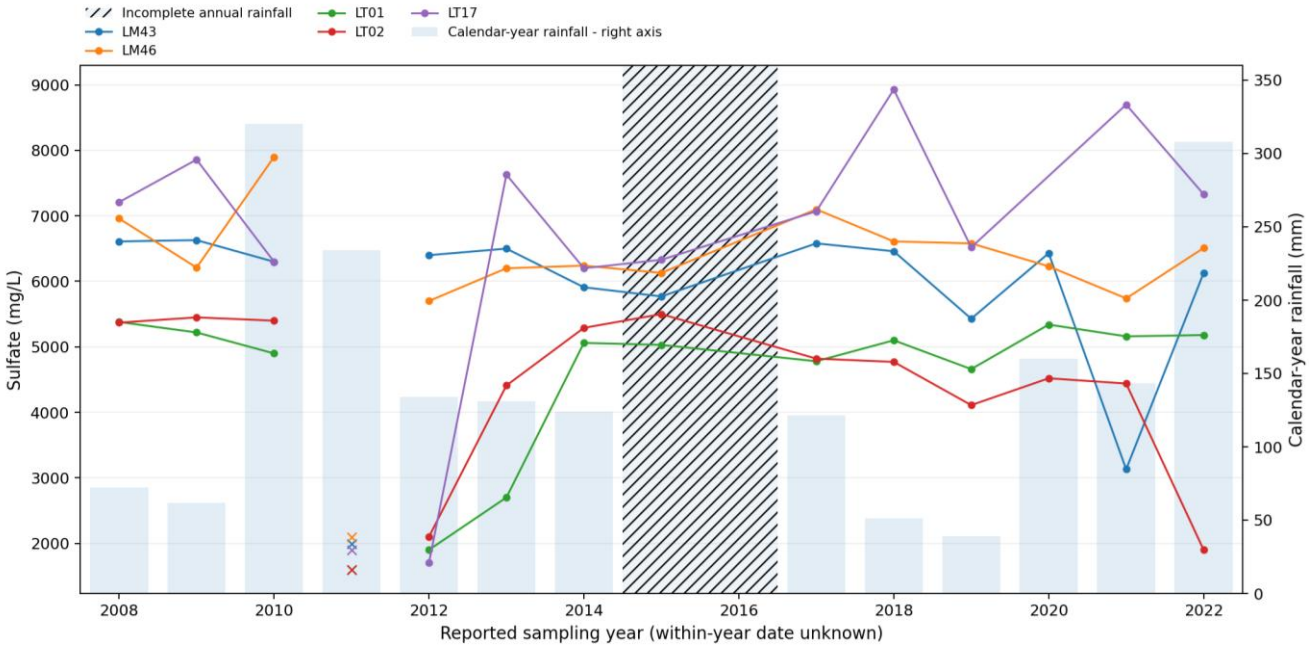

Incomplete annual rainfall
LM43
LM46
LT01
LT02
LT17
Calendar-year rainfall - right axis
TDS (mg/L)
Calendar-year rainfall (mm)
Reported sampling year (within-year date unknown)

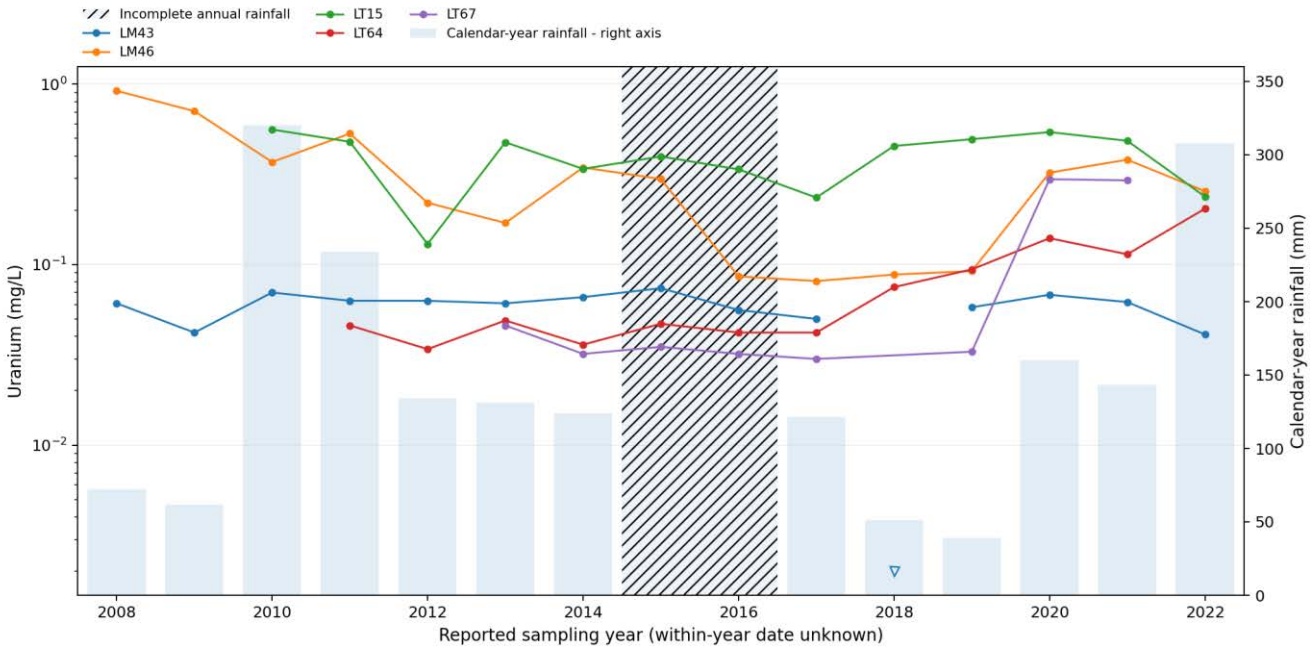

Incomplete annual rainfall
LR02
LR03
LR06
LR08
LR09
Calendar-year rainfall - right axis
TDS (mg/L)
Calendar-year rainfall (mm)
Reported sampling year (within-year date unknown)

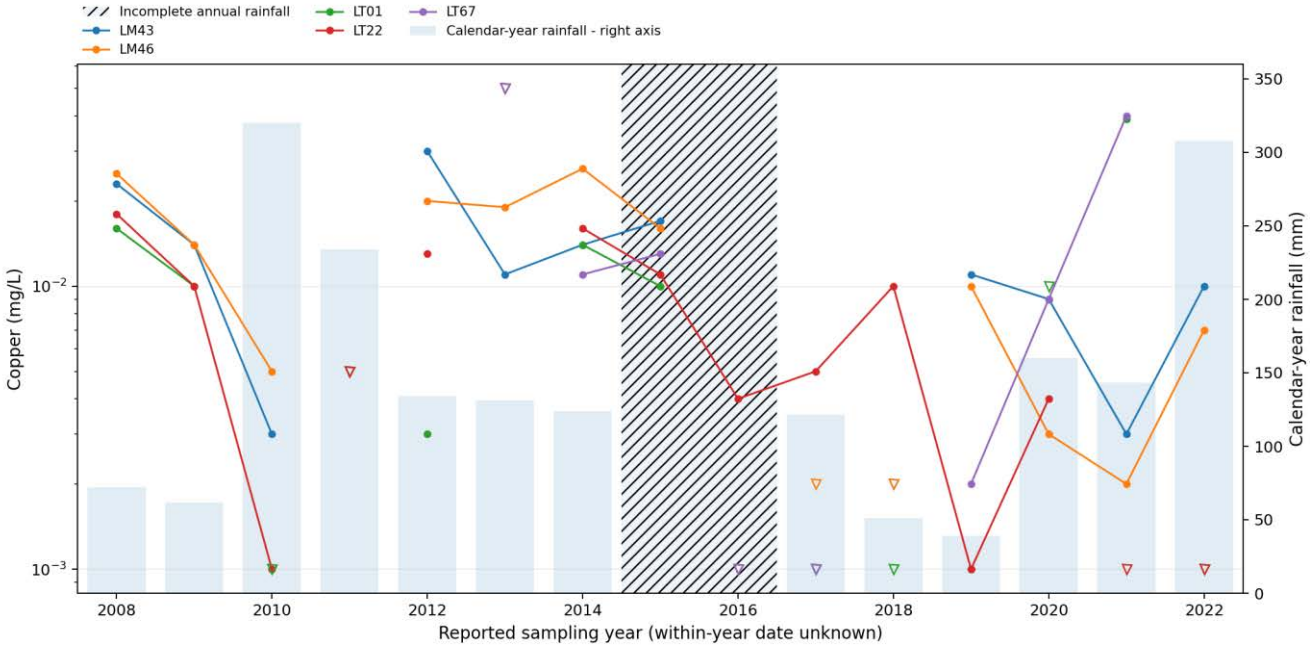

Incomplete annual rainfall
LT60
LT64
LT67
LT69
Calendar-year rainfall - right axis
TDS (mg/L)
Calendar-year rainfall (mm)
Reported sampling year (within-year date unknown)

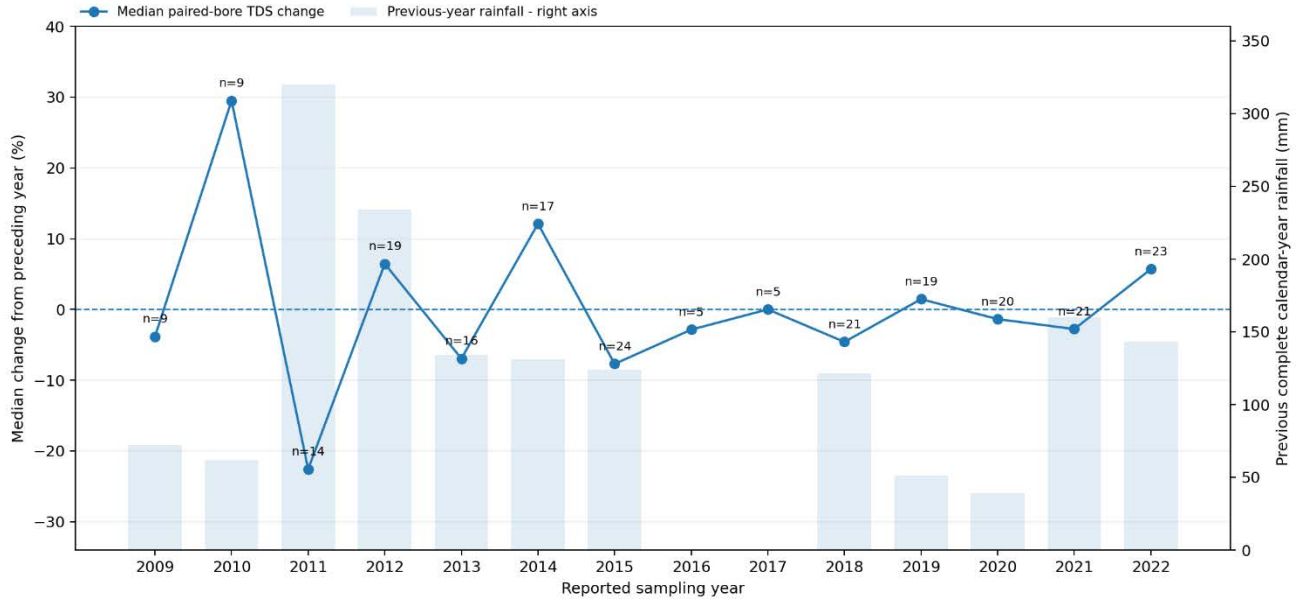

Incomplete annual rainfall
LM43
LM46
LT01
LT02
LT17
Calendar-year rainfall - right axis
Chloride (mg/L)
Calendar-year rainfall (mm)
Reported sampling year (within-year date unknown)

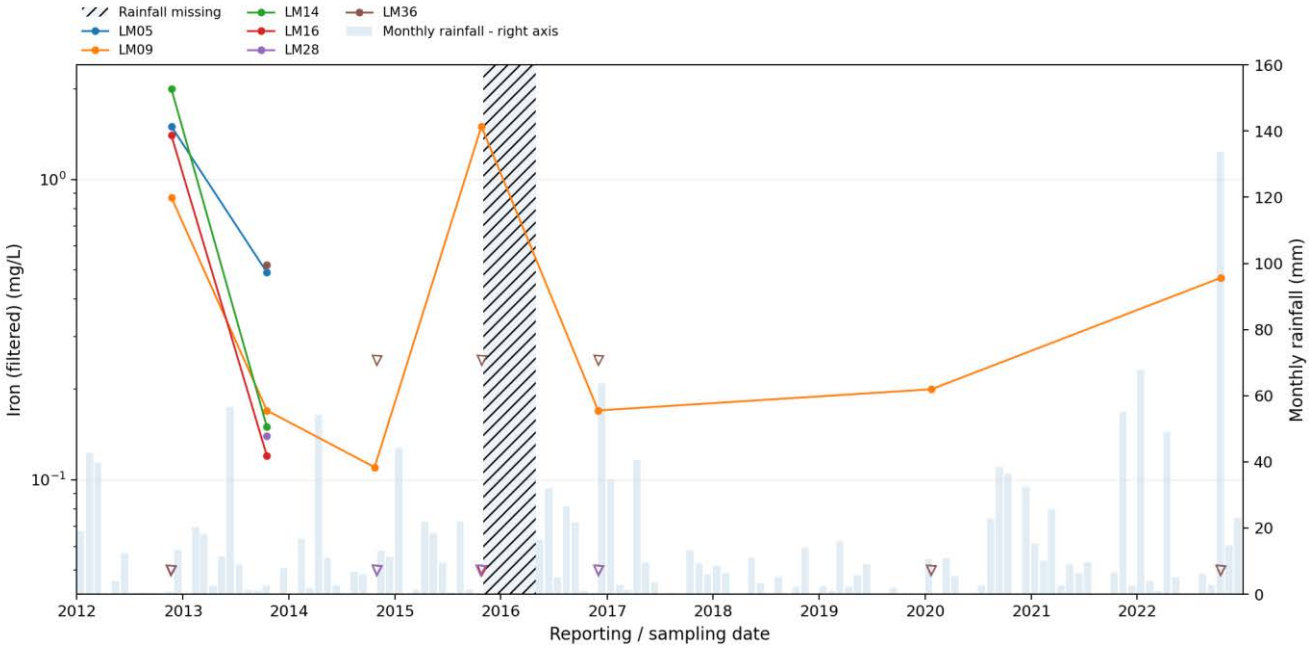

Incomplete annual rainfall
LM43
LM46
LT01
LT02
LT17
Calendar-year rainfall - right axis
pH (pH units)
Calendar-year rainfall (mm)
Reported sampling year (within-year date unknown)

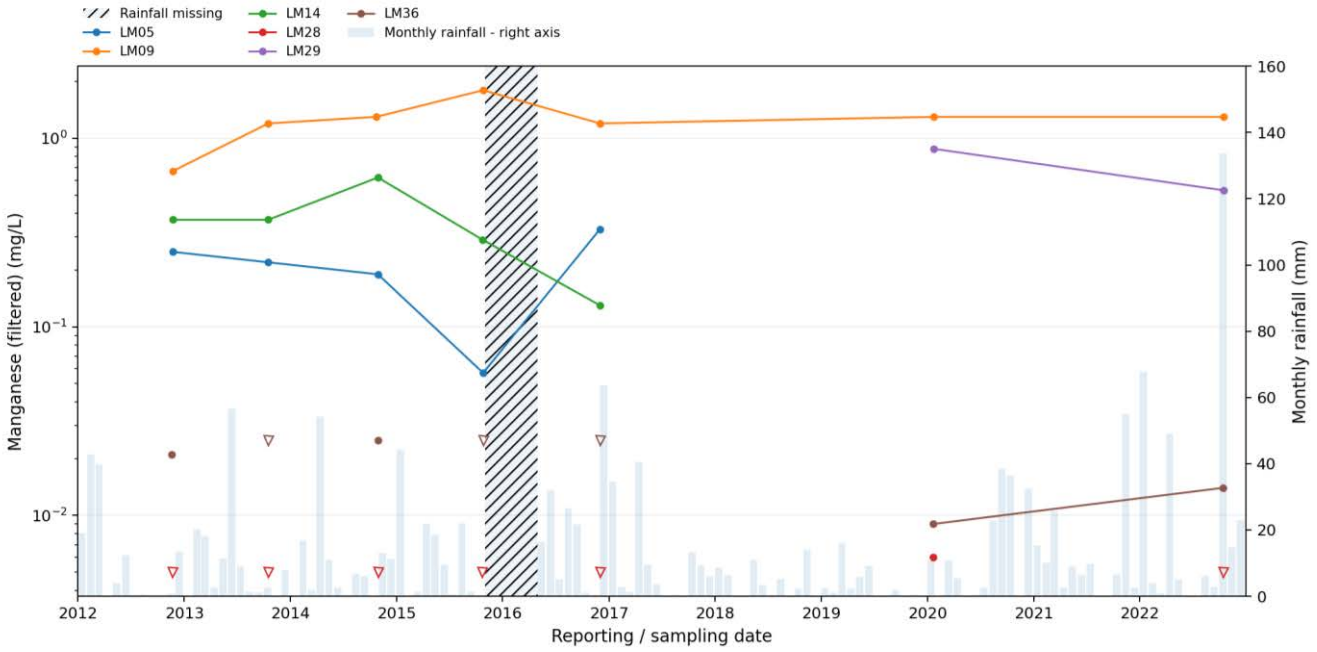

Incomplete annual rainfall
LM43
LM46
LT01
LT02
LT17
Calendar-year rainfall - right axis
Sulfate (mg/L)
Calendar-year rainfall (mm)
Reported sampling year (within-year date unknown)

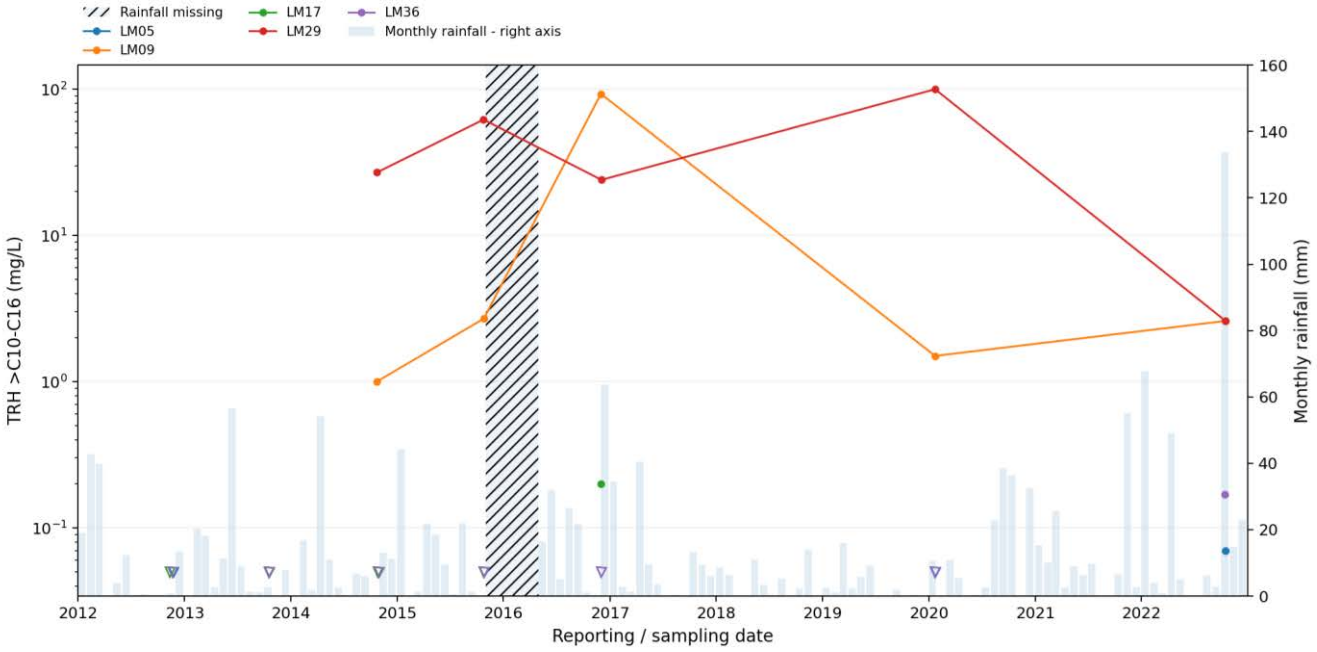

Incomplete annual rainfall
LM43
LM46
LT15
LT64
LT67
Calendar-year rainfall - right axis
Uranium (mg/L)
Calendar-year rainfall (mm)
Reported sampling year (within-year date unknown)


Incomplete annual rainfall
LM43
LM46
LT01
LT22
LT67
Calendar-year rainfall - right axis
Copper (mg/L)
Calendar-year rainfall (mm)
Reported sampling year (within-year date unknown)


Median paired-bore TDS change
Previous-year rainfall - right axis
Median change from preceding year (%)
Previous complete calendar-year rainfall (mm)
Reported sampling year
n=9
n=9
n=14
n=19
n=16
n=17
n=24
n=5
n=5
n=21
n=19
n=20
n=21
n=23


Rainfall missing
LM05
LM09
LM14
LM16
LM28
LM36
Monthly rainfall - right axis
Iron (filtered) (mg/L)
Monthly rainfall (mm)
Reporting / sampling date


Rainfall missing
LM05
LM09
LM14
LM28
LM29
LM36
Monthly rainfall - right axis
Manganese (filtered) (mg/L)
Monthly rainfall (mm)
Reporting / sampling date


Rainfall missing
LM05
LM09
LM17
LM29
LM36
Monthly rainfall - right axis
TRH >C10-C16 (mg/L)
Monthly rainfall (mm)
Reporting / sampling date

Annexure B
Calibration certificate

EMM
creating opportunities

PID Calibration Certificate 108.0 22112024A

Instrument Tiger
Serial No. T-113974

airmet

Air-Met Scientific Pty Ltd
1800 000 744

Item	Test	Pass	Comments			
Battery	Charge Condition	✓				
	Fuses	✓				
	Capacity	✓				
	Recharge OK?	✓				
Switch/keypad	Operation	✓				
Display	Intensity	✓				
	Operation (segments)	✓				
Grill Filter	Condition	✓				
	Seal	✓				
Pump	Operation	✓				
	Filter	✓				
	Flow	✓				
	Valves, Diaphragm	✓				
PCB	Condition	✓				
Connectors	Condition	✓				
Sensor	PID	✓	10.6 eV			
Alarms	Beeper	✓	**Low**	**High**	**TWA**	**STEL**
	Settings	✓	50ppm	100ppm	100ppm	250ppm
Software	Version	✓				
Data logger	Operation	✓				
Download	Operation	✓				
Other tests:						

Certificate of Calibration

This is to certify that the above instrument has been calibrated to the following specifications:

Sensor	Serial no	Calibration gas and concentration	Certified	Gas bottle No		Instrument Reading
PID Lamp		100ppm Isobutylene	NIST	SA025		101.1 ppm

Calibrated by: Jaspher Olanio

Calibration date: **21/11/2024**

Next calibration due: **20/05/2025**

Annexure C
Test pit logs

EMM
creating opportunities

Olympic Dam SA
ph:
e: support@emmconsulting.com.au

REPORT OF TEST PIT No: TP-02

PAGE 1 OF 1

Project: Soil Sampling Program - Olympic Dam
Job No: E240975
Location: Olympic Dam SA
Loc Comment: Road near Ventia office
RL Datum: AHD
Contractor: BHP / WSP
Operator: Brad
Equipment: Excavator - Minetech
Easting: 678572.41
Northing: 6629820.06
Surface RL: 101.70(m)
Date: 28/11/2024
Client: BHP
Logged By: Simony Sakamoto
Checked By:

Depth (m)	Soil Origin	Field Sampling: Graphic Log	Field Sampling: Soil/Rock Description (visual / tactile) (See AS1726-2017)	Group Symbol	Moisture	Consistency	Dry Strength	Samples: Soil Sample	Testing: PID (ppm)
0	Natural		Natural Gravelly to clayey SAND SC: loose, low plasticity clay, red brown, fine to medium grained, fine to medium sized gravel, slightly moist, no odour, no staining, no observed asbestos containing material.	SC	SLM	L	Density: Loose;	TP02_0.0–0.15_241128	1.4
			Natural Gravelly SAND SW: loose, light brown, fine to medium grained, fine to medium sized gravel, dry, no odour, no staining, no observed asbestos containing material.	SW	D		Density: Loose;	TP02_0.4–0.5_241128	1
1			Natural Gravelly to clayey SAND SC: loose, low plasticity clay, red brown, fine to medium grained, fine to medium sized gravel, dry, no odour, no staining, no observed asbestos containing material.	SC			Density: Loose;	TP02_1.0–1.1_241128	1
2								TP02_2.0–2.1_241128	1.5
			TP-02 Terminate at 2.1m						

Olympic Dam SA
ph:
e: support@emmconsulting.com.au

REPORT OF TEST PIT No: TP-03

PAGE 1 OF 1

Project: Soil Sampling Program - Olympic Dam
Job No: E240975
Location: Olympic Dam SA
Loc Comment: Road near Ventia office
RL Datum: AHD
Contractor: BHP / WSP
Operator:
Equipment: Excavator - Minetech
Easting: 678454.28
Northing: 6629773.10
Surface RL: 102.42(m)
Date: 28/11/2024
Client: BHP
Logged By: Simony Sakamoto
Checked By:

Depth (m)	Soil Origin	Field Sampling: Graphic Log	Field Sampling: Soil/Rock Description (visual / tactile) (See AS1726-2017)	Group Symbol	Moisture	Consistency	Dry Strength	Samples: Soil Sample	Testing: PID (ppm)
	Natural		Natural Gravelly SAND SP: loose, light brown, medium grained, fine to medium sized gravel, slightly moist, no odour, no staining, no observed asbestos containing material.	SP	SLM	L	Density: Loose;	TP03_0.0–0.15_241128	1.3
			Natural Gravelly SAND SW: very loose, light red brown, fine to medium grained, medium to coarse sized gravel, dry, no odour, no staining, no observed asbestos containing material.	SW	D	VL	Density: Very Loose;	TP03_0.4–0.5_241128	1.3
1			Natural Gravelly to clayey SAND SC: medium dense, low plasticity clay, red brown, fine to medium grained, fine to medium sized gravel, dry, near 2m started to be more compact. no odour, no staining, no observed asbestos containing material.	SC		MD	Density: Medium Dense;	TP03_1.0–1.1_241128	1.4
2								TP03_2.0–2.1_241128	1.5
			TP-03 Terminate at 2.1m						

Olympic Dam SA
ph:
e: support@emmconsulting.com.au

REPORT OF TEST PIT No: TP-04

PAGE 1 OF 1

Project:	Soil Sampling Program - Olympic Dam	**RL Datum:**	AHD	**Easting:**	678180.55	**Client:**	BHP
Job No:	E240975	**Contractor:**	BHP / WSP	**Northing:**	6629868.86	**Logged By:**	Simony Sakamoto
Location:	Olympic Dam SA	**Operator:**	Brad	**Surface RL:**	105.43(m)	**Checked By:**	
Loc Comment:	Smelter Support Yard	**Equipment:**	Excavator - Minetech	**Date:**	29/11/2024		

Depth (m)	Soil Origin	Field Sampling: Graphic Log	Field Sampling: Soil/Rock Description (visual / tactile) (See AS1726-2017)	Group Symbol	Moisture	Consistency	Dry Strength	Samples: Soil Sample	Testing: PID (ppm)
	Fill		Fill Gravelly SAND SW: loose, red brown, fine to medium grained, fine to medium sized gravel, slightly moist, no odour slightly moist, no staining, no observed asbestos containing material.	SW	SLM	L	Density: Loose;	TP04_0.0–0.15_241129	1.2
	Natural		Natural Gravelly SAND SW: very loose, light red brown, fine to medium grained, fine to medium to coarse sized gravel, dry, no odour dry, no staining, no observed asbestos containing material.	SW	D	VL	Density: Very Loose;	TP04_0.4–0.5_241129	1.4
1			Natural Gravelly SAND SW: very loose, light red brown, fine to medium grained, fine to medium to coarse sized gravel, dry, no odour dry, no staining, no observed asbestos containing material.	SW			Density: Very Loose;	TP04_1.0–1.1_241129	1.5
			Natural Gravelly SAND SW: very loose, light red brown, fine to medium grained, fine to medium to coarse sized gravel, dry, no odour dry, no staining, no observed asbestos containing material.					TP04_1.4_241129	1.6
			TP-04 refusal at 1.4m						

Olympic Dam SA
ph:
e: support@emmconsulting.com.au

REPORT OF TEST PIT No: TP-05

Project: Soil Sampling Program - Olympic Dam
Job No: E240975
Location: Olympic Dam SA
Loc Comment: Sand Lease area
RL Datum: AHD
Contractor: BHP / WSP
Operator: Brad
Equipment: Excavator - Minetech
Easting: 678486.00
Northing: 6629537.04
Surface RL: Not Surveyed
Date: 27/11/2024
Client: BHP
Logged By: Simony Sakamoto
Checked By:

Depth (m)	Soil Origin	Field Sampling: Graphic Log	Field Sampling: Soil/Rock Description (visual / tactile) (See AS1726-2017)	Group Symbol	Moisture	Consistency	Dry Strength	Samples: Soil Sample	Testing: PID (ppm)
	Natural		Natural Gravelly to clayey SAND SC: loose, low plasticity clay, red brown, medium grained, fine to medium sized gravel, slightly moist, no odour, no staining, no observed asbestos containing material.	SC	SLM	L	Density: Loose;	TP05_0.0–0.15_241127	1.3
								TP05_0.4–0.5_241127	1.2
1			Natural Gravelly to clayey SAND SC: loose, low plasticity clay, red brown, fine to medium grained, medium sized gravel, at the end bigger and harder gravels. compacted sand similar to tp11. no odour.	SC			Density: Loose;	TP05_1.0–1.1_241127	1.2
2								TP05_2.0–2.1_241127	1.2
			TP-05 Terminate at 2.1m						

Olympic Dam SA
ph:
e: support@emmconsulting.com.au

REPORT OF TEST PIT No: TP-06

PAGE 1 OF 1

Project:	Soil Sampling Program - Olympic Dam	**RL Datum:**	AHD	**Easting:**	678134.03	**Client:**	BHP
Job No:	E240975	**Contractor:**	BHP / WSP	**Northing:**	6630056.94	**Logged By:**	Simony Sakamoto
Location:	Olympic Dam SA	**Operator:**	Brad	**Surface RL:**	Not Surveyed	**Checked By:**	
Loc Comment:	Smelter Support Yard	**Equipment:**	Excavator - Minetech	**Date:**	27/11/2024		

Depth (m)	Soil Origin	Field Sampling: Graphic Log	Field Sampling: Soil/Rock Description (visual / tactile) (See AS1726-2017)	Group Symbol	Moisture	Consistency	Dry Strength	Samples: Soil Sample	Testing: PID (ppm)
	Fill		Fill Gravelly to clayey SAND SC: low plasticity clay, loose, brown with grey, fine to medium grained, medium to coarse sized gravel, wet, no odour, no staining, no observed asbestos containing material.	SC	W	L	Density: Loose;	TP06_0.0–0.15_241127	1.5
	Natural		Natural Gravelly to clayey SAND SC: loose, low plasticity clay, red brown, fine to medium grained, medium to coarse sized gravel, slightly moist, no odour, no staining, no observed asbestos containing material.	SC	SLM		Density: Loose;	TP06_0.4–0.5_241127	1.4
1			Natural Gravelly SAND SW: very loose, light brown, fine to medium grained, medium to coarse sized gravel, dry, no odour, no staining, no observed asbestos containing material.	SW	D	VL	Density: Very Loose;	TP06_1.0–1.1_241127 TP06_1.0–1.6_241127 TP06_1.6_241127	1.4 1.5
			TP-06 refusal at 1.6m						

Olympic Dam SA
ph:
e: support@emmconsulting.com.au

REPORT OF TEST PIT No: TP-07

Project: Soil Sampling Program - Olympic Dam
Job No: E240975
Location: Olympic Dam SA
Loc Comment: Sand Lease area
RL Datum: AHD
Contractor: BHP / WSP
Operator: Brad
Equipment: Excavator - Minetech
Easting: 678526.72
Northing: 6629344.00
Surface RL: Not Surveyed
Date: 25/11/2024
Client: BHP
Logged By: Simony Sakamoto
Checked By:

Depth (m)	Soil Origin	Field Sampling: Graphic Log	Field Sampling: Soil/Rock Description (visual / tactile) (See AS1726-2017)	Group Symbol	Moisture	Consistency	Dry Strength	Samples: Soil Sample	Testing: PID (ppm)
	Natural		Natural Clayey SAND SC: loose, low plasticity clay, red brown, fine to medium to coarse grained, dry, test pit description completed by wsp. no odour dry, dry staining.	SC	D	L	Density: Loose;	TP-07_0.00-0.15-241125	1.3
1			Natural Gravelly SAND SW: red brown, fine to medium to coarse grained, medium to coarse sized gravel, trace low to medium plasticity clay, slightly moist to dry, test pit description completed by WSP. calcareous gravel with boulder at depth. becomes moist with depth. . no odour slightly moist, slightly moist staining.	SW	SLM-D			TP-07_0.4-0.5-TDATE	1.2
								TP-07_1-1.1-241125	1.2
			TP-07 refusal at 1.1m						

Olympic Dam SA
ph:
e: support@emmconsulting.com.au

REPORT OF TEST PIT No: TP-08

Project:	Soil Sampling Program - Olympic Dam	**RL Datum:**	AHD	**Easting:**	678583.65	**Client:**	BHP
Job No:	E240975	**Contractor:**	BHP / WSP	**Northing:**	6629243.05	**Logged By:**	Simony Sakamoto
Location:	Olympic Dam SA	**Operator:**	Brad	**Surface RL:**	Not Surveyed	**Checked By:**	
Loc Comment:	Sand Lease area	**Equipment:**	Excavator - Minetech	**Date:**	26/11/2024		

Depth (m)	Soil Origin	Field Sampling: Graphic Log	Field Sampling: Soil/Rock Description (visual / tactile) (See AS1726-2017)	Group Symbol	Moisture	Consistency	Dry Strength	Samples: Soil Sample	Testing: PID (ppm)
	Natural		Natural Gravelly SAND SP: loose, light brown, medium grained, medium sized gravel, dry, no odour dry, dry staining.	SP	D	L	Density: Loose;	TP-08_0.00-0.15-241126	1.4
1			Natural Gravelly SAND SP: very loose, light brown, medium grained, medium to coarse sized gravel, dry, no odour dry, dry staining.	SP		VL	Density: Very Loose;	TP08_0.4-0.5-241126	1.3
								TP-08_1.0-1.2-241126	1.5
			TP-08 refusal at 1.2m						

Olympic Dam SA
ph:
e: support@emmconsulting.com.au

REPORT OF TEST PIT No: TP-09

PAGE 1 OF 1

Project:	Soil Sampling Program - Olympic Dam	**RL Datum:**	AHD	**Easting:**	678761.02	**Client:**	BHP
Job No:	E240975	**Contractor:**	BHP / WSP	**Northing:**	6629357.00	**Logged By:**	Simony Sakamoto
Location:	Olympic Dam SA	**Operator:**	Brad	**Surface RL:**	Not Surveyed	**Checked By:**	
Loc Comment:	Sand Lease area	**Equipment:**	Excavator - Minetech	**Date:**	25/11/2024		

Depth (m)	Soil Origin	Field Sampling: Graphic Log	Field Sampling: Soil/Rock Description (visual / tactile) (See AS1726-2017)	Group Symbol	Moisture	Consistency	Dry Strength	Samples: Soil Sample	Testing: PID (ppm)
	Natural		Natural Gravelly SAND SW: loose, red brown, fine to medium to coarse grained, fine to medium to coarse sized gravel, dry, test pit description performed by wsp.. no odour dry, dry staining.	SW	D	L	Density: Loose;	TP-09_0.00-0.15-241125	1.3
			Natural Gravelly to clayey SAND SC: loose, pale red brown, fine to medium to coarse grained, fine to medium to coarse sized gravel, dry, no odour dry, dry staining.	SC			Density: Loose;	TP-09_0.4-0.5-241125	1.2
1			Natural Gravelly SAND SW: light brown, fine to medium to coarse grained, fine to medium to coarse sized gravel, trace low plasticity clay, slightly moist to dry, with rounded calcareous cobbles. no odour slightly moist, slightly moist staining.	SW	SLM-D			TP-09_1-1.1-241125	1.2
2								TP-09_2-2.1-241125	1.1
			TP-09 Terminate at 2.1m						

Olympic Dam SA
ph:
e: support@emmconsulting.com.au

REPORT OF TEST PIT No: TP-10

PAGE 1 OF 1

Project: Soil Sampling Program - Olympic Dam
Job No: E240975
Location: Olympic Dam SA
Loc Comment: Sand Lease area
RL Datum: AHD
Contractor: BHP / WSP
Operator:
Equipment: Excavator - Minetech
Easting: 678842.02
Northing: 6629300.00
Surface RL: Not Surveyed
Date: 26/11/2024
Client: BHP
Logged By: Simony Sakamoto
Checked By:

Depth (m)	Soil Origin	Field Sampling: Graphic Log	Field Sampling: Soil/Rock Description (visual / tactile) (See AS1726-2017)	Group Symbol	Moisture	Consistency	Dry Strength	Samples: Soil Sample	Testing: PID (ppm)
	Natural		Natural Gravelly SAND SW: very loose, light brown, fine to medium grained, medium sized gravel, with low plasticity clay, dry, no odour, no staining, no observed asbestos containing material.	SW	D	VL	Density: Very Loose;	TP-10_0.00-0.15-241126	1.4
			Natural Gravelly SAND SW: very loose, grey brown, medium to coarse grained, fine to medium sized gravel, dry, no odour, no staining, no observed asbestos containing material.	SW			Density: Very Loose;	TP-10_0.4-0.5-241126	1.3
1								TP-10_1.0-1.1-241126	1.9
			TP-10 refusal at 1.3m						

Olympic Dam SA
ph:
e: support@emmconsulting.com.au

REPORT OF TEST PIT No: TP-11

Project:	Soil Sampling Program - Olympic Dam	**RL Datum:**	AHD	**Easting:**	678982.02	**Client:**	BHP
Job No:	E240975	**Contractor:**	BHP / WSP	**Northing:**	6629535.96	**Logged By:**	Simony Sakamoto
Location:	Olympic Dam SA	**Operator:**	Brad	**Surface RL:**	Not Surveyed	**Checked By:**	
Loc Comment:	Sand Lease area	**Equipment:**	Excavator - Minetech	**Date:**	27/11/2024		

Depth (m)	Soil Origin	Field Sampling: Graphic Log	Field Sampling: Soil/Rock Description (visual / tactile) (See AS1726-2017)	Group Symbol	Moisture	Consistency	Dry Strength	Samples: Soil Sample	Testing: PID (ppm)
	Natural		Natural Clayey SAND SC: loose, low plasticity clay, red brown, fine to medium grained, moist, no odour, no staining, no observed asbestos containing material.	SC	M	L	Density: Loose;	TP11_0.0–0.15_241127	0.1
								TP11_0.4–0.5_241127	1.2
1			Natural Clayey SAND SC: loose, low plasticity clay, red brown, fine to medium grained, slightly moist, no odour, no staining, no observed asbestos containing material.	SC	SLM		Density: Loose;	TP11_1.0–1.1_241127	1
2			Natural Clayey SAND SC: very loose, low plasticity clay, red brown, medium grained, dry, no odour, no staining, no observed asbestos containing material.	SC	D	VL	Density: Very Loose;	TP11_2.0–2.1_241127	1.1
			TP-11 Terminate at 2.1m						

Olympic Dam SA
ph:
e: support@emmconsulting.com.au

REPORT OF TEST PIT No: TP-13

Project:	Soil Sampling Program - Olympic Dam	**RL Datum:**	AHD	**Easting:**	678995.04	**Client:**	BHP
Job No:	E240975	**Contractor:**	BHP / WSP	**Northing:**	6629474.99	**Logged By:**	Simony Sakamoto
Location:	Olympic Dam SA	**Operator:**	Brad	**Surface RL:**	Not Surveyed	**Checked By:**	
Loc Comment:	Sand Lease area	**Equipment:**	Excavator - Minetech	**Date:**	26/11/2024		

Depth (m)	Soil Origin	Field Sampling: Graphic Log	Field Sampling: Soil/Rock Description (visual / tactile) (See AS1726-2017)	Group Symbol	Moisture	Consistency	Dry Strength	Samples: Soil Sample	Testing: PID (ppm)
	Natural		Natural Gravelly to clayey SAND SC: loose, low plasticity clay, red brown, medium grained, medium to coarse sized gravel, dry, no odour dry, dry staining.	SC	D	L	Density: Loose;	TP-13_0.00-0.15-241126	1.6
			Natural Gravelly SAND SP: loose, light brown, medium grained, medium to coarse sized gravel, dry, no odour, no staining, no observed asbestos containing material.	SP			Density: Loose;	TP-13_0.3-0.4-241126	1.6
			TP-13 refusal at 0.9m					TP-13_0.8-0.9-241126	1.6

Olympic Dam SA
ph:
e: support@emmconsulting.com.au

REPORT OF TEST PIT No: TP-14

Project:	Soil Sampling Program - Olympic Dam	**RL Datum:**	AHD	**Easting:**	679302.43	**Client:**	BHP
Job No:	E240975	**Contractor:**	BHP / WSP	**Northing:**	6629628.84	**Logged By:**	Simony Sakamoto
Location:	Olympic Dam SA	**Operator:**	Brad	**Surface RL:**	106.36(m)	**Checked By:**	
Loc Comment:	Road east of Sand Lease area	**Equipment:**	Excavator - Minetech	**Date:**	28/11/2024		

Depth (m)	Soil Origin	Field Sampling: Graphic Log	Field Sampling: Soil/Rock Description (visual / tactile) (See AS1726-2017)	Group Symbol	Moisture	Consistency	Dry Strength	Samples: Soil Sample	Testing: PID (ppm)
	Natural		Natural Gravelly SAND SW: very loose, light brown, fine to medium grained, fine to medium sized gravel, dry, no odour, no staining, no observed asbestos containing material.	SW	D	VL	Density: Very Loose;	TP14_0.0–0.15_241128	1.5
								TP14_0.4–0.5_241128	1.4
1			Natural Gravelly SAND SW: very loose, red brown, fine to medium grained, fine to medium sized gravel, dry, no odour, no staining, no observed asbestos containing material.	SW			Density: Very Loose;	TP14_1.0–1.1_241128	1.4
2								TP14_2.0–2.1_241128	4.3
			TP-14 Terminate at 2.1m						

Olympic Dam SA
ph:
e: support@emmconsulting.com.au

REPORT OF TEST PIT No: TP-15

PAGE 1 OF 1

Project: Soil Sampling Program - Olympic Dam
Job No: E240975
Location: Olympic Dam SA
Loc Comment: Sand Lease area
RL Datum: AHD
Contractor: BHP / WSP
Operator: Brad
Equipment: Excavator - Minetech
Easting: 679245.04
Northing: 6629530.96
Surface RL: Not Surveyed
Date: 29/11/2024
Client: BHP
Logged By: Simony Sakamoto
Checked By:

Depth (m)	Soil Origin	Field Sampling: Graphic Log	Field Sampling: Soil/Rock Description (visual / tactile) (See AS1726-2017)	Group Symbol	Moisture	Consistency	Dry Strength	Samples: Soil Sample	Testing: PID (ppm)
	Natural		Natural SAND SW: loose, red brown, fine to medium grained, slightly moist, no odour slightly moist, slightly moist staining.	SW	SLM	L	Density: Loose;	TP-15-0.0-0.15-241129	1.2
								TP-15_0.40-0.5-241129	1.5
1								TP-15_1.0-1.1-241129	4.2
			Natural SAND SP: very loose, red brown, fine grained, dry, compact sand like sandstone at the bottom of the pit.. no odour dry, no staining, no observed asbestos containing material.	SP	D	VL	Density: Very Loose;		
2								TP-15_2-2.1-241129	4.2
			TP-15 Terminate at 2.1m						

Olympic Dam SA
ph:
e: support@emmconsulting.com.au

REPORT OF TEST PIT No: TP-16

PAGE 1 OF 1

Project:	Soil Sampling Program - Olympic Dam	**RL Datum:**	AHD	**Easting:**	678732.01	**Client:**	BHP
Job No:	E240975	**Contractor:**	BHP / WSP	**Northing:**	6629274.98	**Logged By:**	Simony Sakamoto
Location:	Olympic Dam SA	**Operator:**	Brad	**Surface RL:**	Not Surveyed	**Checked By:**	
Loc Comment:	Sand Lease area	**Equipment:**		**Date:**	26/11/2024		

Depth (m)	Soil Origin	Field Sampling: Graphic Log	Field Sampling: Soil/Rock Description (visual / tactile) (See AS1726-2017)	Group Symbol	Moisture	Consistency	Dry Strength	Samples: Soil Sample	Testing: PID (ppm)
	Natural		Natural Clayey SAND SC: loose, low plasticity clay, red brown, medium grained, dry, no staining, no observed asbestos containing material.	SC	D	L	Density: Loose;	TP16-0.0-0.15-241126	1.3
			Natural SAND SW: very loose, light brown, fine to medium grained, dry, no odour, no staining, no observed asbestos containing material.	SW		VL	Density: Very Loose;	TP-16-0.4-0.5-241126	1.2
1			Natural SAND SW: very loose, grey light brown, fine to medium grained, dry, no odour, no staining, no observed asbestos containing material.	SW			Density: Very Loose;	TP-16_1.0-1.1-241126	1.4
			TP-16 refusal at 1.1m						

Olympic Dam SA
ph:
e: support@emmconsulting.com.au

REPORT OF TEST PIT No: TP-17

PAGE 1 OF 1

Project: Soil Sampling Program - Olympic Dam
Job No: E240975
Location: Olympic Dam SA
Loc Comment: Sand Lease area
RL Datum: AHD
Contractor: BHP / WSP
Operator: Brad
Equipment: Excavator - Minetech
Easting: 679154.03
Northing: 6629371.02
Surface RL: Not Surveyed
Date: 26/11/2024
Client: BHP
Logged By: Simony Sakamoto
Checked By:

Depth (m)	Soil Origin	Field Sampling: Graphic Log	Field Sampling: Soil/Rock Description (visual / tactile) (See AS1726-2017)	Group Symbol	Moisture	Consistency	Dry Strength	Samples: Soil Sample	Testing: PID (ppm)
	Natural		Natural Clayey SAND SC: loose, low plasticity clay, red brown, fine to medium grained, with fine sized gravel, slightly moist, no odour, no staining, no observed asbestos containing material.	SC	SLM	L	Density: Loose;	TP17_0.0–0.15_241126	1.2
			Natural Gravelly to clayey SAND SC: loose, low plasticity clay, red brown, medium grained, medium to coarse sized gravel, dry, bigger gravel at the end. no odour slightly moist, no staining, no observed asbestos containing material.				Density: Loose;	TP17_0.4–0.5_241126	1.3
1				SC	D			TP17_1.0–1.1_241126	1.2
2								TP17_2.0–2.1_241126	1.5
			TP-17 Terminate at 2.1m						

Olympic Dam SA
ph:
e: support@emmconsulting.com.au

REPORT OF TEST PIT No: TP-26

PAGE 1 OF 1

Project: Soil Sampling Program - Olympic Dam
Job No: E240975
Location: Olympic Dam SA
Loc Comment: Smelter area
RL Datum: AHD
Contractor: BHP / WSP
Operator: Brad
Equipment: Excavator - Minetech
Easting: 678355.74
Northing: 6630450.56
Surface RL: 102.80(m)
Date: 27/11/2024
Client: BHP
Logged By: Simony Sakamoto
Checked By:

Depth (m)	Soil Origin	Field Sampling: Graphic Log	Field Sampling: Soil/Rock Description (visual / tactile) (See AS1726-2017)	Group Symbol	Moisture	Consistency	Dry Strength	Samples: Soil Sample	Testing: PID (ppm)
	Fill		Fill Gravelly to clayey SAND SC: low plasticity clay, loose, brown, medium grained, medium to coarse sized gravel, slightly moist, no odour, no staining, no observed asbestos containing material.	SC	SLM	L	Density: Loose;	TP26_0.0–0.15_2411	1.3
	Natural		Natural Clayey SAND SC: loose, low plasticity clay, red brown, fine to medium grained, with medium to coarse sized gravel, slightly moist, no odour, no staining, no observed asbestos containing material.	SC			Density: Loose;	TP26_0.3-1.0_241127	1.1
1			Natural Gravelly SAND SP: very loose, light brown, medium grained, medium to coarse sized gravel, dry, no odour, no staining, no observed asbestos containing material.	SP	D	VL	Density: Very Loose;	TP26_0.4–0.5_2411 TP26_1.0–1.1_2411 TP26_1.0-2.0_241127	1.1
2								TP26_2.0–2.1_2411	1.1
			TP-26 Terminate at 2.1m						

Olympic Dam SA
ph:
e: support@emmconsulting.com.au

REPORT OF TEST PIT No: TP-27

PAGE 1 OF 1

Project:	Soil Sampling Program - Olympic Dam	**RL Datum:**	AHD	**Easting:**	678279.51	**Client:**	BHP
Job No:	E240975	**Contractor:**	BHP / WSP	**Northing:**	6630248.81	**Logged By:**	Simony Sakamoto
Location:	Olympic Dam SA	**Operator:**	Brad	**Surface RL:**	104.24(m)	**Checked By:**	
Loc Comment:	Smelter Support Yard	**Equipment:**	Excavator - Minetech	**Date:**	29/11/2024		

Depth (m)	Soil Origin	Field Sampling: Graphic Log	Field Sampling: Soil/Rock Description (visual / tactile) (See AS1726-2017)	Moisture	Consistency	Dry Strength	Samples: Soil Sample	Testing: PID (ppm)
	Fill		Fill Gravelly SAND SP: loose, black brown, fine grained, fine to medium sized gravel, slightly moist, no odour, no staining, no observed asbestos containing material.	SLM	L	Density: Loose;	TP27_0.0–0.15_241129	1.5
	Natural		Natural Gravelly SAND SW: loose, light red brown, fine to medium grained, fine to medium sized gravel, dry, no odour dry, dry staining.	D		Density: Loose;	TP27_0.4–0.5_241129	1.6
1			Natural Gravelly SAND SW: very loose, light red brown, fine to medium grained, fine to medium to coarse sized gravel, dry, no odour dry, dry staining.		VL	Density: Very Loose;	TP27_1.0-1.1_241129	1.6
			TP-27 refusal at 1.2m					

Olympic Dam SA
ph:
e: support@emmconsulting.com.au

REPORT OF TEST PIT No: TP-28

PAGE 1 OF 1

Project:	Soil Sampling Program - Olympic Dam	**RL Datum:**	AHD	**Easting:**	678487.03	**Client:**	BHP
Job No:	E240975	**Contractor:**	BHP / WSP	**Northing:**	6630307.61	**Logged By:**	Simony Sakamoto
Location:	Olympic Dam SA	**Operator:**	Brad	**Surface RL:**	103.61(m)	**Checked By:**	
Loc Comment:	Smelter cooling beds	**Equipment:**	Excavator - Minetech	**Date:**	28/11/2024		

Depth (m)	Soil Origin	Field Sampling: Graphic Log	Field Sampling: Soil/Rock Description (visual / tactile) (See AS1726-2017)	Group Symbol	Moisture	Consistency	Dry Strength	Samples: Soil Sample	Testing: PID (ppm)
	Fill		Fill Gravelly to clayey SAND SC: low plasticity clay, loose, brown, fine to medium grained, medium sized gravel, slightly moist, no odour, no staining, no observed asbestos containing material.	SC	SLM	L	Density: Loose;	TP28_0.0–0.15_241128	1.2
1	Natural		Natural Gravelly SAND SW: very loose to loose, light brown, fine to medium grained, fine to medium sized gravel, dry, no odour dry, dry staining, no observed asbestos containing material.	SW	D	VL-L	Density: Very Loose to Loose;	TP28_0.4–0.5_241128	1.4
								TP28_1.0–1.1_241128	1.2
			TP-28 refusal at 1.3m						

Olympic Dam SA
ph:
e: support@emmconsulting.com.au

REPORT OF TEST PIT No: TP-29

Project: Soil Sampling Program - Olympic Dam
Job No: E240975
Location: Olympic Dam SA
Loc Comment: Road east of Sand Lease area
RL Datum: AHD
Contractor: BHP / WSP
Operator: Brad
Equipment: Excavator - Minetech
Easting: 679343.04
Northing: 6629438.97
Surface RL: Not Surveyed
Date: 28/11/2024
Client: BHP
Logged By: Simony Sakamoto
Checked By:

Depth (m)	Soil Origin	Field Sampling: Graphic Log	Field Sampling: Soil/Rock Description (visual / tactile) (See AS1726-2017)	Group Symbol	Moisture	Consistency	Dry Strength	Samples: Soil Sample	Testing: PID (ppm)
	F		Fill Gravelly SAND SW: loose, red brown, fine to medium grained, fine to medium sized gravel, slightly moist, no odour, no staining, no observed asbestos containing material.	SW	SLM	L	Density: Loose;	TP29_0.0–0.15_241128	1.6
			Natural SAND SW: loose, red brown, fine to medium grained, dry, no odour, no staining, no observed asbestos containing material.	SW			Density: Loose;	TP29_0.4–0.5_241128	1.2
1	Natural				D			TP29_1.0–1.1_241128	1.2
2								TP29_2.0–2.3_241128	1.3
			TP-29 Terminate at 2.2m						

Annexure D

Data validation report

EMM
creating opportunities

DATA QUALITY ASSURANCE AND QUALITY CONTROL REPORT

Project number:	E240975	**Project name:**	Targeted Soil Sampling Program, Olympic Dam – SRE Project
Client:	BHP	**Site(s):**	Olympic Dam
Samples collected:	A total of 84 samples were collected, being 74 primary samples and 12 QA/QC samples. TP02_0.0-0.15_241128, TP02_0.4-0.5_241128, TP02_1.0-1.1_241128, TP02_2.0-2.1_241128, TP03_0.4-0.5_241128, TP03_1.0-1.1_241128, TP03_2.0-2.1_241128, TP04_0.4-0.5_241129, TP04_0.4-0.5_241129, TP04_1.0-1.1_241129, TP04_1.4_241129, TP05_0.0-0.15_241127, TP05_1.0-1.1_241127, TP05_1.0-1.1_241127, TP05_2.0-2.1_241127, TP05_2.0-2.1_241127, TP06_0.0-0.15_241127, TP06_0.4-0.5_241127, TP06_1.0-1.1_241127, TP06_1.0-1.6_241127, TP07_0.0-0.15_241125, TP07_0.4-0.5_241125, TP07_0.4-0.5_241125, TP07_1.0-1.1_241125, TP07_1.0-1.1_241125, TP08_0.0-0.15_241126, TP08_0.4-0.5_241126, TP08_0.4-0.5_241126, TP08_1.0-1.2_241126, TP08_1.0-1.2_241126, TP09_0.0-0.15_241126, TP09_0.4-0.5_241125, TP09_1.0-1.1_241125, TP09_1.0-1.5_241125, TP09_1.0-1.5_241125, TP09_2.0-2.1_241125, TP10_0.0-0.3_241126, TP10_0.0-0.3_241126, TP10_0.4-0.5_241126, TP10_1.0-1.3-241126, TP10_1.0-1.3-241126, TP11_0.4-0.5_241127, TP11_0.4-0.5_241127, TP11_1.0-1.1_241127, TP11_2.0-2.1_241127, TP11_2.0-2.1_241127, TP13_0.0-0.15_241126, TP13_0.3-0.4_241126, TP13_0.3-0.4_241126, TP13_0.8-0.9_241126, TP13_0.8-0.9_241126, TP14_0.0-0.15_241128, TP14_0.4-0.5_241128, TP14_0.4-0.5_241128, TP14_1.0-1.1_241128, TP14_1.0-1.1_241128, TP14_2.0-2.1_241128, TP15_0.0-0.15_241129, TP15_0.4-0.5_241129, TP15_0.4-0.5_241129, TP15_1.0-1.1_241129, TP15_1.0-1.1_241129, TP15_2.0-2.1_241129, TP16_0.0-0.15_241126, TP16_0.4-0.5_241126, TP16_0.4-0.5_241126, TP16_1.0-1.1_241126, TP16_1.0-1.1_241126, TP17_0.4-0.5_241126, TP17_0.4-0.5_241126, TP17_1.0-1.1_241126, TP17_1.0-1.1_241126, TP17_2.0_2.1_241126, TP26_0.0-0.15_241127, TP26_0.3-1.0_241127, TP26_1.0-1.1_241127, TP26_1.0-2.0_241127, TP27_0.40-0.50_241129, TP27_1.0-1.1_241129, TP28_0.0-0.1_241128, TP28_0.4-0.5_241128, TP28_1.0-1.1_241128, TP29_0.0-0.15_241128, TP29_0.4-0.5_241128, TP29_0.4-0.5_241128, TP29_1.0-1.1_241128, TP29_1.0-1.1_241128, TP29_2.0-2.3_241128, QC101_241127, QC102_241129_0.00-0.15, QC103_241129, QC104_241129_1.00-1.10, QC201_241127_1.00-1.10, QC202_241129_0.00-0.15, QC203_241129_1.30_1.40, QC204_241129_1.00-1.10, QC401_241128, QC402_241202, QC602_241128 and QC603_241202		
Matrix type:	Soil	**Laboratory:**	ALS (Primary), Eurofins (Secondary)
Sampling event:	Targeted Soil Sampling	**Lab reference:**	EM2421125, EM2421130, EM2421131, MFL0079, MFL0167
Validation by:	J. Lewis	**Date:**	30 January 2025
Verification by:	S. Sakamoto	**Date:**	30 January 2025

Field QA/QC	
Sampling personnel	Sampling was conducted on 25-29 November 2024 by S. Sakamoto (EMM).
Sampling Methodology	Targeted soil sampling was conducted in accordance with the Sampling and Analysis Quality Plan (EMM, 2024).
Chain of Custody (COC)	Chain of custody documents were completed by S. Sakamoto (EMM). COC documentation was sent to the laboratory via Compass (laboratory app) and email.
Analysis Request	Laboratory analysis request and sample receipt notification reviewed and approved by S. Sakamoto.
Rinsate Blanks	Rinsate blanks are to be collected at a minimum frequency of one per day of sampling when using non-dedicated sampling equipment. As only dedicated sampling equipment was used, no rinsate samples were collected.
Trip Blanks	Trip blanks are to be collected at a minimum frequency of one per sample batch. Two trip blanks (EM2421131/QC401_241128 and EM2421125/QC402_241202) were analysed as part of this sampling event and all analytes were below the limit of reporting (LOR). A trip blank related to the first batch of samples was not included due to a delay in the blank delivery to site.

DATA QUALITY ASSURANCE AND QUALITY CONTROL REPORT

Project number:	E240975	**Project name:**	Targeted Soil Sampling Program, Olympic Dam – SRE Project
Client:	BHP	**Site(s):**	Olympic Dam

Trip Spikes	Trip spikes are to be collected at a minimum frequency of one per sample batch. Two trip spikes (EM2421131/QC602_241128 and EM2421125/QC603_241202) were analysed as part of this sampling event. A trip spitke related to the first batch of samples was not included due to a delay in the blank delivery to site. All analytes were within the spike recovery limits of 70-130%, with the exception of: • EM2421131 - QC602_241128 – Xylene (m & p) (50%), Toluene (40%), Xylene Total (50%) and Total BTEX (26.667%) The first (EM2421130) and second batch (EM2421131) of samples had their delivery to the laboratory delayed, that could have impacted the results from sample QC602. Considering that the trip spike from the samples from the third batch (EM2421125) were of similar characteristics and presented results similar to the previous batches, all results can be considered valid for the target assessment.
Intra-laboratory duplicates	Intra- and inter-laboratory field duplicate samples are to be collected at a minimum frequency of one per 20 primary samples. Four intra-laboratory duplicates (QC101_241127, QC102_241129, QC103_241129 and QC104_241129) were analysed as part of this sampling event. A total of 74 primary samples were collected, meaning an intra-laboratory frequency of 1 in 18.5 samples, within the minimum frequency recommended.
Inter-laboratory duplicates	Intra- and inter-laboratory field duplicate samples are to be collected at a minimum frequency of one per 20 primary samples. Four inter-laboratory duplicates (QC201_241127, QC202_241129, QC203_241129 and QC204_241129) were analysed as part of this sampling event. A total of 74 primary samples were collected, meaning an intra-laboratory frequency of 1 in 18.5 samples, within the minimum frequency recommended.
Handling and preservation	All samples were received at the laboratories in appropriate sample containers. The first (EM2421130) and second batch (EM2421131) of samples had their delivery to the laboratory delayed due to courier issues. Sample batches were received at the primary laboratory at 9.5°C and 13.9°C, which is above the recommended temperature (< 6°C). The primary laboratory reported that an attempt to chill was evident. The samples were received appropriately preserved.
Laboratory QA/QC	
Tests requested/reported	Samples were analysed and reported as requested on the COC, with the exception of: • EM2421130 / TP09_1.0–1.5_241125: was not analysed for particle size screening due to lack of sample volume.
Holding time compliance	Samples were extracted and analysed within recommended holding times, with the exception of extraction times: • EM2421130: pH (2 days overdue), Conductivity (2-3 days overdue), Total Sulphur (1-3 days overdue), and Nitrite as N (2-3 days overdue). • EM2421131 - pH (1 day overdue), Conductivity (1 day overdue). • EM2421125 - pH (1-7 days overdue), Conductivity (1-7 days overdue), Total Sulphur (1 day overdue), and Nitrite as N (1 day overdue).
Laboratory Accreditation	The laboratory analysis was conducted by ALS and Eurofins, both National Association of Testing Authorities (NATA) accredited laboratories.
Frequency of laboratory QC	The laboratories reported a sufficient frequency of quality control samples to assess whether the results have been reported to an acceptable accuracy and precision.
Method Blank	Method blank concentrations were not detected above the LOR for all analytes.
Laboratory duplicate RPDs	Laboratory duplicate (LD) Relative Percentage Differences (RPD) (where reported) were within laboratory control limits for all analytes, with the exception of: • EM2421130: Calcium (74.8%). • EM2421131: Calcium (74.8%). • EM2421125: Cobalt (37.4%), Copper (25.8%, 133%, 33.6%), Iron (58.4% and 23.1%).

DATA QUALITY ASSURANCE AND QUALITY CONTROL REPORT

Project number:	E240975	**Project name:**	Targeted Soil Sampling Program, Olympic Dam – SRE Project
Client:	BHP	**Site(s):**	Olympic Dam

Laboratory control spike recovery	LCS recoveries were within control limits, with the exception of: • EM2421130: Monocrotophos (158%). • EM2421131: Mirex (105%) and Monocrotophos (157%). • EM2421125 : Mirex (75.2%) .
Matrix spike recovery	Matrix spike (MS) recoveries were within control limits, with the exception of: • EM2421130: Sulfate (80.6%). • EM2421131: Sulfate (80.6%). • EM2421125: Nitrite and Nitrate, Organic Matter (140%) and Total organic carbon (140%).
Surrogate spike recovery	Surrogate spike recoveries (where reported) were within control limits.
Data Validation	
Comparison of Field Observations and Laboratory Results	No anomalous results between field observations and analysis results were noted.
Data transcription	A random check of the laboratory results identified no anomalies between the electronic data, the laboratory reports, and tables generated by EMM.
Limits of Reporting (LOR)	LORs were sufficiently low to enable assessment against adopted guideline criteria.
Intra-laboratory duplicate RPDs	RPDs for intra-laboratory duplicates were within control limits, with the exception of: • TP05_1.0-1.1_241127 / QC101_241127 – Barium (62%) • TP15_0.0-0.15_241129 / QC102_241129– Copper (33%) • TP04_1.4_241129 / QC103_241129 – Moisture content (44%), Arsenic (40%) and Nickel (67%) • TP27_1.0-1.1_241129 / QC104_241129– Cobalt (48%) and Copper (39%) This is considered likely to be a result of the heterogenous nature of the material sampled. The higher of the two results has been adopted for this location.
Inter-laboratory duplicate RPDs	RPDs for inter-laboratory duplicates were within control limits, with the exception of: • TP05_1.0-1.1_241127 / QC201_241127- Benzo(a)pyrene TEQ (LOR) (82%) • TP15_0.0-0.15_241129 / QC202_241129– Moisture content (37%), Benzo(a)pyrene TEQ (LOR) (82%) and Copper (95%) • TP04_1.4_241129 / QC203_241129– Benzo(a)pyrene TEQ (LOR) (82%), Cobalt (46%), Copper (73%) and Nickel (42%) • TP27_1.0-1.1_241129 / QC204_241129– Moisture content (55%), Benzo(a)pyrene TEQ (LOR) (82%), Arsenic (40%), Chromium (III+VI) (58%), Manganese (36%) and Zinc (45%) This is considered likely to be a result of the heterogenous nature of the material sampled. The higher of the two results has been adopted for this location.

Comments

Based on EMM's review, it is considered that an acceptable degree of QA/QC information has been collected and reported in accordance with EMM and the laboratory internal standard operating procedures. The assessment of field and laboratory QA/QC data indicated that the reported analytical results are representative of the conditions at the sample locations analysed and that the overall quality of the data produced is considered to be acceptably reliable for the purpose of this assessment. The laboratory data are considered to provide an appropriate level of confidence in the precision, accuracy, representativeness, comparability and completeness of the analytical results, and are considered suitable for interpretive use.

Annexure E

Analytical results table

EMM
creating opportunities

					BTEX							TRH						
					Naphthalene (VOC)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Total BTEX	C6-C10 Fraction (F1)	C6-C10 (F1 minus BTEX)	>C10-C16 Fraction (F2)	>C10-C16 Fraction (F2 minus Naphthalene)	>C16-C34 Fraction (F3)	>C34-C40 Fraction (F4)	>C10-C40 Fraction (Sum)
					mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL					1	0.2	0.5	0.5	0.5	0.5	0.5	0.2	10	10	50	50	100	100	50
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil																			
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Clay						4 | 6 | 9 | 20								310 | 480				
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand						3 | 3 | 3 | 3					230			260 | 370 | 630				
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Silt						4 | 4 | 6 | 10								250 | 360 | 590				
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind					370														
NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Coarse Soil						75	135	165			180			215	170	170	1,700	3,300	
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil													700		1,000		3,500	10,000	
Monitoring Zone	**Location Code**	**Field ID**	**Depth**	**Date**	**Lab Report Number**														
BHP general operations and r	**TP-02**	**TP02_0.0-0.15_241128**	**0 - 0.15**	**28 Nov 2024**	**EM2421125**	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<10	<10	<50	<50	<100	<100	<50
BHP general operations and r	**TP-02**	**TP02_2.0-2.1_241128**	**2 - 2.1**	**28 Nov 2024**	**EM2421125**	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<10	<10	<50	<50	<100	<100	<50
BHP general operations and r	**TP-03**	**TP03_1.0-1.1_241128**	**1 - 1.1**	**28 Nov 2024**	**EM2421125**	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<10	<10	<50	<50	<100	<100	<50
BHP general operations and r	**TP-03**	**TP03_2.0-2.1_241128**	**2 - 2.1**	**28 Nov 2024**	**EM2421125**	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<10	<10	<50	<50	<100	<100	<50
Sand Lease	**TP-05**	**QC101_241127**	**1 - 1.1**	**27 Nov 2024**	**EM2421131**	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<10	<10	<50	<50	<100	<100	<50
Sand Lease	**TP-05**	**QC201_241127_1.00-1.10**	**1 - 1.1**	**27 Nov 2024**	**MFL0079**	<1.0	<0.20	<0.50	<1.0	<2.0	<1.0	<3.0	-	<25	<25	<50	<50	<100	<100	<50
Sand Lease	**TP-05**	**TP05_0.0-0.15_241127**	**0 - 0.15**	**27 Nov 2024**	**EM2421131**	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<10	<10	<50	<50	<100	<100	<50
Sand Lease	**TP-05**	**TP05_1.0-1.1_241127**	**1 - 1.1**	**27 Nov 2024**	**EM2421131**	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<10	<10	<50	<50	<100	<100	<50
Sand Lease	**TP-07**	**TP07_0.0-0.15_241125**	**0 - 0.15**	**25 Nov 2024**	**EM2421130**	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<10	<10	<50	<50	<100	<100	<50
Sand Lease	**TP-07**	**TP07_1.0-1.1_241125**	**1 - 1.1**	**25 Nov 2024**	**EM2421130**	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<10	<10	<50	<50	<100	<100	<50
Sand Lease	**TP-08**	**TP08_0.0-0.15_241126**	**0 - 0.15**	**26 Nov 2024**	**EM2421130**	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<10	<10	<50	<50	<100	<100	<50
Sand Lease	**TP-08**	**TP08_1.0-1.2_241126**	**1 - 1.2**	**26 Nov 2024**	**EM2421130**	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<10	<10	<50	<50	<100	<100	<50
Sand Lease	**TP-09**	**TP09_0.0-0.15_241126**	**0 - 0.15**	**25 Nov 2024**	**EM2421130**	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<10	<10	<50	<50	<100	<100	<50
Sand Lease	**TP-09**	**TP09_0.4-0.5_241125**	**0.4 - 0.5**	**25 Nov 2024**	**EM2421130**	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<10	<10	<50	<50	<100	<100	<50
Sand Lease	**TP-09**	**TP09_1.0-1.1_241125**	**1 - 1.1**	**25 Nov 2024**	**EM2421130**	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<10	<10	<50	<50	<100	<100	<50
Sand Lease	**TP-09**	**TP09_2.0-2.1_241125**	**2 - 2.1**	**25 Nov 2024**	**EM2421130**	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<10	<10	<50	<50	<100	<100	<50
Sand Lease	**TP-10**	**TP10_0.4-0.5_241126**	**0.4 - 0.5**	**26 Nov 2024**	**EM2421130**	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<10	<10	<50	<50	<100	<100	<50
Sand Lease	**TP-10**	**TP10_1.0-1.3-241126**	**1 - 1.3**	**26 Nov 2024**	**EM2421130**	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<10	<10	<50	<50	<100	<100	<50
Sand Lease	**TP-11**	**TP11_0.4-0.5_241127**	**0.4 - 0.5**	**27 Nov 2024**	**EM2421131**	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<10	<10	<50	<50	<100	<100	<50
Sand Lease	**TP-11**	**TP11_1.0-1.1_241127**	**1 - 1.1**	**27 Nov 2024**	**EM2421131**	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<10	<10	<50	<50	<100	<100	<50
Sand Lease	**TP-13**	**TP13_0.0-0.15_241126**	**0 - 0.15**	**26 Nov 2024**	**EM2421130**	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<10	<10	<50	<50	<100	<100	<50
Sand Lease	**TP-13**	**TP13_0.8-0.9_241126**	**0.8 - 0.9**	**26 Nov 2024**	**EM2421130**	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<10	<10	<50	<50	<100	<100	<50
Sand Lease	**TP-14**	**TP14_0.0-0.15_241128**	**0 - 0.15**	**28 Nov 2024**	**EM2421125**	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<10	<10	<50	<50	<100	<100	<50
Sand Lease	**TP-14**	**TP14_2.0-2.1_241128**	**2 - 2.1**	**28 Nov 2024**	**EM2421125**	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<10	<10	<50	<50	<100	<100	<50
Sand Lease	**TP-15**	**QC102_241129_0.00-0.15**	**0 - 0.15**	**29 Nov 2024**	**EM2421125**	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<10	<10	<50	<50	<100	<100	<50
Sand Lease	**TP-15**	**QC202_241129_0.00-0.15**	**0 - 0.15**	**29 Nov 2024**	**MFL0167**	<1.0	<0.20	<0.50	<1.0	<2.0	<1.0	<3.0	-	<25	<25	<50	<50	<100	<100	<50
Sand Lease	**TP-15**	**TP15_0.0-0.15_241129**	**0 - 0.15**	**29 Nov 2024**	**EM2421125**	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<10	<10	<50	<50	<100	<100	<50
Sand Lease	**TP-15**	**TP15_2.0-2.1_241129**	**2 - 2.1**	**29 Nov 2024**	**EM2421125**	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<10	<10	<50	<50	<100	<100	<50
Sand Lease	**TP-16**	**TP16_0.0-0.15_241126**	**0 - 0.15**	**26 Nov 2024**	**EM2421130**	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<10	<10	<50	<50	<100	<100	<50
Sand Lease	**TP-16**	**TP16_0.4-0.5_241126**	**0.4 - 0.5**	**26 Nov 2024**	**EM2421130**	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<10	<10	<50	<50	<100	<100	<50
Sand Lease	**TP-17**	**TP17_0.4-0.5_241126**	**0.4 - 0.5**	**26 Nov 2024**	**EM2421130**	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<10	<10	<50	<50	<100	<100	<50
Sand Lease	**TP-17**	**TP17_2.0_2.1_241126**	**2**	**26 Nov 2024**	**EM2421130**	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<10	<10	<50	<50	<100	<100	<50
Sand Lease	**TP-29**	**TP29_0.0-0.15_241128**	**0 - 0.15**	**28 Nov 2024**	**EM2421125**	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<10	<10	<50	<50	<100	<100	<50
Sand Lease	**TP-29**	**TP29_2.0-2.3_241128**	**2 - 2.3**	**28 Nov 2024**	**EM2421125**	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<10	<10	<50	<50	<100	<100	<50
Smelter Slag Bay Tipping	**TP-26**	**TP26_0.0-0.15_241127**	**0 - 0.15**	**27 Nov 2024**	**EM2421131**	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<10	<10	<50	<50	<100	<100	<50
Smelter Slag Bay Tipping	**TP-26**	**TP26_1.0-1.1_241127**	**1 - 1.1**	**27 Nov 2024**	**EM2421131**	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<10	<10	<50	<50	<100	<100	<50
Smelter Slag Bay Tipping	**TP-28**	**TP28_0.0-0.1_241128**	**0 - 0.1**	**28 Nov 2024**	**EM2421125**	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<10	<10	<50	<50	<100	<100	<50
Smelter Slag Bay Tipping	**TP-28**	**TP28_0.4-0.5_241128**	**0.4 - 0.5**	**28 Nov 2024**	**EM2421125**	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<10	<10	<50	<50	<100	<100	<50
Smelter Support Yard	**TP-04**	**QC103_241129**	**1.4**	**29 Nov 2024**	**EM2421125**	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<10	<10	<50	<50	<100	<100	<50
Smelter Support Yard	**TP-04**	**QC203_241129_1.30_1.40**	**1.3 - 1.4**	**29 Nov 2024**	**MFL0167**	<1.0	<0.20	<0.50	<1.0	<2.0	<1.0	<3.0	-	<25	<25	<50	<50	<100	<100	<50
Smelter Support Yard	**TP-04**	**TP04_0.4-0.5_241129**	**0.4 - 0.5**	**29 Nov 2024**	**EM2421125**	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<10	<10	<50	<50	<100	<100	<50
Smelter Support Yard	**TP-04**	**TP04_1.4_241129**	**1.4**	**29 Nov 2024**	**EM2421125**	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<10	<10	<50	<50	<100	<100	<50
Smelter Support Yard	**TP-06**	**TP06_0.0-0.15_241127**	**0 - 0.15**	**27 Nov 2024**	**EM2421131**	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<10	<10	<50	<50	<100	<100	<50
Smelter Support Yard	**TP-06**	**TP06_1.0-1.1_241127**	**1 - 1.1**	**27 Nov 2024**	**EM2421131**	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<10	<10	<50	<50	<100	<100	<50
Smelter Support Yard	**TP-27**	**QC104_241129_1.00-1.10**	**1 - 1.1**	**29 Nov 2024**	**EM2421125**	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<10	<10	<50	<50	<100	<100	<50
Smelter Support Yard	**TP-27**	**QC204_241129_1.00-1.10**	**1 - 1.1**	**29 Nov 2024**	**MFL0167**	<1.0	<0.20	<0.50	<1.0	<2.0	<1.0	<3.0	-	<25	<25	<50	<50	<100	<100	<50
Smelter Support Yard	**TP-27**	**TP27_0.40-0.50_241129**	**0.4 - 0.5**	**29 Nov 2024**	**EM2421125**	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<10	<10	<50	<50	<100	<100	<50
Smelter Support Yard	**TP-27**	**TP27_1.0-1.1_241129**	**1 - 1.1**	**29 Nov 2024**	**EM2421125**	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<10	<10	<50	<50	<100	<100	<50

Environmental Standards

2013, NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil
2013, NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Clay
2013, NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand
2013, NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Silt
2013, NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Coarse Soil
NEPM, NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil

						PAH																
						Benzo(b+j+k)fluoranthene	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b+j)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	Phenanthrene	Pyrene	Benzo(a)pyrene TEQ calc (Half)	Benzo(a)pyrene TEQ (LOR)	Benzo(a)pyrene TEQ calc (Zero)	PAHs (Sum of total)
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL						0.2	0.1	0.1	0.1	0.1	0.05	0.5	0.1	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.5	0.5	0.5	0.05
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil																						40	40	40	4,000
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Clay																									
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand																									
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Silt																									
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind																				370					
NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Coarse Soil											1.4														
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil																									
Monitoring Zone	**Location Code**	**Field ID**	**Depth**	**Date**	**Lab Report Number**																				
BHP general operations and r	**TP-02**	**TP02_0.0-0.15_241128**	**0 - 0.15**	**28 Nov 2024**	**EM2421125**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5
BHP general operations and r	**TP-02**	**TP02_2.0-2.1_241128**	**2 - 2.1**	**28 Nov 2024**	**EM2421125**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5
BHP general operations and r	**TP-03**	**TP03_1.0-1.1_241128**	**1 - 1.1**	**28 Nov 2024**	**EM2421125**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5
BHP general operations and r	**TP-03**	**TP03_2.0-2.1_241128**	**2 - 2.1**	**28 Nov 2024**	**EM2421125**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5
Sand Lease	**TP-05**	**QC101_241127**	**1 - 1.1**	**27 Nov 2024**	**EM2421131**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5
Sand Lease	**TP-05**	**QC201_241127_1.00-1.10**	**1 - 1.1**	**27 Nov 2024**	**MFL0079**	<0.20	<0.10	<0.10	<0.10	<0.10	<0.050	-	<0.10	-	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.50	<0.50	<0.50	<0.050
Sand Lease	**TP-05**	**TP05_0.0-0.15_241127**	**0 - 0.15**	**27 Nov 2024**	**EM2421131**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5
Sand Lease	**TP-05**	**TP05_1.0-1.1_241127**	**1 - 1.1**	**27 Nov 2024**	**EM2421131**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5
Sand Lease	**TP-07**	**TP07_0.0-0.15_241125**	**0 - 0.15**	**25 Nov 2024**	**EM2421130**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5
Sand Lease	**TP-07**	**TP07_1.0-1.1_241125**	**1 - 1.1**	**25 Nov 2024**	**EM2421130**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5
Sand Lease	**TP-08**	**TP08_0.0-0.15_241126**	**0 - 0.15**	**26 Nov 2024**	**EM2421130**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5
Sand Lease	**TP-08**	**TP08_1.0-1.2_241126**	**1 - 1.2**	**26 Nov 2024**	**EM2421130**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5
Sand Lease	**TP-09**	**TP09_0.0-0.15_241126**	**0 - 0.15**	**25 Nov 2024**	**EM2421130**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5
Sand Lease	**TP-09**	**TP09_0.4-0.5_241125**	**0.4 - 0.5**	**25 Nov 2024**	**EM2421130**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5
Sand Lease	**TP-09**	**TP09_1.0-1.1_241125**	**1 - 1.1**	**25 Nov 2024**	**EM2421130**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5
Sand Lease	**TP-09**	**TP09_2.0-2.1_241125**	**2 - 2.1**	**25 Nov 2024**	**EM2421130**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5
Sand Lease	**TP-10**	**TP10_0.4-0.5_241126**	**0.4 - 0.5**	**26 Nov 2024**	**EM2421130**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5
Sand Lease	**TP-10**	**TP10_1.0-1.3-241126**	**1 - 1.3**	**26 Nov 2024**	**EM2421130**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5
Sand Lease	**TP-11**	**TP11_0.4-0.5_241127**	**0.4 - 0.5**	**27 Nov 2024**	**EM2421131**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5
Sand Lease	**TP-11**	**TP11_1.0-1.1_241127**	**1 - 1.1**	**27 Nov 2024**	**EM2421131**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5
Sand Lease	**TP-13**	**TP13_0.0-0.15_241126**	**0 - 0.15**	**26 Nov 2024**	**EM2421130**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5
Sand Lease	**TP-13**	**TP13_0.8-0.9_241126**	**0.8 - 0.9**	**26 Nov 2024**	**EM2421130**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5
Sand Lease	**TP-14**	**TP14_0.0-0.15_241128**	**0 - 0.15**	**28 Nov 2024**	**EM2421125**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5
Sand Lease	**TP-14**	**TP14_2.0-2.1_241128**	**2 - 2.1**	**28 Nov 2024**	**EM2421125**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5
Sand Lease	**TP-15**	**QC102_241129_0.00-0.15**	**0 - 0.15**	**29 Nov 2024**	**EM2421125**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5
Sand Lease	**TP-15**	**QC202_241129_0.00-0.15**	**0 - 0.15**	**29 Nov 2024**	**MFL0167**	<0.20	<0.10	<0.10	<0.10	<0.10	<0.050	-	<0.10	-	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.50	<0.50	<0.50	<0.050
Sand Lease	**TP-15**	**TP15_0.0-0.15_241129**	**0 - 0.15**	**29 Nov 2024**	**EM2421125**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5
Sand Lease	**TP-15**	**TP15_2.0-2.1_241129**	**2 - 2.1**	**29 Nov 2024**	**EM2421125**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5
Sand Lease	**TP-16**	**TP16_0.0-0.15_241126**	**0 - 0.15**	**26 Nov 2024**	**EM2421130**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5
Sand Lease	**TP-16**	**TP16_0.4-0.5_241126**	**0.4 - 0.5**	**26 Nov 2024**	**EM2421130**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5
Sand Lease	**TP-17**	**TP17_0.4-0.5_241126**	**0.4 - 0.5**	**26 Nov 2024**	**EM2421130**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5
Sand Lease	**TP-17**	**TP17_2.0_2.1_241126**	**2**	**26 Nov 2024**	**EM2421130**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5
Sand Lease	**TP-29**	**TP29_0.0-0.15_241128**	**0 - 0.15**	**28 Nov 2024**	**EM2421125**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5
Sand Lease	**TP-29**	**TP29_2.0-2.3_241128**	**2 - 2.3**	**28 Nov 2024**	**EM2421125**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5
Smelter Slag Bay Tipping	**TP-26**	**TP26_0.0-0.15_241127**	**0 - 0.15**	**27 Nov 2024**	**EM2421131**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5
Smelter Slag Bay Tipping	**TP-26**	**TP26_1.0-1.1_241127**	**1 - 1.1**	**27 Nov 2024**	**EM2421131**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5
Smelter Slag Bay Tipping	**TP-28**	**TP28_0.0-0.1_241128**	**0 - 0.1**	**28 Nov 2024**	**EM2421125**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5
Smelter Slag Bay Tipping	**TP-28**	**TP28_0.4-0.5_241128**	**0.4 - 0.5**	**28 Nov 2024**	**EM2421125**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5
Smelter Support Yard	**TP-04**	**QC103_241129**	**1.4**	**29 Nov 2024**	**EM2421125**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5
Smelter Support Yard	**TP-04**	**QC203_241129_1.30_1.40**	**1.3 - 1.4**	**29 Nov 2024**	**MFL0167**	<0.20	<0.10	<0.10	<0.10	<0.10	<0.050	-	<0.10	-	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.50	<0.50	<0.50	<0.050
Smelter Support Yard	**TP-04**	**TP04_0.4-0.5_241129**	**0.4 - 0.5**	**29 Nov 2024**	**EM2421125**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5
Smelter Support Yard	**TP-04**	**TP04_1.4_241129**	**1.4**	**29 Nov 2024**	**EM2421125**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5
Smelter Support Yard	**TP-06**	**TP06_0.0-0.15_241127**	**0 - 0.15**	**27 Nov 2024**	**EM2421131**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5
Smelter Support Yard	**TP-06**	**TP06_1.0-1.1_241127**	**1 - 1.1**	**27 Nov 2024**	**EM2421131**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5
Smelter Support Yard	**TP-27**	**QC104_241129_1.00-1.10**	**1 - 1.1**	**29 Nov 2024**	**EM2421125**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5
Smelter Support Yard	**TP-27**	**QC204_241129_1.00-1.10**	**1 - 1.1**	**29 Nov 2024**	**MFL0167**	<0.20	<0.10	<0.10	<0.10	<0.10	<0.050	-	<0.10	-	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.50	<0.50	<0.50	<0.050
Smelter Support Yard	**TP-27**	**TP27_0.40-0.50_241129**	**0.4 - 0.5**	**29 Nov 2024**	**EM2421125**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5
Smelter Support Yard	**TP-27**	**TP27_1.0-1.1_241129**	**1 - 1.1**	**29 Nov 2024**	**EM2421125**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5

Environmental Standards

2013, NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil
2013, NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Clay
2013, NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand
2013, NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Silt
2013, NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Coarse Soil
NEPM, NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil

										PCBs								Organophosphorous Pesticides															
										Arochlor 1016	Arochlor 1221	Arochlor 1232	Arochlor 1242	Arochlor 1248	Arochlor 1254	Arochlor 1260	PCBs (Sum of total)	Azinophos methyl	Bromophos-ethyl	Carbophenothion	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Diazinon	Dichlorvos	Dimethoate	Ethion	Fenthion	Malathion	Methyl parathion	Monocrotophos	Prothiofos
										mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL										0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.2	0.2	0.05
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil																	7					2,000										
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Clay																																
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand																																
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Silt																																
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind																																
NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Coarse Soil																																
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil																																
Monitoring Zone	**Location Code**	**Field ID**	**Depth**	**Date**	**Lab Report Number**																											
BHP general operations and r	**TP-02**	**TP02_0.0-0.15_241128**	**0 - 0.15**	**28 Nov 2024**	**EM2421125**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BHP general operations and r	**TP-02**	**TP02_2.0-2.1_241128**	**2 - 2.1**	**28 Nov 2024**	**EM2421125**	-	-	-	-	-	-	-	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05
BHP general operations and r	**TP-03**	**TP03_1.0-1.1_241128**	**1 - 1.1**	**28 Nov 2024**	**EM2421125**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BHP general operations and r	**TP-03**	**TP03_2.0-2.1_241128**	**2 - 2.1**	**28 Nov 2024**	**EM2421125**	-	-	-	-	-	-	-	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05
Sand Lease	**TP-05**	**QC101_241127**	**1 - 1.1**	**27 Nov 2024**	**EM2421131**	-	-	-	-	-	-	-	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05
Sand Lease	**TP-05**	**QC201_241127_1.00-1.10**	**1 - 1.1**	**27 Nov 2024**	**MFL0079**	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	-	-	-	-	<0.10	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sand Lease	**TP-05**	**TP05_0.0-0.15_241127**	**0 - 0.15**	**27 Nov 2024**	**EM2421131**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sand Lease	**TP-05**	**TP05_1.0-1.1_241127**	**1 - 1.1**	**27 Nov 2024**	**EM2421131**	-	-	-	-	-	-	-	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05
Sand Lease	**TP-07**	**TP07_0.0-0.15_241125**	**0 - 0.15**	**25 Nov 2024**	**EM2421130**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sand Lease	**TP-07**	**TP07_1.0-1.1_241125**	**1 - 1.1**	**25 Nov 2024**	**EM2421130**	-	-	-	-	-	-	-	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05
Sand Lease	**TP-08**	**TP08_0.0-0.15_241126**	**0 - 0.15**	**26 Nov 2024**	**EM2421130**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sand Lease	**TP-08**	**TP08_1.0-1.2_241126**	**1 - 1.2**	**26 Nov 2024**	**EM2421130**	-	-	-	-	-	-	-	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05
Sand Lease	**TP-09**	**TP09_0.0-0.15_241126**	**0 - 0.15**	**25 Nov 2024**	**EM2421130**	-	-	-	-	-	-	-	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05
Sand Lease	**TP-09**	**TP09_0.4-0.5_241125**	**0.4 - 0.5**	**25 Nov 2024**	**EM2421130**	-	-	-	-	-	-	-	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05
Sand Lease	**TP-09**	**TP09_1.0-1.1_241125**	**1 - 1.1**	**25 Nov 2024**	**EM2421130**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sand Lease	**TP-09**	**TP09_2.0-2.1_241125**	**2 - 2.1**	**25 Nov 2024**	**EM2421130**	-	-	-	-	-	-	-	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05
Sand Lease	**TP-10**	**TP10_0.4-0.5_241126**	**0.4 - 0.5**	**26 Nov 2024**	**EM2421130**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sand Lease	**TP-10**	**TP10_1.0-1.3-241126**	**1 - 1.3**	**26 Nov 2024**	**EM2421130**	-	-	-	-	-	-	-	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05
Sand Lease	**TP-11**	**TP11_0.4-0.5_241127**	**0.4 - 0.5**	**27 Nov 2024**	**EM2421131**	-	-	-	-	-	-	-	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05
Sand Lease	**TP-11**	**TP11_1.0-1.1_241127**	**1 - 1.1**	**27 Nov 2024**	**EM2421131**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sand Lease	**TP-13**	**TP13_0.0-0.15_241126**	**0 - 0.15**	**26 Nov 2024**	**EM2421130**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sand Lease	**TP-13**	**TP13_0.8-0.9_241126**	**0.8 - 0.9**	**26 Nov 2024**	**EM2421130**	-	-	-	-	-	-	-	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05
Sand Lease	**TP-14**	**TP14_0.0-0.15_241128**	**0 - 0.15**	**28 Nov 2024**	**EM2421125**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sand Lease	**TP-14**	**TP14_2.0-2.1_241128**	**2 - 2.1**	**28 Nov 2024**	**EM2421125**	-	-	-	-	-	-	-	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05
Sand Lease	**TP-15**	**QC102_241129_0.00-0.15**	**0 - 0.15**	**29 Nov 2024**	**EM2421125**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sand Lease	**TP-15**	**QC202_241129_0.00-0.15**	**0 - 0.15**	**29 Nov 2024**	**MFL0167**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sand Lease	**TP-15**	**TP15_0.0-0.15_241129**	**0 - 0.15**	**29 Nov 2024**	**EM2421125**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sand Lease	**TP-15**	**TP15_2.0-2.1_241129**	**2 - 2.1**	**29 Nov 2024**	**EM2421125**	-	-	-	-	-	-	-	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05
Sand Lease	**TP-16**	**TP16_0.0-0.15_241126**	**0 - 0.15**	**26 Nov 2024**	**EM2421130**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sand Lease	**TP-16**	**TP16_0.4-0.5_241126**	**0.4 - 0.5**	**26 Nov 2024**	**EM2421130**	-	-	-	-	-	-	-	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05
Sand Lease	**TP-17**	**TP17_0.4-0.5_241126**	**0.4 - 0.5**	**26 Nov 2024**	**EM2421130**	-	-	-	-	-	-	-	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05
Sand Lease	**TP-17**	**TP17_2.0_2.1_241126**	**2**	**26 Nov 2024**	**EM2421130**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sand Lease	**TP-29**	**TP29_0.0-0.15_241128**	**0 - 0.15**	**28 Nov 2024**	**EM2421125**	-	-	-	-	-	-	-	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05
Sand Lease	**TP-29**	**TP29_2.0-2.3_241128**	**2 - 2.3**	**28 Nov 2024**	**EM2421125**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Smelter Slag Bay Tipping	**TP-26**	**TP26_0.0-0.15_241127**	**0 - 0.15**	**27 Nov 2024**	**EM2421131**	-	-	-	-	-	-	-	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05
Smelter Slag Bay Tipping	**TP-26**	**TP26_1.0-1.1_241127**	**1 - 1.1**	**27 Nov 2024**	**EM2421131**	-	-	-	-	-	-	-	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05
Smelter Slag Bay Tipping	**TP-28**	**TP28_0.0-0.1_241128**	**0 - 0.1**	**28 Nov 2024**	**EM2421125**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Smelter Slag Bay Tipping	**TP-28**	**TP28_0.4-0.5_241128**	**0.4 - 0.5**	**28 Nov 2024**	**EM2421125**	-	-	-	-	-	-	-	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05
Smelter Support Yard	**TP-04**	**QC103_241129**	**1.4**	**29 Nov 2024**	**EM2421125**	-	-	-	-	-	-	-	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05
Smelter Support Yard	**TP-04**	**QC203_241129_1.30_1.40**	**1.3 - 1.4**	**29 Nov 2024**	**MFL0167**	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	-	-	-	-	<0.10	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Smelter Support Yard	**TP-04**	**TP04_0.4-0.5_241129**	**0.4 - 0.5**	**29 Nov 2024**	**EM2421125**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Smelter Support Yard	**TP-04**	**TP04_1.4_241129**	**1.4**	**29 Nov 2024**	**EM2421125**	-	-	-	-	-	-	-	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05
Smelter Support Yard	**TP-06**	**TP06_0.0-0.15_241127**	**0 - 0.15**	**27 Nov 2024**	**EM2421131**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Smelter Support Yard	**TP-06**	**TP06_1.0-1.1_241127**	**1 - 1.1**	**27 Nov 2024**	**EM2421131**	-	-	-	-	-	-	-	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05
Smelter Support Yard	**TP-27**	**QC104_241129_1.00-1.10**	**1 - 1.1**	**29 Nov 2024**	**EM2421125**	-	-	-	-	-	-	-	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05
Smelter Support Yard	**TP-27**	**QC204_241129_1.00-1.10**	**1 - 1.1**	**29 Nov 2024**	**MFL0167**	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	-	-	-	-	<0.10	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Smelter Support Yard	**TP-27**	**TP27_0.40-0.50_241129**	**0.4 - 0.5**	**29 Nov 2024**	**EM2421125**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Smelter Support Yard	**TP-27**	**TP27_1.0-1.1_241129**	**1 - 1.1**	**29 Nov 2024**	**EM2421125**	-	-	-	-	-	-	-	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05

Environmental Standards
2013, NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil
2013, NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Clay
2013, NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand
2013, NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Silt
2013, NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Coarse Soil
NEPM, NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil

												Organochlorine Pesticides								
												4,4-DDE	a-BHC	Aldrin	Aldrin + Dieldrin	b-BHC	Chlordane (cis)	Chlordane (trans)	d-BHC	DDD
												mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL												0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil															45					
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Clay																				
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand																				
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Silt																				
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind																				
NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Coarse Soil																				
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil																				
Monitoring Zone	**Location Code**	**Field ID**	**Depth**	**Date**	**Lab Report Number**															
BHP general operations and r	**TP-02**	**TP02_0.0-0.15_241128**	**0 - 0.15**	**28 Nov 2024**	**EM2421125**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BHP general operations and r	**TP-02**	**TP02_2.0-2.1_241128**	**2 - 2.1**	**28 Nov 2024**	**EM2421125**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
BHP general operations and r	**TP-03**	**TP03_1.0-1.1_241128**	**1 - 1.1**	**28 Nov 2024**	**EM2421125**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BHP general operations and r	**TP-03**	**TP03_2.0-2.1_241128**	**2 - 2.1**	**28 Nov 2024**	**EM2421125**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Sand Lease	**TP-05**	**QC101_241127**	**1 - 1.1**	**27 Nov 2024**	**EM2421131**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Sand Lease	**TP-05**	**QC201_241127_1.00-1.10**	**1 - 1.1**	**27 Nov 2024**	**MFL0079**	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	-	<0.10	<0.10	<0.10	<0.10	<0.10	-	<0.10	<0.10
Sand Lease	**TP-05**	**TP05_0.0-0.15_241127**	**0 - 0.15**	**27 Nov 2024**	**EM2421131**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sand Lease	**TP-05**	**TP05_1.0-1.1_241127**	**1 - 1.1**	**27 Nov 2024**	**EM2421131**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Sand Lease	**TP-07**	**TP07_0.0-0.15_241125**	**0 - 0.15**	**25 Nov 2024**	**EM2421130**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sand Lease	**TP-07**	**TP07_1.0-1.1_241125**	**1 - 1.1**	**25 Nov 2024**	**EM2421130**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Sand Lease	**TP-08**	**TP08_0.0-0.15_241126**	**0 - 0.15**	**26 Nov 2024**	**EM2421130**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sand Lease	**TP-08**	**TP08_1.0-1.2_241126**	**1 - 1.2**	**26 Nov 2024**	**EM2421130**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Sand Lease	**TP-09**	**TP09_0.0-0.15_241126**	**0 - 0.15**	**25 Nov 2024**	**EM2421130**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Sand Lease	**TP-09**	**TP09_0.4-0.5_241125**	**0.4 - 0.5**	**25 Nov 2024**	**EM2421130**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Sand Lease	**TP-09**	**TP09_1.0-1.1_241125**	**1 - 1.1**	**25 Nov 2024**	**EM2421130**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sand Lease	**TP-09**	**TP09_2.0-2.1_241125**	**2 - 2.1**	**25 Nov 2024**	**EM2421130**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Sand Lease	**TP-10**	**TP10_0.4-0.5_241126**	**0.4 - 0.5**	**26 Nov 2024**	**EM2421130**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sand Lease	**TP-10**	**TP10_1.0-1.3-241126**	**1 - 1.3**	**26 Nov 2024**	**EM2421130**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Sand Lease	**TP-11**	**TP11_0.4-0.5_241127**	**0.4 - 0.5**	**27 Nov 2024**	**EM2421131**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Sand Lease	**TP-11**	**TP11_1.0-1.1_241127**	**1 - 1.1**	**27 Nov 2024**	**EM2421131**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sand Lease	**TP-13**	**TP13_0.0-0.15_241126**	**0 - 0.15**	**26 Nov 2024**	**EM2421130**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sand Lease	**TP-13**	**TP13_0.8-0.9_241126**	**0.8 - 0.9**	**26 Nov 2024**	**EM2421130**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Sand Lease	**TP-14**	**TP14_0.0-0.15_241128**	**0 - 0.15**	**28 Nov 2024**	**EM2421125**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sand Lease	**TP-14**	**TP14_2.0-2.1_241128**	**2 - 2.1**	**28 Nov 2024**	**EM2421125**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Sand Lease	**TP-15**	**QC102_241129_0.00-0.15**	**0 - 0.15**	**29 Nov 2024**	**EM2421125**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sand Lease	**TP-15**	**QC202_241129_0.00-0.15**	**0 - 0.15**	**29 Nov 2024**	**MFL0167**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sand Lease	**TP-15**	**TP15_0.0-0.15_241129**	**0 - 0.15**	**29 Nov 2024**	**EM2421125**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sand Lease	**TP-15**	**TP15_2.0-2.1_241129**	**2 - 2.1**	**29 Nov 2024**	**EM2421125**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Sand Lease	**TP-16**	**TP16_0.0-0.15_241126**	**0 - 0.15**	**26 Nov 2024**	**EM2421130**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sand Lease	**TP-16**	**TP16_0.4-0.5_241126**	**0.4 - 0.5**	**26 Nov 2024**	**EM2421130**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Sand Lease	**TP-17**	**TP17_0.4-0.5_241126**	**0.4 - 0.5**	**26 Nov 2024**	**EM2421130**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Sand Lease	**TP-17**	**TP17_2.0_2.1_241126**	**2**	**26 Nov 2024**	**EM2421130**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sand Lease	**TP-29**	**TP29_0.0-0.15_241128**	**0 - 0.15**	**28 Nov 2024**	**EM2421125**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Sand Lease	**TP-29**	**TP29_2.0-2.3_241128**	**2 - 2.3**	**28 Nov 2024**	**EM2421125**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Smelter Slag Bay Tipping	**TP-26**	**TP26_0.0-0.15_241127**	**0 - 0.15**	**27 Nov 2024**	**EM2421131**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Smelter Slag Bay Tipping	**TP-26**	**TP26_1.0-1.1_241127**	**1 - 1.1**	**27 Nov 2024**	**EM2421131**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Smelter Slag Bay Tipping	**TP-28**	**TP28_0.0-0.1_241128**	**0 - 0.1**	**28 Nov 2024**	**EM2421125**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Smelter Slag Bay Tipping	**TP-28**	**TP28_0.4-0.5_241128**	**0.4 - 0.5**	**28 Nov 2024**	**EM2421125**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Smelter Support Yard	**TP-04**	**QC103_241129**	**1.4**	**29 Nov 2024**	**EM2421125**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Smelter Support Yard	**TP-04**	**QC203_241129_1.30_1.40**	**1.3 - 1.4**	**29 Nov 2024**	**MFL0167**	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	-	<0.10	<0.10	<0.10	<0.10	<0.10	-	<0.10	<0.10
Smelter Support Yard	**TP-04**	**TP04_0.4-0.5_241129**	**0.4 - 0.5**	**29 Nov 2024**	**EM2421125**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Smelter Support Yard	**TP-04**	**TP04_1.4_241129**	**1.4**	**29 Nov 2024**	**EM2421125**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Smelter Support Yard	**TP-06**	**TP06_0.0-0.15_241127**	**0 - 0.15**	**27 Nov 2024**	**EM2421131**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Smelter Support Yard	**TP-06**	**TP06_1.0-1.1_241127**	**1 - 1.1**	**27 Nov 2024**	**EM2421131**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Smelter Support Yard	**TP-27**	**QC104_241129_1.00-1.10**	**1 - 1.1**	**29 Nov 2024**	**EM2421125**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Smelter Support Yard	**TP-27**	**QC204_241129_1.00-1.10**	**1 - 1.1**	**29 Nov 2024**	**MFL0167**	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	-	<0.10	<0.10	<0.10	<0.10	<0.10	-	<0.10	<0.10
Smelter Support Yard	**TP-27**	**TP27_0.40-0.50_241129**	**0.4 - 0.5**	**29 Nov 2024**	**EM2421125**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Smelter Support Yard	**TP-27**	**TP27_1.0-1.1_241129**	**1 - 1.1**	**29 Nov 2024**	**EM2421125**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

												Organochlorine Pesticides								
												DDT	DDT+DDE+DDD	Dieldrin	Endosulfan	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	
												mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	
EQL												0.1	0.05	0.05	0.05	0.05	0.05	0.05	0.05	
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil													3,600		2,000				100	
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Clay																				
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand																				
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Silt																				
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind												640								
NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Coarse Soil																				
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil																				
Monitoring Zone	**Location Code**	**Field ID**	**Depth**	**Date**	**Lab Report Number**															
BHP general operations and r	**TP-02**	**TP02_0.0-0.15_241128**	**0 - 0.15**	**28 Nov 2024**	**EM2421125**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BHP general operations and r	**TP-02**	**TP02_2.0-2.1_241128**	**2 - 2.1**	**28 Nov 2024**	**EM2421125**	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05							
BHP general operations and r	**TP-03**	**TP03_1.0-1.1_241128**	**1 - 1.1**	**28 Nov 2024**	**EM2421125**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BHP general operations and r	**TP-03**	**TP03_2.0-2.1_241128**	**2 - 2.1**	**28 Nov 2024**	**EM2421125**	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05							
Sand Lease	**TP-05**	**QC101_241127**	**1 - 1.1**	**27 Nov 2024**	**EM2421131**	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05							
Sand Lease	**TP-05**	**QC201_241127_1.00-1.10**	**1 - 1.1**	**27 Nov 2024**	**MFL0079**	<0.10	<0.10	<0.10	-	<0.10	<0.10	<0.10	<0.10							
Sand Lease	**TP-05**	**TP05_0.0-0.15_241127**	**0 - 0.15**	**27 Nov 2024**	**EM2421131**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Sand Lease	**TP-05**	**TP05_1.0-1.1_241127**	**1 - 1.1**	**27 Nov 2024**	**EM2421131**	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05							
Sand Lease	**TP-07**	**TP07_0.0-0.15_241125**	**0 - 0.15**	**25 Nov 2024**	**EM2421130**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Sand Lease	**TP-07**	**TP07_1.0-1.1_241125**	**1 - 1.1**	**25 Nov 2024**	**EM2421130**	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05							
Sand Lease	**TP-08**	**TP08_0.0-0.15_241126**	**0 - 0.15**	**26 Nov 2024**	**EM2421130**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Sand Lease	**TP-08**	**TP08_1.0-1.2_241126**	**1 - 1.2**	**26 Nov 2024**	**EM2421130**	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05							
Sand Lease	**TP-09**	**TP09_0.0-0.15_241126**	**0 - 0.15**	**25 Nov 2024**	**EM2421130**	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05							
Sand Lease	**TP-09**	**TP09_0.4-0.5_241125**	**0.4 - 0.5**	**25 Nov 2024**	**EM2421130**	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05							
Sand Lease	**TP-09**	**TP09_1.0-1.1_241125**	**1 - 1.1**	**25 Nov 2024**	**EM2421130**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Sand Lease	**TP-09**	**TP09_2.0-2.1_241125**	**2 - 2.1**	**25 Nov 2024**	**EM2421130**	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05							
Sand Lease	**TP-10**	**TP10_0.4-0.5_241126**	**0.4 - 0.5**	**26 Nov 2024**	**EM2421130**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Sand Lease	**TP-10**	**TP10_1.0-1.3-241126**	**1 - 1.3**	**26 Nov 2024**	**EM2421130**	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05							
Sand Lease	**TP-11**	**TP11_0.4-0.5_241127**	**0.4 - 0.5**	**27 Nov 2024**	**EM2421131**	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05							
Sand Lease	**TP-11**	**TP11_1.0-1.1_241127**	**1 - 1.1**	**27 Nov 2024**	**EM2421131**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Sand Lease	**TP-13**	**TP13_0.0-0.15_241126**	**0 - 0.15**	**26 Nov 2024**	**EM2421130**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Sand Lease	**TP-13**	**TP13_0.8-0.9_241126**	**0.8 - 0.9**	**26 Nov 2024**	**EM2421130**	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05							
Sand Lease	**TP-14**	**TP14_0.0-0.15_241128**	**0 - 0.15**	**28 Nov 2024**	**EM2421125**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Sand Lease	**TP-14**	**TP14_2.0-2.1_241128**	**2 - 2.1**	**28 Nov 2024**	**EM2421125**	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05							
Sand Lease	**TP-15**	**QC102_241129_0.00-0.15**	**0 - 0.15**	**29 Nov 2024**	**EM2421125**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Sand Lease	**TP-15**	**QC202_241129_0.00-0.15**	**0 - 0.15**	**29 Nov 2024**	**MFL0167**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Sand Lease	**TP-15**	**TP15_0.0-0.15_241129**	**0 - 0.15**	**29 Nov 2024**	**EM2421125**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Sand Lease	**TP-15**	**TP15_2.0-2.1_241129**	**2 - 2.1**	**29 Nov 2024**	**EM2421125**	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05							
Sand Lease	**TP-16**	**TP16_0.0-0.15_241126**	**0 - 0.15**	**26 Nov 2024**	**EM2421130**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Sand Lease	**TP-16**	**TP16_0.4-0.5_241126**	**0.4 - 0.5**	**26 Nov 2024**	**EM2421130**	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05							
Sand Lease	**TP-17**	**TP17_0.4-0.5_241126**	**0.4 - 0.5**	**26 Nov 2024**	**EM2421130**	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05							
Sand Lease	**TP-17**	**TP17_2.0_2.1_241126**	**2**	**26 Nov 2024**	**EM2421130**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Sand Lease	**TP-29**	**TP29_0.0-0.15_241128**	**0 - 0.15**	**28 Nov 2024**	**EM2421125**	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05							
Sand Lease	**TP-29**	**TP29_2.0-2.3_241128**	**2 - 2.3**	**28 Nov 2024**	**EM2421125**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Smelter Slag Bay Tipping	**TP-26**	**TP26_0.0-0.15_241127**	**0 - 0.15**	**27 Nov 2024**	**EM2421131**	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05							
Smelter Slag Bay Tipping	**TP-26**	**TP26_1.0-1.1_241127**	**1 - 1.1**	**27 Nov 2024**	**EM2421131**	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05							
Smelter Slag Bay Tipping	**TP-28**	**TP28_0.0-0.1_241128**	**0 - 0.1**	**28 Nov 2024**	**EM2421125**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Smelter Slag Bay Tipping	**TP-28**	**TP28_0.4-0.5_241128**	**0.4 - 0.5**	**28 Nov 2024**	**EM2421125**	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05							
Smelter Support Yard	**TP-04**	**QC103_241129**	**1.4**	**29 Nov 2024**	**EM2421125**	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05							
Smelter Support Yard	**TP-04**	**QC203_241129_1.30_1.40**	**1.3 - 1.4**	**29 Nov 2024**	**MFL0167**	<0.10	<0.10	<0.10	-	<0.10	<0.10	<0.10	<0.10							
Smelter Support Yard	**TP-04**	**TP04_0.4-0.5_241129**	**0.4 - 0.5**	**29 Nov 2024**	**EM2421125**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Smelter Support Yard	**TP-04**	**TP04_1.4_241129**	**1.4**	**29 Nov 2024**	**EM2421125**	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05							
Smelter Support Yard	**TP-06**	**TP06_0.0-0.15_241127**	**0 - 0.15**	**27 Nov 2024**	**EM2421131**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Smelter Support Yard	**TP-06**	**TP06_1.0-1.1_241127**	**1 - 1.1**	**27 Nov 2024**	**EM2421131**	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05							
Smelter Support Yard	**TP-27**	**QC104_241129_1.00-1.10**	**1 - 1.1**	**29 Nov 2024**	**EM2421125**	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05							
Smelter Support Yard	**TP-27**	**QC204_241129_1.00-1.10**	**1 - 1.1**	**29 Nov 2024**	**MFL0167**	<0.10	<0.10	<0.10	-	<0.10	<0.10	<0.10	<0.10							
Smelter Support Yard	**TP-27**	**TP27_0.40-0.50_241129**	**0.4 - 0.5**	**29 Nov 2024**	**EM2421125**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Smelter Support Yard	**TP-27**	**TP27_1.0-1.1_241129**	**1 - 1.1**	**29 Nov 2024**	**EM2421125**	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05							

Environmental Standards
2013, NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil
2013, NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Clay
2013, NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand
2013, NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Silt
2013, NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Coarse Soil
NEPM, NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil

												Pesticides						Herbicides			
							Endrin aldehyde	Endrin ketone	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Methoxychlor	Bifenthrin	Demeton-S-methyl	Fenamiphos	Mirex	Parathion	Pirimphos-ethyl	Atrazine	3&4-Methylphenol (m&p-cresol)	2,3,5,6-Tetrachlorophenol	2,4,5-Trichlorophenol
							mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL							0.05	0.05	0.05	0.05	0.05	0.1	0.05	0.05	0.05	0.1	0.2	0.05	0.05	0.4	0.2	0.2
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil										50		2,500	4,500			100			2,500			
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Clay																						
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand																						
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Silt																						
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind																						
NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Coarse Soil																						
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil																						
Monitoring Zone	**Location Code**	**Field ID**	**Depth**	**Date**	**Lab Report Number**																	
BHP general operations and r	**TP-02**	**TP02_0.0-0.15_241128**	**0 - 0.15**	**28 Nov 2024**	**EM2421125**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BHP general operations and r	**TP-02**	**TP02_2.0-2.1_241128**	**2 - 2.1**	**28 Nov 2024**	**EM2421125**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.20	<0.2	<0.05	<0.05	<1	-	<0.5
BHP general operations and r	**TP-03**	**TP03_1.0-1.1_241128**	**1 - 1.1**	**28 Nov 2024**	**EM2421125**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BHP general operations and r	**TP-03**	**TP03_2.0-2.1_241128**	**2 - 2.1**	**28 Nov 2024**	**EM2421125**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.20	<0.2	<0.05	<0.05	<1	-	<0.5
Sand Lease	**TP-05**	**QC101_241127**	**1 - 1.1**	**27 Nov 2024**	**EM2421131**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.20	<0.2	<0.05	<0.05	<1	-	<0.5
Sand Lease	**TP-05**	**QC201_241127_1.00-1.10**	**1 - 1.1**	**27 Nov 2024**	**MFL0079**	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.50	-	-	<0.10	-	-	<0.50	<0.40	<0.20	<0.20
Sand Lease	**TP-05**	**TP05_0.0-0.15_241127**	**0 - 0.15**	**27 Nov 2024**	**EM2421131**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sand Lease	**TP-05**	**TP05_1.0-1.1_241127**	**1 - 1.1**	**27 Nov 2024**	**EM2421131**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.20	<0.2	<0.05	<0.05	<1	-	<0.5
Sand Lease	**TP-07**	**TP07_0.0-0.15_241125**	**0 - 0.15**	**25 Nov 2024**	**EM2421130**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sand Lease	**TP-07**	**TP07_1.0-1.1_241125**	**1 - 1.1**	**25 Nov 2024**	**EM2421130**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.20	<0.2	<0.05	<0.05	<1	-	<0.5
Sand Lease	**TP-08**	**TP08_0.0-0.15_241126**	**0 - 0.15**	**26 Nov 2024**	**EM2421130**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sand Lease	**TP-08**	**TP08_1.0-1.2_241126**	**1 - 1.2**	**26 Nov 2024**	**EM2421130**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.20	<0.2	<0.05	<0.05	<1	-	<0.5
Sand Lease	**TP-09**	**TP09_0.0-0.15_241126**	**0 - 0.15**	**25 Nov 2024**	**EM2421130**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.20	<0.2	<0.05	<0.05	<1	-	<0.5
Sand Lease	**TP-09**	**TP09_0.4-0.5_241125**	**0.4 - 0.5**	**25 Nov 2024**	**EM2421130**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.20	<0.2	<0.05	<0.05	<1	-	<0.5
Sand Lease	**TP-09**	**TP09_1.0-1.1_241125**	**1 - 1.1**	**25 Nov 2024**	**EM2421130**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sand Lease	**TP-09**	**TP09_2.0-2.1_241125**	**2 - 2.1**	**25 Nov 2024**	**EM2421130**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.20	<0.2	<0.05	<0.05	<1	-	<0.5
Sand Lease	**TP-10**	**TP10_0.4-0.5_241126**	**0.4 - 0.5**	**26 Nov 2024**	**EM2421130**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sand Lease	**TP-10**	**TP10_1.0-1.3-241126**	**1 - 1.3**	**26 Nov 2024**	**EM2421130**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.20	<0.2	<0.05	<0.05	<1	-	<0.5
Sand Lease	**TP-11**	**TP11_0.4-0.5_241127**	**0.4 - 0.5**	**27 Nov 2024**	**EM2421131**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.20	<0.2	<0.05	<0.05	<1	-	<0.5
Sand Lease	**TP-11**	**TP11_1.0-1.1_241127**	**1 - 1.1**	**27 Nov 2024**	**EM2421131**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sand Lease	**TP-13**	**TP13_0.0-0.15_241126**	**0 - 0.15**	**26 Nov 2024**	**EM2421130**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sand Lease	**TP-13**	**TP13_0.8-0.9_241126**	**0.8 - 0.9**	**26 Nov 2024**	**EM2421130**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.20	<0.2	<0.05	<0.05	<1	-	<0.5
Sand Lease	**TP-14**	**TP14_0.0-0.15_241128**	**0 - 0.15**	**28 Nov 2024**	**EM2421125**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sand Lease	**TP-14**	**TP14_2.0-2.1_241128**	**2 - 2.1**	**28 Nov 2024**	**EM2421125**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.20	<0.2	<0.05	<0.05	<1	-	<0.5
Sand Lease	**TP-15**	**QC102_241129_0.00-0.15**	**0 - 0.15**	**29 Nov 2024**	**EM2421125**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sand Lease	**TP-15**	**QC202_241129_0.00-0.15**	**0 - 0.15**	**29 Nov 2024**	**MFL0167**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sand Lease	**TP-15**	**TP15_0.0-0.15_241129**	**0 - 0.15**	**29 Nov 2024**	**EM2421125**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sand Lease	**TP-15**	**TP15_2.0-2.1_241129**	**2 - 2.1**	**29 Nov 2024**	**EM2421125**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.20	<0.2	<0.05	<0.05	<1	-	<0.5
Sand Lease	**TP-16**	**TP16_0.0-0.15_241126**	**0 - 0.15**	**26 Nov 2024**	**EM2421130**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sand Lease	**TP-16**	**TP16_0.4-0.5_241126**	**0.4 - 0.5**	**26 Nov 2024**	**EM2421130**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.20	<0.2	<0.05	<0.05	<1	-	<0.5
Sand Lease	**TP-17**	**TP17_0.4-0.5_241126**	**0.4 - 0.5**	**26 Nov 2024**	**EM2421130**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.20	<0.2	<0.05	<0.05	<1	-	<0.5
Sand Lease	**TP-17**	**TP17_2.0_2.1_241126**	**2**	**26 Nov 2024**	**EM2421130**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sand Lease	**TP-29**	**TP29_0.0-0.15_241128**	**0 - 0.15**	**28 Nov 2024**	**EM2421125**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.20	<0.2	<0.05	<0.05	<1	-	<0.5
Sand Lease	**TP-29**	**TP29_2.0-2.3_241128**	**2 - 2.3**	**28 Nov 2024**	**EM2421125**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Smelter Slag Bay Tipping	**TP-26**	**TP26_0.0-0.15_241127**	**0 - 0.15**	**27 Nov 2024**	**EM2421131**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.20	<0.2	<0.05	<0.05	<1	-	<0.5
Smelter Slag Bay Tipping	**TP-26**	**TP26_1.0-1.1_241127**	**1 - 1.1**	**27 Nov 2024**	**EM2421131**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.20	<0.2	<0.05	<0.05	<1	-	<0.5
Smelter Slag Bay Tipping	**TP-28**	**TP28_0.0-0.1_241128**	**0 - 0.1**	**28 Nov 2024**	**EM2421125**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Smelter Slag Bay Tipping	**TP-28**	**TP28_0.4-0.5_241128**	**0.4 - 0.5**	**28 Nov 2024**	**EM2421125**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.20	<0.2	<0.05	<0.05	<1	-	<0.5
Smelter Support Yard	**TP-04**	**QC103_241129**	**1.4**	**29 Nov 2024**	**EM2421125**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.20	<0.2	<0.05	<0.05	<1	-	<0.5
Smelter Support Yard	**TP-04**	**QC203_241129_1.30_1.40**	**1.3 - 1.4**	**29 Nov 2024**	**MFL0167**	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.50	-	-	<0.10	-	-	<0.50	<0.40	<0.20	<0.20
Smelter Support Yard	**TP-04**	**TP04_0.4-0.5_241129**	**0.4 - 0.5**	**29 Nov 2024**	**EM2421125**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Smelter Support Yard	**TP-04**	**TP04_1.4_241129**	**1.4**	**29 Nov 2024**	**EM2421125**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.20	<0.2	<0.05	<0.05	<1	-	<0.5
Smelter Support Yard	**TP-06**	**TP06_0.0-0.15_241127**	**0 - 0.15**	**27 Nov 2024**	**EM2421131**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Smelter Support Yard	**TP-06**	**TP06_1.0-1.1_241127**	**1 - 1.1**	**27 Nov 2024**	**EM2421131**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.20	<0.2	<0.05	<0.05	<1	-	<0.5
Smelter Support Yard	**TP-27**	**QC104_241129_1.00-1.10**	**1 - 1.1**	**29 Nov 2024**	**EM2421125**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.20	<0.2	<0.05	<0.05	<1	-	<0.5
Smelter Support Yard	**TP-27**	**QC204_241129_1.00-1.10**	**1 - 1.1**	**29 Nov 2024**	**MFL0167**	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.50	-	-	<0.10	-	-	<0.50	<0.40	<0.20	<0.20
Smelter Support Yard	**TP-27**	**TP27_0.40-0.50_241129**	**0.4 - 0.5**	**29 Nov 2024**	**EM2421125**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Smelter Support Yard	**TP-27**	**TP27_1.0-1.1_241129**	**1 - 1.1**	**29 Nov 2024**	**EM2421125**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.20	<0.2	<0.05	<0.05	<1	-	<0.5

Environmental Standards
2013, NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil
2013, NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Clay
2013, NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand
2013, NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Silt
2013, NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Coarse Soil
NEPM, NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil

							Phenols											
							2,4,6-Trichlorophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,4-Dinitrophenol	2,6-Dichlorophenol	2,3,4,5 & 2,3,4,6-Tetrachlorophenol	2-Chlorophenol	2-Methylphenol	2-Nitrophenol	4,6-Dinitro-2-methylphenol	4,6-Dinitro-o-cyclohexylphenol	4-chloro-3-methylphenol	4-Nitrophenol	Pentachlorophenol	Phenol	C6-C9 Fraction
							mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL							0.2	0.2	0.2	4	0.2	0.4	0.2	0.2	0.2	10	20	0.5	4	2	0.2	10
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil																				660	240,000	
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Clay																						
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand																						
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Silt																						
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind																						
NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Coarse Soil																						
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil																						
Monitoring Zone	**Location Code**	**Field ID**	**Depth**	**Date**	**Lab Report Number**																	
BHP general operations and r	TP-02	TP02_0.0-0.15_241128	0 - 0.15	28 Nov 2024	EM2421125	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10
BHP general operations and r	TP-02	TP02_2.0-2.1_241128	2 - 2.1	28 Nov 2024	EM2421125	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	-	-	<0.5	-	<2	<0.5	<10
BHP general operations and r	TP-03	TP03_1.0-1.1_241128	1 - 1.1	28 Nov 2024	EM2421125	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10
BHP general operations and r	TP-03	TP03_2.0-2.1_241128	2 - 2.1	28 Nov 2024	EM2421125	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	-	-	<0.5	-	<2	<0.5	<10
Sand Lease	TP-05	QC101_241127	1 - 1.1	27 Nov 2024	EM2421131	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	-	-	<0.5	-	<2	<0.5	<10
Sand Lease	TP-05	QC201_241127_1.00-1.10	1 - 1.1	27 Nov 2024	MFL0079	<0.20	<0.20	<0.20	<4.0	<0.20	<0.40	<0.20	<0.20	<0.20	<10	<20	<1.0	<4.0	<2.0	<0.20	<25
Sand Lease	TP-05	TP05_0.0-0.15_241127	0 - 0.15	27 Nov 2024	EM2421131	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10
Sand Lease	TP-05	TP05_1.0-1.1_241127	1 - 1.1	27 Nov 2024	EM2421131	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	-	-	<0.5	-	<2	<0.5	<10
Sand Lease	TP-07	TP07_0.0-0.15_241125	0 - 0.15	25 Nov 2024	EM2421130	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10
Sand Lease	TP-07	TP07_1.0-1.1_241125	1 - 1.1	25 Nov 2024	EM2421130	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	-	-	<0.5	-	<2	<0.5	<10
Sand Lease	TP-08	TP08_0.0-0.15_241126	0 - 0.15	26 Nov 2024	EM2421130	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10
Sand Lease	TP-08	TP08_1.0-1.2_241126	1 - 1.2	26 Nov 2024	EM2421130	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	-	-	<0.5	-	<2	<0.5	<10
Sand Lease	TP-09	TP09_0.0-0.15_241126	0 - 0.15	25 Nov 2024	EM2421130	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	-	-	<0.5	-	<2	<0.5	<10
Sand Lease	TP-09	TP09_0.4-0.5_241125	0.4 - 0.5	25 Nov 2024	EM2421130	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	-	-	<0.5	-	<2	<0.5	<10
Sand Lease	TP-09	TP09_1.0-1.1_241125	1 - 1.1	25 Nov 2024	EM2421130	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10
Sand Lease	TP-09	TP09_2.0-2.1_241125	2 - 2.1	25 Nov 2024	EM2421130	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	-	-	<0.5	-	<2	<0.5	<10
Sand Lease	TP-10	TP10_0.4-0.5_241126	0.4 - 0.5	26 Nov 2024	EM2421130	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10
Sand Lease	TP-10	TP10_1.0-1.3-241126	1 - 1.3	26 Nov 2024	EM2421130	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	-	-	<0.5	-	<2	<0.5	<10
Sand Lease	TP-11	TP11_0.4-0.5_241127	0.4 - 0.5	27 Nov 2024	EM2421131	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	-	-	<0.5	-	<2	<0.5	<10
Sand Lease	TP-11	TP11_1.0-1.1_241127	1 - 1.1	27 Nov 2024	EM2421131	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10
Sand Lease	TP-13	TP13_0.0-0.15_241126	0 - 0.15	26 Nov 2024	EM2421130	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10
Sand Lease	TP-13	TP13_0.8-0.9_241126	0.8 - 0.9	26 Nov 2024	EM2421130	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	-	-	<0.5	-	<2	<0.5	<10
Sand Lease	TP-14	TP14_0.0-0.15_241128	0 - 0.15	28 Nov 2024	EM2421125	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10
Sand Lease	TP-14	TP14_2.0-2.1_241128	2 - 2.1	28 Nov 2024	EM2421125	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	-	-	<0.5	-	<2	<0.5	<10
Sand Lease	TP-15	QC102_241129_0.00-0.15	0 - 0.15	29 Nov 2024	EM2421125	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10
Sand Lease	TP-15	QC202_241129_0.00-0.15	0 - 0.15	29 Nov 2024	MFL0167	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<25
Sand Lease	TP-15	TP15_0.0-0.15_241129	0 - 0.15	29 Nov 2024	EM2421125	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10
Sand Lease	TP-15	TP15_2.0-2.1_241129	2 - 2.1	29 Nov 2024	EM2421125	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	-	-	<0.5	-	<2	<0.5	<10
Sand Lease	TP-16	TP16_0.0-0.15_241126	0 - 0.15	26 Nov 2024	EM2421130	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10
Sand Lease	TP-16	TP16_0.4-0.5_241126	0.4 - 0.5	26 Nov 2024	EM2421130	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	-	-	<0.5	-	<2	<0.5	<10
Sand Lease	TP-17	TP17_0.4-0.5_241126	0.4 - 0.5	26 Nov 2024	EM2421130	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	-	-	<0.5	-	<2	<0.5	<10
Sand Lease	TP-17	TP17_2.0_2.1_241126	2	26 Nov 2024	EM2421130	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10
Sand Lease	TP-29	TP29_0.0-0.15_241128	0 - 0.15	28 Nov 2024	EM2421125	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	-	-	<0.5	-	<2	<0.5	<10
Sand Lease	TP-29	TP29_2.0-2.3_241128	2 - 2.3	28 Nov 2024	EM2421125	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10
Smelter Slag Bay Tipping	TP-26	TP26_0.0-0.15_241127	0 - 0.15	27 Nov 2024	EM2421131	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	-	-	<0.5	-	<2	<0.5	<10
Smelter Slag Bay Tipping	TP-26	TP26_1.0-1.1_241127	1 - 1.1	27 Nov 2024	EM2421131	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	-	-	<0.5	-	<2	<0.5	<10
Smelter Slag Bay Tipping	TP-28	TP28_0.0-0.1_241128	0 - 0.1	28 Nov 2024	EM2421125	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10
Smelter Slag Bay Tipping	TP-28	TP28_0.4-0.5_241128	0.4 - 0.5	28 Nov 2024	EM2421125	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	-	-	<0.5	-	<2	<0.5	<10
Smelter Support Yard	TP-04	QC103_241129	1.4	29 Nov 2024	EM2421125	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	-	-	<0.5	-	<2	<0.5	<10
Smelter Support Yard	TP-04	QC203_241129_1.30_1.40	1.3 - 1.4	29 Nov 2024	MFL0167	<0.20	<0.20	<0.20	<4.0	<0.20	<0.40	<0.20	<0.20	<0.20	<10	<20	<1.0	<4.0	<2.0	<0.20	<25
Smelter Support Yard	TP-04	TP04_0.4-0.5_241129	0.4 - 0.5	29 Nov 2024	EM2421125	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10
Smelter Support Yard	TP-04	TP04_1.4_241129	1.4	29 Nov 2024	EM2421125	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	-	-	<0.5	-	<2	<0.5	<10
Smelter Support Yard	TP-06	TP06_0.0-0.15_241127	0 - 0.15	27 Nov 2024	EM2421131	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10
Smelter Support Yard	TP-06	TP06_1.0-1.1_241127	1 - 1.1	27 Nov 2024	EM2421131	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	-	-	<0.5	-	<2	<0.5	<10
Smelter Support Yard	TP-27	QC104_241129_1.00-1.10	1 - 1.1	29 Nov 2024	EM2421125	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	-	-	<0.5	-	<2	<0.5	<10
Smelter Support Yard	TP-27	QC204_241129_1.00-1.10	1 - 1.1	29 Nov 2024	MFL0167	<0.20	<0.20	<0.20	<4.0	<0.20	<0.40	<0.20	<0.20	<0.20	<10	<20	<1.0	<4.0	<2.0	<0.20	<25
Smelter Support Yard	TP-27	TP27_0.40-0.50_241129	0.4 - 0.5	29 Nov 2024	EM2421125	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10
Smelter Support Yard	TP-27	TP27_1.0-1.1_241129	1 - 1.1	29 Nov 2024	EM2421125	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	-	-	<0.5	-	<2	<0.5	<10

Environmental Standards
2013, NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil
2013, NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Clay
2013, NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand
2013, NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Silt
2013, NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Coarse Soil
NEPM, NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil

							TPH				Halogenated Benzenes	Metals									Cyanides
							C10-C14 Fraction	C15-C28 Fraction	C29-C36 Fraction	C10-C36 Fraction (Sum)	Hexachlorobenzene	Arsenic	Cadmium	Chromium (hexavalent)	Chromium (III+VI)	Copper	Lead	Mercury	Nickel	Zinc	Cyanide (WAD)
							mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL							50	100	100	50	0.05	4	0.4	0.5	1	1	1	0.1	1	1	0.5
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil											80	3,000	900	3,600		240,000	1,500	730	6,000	400,000	
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Clay																					
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand																					
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Silt																					
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind												160									
NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Coarse Soil																					
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil																					
Monitoring Zone	**Location Code**	**Field ID**	**Depth**	**Date**	**Lab Report Number**																
BHP general operations and r	**TP-02**	**TP02_0.0-0.15_241128**	**0 - 0.15**	**28 Nov 2024**	**EM2421125**		<50	<100	<100	<50	-	<5	<1	-	5	434	7	<0.1	<2	10	-
BHP general operations and r	**TP-02**	**TP02_2.0-2.1_241128**	**2 - 2.1**	**28 Nov 2024**	**EM2421125**		<50	<100	<100	<50	<0.05	9	<1	<0.5	15	210	7	<0.1	8	26	<1
BHP general operations and r	**TP-03**	**TP03_1.0-1.1_241128**	**1 - 1.1**	**28 Nov 2024**	**EM2421125**		<50	<100	<100	<50	-	11	<1	-	14	92	5	<0.1	8	25	-
BHP general operations and r	**TP-03**	**TP03_2.0-2.1_241128**	**2 - 2.1**	**28 Nov 2024**	**EM2421125**		<50	<100	<100	<50	<0.05	17	<1	<0.5	12	14	6	<0.1	7	16	<1
Sand Lease	**TP-05**	**QC101_241127**	**1 - 1.1**	**27 Nov 2024**	**EM2421131**		<50	<100	<100	<50	<0.05	<5	<1	<0.5	13	12	<5	<0.1	7	19	<1
Sand Lease	**TP-05**	**QC201_241127_1.00-1.10**	**1 - 1.1**	**27 Nov 2024**	**MFL0079**		<50	<100	<100	<50	<0.10	6.4	<0.40	<1.0	16	15	5.8	<0.10	8.4	23	-
Sand Lease	**TP-05**	**TP05_0.0-0.15_241127**	**0 - 0.15**	**27 Nov 2024**	**EM2421131**		<50	<100	<100	<50	-	<5	<1	-	12	11	<5	<0.1	7	17	-
Sand Lease	**TP-05**	**TP05_1.0-1.1_241127**	**1 - 1.1**	**27 Nov 2024**	**EM2421131**		<50	<100	<100	<50	<0.05	<5	<1	<0.5	16	12	5	<0.1	9	24	<1
Sand Lease	**TP-07**	**TP07_0.0-0.15_241125**	**0 - 0.15**	**25 Nov 2024**	**EM2421130**		<50	<100	<100	<50	-	<5	<1	-	11	111	<5	<0.1	5	17	-
Sand Lease	**TP-07**	**TP07_1.0-1.1_241125**	**1 - 1.1**	**25 Nov 2024**	**EM2421130**		<50	<100	<100	<50	<0.05	<5	<1	<0.5	10	66	<5	<0.1	5	15	<1
Sand Lease	**TP-08**	**TP08_0.0-0.15_241126**	**0 - 0.15**	**26 Nov 2024**	**EM2421130**		<50	<100	<100	<50	-	<5	<1	-	10	15	<5	<0.1	6	19	-
Sand Lease	**TP-08**	**TP08_1.0-1.2_241126**	**1 - 1.2**	**26 Nov 2024**	**EM2421130**		<50	<100	<100	<50	<0.05	<5	<1	<0.5	10	14	<5	<0.1	6	17	<1
Sand Lease	**TP-09**	**TP09_0.0-0.15_241126**	**0 - 0.15**	**25 Nov 2024**	**EM2421130**		<50	<100	<100	<50	<0.05	<5	<1	<0.5	6	178	<5	<0.1	2	9	<1
Sand Lease	**TP-09**	**TP09_0.4-0.5_241125**	**0.4 - 0.5**	**25 Nov 2024**	**EM2421130**		<50	<100	<100	<50	<0.05	<5	<1	<0.5	9	21	<5	<0.1	4	12	<1
Sand Lease	**TP-09**	**TP09_1.0-1.1_241125**	**1 - 1.1**	**25 Nov 2024**	**EM2421130**		<50	<100	<100	<50	-	<5	<1	-	8	18	<5	<0.1	4	12	-
Sand Lease	**TP-09**	**TP09_2.0-2.1_241125**	**2 - 2.1**	**25 Nov 2024**	**EM2421130**		<50	<100	<100	<50	<0.05	<5	<1	<0.5	8	25	<5	<0.1	4	13	<1
Sand Lease	**TP-10**	**TP10_0.4-0.5_241126**	**0.4 - 0.5**	**26 Nov 2024**	**EM2421130**		<50	<100	<100	<50	-	<5	<1	-	9	78	<5	<0.1	6	17	-
Sand Lease	**TP-10**	**TP10_1.0-1.3-241126**	**1 - 1.3**	**26 Nov 2024**	**EM2421130**		<50	<100	<100	<50	<0.05	<5	<1	<0.5	6	21	<5	<0.1	6	14	<1
Sand Lease	**TP-11**	**TP11_0.4-0.5_241127**	**0.4 - 0.5**	**27 Nov 2024**	**EM2421131**		<50	<100	<100	<50	<0.05	<5	<1	<0.5	5	6	<5	<0.1	<2	<5	<1
Sand Lease	**TP-11**	**TP11_1.0-1.1_241127**	**1 - 1.1**	**27 Nov 2024**	**EM2421131**		<50	<100	<100	<50	-	<5	<1	-	5	76	<5	<0.1	<2	6	-
Sand Lease	**TP-13**	**TP13_0.0-0.15_241126**	**0 - 0.15**	**26 Nov 2024**	**EM2421130**		<50	<100	<100	<50	-	<5	<1	-	9	48	<5	<0.1	6	20	-
Sand Lease	**TP-13**	**TP13_0.8-0.9_241126**	**0.8 - 0.9**	**26 Nov 2024**	**EM2421130**		<50	<100	<100	<50	<0.05	<5	<1	<0.5	10	75	<5	<0.1	6	18	<1
Sand Lease	**TP-14**	**TP14_0.0-0.15_241128**	**0 - 0.15**	**28 Nov 2024**	**EM2421125**		<50	<100	<100	<50	-	<5	<1	-	7	89	5	<0.1	6	20	-
Sand Lease	**TP-14**	**TP14_2.0-2.1_241128**	**2 - 2.1**	**28 Nov 2024**	**EM2421125**		<50	<100	<100	<50	<0.05	<5	<1	<0.5	15	30	6	<0.1	8	27	<1
Sand Lease	**TP-15**	**QC102_241129_0.00-0.15**	**0 - 0.15**	**29 Nov 2024**	**EM2421125**		<50	<100	<100	<50	-	<5	<1	-	6	<5	<5	<0.1	<2	<5	-
Sand Lease	**TP-15**	**QC202_241129_0.00-0.15**	**0 - 0.15**	**29 Nov 2024**	**MFL0167**		<50	<100	<100	<50	-	<4.0	<0.40	-	5.2	2.5	2.0	<0.10	1.4	3.3	-
Sand Lease	**TP-15**	**TP15_0.0-0.15_241129**	**0 - 0.15**	**29 Nov 2024**	**EM2421125**		<50	<100	<100	<50	-	<5	<1	-	6	7	<5	<0.1	<2	<5	-
Sand Lease	**TP-15**	**TP15_2.0-2.1_241129**	**2 - 2.1**	**29 Nov 2024**	**EM2421125**		<50	<100	<100	<50	<0.05	<5	<1	<0.5	6	<5	<5	<0.1	<2	<5	<1
Sand Lease	**TP-16**	**TP16_0.0-0.15_241126**	**0 - 0.15**	**26 Nov 2024**	**EM2421130**		<50	<100	<100	<50	-	<5	<1	-	11	10	<5	<0.1	7	17	-
Sand Lease	**TP-16**	**TP16_0.4-0.5_241126**	**0.4 - 0.5**	**26 Nov 2024**	**EM2421130**		<50	<100	<100	<50	<0.05	<5	<1	<0.5	10	13	<5	<0.1	6	18	<1
Sand Lease	**TP-17**	**TP17_0.4-0.5_241126**	**0.4 - 0.5**	**26 Nov 2024**	**EM2421130**		<50	<100	<100	<50	<0.05	<5	<1	<0.5	5	37	<5	<0.1	<2	5	<1
Sand Lease	**TP-17**	**TP17_2.0_2.1_241126**	**2**	**26 Nov 2024**	**EM2421130**		<50	<100	<100	<50	-	<5	<1	-	6	13	<5	<0.1	<2	6	-
Sand Lease	**TP-29**	**TP29_0.0-0.15_241128**	**0 - 0.15**	**28 Nov 2024**	**EM2421125**		<50	<100	<100	<50	<0.05	<5	<1	<0.5	6	334	<5	<0.1	2	16	<1
Sand Lease	**TP-29**	**TP29_2.0-2.3_241128**	**2 - 2.3**	**28 Nov 2024**	**EM2421125**		<50	<100	<100	<50	-	<5	<1	-	6	<5	<5	<0.1	2	5	-
Smelter Slag Bay Tipping	**TP-26**	**TP26_0.0-0.15_241127**	**0 - 0.15**	**27 Nov 2024**	**EM2421131**		<50	<100	<100	<50	<0.05	<5	<1	<0.5	9	3,750	10	<0.1	5	21	<1
Smelter Slag Bay Tipping	**TP-26**	**TP26_1.0-1.1_241127**	**1 - 1.1**	**27 Nov 2024**	**EM2421131**		<50	<100	<100	<50	<0.05	17	<1	<0.5	12	90	6	<0.1	7	24	<1
Smelter Slag Bay Tipping	**TP-28**	**TP28_0.0-0.1_241128**	**0 - 0.1**	**28 Nov 2024**	**EM2421125**		<50	<100	<100	<50	-	11	<1	-	9	10,200	18	<0.1	6	25	-
Smelter Slag Bay Tipping	**TP-28**	**TP28_0.4-0.5_241128**	**0.4 - 0.5**	**28 Nov 2024**	**EM2421125**		<50	<100	<100	<50	<0.05	12	<1	<0.5	8	330	6	<0.1	4	12	<1
Smelter Support Yard	**TP-04**	**QC103_241129**	**1.4**	**29 Nov 2024**	**EM2421125**		<50	<100	<100	<50	<0.05	36	<1	<0.5	23	5,080	34	<0.1	13	15	<1
Smelter Support Yard	**TP-04**	**QC203_241129_1.30_1.40**	**1.3 - 1.4**	**29 Nov 2024**	**MFL0167**		<50	<100	<100	<50	<0.10	54	<0.40	<1.0	28	13,000	35	<0.10	17	24	<0.50
Smelter Support Yard	**TP-04**	**TP04_0.4-0.5_241129**	**0.4 - 0.5**	**29 Nov 2024**	**EM2421125**		<50	<100	<100	<50	-	10	<1	-	11	5,760	9	<0.1	6	16	-
Smelter Support Yard	**TP-04**	**TP04_1.4_241129**	**1.4**	**29 Nov 2024**	**EM2421125**		<50	<100	<100	<50	<0.05	54	<1	<0.5	24	6,050	31	<0.1	26	20	<1
Smelter Support Yard	**TP-06**	**TP06_0.0-0.15_241127**	**0 - 0.15**	**27 Nov 2024**	**EM2421131**		<50	<100	<100	<50	-	<5	<1	-	7	1,020	5	<0.1	5	19	-
Smelter Support Yard	**TP-06**	**TP06_1.0-1.1_241127**	**1 - 1.1**	**27 Nov 2024**	**EM2421131**		<50	<100	<100	<50	<0.05	13	<1	<0.5	6	862	22	<0.1	5	18	<1
Smelter Support Yard	**TP-27**	**QC104_241129_1.00-1.10**	**1 - 1.1**	**29 Nov 2024**	**EM2421125**		<50	<100	<100	<50	<0.05	<5	<1	<0.5	6	932	<5	<0.1	5	19	<1
Smelter Support Yard	**TP-27**	**QC204_241129_1.00-1.10**	**1 - 1.1**	**29 Nov 2024**	**MFL0167**		<50	<100	<100	<50	<0.10	<4.0	<0.40	<1.0	4.4	590	3.5	<0.10	4.6	12	<0.50
Smelter Support Yard	**TP-27**	**TP27_0.40-0.50_241129**	**0.4 - 0.5**	**29 Nov 2024**	**EM2421125**		<50	<100	<100	<50	-	14	<1	-	12	1,800	8	<0.1	7	27	-
Smelter Support Yard	**TP-27**	**TP27_1.0-1.1_241129**	**1 - 1.1**	**29 Nov 2024**	**EM2421125**		<50	<100	<100	<50	<0.05	6	<1	<0.5	8	631	<5	<0.1	6	19	<1

Environmental Standards
2013, NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil
2013, NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Clay
2013, NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand
2013, NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Silt
2013, NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Coarse Soil
NEPM, NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil

												Inorganics								
												pH (Lab)	Moisture Content	Electrical Conductivity (Lab)	Chloride	Exchangeable Calcium Percent	Exchangeable Magnesium Percent	Exchangeable Potassium Percent	Exchangeable Sodium Percent	Calcium/Magnesium Ratio
												-	%	µS/cm	mg/kg	%	%	%	%	-
EQL												0.1	0.1	1	10	0.2	0.2	0.2	0.2	0.2
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil																				
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Clay																				
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand																				
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Silt																				
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind																				
NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Coarse Soil																				
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil																				
Monitoring Zone	**Location Code**	**Field ID**	**Depth**	**Date**	**Lab Report Number**															
BHP general operations and roads	**TP-02**	**TP02_0.4-0.5_241128**	**0.4 - 0.5**	**28 Nov 2024**	**EM2421125**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BHP general operations and roads	**TP-03**	**TP03_1.0-1.1_241128**	**1 - 1.1**	**28 Nov 2024**	**EM2421125**	-	11.8	-	-	-	-	-	-	-	-	-	-	-	-	-
Sand Lease	**TP-05**	**TP05_1.0-1.1_241127**	**1 - 1.1**	**27 Nov 2024**	**EM2421131**	9.1	8.9	1,450	2,000	34.4	25.8	4	35.8	1.3	6.4	5.2	3.9	0.6	5.4	15
Sand Lease	**TP-05**	**TP05_2.0-2.1_241127**	**2 - 2.1**	**27 Nov 2024**	**EM2421131**	9.0	8.4	1,800	2,120	34.4	24.9	3.4	37.2	1.4	7.2	5.4	3.9	0.5	5.8	15.6
Sand Lease	**TP-07**	**TP07_0.4-0.5_241125**	**0.4 - 0.5**	**25 Nov 2024**	**EM2421130**	8.8	6.7	316	280	67.7	18.3	7.8	6.2	3.7	2.3	5.7	1.5	0.7	0.5	8.4
Sand Lease	**TP-07**	**TP07_1.0-1.1_241125**	**1 - 1.1**	**25 Nov 2024**	**EM2421130**	8.8	6.2	419	460	67.1	20.4	6.2	6.3	3.3	3.3	5.9	1.8	0.6	0.6	8.8
Sand Lease	**TP-08**	**TP08_0.4-0.5_241126**	**0.4 - 0.5**	**26 Nov 2024**	**EM2421130**	8.6	7.2	1,700	3,000	65.1	20.2	2.1	12.6	3.2	9.7	6.6	2	0.2	1.3	10.1
Sand Lease	**TP-08**	**TP08_1.0-1.2_241126**	**1 - 1.2**	**26 Nov 2024**	**EM2421130**	9.0	15.4	939	1,450	54.5	19.8	2.9	22.7	2.7	6.8	5	1.8	0.3	2.1	9.1
Sand Lease	**TP-09**	**TP09_1.0-1.5_241125**	**1 - 1.5**	**25 Nov 2024**	**EM2421130**	9.0	6.1	180	160	72	18	5.1	4.8	4	3.5	4	1	0.3	0.3	5.6
Sand Lease	**TP-10**	**TP10_0.0-0.3_241126**	**0 - 0.3**	**26 Nov 2024**	**EM2421130**	8.8	10.3	283	170	68.2	17.9	8.4	5.6	3.8	2.1	5.6	1.5	0.7	0.4	8.2
Sand Lease	**TP-10**	**TP10_1.0-1.3-241126**	**1 - 1.3**	**26 Nov 2024**	**EM2421130**	8.8	6.5	1,140	1,610	60.9	23.2	3.8	12.1	2.6	6	4.6	1.7	0.3	0.9	7.5
Sand Lease	**TP-11**	**TP11_0.4-0.5_241127**	**0.4 - 0.5**	**27 Nov 2024**	**EM2421131**	8.4	3.9	52	70	86.1	<0.2	13.9	<0.2	<0.2	<0.2	1.3	<0.2	0.2	<0.2	1.5
Sand Lease	**TP-11**	**TP11_2.0-2.1_241127**	**2 - 2.1**	**27 Nov 2024**	**EM2421131**	9.3	2.5	111	70	57.2	17.8	5.1	19.8	3.2	<0.2	1.9	0.6	<0.2	0.7	3.4
Sand Lease	**TP-13**	**TP13_0.3-0.4_241126**	**0.3 - 0.4**	**26 Nov 2024**	**EM2421130**	8.6	11.4	314	120	71.6	11.9	13.6	2.9	6	0.9	6.6	1.1	1.3	0.3	9.2
Sand Lease	**TP-13**	**TP13_0.8-0.9_241126**	**0.8 - 0.9**	**26 Nov 2024**	**EM2421130**	8.7	8	515	520	63.7	19.5	13.7	3.1	3.3	1.4	6.1	1.8	1.3	0.3	9.5
Sand Lease	**TP-14**	**TP14_0.4-0.5_241128**	**0.4 - 0.5**	**28 Nov 2024**	**EM2421125**	8.4	6.4	4,980	6,080	60.6	19.9	2.4	17.1	3	8.2	5.8	1.9	0.2	1.6	9.6
Sand Lease	**TP-14**	**TP14_1.0-1.1_241128**	**1 - 1.1**	**28 Nov 2024**	**EM2421125**	8.8	8	1,220	1,620	26.1	16.4	7.4	50.2	1.6	2.2	1.7	1.1	0.5	3.3	6.6
Sand Lease	**TP-15**	**TP15_0.4-0.5_241129**	**0.4 - 0.5**	**29 Nov 2024**	**EM2421125**	6.9	4.2	33	30	65.4	24.7	9.8	<0.2	2.6	<0.2	1.2	0.4	<0.2	<0.2	1.8
Sand Lease	**TP-15**	**TP15_1.0-1.1_241129**	**1 - 1.1**	**29 Nov 2024**	**EM2421125**	8.6	3.1	13	<10	63	21.9	15	<0.2	2.9	1.4	1.3	0.4	0.3	<0.2	2.1
Sand Lease	**TP-16**	**TP16_0.4-0.5_241126**	**0.4 - 0.5**	**26 Nov 2024**	**EM2421130**	8.8	10.4	1,520	2,960	58.6	17.2	1.6	22.6	3.4	<0.2	4.9	1.4	<0.2	1.9	8.4
Sand Lease	**TP-16**	**TP16_1.0-1.1_241126**	**1 - 1.1**	**26 Nov 2024**	**EM2421130**	8.7	9.5	1,980	3,510	64.7	16.7	2.1	16.5	3.9	<0.2	5.3	1.4	<0.2	1.4	8.2
Sand Lease	**TP-17**	**TP17_0.4-0.5_241126**	**0.4 - 0.5**	**26 Nov 2024**	**EM2421130**	8.7	2.7	97	10	75.1	13.7	11.2	<0.2	5.5	1.2	2.4	0.4	0.4	<0.2	3.2
Sand Lease	**TP-17**	**TP17_1.0-1.1_241126**	**1 - 1.1**	**26 Nov 2024**	**EM2421130**	8.8	2.5	195	60	63.3	23.4	5.1	8.2	2.7	4.6	3	1.1	0.2	0.4	4.7
Sand Lease	**TP-29**	**TP29_0.4-0.5_241128**	**0.4 - 0.5**	**28 Nov 2024**	**EM2421125**	9.2	5	744	750	29	16.8	3	51.2	1.7	<0.2	1.5	0.9	<0.2	2.7	5.3
Sand Lease	**TP-29**	**TP29_1.0-1.1_241128**	**1 - 1.1**	**28 Nov 2024**	**EM2421125**	9.2	3.5	486	450	40.9	18.1	3.5	37.5	2.3	<0.2	1.9	0.8	<0.2	1.8	4.7
Smelter Slag Bay Tipping	**TP-28**	**TP28_0.4-0.5_241128**	**0.4 - 0.5**	**28 Nov 2024**	**EM2421125**	-	9.2	-	-	-	-	-	-	-	-	-	-	-	-	-
Smelter Support Yard	**TP-04**	**TP04_0.4-0.5_241129**	**0.4 - 0.5**	**29 Nov 2024**	**EM2421125**	8.2	9.1	4,940	5,450	60.5	9.4	1.9	28.2	6.4	5	8.7	1.4	0.3	4.1	14.4
Smelter Support Yard	**TP-04**	**TP04_1.0-1.1_241129**	**1 - 1.1**	**29 Nov 2024**	**EM2421125**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Smelter Support Yard	**TP-06**	**TP06_1.0-1.6_241127**	**1 - 1.6**	**27 Nov 2024**	**EM2421131**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Smelter Support Yard	**TP-27**	**TP27_1.0-1.1_241129**	**1 - 1.1**	**29 Nov 2024**	**EM2421125**	-	5.3	-	-	-	-	-	-	-	-	-	-	-	-	-

												Inorganics								
												Magnesium/Potassium Ratio	Exchangeable Calcium	Exchangeable Magnesium	Exchangeable Potassium	Exchangeable Sodium	Cation Exchange Capacity	Ammonia as N	Nitrate (as N)	
												-	meq/100g	meq/100g	meq/100g	meq/100g	meq/100g	mg/kg	mg/kg	
EQL												0.2	0.2	0.2	0.2	0.2	0.2	20	0.1	
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil																				
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Clay																				
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand																				
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Silt																				
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind																				
NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Coarse Soil																				
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil																				
Monitoring Zone	**Location Code**	**Field ID**	**Depth**	**Date**	**Lab Report Number**															
BHP general operations and roads	**TP-02**	**TP02_0.4-0.5_241128**	**0.4 - 0.5**	**28 Nov 2024**	**EM2421125**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BHP general operations and roads	**TP-03**	**TP03_1.0-1.1_241128**	**1 - 1.1**	**28 Nov 2024**	**EM2421125**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Sand Lease	**TP-05**	**TP05_1.0-1.1_241127**	**1 - 1.1**	**27 Nov 2024**	**EM2421131**	6.4	5.2	3.9	0.6	5.4	15	<20	0.5							
Sand Lease	**TP-05**	**TP05_2.0-2.1_241127**	**2 - 2.1**	**27 Nov 2024**	**EM2421131**	7.2	5.4	3.9	0.5	5.8	15.6	-	-							
Sand Lease	**TP-07**	**TP07_0.4-0.5_241125**	**0.4 - 0.5**	**25 Nov 2024**	**EM2421130**	2.3	5.7	1.5	0.7	0.5	8.4	<20	6.4							
Sand Lease	**TP-07**	**TP07_1.0-1.1_241125**	**1 - 1.1**	**25 Nov 2024**	**EM2421130**	3.3	5.9	1.8	0.6	0.6	8.8	-	-							
Sand Lease	**TP-08**	**TP08_0.4-0.5_241126**	**0.4 - 0.5**	**26 Nov 2024**	**EM2421130**	9.7	6.6	2	0.2	1.3	10.1	<20	9.4							
Sand Lease	**TP-08**	**TP08_1.0-1.2_241126**	**1 - 1.2**	**26 Nov 2024**	**EM2421130**	6.8	5	1.8	0.3	2.1	9.1	-	-							
Sand Lease	**TP-09**	**TP09_1.0-1.5_241125**	**1 - 1.5**	**25 Nov 2024**	**EM2421130**	3.5	4	1	0.3	0.3	5.6	<20	2.1							
Sand Lease	**TP-10**	**TP10_0.0-0.3_241126**	**0 - 0.3**	**26 Nov 2024**	**EM2421130**	2.1	5.6	1.5	0.7	0.4	8.2	<20	4.4							
Sand Lease	**TP-10**	**TP10_1.0-1.3-241126**	**1 - 1.3**	**26 Nov 2024**	**EM2421130**	6	4.6	1.7	0.3	0.9	7.5	-	-							
Sand Lease	**TP-11**	**TP11_0.4-0.5_241127**	**0.4 - 0.5**	**27 Nov 2024**	**EM2421131**	<0.2	1.3	<0.2	0.2	<0.2	1.5	<20	0.9							
Sand Lease	**TP-11**	**TP11_2.0-2.1_241127**	**2 - 2.1**	**27 Nov 2024**	**EM2421131**	<0.2	1.9	0.6	<0.2	0.7	3.4	-	-							
Sand Lease	**TP-13**	**TP13_0.3-0.4_241126**	**0.3 - 0.4**	**26 Nov 2024**	**EM2421130**	0.9	6.6	1.1	1.3	0.3	9.2	<20	9							
Sand Lease	**TP-13**	**TP13_0.8-0.9_241126**	**0.8 - 0.9**	**26 Nov 2024**	**EM2421130**	1.4	6.1	1.8	1.3	0.3	9.5	-	-							
Sand Lease	**TP-14**	**TP14_0.4-0.5_241128**	**0.4 - 0.5**	**28 Nov 2024**	**EM2421125**	8.2	5.8	1.9	0.2	1.6	9.6	<20	16.8							
Sand Lease	**TP-14**	**TP14_1.0-1.1_241128**	**1 - 1.1**	**28 Nov 2024**	**EM2421125**	2.2	1.7	1.1	0.5	3.3	6.6	-	-							
Sand Lease	**TP-15**	**TP15_0.4-0.5_241129**	**0.4 - 0.5**	**29 Nov 2024**	**EM2421125**	<0.2	1.2	0.4	<0.2	<0.2	1.8	<20	1.2							
Sand Lease	**TP-15**	**TP15_1.0-1.1_241129**	**1 - 1.1**	**29 Nov 2024**	**EM2421125**	1.4	1.3	0.4	0.3	<0.2	2.1	-	-							
Sand Lease	**TP-16**	**TP16_0.4-0.5_241126**	**0.4 - 0.5**	**26 Nov 2024**	**EM2421130**	<0.2	4.9	1.4	<0.2	1.9	8.4	<20	7.7							
Sand Lease	**TP-16**	**TP16_1.0-1.1_241126**	**1 - 1.1**	**26 Nov 2024**	**EM2421130**	<0.2	5.3	1.4	<0.2	1.4	8.2	-	-							
Sand Lease	**TP-17**	**TP17_0.4-0.5_241126**	**0.4 - 0.5**	**26 Nov 2024**	**EM2421130**	1.2	2.4	0.4	0.4	<0.2	3.2	<20	4.7							
Sand Lease	**TP-17**	**TP17_1.0-1.1_241126**	**1 - 1.1**	**26 Nov 2024**	**EM2421130**	4.6	3	1.1	0.2	0.4	4.7	-	-							
Sand Lease	**TP-29**	**TP29_0.4-0.5_241128**	**0.4 - 0.5**	**28 Nov 2024**	**EM2421125**	1.7	<0.2	1.5	0.9	<0.2	2.7	5.3	<20	0.4						
Sand Lease	**TP-29**	**TP29_1.0-1.1_241128**	**1 - 1.1**	**28 Nov 2024**	**EM2421125**	2.3	<0.2	1.9	0.8	<0.2	1.8	4.7	-	-						
Smelter Slag Bay Tipping	**TP-28**	**TP28_0.4-0.5_241128**	**0.4 - 0.5**	**28 Nov 2024**	**EM2421125**	-	-	-	-	-	-	-	-	-						
Smelter Support Yard	**TP-04**	**TP04_0.4-0.5_241129**	**0.4 - 0.5**	**29 Nov 2024**	**EM2421125**	5	8.7	1.4	0.3	4.1	14.4	-	-							
Smelter Support Yard	**TP-04**	**TP04_1.0-1.1_241129**	**1 - 1.1**	**29 Nov 2024**	**EM2421125**	-	-	-	-	-	-	-	-	-						
Smelter Support Yard	**TP-06**	**TP06_1.0-1.6_241127**	**1 - 1.6**	**27 Nov 2024**	**EM2421131**	-	-	-	-	-	-	-	-	-						
Smelter Support Yard	**TP-27**	**TP27_1.0-1.1_241129**	**1 - 1.1**	**29 Nov 2024**	**EM2421125**	-	-	-	-	-	-	-	-	-						

Environmental Standards
2013, NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil
2013, NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Clay
2013, NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand
2013, NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Silt
2013, NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Coarse Soil
NEPM, NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil

						Inorganics										Organic
						Nitrite (as N)	Nitrogen (Total Oxidised)	Nitrogen (Total)	Kjeldahl Nitrogen Total	Bicarbonate Ext. P (Colwell)	Total Phosphorus as P (Organic Phosphate as P)	Sulphate	Sulphur as S	Sodium	Texture	Color (Munsell)	Total Organic Carbon
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	-	-	%
EQL						0.1	0.1	20	20	5	2	50	100	50			0.5
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil																	
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Clay																	
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand																	
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Silt																	
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind																	
NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Coarse Soil																	
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil																	
Monitoring Zone	**Location Code**	**Field ID**	**Depth**	**Date**	**Lab Report Number**												
BHP general operations and roads	**TP-02**	**TP02_0.4-0.5_241128**	**0.4 - 0.5**	**28 Nov 2024**	**EM2421125**	-	-	-	-	-	-	-	-	-	-	-	-
BHP general operations and roads	**TP-03**	**TP03_1.0-1.1_241128**	**1 - 1.1**	**28 Nov 2024**	**EM2421125**	-	-	-	-	-	-	-	-	-	-	-	-
Sand Lease	**TP-05**	**TP05_1.0-1.1_241127**	**1 - 1.1**	**27 Nov 2024**	**EM2421131**	<0.1	0.5	150	150	<5	122	550	290	3,280	Sandy Clay Loam	Red (2.5YR 5/6)	<0.5
Sand Lease	**TP-05**	**TP05_2.0-2.1_241127**	**2 - 2.1**	**27 Nov 2024**	**EM2421131**	-	-	-	-	-	-	-	-	-	-	-	-
Sand Lease	**TP-07**	**TP07_0.4-0.5_241125**	**0.4 - 0.5**	**25 Nov 2024**	**EM2421130**	<0.1	6.4	260	250	<5	107	100	<100	410	Clayey Sand	Red (2.5YR 5/6)	<0.5
Sand Lease	**TP-07**	**TP07_1.0-1.1_241125**	**1 - 1.1**	**25 Nov 2024**	**EM2421130**	-	-	-	-	-	-	-	-	-	-	-	-
Sand Lease	**TP-08**	**TP08_0.4-0.5_241126**	**0.4 - 0.5**	**26 Nov 2024**	**EM2421130**	<0.1	9.4	320	310	<5	156	350	480	2,060	Sandy Loam	Light Reddish Brown (5YR 6/4)	<0.5
Sand Lease	**TP-08**	**TP08_1.0-1.2_241126**	**1 - 1.2**	**26 Nov 2024**	**EM2421130**	-	-	-	-	-	-	-	-	-	-	-	-
Sand Lease	**TP-09**	**TP09_1.0-1.5_241125**	**1 - 1.5**	**25 Nov 2024**	**EM2421130**	<0.1	2.1	170	170	<5	89	<50	200	260	Clayey Sand	Light Reddish Brown (5YR 6/4)	<0.5
Sand Lease	**TP-10**	**TP10_0.0-0.3_241126**	**0 - 0.3**	**26 Nov 2024**	**EM2421130**	<0.1	4.4	340	340	5	122	120	140	290	Clayey Sand	Red (2.5YR 5/8)	<0.5
Sand Lease	**TP-10**	**TP10_1.0-1.3-241126**	**1 - 1.3**	**26 Nov 2024**	**EM2421130**	-	-	-	-	-	-	-	-	-	-	-	-
Sand Lease	**TP-11**	**TP11_0.4-0.5_241127**	**0.4 - 0.5**	**27 Nov 2024**	**EM2421131**	<0.1	0.9	90	90	<5	45	<50	<100	<50	Sand	Red (2.5YR 4/8)	<0.5
Sand Lease	**TP-11**	**TP11_2.0-2.1_241127**	**2 - 2.1**	**27 Nov 2024**	**EM2421131**	-	-	-	-	-	-	-	-	-	-	-	-
Sand Lease	**TP-13**	**TP13_0.3-0.4_241126**	**0.3 - 0.4**	**26 Nov 2024**	**EM2421130**	<0.1	9	560	550	10	185	250	200	260	Clayey Sand	Red (2.5YR 5/6)	<0.5
Sand Lease	**TP-13**	**TP13_0.8-0.9_241126**	**0.8 - 0.9**	**26 Nov 2024**	**EM2421130**	-	-	-	-	-	-	-	-	-	-	-	-
Sand Lease	**TP-14**	**TP14_0.4-0.5_241128**	**0.4 - 0.5**	**28 Nov 2024**	**EM2421125**	<0.1	16.8	100	80	6	292	2,870	3,170	4,180	Sandy Clay Loam	Light Reddish Brown (5YR 6/4)	<0.5
Sand Lease	**TP-14**	**TP14_1.0-1.1_241128**	**1 - 1.1**	**28 Nov 2024**	**EM2421125**	-	-	-	-	-	-	-	-	-	-	-	-
Sand Lease	**TP-15**	**TP15_0.4-0.5_241129**	**0.4 - 0.5**	**29 Nov 2024**	**EM2421125**	<0.1	1.2	60	60	<5	36	<50	<100	<50	Loamy Sand	Reddish Brown (2.5YR 4/4)	<0.5
Sand Lease	**TP-15**	**TP15_1.0-1.1_241129**	**1 - 1.1**	**29 Nov 2024**	**EM2421125**	-	-	-	-	-	-	-	-	-	-	-	-
Sand Lease	**TP-16**	**TP16_0.4-0.5_241126**	**0.4 - 0.5**	**26 Nov 2024**	**EM2421130**	<0.1	7.7	260	250	<5	130	360	520	2,690	Sandy Clay Loam	Light Reddish Brown (5YR 6/4)	<0.5
Sand Lease	**TP-16**	**TP16_1.0-1.1_241126**	**1 - 1.1**	**26 Nov 2024**	**EM2421130**	-	-	-	-	-	-	-	-	-	-	-	-
Sand Lease	**TP-17**	**TP17_0.4-0.5_241126**	**0.4 - 0.5**	**26 Nov 2024**	**EM2421130**	<0.1	4.7	90	90	<5	49	60	<100	<50	Sand	Red (2.5YR 4/8)	<0.5
Sand Lease	**TP-17**	**TP17_1.0-1.1_241126**	**1 - 1.1**	**26 Nov 2024**	**EM2421130**	-	-	-	-	-	-	-	-	-	-	-	-
Sand Lease	**TP-29**	**TP29_0.4-0.5_241128**	**0.4 - 0.5**	**28 Nov 2024**	**EM2421125**	<0.1	0.4	40	40	<5	32	240	130	1,240	Loamy Sand	Red (2.5YR 5/6)	0.7
Sand Lease	**TP-29**	**TP29_1.0-1.1_241128**	**1 - 1.1**	**28 Nov 2024**	**EM2421125**	-	-	-	-	-	-	-	-	-	-	-	-
Smelter Slag Bay Tipping	**TP-28**	**TP28_0.4-0.5_241128**	**0.4 - 0.5**	**28 Nov 2024**	**EM2421125**	-	-	-	-	-	-	-	-	-	-	-	-
Smelter Support Yard	**TP-04**	**TP04_0.4-0.5_241129**	**0.4 - 0.5**	**29 Nov 2024**	**EM2421125**	-	-	-	-	-	-	-	-	-	-	-	-
Smelter Support Yard	**TP-04**	**TP04_1.0-1.1_241129**	**1 - 1.1**	**29 Nov 2024**	**EM2421125**	-	-	-	-	-	-	-	-	-	-	-	-
Smelter Support Yard	**TP-06**	**TP06_1.0-1.6_241127**	**1 - 1.6**	**27 Nov 2024**	**EM2421131**	-	-	-	-	-	-	-	-	-	-	-	-
Smelter Support Yard	**TP-27**	**TP27_1.0-1.1_241129**	**1 - 1.1**	**29 Nov 2024**	**EM2421125**	-	-	-	-	-	-	-	-	-	-	-	-

Environmental Standards
2013, NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil
2013, NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Clay
2013, NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand
2013, NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Silt
2013, NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Coarse Soil
NEPM, NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil

						Particulates	Metals							Particle Size								
						Organic Matter	Aluminium	Boron	Calcium	Iron	Magnesium	Manganese	Potassium	+1180µm	+150µm	+19.0mm	+2.36mm	+300µm	+37.5mm	+4.75mm	+425µm	+600µm	+75.0mm
						%	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	%	%	%	%	%	%	%	%	%	%
EQL						0.5	50	10	50	50	50	1	50	1	1	1	1	1	1	1	1	1
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil								300,000				60,000										
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Clay																						
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand																						
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Silt																						
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind																						
NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Coarse Soil																						
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil																						
Monitoring Zone	**Location Code**	**Field ID**	**Depth**	**Date**	**Lab Report Number**																	
BHP general operations and roads	**TP-02**	**TP02_0.4-0.5_241128**	**0.4 - 0.5**	**28 Nov 2024**	**EM2421125**	-	-	-	-	-	-	-	-	30	66	5	24	47	<1	16	39	35	<1
BHP general operations and roads	**TP-03**	**TP03_1.0-1.1_241128**	**1 - 1.1**	**28 Nov 2024**	**EM2421125**	-	-	-	-	-	-	-	-	51	67	15	49	58	<1	48	54	53	<1
Sand Lease	**TP-05**	**TP05_1.0-1.1_241127**	**1 - 1.1**	**27 Nov 2024**	**EM2421131**	<0.5	15,100	<50	13,000	19,300	4,840	125	3,120	25	66	6	25	40	<1	25	29	26	<1
Sand Lease	**TP-05**	**TP05_2.0-2.1_241127**	**2 - 2.1**	**27 Nov 2024**	**EM2421131**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sand Lease	**TP-07**	**TP07_0.4-0.5_241125**	**0.4 - 0.5**	**25 Nov 2024**	**EM2421130**	<0.5	7,950	<50	17,300	11,400	2,780	71	1,720	45	77	5	45	59	<1	43	52	47	<1
Sand Lease	**TP-07**	**TP07_1.0-1.1_241125**	**1 - 1.1**	**25 Nov 2024**	**EM2421130**	-	-	<50	-	-	-	64	-	-	-	-	-	-	-	-	-	-	-
Sand Lease	**TP-08**	**TP08_0.4-0.5_241126**	**0.4 - 0.5**	**26 Nov 2024**	**EM2421130**	<0.5	8,880	<50	113,000	10,300	4,300	59	1,510	49	71	9	47	58	<1	42	53	51	<1
Sand Lease	**TP-08**	**TP08_1.0-1.2_241126**	**1 - 1.2**	**26 Nov 2024**	**EM2421130**	-	-	<50	-	-	-	50	-	-	-	-	-	-	-	-	-	-	-
Sand Lease	**TP-09**	**TP09_1.0-1.5_241125**	**1 - 1.5**	**25 Nov 2024**	**EM2421130**	<0.5	5,320	<50	62,100	6,370	2,610	38	1,040	-	-	-	-	-	-	-	-	-	-
Sand Lease	**TP-10**	**TP10_0.0-0.3_241126**	**0 - 0.3**	**26 Nov 2024**	**EM2421130**	<0.5	8,070	<50	58,200	10,100	3,120	80	2,050	-	-	-	-	-	-	-	-	-	-
Sand Lease	**TP-10**	**TP10_1.0-1.3-241126**	**1 - 1.3**	**26 Nov 2024**	**EM2421130**	-	-	<50	-	-	-	31	-	59	80	6	55	66	<1	49	63	61	<1
Sand Lease	**TP-11**	**TP11_0.4-0.5_241127**	**0.4 - 0.5**	**27 Nov 2024**	**EM2421131**	<0.5	1,790	<50	480	4,510	300	20	440	<1	84	<1	<1	22	<1	<1	5	<1	<1
Sand Lease	**TP-11**	**TP11_2.0-2.1_241127**	**2 - 2.1**	**27 Nov 2024**	**EM2421131**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sand Lease	**TP-13**	**TP13_0.3-0.4_241126**	**0.3 - 0.4**	**26 Nov 2024**	**EM2421130**	<0.5	9,120	<50	74,200	9,980	3,550	66	2,480	57	82	<1	55	66	<1	49	61	59	<1
Sand Lease	**TP-13**	**TP13_0.8-0.9_241126**	**0.8 - 0.9**	**26 Nov 2024**	**EM2421130**	-	-	<50	-	-	-	58	-	-	-	-	-	-	-	-	-	-	-
Sand Lease	**TP-14**	**TP14_0.4-0.5_241128**	**0.4 - 0.5**	**28 Nov 2024**	**EM2421125**	<0.5	4,350	<50	96,100	8,410	46,900	268	1,100	38	64	5	32	51	<1	24	45	42	<1
Sand Lease	**TP-14**	**TP14_1.0-1.1_241128**	**1 - 1.1**	**28 Nov 2024**	**EM2421125**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sand Lease	**TP-15**	**TP15_0.4-0.5_241129**	**0.4 - 0.5**	**29 Nov 2024**	**EM2421125**	<0.5	2,080	<50	390	4,500	390	18	480	-	-	-	-	-	-	-	-	-	-
Sand Lease	**TP-15**	**TP15_1.0-1.1_241129**	**1 - 1.1**	**29 Nov 2024**	**EM2421125**	-	-	-	-	-	-	-	-	<1	80	<1	<1	33	<1	<1	13	4	<1
Sand Lease	**TP-16**	**TP16_0.4-0.5_241126**	**0.4 - 0.5**	**26 Nov 2024**	**EM2421130**	<0.5	8,780	<50	121,000	10,000	4,670	56	1,280	-	-	-	-	-	-	-	-	-	-
Sand Lease	**TP-16**	**TP16_1.0-1.1_241126**	**1 - 1.1**	**26 Nov 2024**	**EM2421130**	-	-	-	-	-	-	-	-	45	74	<1	40	57	<1	33	51	48	<1
Sand Lease	**TP-17**	**TP17_0.4-0.5_241126**	**0.4 - 0.5**	**26 Nov 2024**	**EM2421130**	<0.5	2,310	<50	790	5,260	500	28	630	-	-	-	-	-	-	-	-	-	-
Sand Lease	**TP-17**	**TP17_1.0-1.1_241126**	**1 - 1.1**	**26 Nov 2024**	**EM2421130**	-	-	-	-	-	-	-	-	<1	75	<1	<1	33	<1	<1	16	5	<1
Sand Lease	**TP-29**	**TP29_0.4-0.5_241128**	**0.4 - 0.5**	**28 Nov 2024**	**EM2421125**	1.1	3,600	<50	650	6,150	1,010	28	760	-	-	-	-	-	-	-	-	-	-
Sand Lease	**TP-29**	**TP29_1.0-1.1_241128**	**1 - 1.1**	**28 Nov 2024**	**EM2421125**	-	-	-	-	-	-	-	-	<1	82	<1	<1	30	<1	<1	10	1	<1
Smelter Slag Bay Tipping	**TP-28**	**TP28_0.4-0.5_241128**	**0.4 - 0.5**	**28 Nov 2024**	**EM2421125**	-	-	<50	-	-	-	56	-	30	55	12	28	39	<1	25	34	32	<1
Smelter Support Yard	**TP-04**	**TP04_0.4-0.5_241129**	**0.4 - 0.5**	**29 Nov 2024**	**EM2421125**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Smelter Support Yard	**TP-04**	**TP04_1.0-1.1_241129**	**1 - 1.1**	**29 Nov 2024**	**EM2421125**	-	-	-	-	-	-	-	-	10	40	6	9	20	<1	8	13	11	<1
Smelter Support Yard	**TP-06**	**TP06_1.0-1.6_241127**	**1 - 1.6**	**27 Nov 2024**	**EM2421131**	-	-	-	-	-	-	-	-	37	53	5	35	43	<1	32	41	39	<1
Smelter Support Yard	**TP-27**	**TP27_1.0-1.1_241129**	**1 - 1.1**	**29 Nov 2024**	**EM2421125**	-	-	<50	-	-	-	146	-	64	70	30	62	66	<1	59	65	65	<1

Environmental Standards
2013, NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil
2013, NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Clay
2013, NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand
2013, NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Silt
2013, NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Coarse Soil
NEPM, NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil

						Particle Size							
						+75µm	+9.5mm	Clay in soils <2um	Cobbles (>6cm)	Emerson Class Number	Gravel (>2mm)	Sand (0.06-2.00 mm)	Silt (2-60 µm)
						%	%	%	%	-	%	%	%
EQL						1	1	1	1		1	1	1
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil													
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Clay													
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand													
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Silt													
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind													
NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Coarse Soil													
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil													
Monitoring Zone	**Location Code**	**Field ID**	**Depth**	**Date**	**Lab Report Number**								
BHP general operations and roads	**TP-02**	**TP02_0.4-0.5_241128**	**0.4 - 0.5**	**28 Nov 2024**	**EM2421125**	75	11	11	<1	-	25	53	11
BHP general operations and roads	**TP-03**	**TP03_1.0-1.1_241128**	**1 - 1.1**	**28 Nov 2024**	**EM2421125**	72	44	16	<1	-	50	25	9
Sand Lease	**TP-05**	**TP05_1.0-1.1_241127**	**1 - 1.1**	**27 Nov 2024**	**EM2421131**	74	25	18	<1	2	25	52	5
Sand Lease	**TP-05**	**TP05_2.0-2.1_241127**	**2 - 2.1**	**27 Nov 2024**	**EM2421131**	-	-	-	-	-	-	-	-
Sand Lease	**TP-07**	**TP07_0.4-0.5_241125**	**0.4 - 0.5**	**25 Nov 2024**	**EM2421130**	88	38	3	<1	4	45	45	7
Sand Lease	**TP-07**	**TP07_1.0-1.1_241125**	**1 - 1.1**	**25 Nov 2024**	**EM2421130**	-	-	-	-	-	-	-	-
Sand Lease	**TP-08**	**TP08_0.4-0.5_241126**	**0.4 - 0.5**	**26 Nov 2024**	**EM2421130**	80	35	7	<1	4	47	36	10
Sand Lease	**TP-08**	**TP08_1.0-1.2_241126**	**1 - 1.2**	**26 Nov 2024**	**EM2421130**	-	-	-	-	-	-	-	-
Sand Lease	**TP-09**	**TP09_1.0-1.5_241125**	**1 - 1.5**	**25 Nov 2024**	**EM2421130**	-	-	-	-	4	-	-	-
Sand Lease	**TP-10**	**TP10_0.0-0.3_241126**	**0 - 0.3**	**26 Nov 2024**	**EM2421130**	-	-	-	-	7	-	-	-
Sand Lease	**TP-10**	**TP10_1.0-1.3-241126**	**1 - 1.3**	**26 Nov 2024**	**EM2421130**	88	39	5	<1	-	57	32	6
Sand Lease	**TP-11**	**TP11_0.4-0.5_241127**	**0.4 - 0.5**	**27 Nov 2024**	**EM2421131**	98	<1	2	<1	8	<1	98	<1
Sand Lease	**TP-11**	**TP11_2.0-2.1_241127**	**2 - 2.1**	**27 Nov 2024**	**EM2421131**	-	-	-	-	-	-	-	-
Sand Lease	**TP-13**	**TP13_0.3-0.4_241126**	**0.3 - 0.4**	**26 Nov 2024**	**EM2421130**	90	38	4	<1	7	56	35	5
Sand Lease	**TP-13**	**TP13_0.8-0.9_241126**	**0.8 - 0.9**	**26 Nov 2024**	**EM2421130**	-	-	-	-	-	-	-	-
Sand Lease	**TP-14**	**TP14_0.4-0.5_241128**	**0.4 - 0.5**	**28 Nov 2024**	**EM2421125**	71	18	16	<1	4	34	39	11
Sand Lease	**TP-14**	**TP14_1.0-1.1_241128**	**1 - 1.1**	**28 Nov 2024**	**EM2421125**	-	-	-	-	-	-	-	-
Sand Lease	**TP-15**	**TP15_0.4-0.5_241129**	**0.4 - 0.5**	**29 Nov 2024**	**EM2421125**	-	-	-	-	7	-	-	-
Sand Lease	**TP-15**	**TP15_1.0-1.1_241129**	**1 - 1.1**	**29 Nov 2024**	**EM2421125**	96	<1	3	<1	-	<1	97	<1
Sand Lease	**TP-16**	**TP16_0.4-0.5_241126**	**0.4 - 0.5**	**26 Nov 2024**	**EM2421130**	-	-	-	-	4	-	-	-
Sand Lease	**TP-16**	**TP16_1.0-1.1_241126**	**1 - 1.1**	**26 Nov 2024**	**EM2421130**	84	22	4	<1	-	41	45	10
Sand Lease	**TP-17**	**TP17_0.4-0.5_241126**	**0.4 - 0.5**	**26 Nov 2024**	**EM2421130**	-	-	-	-	8	-	-	-
Sand Lease	**TP-17**	**TP17_1.0-1.1_241126**	**1 - 1.1**	**26 Nov 2024**	**EM2421130**	94	<1	3	<1	-	<1	95	2
Sand Lease	**TP-29**	**TP29_0.4-0.5_241128**	**0.4 - 0.5**	**28 Nov 2024**	**EM2421125**	-	-	-	-	7	-	-	-
Sand Lease	**TP-29**	**TP29_1.0-1.1_241128**	**1 - 1.1**	**28 Nov 2024**	**EM2421125**	98	<1	2	<1	-	<1	97	1
Smelter Slag Bay Tipping	**TP-28**	**TP28_0.4-0.5_241128**	**0.4 - 0.5**	**28 Nov 2024**	**EM2421125**	64	23	22	<1	-	28	39	11
Smelter Support Yard	**TP-04**	**TP04_0.4-0.5_241129**	**0.4 - 0.5**	**29 Nov 2024**	**EM2421125**	-	-	-	-	-	-	-	-
Smelter Support Yard	**TP-04**	**TP04_1.0-1.1_241129**	**1 - 1.1**	**29 Nov 2024**	**EM2421125**	50	6	33	<1	-	9	46	12
Smelter Support Yard	**TP-06**	**TP06_1.0-1.6_241127**	**1 - 1.6**	**27 Nov 2024**	**EM2421131**	74	28	7	<1	-	36	45	12
Smelter Support Yard	**TP-27**	**TP27_1.0-1.1_241129**	**1 - 1.1**	**29 Nov 2024**	**EM2421125**	80	53	8	<1	-	63	18	11

Environmental Standards
2013, NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil
2013, NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Clay
2013, NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand
2013, NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Silt
2013, NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Coarse Soil
NEPM, NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil

						Acid Sulphate Soils				Acid Sulphate Soils - Acid Base Accounting				Acid Sulphate Soils - Acidity Trail					
						Reaction Rate	s-Net Acidity without ANCE	pH (CaCl2)	pH (KCl)	a-Net Acidity without ANCE	ANC Fineness Factor	Net Acidity (acidity units)	Net Acidity (sulfur units)	Titratable Actual Acidity (sulfur units)	Titratable Peroxide Acidity (sulfur units)	Titratable Sulfidic Acidity (sulfur units)	Titratable Actual Acidity	Titratable Peroxide Acidity	Titratable Sulfidic Acidity
						-	% S	-	-	moles H+/t	-	mole H+/t	%S	%S	%S	%S	mole H+/t	mole H+/t	mole H+/t
EQL						1	0.02	0.1	0.1	10	0.5	10	0.02	0.02	0.02	0.02	2	2	2
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil																			
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Clay																			
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand																			
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Silt																			
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind																			
NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Coarse Soil																			
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil																			
Monitoring Zone	**Location Code**	**Field ID**	**Depth**	**Date**	**Lab Report Number**														
BHP general operations and roads	**TP-02**	**TP02_0.4-0.5_241128**	**0.4 - 0.5**	**28 Nov 2024**	**EM2421125**	3	0.03	-	9.4	18	1.5	<10	<0.02	<0.02	-	-	<2	-	-
BHP general operations and roads	**TP-02**	**TP02_1.0-1.1_241128**	**1 - 1.1**	**28 Nov 2024**	**EM2421125**	2	<0.02	-	9.1	<10	1.5	<10	<0.02	<0.02	-	-	<2	-	-
BHP general operations and roads	**TP-03**	**TP03_0.4-0.5_241128**	**0.4 - 0.5**	**28 Nov 2024**	**EM2421125**	3	0.02	-	9.4	13	1.5	<10	<0.02	<0.02	-	-	<2	-	-
BHP general operations and roads	**TP-03**	**TP03_1.0-1.1_241128**	**1 - 1.1**	**28 Nov 2024**	**EM2421125**	3	<0.02	-	9.0	11	1.5	<10	<0.02	<0.02	-	-	<2	-	-
Sand Lease	**TP-05**	**TP05_1.0-1.1_241127**	**1 - 1.1**	**27 Nov 2024**	**EM2421131**	4	<0.02	8.6	8.7	<10	1.5	<10	<0.02	<0.02	-	-	<2	-	-
Sand Lease	**TP-05**	**TP05_2.0-2.1_241127**	**2 - 2.1**	**27 Nov 2024**	**EM2421131**	4	<0.02	8.6	8.7	<10	1.5	<10	<0.02	<0.02	-	-	<2	-	-
Sand Lease	**TP-07**	**TP07_0.4-0.5_241125**	**0.4 - 0.5**	**25 Nov 2024**	**EM2421130**	3	<0.02	8.3	9.0	<10	1.5	<10	<0.02	<0.02	-	-	<2	-	-
Sand Lease	**TP-07**	**TP07_1.0-1.1_241125**	**1 - 1.1**	**25 Nov 2024**	**EM2421130**	3	<0.02	8.3	9.1	<10	1.5	<10	<0.02	<0.02	-	-	<2	-	-
Sand Lease	**TP-08**	**TP08_0.4-0.5_241126**	**0.4 - 0.5**	**26 Nov 2024**	**EM2421130**	3	<0.02	7.8	9.1	<10	1.5	<10	<0.02	<0.02	-	-	<2	-	-
Sand Lease	**TP-08**	**TP08_1.0-1.2_241126**	**1 - 1.2**	**26 Nov 2024**	**EM2421130**	3	<0.02	7.9	9.1	<10	1.5	<10	<0.02	<0.02	-	-	<2	-	-
Sand Lease	**TP-09**	**TP09_1.0-1.5_241125**	**1 - 1.5**	**25 Nov 2024**	**EM2421130**	3	<0.02	8.4	9.2	<10	1.5	<10	<0.02	<0.02	-	-	<2	-	-
Sand Lease	**TP-10**	**TP10_0.0-0.3_241126**	**0 - 0.3**	**26 Nov 2024**	**EM2421130**	3	<0.02	7.8	9.2	<10	1.5	<10	<0.02	<0.02	-	-	<2	-	-
Sand Lease	**TP-10**	**TP10_1.0-1.3-241126**	**1 - 1.3**	**26 Nov 2024**	**EM2421130**	3	<0.02	7.9	9.2	10	1.5	<10	<0.02	<0.02	-	-	<2	-	-
Sand Lease	**TP-11**	**TP11_0.4-0.5_241127**	**0.4 - 0.5**	**27 Nov 2024**	**EM2421131**	2	<0.02	7.8	8.3	<10	1.5	<10	<0.02	<0.02	-	-	<2	-	-
Sand Lease	**TP-11**	**TP11_2.0-2.1_241127**	**2 - 2.1**	**27 Nov 2024**	**EM2421131**	2	<0.02	8.1	9.0	<10	1.5	<10	<0.02	<0.02	-	-	<2	-	-
Sand Lease	**TP-13**	**TP13_0.3-0.4_241126**	**0.3 - 0.4**	**26 Nov 2024**	**EM2421130**	3	<0.02	7.7	9.1	<10	1.5	<10	<0.02	<0.02	-	-	<2	-	-
Sand Lease	**TP-13**	**TP13_0.8-0.9_241126**	**0.8 - 0.9**	**26 Nov 2024**	**EM2421130**	3	<0.02	7.8	9.0	<10	1.5	<10	<0.02	<0.02	-	-	<2	-	-
Sand Lease	**TP-14**	**TP14_0.4-0.5_241128**	**0.4 - 0.5**	**28 Nov 2024**	**EM2421125**	3	<0.02	8.3	9.3	<10	1.5	<10	<0.02	<0.02	-	-	<2	-	-
Sand Lease	**TP-14**	**TP14_1.0-1.1_241128**	**1 - 1.1**	**28 Nov 2024**	**EM2421125**	2	<0.02	8.1	9.0	<10	1.5	<10	<0.02	<0.02	-	-	<2	-	-
Sand Lease	**TP-15**	**TP15_0.4-0.5_241129**	**0.4 - 0.5**	**29 Nov 2024**	**EM2421125**	2	<0.02	7.7	8.8	<10	1.5	<10	<0.02	<0.020	<0.020	<0.020	<2	<2	<2
Sand Lease	**TP-15**	**TP15_1.0-1.1_241129**	**1 - 1.1**	**29 Nov 2024**	**EM2421125**	2	<0.02	7.6	8.4	10	1.5	<10	<0.02	<0.020	<0.020	<0.020	<2	<2	<2
Sand Lease	**TP-16**	**TP16_0.4-0.5_241126**	**0.4 - 0.5**	**26 Nov 2024**	**EM2421130**	2	<0.02	7.8	9.1	<10	1.5	<10	<0.02	<0.02	-	-	<2	-	-
Sand Lease	**TP-16**	**TP16_1.0-1.1_241126**	**1 - 1.1**	**26 Nov 2024**	**EM2421130**	2	<0.02	7.8	9.1	<10	1.5	<10	<0.02	<0.02	-	-	<2	-	-
Sand Lease	**TP-17**	**TP17_0.4-0.5_241126**	**0.4 - 0.5**	**26 Nov 2024**	**EM2421130**	2	<0.02	7.6	9.2	<10	1.5	<10	<0.02	<0.02	-	-	<2	-	-
Sand Lease	**TP-17**	**TP17_1.0-1.1_241126**	**1 - 1.1**	**26 Nov 2024**	**EM2421130**	2	<0.02	7.6	9.2	<10	1.5	<10	<0.02	<0.02	-	-	<2	-	-
Sand Lease	**TP-29**	**TP29_0.4-0.5_241128**	**0.4 - 0.5**	**28 Nov 2024**	**EM2421125**	2	<0.02	8.0	8.3	<10	1.5	<10	<0.02	<0.02	-	-	<2	-	-
Sand Lease	**TP-29**	**TP29_1.0-1.1_241128**	**1 - 1.1**	**28 Nov 2024**	**EM2421125**	2	<0.02	8.0	8.1	10	1.5	<10	<0.02	<0.02	-	-	<2	-	-
Smelter Slag Bay Tipping	**TP-26**	**TP26_0.3-1.0_241127**	**0.3 - 1**	**27 Nov 2024**	**EM2421131**	4	<0.02	-	8.7	<10	1.5	<10	<0.02	<0.02	-	-	<2	-	-
Smelter Slag Bay Tipping	**TP-26**	**TP26_1.0-2.0_241127**	**1 - 2**	**27 Nov 2024**	**EM2421131**	3	<0.02	-	8.3	<10	1.5	<10	<0.02	<0.02	-	-	<2	-	-
Smelter Slag Bay Tipping	**TP-28**	**TP28_0.4-0.5_241128**	**0.4 - 0.5**	**28 Nov 2024**	**EM2421125**	3	<0.02	-	8.3	<10	1.5	<10	<0.02	<0.02	-	-	<2	-	-
Smelter Slag Bay Tipping	**TP-28**	**TP28_1.0-1.1_241128**	**1 - 1.1**	**28 Nov 2024**	**EM2421125**	3	<0.02	-	8.6	<10	1.5	<10	<0.02	<0.02	-	-	<2	-	-
Smelter Support Yard	**TP-04**	**TP04_0.4-0.5_241129**	**0.4 - 0.5**	**29 Nov 2024**	**EM2421125**	4	<0.02	8.2	8.6	12	1.5	<10	<0.02	<0.02	-	-	<2	-	-
Smelter Support Yard	**TP-04**	**TP04_1.0-1.1_241129**	**1 - 1.1**	**29 Nov 2024**	**EM2421125**	3	<0.02	-	8.6	<10	1.5	<10	<0.02	<0.02	-	-	<2	-	-
Smelter Support Yard	**TP-06**	**TP06_0.4-0.5_241127**	**0.4 - 0.5**	**27 Nov 2024**	**EM2421131**	3	<0.02	-	8.9	<10	1.5	<10	<0.02	<0.02	-	-	<2	-	-
Smelter Support Yard	**TP-06**	**TP06_1.0-1.6_241127**	**1 - 1.6**	**27 Nov 2024**	**EM2421131**	4	<0.02	-	8.7	<10	1.5	<10	<0.02	<0.02	-	-	<2	-	-
Smelter Support Yard	**TP-27**	**TP27_0.40-0.50_241129**	**0.4 - 0.5**	**29 Nov 2024**	**EM2421125**	3	<0.02	-	8.5	12	1.5	<10	<0.02	<0.02	-	-	<2	-	-
Smelter Support Yard	**TP-27**	**TP27_1.0-1.1_241129**	**1 - 1.1**	**29 Nov 2024**	**EM2421125**	3	<0.02	-	9.2	12	1.5	<10	<0.02	<0.02	-	-	<2	-	-

Environmental Standards
2013, NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil
2013, NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Clay
2013, NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand
2013, NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Silt
2013, NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Coarse Soil
NEPM, NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil

						Acid Sulphate Soils - ANC				Acid Sulphate Soils - Calcium Values					Acid Sulphate Soils - Excess ANC		Acid Sulphate Soils - Field		Acid Sulphate Soils - Liming Rate	
						Acid Neutralising Capacity (acidity units)	Acid Neutralising Capacity	Acid Neutralising Capacity (sulfur units)	Excess Acid Neutralising Capacity (sulfur units)	acidity - Acid Reacted Calcium	Acid Reacted Calcium	KCl Extractable Calcium	Calcium in Peroxide	sulfidic - Acid Reacted Calcium	Excess Acid Neutralising Capacity (acidity units)	Excess Acid Neutralising Capacity	pHF	pHFox	Liming Rate	Liming Rate excluding ANC
						mole H+/t	%CaCO3	%S	%S	mole H+/t	%	%	%	% S	mole H+/t	% CaCO3	-	-	kg CaCO3/t	kg CaCO3/t
EQL						10	0.01	0.01	0.02	10	0.02	0.02	0.02	0.02	10	0.02	0.1	0.1	1	1
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil																				
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Clay																				
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand																				
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Silt																				
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind																				
NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Coarse Soil																				
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil																				
Monitoring Zone	**Location Code**	**Field ID**	**Depth**	**Date**	**Lab Report Number**															
BHP general operations and roads	**TP-02**	**TP02_0.4-0.5_241128**	**0.4 - 0.5**	**28 Nov 2024**	**EM2421125**	11,300	56.5	18.1	-	-	-	-	-	-	-	-	8.8	9.9	<1	1
BHP general operations and roads	**TP-02**	**TP02_1.0-1.1_241128**	**1 - 1.1**	**28 Nov 2024**	**EM2421125**	2,560	12.8	4.11	-	-	-	-	-	-	-	-	9.1	7.0	<1	<1
BHP general operations and roads	**TP-03**	**TP03_0.4-0.5_241128**	**0.4 - 0.5**	**28 Nov 2024**	**EM2421125**	13,800	69.2	22.2	-	-	-	-	-	-	-	-	9.3	10.9	<1	<1
BHP general operations and roads	**TP-03**	**TP03_1.0-1.1_241128**	**1 - 1.1**	**28 Nov 2024**	**EM2421125**	6,840	34.2	11.0	-	-	-	-	-	-	-	-	8.6	9.9	<1	<1
Sand Lease	**TP-05**	**TP05_1.0-1.1_241127**	**1 - 1.1**	**27 Nov 2024**	**EM2421131**	712	3.56	1.14	-	-	-	-	-	-	-	-	9.2	9.6	<1	<1
Sand Lease	**TP-05**	**TP05_2.0-2.1_241127**	**2 - 2.1**	**27 Nov 2024**	**EM2421131**	1,150	5.74	1.84	-	-	-	-	-	-	-	-	9.0	10.0	<1	<1
Sand Lease	**TP-07**	**TP07_0.4-0.5_241125**	**0.4 - 0.5**	**25 Nov 2024**	**EM2421130**	2,270	11.4	3.64	-	-	-	-	-	-	-	-	8.9	7.1	<1	<1
Sand Lease	**TP-07**	**TP07_1.0-1.1_241125**	**1 - 1.1**	**25 Nov 2024**	**EM2421130**	6,270	31.4	10.0	-	-	-	-	-	-	-	-	9.2	7.1	<1	<1
Sand Lease	**TP-08**	**TP08_0.4-0.5_241126**	**0.4 - 0.5**	**26 Nov 2024**	**EM2421130**	5,460	27.3	8.76	-	-	-	-	-	-	-	-	8.9	7.4	<1	<1
Sand Lease	**TP-08**	**TP08_1.0-1.2_241126**	**1 - 1.2**	**26 Nov 2024**	**EM2421130**	5,840	29.2	9.35	-	-	-	-	-	-	-	-	8.8	7.3	<1	<1
Sand Lease	**TP-09**	**TP09_1.0-1.5_241125**	**1 - 1.5**	**25 Nov 2024**	**EM2421130**	4,380	21.9	7.03	-	-	-	-	-	-	-	-	9.2	6.9	<1	<1
Sand Lease	**TP-10**	**TP10_0.0-0.3_241126**	**0 - 0.3**	**26 Nov 2024**	**EM2421130**	6,610	33.1	10.6	-	-	-	-	-	-	-	-	9.0	6.9	<1	<1
Sand Lease	**TP-10**	**TP10_1.0-1.3-241126**	**1 - 1.3**	**26 Nov 2024**	**EM2421130**	5,370	26.9	8.61	-	-	-	-	-	-	-	-	9.0	7.0	<1	<1
Sand Lease	**TP-11**	**TP11_0.4-0.5_241127**	**0.4 - 0.5**	**27 Nov 2024**	**EM2421131**	107	0.54	0.17	-	-	-	-	-	-	-	-	8.5	5.2	<1	<1
Sand Lease	**TP-11**	**TP11_2.0-2.1_241127**	**2 - 2.1**	**27 Nov 2024**	**EM2421131**	139	0.69	0.22	-	-	-	-	-	-	-	-	9.6	5.6	<1	<1
Sand Lease	**TP-13**	**TP13_0.3-0.4_241126**	**0.3 - 0.4**	**26 Nov 2024**	**EM2421130**	6,970	34.9	11.2	-	-	-	-	-	-	-	-	9.0	6.8	<1	<1
Sand Lease	**TP-13**	**TP13_0.8-0.9_241126**	**0.8 - 0.9**	**26 Nov 2024**	**EM2421130**	7,060	35.3	11.3	-	-	-	-	-	-	-	-	8.8	7.0	<1	<1
Sand Lease	**TP-14**	**TP14_0.4-0.5_241128**	**0.4 - 0.5**	**28 Nov 2024**	**EM2421125**	9,160	45.8	14.7	-	-	-	-	-	-	-	-	8.6	9.2	<1	<1
Sand Lease	**TP-14**	**TP14_1.0-1.1_241128**	**1 - 1.1**	**28 Nov 2024**	**EM2421125**	1,480	7.39	2.37	-	-	-	-	-	-	-	-	9.3	7.5	<1	<1
Sand Lease	**TP-15**	**TP15_0.4-0.5_241129**	**0.4 - 0.5**	**29 Nov 2024**	**EM2421125**	149	0.75	0.24	0.113	<10	<0.020	0.099	0.105	<0.020	70	0.353	8.6	5.6	<1	<1
Sand Lease	**TP-15**	**TP15_1.0-1.1_241129**	**1 - 1.1**	**29 Nov 2024**	**EM2421125**	89	0.44	0.14	0.095	<10	<0.020	0.060	0.077	<0.020	59	0.296	9.1	5.4	<1	<1
Sand Lease	**TP-16**	**TP16_0.4-0.5_241126**	**0.4 - 0.5**	**26 Nov 2024**	**EM2421130**	6,050	30.3	9.70	-	-	-	-	-	-	-	-	9.1	7.2	<1	<1
Sand Lease	**TP-16**	**TP16_1.0-1.1_241126**	**1 - 1.1**	**26 Nov 2024**	**EM2421130**	4,330	21.7	6.94	-	-	-	-	-	-	-	-	8.8	7.0	<1	<1
Sand Lease	**TP-17**	**TP17_0.4-0.5_241126**	**0.4 - 0.5**	**26 Nov 2024**	**EM2421130**	415	2.08	0.66	-	-	-	-	-	-	-	-	8.5	5.4	<1	<1
Sand Lease	**TP-17**	**TP17_1.0-1.1_241126**	**1 - 1.1**	**26 Nov 2024**	**EM2421130**	535	2.68	0.86	-	-	-	-	-	-	-	-	8.9	5.7	<1	<1
Sand Lease	**TP-29**	**TP29_0.4-0.5_241128**	**0.4 - 0.5**	**28 Nov 2024**	**EM2421125**	151	0.76	0.24	-	-	-	-	-	-	-	-	9.4	6.1	<1	<1
Sand Lease	**TP-29**	**TP29_1.0-1.1_241128**	**1 - 1.1**	**28 Nov 2024**	**EM2421125**	120	0.60	0.19	-	-	-	-	-	-	-	-	9.7	6.0	<1	<1
Smelter Slag Bay Tipping	**TP-26**	**TP26_0.3-1.0_241127**	**0.3 - 1**	**27 Nov 2024**	**EM2421131**	3,750	18.8	6.01	-	-	-	-	-	-	-	-	8.2	9.8	<1	<1
Smelter Slag Bay Tipping	**TP-26**	**TP26_1.0-2.0_241127**	**1 - 2**	**27 Nov 2024**	**EM2421131**	2,700	13.5	4.33	-	-	-	-	-	-	-	-	8.2	7.3	<1	<1
Smelter Slag Bay Tipping	**TP-28**	**TP28_0.4-0.5_241128**	**0.4 - 0.5**	**28 Nov 2024**	**EM2421125**	4,040	20.2	6.48	-	-	-	-	-	-	-	-	8.1	8.9	<1	<1
Smelter Slag Bay Tipping	**TP-28**	**TP28_1.0-1.1_241128**	**1 - 1.1**	**28 Nov 2024**	**EM2421125**	6,140	30.7	9.85	-	-	-	-	-	-	-	-	8.2	10.0	<1	<1
Smelter Support Yard	**TP-04**	**TP04_0.4-0.5_241129**	**0.4 - 0.5**	**29 Nov 2024**	**EM2421125**	5,820	29.2	9.34	-	-	-	-	-	-	-	-	8.6	10.5	<1	<1
Smelter Support Yard	**TP-04**	**TP04_1.0-1.1_241129**	**1 - 1.1**	**29 Nov 2024**	**EM2421125**	1,200	6.00	1.92	-	-	-	-	-	-	-	-	8.6	8.2	<1	<1
Smelter Support Yard	**TP-06**	**TP06_0.4-0.5_241127**	**0.4 - 0.5**	**27 Nov 2024**	**EM2421131**	1,940	9.74	3.12	-	-	-	-	-	-	-	-	8.4	8.2	<1	<1
Smelter Support Yard	**TP-06**	**TP06_1.0-1.6_241127**	**1 - 1.6**	**27 Nov 2024**	**EM2421131**	14,300	71.5	22.9	-	-	-	-	-	-	-	-	8.3	10.3	<1	<1
Smelter Support Yard	**TP-27**	**TP27_0.40-0.50_241129**	**0.4 - 0.5**	**29 Nov 2024**	**EM2421125**	2,500	12.5	4.00	-	-	-	-	-	-	-	-	8.4	8.2	<1	<1
Smelter Support Yard	**TP-27**	**TP27_1.0-1.1_241129**	**1 - 1.1**	**29 Nov 2024**	**EM2421125**	13,900	69.6	22.3	-	-	-	-	-	-	-	-	8.8	7.7	<1	<1

Environmental Standards
2013, NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil
2013, NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Clay
2013, NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand
2013, NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Silt
2013, NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Coarse Soil
NEPM, NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil

							Acid Sulphate Soils - Magnesium Values					Acid Sulphate Soils - pH	Acid Sulphate Soils - Potential Acidity		Acid Sulphate Soils - Sulfur Trail				NAG
							Acid Reacted Magnesium (acidity units)	Acid Reacted Magnesium	KCl Extractable Magnesium	Magnesium in Peroxide	Acid Reacted Magnesium (sulfur units)	pH-OX	Chromium Reducible Sulphur (acidity units)	Chromium Reducible Sulfur	Peroxide Oxidisable Sulfur (acidity units)	KCl Extractable Sulfur	Peroxide Sulfur	Peroxide Oxidisable Sulfur	Net Acid Production Potential
							mole H+/t	%	%	%	%S	-	mole H+/t	%S	mole H+/t	%	%	%	kg H2SO4/t
EQL							10	0.02	0.02	0.02	0.02	0.1	10	0.005	10	0.02	0.02	0.02	0.5
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil																			
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Clay																			
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand																			
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Silt																			
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind																			
NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Coarse Soil																			
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil																			
Monitoring Zone	**Location Code**	**Field ID**	**Depth**	**Date**	**Lab Report Number**														
BHP general operations and roads	**TP-02**	**TP02_0.4-0.5_241128**	**0.4 - 0.5**	**28 Nov 2024**	**EM2421125**	-	-	-	-	-	-	18	0.030	-	-	-	-	-628
BHP general operations and roads	**TP-02**	**TP02_1.0-1.1_241128**	**1 - 1.1**	**28 Nov 2024**	**EM2421125**	-	-	-	-	-	-	<10	0.012	-	-	-	-	-132
BHP general operations and roads	**TP-03**	**TP03_0.4-0.5_241128**	**0.4 - 0.5**	**28 Nov 2024**	**EM2421125**	-	-	-	-	-	-	13	0.020	-	-	-	-	-792
BHP general operations and roads	**TP-03**	**TP03_1.0-1.1_241128**	**1 - 1.1**	**28 Nov 2024**	**EM2421125**	-	-	-	-	-	-	11	0.018	-	-	-	-	-440
Sand Lease	**TP-05**	**TP05_1.0-1.1_241127**	**1 - 1.1**	**27 Nov 2024**	**EM2421131**	-	-	-	-	-	-	<10	0.014	-	-	-	-	-37.2
Sand Lease	**TP-05**	**TP05_2.0-2.1_241127**	**2 - 2.1**	**27 Nov 2024**	**EM2421131**	-	-	-	-	-	-	<10	0.012	-	-	-	-	-57.9
Sand Lease	**TP-07**	**TP07_0.4-0.5_241125**	**0.4 - 0.5**	**25 Nov 2024**	**EM2421130**	-	-	-	-	-	-	<10	0.012	-	-	-	-	-109
Sand Lease	**TP-07**	**TP07_1.0-1.1_241125**	**1 - 1.1**	**25 Nov 2024**	**EM2421130**	-	-	-	-	-	-	<10	0.011	-	-	-	-	-301
Sand Lease	**TP-08**	**TP08_0.4-0.5_241126**	**0.4 - 0.5**	**26 Nov 2024**	**EM2421130**	-	-	-	-	-	-	<10	0.012	-	-	-	-	-245
Sand Lease	**TP-08**	**TP08_1.0-1.2_241126**	**1 - 1.2**	**26 Nov 2024**	**EM2421130**	-	-	-	-	-	-	<10	0.010	-	-	-	-	-276
Sand Lease	**TP-09**	**TP09_1.0-1.5_241125**	**1 - 1.5**	**25 Nov 2024**	**EM2421130**	-	-	-	-	-	-	<10	0.014	-	-	-	-	-210
Sand Lease	**TP-10**	**TP10_0.0-0.3_241126**	**0 - 0.3**	**26 Nov 2024**	**EM2421130**	-	-	-	-	-	-	<10	0.015	-	-	-	-	-317
Sand Lease	**TP-10**	**TP10_1.0-1.3-241126**	**1 - 1.3**	**26 Nov 2024**	**EM2421130**	-	-	-	-	-	-	10	0.017	-	-	-	-	-262
Sand Lease	**TP-11**	**TP11_0.4-0.5_241127**	**0.4 - 0.5**	**27 Nov 2024**	**EM2421131**	-	-	-	-	-	-	<10	0.011	-	-	-	-	0.3
Sand Lease	**TP-11**	**TP11_2.0-2.1_241127**	**2 - 2.1**	**27 Nov 2024**	**EM2421131**	-	-	-	-	-	-	<10	0.011	-	-	-	-	-1.3
Sand Lease	**TP-13**	**TP13_0.3-0.4_241126**	**0.3 - 0.4**	**26 Nov 2024**	**EM2421130**	-	-	-	-	-	-	<10	0.014	-	-	-	-	-355
Sand Lease	**TP-13**	**TP13_0.8-0.9_241126**	**0.8 - 0.9**	**26 Nov 2024**	**EM2421130**	-	-	-	-	-	-	<10	0.012	-	-	-	-	-343
Sand Lease	**TP-14**	**TP14_0.4-0.5_241128**	**0.4 - 0.5**	**28 Nov 2024**	**EM2421125**	-	-	-	-	-	-	<10	0.016	-	-	-	-	-575
Sand Lease	**TP-14**	**TP14_1.0-1.1_241128**	**1 - 1.1**	**28 Nov 2024**	**EM2421125**	-	-	-	-	-	-	<10	0.009	-	-	-	-	-72.1
Sand Lease	**TP-15**	**TP15_0.4-0.5_241129**	**0.4 - 0.5**	**29 Nov 2024**	**EM2421125**	19	0.023	<0.020	0.023	0.030	7.2	<10	0.012	<10	<0.020	<0.020	<0.020	-2.9
Sand Lease	**TP-15**	**TP15_1.0-1.1_241129**	**1 - 1.1**	**29 Nov 2024**	**EM2421125**	19	0.023	<0.020	0.023	0.030	7.0	10	0.016	<10	<0.020	<0.020	<0.020	-1.8
Sand Lease	**TP-16**	**TP16_0.4-0.5_241126**	**0.4 - 0.5**	**26 Nov 2024**	**EM2421130**	-	-	-	-	-	-	<10	0.012	-	-	-	-	-275
Sand Lease	**TP-16**	**TP16_1.0-1.1_241126**	**1 - 1.1**	**26 Nov 2024**	**EM2421130**	-	-	-	-	-	-	<10	0.011	-	-	-	-	-206
Sand Lease	**TP-17**	**TP17_0.4-0.5_241126**	**0.4 - 0.5**	**26 Nov 2024**	**EM2421130**	-	-	-	-	-	-	<10	0.010	-	-	-	-	-38.1
Sand Lease	**TP-17**	**TP17_1.0-1.1_241126**	**1 - 1.1**	**26 Nov 2024**	**EM2421130**	-	-	-	-	-	-	<10	0.012	-	-	-	-	-20.8
Sand Lease	**TP-29**	**TP29_0.4-0.5_241128**	**0.4 - 0.5**	**28 Nov 2024**	**EM2421125**	-	-	-	-	-	-	<10	0.012	-	-	-	-	-6.1
Sand Lease	**TP-29**	**TP29_1.0-1.1_241128**	**1 - 1.1**	**28 Nov 2024**	**EM2421125**	-	-	-	-	-	-	10	0.016	-	-	-	-	-4.4
Smelter Slag Bay Tipping	**TP-26**	**TP26_0.3-1.0_241127**	**0.3 - 1**	**27 Nov 2024**	**EM2421131**	-	-	-	-	-	-	<10	0.012	-	-	-	-	-184
Smelter Slag Bay Tipping	**TP-26**	**TP26_1.0-2.0_241127**	**1 - 2**	**27 Nov 2024**	**EM2421131**	-	-	-	-	-	-	<10	0.012	-	-	-	-	-36.2
Smelter Slag Bay Tipping	**TP-28**	**TP28_0.4-0.5_241128**	**0.4 - 0.5**	**28 Nov 2024**	**EM2421125**	-	-	-	-	-	-	<10	0.014	-	-	-	-	-135
Smelter Slag Bay Tipping	**TP-28**	**TP28_1.0-1.1_241128**	**1 - 1.1**	**28 Nov 2024**	**EM2421125**	-	-	-	-	-	-	<10	0.014	-	-	-	-	-294
Smelter Support Yard	**TP-04**	**TP04_0.4-0.5_241129**	**0.4 - 0.5**	**29 Nov 2024**	**EM2421125**	-	-	-	-	-	-	12	0.019	-	-	-	-	-297
Smelter Support Yard	**TP-04**	**TP04_1.0-1.1_241129**	**1 - 1.1**	**29 Nov 2024**	**EM2421125**	-	-	-	-	-	-	<10	0.013	-	-	-	-	-62.8
Smelter Support Yard	**TP-06**	**TP06_0.4-0.5_241127**	**0.4 - 0.5**	**27 Nov 2024**	**EM2421131**	-	-	-	-	-	-	<10	0.014	-	-	-	-	-87.6
Smelter Support Yard	**TP-06**	**TP06_1.0-1.6_241127**	**1 - 1.6**	**27 Nov 2024**	**EM2421131**	-	-	-	-	-	-	<10	0.013	-	-	-	-	-682
Smelter Support Yard	**TP-27**	**TP27_0.40-0.50_241129**	**0.4 - 0.5**	**29 Nov 2024**	**EM2421125**	-	-	-	-	-	-	12	0.020	-	-	-	-	-35.1
Smelter Support Yard	**TP-27**	**TP27_1.0-1.1_241129**	**1 - 1.1**	**29 Nov 2024**	**EM2421125**	-	-	-	-	-	-	12	0.020	-	-	-	-	-798

Environmental Standards

2013, NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil
2013, NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Clay
2013, NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand
2013, NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Silt
2013, NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Coarse Soil
NEPM, NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil

				PCBs	TRH							PAH										
				PCBs (Sum of total)	C6-C10 Fraction (F1)	C6-C10 (F1 minus BTEX)	>C10-C16 Fraction (F2)	>C10-C16 Fraction (F2 minus Naphthalene)	>C16-C34 Fraction (F3)	>C34-C40 Fraction (F4)	>C10-C40 Fraction (Sum)	Benzo(b+j+k)fluoranthene	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b+j)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene
				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL				0.1	10	10	50	50	100	100	50	0.2	0.1	0.1	0.1	0.1	0.05	0.5	0.1	0.5	0.1	0.1
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil				7																		
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Clay						310 | 480																
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand						260 | 370 | 630															
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Silt						250 | 360 | 590															
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind																						
NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Coarse Soil						215	170	170	1,700	3,300							1.4					
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil					700		1,000		3,500	10,000												
Field ID	**Date**	**Lab Report Number**	**Matrix Type**																			
TP05_1.0-1.1_241127	**27 Nov 2024**	**EM2421131**	**Soil**	<0.1	<10	<10	<50	<50	<100	<100	<50	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
QC101_241127	**27 Nov 2024**	**EM2421131**	**Soil**	<0.1	<10	<10	<50	<50	<100	<100	<50	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
RPD				0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	0	0	0
TP05_1.0-1.1_241127	**27 Nov 2024**	**EM2421131**	**Soil**	<0.1	<10	<10	<50	<50	<100	<100	<50	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
QC201_241127_1.00-1.10	**27 Nov 2024**	**MFL0079**	**Soil**	<0.10	<25	<25	<50	<50	<100	<100	<50	<0.20	<0.10	<0.10	<0.10	<0.10	<0.050	-	<0.10	-	<0.10	<0.10
RPD				0	0	0	0	0	0	0	0	-	0	0	0	0	0	-	0	-	0	0
TP05_1.0-1.1_241127	**27 Nov 2024**	**EM2421131**	**Soil**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC101_241127	**27 Nov 2024**	**EM2421131**	**Soil**	<0.1	<10	<10	<50	<50	<100	<100	<50	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
RPD				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP05_1.0-1.1_241127	**27 Nov 2024**	**EM2421131**	**Soil**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC201_241127_1.00-1.10	**27 Nov 2024**	**MFL0079**	**Soil**	<0.10	<25	<25	<50	<50	<100	<100	<50	<0.20	<0.10	<0.10	<0.10	<0.10	<0.050	-	<0.10	-	<0.10	<0.10
RPD				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP27_1.0-1.1_241129	**29 Nov 2024**	**EM2421125**	**Soil**	<0.1	<10	<10	<50	<50	<100	<100	<50	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
QC104_241129_1.00-1.10	**29 Nov 2024**	**EM2421125**	**Soil**	<0.1	<10	<10	<50	<50	<100	<100	<50	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
RPD				0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	0	0	0
TP27_1.0-1.1_241129	**29 Nov 2024**	**EM2421125**	**Soil**	<0.1	<10	<10	<50	<50	<100	<100	<50	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
QC204_241129_1.00-1.10	**29 Nov 2024**	**MFL0167**	**Soil**	<0.10	<25	<25	<50	<50	<100	<100	<50	<0.20	<0.10	<0.10	<0.10	<0.10	<0.050	-	<0.10	-	<0.10	<0.10
RPD				0	0	0	0	0	0	0	0	-	0	0	0	0	0	-	0	-	0	0
TP04_1.4_241129	**29 Nov 2024**	**EM2421125**	**Soil**	<0.1	<10	<10	<50	<50	<100	<100	<50	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
QC103_241129	**29 Nov 2024**	**EM2421125**	**Soil**	<0.1	<10	<10	<50	<50	<100	<100	<50	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
RPD				0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	0	0	0
TP04_1.4_241129	**29 Nov 2024**	**EM2421125**	**Soil**	<0.1	<10	<10	<50	<50	<100	<100	<50	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
QC203_241129_1.30_1.40	**29 Nov 2024**	**MFL0167**	**Soil**	<0.10	<25	<25	<50	<50	<100	<100	<50	<0.20	<0.10	<0.10	<0.10	<0.10	<0.050	-	<0.10	-	<0.10	<0.10
RPD				0	0	0	0	0	0	0	0	-	0	0	0	0	0	-	0	-	0	0
TP15_0.0-0.15_241129	**29 Nov 2024**	**EM2421125**	**Soil**	-	<10	<10	<50	<50	<100	<100	<50	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
QC102_241129_0.00-0.15	**29 Nov 2024**	**EM2421125**	**Soil**	-	<10	<10	<50	<50	<100	<100	<50	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
RPD				-	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	0	0	0
TP15_0.0-0.15_241129	**29 Nov 2024**	**EM2421125**	**Soil**	-	<10	<10	<50	<50	<100	<100	<50	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
QC202_241129_0.00-0.15	**29 Nov 2024**	**MFL0167**	**Soil**	-	<25	<25	<50	<50	<100	<100	<50	<0.20	<0.10	<0.10	<0.10	<0.10	<0.050	-	<0.10	-	<0.10	<0.10
RPD				-	0	0	0	0	0	0	0	-	0	0	0	0	0	-	0	-	0	0

Environmental Standards
2013, NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil
2013, NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Clay
2013, NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand
2013, NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Silt
2013, NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Coarse Soil
NEPM, NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil

***RPDs have only been considered where a concentration is greater than 1 times the EQL.**
****Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each EQL multiplier range are: 30 (1 - 10 x EQL); 30 (10 - 30 x EQL); 30 (> 30 x EQL))**
*****Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory**

				PAH										Organophosphorous Pesticides								
				Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	Phenanthrene	Pyrene	Benzo(a)pyrene TEQ calc (Half)	Benzo(a)pyrene TEQ (LOR)	Benzo(a)pyrene TEQ calc (Zero)	PAHs (Sum of total)	Azinophos methyl	Bromophos-ethyl	Carbophenothion	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Diazinon	Dichlorvos	Dimethoate
				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL				0.1	0.1	0.1	0.1	0.1	0.1	0.5	0.5	0.5	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil										40	40	40	4,000					2,000				
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Clay																						
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand																						
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Silt																						
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind							370															
NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Coarse Soil																						
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil																						
Field ID	**Date**	**Lab Report Number**	**Matrix Type**																			
TP05_1.0-1.1_241127	**27 Nov 2024**	**EM2421131**	**Soil**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
QC101_241127	**27 Nov 2024**	**EM2421131**	**Soil**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
RPD				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TP05_1.0-1.1_241127	**27 Nov 2024**	**EM2421131**	**Soil**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
QC201_241127_1.00-1.10	**27 Nov 2024**	**MFL0079**	**Soil**	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.50	<0.50	<0.50	<0.050	-	-	-	-	<0.10	-	-	-	-
RPD				0	0	0	0	0	0	18	82	0	0	-	-	-	-	0	-	-	-	-
TP05_1.0-1.1_241127	**27 Nov 2024**	**EM2421131**	**Soil**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC101_241127	**27 Nov 2024**	**EM2421131**	**Soil**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
RPD				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP05_1.0-1.1_241127	**27 Nov 2024**	**EM2421131**	**Soil**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC201_241127_1.00-1.10	**27 Nov 2024**	**MFL0079**	**Soil**	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.50	<0.50	<0.50	<0.050	-	-	-	-	<0.10	-	-	-	-
RPD				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP27_1.0-1.1_241129	**29 Nov 2024**	**EM2421125**	**Soil**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
QC104_241129_1.00-1.10	**29 Nov 2024**	**EM2421125**	**Soil**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
RPD				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TP27_1.0-1.1_241129	**29 Nov 2024**	**EM2421125**	**Soil**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
QC204_241129_1.00-1.10	**29 Nov 2024**	**MFL0167**	**Soil**	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.50	<0.50	<0.50	<0.050	-	-	-	-	<0.10	-	-	-	-
RPD				0	0	0	0	0	0	18	82	0	0	-	-	-	-	0	-	-	-	-
TP04_1.4_241129	**29 Nov 2024**	**EM2421125**	**Soil**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
QC103_241129	**29 Nov 2024**	**EM2421125**	**Soil**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
RPD				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TP04_1.4_241129	**29 Nov 2024**	**EM2421125**	**Soil**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
QC203_241129_1.30_1.40	**29 Nov 2024**	**MFL0167**	**Soil**	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.50	<0.50	<0.50	<0.050	-	-	-	-	<0.10	-	-	-	-
RPD				0	0	0	0	0	0	18	82	0	0	-	-	-	-	0	-	-	-	-
TP15_0.0-0.15_241129	**29 Nov 2024**	**EM2421125**	**Soil**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	-	-	-	-	-	-	-	-	-
QC102_241129_0.00-0.15	**29 Nov 2024**	**EM2421125**	**Soil**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	-	-	-	-	-	-	-	-	-
RPD				0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-
TP15_0.0-0.15_241129	**29 Nov 2024**	**EM2421125**	**Soil**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	-	-	-	-	-	-	-	-	-
QC202_241129_0.00-0.15	**29 Nov 2024**	**MFL0167**	**Soil**	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.50	<0.50	<0.50	<0.050	-	-	-	-	-	-	-	-	-
RPD				0	0	0	0	0	0	18	82	0	0	-	-	-	-	-	-	-	-	-

Environmental Standards
2013, NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil
2013, NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Clay
2013, NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand
2013, NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Silt
2013, NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Coarse Soil
NEPM, NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil

***RPDs have only been considered where a concentration is greater than 1 times the**
****Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for**
*****Interlab Duplicates are matched on a per compound basis as methods vary betv**

				Organophosphorous Pesticides						Organochlorine Pesticides											
				Ethion	Fenthion	Malathion	Methyl parathion	Monocrotophos	Prothiofos	4,4-DDE	a-BHC	Aldrin	Aldrin + Dieldrin	b-BHC	Chlordane (cis)	Chlordane (trans)	d-BHC	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan
				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL				0.05	0.05	0.05	0.2	0.2	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.1	0.05	0.05	0.05
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil													45							3,600		2,000
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Clay																						
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand																						
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Silt																						
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind																			640			
NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Coarse Soil																						
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil																						
Field ID	**Date**	**Lab Report Number**	**Matrix Type**																			
TP05_1.0-1.1_241127	**27 Nov 2024**	**EM2421131**	**Soil**	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05
QC101_241127	**27 Nov 2024**	**EM2421131**	**Soil**	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05
RPD				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TP05_1.0-1.1_241127	**27 Nov 2024**	**EM2421131**	**Soil**	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05
QC201_241127_1.00-1.10	**27 Nov 2024**	**MFL0079**	**Soil**	-	-	-	-	-	-	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	-	<0.10	<0.10	<0.10	<0.10	<0.10	-
RPD				-	-	-	-	-	-	0	0	0	0	0	0	-	0	0	0	0	0	-
TP05_1.0-1.1_241127	**27 Nov 2024**	**EM2421131**	**Soil**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC101_241127	**27 Nov 2024**	**EM2421131**	**Soil**	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05
RPD				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP05_1.0-1.1_241127	**27 Nov 2024**	**EM2421131**	**Soil**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC201_241127_1.00-1.10	**27 Nov 2024**	**MFL0079**	**Soil**	-	-	-	-	-	-	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	-	<0.10	<0.10	<0.10	<0.10	<0.10	-
RPD				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP27_1.0-1.1_241129	**29 Nov 2024**	**EM2421125**	**Soil**	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05
QC104_241129_1.00-1.10	**29 Nov 2024**	**EM2421125**	**Soil**	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05
RPD				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TP27_1.0-1.1_241129	**29 Nov 2024**	**EM2421125**	**Soil**	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05
QC204_241129_1.00-1.10	**29 Nov 2024**	**MFL0167**	**Soil**	-	-	-	-	-	-	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	-	<0.10	<0.10	<0.10	<0.10	<0.10	-
RPD				-	-	-	-	-	-	0	0	0	0	0	0	-	0	0	0	0	0	-
TP04_1.4_241129	**29 Nov 2024**	**EM2421125**	**Soil**	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05
QC103_241129	**29 Nov 2024**	**EM2421125**	**Soil**	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05
RPD				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TP04_1.4_241129	**29 Nov 2024**	**EM2421125**	**Soil**	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05
QC203_241129_1.30_1.40	**29 Nov 2024**	**MFL0167**	**Soil**	-	-	-	-	-	-	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	-	<0.10	<0.10	<0.10	<0.10	<0.10	-
RPD				-	-	-	-	-	-	0	0	0	0	0	0	-	0	0	0	0	0	-
TP15_0.0-0.15_241129	**29 Nov 2024**	**EM2421125**	**Soil**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC102_241129_0.00-0.15	**29 Nov 2024**	**EM2421125**	**Soil**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RPD				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP15_0.0-0.15_241129	**29 Nov 2024**	**EM2421125**	**Soil**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC202_241129_0.00-0.15	**29 Nov 2024**	**MFL0167**	**Soil**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RPD				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Environmental Standards
2013, NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil
2013, NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Clay
2013, NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand
2013, NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Silt
2013, NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Coarse Soil
NEPM, NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil

***RPDs have only been considered where a concentration is greater than 1 times the**
****Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for**
*****Interlab Duplicates are matched on a per compound basis as methods vary betv**

				Organochlorine Pesticides										Pesticides						
				Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Methoxychlor	Bifenthrin	Demeton-S-methyl	Fenamiphos	Mirex	Parathion	Pirimphos-ethyl
				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL				0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.1	0.05	0.05	0.05	0.1	0.2	0.05
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil							100				50		2,500	4,500			100		
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Clay																			
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand																			
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Silt																			
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind																			
NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Coarse Soil																			
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil																			
Field ID	**Date**	**Lab Report Number**	**Matrix Type**																
TP05_1.0-1.1_241127	**27 Nov 2024**	**EM2421131**	**Soil**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.20	<0.2	<0.05
QC101_241127	**27 Nov 2024**	**EM2421131**	**Soil**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.20	<0.2	<0.05
RPD				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TP05_1.0-1.1_241127	**27 Nov 2024**	**EM2421131**	**Soil**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.20	<0.2	<0.05
QC201_241127_1.00-1.10	**27 Nov 2024**	**MFL0079**	**Soil**	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.50	-	-	<0.10	-	-
RPD				0	0	0	0	0	0	0	0	0	0	0	-	-	0	-	-
TP05_1.0-1.1_241127	**27 Nov 2024**	**EM2421131**	**Soil**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC101_241127	**27 Nov 2024**	**EM2421131**	**Soil**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.20	<0.2	<0.05
RPD				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP05_1.0-1.1_241127	**27 Nov 2024**	**EM2421131**	**Soil**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC201_241127_1.00-1.10	**27 Nov 2024**	**MFL0079**	**Soil**	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.50	-	-	<0.10	-	-
RPD				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP27_1.0-1.1_241129	**29 Nov 2024**	**EM2421125**	**Soil**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.20	<0.2	<0.05
QC104_241129_1.00-1.10	**29 Nov 2024**	**EM2421125**	**Soil**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.20	<0.2	<0.05
RPD				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TP27_1.0-1.1_241129	**29 Nov 2024**	**EM2421125**	**Soil**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.20	<0.2	<0.05
QC204_241129_1.00-1.10	**29 Nov 2024**	**MFL0167**	**Soil**	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.50	-	-	<0.10	-	-
RPD				0	0	0	0	0	0	0	0	0	0	0	-	-	0	-	-
TP04_1.4_241129	**29 Nov 2024**	**EM2421125**	**Soil**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.20	<0.2	<0.05
QC103_241129	**29 Nov 2024**	**EM2421125**	**Soil**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.20	<0.2	<0.05
RPD				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TP04_1.4_241129	**29 Nov 2024**	**EM2421125**	**Soil**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.20	<0.2	<0.05
QC203_241129_1.30_1.40	**29 Nov 2024**	**MFL0167**	**Soil**	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.50	-	-	<0.10	-	-
RPD				0	0	0	0	0	0	0	0	0	0	0	-	-	0	-	-
TP15_0.0-0.15_241129	**29 Nov 2024**	**EM2421125**	**Soil**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC102_241129_0.00-0.15	**29 Nov 2024**	**EM2421125**	**Soil**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RPD				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP15_0.0-0.15_241129	**29 Nov 2024**	**EM2421125**	**Soil**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC202_241129_0.00-0.15	**29 Nov 2024**	**MFL0167**	**Soil**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RPD				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Environmental Standards
2013, NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil
2013, NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Clay
2013, NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand
2013, NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Silt
2013, NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Coarse Soil
NEPM, NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil

***RPDs have only been considered where a concentration is greater than 1 times the**
****Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for**
*****Interlab Duplicates are matched on a per compound basis as methods vary betv**

				Herbicides		Phenols																	
				Atrazine	Dinoseb	3&4-Methylphenol (m&p-cresol)	2,3,5,6-Tetrachlorophenol	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,4-Dinitrophenol	2,6-Dichlorophenol	2,3,4,5 & 2,3,4,6-Tetrachlorophenol	2-Chlorophenol	2-Methylphenol	2-Nitrophenol	4,6-Dinitro-2-methylphenol	4,6-Dinitro-o-cyclohexyl phenol	4-chloro-3-methylphenol	4-Nitrophenol	Pentachlorophenol	Phenol
				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL				0.05	10	0.4	0.2	0.2	0.2	0.2	0.2	4	0.2	0.4	0.2	0.2	0.2	10	20	0.5	4	2	0.2
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil				2,500																		660	240,000
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Clay																							
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand																							
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Silt																							
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind																							
NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Coarse Soil																							
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil																							
Field ID	**Date**	**Lab Report Number**	**Matrix Type**																				
TP05_1.0-1.1_241127	**27 Nov 2024**	**EM2421131**	**Soil**	<0.05	-	<1	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	-	-	<0.5	-	<2	<0.5
QC101_241127	**27 Nov 2024**	**EM2421131**	**Soil**	<0.05	-	<1	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	-	-	<0.5	-	<2	<0.5
RPD				0	-	0	-	0	0	0	0	-	0	-	0	0	0	-	-	0	-	0	0
TP05_1.0-1.1_241127	**27 Nov 2024**	**EM2421131**	**Soil**	<0.05	-	<1	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	-	-	<0.5	-	<2	<0.5
QC201_241127_1.00-1.10	**27 Nov 2024**	**MFL0079**	**Soil**	<0.50	<10	<0.40	<0.20	<0.20	<0.20	<0.20	<0.20	<4.0	<0.20	<0.40	<0.20	<0.20	<0.20	<10	<20	<1.0	<4.0	<2.0	<0.20
RPD				0	-	0	-	0	0	0	0	-	0	-	0	0	0	-	-	0	-	0	0
TP05_1.0-1.1_241127	**27 Nov 2024**	**EM2421131**	**Soil**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC101_241127	**27 Nov 2024**	**EM2421131**	**Soil**	<0.05	-	<1	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	-	-	<0.5	-	<2	<0.5
RPD				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP05_1.0-1.1_241127	**27 Nov 2024**	**EM2421131**	**Soil**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC201_241127_1.00-1.10	**27 Nov 2024**	**MFL0079**	**Soil**	<0.50	<10	<0.40	<0.20	<0.20	<0.20	<0.20	<0.20	<4.0	<0.20	<0.40	<0.20	<0.20	<0.20	<10	<20	<1.0	<4.0	<2.0	<0.20
RPD				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP27_1.0-1.1_241129	**29 Nov 2024**	**EM2421125**	**Soil**	<0.05	-	<1	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	-	-	<0.5	-	<2	<0.5
QC104_241129_1.00-1.10	**29 Nov 2024**	**EM2421125**	**Soil**	<0.05	-	<1	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	-	-	<0.5	-	<2	<0.5
RPD				0	-	0	-	0	0	0	0	-	0	-	0	0	0	-	-	0	-	0	0
TP27_1.0-1.1_241129	**29 Nov 2024**	**EM2421125**	**Soil**	<0.05	-	<1	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	-	-	<0.5	-	<2	<0.5
QC204_241129_1.00-1.10	**29 Nov 2024**	**MFL0167**	**Soil**	<0.50	<10	<0.40	<0.20	<0.20	<0.20	<0.20	<0.20	<4.0	<0.20	<0.40	<0.20	<0.20	<0.20	<10	<20	<1.0	<4.0	<2.0	<0.20
RPD				0	-	0	-	0	0	0	0	-	0	-	0	0	0	-	-	0	-	0	0
TP04_1.4_241129	**29 Nov 2024**	**EM2421125**	**Soil**	<0.05	-	<1	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	-	-	<0.5	-	<2	<0.5
QC103_241129	**29 Nov 2024**	**EM2421125**	**Soil**	<0.05	-	<1	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	-	-	<0.5	-	<2	<0.5
RPD				0	-	0	-	0	0	0	0	-	0	-	0	0	0	-	-	0	-	0	0
TP04_1.4_241129	**29 Nov 2024**	**EM2421125**	**Soil**	<0.05	-	<1	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	-	-	<0.5	-	<2	<0.5
QC203_241129_1.30_1.40	**29 Nov 2024**	**MFL0167**	**Soil**	<0.50	<10	<0.40	<0.20	<0.20	<0.20	<0.20	<0.20	<4.0	<0.20	<0.40	<0.20	<0.20	<0.20	<10	<20	<1.0	<4.0	<2.0	<0.20
RPD				0	-	0	-	0	0	0	0	-	0	-	0	0	0	-	-	0	-	0	0
TP15_0.0-0.15_241129	**29 Nov 2024**	**EM2421125**	**Soil**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC102_241129_0.00-0.15	**29 Nov 2024**	**EM2421125**	**Soil**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RPD				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP15_0.0-0.15_241129	**29 Nov 2024**	**EM2421125**	**Soil**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC202_241129_0.00-0.15	**29 Nov 2024**	**MFL0167**	**Soil**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RPD				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Environmental Standards
2013, NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil
2013, NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Clay
2013, NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand
2013, NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Silt
2013, NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Coarse Soil
NEPM, NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil

***RPDs have only been considered where a concentration is greater than 1 times the**
****Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for**
*****Interlab Duplicates are matched on a per compound basis as methods vary betv**

					Cyanides	Metals																		
					Cyanide (WAD)	Aluminium	Arsenic	Barium	Beryllium	Boron	Cadmium	Calcium	Chromium (hexavalent)	Chromium (III+VI)	Cobalt	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Potassium	Selenium	Vanadium	Zinc
					mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL					0.5	50	4	10	1	10	0.4	50	0.5	1	1	1	50	1	50	1	0.1	1	50	2	5	1
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil							3,000		500	300,000	900		3,600		4,000	240,000		1,500		60,000	730	6,000		10,000		400,000
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Clay																										
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand																										
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Silt																										
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind							160																			
NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Coarse Soil																										
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil																										
Field ID	**Date**	**Lab Report Number**	**Matrix Type**																							
TP05_1.0-1.1_241127	**27 Nov 2024**	**EM2421131**	**Soil**		<1	15,100	<5	90	<1	<50	<1	13,000	<0.5	16	4	12	19,300	5	4,840	125	<0.1	9	3,120	<5	69	24
QC101_241127	**27 Nov 2024**	**EM2421131**	**Soil**		<1	-	<5	170	<1	<50	<1	-	<0.5	13	4	12	-	<5	-	104	<0.1	7	-	<5	54	19
RPD					0	-	0	62	0	0	0	-	0	21	0	0	-	0	-	18	0	25	-	0	24	23
TP05_1.0-1.1_241127	**27 Nov 2024**	**EM2421131**	**Soil**		<1	15,100	<5	90	<1	<50	<1	13,000	<0.5	16	4	12	19,300	5	4,840	125	<0.1	9	3,120	<5	69	24
QC201_241127_1.00-1.10	**27 Nov 2024**	**MFL0079**	**Soil**		-	-	6.4	-	<1.0	25	<0.40	-	<1.0	16	4.2	15	-	5.8	-	130	<0.10	8.4	-	<2.0	-	23
RPD					-	-	25	-	0	0	0	-	0	0	5	22	-	15	-	4	0	7	-	0	-	4
TP05_1.0-1.1_241127	**27 Nov 2024**	**EM2421131**	**Soil**		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC101_241127	**27 Nov 2024**	**EM2421131**	**Soil**		<1	-	<5	170	<1	<50	<1	-	<0.5	13	4	12	-	<5	-	104	<0.1	7	-	<5	54	19
RPD					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP05_1.0-1.1_241127	**27 Nov 2024**	**EM2421131**	**Soil**		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC201_241127_1.00-1.10	**27 Nov 2024**	**MFL0079**	**Soil**		-	-	6.4	-	<1.0	25	<0.40	-	<1.0	16	4.2	15	-	5.8	-	130	<0.10	8.4	-	<2.0	-	23
RPD					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP27_1.0-1.1_241129	**29 Nov 2024**	**EM2421125**	**Soil**		<1	-	6	270	<1	<50	<1	-	<0.5	8	16	631	-	<5	-	146	<0.1	6	-	<5	56	19
QC104_241129_1.00-1.10	**29 Nov 2024**	**EM2421125**	**Soil**		<1	-	<5	330	<1	<50	<1	-	<0.5	6	26	932	-	<5	-	162	<0.1	5	-	<5	42	19
RPD					0	-	18	20	0	0	0	-	0	29	48	39	-	0	-	10	0	18	-	0	29	0
TP27_1.0-1.1_241129	**29 Nov 2024**	**EM2421125**	**Soil**		<1	-	6	270	<1	<50	<1	-	<0.5	8	16	631	-	<5	-	146	<0.1	6	-	<5	56	19
QC204_241129_1.00-1.10	**29 Nov 2024**	**MFL0167**	**Soil**		<0.50	-	<4.0	-	<1.0	<10	<0.40	-	<1.0	4.4	15	590	-	3.5	-	210	<0.10	4.6	-	<2.0	-	12
RPD					0	-	40	-	0	0	0	-	0	58	6	7	-	0	-	36	0	26	-	0	-	45
TP04_1.4_241129	**29 Nov 2024**	**EM2421125**	**Soil**		<1	-	54	330	<1	<50	<1	-	<0.5	24	40	6,050	-	31	-	180	<0.1	26	-	<5	228	20
QC103_241129	**29 Nov 2024**	**EM2421125**	**Soil**		<1	-	36	300	<1	<50	<1	-	<0.5	23	38	5,080	-	34	-	201	<0.1	13	-	<5	193	15
RPD					0	-	40	10	0	0	0	-	0	4	5	17	-	9	-	11	0	67	-	0	17	29
TP04_1.4_241129	**29 Nov 2024**	**EM2421125**	**Soil**		<1	-	54	330	<1	<50	<1	-	<0.5	24	40	6,050	-	31	-	180	<0.1	26	-	<5	228	20
QC203_241129_1.30_1.40	**29 Nov 2024**	**MFL0167**	**Soil**		<0.50	-	54	-	<1.0	22	<0.40	-	<1.0	28	25	13,000	-	35	-	230	<0.10	17	-	4.6	-	24
RPD					0	-	0	-	0	0	0	-	0	15	46	73	-	12	-	24	0	42	-	0	-	18
TP15_0.0-0.15_241129	**29 Nov 2024**	**EM2421125**	**Soil**		-	-	<5	-	-	-	<1	-	-	6	-	7	-	<5	-	-	<0.1	<2	-	-	-	<5
QC102_241129_0.00-0.15	**29 Nov 2024**	**EM2421125**	**Soil**		-	-	<5	-	-	-	<1	-	-	6	-	<5	-	<5	-	-	<0.1	<2	-	-	-	<5
RPD					-	-	0	-	-	-	0	-	-	0	-	33	-	0	-	-	0	0	-	-	-	0
TP15_0.0-0.15_241129	**29 Nov 2024**	**EM2421125**	**Soil**		-	-	<5	-	-	-	<1	-	-	6	-	7	-	<5	-	-	<0.1	<2	-	-	-	<5
QC202_241129_0.00-0.15	**29 Nov 2024**	**MFL0167**	**Soil**		-	-	<4.0	-	-	-	<0.40	-	-	5.2	-	2.5	-	2.0	-	-	<0.10	1.4	-	-	-	3.3
RPD					-	-	0	-	-	-	0	-	-	14	-	95	-	0	-	-	0	0	-	-	-	0

Environmental Standards
2013, NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil
2013, NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Clay
2013, NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand
2013, NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Silt
2013, NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Coarse Soil
NEPM, NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil

***RPDs have only been considered where a concentration is greater than 1 times the**
****Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for**
*****Interlab Duplicates are matched on a per compound basis as methods vary betv**

					TPH					BTEX								Other	Halogenated Benzenes	Organic
					C6-C9 Fraction	C10-C14 Fraction	C15-C28 Fraction	C29-C36 Fraction	C10-C36 Fraction (Sum)	Naphthalene (VOC)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Total BTEX	Chlordane (gamma)	Hexachlorobenzene	Total Organic Carbon
					mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	%
EQL					10	50	100	100	50	1	0.2	0.5	0.5	0.5	0.5	0.5	0.2	0.1	0.05	0.5
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil																			80	
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Clay											4 | 6 | 9 | 20								
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand											3 | 3 | 3 | 3					230			
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Silt											4 | 4 | 6 | 10								
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind										370										
NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Coarse Soil											75	135	165			180				
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil																				
Field ID	**Date**	**Lab Report Number**	**Matrix Type**																	
TP05_1.0-1.1_241127	**27 Nov 2024**	**EM2421131**	**Soil**		<10	<50	<100	<100	<50	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	-	<0.05	<0.5
QC101_241127	**27 Nov 2024**	**EM2421131**	**Soil**		<10	<50	<100	<100	<50	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	-	<0.05	-
RPD					0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	-
TP05_1.0-1.1_241127	**27 Nov 2024**	**EM2421131**	**Soil**		<10	<50	<100	<100	<50	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	-	<0.05	<0.5
QC201_241127_1.00-1.10	**27 Nov 2024**	**MFL0079**	**Soil**		<25	<50	<100	<100	<50	<1.0	<0.20	<0.50	<1.0	<2.0	<1.0	<3.0	-	<0.10	<0.10	-
RPD					0	0	0	0	0	0	0	0	0	0	0	0	-	-	0	-
TP05_1.0-1.1_241127	**27 Nov 2024**	**EM2421131**	**Soil**		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC101_241127	**27 Nov 2024**	**EM2421131**	**Soil**		<10	<50	<100	<100	<50	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	-	<0.05	-
RPD					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP05_1.0-1.1_241127	**27 Nov 2024**	**EM2421131**	**Soil**		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC201_241127_1.00-1.10	**27 Nov 2024**	**MFL0079**	**Soil**		<25	<50	<100	<100	<50	<1.0	<0.20	<0.50	<1.0	<2.0	<1.0	<3.0	-	<0.10	<0.10	-
RPD					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP27_1.0-1.1_241129	**29 Nov 2024**	**EM2421125**	**Soil**		<10	<50	<100	<100	<50	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	-	<0.05	-
QC104_241129_1.00-1.10	**29 Nov 2024**	**EM2421125**	**Soil**		<10	<50	<100	<100	<50	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	-	<0.05	-
RPD					0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	-
TP27_1.0-1.1_241129	**29 Nov 2024**	**EM2421125**	**Soil**		<10	<50	<100	<100	<50	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	-	<0.05	-
QC204_241129_1.00-1.10	**29 Nov 2024**	**MFL0167**	**Soil**		<25	<50	<100	<100	<50	<1.0	<0.20	<0.50	<1.0	<2.0	<1.0	<3.0	-	<0.10	<0.10	-
RPD					0	0	0	0	0	0	0	0	0	0	0	0	-	-	0	-
TP04_1.4_241129	**29 Nov 2024**	**EM2421125**	**Soil**		<10	<50	<100	<100	<50	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	-	<0.05	-
QC103_241129	**29 Nov 2024**	**EM2421125**	**Soil**		<10	<50	<100	<100	<50	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	-	<0.05	-
RPD					0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	-
TP04_1.4_241129	**29 Nov 2024**	**EM2421125**	**Soil**		<10	<50	<100	<100	<50	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	-	<0.05	-
QC203_241129_1.30_1.40	**29 Nov 2024**	**MFL0167**	**Soil**		<25	<50	<100	<100	<50	<1.0	<0.20	<0.50	<1.0	<2.0	<1.0	<3.0	-	<0.10	<0.10	-
RPD					0	0	0	0	0	0	0	0	0	0	0	0	-	-	0	-
TP15_0.0-0.15_241129	**29 Nov 2024**	**EM2421125**	**Soil**		<10	<50	<100	<100	<50	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	-	-	-
QC102_241129_0.00-0.15	**29 Nov 2024**	**EM2421125**	**Soil**		<10	<50	<100	<100	<50	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	-	-	-
RPD					0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-
TP15_0.0-0.15_241129	**29 Nov 2024**	**EM2421125**	**Soil**		<10	<50	<100	<100	<50	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	-	-	-
QC202_241129_0.00-0.15	**29 Nov 2024**	**MFL0167**	**Soil**		<25	<50	<100	<100	<50	<1.0	<0.20	<0.50	<1.0	<2.0	<1.0	<3.0	-	-	-	-
RPD					0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-

Environmental Standards
2013, NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil
2013, NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Clay
2013, NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand
2013, NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Silt
2013, NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Coarse Soil
NEPM, NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil

***RPDs have only been considered where a concentration is greater than 1 times the**
****Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for**
*****Interlab Duplicates are matched on a per compound basis as methods vary betv**

Annexure F
Laboratory documentation

EMM
creating opportunities

CHAIN OF CUSTODY

COC#: 76176 ALS Laboratory: EB Brisbane Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME: 4/12, 11-Feb

CLIENT: EMGAMM - EMM CONSULTING PTY LTD

PROJECT: Olympic Dam

SITE: Olympic Dam

ORDER NO: E240975

PROJECT MANAGER: Simony Sakamoto CONTACT PH: 0412799277 SAMPLER MOBILE: 0412799277

PRIMARY SAMPLER: Simony Sakamoto QUOTE NO: EM24EMGAMM0004_V2 / EM2024EMGAMM0004

EMAIL REPORTS TO: ssakamoto@emmconsulting.com.au, ESdat_AU+emmconsulting@ESdatLabSync.net, dcondon@emmconsulting.com.au

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

FREIGHT

SAMPLE DETAILS							ANALYSIS REQUIRED										
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Acid-Base Accounting SOIL	Analysis NOT REQUIRED	Basic Suite SOIL	Contam 1 SOIL	Contam 2 - NEPM 2013 B1 Table 1A HIL - Basic Suite SOIL	Particle size analysis SOIL	QC/QC Trip Blank SOIL	QC/QC Trip Spike SOIL	Radiation Suite SOIL	Topsoil Suite SOIL	ALTERNATIVE ANALYSIS
001	TP28_0.0-0.1_241128_0.00-0.15		28/11/2024 08:15 AM	SOIL	ALS: 1 Non ALS: 0	No				X							
002	TP28_0.4-0.5_241128_0.40-0.50		28/11/2024 08:25 AM	SOIL	ALS: 3 Non ALS: 2	No	X				X	X			X		
003	TP28_1.0-1.1_241128_1.00-1.10		28/11/2024 08:20 AM	SOIL	ALS: 3 Non ALS: 0	No	X										
004	TP03_0.0-0.15_241128_0.00-0.15		28/11/2024 09:00 PM	SOIL	ALS: 1 Non ALS: 0	Yes		-									
005	TP03_0.4-0.5_241128_0.40-0.50		28/11/2024 09:05 PM	SOIL	ALS: 3 Non ALS: 0	No	X										
006	TP03_1.0-1.1_241128_1.00-1.10		28/11/2024 09:10 PM	SOIL	ALS: 3 Non ALS: 1	No	X			X		X					
007	TP03_2.0-2.1_241128_2.00-2.10		28/11/2024 09:15 PM	SOIL	ALS: 1 Non ALS: 0	No					X						

Environmental Division Melbourne

Work Order Reference

EM2421125

Telephone : + 61-3-8549 9600

CHAIN OF CUSTODY

COC#: 76176 *ALS Laboratory:* EB Brisbane Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME: 4/12 11:45

CLIENT: EMGAMM - EMM CONSULTING PTY LTD

PROJECT: Olympic Dam

SITE: Olympic Dam

ORDER NO: E240975

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

PROJECT MANAGER: Simony Sakamoto CONTACT PH: 0412799277 SAMPLER MOBILE: 0412799277

PRIMARY SAMPLER: Simony Sakamoto QUOTE NO: EM24EMGAMM0004_V2 / EM2024EMGAMM0004

EMAIL REPORTS TO: ssakamoto@emmconsulting.com.au, ESdat_AU+emmconsulting@ESdatLabSync.net, dcondon@emmconsulting.com.au

SAMPLE DETAILS							ANALYSIS REQUIRED											
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Acid-Base Accounting SOIL	Analysis NOT REQUIRED	Basic Suite SOIL	Contam 1 SOIL	Contam 2 - NEPM 2013 B1 Table 1A HIL - Basic Suite SOIL	Particle size analysis SOIL	QC/QC Trip Blank SOIL	QC/QC Trip Spike SOIL	Radiation Suite SOIL	Topsoil Suite SOIL	ALTERNATIVE ANALYSIS
008	TP02_0.0-0.15_241128_0.00-0.15		28/11/2024 10:40 AM	SOIL	ALS: 1 Non ALS: 0	No				X							
009	TP02_0.4-0.5_241128_0.40-0.50		28/11/2024 10:45 AM	SOIL	ALS: 3 Non ALS: 1	No	X					X					
010	TP02_1.0-1.1_241128_1.00-1.10		28/11/2024 10:50 AM	SOIL	ALS: 3 Non ALS: 0	No	X										
011	TP02_2.0-2.1_241128_2.00-2.10		28/11/2024 10:55 AM	SOIL	ALS: 1 Non ALS: 0	No					X						
012	TP27_0.0-0.15_241129_0.00-0.15		29/11/2024 07:35 AM	SOIL	ALS: 1 Non ALS: 0	Yes		-									
013	TP27_0.4-0.5_241129_0.40-0.50		29/11/2024 07:40 AM	SOIL	ALS: 3 Non ALS: 0	No	X			X							
014	TP27_1.0-1.1_241129_1.00-1.10		29/11/2024 07:45 AM	SOIL	ALS: 3 Non ALS: 1	No	X				X	X					

CHAIN OF CUSTODY

COC#: **76176** *ALS Laboratory:* EB Brisbane Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME: Monday 4/12

CLIENT: EMGAMM - EMM CONSULTING PTY LTD

PROJECT: Olympic Dam

SITE: Olympic Dam

ORDER NO: E240975

PROJECT MANAGER: Simony Sakamoto

PRIMARY SAMPLER: Simony Sakamoto

CONTACT PH: 0412799277 SAMPLER MOBILE: 0412799277

QUOTE NO: EM24EMGAMM0004_V2 / EM2024EMGAMM0004

EMAIL REPORTS TO: ssakamoto@emmconsulting.com.au, ESdat_AU+emmconsulting@ESdatLabSync.net, dcondon@emmconsulting.com.au

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED											
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Acid-Base Accounting SOIL	Analysis NOT REQUIRED	Basic Suite SOIL	Contam 1 SOIL	Contam 2 - NEPM 2013 B1 Table 1A HIL - Basic Suite SOIL	Particle size analysis SOIL	QC/QC Trip Blank SOIL	QC/QC Trip Spike SOIL	Radiation Suite SOIL	Topsoil Suite SOIL	ALTERNATIVE ANALYSIS
015	TP04_0.0-0.1_241129_0.00-0.40		29/11/2024 08:40 AM	SOIL	ALS: 1 Non ALS: 0	Yes		-									
016	TP04_0.4-0.5_241129_0.40-0.50		29/11/2024 08:45 AM	SOIL	ALS: 3 Non ALS: 0	No	X		X								
017	TP04_1.0-1.1_241129_1.00-1.10		29/11/2024 08:55 AM	SOIL	ALS: 3 Non ALS: 1	No	X					X					
018	TP04_1.4_241129_1.30-1.40		29/11/2024 09:00 AM	SOIL	ALS: 1 Non ALS: 0	No					X						
019	QC103_241129_1.30-1.40		29/11/2024 09:00 AM	SOIL	ALS: 1 Non ALS: 0	No					X						
020	QC203_241129_1.30-1.40		29/11/2024 09:00 AM	SOIL	ALS: 1 Non ALS: 0	No					X						
021	TP15_0.0-0.15_241129_0.00-0.15		29/11/2024 10:10 PM	SOIL	ALS: 1 Non ALS: 0	No				X							

CHAIN OF CUSTODY

COC#: 76176 *ALS Laboratory:* EB Brisbane Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: EMGAMM - EMM CONSULTING PTY LTD

PROJECT: Olympic Dam

SITE: Olympic Dam

ORDER NO: E240975

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

PROJECT MANAGER: Simony Sakamoto CONTACT PH: 0412799277 SAMPLER MOBILE: 0412799277

PRIMARY SAMPLER: Simony Sakamoto QUOTE NO: EM24EMGAMM0004_V2 / EM2024EMGAMM0004

EMAIL REPORTS TO: ssakamoto@emmconsulting.com.au, ESdat_AU+emmconsulting@ESdatLabSync.net, dcondon@emmconsulting.com.au

ANALYSIS REQUIRED
ADDITIONAL INFORMATION
Send to Envirolab

CHAIN OF CUSTODY

COC#: **76176** *ALS Laboratory:* EB Brisbane Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: EMGAMM - EMM CONSULTING PTY LTD

PROJECT: Olympic Dam

SITE: Olympic Dam

ORDER NO: E240975

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

PROJECT MANAGER: Simony Sakamoto CONTACT PH: 0412799277 SAMPLER MOBILE: 0412799277

PRIMARY SAMPLER: Simony Sakamoto QUOTE NO: EM24EMGAMM0004_V2 / EM2024EMGAMM0004

EMAIL REPORTS TO: ssakamoto@emmconsulting.com.au, ESdat_AU+emmconsulting@ESdatLabSync.net, dcondon@emmconsulting.com.au

SAMPLE DETAILS							ANALYSIS REQUIRED										
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Acid-Base Accounting SOIL	Analysis NOT REQUIRED	Basic Suite SOIL	Contam 1 SOIL	Contam 2 - NEPM 2013 B1 Table 1A HIL - Basic Suite SOIL	Particle size analysis SOIL	QC/QC Trip Blank SOIL	QC/QC Trip Spike SOIL	Radiation Suite SOIL	Topsoil Suite SOIL	ALTERNATIVE ANALYSIS
022	TP15_0.4-0.5_241129_0.40-0.50		29/11/2024 10:15 PM	SOIL	ALS: 5 Non ALS: 1	No	X									X	
023	TP15_1.0-1.1_241129_1.00-1.10		29/11/2024 10:20 AM	SOIL	ALS: 4 Non ALS: 0	No	X		X			X					
024	TP15_2.0-2.1_241129_2.00-2.10		29/11/2024 10:30 AM	SOIL	ALS: 1 Non ALS: 0	No					X						
025	QC102_241129_0.00-0.15		29/11/2024 10:10 AM	SOIL	ALS: 1 Non ALS: 0	No				X							
026	QC202_241129_0.00-0.15		29/11/2024 10:10 AM	SOIL	ALS: 1 Non ALS: 0	No				X							
027	QC104_241129_1.00-1.10		29/11/2024 07:45 AM	SOIL	ALS: 1 Non ALS: 0	No					X						
028	QC204_241129_1.00-1.10		29/11/2024 07:45 AM	SOIL	ALS: 1 Non ALS: 0	No					X						

CHAIN OF CUSTODY

COC#: 76176 *ALS Laboratory:* EB Brisbane Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: EMGAMM - EMM CONSULTING PTY LTD

PROJECT: Olympic Dam

SITE: Olympic Dam

ORDER NO: E240975

PROJECT MANAGER: Simony Sakamoto CONTACT PH: 0412799277 SAMPLER MOBILE: 0412799277

PRIMARY SAMPLER: Simony Sakamoto QUOTE NO: EM24EMGAMM0004_V2 / EM2024EMGAMM0004

EMAIL REPORTS TO: ssakamoto@emmconsulting.com.au, ESdat_AU+emmconsulting@ESdatLabSync.net, dcondon@emmconsulting.com.au

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

ANALYSIS REQUIRED
ADDITIONAL INFORMATION
Send to Envirolab
Send to Envirolab

CHAIN OF CUSTODY

COC#: **76176** *ALS Laboratory:* EB Brisbane Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: EMGAMM - EMM CONSULTING PTY LTD

PROJECT: Olympic Dam

SITE: Olympic Dam

ORDER NO: E240975

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

PROJECT MANAGER: Simony Sakamoto CONTACT PH: 0412799277 SAMPLER MOBILE: 0412799277

PRIMARY SAMPLER: Simony Sakamoto QUOTE NO: EM24EMGAMM0004_V2 / EM2024EMGAMM0004

EMAIL REPORTS TO: ssakamoto@emmconsulting.com.au, ESdat_AU+emmconsulting@ESdatLabSync.net, dcondon@emmconsulting.com.au

SAMPLE DETAILS							ANALYSIS REQUIRED											
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Acid-Base Accounting SOIL	Analysis NOT REQUIRED	Basic Suite SOIL	Contam 1 SOIL	Contam 2 - NEPM 2013 B1 Table 1A HIL - Basic Suite SOIL	Particle size analysis SOIL	QC/QC Trip Blank SOIL	QC/QC Trip Spike SOIL	Radiation Suite SOIL	Topsoil Suite SOIL	ALTERNATIVE ANALYSIS
029	TP14_0.0-0.15_241128_0.00-0.15		28/11/2024 02:05 PM	SOIL	ALS: 1 Non ALS: 0	No				X							
030	TP14_0.4-0.5_241128_0.40-0.50		28/11/2024 02:10 PM	SOIL	ALS: 4 Non ALS: 2	No	X					X				X	
031	TP14_1.0-1.1_241128_0.40-0.50		28/11/2024 02:20 PM	SOIL	ALS: 4 Non ALS: 0	No	X		X								
032	TP14_2.0-2.1_241128_2.00-2.10		28/11/2024 02:25 PM	SOIL	ALS: 1 Non ALS: 0	No					X						
033	TP29_0.0-0.15_241128_0.00-0.15		28/11/2024 11:05 AM	SOIL	ALS: 1 Non ALS: 0	No					X						
034	TP29_0.4-0.5_241128_0.40-0.50		28/11/2024 01:10 PM	SOIL	ALS: 5 Non ALS: 0	No	X									X	
035	TP29_1.0-1.1_241128_1.00-1.10		28/11/2024 01:15 PM	SOIL	ALS: 4 Non ALS: 2	No	X		X			X			X		

CHAIN OF CUSTODY

COC#: **76176** *ALS Laboratory*: EB Brisbane Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: EMGAMM - EMM CONSULTING PTY LTD

PROJECT: Olympic Dam

SITE: Olympic Dam

ORDER NO: E240975

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

PROJECT MANAGER: Simony Sakamoto CONTACT PH: 0412799277 SAMPLER MOBILE: 0412799277

PRIMARY SAMPLER: Simony Sakamoto QUOTE NO: EM24EMGAMM0004_V2 / EM2024EMGAMM0004

EMAIL REPORTS TO: ssakamoto@emmconsulting.com.au, ESdat_AU+emmconsulting@ESdatLabSync.net, dcondon@emmconsulting.com.au

SAMPLE DETAILS							ANALYSIS REQUIRED										
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Acid-Base Accounting SOIL	Analysis NOT REQUIRED	Basic Suite SOIL	Contam 1 SOIL	Contam 2 - NEPM 2013 B1 Table 1A HIL - Basic Suite SOIL	Particle size analysis SOIL	QC/QC Trip Blank SOIL	QC/QC Trip Spike SOIL	Radiation Suite SOIL	Topsoil Suite SOIL	ALTERNATIVE ANALYSIS
036	TP29_2.0-2.3_241128_2.00-2.30		28/11/2024 01:20 PM	SOIL	ALS: 1 Non ALS: 0	No				X							
037	QC603_241202		02/12/2024 06:30 AM	SOIL	ALS: 1 Non ALS: 0	No								X			
038	QC402_241202		02/12/2024 06:30 AM	SOIL	ALS: 1 Non ALS: 0	No							X				

CHAIN OF CUSTODY

COC#: 76176 ALS Laboratory: EB Brisbane Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: EMGAMM - EMM CONSULTING PTY LTD

PROJECT: Olympic Dam

SITE: Olympic Dam

ORDER NO: E240975

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

PROJECT MANAGER: Simony Sakamoto CONTACT PH: 0412799277 SAMPLER MOBILE: 0412799277

PRIMARY SAMPLER: Simony Sakamoto QUOTE NO: EM24EMGAMM0004_V2 / EM2024EMGAMM0004

EMAIL REPORTS TO: ssakamoto@emmconsulting.com.au, ESdat_AU+emmconsulting@ESdatLabSync.net, dcondon@emmconsulting.com.au

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	TP28_0.0-	Soil Glass Jar - Unpreserved	250 mL	00260623001330	Orange	No	
002	TP28_0.4-	Soil Glass Jar - Unpreserved	150 mL	00260623109319	Orange	No	
002	TP28_0.4-	Soil Glass Jar - Unpreserved	250 mL	00260623001290	Orange	No	
002	TP28_0.4-	Snap Lock Bag - frozen	1 Medium	00130822035601	Green	No	
003	TP28_1.0-	Soil Glass Jar - Unpreserved	150 mL	00260623109345	Orange	No	
003	TP28_1.0-	Soil Glass Jar - Unpreserved	250 mL	00260623001303	Orange	No	
003	TP28_1.0-	Snap Lock Bag - frozen	1 Medium	00130822035602	Green	No	
004	TP03_0.0-	Soil Glass Jar - Unpreserved	250 mL	00260623001389	Orange	No	
005	TP03_0.4-	Soil Glass Jar - Unpreserved	250 mL	00260623001384	Orange	No	
005	TP03_0.4-	Soil Glass Jar - Unpreserved	150 mL	00260623109328	Orange	No	
005	TP03_0.4-	Snap Lock Bag - frozen	1 Medium	00130822035636	Green	No	
006	TP03_1.0-	Soil Glass Jar - Unpreserved	250 mL	00260623001372	Orange	No	
006	TP03_1.0-	Soil Glass Jar - Unpreserved	150 mL	00260623109472	Orange	No	
006	TP03_1.0-	Snap Lock Bag - frozen	1 Medium	00130822035637	Green	No	
007	TP03_2.0-	Soil Glass Jar - Unpreserved	250 mL	00260623001386	Orange	No	
008	TP02_0.0-	Soil Glass Jar - Unpreserved	250 mL	00260623001006	Orange	No	
009	TP02_0.4-	Soil Glass Jar - Unpreserved	150 mL	00260623042538	Orange	No	
009	TP02_0.4-	Soil Glass Jar - Unpreserved	250 mL	00260623000991	Orange	No	
009	TP02_0.4-	Snap Lock Bag - frozen	1 Medium	00130822035638	Green	No	
010	TP02_1.0-	Soil Glass Jar - Unpreserved	150 mL	00260623109336	Orange	No	
010	TP02_1.0-	Soil Glass Jar - Unpreserved	250 mL	00260623001002	Orange	No	
010	TP02_1.0-	Snap Lock Bag - frozen	1 Medium	00130822035639	Green	No	
011	TP02_2.0-	Soil Glass Jar - Unpreserved	250 mL	00260623000999	Orange	No	
012	TP27_0.0-	Soil Glass Jar - Unpreserved	250 mL	00260623000990	Orange	No	
013	TP27_0.4-	Soil Glass Jar - Unpreserved	250 mL	00260623001040	Orange	No	
013	TP27_0.4-	Soil Glass Jar - Unpreserved	150 mL	00260623109313	Orange	No	

CHAIN OF CUSTODY

COC#: **76176** *ALS Laboratory:* EB Brisbane Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: EMGAMM - EMM CONSULTING PTY LTD

PROJECT: Olympic Dam

SITE: Olympic Dam

ORDER NO: E240975

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

PROJECT MANAGER: Simony Sakamoto CONTACT PH: 0412799277 SAMPLER MOBILE: 0412799277

PRIMARY SAMPLER: Simony Sakamoto QUOTE NO: EM24EMGAMM0004_V2 / EM2024EMGAMM0004

EMAIL REPORTS TO: ssakamoto@emmconsulting.com.au, ESdat_AU+emmconsulting@ESdatLabSync.net, dcondon@emmconsulting.com.au

013	TP27_0.4-	Snap Lock Bag - frozen	1 Medium	00130822035640	Green	No	
014	TP27_1.0-	Soil Glass Jar - Unpreserved	250 mL	00260623000995	Orange	No	
014	TP27_1.0-	Soil Glass Jar - Unpreserved	150 mL	00260623109360	Orange	No	
014	TP27_1.0-	Snap Lock Bag - frozen	1 Medium	00130822035643	Green	No	
015	TP04_0.0-	Soil Glass Jar - Unpreserved	250 mL	00260623001302	Orange	No	
016	TP04_0.4-	Soil Glass Jar - Unpreserved	150 mL	00260623109307	Orange	No	
016	TP04_0.4-	Soil Glass Jar - Unpreserved	250 mL	00260623001276	Orange	No	
016	TP04_0.4-	Snap Lock Bag - frozen	1 Medium	00130822035610	Green	No	
017	TP04_1.0-	Soil Glass Jar - Unpreserved	150 mL	00260623109285	Orange	No	
017	TP04_1.0-	Soil Glass Jar - Unpreserved	250 mL	00260623001015	Orange	No	
017	TP04_1.0-	Snap Lock Bag - frozen	1 Medium	00130822035621	Green	No	
018	TP04_1.4_241129_1.30-	Soil Glass Jar - Unpreserved	250 mL	00260623001285	Orange	No	
019	QC103_241129_1.30-1.40	Soil Glass Jar - Unpreserved	250 mL	00260623001289	Orange	No	
020	QC203_241129_1.30-1.40	Soil Glass Jar - Unpreserved	250 mL	00260623001274	Orange	No	
021	TP15_0.0-	Soil Glass Jar - Unpreserved	250 mL	00260623001306	Orange	No	
022	TP15_0.4-	Soil Glass Jar - Unpreserved	250 mL	00260623001320	Orange	No	
022	TP15_0.4-	Soil Glass Jar - Unpreserved	250 mL	00260623001071	Orange	No	
022	TP15_0.4-	Soil Glass Jar - Unpreserved	250 mL	00260623001228	Orange	No	
022	TP15_0.4-	Soil Glass Jar - Unpreserved	150 mL	00260623109329	Orange	No	
022	TP15_0.4-	Snap Lock Bag - frozen	1 Medium	00130822035619	Green	No	
023	TP15_1.0-	Soil Glass Jar - Unpreserved	250 mL	00260623001329	Orange	No	
023	TP15_1.0-	Soil Glass Jar - Unpreserved	250 mL	00260623001093	Orange	No	
023	TP15_1.0-	Soil Glass Jar - Unpreserved	150 mL	00260623109293	Orange	No	
023	TP15_1.0-	Snap Lock Bag - frozen	1 Medium	00130822035620	Green	No	
024	TP15_2.0-	Soil Glass Jar - Unpreserved	250 mL	00260623001317	Orange	No	
025	QC102_241129_0.00-0.15	Soil Glass Jar - Unpreserved	250 mL	00260623001282	Orange	No	
026	QC202_241129_0.00-0.15	Soil Glass Jar - Unpreserved	250 mL	00260623001325	Orange	No	

CHAIN OF CUSTODY

COC#: **76176** *ALS Laboratory:* EB Brisbane Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: EMGAMM - EMM CONSULTING PTY LTD

PROJECT: Olympic Dam

SITE: Olympic Dam

ORDER NO: E240975

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

PROJECT MANAGER: Simony Sakamoto CONTACT PH: 0412799277 SAMPLER MOBILE: 0412799277

PRIMARY SAMPLER: Simony Sakamoto QUOTE NO: EM24EMGAMM0004_V2 / EM2024EMGAMM0004

EMAIL REPORTS TO: ssakamoto@emmconsulting.com.au, ESdat_AU+emmconsulting@ESdatLabSync.net, dcondon@emmconsulting.com.au

027	QC104_241129_1.00-1.10	Soil Glass Jar - Unpreserved	250 mL	00260623001238	Orange	No	
028	QC204_241129_1.00-1.10	Soil Glass Jar - Unpreserved	250 mL	00260623000983	Orange	No	
029	TP14_0.0-	Soil Glass Jar - Unpreserved	250 mL	00260623001399	Orange	No	
030	TP14_0.4-	Soil Glass Jar - Unpreserved	250 mL	00260623001385	Orange	No	
030	TP14_0.4-	Soil Glass Jar - Unpreserved	250 mL	00260623001382	Orange	No	
030	TP14_0.4-	Soil Glass Jar - Unpreserved	150 mL	00260623109335	Orange	No	
030	TP14_0.4-	Snap Lock Bag - frozen	1 Medium	00130822035600	Green	No	
031	TP14_1.0-	Soil Glass Jar - Unpreserved	250 mL	00260623001402	Orange	No	
031	TP14_1.0-	Soil Glass Jar - Unpreserved	250 mL	00260623001383	Orange	No	
031	TP14_1.0-	Soil Glass Jar - Unpreserved	150 mL	00260623109322	Orange	No	
031	TP14_1.0-	Snap Lock Bag - frozen	1 Medium	00130822035603	Green	No	
032	TP14_2.0-	Soil Glass Jar - Unpreserved	250 mL	00260623001090	Orange	No	
033	TP29_0.0-	Soil Glass Jar - Unpreserved	250 mL	00260623000942	Orange	No	
034	TP29_0.4-	Soil Glass Jar - Unpreserved	250 mL	00260623001007	Orange	No	
034	TP29_0.4-	Soil Glass Jar - Unpreserved	250 mL	00260623001070	Orange	No	
034	TP29_0.4-	Soil Glass Jar - Unpreserved	150 mL	00260623107793	Orange	No	
034	TP29_0.4-	Snap Lock Bag - frozen	1 Medium	00130822035656	Green	No	
034	TP29_0.4-	Snap Lock Bag	1 Medium	00130822035604	Green	No	
035	TP29_1.0-	Soil Glass Jar - Unpreserved	150 mL	00260623109300	Orange	No	
035	TP29_1.0-	Soil Glass Jar - Unpreserved	250 mL	00260623001030	Orange	No	
035	TP29_1.0-	Soil Glass Jar - Unpreserved	250 mL	00260623001037	Orange	No	
035	TP29_1.0-	Snap Lock Bag - frozen	1 Medium	00130822035651	Green	No	
036	TP29_2.0-	Soil Glass Jar - Unpreserved	250 mL	00260623001118	Orange	No	
037	QC603_241202	Soil Glass Jar - Unpreserved	150 mL	0026072206108040	Orange	No	
038	QC402_241202	Soil Glass Jar - Unpreserved	150 mL	00260623109187	Orange	No	

Total Bottle Count: ALS: 78, Non ALS: 11

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **EM2421125**		
Client	: **EMM CONSULTING PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: Simony Sakamoto	Contact	: Customer Services EM
Address	: Level 1, 70 Pirie Street Adelaide 5000	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: ssakamoto@emmconsulting.com.au	E-mail	: ALSEnviro.Melbourne@alsglobal.com
Telephone	: ----	Telephone	: +61 3 8549 9600
Facsimile	: ----	Facsimile	: +61-3-8549 9626
Project	: Olympic Dam	Page	: 1 of 6
Order number	: E240975	Quote number	: EM2024EMGAMM0004 (EM24EMGAMM0004_V2)
C-O-C number	: 76176	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Olympic Dam		
Sampler	: Simony Sakamoto		

Dates

Date Samples Received	: 04-Dec-2024 11:45	Issue Date	: 10-Dec-2024
Client Requested Due Date	: 11-Dec-2024	Scheduled Reporting Date	: **11-Dec-2024**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Intact.
No. of coolers/boxes	: 5	Temperature	: 9.5°C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 39 / 33

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please direct any queries related to sample condition / numbering / breakages to Client Services.**
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- Unless otherwise stated, analytical work for this work order will be conducted at ALS Melbourne, NATA accreditation no. 825, site no. 13778.
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Any sample identifications that cannot be displayed entirely in the analysis summary table will be listed below.

EM2421125-004	: 28-Nov-2024 22:00	: TP03_0.0-0.15_241128
EM2421125-008	: 28-Nov-2024 11:40	: TP02_0.0-0.15_241128
EM2421125-012	: 29-Nov-2024 08:35	: TP27_0.0-0.15_241129
EM2421125-013	: 29-Nov-2024 08:40	: TP27_0.40-0.50_241129
EM2421125-021	: 29-Nov-2024 23:10	: TP15_0.0-0.15_241129
EM2421125-025	: 29-Nov-2024 11:10	: QC102_241129_0.00-0.15
EM2421125-026	: 29-Nov-2024 11:10	: QC202_241129_0.00-0.15
EM2421125-027	: 29-Nov-2024 08:45	: QC104_241129_1.00-1.10
EM2421125-028	: 29-Nov-2024 08:45	: QC204_241129_1.00-1.10
EM2421125-029	: 28-Nov-2024 15:05	: TP14_0.0-0.15_241128
EM2421125-033	: 28-Nov-2024 12:05	: TP29_0.0-0.15_241128
EM2421125-039	: 02-Dec-2024 07:30	: QC603_241202 - Trip Control

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	SOIL - EA003 pH field/fox	SOIL - EA009 Net Acid Production Potential (NAPP)	SOIL - EA055-103 Moisture Content	SOIL - EA150H Particle Size Analysis by Hydrometer: AS1289	SOIL - EA250 Gross beta/alpha activity in Soils	SOIL - EA252 Individual Natural Radionuclides by HR Gamma	SOIL - S-26 8 metals/TRH/BTEXN/PAH
EM2421125-001	28-Nov-2024 09:15	TP28_0.0-0.1_241128			✓				✓
EM2421125-002	28-Nov-2024 09:25	TP28_0.4-0.5_241128	✓	✓	✓	✓	✓	✓	
EM2421125-003	28-Nov-2024 09:20	TP28_1.0-1.1_241128	✓	✓					
EM2421125-005	28-Nov-2024 22:05	TP03_0.4-0.5_241128	✓	✓					
EM2421125-006	28-Nov-2024 22:10	TP03_1.0-1.1_241128	✓	✓	✓	✓			✓
EM2421125-007	28-Nov-2024 22:15	TP03_2.0-2.1_241128			✓				
EM2421125-008	28-Nov-2024 11:40	TP02_0.0-0.15_241128			✓				✓
EM2421125-009	28-Nov-2024 11:45	TP02_0.4-0.5_241128	✓	✓		✓			
EM2421125-010	28-Nov-2024 11:50	TP02_1.0-1.1_241128	✓	✓					
EM2421125-011	28-Nov-2024 11:55	TP02_2.0-2.1_241128			✓				
EM2421125-013	29-Nov-2024 08:40	TP27_0.40-0.50_241129	✓	✓	✓				✓
EM2421125-014	29-Nov-2024 08:45	TP27_1.0-1.1_241129	✓	✓	✓	✓			
EM2421125-016	29-Nov-2024 09:45	TP04_0.4-0.5_241129	✓	✓	✓				✓
EM2421125-017	29-Nov-2024 09:55	TP04_1.0-1.1_241129	✓	✓		✓			
EM2421125-018	29-Nov-2024 10:00	TP04_1.4_241129			✓				
EM2421125-019	29-Nov-2024 10:00	QC103_241129			✓				
EM2421125-021	29-Nov-2024 23:10	TP15_0.0-0.15_241129			✓				✓
EM2421125-022	29-Nov-2024 23:15	TP15_0.4-0.5_241129	✓	✓	✓				
EM2421125-023	29-Nov-2024 11:20	TP15_1.0-1.1_241129	✓	✓	✓	✓			
EM2421125-024	29-Nov-2024 11:30	TP15_2.0-2.1_241129			✓				
EM2421125-025	29-Nov-2024 11:10	QC102_241129_0.00-0....			✓				✓
EM2421125-027	29-Nov-2024 08:45	QC104_241129_1.00-1....			✓				
EM2421125-029	28-Nov-2024 15:05	TP14_0.0-0.15_241128			✓				✓
EM2421125-030	28-Nov-2024 15:10	TP14_0.4-0.5_241128	✓	✓	✓	✓			

			SOIL - EA003 pH field/fox	SOIL - EA009 Net Acid Production Potential (NAPP)	SOIL - EA055-103 Moisture Content	SOIL - EA150H Particle Size Analysis by Hydrometer: AS1289	SOIL - EA250 Gross beta/alpha activity in Soils	SOIL - EA252 Individual Natural Radionuclides by HR Gamma	SOIL - S-26 8 metals/TRH/BTEXN/PAH
EM2421125-031	28-Nov-2024 15:20	TP14_1.0-1.1_241128	✓	✓	✓				
EM2421125-032	28-Nov-2024 15:25	TP14_2.0-2.1_241128			✓				
EM2421125-033	28-Nov-2024 12:05	TP29_0.0-0.15_241128			✓				
EM2421125-034	28-Nov-2024 14:10	TP29_0.4-0.5_241128	✓	✓	✓				
EM2421125-035	28-Nov-2024 14:15	TP29_1.0-1.1_241128	✓	✓	✓	✓	✓	✓	
EM2421125-036	28-Nov-2024 14:20	TP29_2.0-2.3_241128			✓				✓
EM2421125-037	02-Dec-2024 07:30	QC603_241202			✓				
EM2421125-038	02-Dec-2024 07:30	QC402_241202			✓				
EM2421125-039	02-Dec-2024 07:30	QC603_241202 - Trip ...			✓				

Matrix: **SOIL**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	(On Hold) SOIL No analysis requested	SOIL - AG-1 EM Only Agricultural (CEC) Soil Suite 1 (pretest air dried)	SOIL - EA002 pH (1:5)	SOIL - EA010 (solids): Electrical Conductivity (1:5)	SOIL - EA033 Chromium Suite for Acid Sulphate Soils	SOIL - ED045G (solids) Chloride Soluble by Discrete Analyser	SOIL - P-21/1 (Melb) NEPM (2013) HIL Table 1A(1) Screen
EM2421125-002	28-Nov-2024 09:25	TP28_0.4-0.5_241128					✓		✓
EM2421125-003	28-Nov-2024 09:20	TP28_1.0-1.1_241128					✓		
EM2421125-004	28-Nov-2024 22:00	TP03_0.0-0.15_241128	✓						
EM2421125-005	28-Nov-2024 22:05	TP03_0.4-0.5_241128					✓		
EM2421125-006	28-Nov-2024 22:10	TP03_1.0-1.1_241128					✓		
EM2421125-007	28-Nov-2024 22:15	TP03_2.0-2.1_241128							✓
EM2421125-009	28-Nov-2024 11:45	TP02_0.4-0.5_241128					✓		
EM2421125-010	28-Nov-2024 11:50	TP02_1.0-1.1_241128					✓		
EM2421125-011	28-Nov-2024 11:55	TP02_2.0-2.1_241128							✓
EM2421125-012	29-Nov-2024 08:35	TP27_0.0-0.15_241129	✓						
EM2421125-013	29-Nov-2024 08:40	TP27_0.40-0.50_241129					✓		
EM2421125-014	29-Nov-2024 08:45	TP27_1.0-1.1_241129					✓		✓
EM2421125-015	29-Nov-2024 09:40	TP04_0.0-0.1_241129	✓						
EM2421125-016	29-Nov-2024 09:45	TP04_0.4-0.5_241129		✓	✓	✓	✓	✓	
EM2421125-017	29-Nov-2024 09:55	TP04_1.0-1.1_241129					✓		
EM2421125-018	29-Nov-2024 10:00	TP04_1.4_241129							✓
EM2421125-019	29-Nov-2024 10:00	QC103_241129							✓
EM2421125-022	29-Nov-2024 23:15	TP15_0.4-0.5_241129		✓	✓	✓	✓	✓	
EM2421125-023	29-Nov-2024 11:20	TP15_1.0-1.1_241129		✓	✓	✓	✓	✓	
EM2421125-024	29-Nov-2024 11:30	TP15_2.0-2.1_241129							✓

			(On Hold) SOIL No analysis requested	SOIL - AG-1 EM Only Agricultural (CEC) Soil Suite 1 (pretest air dried)	SOIL - EA002 pH (1:5)	SOIL - EA010 (solids): Electrical Conductivity (1:5)	SOIL - EA033 Chromium Suite for Acid Sulphate Soils	SOIL - ED045G (solids) Chloride Soluble by Discrete Analyser	SOIL - P-21/1 (Melb) NEPM (2013) HIL Table 1A(1) Screen
EM2421125-027	29-Nov-2024 08:45	QC104_241129_1.00-1....							✓
EM2421125-030	28-Nov-2024 15:10	TP14_0.4-0.5_241128		✓	✓	✓	✓	✓	
EM2421125-031	28-Nov-2024 15:20	TP14_1.0-1.1_241128		✓	✓	✓	✓	✓	
EM2421125-032	28-Nov-2024 15:25	TP14_2.0-2.1_241128							✓
EM2421125-033	28-Nov-2024 12:05	TP29_0.0-0.15_241128							✓
EM2421125-034	28-Nov-2024 14:10	TP29_0.4-0.5_241128		✓	✓	✓	✓	✓	
EM2421125-035	28-Nov-2024 14:15	TP29_1.0-1.1_241128		✓	✓	✓	✓	✓	

Matrix: **SOIL**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	SOIL - EA001 pH (CaCl)	SOIL - EA029 SPOCAS	SOIL - ED040N Calcium Phosphate Extractable Sulfate	SOIL - EG005T (solids) Total Metals by ICP-AES	SOIL - EK080 Bicarbonate Extractable P (Colwell)	SOIL - EP004 (Carbon) Organic Matter & Total Organic Carbon (Calc.)	SOIL - NT-8S NH3, NO2, NO3, NOX, TKN, TN, TP
EM2421125-016	29-Nov-2024 09:45	TP04_0.4-0.5_241129	✓						
EM2421125-022	29-Nov-2024 23:15	TP15_0.4-0.5_241129	✓	✓	✓	✓	✓	✓	✓
EM2421125-023	29-Nov-2024 11:20	TP15_1.0-1.1_241129	✓	✓					
EM2421125-030	28-Nov-2024 15:10	TP14_0.4-0.5_241128	✓		✓	✓	✓	✓	✓
EM2421125-031	28-Nov-2024 15:20	TP14_1.0-1.1_241128	✓						
EM2421125-034	28-Nov-2024 14:10	TP29_0.4-0.5_241128	✓		✓	✓	✓	✓	✓
EM2421125-035	28-Nov-2024 14:15	TP29_1.0-1.1_241128	✓						

Matrix: **SOIL**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	SOIL - EA058 Emerson Aggregate Test	SOIL - ED040T Sulfur Sulfur as S	SOIL - S-18 TRH(C6-C9)/BTEXN
EM2421125-022	29-Nov-2024 23:15	TP15_0.4-0.5_241129	✓	✓	
EM2421125-030	28-Nov-2024 15:10	TP14_0.4-0.5_241128	✓	✓	
EM2421125-034	28-Nov-2024 14:10	TP29_0.4-0.5_241128	✓	✓	
EM2421125-037	02-Dec-2024 07:30	QC603_241202			✓

			SOIL - EA058 Emerson Aggregate Test	SOIL - ED040T Sulfur Sulfur as S	SOIL - S-18 TRH(C6-C9)/BTEXN
EM2421125-038	02-Dec-2024 07:30	QC402_241202			✓
EM2421125-039	02-Dec-2024 07:30	QC603_241202 - Trip ...			✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ALL INVOICES

- A4 - AU Tax Invoice (INV)	Email	finance@emmconsulting.com.au

DANIEL CONDON

- *AU Certificate of Analysis - NATA (COA)	Email	dcondon@emmconsulting.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	dcondon@emmconsulting.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	dcondon@emmconsulting.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	dcondon@emmconsulting.com.au
- A4 - AU Tax Invoice (INV)	Email	dcondon@emmconsulting.com.au
- Attachment - Report (SUBCO)	Email	dcondon@emmconsulting.com.au
- Chain of Custody (CoC) (COC)	Email	dcondon@emmconsulting.com.au
- EDI Format - ESDAT (ESDAT)	Email	dcondon@emmconsulting.com.au

ESDAT CONTAM TEAM

- EDI Format - ESDAT (ESDAT)	Email	ESdat_AU+emmconsulting@ESdatLabSync.net
- Electronic SRN for ESdat (ESRN_ESDAT)	Email	ESdat_AU+emmconsulting@ESdatLabSync.net

Simony Sakamoto

- *AU Certificate of Analysis - NATA (COA)	Email	ssakamoto@emmconsulting.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	ssakamoto@emmconsulting.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	ssakamoto@emmconsulting.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	ssakamoto@emmconsulting.com.au
- A4 - AU Tax Invoice (INV)	Email	ssakamoto@emmconsulting.com.au
- Attachment - Report (SUBCO)	Email	ssakamoto@emmconsulting.com.au
- Chain of Custody (CoC) (COC)	Email	ssakamoto@emmconsulting.com.au
- EDI Format - ESDAT (ESDAT)	Email	ssakamoto@emmconsulting.com.au

Inter-Laboratory Testing

Analysis conducted by ALS Brisbane, NATA accreditation no. 825, site no. 818 (Chemistry / Biology).

(SOIL) EA003 :pH (field/fox)
(SOIL) EA009: Net Acid Production Potential
(SOIL) EA033-B: Potential Acidity
(SOIL) EA033-C: Acid Neutralising Capacity
(SOIL) EA033-D: Retained Acidity
(SOIL) EA033-A: Actual Acidity
(SOIL) EA033-E: Acid Base Accounting
(SOIL) EK080: Bicarbonate Extractable Phosphorus (Colwell)
(SOIL) EA058: Emerson Aggregate Test
(SOIL) EA029-D: Calcium Values
(SOIL) EA029-E: Magnesium Values
(SOIL) EA029-F: Excess Acid Neutralising Capacity
(SOIL) EA029-H: Acid Base Accounting
(SOIL) EA029-G: Retained Acidity
(SOIL) EA029-A: pH Measurements
(SOIL) EA029-C: Sulfur Trail
(SOIL) EA029-B: Acidity Trail
(SOIL) Radionuclides / Activity

Analysis conducted by ALS Newcastle, NATA accreditation no. 825, site no. 1656 (Chemistry / Biology).

(SOIL) EA150: Soil Classification based on Particle Size
(SOIL) EA150: Particle Sizing

CERTIFICATE OF ANALYSIS

Work Order	: **EM2421125**	Page	: 1 of 62
Client	: **EMM CONSULTING PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: Simony Sakamoto	Contact	: Customer Services EM
Address	: Level 1, 70 Pirie Street Adelaide 5000	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +61 3 8549 9600
Project	: Olympic Dam	Date Samples Received	: 04-Dec-2024 11:45
Order number	: E240975	Date Analysis Commenced	: 06-Dec-2024
C-O-C number	: 76176	Issue Date	: 21-Jan-2025 17:37
Sampler	: Simony Sakamoto		
Site	: Olympic Dam		
Quote number	: EM24EMGAMM0004_V2		
No. of samples received	: 39		
No. of samples analysed	: 33		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Aleksandar Vujkovic	Laboratory Technician	Newcastle - Inorganics, Mayfield West, NSW
Beatriz Llarinas	Senior Chemist - Inorganics	Brisbane Inorganics, Stafford, QLD
Ben Felgendrejeris	Senior Acid Sulfate Soil Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
Dilani Fernando	Laboratory Coordinator	Melbourne Inorganics, Springvale, VIC
Jarwis Nheu	Non-Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Kim McCabe	Senior Inorganic Chemist	Brisbane External Subcontracting, Stafford, QLD
Nancy Wang	2IC Organic Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	2IC Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EA150H: Soil Particle Density required for Hydrometer analysis according to AS 1289.3.5.1 2006 was not requested by the client. Typical sediment SPD values used for calculations and consequently NATA endorsement does not apply to hydrometer results.
- EG005T: EM2421125 #18, sample heterogeneity has been observed for copper, with the following results observed: 9730 mg/kg, 1400 mg/kg and 6050 mg/kg.
- EG005T: EM2421125 #19, sample heterogeneity has been observed for copper, with the following results obtained: 6770 mg/kg, 3780 mg/kg and 5080 mg/kg.
- EG005T: EM2421125 #19, sample heterogeneity has been observed for barium, with the following results obtained: 690 mg/kg, 380 mg/kg and 300 mg/kg.
- ALS is not NATA accredited for the analysis of Exchangeable Cations on Alkaline Soils when performed under ALS Method ED006.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP068: Where reported, Total OCP is the sum of the reported concentrations of all Organochlorine Pesticides at or above LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.
- ASS: EA029 (SPOCAS): Analysis is performed as per the Acid Sulfate Soils Laboratory Methods Guidelines (2004), 4969.12-2009 Analysis of Acid Sulphate Soil and the updated National Acid Sulfate Soils Guidance: National acid sulfate soils identification and laboratory methods manual, Department of Agriculture and Water Resources, Canberra, ACT (2018)
- ASS: EA033 (CRS Suite): Analysis is performed as per the Acid Sulfate Soils Laboratory Methods Guidelines (2004) and the updated National Acid Sulfate Soils Guidance: National acid sulfate soils identification and laboratory methods manual, Department of Agriculture and Water Resources, Canberra, ACT (2018)
- EP080: Samples (EM2421125-037,039) TRIP SPIKE and TRIP SPIKE CONTROL contain volatile compounds spiked into the sample containers prior to dispatch from the laboratory.
- EG005-T : EM2421125 #13 Poor duplicate precision for total metals due to sample matrix. Confirmed by re-digestion and re-analysis.
- EG005-T : EM2421125 #13 results for total copper have been confirmed by re-digestion and re-analysis. It's been noted that the repeated results vary greatly. Repeated results are obtained as follows: Copper : 3430 mg/kg, 2600 mg/kg, 1800 mg/kg, and 2520 mg/kg.
- EG005-T : EM2421059 #125 Poor duplicate precision for total iron due to sample matrix. Confirmed by re-digestion and re-analysis.
- EG005-T : EM2421125 #29 Poor duplicate precision for total copper due to sample matrix. Confirmed by re-digestion and re-analysis.
- EG005-T : EM2421125 #16 results for total copper have been confirmed by re-digestion and re-analysis. It's been noted that the repeated results vary greatly. Repeated results are obtained as follows: Copper: 5760 mg/kg, 1150 mg/kg, 734 mg/kg, and 1230 mg/kg.
- ASS: EA029 (SPOCAS): Retained Acidity not required because pH KCl greater than or equal to 4.5

- ASS: EA033 (CRS Suite):Retained Acidity not required because pH KCl greater than or equal to 4.5
- EG005-T : EM2421125 #16 Poor duplicate precision for total metals due to sample matrix. Confirmed by re-digestion and re-analysis.
- Radiological work undertaken by ALS Laboratory Group (Ceska Lipa) under CAI accreditation No. L1163. Report No PR24F4167. NATA and CAI accreditations are both recognised under ILAC.
- ASS: EA029 (SPOCAS): Laboratory determinations of ANC needs to be corroborated by effectiveness of the measured ANC in relation to incubation ANC. Unless corroborated, the results of ANC testing should be discounted when determining Net Acidity for comparison with action criteria, or for the determination of the acidity hazard and required liming amounts.
- ASS: EA033 (CRS Suite): Laboratory determinations of ANC needs to be corroborated by effectiveness of the measured ANC in relation to incubation ANC. Unless corroborated, the results of ANC testing should be discounted when determining Net Acidity for comparison with action criteria, or for the determination of the acidity hazard and required liming amounts.
- ASS: EA033 (CRS Suite): Liming rate is calculated and reported on a dry weight basis assuming use of fine agricultural lime (CaCO3) and using a safety factor of 1.5 to allow for non-homogeneous mixing and poor reactivity of lime. For conversion of Liming Rate from 'kg/t dry weight' to 'kg/m3 in-situ soil', multiply 'reported results' x 'wet bulk density of soil in t/m3'.
- ASS: EA013 (ANC) Fizz Rating: 0- None; 1- Slight; 2- Moderate; 3- Strong; 4- Very Strong; 5- Lime.
- Radiological work undertaken by ALS Laboratory Group (Ceska Lipa) under CAI accreditation No. L1163. Report No. $$. NATA and CAI accreditations' are both recognised under ILAC.
- ASS: EA029 (SPOCAS): Liming rate is calculated and reported on a dry weight basis assuming use of fine agricultural lime (CaCO3) and using a safety factor of 1.5 to allow for non-homogeneous mixing and poor reactivity of lime. For conversion of Liming Rate from kg/t dry weight to kg/m3 in-situ soil, multiply reported results x wet bulk density of soil in t/m3.
- ASS: EA003 (NATA Field and F(ox) screening): pH F(ox) Reaction Rate: 1 - Slight; 2 - Moderate; 3 - Strong; 4 - Extreme
- EA058 Emerson: V. = Very, D. = Dark, L. = Light, VD. = Very Dark
- ED007 and ED008: When Exchangeable Al is reported from these methods, it should be noted that Rayment & Lyons (2011) suggests Exchange Acidity by 1M KCl - Method 15G1 (ED005) is a more suitable method for the determination of exchange acidity (H+ + Al3+).
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	TP28_0.0-0.1_241128	TP28_0.4-0.5_241128	TP28_1.0-1.1_241128	TP03_0.4-0.5_241128	TP03_1.0-1.1_241128
			Sampling date / time	28-Nov-2024 09:15	28-Nov-2024 09:25	28-Nov-2024 09:20	28-Nov-2024 22:05	28-Nov-2024 22:10
Compound	CAS Number	LOR	Unit	EM2421125-001	EM2421125-002	EM2421125-003	EM2421125-005	EM2421125-006
				Result	Result	Result	Result	Result
EA003 :pH (field/fox)								
pH (F)	----	0.1	pH Unit	----	8.1	8.2	9.3	8.6
pH (Fox)	----	0.1	pH Unit	----	8.9	10.0	10.9	9.9
Reaction Rate	----	1	Reaction Unit	----	3	3	3	3
EA009: Net Acid Production Potential								
Net Acid Production Potential	----	0.5	kg H2SO4/t	----	-135	-294	-792	-440
EA033-A: Actual Acidity								
pH KCl (23A)	----	0.1	pH Unit	----	8.3	8.6	9.4	9.0
Titratable Actual Acidity (23F)	----	2	mole H+ / t	----	<2	<2	<2	<2
sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	----	<0.02	<0.02	<0.02	<0.02
EA033-B: Potential Acidity								
Chromium Reducible Sulfur (22B)	----	0.005	% S	----	0.014	0.014	0.020	0.018
acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	----	<10	<10	13	11
EA033-C: Acid Neutralising Capacity								
Acid Neutralising Capacity (19A2)	----	0.01	% CaCO3	----	20.2	30.7	69.2	34.2
acidity - Acid Neutralising Capacity (a-19A2)	----	10	mole H+ / t	----	4040	6140	13800	6840
sulfidic - Acid Neutralising Capacity (s-19A2)	----	0.01	% pyrite S	----	6.48	9.85	22.2	11.0
EA033-E: Acid Base Accounting								
ANC Fineness Factor	----	0.5	-	----	1.5	1.5	1.5	1.5
Net Acidity (sulfur units)	----	0.02	% S	----	<0.02	<0.02	<0.02	<0.02
Net Acidity (acidity units)	----	10	mole H+ / t	----	<10	<10	<10	<10
Liming Rate	----	1	kg CaCO3/t	----	<1	<1	<1	<1
Net Acidity excluding ANC (sulfur units)	----	0.02	% S	----	<0.02	<0.02	0.02	<0.02
Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	----	<10	<10	13	11
Liming Rate excluding ANC	----	1	kg CaCO3/t	----	<1	<1	<1	<1
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	4.5	9.2	----	----	11.8

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	TP28_0.0-0.1_241128	TP28_0.4-0.5_241128	TP28_1.0-1.1_241128	TP03_0.4-0.5_241128	TP03_1.0-1.1_241128
			Sampling date / time	28-Nov-2024 09:15	28-Nov-2024 09:25	28-Nov-2024 09:20	28-Nov-2024 22:05	28-Nov-2024 22:10
Compound	CAS Number	LOR	Unit	EM2421125-001	EM2421125-002	EM2421125-003	EM2421125-005	EM2421125-006
				Result	Result	Result	Result	Result
EA150: Particle Sizing								
+75µm	----	1	%	----	64	----	----	72
+150µm	----	1	%	----	55	----	----	67
+300µm	----	1	%	----	39	----	----	58
+425µm	----	1	%	----	34	----	----	54
+600µm	----	1	%	----	32	----	----	53
+1180µm	----	1	%	----	30	----	----	51
+2.36mm	----	1	%	----	28	----	----	49
+4.75mm	----	1	%	----	25	----	----	48
+9.5mm	----	1	%	----	23	----	----	44
+19.0mm	----	1	%	----	12	----	----	15
+37.5mm	----	1	%	----	<1	----	----	<1
+75.0mm	----	1	%	----	<1	----	----	<1
EA150: Soil Classification based on Particle Size								
Clay (<2 µm)	----	1	%	----	22	----	----	16
Silt (2-60 µm)	----	1	%	----	11	----	----	9
Sand (0.06-2.00 mm)	----	1	%	----	39	----	----	25
Gravel (>2mm)	----	1	%	----	28	----	----	50
Cobbles (>6cm)	----	1	%	----	<1	----	----	<1
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	11	12	----	----	11
Barium	7440-39-3	10	mg/kg	----	100	----	----	----
Beryllium	7440-41-7	1	mg/kg	----	<1	----	----	----
Boron	7440-42-8	50	mg/kg	----	<50	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	----	----	<1
Chromium	7440-47-3	2	mg/kg	9	8	----	----	14
Cobalt	7440-48-4	2	mg/kg	----	16	----	----	----
Copper	7440-50-8	5	mg/kg	10200	330	----	----	92

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	TP28_0.0-0.1_241128	TP28_0.4-0.5_241128	TP28_1.0-1.1_241128	TP03_0.4-0.5_241128	TP03_1.0-1.1_241128
			Sampling date / time	28-Nov-2024 09:15	28-Nov-2024 09:25	28-Nov-2024 09:20	28-Nov-2024 22:05	28-Nov-2024 22:10
Compound	CAS Number	LOR	Unit	EM2421125-001	EM2421125-002	EM2421125-003	EM2421125-005	EM2421125-006
				Result	Result	Result	Result	Result
EG005(ED093)T: Total Metals by ICP-AES - Continued								
Lead	7439-92-1	5	mg/kg	**18**	**6**	----	----	**5**
Manganese	7439-96-5	5	mg/kg	----	**56**	----	----	----
Nickel	7440-02-0	2	mg/kg	**6**	**4**	----	----	**8**
Selenium	7782-49-2	5	mg/kg	----	<5	----	----	----
Vanadium	7440-62-2	5	mg/kg	----	**113**	----	----	----
Zinc	7440-66-6	5	mg/kg	**25**	**12**	----	----	**25**
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	----	----	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)								
Hexavalent Chromium	18540-29-9	0.5	mg/kg	----	<0.5	----	----	----
EK028SF: Weak Acid Dissociable CN by Segmented Flow Analyser								
Weak Acid Dissociable Cyanide	----	1	mg/kg	----	<1	----	----	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	<0.1	----	----	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	----	<0.05	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	----	<0.05	----	----	----
beta-BHC	319-85-7	0.05	mg/kg	----	<0.05	----	----	----
gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	----	<0.05	----	----	----
delta-BHC	319-86-8	0.05	mg/kg	----	<0.05	----	----	----
Heptachlor	76-44-8	0.05	mg/kg	----	<0.05	----	----	----
Aldrin	309-00-2	0.05	mg/kg	----	<0.05	----	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	----	<0.05	----	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg	----	<0.05	----	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg	----	<0.05	----	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg	----	<0.05	----	----	----
Dieldrin	60-57-1	0.05	mg/kg	----	<0.05	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	TP28_0.0-0.1_241128	TP28_0.4-0.5_241128	TP28_1.0-1.1_241128	TP03_0.4-0.5_241128	TP03_1.0-1.1_241128
			Sampling date / time	28-Nov-2024 09:15	28-Nov-2024 09:25	28-Nov-2024 09:20	28-Nov-2024 22:05	28-Nov-2024 22:10
Compound	CAS Number	LOR	Unit	EM2421125-001	EM2421125-002	EM2421125-003	EM2421125-005	EM2421125-006
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
4.4`-DDE	72-55-9	0.05	mg/kg	----	<0.05	----	----	----
Endrin	72-20-8	0.05	mg/kg	----	<0.05	----	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg	----	<0.05	----	----	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	----	<0.05	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg	----	<0.05	----	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg	----	<0.05	----	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg	----	<0.05	----	----	----
4.4`-DDT	50-29-3	0.2	mg/kg	----	<0.2	----	----	----
Endrin ketone	53494-70-5	0.05	mg/kg	----	<0.05	----	----	----
Methoxychlor	72-43-5	0.2	mg/kg	----	<0.2	----	----	----
Mirex	2385-85-5	0.20	mg/kg	----	<0.20	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	----	<0.05	----	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg	----	<0.05	----	----	----
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.05	mg/kg	----	<0.05	----	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg	----	<0.05	----	----	----
Monocrotophos	6923-22-4	0.2	mg/kg	----	<0.2	----	----	----
Dimethoate	60-51-5	0.05	mg/kg	----	<0.05	----	----	----
Diazinon	333-41-5	0.05	mg/kg	----	<0.05	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	----	<0.05	----	----	----
Parathion-methyl	298-00-0	0.2	mg/kg	----	<0.2	----	----	----
Malathion	121-75-5	0.05	mg/kg	----	<0.05	----	----	----
Fenthion	55-38-9	0.05	mg/kg	----	<0.05	----	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg	----	<0.05	----	----	----
Parathion	56-38-2	0.2	mg/kg	----	<0.2	----	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg	----	<0.05	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	TP28_0.0-0.1_241128	TP28_0.4-0.5_241128	TP28_1.0-1.1_241128	TP03_0.4-0.5_241128	TP03_1.0-1.1_241128
			Sampling date / time	28-Nov-2024 09:15	28-Nov-2024 09:25	28-Nov-2024 09:20	28-Nov-2024 22:05	28-Nov-2024 22:10
Compound	CAS Number	LOR	Unit	EM2421125-001	EM2421125-002	EM2421125-003	EM2421125-005	EM2421125-006
				Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued								
Chlorfenvinphos	470-90-6	0.05	mg/kg	----	<0.05	----	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg	----	<0.05	----	----	----
Fenamiphos	22224-92-6	0.05	mg/kg	----	<0.05	----	----	----
Prothiofos	34643-46-4	0.05	mg/kg	----	<0.05	----	----	----
Ethion	563-12-2	0.05	mg/kg	----	<0.05	----	----	----
Carbophenothion	786-19-6	0.05	mg/kg	----	<0.05	----	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg	----	<0.05	----	----	----
EP068C: Triazines								
Atrazine	1912-24-9	0.05	mg/kg	----	<0.05	----	----	----
EP068D: Pyrethroids								
Bifenthrin	82657-04-3	0.05	mg/kg	----	<0.05	----	----	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	----	<0.5	----	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg	----	<0.5	----	----	----
2-Methylphenol	95-48-7	0.5	mg/kg	----	<0.5	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	----	<1	----	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg	----	<0.5	----	----	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg	----	<0.5	----	----	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg	----	<0.5	----	----	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg	----	<0.5	----	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	----	<0.5	----	----	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	----	<0.5	----	----	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	----	<0.5	----	----	----
Pentachlorophenol	87-86-5	2	mg/kg	----	<2	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	----	----	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	TP28_0.0-0.1_241128	TP28_0.4-0.5_241128	TP28_1.0-1.1_241128	TP03_0.4-0.5_241128	TP03_1.0-1.1_241128
			Sampling date / time	28-Nov-2024 09:15	28-Nov-2024 09:25	28-Nov-2024 09:20	28-Nov-2024 22:05	28-Nov-2024 22:10
Compound	CAS Number	LOR	Unit	EM2421125-001	EM2421125-002	EM2421125-003	EM2421125-005	EM2421125-006
				Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
^ **Benzo(a)pyrene TEQ (half LOR)**	----	0.5	mg/kg	**0.6**	**0.6**	----	----	**0.6**
^ **Benzo(a)pyrene TEQ (LOR)**	----	0.5	mg/kg	**1.2**	**1.2**	----	----	**1.2**
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	----	----	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	----	----	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	----	----	<100
C29 - C36 Fraction	----	100	mg/kg	<100	<100	----	----	<100
^ **C10 - C36 Fraction (sum)**	----	50	mg/kg	<50	<50	----	----	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	----	----	<10

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	TP28_0.0-0.1_241128	TP28_0.4-0.5_241128	TP28_1.0-1.1_241128	TP03_0.4-0.5_241128	TP03_1.0-1.1_241128
			Sampling date / time	28-Nov-2024 09:15	28-Nov-2024 09:25	28-Nov-2024 09:20	28-Nov-2024 22:05	28-Nov-2024 22:10
Compound	CAS Number	LOR	Unit	EM2421125-001	EM2421125-002	EM2421125-003	EM2421125-005	EM2421125-006
				Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued								
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg	<10	<10	----	----	<10
>C10 - C16 Fraction	----	50	mg/kg	<50	<50	----	----	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	----	----	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	----	----	<100
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg	<50	<50	----	----	<50
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	50	mg/kg	<50	<50	----	----	<50
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	----	----	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
^ **Sum of BTEX**	----	0.2	mg/kg	<0.2	<0.2	----	----	<0.2
^ **Total Xylenes**	----	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	----	----	<1
Radionuclides / Activity								
Gross alpha	----	500	Bq/kg DW	----	**1060**	----	----	----
Uranium 238	7440-61-1	10.0	Bq/kg DW	----	**56.0**	----	----	----
Gross beta	----	500	Bq/kg DW	----	**720**	----	----	----
Thorium 234	----	10.0	Bq/kg DW	----	**56.0**	----	----	----
Thorium 230	----	50	Bq/kg DW	----	<320	----	----	----
Radium 226	13982-63-3	1.0	Bq/kg DW	----	**481**	----	----	----
Lead 210	14255-04-0	50	Bq/kg DW	----	**187**	----	----	----
Uranium 235	15117-96-1	1	Bq/kg DW	----	<4.1	----	----	----
Protactinium 231	----	5	Bq/kg DW	----	<74	----	----	----
Actinium 227	----	1	Bq/kg DW	----	<19.0	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	TP28_0.0-0.1_241128	TP28_0.4-0.5_241128	TP28_1.0-1.1_241128	TP03_0.4-0.5_241128	TP03_1.0-1.1_241128
			Sampling date / time	28-Nov-2024 09:15	28-Nov-2024 09:25	28-Nov-2024 09:20	28-Nov-2024 22:05	28-Nov-2024 22:10
Compound	CAS Number	LOR	Unit	EM2421125-001	EM2421125-002	EM2421125-003	EM2421125-005	EM2421125-006
				Result	Result	Result	Result	Result
Radionuclides / Activity - Continued								
Thorium 227	----	1	Bq/kg DW	----	<19.0	----	----	----
Radium 223	----	1	Bq/kg DW	----	<21.0	----	----	----
Radium 228	7440-14-4	1.0	Bq/kg DW	----	24.3	----	----	----
Thorium 228	----	1.0	Bq/kg DW	----	24.2	----	----	----
Potassium 40	13966-00-2	10	Bq/kg DW	----	216	----	----	----
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	----	89.6	----	----	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.05	%	----	79.8	----	----	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.05	%	----	66.1	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	88.0	69.3	----	----	86.5
2-Chlorophenol-D4	93951-73-6	0.5	%	101	79.8	----	----	99.7
2.4.6-Tribromophenol	118-79-6	0.5	%	72.3	61.0	----	----	68.6
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	97.2	76.5	----	----	95.4
Anthracene-d10	1719-06-8	0.5	%	104	84.9	----	----	104
4-Terphenyl-d14	1718-51-0	0.5	%	99.6	78.5	----	----	98.4
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	71.3	82.3	----	----	82.9
Toluene-D8	2037-26-5	0.2	%	74.0	86.1	----	----	85.2
4-Bromofluorobenzene	460-00-4	0.2	%	81.7	95.8	----	----	91.3

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	TP03_2.0-2.1_241128	TP02_0.0-0.15_241128	TP02_0.4-0.5_241128	TP02_1.0-1.1_241128	TP02_2.0-2.1_241128
			Sampling date / time	28-Nov-2024 22:15	28-Nov-2024 11:40	28-Nov-2024 11:45	28-Nov-2024 11:50	28-Nov-2024 11:55
Compound	CAS Number	LOR	Unit	EM2421125-007	EM2421125-008	EM2421125-009	EM2421125-010	EM2421125-011
				Result	Result	Result	Result	Result
EA003 :pH (field/fox)								
pH (F)	----	0.1	pH Unit	----	----	**8.8**	**9.1**	----
pH (Fox)	----	0.1	pH Unit	----	----	**9.9**	**7.0**	----
Reaction Rate	----	1	Reaction Unit	----	----	**3**	**2**	----
EA009: Net Acid Production Potential								
Net Acid Production Potential	----	0.5	kg H2SO4/t	----	----	**-628**	**-132**	----
EA033-A: Actual Acidity								
pH KCl (23A)	----	0.1	pH Unit	----	----	**9.4**	**9.1**	----
Titratable Actual Acidity (23F)	----	2	mole H+ / t	----	----	<2	<2	----
sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	----	----	<0.02	<0.02	----
EA033-B: Potential Acidity								
Chromium Reducible Sulfur (22B)	----	0.005	% S	----	----	**0.030**	**0.012**	----
acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	----	----	**18**	<10	----
EA033-C: Acid Neutralising Capacity								
Acid Neutralising Capacity (19A2)	----	0.01	% CaCO3	----	----	**56.5**	**12.8**	----
acidity - Acid Neutralising Capacity (a-19A2)	----	10	mole H+ / t	----	----	**11300**	**2560**	----
sulfidic - Acid Neutralising Capacity (s-19A2)	----	0.01	% pyrite S	----	----	**18.1**	**4.11**	----
EA033-E: Acid Base Accounting								
ANC Fineness Factor	----	0.5	-	----	----	**1.5**	**1.5**	----
Net Acidity (sulfur units)	----	0.02	% S	----	----	<0.02	<0.02	----
Net Acidity (acidity units)	----	10	mole H+ / t	----	----	<10	<10	----
Liming Rate	----	1	kg CaCO3/t	----	----	<1	<1	----
Net Acidity excluding ANC (sulfur units)	----	0.02	% S	----	----	**0.03**	<0.02	----
Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	----	----	**18**	<10	----
Liming Rate excluding ANC	----	1	kg CaCO3/t	----	----	**1**	<1	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**12.5**	**7.7**	----	----	**14.7**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP03_2.0-2.1_241128	TP02_0.0-0.15_241128	TP02_0.4-0.5_241128	TP02_1.0-1.1_241128	TP02_2.0-2.1_241128
				Sampling date / time	28-Nov-2024 22:15	28-Nov-2024 11:40	28-Nov-2024 11:45	28-Nov-2024 11:50	28-Nov-2024 11:55
Compound	CAS Number	LOR	Unit		EM2421125-007	EM2421125-008	EM2421125-009	EM2421125-010	EM2421125-011
					Result	Result	Result	Result	Result
EA150: Particle Sizing									
+75µm	----	1	%		----	----	75	----	----
+150µm	----	1	%		----	----	66	----	----
+300µm	----	1	%		----	----	47	----	----
+425µm	----	1	%		----	----	39	----	----
+600µm	----	1	%		----	----	35	----	----
+1180µm	----	1	%		----	----	30	----	----
+2.36mm	----	1	%		----	----	24	----	----
+4.75mm	----	1	%		----	----	16	----	----
+9.5mm	----	1	%		----	----	11	----	----
+19.0mm	----	1	%		----	----	5	----	----
+37.5mm	----	1	%		----	----	<1	----	----
+75.0mm	----	1	%		----	----	<1	----	----
EA150: Soil Classification based on Particle Size									
Clay (<2 µm)	----	1	%		----	----	11	----	----
Silt (2-60 µm)	----	1	%		----	----	11	----	----
Sand (0.06-2.00 mm)	----	1	%		----	----	53	----	----
Gravel (>2mm)	----	1	%		----	----	25	----	----
Cobbles (>6cm)	----	1	%		----	----	<1	----	----
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		17	<5	----	----	9
Barium	7440-39-3	10	mg/kg		470	----	----	----	210
Beryllium	7440-41-7	1	mg/kg		<1	----	----	----	<1
Boron	7440-42-8	50	mg/kg		60	----	----	----	<50
Cadmium	7440-43-9	1	mg/kg		<1	<1	----	----	<1
Chromium	7440-47-3	2	mg/kg		12	5	----	----	15
Cobalt	7440-48-4	2	mg/kg		6	----	----	----	6
Copper	7440-50-8	5	mg/kg		14	434	----	----	210

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP03_2.0-2.1_241128	TP02_0.0-0.15_241128	TP02_0.4-0.5_241128	TP02_1.0-1.1_241128	TP02_2.0-2.1_241128
				Sampling date / time	28-Nov-2024 22:15	28-Nov-2024 11:40	28-Nov-2024 11:45	28-Nov-2024 11:50	28-Nov-2024 11:55
Compound	CAS Number	LOR	Unit		EM2421125-007	EM2421125-008	EM2421125-009	EM2421125-010	EM2421125-011
					Result	Result	Result	Result	Result
EG005(ED093)T: Total Metals by ICP-AES - Continued									
Lead	7439-92-1	5	mg/kg		**6**	**7**	----	----	**7**
Manganese	7439-96-5	5	mg/kg		**89**	----	----	----	**145**
Nickel	7440-02-0	2	mg/kg		**7**	<2	----	----	**8**
Selenium	7782-49-2	5	mg/kg		<5	----	----	----	<5
Vanadium	7440-62-2	5	mg/kg		**161**	----	----	----	**91**
Zinc	7440-66-6	5	mg/kg		**16**	**10**	----	----	**26**
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	----	----	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)									
Hexavalent Chromium	18540-29-9	0.5	mg/kg		<0.5	----	----	----	<0.5
EK028SF: Weak Acid Dissociable CN by Segmented Flow Analyser									
Weak Acid Dissociable Cyanide	----	1	mg/kg		<1	----	----	----	<1
EP066: Polychlorinated Biphenyls (PCB)									
Total Polychlorinated biphenyls	----	0.1	mg/kg		<0.1	----	----	----	<0.1
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		<0.05	----	----	----	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		<0.05	----	----	----	<0.05
beta-BHC	319-85-7	0.05	mg/kg		<0.05	----	----	----	<0.05
gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg		<0.05	----	----	----	<0.05
delta-BHC	319-86-8	0.05	mg/kg		<0.05	----	----	----	<0.05
Heptachlor	76-44-8	0.05	mg/kg		<0.05	----	----	----	<0.05
Aldrin	309-00-2	0.05	mg/kg		<0.05	----	----	----	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg		<0.05	----	----	----	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg		<0.05	----	----	----	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg		<0.05	----	----	----	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg		<0.05	----	----	----	<0.05
Dieldrin	60-57-1	0.05	mg/kg		<0.05	----	----	----	<0.05

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	TP03_2.0-2.1_241128	TP02_0.0-0.15_241128	TP02_0.4-0.5_241128	TP02_1.0-1.1_241128	TP02_2.0-2.1_241128
			Sampling date / time	28-Nov-2024 22:15	28-Nov-2024 11:40	28-Nov-2024 11:45	28-Nov-2024 11:50	28-Nov-2024 11:55
Compound	CAS Number	LOR	Unit	EM2421125-007	EM2421125-008	EM2421125-009	EM2421125-010	EM2421125-011
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	----	----	----	<0.05
Endrin	72-20-8	0.05	mg/kg	<0.05	----	----	----	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	----	----	----	<0.05
^ **Endosulfan (sum)**	115-29-7	0.05	mg/kg	<0.05	----	----	----	<0.05
4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	----	----	----	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	----	----	----	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	----	----	----	<0.05
4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	----	----	----	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	----	----	----	<0.05
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	----	----	----	<0.2
Mirex	2385-85-5	0.20	mg/kg	<0.20	----	----	----	<0.20
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.05	mg/kg	<0.05	----	----	----	<0.05
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.05	mg/kg	<0.05	----	----	----	<0.05
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.05	mg/kg	<0.05	----	----	----	<0.05
Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	----	----	----	<0.05
Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	----	----	----	<0.2
Dimethoate	60-51-5	0.05	mg/kg	<0.05	----	----	----	<0.05
Diazinon	333-41-5	0.05	mg/kg	<0.05	----	----	----	<0.05
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	----	----	----	<0.05
Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	----	----	----	<0.2
Malathion	121-75-5	0.05	mg/kg	<0.05	----	----	----	<0.05
Fenthion	55-38-9	0.05	mg/kg	<0.05	----	----	----	<0.05
Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	----	----	----	<0.05
Parathion	56-38-2	0.2	mg/kg	<0.2	----	----	----	<0.2
Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	----	----	----	<0.05

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	TP03_2.0-2.1_241128	TP02_0.0-0.15_241128	TP02_0.4-0.5_241128	TP02_1.0-1.1_241128	TP02_2.0-2.1_241128
			Sampling date / time	28-Nov-2024 22:15	28-Nov-2024 11:40	28-Nov-2024 11:45	28-Nov-2024 11:50	28-Nov-2024 11:55
Compound	CAS Number	LOR	Unit	EM2421125-007	EM2421125-008	EM2421125-009	EM2421125-010	EM2421125-011
				Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued								
Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	----	----	----	<0.05
Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	----	----	----	<0.05
Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	----	----	----	<0.05
Prothiofos	34643-46-4	0.05	mg/kg	<0.05	----	----	----	<0.05
Ethion	563-12-2	0.05	mg/kg	<0.05	----	----	----	<0.05
Carbophenothion	786-19-6	0.05	mg/kg	<0.05	----	----	----	<0.05
Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	----	----	----	<0.05
EP068C: Triazines								
Atrazine	1912-24-9	0.05	mg/kg	<0.05	----	----	----	<0.05
EP068D: Pyrethroids								
Bifenthrin	82657-04-3	0.05	mg/kg	<0.05	----	----	----	<0.05
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	<0.5	----	----	----	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	----	----	----	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	----	----	----	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	----	----	----	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	----	----	----	<0.5
2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	----	----	----	<0.5
2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	----	----	----	<0.5
2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	----	----	----	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	----	----	----	<0.5
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	----	----	----	<0.5
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	----	----	----	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	----	----	----	<2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	----	----	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP03_2.0-2.1_241128	TP02_0.0-0.15_241128	TP02_0.4-0.5_241128	TP02_1.0-1.1_241128	TP02_2.0-2.1_241128
				Sampling date / time	28-Nov-2024 22:15	28-Nov-2024 11:40	28-Nov-2024 11:45	28-Nov-2024 11:50	28-Nov-2024 11:55
Compound	CAS Number	LOR	Unit		EM2421125-007	EM2421125-008	EM2421125-009	EM2421125-010	EM2421125-011
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	**0.6**	----	----	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**1.2**	----	----	**1.2**
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	----	----	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	----	----	<50
C15 - C28 Fraction	----	100	mg/kg		<100	<100	----	----	<100
C29 - C36 Fraction	----	100	mg/kg		<100	<100	----	----	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	----	----	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	----	----	<10

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP03_2.0-2.1_241128	TP02_0.0-0.15_241128	TP02_0.4-0.5_241128	TP02_1.0-1.1_241128	TP02_2.0-2.1_241128
				Sampling date / time	28-Nov-2024 22:15	28-Nov-2024 11:40	28-Nov-2024 11:45	28-Nov-2024 11:50	28-Nov-2024 11:55
Compound	CAS Number	LOR	Unit		EM2421125-007	EM2421125-008	EM2421125-009	EM2421125-010	EM2421125-011
					Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg		<10	<10	----	----	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	----	----	<50
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	----	----	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	----	----	<100
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		<50	<50	----	----	<50
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	50	mg/kg		----	<50	----	----	<50
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	50	mg/kg		<50	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	----	----	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
^ **Sum of BTEX**	----	0.2	mg/kg		<0.2	<0.2	----	----	<0.2
^ **Total Xylenes**	----	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	----	----	<1
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		**87.0**	----	----	----	**87.1**
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		**78.0**	----	----	----	**82.7**
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		**62.5**	----	----	----	**63.7**
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**84.9**	**89.4**	----	----	**73.2**
2-Chlorophenol-D4	93951-73-6	0.5	%		**99.3**	**103**	----	----	**86.4**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP03_2.0-2.1_241128	TP02_0.0-0.15_241128	TP02_0.4-0.5_241128	TP02_1.0-1.1_241128	TP02_2.0-2.1_241128
				Sampling date / time	28-Nov-2024 22:15	28-Nov-2024 11:40	28-Nov-2024 11:45	28-Nov-2024 11:50	28-Nov-2024 11:55
Compound	CAS Number	LOR	Unit		EM2421125-007	EM2421125-008	EM2421125-009	EM2421125-010	EM2421125-011
					Result	Result	Result	Result	Result
EP075(SIM)S: Phenolic Compound Surrogates - Continued									
2.4.6-Tribromophenol	118-79-6	0.5	%		**72.2**	**65.2**	**----**	**----**	**60.3**
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		**96.2**	**98.5**	**----**	**----**	**85.0**
Anthracene-d10	1719-06-8	0.5	%		**104**	**107**	**----**	**----**	**91.0**
4-Terphenyl-d14	1718-51-0	0.5	%		**100**	**102**	**----**	**----**	**87.6**
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**77.8**	**81.4**	**----**	**----**	**81.7**
Toluene-D8	2037-26-5	0.2	%		**80.3**	**85.3**	**----**	**----**	**92.7**
4-Bromofluorobenzene	460-00-4	0.2	%		**90.5**	**90.6**	**----**	**----**	**102**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	TP27_0.40-0.50_241129	TP27_1.0-1.1_241129	TP04_0.4-0.5_241129	TP04_1.0-1.1_241129	TP04_1.4_241129
			Sampling date / time	29-Nov-2024 08:40	29-Nov-2024 08:45	29-Nov-2024 09:45	29-Nov-2024 09:55	29-Nov-2024 10:00
Compound	CAS Number	LOR	Unit	EM2421125-013	EM2421125-014	EM2421125-016	EM2421125-017	EM2421125-018
				Result	Result	Result	Result	Result
EA001: pH in soil using 0.01M CaCl extract								
pH (CaCl2)	----	0.1	pH Unit	----	----	8.2	----	----
EA002: pH 1:5 (Soils)								
pH Value	----	0.1	pH Unit	----	----	8.2	----	----
EA002-AD: pH (Soils) dried at 40°C								
pH Value	----	0.1	pH Unit	----	----	8.4	----	----
EA003 :pH (field/fox)								
pH (F)	----	0.1	pH Unit	8.4	8.8	8.6	8.6	----
pH (Fox)	----	0.1	pH Unit	8.2	7.7	10.5	8.2	----
Reaction Rate	----	1	Reaction Unit	3	3	4	3	----
EA009: Net Acid Production Potential								
Net Acid Production Potential	----	0.5	kg H2SO4/t	-35.1	-798	-297	-62.8	----
EA010: Conductivity (1:5)								
Electrical Conductivity @ 25°C	----	1	µS/cm	----	----	4940	----	----
EA010-AD: Conductivity (Soils) dried at 40°C								
Electrical Conductivity @ 25°C	----	1	µS/cm	----	----	6070	----	----
EA033-A: Actual Acidity								
pH KCl (23A)	----	0.1	pH Unit	8.5	9.2	8.6	8.6	----
Titratable Actual Acidity (23F)	----	2	mole H+ / t	<2	<2	<2	<2	----
sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	<0.02	<0.02	<0.02	<0.02	----
EA033-B: Potential Acidity								
Chromium Reducible Sulfur (22B)	----	0.005	% S	0.020	0.020	0.019	0.013	----
acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	12	12	12	<10	----
EA033-C: Acid Neutralising Capacity								
Acid Neutralising Capacity (19A2)	----	0.01	% CaCO3	12.5	69.6	29.2	6.00	----
acidity - Acid Neutralising Capacity (a-19A2)	----	10	mole H+ / t	2500	13900	5820	1200	----
sulfidic - Acid Neutralising Capacity (s-19A2)	----	0.01	% pyrite S	4.00	22.3	9.34	1.92	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP27_0.40-0.50_241129	TP27_1.0-1.1_241129	TP04_0.4-0.5_241129	TP04_1.0-1.1_241129	TP04_1.4_241129
				Sampling date / time	29-Nov-2024 08:40	29-Nov-2024 08:45	29-Nov-2024 09:45	29-Nov-2024 09:55	29-Nov-2024 10:00
Compound	CAS Number	LOR	Unit		EM2421125-013	EM2421125-014	EM2421125-016	EM2421125-017	EM2421125-018
					Result	Result	Result	Result	Result
EA033-E: Acid Base Accounting									
ANC Fineness Factor	----	0.5	-		1.5	1.5	1.5	1.5	----
Net Acidity (sulfur units)	----	0.02	% S		<0.02	<0.02	<0.02	<0.02	----
Net Acidity (acidity units)	----	10	mole H+ / t		<10	<10	<10	<10	----
Liming Rate	----	1	kg CaCO3/t		<1	<1	<1	<1	----
Net Acidity excluding ANC (sulfur units)	----	0.02	% S		<0.02	<0.02	<0.02	<0.02	----
Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t		12	12	12	<10	----
Liming Rate excluding ANC	----	1	kg CaCO3/t		<1	<1	<1	<1	----
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	0.1	%		----	----	9.1	----	----
Moisture Content	----	1.0	%		13.0	5.3	----	----	9.2
EA150: Particle Sizing									
+75µm	----	1	%		----	80	----	50	----
+150µm	----	1	%		----	70	----	40	----
+300µm	----	1	%		----	66	----	20	----
+425µm	----	1	%		----	65	----	13	----
+600µm	----	1	%		----	65	----	11	----
+1180µm	----	1	%		----	64	----	10	----
+2.36mm	----	1	%		----	62	----	9	----
+4.75mm	----	1	%		----	59	----	8	----
+9.5mm	----	1	%		----	53	----	6	----
+19.0mm	----	1	%		----	30	----	6	----
+37.5mm	----	1	%		----	<1	----	<1	----
+75.0mm	----	1	%		----	<1	----	<1	----
EA150: Soil Classification based on Particle Size									
Clay (<2 µm)	----	1	%		----	8	----	33	----
Silt (2-60 µm)	----	1	%		----	11	----	12	----
Sand (0.06-2.00 mm)	----	1	%		----	18	----	46	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP27_0.40-0.50_241129	TP27_1.0-1.1_241129	TP04_0.4-0.5_241129	TP04_1.0-1.1_241129	TP04_1.4_241129
				Sampling date / time	29-Nov-2024 08:40	29-Nov-2024 08:45	29-Nov-2024 09:45	29-Nov-2024 09:55	29-Nov-2024 10:00
Compound	CAS Number	LOR	Unit		EM2421125-013	EM2421125-014	EM2421125-016	EM2421125-017	EM2421125-018
					Result	Result	Result	Result	Result
EA150: Soil Classification based on Particle Size - Continued									
Gravel (>2mm)	----	1	%		----	63	----	9	----
Cobbles (>6cm)	----	1	%		----	<1	----	<1	----
ED006: Exchangeable Cations on Alkaline Soils									
ø Exchangeable Calcium	----	0.2	meq/100g		----	----	8.7	----	----
ø Exchangeable Magnesium	----	0.2	meq/100g		----	----	1.4	----	----
ø Exchangeable Potassium	----	0.2	meq/100g		----	----	0.3	----	----
ø Exchangeable Sodium	----	0.2	meq/100g		----	----	4.1	----	----
ø Cation Exchange Capacity	----	0.2	meq/100g		----	----	14.4	----	----
ø Exchangeable Calcium Percent	----	0.2	%		----	----	60.5	----	----
ø Exchangeable Magnesium Percent	----	0.2	%		----	----	9.4	----	----
ø Exchangeable Potassium Percent	----	0.2	%		----	----	1.9	----	----
ø Exchangeable Sodium Percent	----	0.2	%		----	----	28.2	----	----
ø Calcium/Magnesium Ratio	----	0.2	-		----	----	6.4	----	----
ø Magnesium/Potassium Ratio	----	0.2	-		----	----	5.0	----	----
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	10	mg/kg		----	----	5450	----	----
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		14	6	10	----	54
Barium	7440-39-3	10	mg/kg		----	270	----	----	330
Beryllium	7440-41-7	1	mg/kg		----	<1	----	----	<1
Boron	7440-42-8	50	mg/kg		----	<50	----	----	<50
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	----	<1
Chromium	7440-47-3	2	mg/kg		12	8	11	----	24
Cobalt	7440-48-4	2	mg/kg		----	16	----	----	40
Copper	7440-50-8	5	mg/kg		1800	631	5760	----	6050
Lead	7439-92-1	5	mg/kg		8	<5	9	----	31
Manganese	7439-96-5	5	mg/kg		----	146	----	----	180

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP27_0.40-0.50_241129	TP27_1.0-1.1_241129	TP04_0.4-0.5_241129	TP04_1.0-1.1_241129	TP04_1.4_241129
				Sampling date / time	29-Nov-2024 08:40	29-Nov-2024 08:45	29-Nov-2024 09:45	29-Nov-2024 09:55	29-Nov-2024 10:00
Compound	CAS Number	LOR	Unit		EM2421125-013	EM2421125-014	EM2421125-016	EM2421125-017	EM2421125-018
					Result	Result	Result	Result	Result
EG005(ED093)T: Total Metals by ICP-AES - Continued									
Nickel	7440-02-0	2	mg/kg		**7**	**6**	**6**	----	**26**
Selenium	7782-49-2	5	mg/kg		----	<5	----	----	<5
Vanadium	7440-62-2	5	mg/kg		----	**56**	----	----	**228**
Zinc	7440-66-6	5	mg/kg		**27**	**19**	**16**	----	**20**
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	<0.1	----	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)									
Hexavalent Chromium	18540-29-9	0.5	mg/kg		----	<0.5	----	----	<0.5
EK028SF: Weak Acid Dissociable CN by Segmented Flow Analyser									
Weak Acid Dissociable Cyanide	----	1	mg/kg		----	<1	----	----	<1
EP066: Polychlorinated Biphenyls (PCB)									
Total Polychlorinated biphenyls	----	0.1	mg/kg		----	<0.1	----	----	<0.1
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		----	<0.05	----	----	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		----	<0.05	----	----	<0.05
beta-BHC	319-85-7	0.05	mg/kg		----	<0.05	----	----	<0.05
gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg		----	<0.05	----	----	<0.05
delta-BHC	319-86-8	0.05	mg/kg		----	<0.05	----	----	<0.05
Heptachlor	76-44-8	0.05	mg/kg		----	<0.05	----	----	<0.05
Aldrin	309-00-2	0.05	mg/kg		----	<0.05	----	----	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg		----	<0.05	----	----	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg		----	<0.05	----	----	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg		----	<0.05	----	----	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg		----	<0.05	----	----	<0.05
Dieldrin	60-57-1	0.05	mg/kg		----	<0.05	----	----	<0.05
4.4`-DDE	72-55-9	0.05	mg/kg		----	<0.05	----	----	<0.05
Endrin	72-20-8	0.05	mg/kg		----	<0.05	----	----	<0.05

Analytical Results

Sub-Matrix: SOIL
(Matrix: SOIL)

Compound	CAS Number	LOR	Unit	Sample ID	TP27_0.40-0.50_241129	TP27_1.0-1.1_241129	TP04_0.4-0.5_241129	TP04_1.0-1.1_241129	TP04_1.4_241129
				Sampling date / time	29-Nov-2024 08:40	29-Nov-2024 08:45	29-Nov-2024 09:45	29-Nov-2024 09:55	29-Nov-2024 10:00
					EM2421125-013	EM2421125-014	EM2421125-016	EM2421125-017	EM2421125-018
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
beta-Endosulfan	33213-65-9	0.05	mg/kg		----	<0.05	----	----	<0.05
^ Endosulfan (sum)	115-29-7	0.05	mg/kg		----	<0.05	----	----	<0.05
4.4`-DDD	72-54-8	0.05	mg/kg		----	<0.05	----	----	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg		----	<0.05	----	----	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg		----	<0.05	----	----	<0.05
4.4`-DDT	50-29-3	0.2	mg/kg		----	<0.2	----	----	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg		----	<0.05	----	----	<0.05
Methoxychlor	72-43-5	0.2	mg/kg		----	<0.2	----	----	<0.2
Mirex	2385-85-5	0.20	mg/kg		----	<0.20	----	----	<0.20
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		----	<0.05	----	----	<0.05
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		----	<0.05	----	----	<0.05
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		----	<0.05	----	----	<0.05
Demeton-S-methyl	919-86-8	0.05	mg/kg		----	<0.05	----	----	<0.05
Monocrotophos	6923-22-4	0.2	mg/kg		----	<0.2	----	----	<0.2
Dimethoate	60-51-5	0.05	mg/kg		----	<0.05	----	----	<0.05
Diazinon	333-41-5	0.05	mg/kg		----	<0.05	----	----	<0.05
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		----	<0.05	----	----	<0.05
Parathion-methyl	298-00-0	0.2	mg/kg		----	<0.2	----	----	<0.2
Malathion	121-75-5	0.05	mg/kg		----	<0.05	----	----	<0.05
Fenthion	55-38-9	0.05	mg/kg		----	<0.05	----	----	<0.05
Chlorpyrifos	2921-88-2	0.05	mg/kg		----	<0.05	----	----	<0.05
Parathion	56-38-2	0.2	mg/kg		----	<0.2	----	----	<0.2
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		----	<0.05	----	----	<0.05
Chlorfenvinphos	470-90-6	0.05	mg/kg		----	<0.05	----	----	<0.05
Bromophos-ethyl	4824-78-6	0.05	mg/kg		----	<0.05	----	----	<0.05

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP27_0.40-0.50_241129	TP27_1.0-1.1_241129	TP04_0.4-0.5_241129	TP04_1.0-1.1_241129	TP04_1.4_241129
				Sampling date / time	29-Nov-2024 08:40	29-Nov-2024 08:45	29-Nov-2024 09:45	29-Nov-2024 09:55	29-Nov-2024 10:00
Compound	CAS Number	LOR	Unit		EM2421125-013	EM2421125-014	EM2421125-016	EM2421125-017	EM2421125-018
					Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued									
Fenamiphos	22224-92-6	0.05	mg/kg		----	<0.05	----	----	<0.05
Prothiofos	34643-46-4	0.05	mg/kg		----	<0.05	----	----	<0.05
Ethion	563-12-2	0.05	mg/kg		----	<0.05	----	----	<0.05
Carbophenothion	786-19-6	0.05	mg/kg		----	<0.05	----	----	<0.05
Azinphos Methyl	86-50-0	0.05	mg/kg		----	<0.05	----	----	<0.05
EP068C: Triazines									
Atrazine	1912-24-9	0.05	mg/kg		----	<0.05	----	----	<0.05
EP068D: Pyrethroids									
Bifenthrin	82657-04-3	0.05	mg/kg		----	<0.05	----	----	<0.05
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		----	<0.5	----	----	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg		----	<0.5	----	----	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg		----	<0.5	----	----	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg		----	<1	----	----	<1
2-Nitrophenol	88-75-5	0.5	mg/kg		----	<0.5	----	----	<0.5
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		----	<0.5	----	----	<0.5
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		----	<0.5	----	----	<0.5
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		----	<0.5	----	----	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		----	<0.5	----	----	<0.5
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		----	<0.5	----	----	<0.5
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		----	<0.5	----	----	<0.5
Pentachlorophenol	87-86-5	2	mg/kg		----	<2	----	----	<2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	<0.5
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP27_0.40-0.50_241129	TP27_1.0-1.1_241129	TP04_0.4-0.5_241129	TP04_1.0-1.1_241129	TP04_1.4_241129
				Sampling date / time	29-Nov-2024 08:40	29-Nov-2024 08:45	29-Nov-2024 09:45	29-Nov-2024 09:55	29-Nov-2024 10:00
Compound	CAS Number	LOR	Unit		EM2421125-013	EM2421125-014	EM2421125-016	EM2421125-017	EM2421125-018
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	<0.5
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	<0.5	----	<0.5
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	----	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	<0.5
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	----	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	----	<0.5
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	mg/kg		<0.5	<0.5	<0.5	----	<0.5
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	mg/kg		<0.5	<0.5	<0.5	----	<0.5
^ **Benzo(a)pyrene TEQ (half LOR)**	----	0.5	mg/kg		**0.6**	**0.6**	**0.6**	----	**0.6**
^ **Benzo(a)pyrene TEQ (LOR)**	----	0.5	mg/kg		**1.2**	**1.2**	**1.2**	----	**1.2**
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	----	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	----	<50
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	----	<100
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	----	<100
^ **C10 - C36 Fraction (sum)**	----	50	mg/kg		<50	<50	<50	----	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	----	<10
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg		<10	<10	<10	----	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	----	<50

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP27_0.40-0.50_241129	TP27_1.0-1.1_241129	TP04_0.4-0.5_241129	TP04_1.0-1.1_241129	TP04_1.4_241129
				Sampling date / time	29-Nov-2024 08:40	29-Nov-2024 08:45	29-Nov-2024 09:45	29-Nov-2024 09:55	29-Nov-2024 10:00
Compound	CAS Number	LOR	Unit		EM2421125-013	EM2421125-014	EM2421125-016	EM2421125-017	EM2421125-018
					Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	----	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	----	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	<50	----	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	----	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	----	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	----	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	----	<0.5
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	----	<0.2
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	<0.5	----	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	----	<1
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		----	87.4	----	----	89.0
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		----	84.4	----	----	87.4
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		----	65.1	----	----	67.3
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		87.0	75.1	81.5	----	74.1
2-Chlorophenol-D4	93951-73-6	0.5	%		99.7	87.4	92.9	----	86.4
2.4.6-Tribromophenol	118-79-6	0.5	%		68.9	55.7	63.3	----	56.4
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		96.3	86.9	87.5	----	85.6
Anthracene-d10	1719-06-8	0.5	%		105	93.9	96.5	----	90.8
4-Terphenyl-d14	1718-51-0	0.5	%		99.3	89.5	92.0	----	88.7

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP27_0.40-0.50_241129	TP27_1.0-1.1_241129	TP04_0.4-0.5_241129	TP04_1.0-1.1_241129	TP04_1.4_241129
				Sampling date / time	29-Nov-2024 08:40	29-Nov-2024 08:45	29-Nov-2024 09:45	29-Nov-2024 09:55	29-Nov-2024 10:00
Compound	CAS Number	LOR	Unit		EM2421125-013	EM2421125-014	EM2421125-016	EM2421125-017	EM2421125-018
					Result	Result	Result	Result	Result
EP075(SIM)T: PAH Surrogates - Continued									
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**86.7**	**76.9**	**74.6**	**----**	**80.1**
Toluene-D8	2037-26-5	0.2	%		**87.6**	**77.4**	**82.3**	**----**	**84.6**
4-Bromofluorobenzene	460-00-4	0.2	%		**94.4**	**84.8**	**95.5**	**----**	**93.6**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	QC103_241129	TP15_0.0-0.15_241129	TP15_0.4-0.5_241129	TP15_1.0-1.1_241129	TP15_2.0-2.1_241129
			Sampling date / time	29-Nov-2024 10:00	29-Nov-2024 23:10	29-Nov-2024 23:15	29-Nov-2024 11:20	29-Nov-2024 11:30
Compound	CAS Number	LOR	Unit	EM2421125-019	EM2421125-021	EM2421125-022	EM2421125-023	EM2421125-024
				Result	Result	Result	Result	Result
EA001: pH in soil using 0.01M CaCl extract								
pH (CaCl2)	----	0.1	pH Unit	----	----	7.7	7.6	----
EA002: pH 1:5 (Soils)								
pH Value	----	0.1	pH Unit	----	----	6.9	8.6	----
EA002-AD: pH (Soils) dried at 40°C								
pH Value	----	0.1	pH Unit	----	----	8.5	8.6	----
EA003 :pH (field/fox)								
pH (F)	----	0.1	pH Unit	----	----	8.6	9.1	----
pH (Fox)	----	0.1	pH Unit	----	----	5.6	5.4	----
Reaction Rate	----	1	Reaction Unit	----	----	2	2	----
EA009: Net Acid Production Potential								
Net Acid Production Potential	----	0.5	kg H2SO4/t	----	----	-2.9	-1.8	----
EA010: Conductivity (1:5)								
Electrical Conductivity @ 25°C	----	1	µS/cm	----	----	33	13	----
EA010-AD: Conductivity (Soils) dried at 40°C								
Electrical Conductivity @ 25°C	----	1	µS/cm	----	----	64	24	----
EA029-A: pH Measurements								
pH KCl (23A)	----	0.1	pH Unit	----	----	8.8	8.4	----
pH OX (23B)	----	0.1	pH Unit	----	----	7.2	7.0	----
EA029-B: Acidity Trail								
Titratable Actual Acidity (23F)	----	2	mole H+ / t	----	----	<2	<2	----
Titratable Peroxide Acidity (23G)	----	2	mole H+ / t	----	----	<2	<2	----
Titratable Sulfidic Acidity (23H)	----	2	mole H+ / t	----	----	<2	<2	----
sulfidic - Titratable Actual Acidity (s-23F)	----	0.020	% pyrite S	----	----	<0.020	<0.020	----
sulfidic - Titratable Peroxide Acidity (s-23G)	----	0.020	% pyrite S	----	----	<0.020	<0.020	----
sulfidic - Titratable Sulfidic Acidity (s-23H)	----	0.020	% pyrite S	----	----	<0.020	<0.020	----
EA029-C: Sulfur Trail								
KCl Extractable Sulfur (23Ce)	----	0.020	% S	----	----	<0.020	<0.020	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	QC103_241129	TP15_0.0-0.15_241129	TP15_0.4-0.5_241129	TP15_1.0-1.1_241129	TP15_2.0-2.1_241129
				Sampling date / time	29-Nov-2024 10:00	29-Nov-2024 23:10	29-Nov-2024 23:15	29-Nov-2024 11:20	29-Nov-2024 11:30
Compound	CAS Number	LOR	Unit		EM2421125-019	EM2421125-021	EM2421125-022	EM2421125-023	EM2421125-024
					Result	Result	Result	Result	Result
EA029-C: Sulfur Trail - Continued									
Peroxide Sulfur (23De)	----	0.020	% S		----	----	<0.020	<0.020	----
Peroxide Oxidisable Sulfur (23E)	----	0.020	% S		----	----	<0.020	<0.020	----
acidity - Peroxide Oxidisable Sulfur (a-23E)	----	10	mole H+ / t		----	----	<10	<10	----
EA029-D: Calcium Values									
KCl Extractable Calcium (23Vh)	----	0.020	% Ca		----	----	**0.099**	**0.060**	----
Peroxide Calcium (23Wh)	----	0.020	% Ca		----	----	**0.105**	**0.077**	----
Acid Reacted Calcium (23X)	----	0.020	% Ca		----	----	<0.020	<0.020	----
acidity - Acid Reacted Calcium (a-23X)	----	10	mole H+ / t		----	----	<10	<10	----
sulfidic - Acid Reacted Calcium (s-23X)	----	0.020	% S		----	----	<0.020	<0.020	----
EA029-E: Magnesium Values									
KCl Extractable Magnesium (23Sm)	----	0.020	% Mg		----	----	<0.020	<0.020	----
Peroxide Magnesium (23Tm)	----	0.020	% Mg		----	----	**0.023**	**0.023**	----
Acid Reacted Magnesium (23U)	----	0.020	% Mg		----	----	**0.023**	**0.023**	----
Acidity - Acid Reacted Magnesium (a-23U)	----	10	mole H+ / t		----	----	**19**	**19**	----
sulfidic - Acid Reacted Magnesium (s-23U)	----	0.020	% S		----	----	**0.030**	**0.030**	----
EA029-F: Excess Acid Neutralising Capacity									
Excess Acid Neutralising Capacity (23Q)	----	0.020	% CaCO3		----	----	**0.353**	**0.296**	----
acidity - Excess Acid Neutralising Capacity (a-23Q)	----	10	mole H+ / t		----	----	**70**	**59**	----
sulfidic - Excess Acid Neutralising Capacity (s-23Q)	----	0.020	% S		----	----	**0.113**	**0.095**	----
EA029-H: Acid Base Accounting									
ANC Fineness Factor	----	0.5	-		----	----	**1.5**	**1.5**	----
Net Acidity (sulfur units)	----	0.02	% S		----	----	<0.02	<0.02	----
Net Acidity (acidity units)	----	10	mole H+ / t		----	----	<10	<10	----
Liming Rate	----	1	kg CaCO3/t		----	----	<1	<1	----
Net Acidity excluding ANC (sulfur units)	----	0.02	% S		----	----	<0.02	<0.02	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	QC103_241129	TP15_0.0-0.15_241129	TP15_0.4-0.5_241129	TP15_1.0-1.1_241129	TP15_2.0-2.1_241129
				Sampling date / time	29-Nov-2024 10:00	29-Nov-2024 23:10	29-Nov-2024 23:15	29-Nov-2024 11:20	29-Nov-2024 11:30
Compound	CAS Number	LOR	Unit		EM2421125-019	EM2421125-021	EM2421125-022	EM2421125-023	EM2421125-024
					Result	Result	Result	Result	Result
EA029-H: Acid Base Accounting - Continued									
Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t		----	----	<10	<10	----
Liming Rate excluding ANC	----	1	kg CaCO3/t		----	----	<1	<1	----
EA033-A: Actual Acidity									
pH KCl (23A)	----	0.1	pH Unit		----	----	**8.8**	**8.4**	----
Titratable Actual Acidity (23F)	----	2	mole H+ / t		----	----	<2	<2	----
sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S		----	----	<0.02	<0.02	----
EA033-B: Potential Acidity									
Chromium Reducible Sulfur (22B)	----	0.005	% S		----	----	**0.012**	**0.016**	----
acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t		----	----	<10	**10**	----
EA033-C: Acid Neutralising Capacity									
Acid Neutralising Capacity (19A2)	----	0.01	% CaCO3		----	----	**0.75**	**0.44**	----
acidity - Acid Neutralising Capacity (a-19A2)	----	10	mole H+ / t		----	----	**149**	**89**	----
sulfidic - Acid Neutralising Capacity (s-19A2)	----	0.01	% pyrite S		----	----	**0.24**	**0.14**	----
EA033-E: Acid Base Accounting									
ANC Fineness Factor	----	0.5	-		----	----	**1.5**	**1.5**	----
Net Acidity (sulfur units)	----	0.02	% S		----	----	<0.02	<0.02	----
Net Acidity (acidity units)	----	10	mole H+ / t		----	----	<10	<10	----
Liming Rate	----	1	kg CaCO3/t		----	----	<1	<1	----
Net Acidity excluding ANC (sulfur units)	----	0.02	% S		----	----	<0.02	<0.02	----
Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t		----	----	<10	**10**	----
Liming Rate excluding ANC	----	1	kg CaCO3/t		----	----	<1	<1	----
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	0.1	%		----	----	----	**3.1**	----
Moisture Content	----	1.0	%		**14.4**	**4.2**	**4.2**	----	**3.6**
EA058: Emerson Aggregate Test									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	QC103_241129	TP15_0.0-0.15_241129	TP15_0.4-0.5_241129	TP15_1.0-1.1_241129	TP15_2.0-2.1_241129
			Sampling date / time	29-Nov-2024 10:00	29-Nov-2024 23:10	29-Nov-2024 23:15	29-Nov-2024 11:20	29-Nov-2024 11:30
Compound	CAS Number	LOR	Unit	EM2421125-019	EM2421125-021	EM2421125-022	EM2421125-023	EM2421125-024
				Result	Result	Result	Result	Result
EA058: Emerson Aggregate Test - Continued								
Color (Munsell)	----	-	-	----	----	Reddish Brown (2.5YR 4/4)	----	----
Texture	----	-	-	----	----	Loamy Sand	----	----
Emerson Class Number	EC/TC	-	-	----	----	7	----	----
EA150: Particle Sizing								
+75µm	----	1	%	----	----	----	96	----
+150µm	----	1	%	----	----	----	80	----
+300µm	----	1	%	----	----	----	33	----
+425µm	----	1	%	----	----	----	13	----
+600µm	----	1	%	----	----	----	4	----
+1180µm	----	1	%	----	----	----	<1	----
+2.36mm	----	1	%	----	----	----	<1	----
+4.75mm	----	1	%	----	----	----	<1	----
+9.5mm	----	1	%	----	----	----	<1	----
+19.0mm	----	1	%	----	----	----	<1	----
+37.5mm	----	1	%	----	----	----	<1	----
+75.0mm	----	1	%	----	----	----	<1	----
EA150: Soil Classification based on Particle Size								
Clay (<2 µm)	----	1	%	----	----	----	3	----
Silt (2-60 µm)	----	1	%	----	----	----	<1	----
Sand (0.06-2.00 mm)	----	1	%	----	----	----	97	----
Gravel (>2mm)	----	1	%	----	----	----	<1	----
Cobbles (>6cm)	----	1	%	----	----	----	<1	----
ED006: Exchangeable Cations on Alkaline Soils								
ø Exchangeable Calcium	----	0.2	meq/100g	----	----	1.2	1.3	----
ø Exchangeable Magnesium	----	0.2	meq/100g	----	----	0.4	0.4	----
ø Exchangeable Potassium	----	0.2	meq/100g	----	----	<0.2	0.3	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	QC103_241129	TP15_0.0-0.15_241129	TP15_0.4-0.5_241129	TP15_1.0-1.1_241129	TP15_2.0-2.1_241129
			Sampling date / time	29-Nov-2024 10:00	29-Nov-2024 23:10	29-Nov-2024 23:15	29-Nov-2024 11:20	29-Nov-2024 11:30
Compound	CAS Number	LOR	Unit	EM2421125-019	EM2421125-021	EM2421125-022	EM2421125-023	EM2421125-024
				Result	Result	Result	Result	Result
ED006: Exchangeable Cations on Alkaline Soils - Continued								
ø Exchangeable Sodium	----	0.2	meq/100g	----	----	<0.2	<0.2	----
ø Cation Exchange Capacity	----	0.2	meq/100g	----	----	**1.8**	**2.1**	----
ø Exchangeable Calcium Percent	----	0.2	%	----	----	**65.4**	**63.0**	----
ø Exchangeable Magnesium Percent	----	0.2	%	----	----	**24.7**	**21.9**	----
ø Exchangeable Potassium Percent	----	0.2	%	----	----	**9.8**	**15.0**	----
ø Exchangeable Sodium Percent	----	0.2	%	----	----	<0.2	<0.2	----
ø Calcium/Magnesium Ratio	----	0.2	-	----	----	**2.6**	**2.9**	----
ø Magnesium/Potassium Ratio	----	0.2	-	----	----	<0.2	----	----
ø Magnesium/Potassium Ratio	----	0.2	-	----	----	----	**1.4**	----
ED040N: Sulfate - Calcium Phosphate Soluble (NEPM)								
Sulfate as SO4 2-	14808-79-8	50	mg/kg	----	----	<50	----	----
ED040T: Total Sulfur by ICPAES								
Sulfur as S	63705-05-5	100	mg/kg	----	----	<100	----	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	10	mg/kg	----	----	**30**	<10	----
EG005(ED093)T: Total Metals by ICP-AES								
Aluminium	7429-90-5	50	mg/kg	----	----	**2080**	----	----
Arsenic	7440-38-2	5	mg/kg	**36**	<5	----	----	<5
Barium	7440-39-3	10	mg/kg	**300**	----	----	----	**10**
Beryllium	7440-41-7	1	mg/kg	<1	----	----	----	<1
Boron	7440-42-8	50	mg/kg	<50	----	<50	----	<50
Cadmium	7440-43-9	1	mg/kg	<1	<1	----	----	<1
Chromium	7440-47-3	2	mg/kg	**23**	**6**	----	----	**6**
Cobalt	7440-48-4	2	mg/kg	**38**	----	----	----	<2
Copper	7440-50-8	5	mg/kg	**5080**	**7**	----	----	<5
Iron	7439-89-6	50	mg/kg	----	----	**4500**	----	----
Lead	7439-92-1	5	mg/kg	**34**	<5	----	----	<5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	QC103_241129	TP15_0.0-0.15_241129	TP15_0.4-0.5_241129	TP15_1.0-1.1_241129	TP15_2.0-2.1_241129
				Sampling date / time	29-Nov-2024 10:00	29-Nov-2024 23:10	29-Nov-2024 23:15	29-Nov-2024 11:20	29-Nov-2024 11:30
Compound	CAS Number	LOR	Unit		EM2421125-019	EM2421125-021	EM2421125-022	EM2421125-023	EM2421125-024
					Result	Result	Result	Result	Result
EG005(ED093)T: Total Metals by ICP-AES - Continued									
Manganese	7439-96-5	5	mg/kg		**201**	----	**18**	----	**22**
Nickel	7440-02-0	2	mg/kg		**13**	<2	----	----	<2
Selenium	7782-49-2	5	mg/kg		<5	----	----	----	<5
Vanadium	7440-62-2	5	mg/kg		**193**	----	----	----	**20**
Zinc	7440-66-6	5	mg/kg		**15**	<5	----	----	<5
Calcium	7440-70-2	50	mg/kg		----	----	**390**	----	----
Magnesium	7439-95-4	50	mg/kg		----	----	**390**	----	----
Sodium	7440-23-5	50	mg/kg		----	----	<50	----	----
Potassium	7440-09-7	50	mg/kg		----	----	**480**	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	----	----	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)									
Hexavalent Chromium	18540-29-9	0.5	mg/kg		<0.5	----	----	----	<0.5
EK028SF: Weak Acid Dissociable CN by Segmented Flow Analyser									
Weak Acid Dissociable Cyanide	----	1	mg/kg		<1	----	----	----	<1
EK055: Ammonia as N									
Ammonia as N	7664-41-7	20	mg/kg		----	----	<20	----	----
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg		----	----	<0.1	----	----
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N (Sol.)	14797-55-8	0.1	mg/kg		----	----	**1.2**	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg		----	----	**1.2**	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	20	mg/kg		----	----	**60**	----	----
EK062: Total Nitrogen as N (TKN + NOx)									
^ Total Nitrogen as N	----	20	mg/kg		----	----	**60**	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	QC103_241129	TP15_0.0-0.15_241129	TP15_0.4-0.5_241129	TP15_1.0-1.1_241129	TP15_2.0-2.1_241129
			Sampling date / time	29-Nov-2024 10:00	29-Nov-2024 23:10	29-Nov-2024 23:15	29-Nov-2024 11:20	29-Nov-2024 11:30
Compound	CAS Number	LOR	Unit	EM2421125-019	EM2421125-021	EM2421125-022	EM2421125-023	EM2421125-024
				Result	Result	Result	Result	Result
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	2	mg/kg	----	----	36	----	----
EK080: Bicarbonate Extractable Phosphorus (Colwell)								
Bicarbonate Ext. P (Colwell)	----	5	mg/kg	----	----	<5	----	----
EP004: Organic Matter								
Organic Matter	----	0.5	%	----	----	<0.5	----	----
Total Organic Carbon	----	0.5	%	----	----	<0.5	----	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	----	----	----	<0.1
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	----	----	----	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	----	----	----	<0.05
beta-BHC	319-85-7	0.05	mg/kg	<0.05	----	----	----	<0.05
gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	----	----	----	<0.05
delta-BHC	319-86-8	0.05	mg/kg	<0.05	----	----	----	<0.05
Heptachlor	76-44-8	0.05	mg/kg	<0.05	----	----	----	<0.05
Aldrin	309-00-2	0.05	mg/kg	<0.05	----	----	----	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	----	----	----	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	----	----	----	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	----	----	----	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	----	----	----	<0.05
Dieldrin	60-57-1	0.05	mg/kg	<0.05	----	----	----	<0.05
4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	----	----	----	<0.05
Endrin	72-20-8	0.05	mg/kg	<0.05	----	----	----	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	----	----	----	<0.05
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	----	----	----	<0.05
4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	----	----	----	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	----	----	----	<0.05

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	QC103_241129	TP15_0.0-0.15_241129	TP15_0.4-0.5_241129	TP15_1.0-1.1_241129	TP15_2.0-2.1_241129
				Sampling date / time	29-Nov-2024 10:00	29-Nov-2024 23:10	29-Nov-2024 23:15	29-Nov-2024 11:20	29-Nov-2024 11:30
Compound	CAS Number	LOR	Unit		EM2421125-019	EM2421125-021	EM2421125-022	EM2421125-023	EM2421125-024
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	----	----	----	<0.05
4.4`-DDT	50-29-3	0.2	mg/kg		<0.2	----	----	----	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	----	----	----	<0.05
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	----	----	----	<0.2
Mirex	2385-85-5	0.20	mg/kg		<0.20	----	----	----	<0.20
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.05	mg/kg		<0.05	----	----	----	<0.05
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-29-3	0.05	mg/kg		<0.05	----	----	----	<0.05
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		<0.05	----	----	----	<0.05
Demeton-S-methyl	919-86-8	0.05	mg/kg		<0.05	----	----	----	<0.05
Monocrotophos	6923-22-4	0.2	mg/kg		<0.2	----	----	----	<0.2
Dimethoate	60-51-5	0.05	mg/kg		<0.05	----	----	----	<0.05
Diazinon	333-41-5	0.05	mg/kg		<0.05	----	----	----	<0.05
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		<0.05	----	----	----	<0.05
Parathion-methyl	298-00-0	0.2	mg/kg		<0.2	----	----	----	<0.2
Malathion	121-75-5	0.05	mg/kg		<0.05	----	----	----	<0.05
Fenthion	55-38-9	0.05	mg/kg		<0.05	----	----	----	<0.05
Chlorpyrifos	2921-88-2	0.05	mg/kg		<0.05	----	----	----	<0.05
Parathion	56-38-2	0.2	mg/kg		<0.2	----	----	----	<0.2
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		<0.05	----	----	----	<0.05
Chlorfenvinphos	470-90-6	0.05	mg/kg		<0.05	----	----	----	<0.05
Bromophos-ethyl	4824-78-6	0.05	mg/kg		<0.05	----	----	----	<0.05
Fenamiphos	22224-92-6	0.05	mg/kg		<0.05	----	----	----	<0.05
Prothiofos	34643-46-4	0.05	mg/kg		<0.05	----	----	----	<0.05
Ethion	563-12-2	0.05	mg/kg		<0.05	----	----	----	<0.05
Carbophenothion	786-19-6	0.05	mg/kg		<0.05	----	----	----	<0.05

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	QC103_241129	TP15_0.0-0.15_241129	TP15_0.4-0.5_241129	TP15_1.0-1.1_241129	TP15_2.0-2.1_241129
				Sampling date / time	29-Nov-2024 10:00	29-Nov-2024 23:10	29-Nov-2024 23:15	29-Nov-2024 11:20	29-Nov-2024 11:30
Compound	CAS Number	LOR	Unit		EM2421125-019	EM2421125-021	EM2421125-022	EM2421125-023	EM2421125-024
					Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued									
Azinphos Methyl	86-50-0	0.05	mg/kg		<0.05	----	----	----	<0.05
EP068C: Triazines									
Atrazine	1912-24-9	0.05	mg/kg		<0.05	----	----	----	<0.05
EP068D: Pyrethroids									
Bifenthrin	82657-04-3	0.05	mg/kg		<0.05	----	----	----	<0.05
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		<0.5	----	----	----	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg		<0.5	----	----	----	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg		<0.5	----	----	----	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	----	----	----	<1
2-Nitrophenol	88-75-5	0.5	mg/kg		<0.5	----	----	----	<0.5
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		<0.5	----	----	----	<0.5
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		<0.5	----	----	----	<0.5
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		<0.5	----	----	----	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		<0.5	----	----	----	<0.5
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		<0.5	----	----	----	<0.5
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		<0.5	----	----	----	<0.5
Pentachlorophenol	87-86-5	2	mg/kg		<2	----	----	----	<2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	----	----	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	QC103_241129	TP15_0.0-0.15_241129	TP15_0.4-0.5_241129	TP15_1.0-1.1_241129	TP15_2.0-2.1_241129
				Sampling date / time	29-Nov-2024 10:00	29-Nov-2024 23:10	29-Nov-2024 23:15	29-Nov-2024 11:20	29-Nov-2024 11:30
Compound	CAS Number	LOR	Unit		EM2421125-019	EM2421125-021	EM2421125-022	EM2421125-023	EM2421125-024
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	**0.6**	----	----	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**1.2**	----	----	**1.2**
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	----	----	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	----	----	<50
C15 - C28 Fraction	----	100	mg/kg		<100	<100	----	----	<100
C29 - C36 Fraction	----	100	mg/kg		<100	<100	----	----	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	----	----	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	----	----	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	----	----	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	----	----	<50
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	----	----	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	----	----	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	----	----	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	----	----	<50

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	QC103_241129	TP15_0.0-0.15_241129	TP15_0.4-0.5_241129	TP15_1.0-1.1_241129	TP15_2.0-2.1_241129
			Sampling date / time	29-Nov-2024 10:00	29-Nov-2024 23:10	29-Nov-2024 23:15	29-Nov-2024 11:20	29-Nov-2024 11:30
Compound	CAS Number	LOR	Unit	EM2421125-019	EM2421125-021	EM2421125-022	EM2421125-023	EM2421125-024
				Result	Result	Result	Result	Result
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	----	----	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
^ **Sum of BTEX**	----	0.2	mg/kg	<0.2	<0.2	----	----	<0.2
^ **Total Xylenes**	----	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	----	----	<1
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	**88.1**	----	----	----	**90.5**
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.05	%	**88.6**	----	----	----	**94.4**
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.05	%	**65.3**	----	----	----	**74.4**
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	**74.3**	**89.9**	----	----	**75.4**
2-Chlorophenol-D4	93951-73-6	0.5	%	**86.4**	**102**	----	----	**87.9**
2.4.6-Tribromophenol	118-79-6	0.5	%	**56.4**	**64.6**	----	----	**57.3**
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	**85.9**	**98.6**	----	----	**86.8**
Anthracene-d10	1719-06-8	0.5	%	**90.6**	**108**	----	----	**94.0**
4-Terphenyl-d14	1718-51-0	0.5	%	**89.0**	**101**	----	----	**90.3**
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	**79.8**	**84.3**	----	----	**86.8**
Toluene-D8	2037-26-5	0.2	%	**83.4**	**86.3**	----	----	**91.1**
4-Bromofluorobenzene	460-00-4	0.2	%	**90.4**	**94.3**	----	----	**94.9**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	QC102_241129_0.00-0.15	QC104_241129_1.00-1.10	TP14_0.0-0.15_241128	TP14_0.4-0.5_241128	TP14_1.0-1.1_241128
			Sampling date / time	29-Nov-2024 11:10	29-Nov-2024 08:45	28-Nov-2024 15:05	28-Nov-2024 15:10	28-Nov-2024 15:20
Compound	CAS Number	LOR	Unit	EM2421125-025	EM2421125-027	EM2421125-029	EM2421125-030	EM2421125-031
				Result	Result	Result	Result	Result
EA001: pH in soil using 0.01M CaCl extract								
pH (CaCl2)	----	0.1	pH Unit	----	----	----	8.3	8.1
EA002: pH 1:5 (Soils)								
pH Value	----	0.1	pH Unit	----	----	----	8.4	8.8
EA002-AD: pH (Soils) dried at 40°C								
pH Value	----	0.1	pH Unit	----	----	----	8.5	9.4
EA003 :pH (field/fox)								
pH (F)	----	0.1	pH Unit	----	----	----	8.6	9.3
pH (Fox)	----	0.1	pH Unit	----	----	----	9.2	7.5
Reaction Rate	----	1	Reaction Unit	----	----	----	3	2
EA009: Net Acid Production Potential								
Net Acid Production Potential	----	0.5	kg H2SO4/t	----	----	----	-575	-72.1
EA010: Conductivity (1:5)								
Electrical Conductivity @ 25°C	----	1	µS/cm	----	----	----	4980	1780
EA010-AD: Conductivity (Soils) dried at 40°C								
Electrical Conductivity @ 25°C	----	1	µS/cm	----	----	----	5670	1220
EA033-A: Actual Acidity								
pH KCl (23A)	----	0.1	pH Unit	----	----	----	9.3	9.0
Titratable Actual Acidity (23F)	----	2	mole H+ / t	----	----	----	<2	<2
sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	----	----	----	<0.02	<0.02
EA033-B: Potential Acidity								
Chromium Reducible Sulfur (22B)	----	0.005	% S	----	----	----	0.016	0.009
acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	----	----	----	<10	<10
EA033-C: Acid Neutralising Capacity								
Acid Neutralising Capacity (19A2)	----	0.01	% CaCO3	----	----	----	45.8	7.39
acidity - Acid Neutralising Capacity (a-19A2)	----	10	mole H+ / t	----	----	----	9160	1480
sulfidic - Acid Neutralising Capacity (s-19A2)	----	0.01	% pyrite S	----	----	----	14.7	2.37

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	QC102_241129_0.00-0.15	QC104_241129_1.00-1.10	TP14_0.0-0.15_241128	TP14_0.4-0.5_241128	TP14_1.0-1.1_241128
			Sampling date / time	29-Nov-2024 11:10	29-Nov-2024 08:45	28-Nov-2024 15:05	28-Nov-2024 15:10	28-Nov-2024 15:20
Compound	CAS Number	LOR	Unit	EM2421125-025	EM2421125-027	EM2421125-029	EM2421125-030	EM2421125-031
				Result	Result	Result	Result	Result
EA033-E: Acid Base Accounting								
ANC Fineness Factor	----	0.5	-	----	----	----	1.5	1.5
Net Acidity (sulfur units)	----	0.02	% S	----	----	----	<0.02	<0.02
Net Acidity (acidity units)	----	10	mole H+ / t	----	----	----	<10	<10
Liming Rate	----	1	kg CaCO3/t	----	----	----	<1	<1
Net Acidity excluding ANC (sulfur units)	----	0.02	% S	----	----	----	<0.02	<0.02
Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	----	----	----	<10	<10
Liming Rate excluding ANC	----	1	kg CaCO3/t	----	----	----	<1	<1
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	0.1	%	----	----	----	----	8.0
Moisture Content	----	1.0	%	3.5	5.0	6.0	6.4	----
EA058: Emerson Aggregate Test								
Color (Munsell)	----	-	-	----	----	----	Light Reddish Brown (5YR 6/4)	----
Texture	----	-	-	----	----	----	Sandy Clay Loam	----
Emerson Class Number	EC/TC	-	-	----	----	----	4	----
EA150: Particle Sizing								
+75µm	----	1	%	----	----	----	71	----
+150µm	----	1	%	----	----	----	64	----
+300µm	----	1	%	----	----	----	51	----
+425µm	----	1	%	----	----	----	45	----
+600µm	----	1	%	----	----	----	42	----
+1180µm	----	1	%	----	----	----	38	----
+2.36mm	----	1	%	----	----	----	32	----
+4.75mm	----	1	%	----	----	----	24	----
+9.5mm	----	1	%	----	----	----	18	----
+19.0mm	----	1	%	----	----	----	5	----
+37.5mm	----	1	%	----	----	----	<1	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	QC102_241129_0.00-0.15	QC104_241129_1.00-1.10	TP14_0.0-0.15_241128	TP14_0.4-0.5_241128	TP14_1.0-1.1_241128
			Sampling date / time	29-Nov-2024 11:10	29-Nov-2024 08:45	28-Nov-2024 15:05	28-Nov-2024 15:10	28-Nov-2024 15:20
Compound	CAS Number	LOR	Unit	EM2421125-025	EM2421125-027	EM2421125-029	EM2421125-030	EM2421125-031
				Result	Result	Result	Result	Result
EA150: Particle Sizing - Continued								
+75.0mm	----	1	%	----	----	----	<1	----
EA150: Soil Classification based on Particle Size								
Clay (<2 µm)	----	1	%	----	----	----	16	----
Silt (2-60 µm)	----	1	%	----	----	----	11	----
Sand (0.06-2.00 mm)	----	1	%	----	----	----	39	----
Gravel (>2mm)	----	1	%	----	----	----	34	----
Cobbles (>6cm)	----	1	%	----	----	----	<1	----
ED006: Exchangeable Cations on Alkaline Soils								
ø Exchangeable Calcium	----	0.2	meq/100g	----	----	----	5.8	1.7
ø Exchangeable Magnesium	----	0.2	meq/100g	----	----	----	1.9	1.1
ø Exchangeable Potassium	----	0.2	meq/100g	----	----	----	0.2	0.5
ø Exchangeable Sodium	----	0.2	meq/100g	----	----	----	1.6	3.3
ø Cation Exchange Capacity	----	0.2	meq/100g	----	----	----	9.6	6.6
ø Exchangeable Calcium Percent	----	0.2	%	----	----	----	60.6	26.1
ø Exchangeable Magnesium Percent	----	0.2	%	----	----	----	19.9	16.4
ø Exchangeable Potassium Percent	----	0.2	%	----	----	----	2.4	7.4
ø Exchangeable Sodium Percent	----	0.2	%	----	----	----	17.1	50.2
ø Calcium/Magnesium Ratio	----	0.2	-	----	----	----	3.0	1.6
ø Magnesium/Potassium Ratio	----	0.2	-	----	----	----	8.2	2.2
ED040N: Sulfate - Calcium Phosphate Soluble (NEPM)								
Sulfate as SO4 2-	14808-79-8	50	mg/kg	----	----	----	2870	----
ED040T: Total Sulfur by ICPAES								
Sulfur as S	63705-05-5	100	mg/kg	----	----	----	3170	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	10	mg/kg	----	----	----	6080	1620
EG005(ED093)T: Total Metals by ICP-AES								
Aluminium	7429-90-5	50	mg/kg	----	----	----	4350	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	QC102_241129_0.00-0.15	QC104_241129_1.00-1.10	TP14_0.0-0.15_241128	TP14_0.4-0.5_241128	TP14_1.0-1.1_241128
				Sampling date / time	29-Nov-2024 11:10	29-Nov-2024 08:45	28-Nov-2024 15:05	28-Nov-2024 15:10	28-Nov-2024 15:20
Compound	CAS Number	LOR	Unit		EM2421125-025	EM2421125-027	EM2421125-029	EM2421125-030	EM2421125-031
					Result	Result	Result	Result	Result
EG005(ED093)T: Total Metals by ICP-AES - Continued									
Arsenic	7440-38-2	5	mg/kg		<5	<5	<5	----	----
Barium	7440-39-3	10	mg/kg		----	330	----	----	----
Beryllium	7440-41-7	1	mg/kg		----	<1	----	----	----
Boron	7440-42-8	50	mg/kg		----	<50	----	<50	----
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	----	----
Chromium	7440-47-3	2	mg/kg		6	6	7	----	----
Cobalt	7440-48-4	2	mg/kg		----	26	----	----	----
Copper	7440-50-8	5	mg/kg		<5	932	89	----	----
Iron	7439-89-6	50	mg/kg		----	----	----	8410	----
Lead	7439-92-1	5	mg/kg		<5	<5	5	----	----
Manganese	7439-96-5	5	mg/kg		----	162	----	268	----
Nickel	7440-02-0	2	mg/kg		<2	5	6	----	----
Selenium	7782-49-2	5	mg/kg		----	<5	----	----	----
Vanadium	7440-62-2	5	mg/kg		----	42	----	----	----
Zinc	7440-66-6	5	mg/kg		<5	19	20	----	----
Calcium	7440-70-2	50	mg/kg		----	----	----	96100	----
Magnesium	7439-95-4	50	mg/kg		----	----	----	46900	----
Sodium	7440-23-5	50	mg/kg		----	----	----	4180	----
Potassium	7440-09-7	50	mg/kg		----	----	----	1100	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	<0.1	----	----
EG048: Hexavalent Chromium (Alkaline Digest)									
Hexavalent Chromium	18540-29-9	0.5	mg/kg		----	<0.5	----	----	----
EK028SF: Weak Acid Dissociable CN by Segmented Flow Analyser									
Weak Acid Dissociable Cyanide	----	1	mg/kg		----	<1	----	----	----
EK055: Ammonia as N									
Ammonia as N	7664-41-7	20	mg/kg		----	----	----	<20	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	QC102_241129_0.00-0.15	QC104_241129_1.00-1.10	TP14_0.0-0.15_241128	TP14_0.4-0.5_241128	TP14_1.0-1.1_241128
				Sampling date / time	29-Nov-2024 11:10	29-Nov-2024 08:45	28-Nov-2024 15:05	28-Nov-2024 15:10	28-Nov-2024 15:20
Compound	CAS Number	LOR	Unit		EM2421125-025	EM2421125-027	EM2421125-029	EM2421125-030	EM2421125-031
					Result	Result	Result	Result	Result
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg		----	----	----	<0.1	----
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N (Sol.)	14797-55-8	0.1	mg/kg		----	----	----	**16.8**	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg		----	----	----	**16.8**	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	20	mg/kg		----	----	----	**80**	----
EK062: Total Nitrogen as N (TKN + NOx)									
^ Total Nitrogen as N	----	20	mg/kg		----	----	----	**100**	----
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	2	mg/kg		----	----	----	**292**	----
EK080: Bicarbonate Extractable Phosphorus (Colwell)									
Bicarbonate Ext. P (Colwell)	----	5	mg/kg		----	----	----	**6**	----
EP004: Organic Matter									
Organic Matter	----	0.5	%		----	----	----	<0.5	----
Total Organic Carbon	----	0.5	%		----	----	----	<0.5	----
EP066: Polychlorinated Biphenyls (PCB)									
Total Polychlorinated biphenyls	----	0.1	mg/kg		----	<0.1	----	----	----
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		----	<0.05	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		----	<0.05	----	----	----
beta-BHC	319-85-7	0.05	mg/kg		----	<0.05	----	----	----
gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg		----	<0.05	----	----	----
delta-BHC	319-86-8	0.05	mg/kg		----	<0.05	----	----	----
Heptachlor	76-44-8	0.05	mg/kg		----	<0.05	----	----	----
Aldrin	309-00-2	0.05	mg/kg		----	<0.05	----	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg		----	<0.05	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	QC102_241129_0.00-0.15	QC104_241129_1.00-1.10	TP14_0.0-0.15_241128	TP14_0.4-0.5_241128	TP14_1.0-1.1_241128
			Sampling date / time	29-Nov-2024 11:10	29-Nov-2024 08:45	28-Nov-2024 15:05	28-Nov-2024 15:10	28-Nov-2024 15:20
Compound	CAS Number	LOR	Unit	EM2421125-025	EM2421125-027	EM2421125-029	EM2421125-030	EM2421125-031
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
trans-Chlordane	5103-74-2	0.05	mg/kg	----	<0.05	----	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg	----	<0.05	----	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg	----	<0.05	----	----	----
Dieldrin	60-57-1	0.05	mg/kg	----	<0.05	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg	----	<0.05	----	----	----
Endrin	72-20-8	0.05	mg/kg	----	<0.05	----	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg	----	<0.05	----	----	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	----	<0.05	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg	----	<0.05	----	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg	----	<0.05	----	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg	----	<0.05	----	----	----
4.4`-DDT	50-29-3	0.2	mg/kg	----	<0.2	----	----	----
Endrin ketone	53494-70-5	0.05	mg/kg	----	<0.05	----	----	----
Methoxychlor	72-43-5	0.2	mg/kg	----	<0.2	----	----	----
Mirex	2385-85-5	0.20	mg/kg	----	<0.20	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	----	<0.05	----	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg	----	<0.05	----	----	----
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.05	mg/kg	----	<0.05	----	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg	----	<0.05	----	----	----
Monocrotophos	6923-22-4	0.2	mg/kg	----	<0.2	----	----	----
Dimethoate	60-51-5	0.05	mg/kg	----	<0.05	----	----	----
Diazinon	333-41-5	0.05	mg/kg	----	<0.05	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	----	<0.05	----	----	----
Parathion-methyl	298-00-0	0.2	mg/kg	----	<0.2	----	----	----
Malathion	121-75-5	0.05	mg/kg	----	<0.05	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	QC102_241129_0.00-0.15	QC104_241129_1.00-1.10	TP14_0.0-0.15_241128	TP14_0.4-0.5_241128	TP14_1.0-1.1_241128
				Sampling date / time	29-Nov-2024 11:10	29-Nov-2024 08:45	28-Nov-2024 15:05	28-Nov-2024 15:10	28-Nov-2024 15:20
Compound	CAS Number	LOR	Unit		EM2421125-025	EM2421125-027	EM2421125-029	EM2421125-030	EM2421125-031
					Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued									
Fenthion	55-38-9	0.05	mg/kg		----	<0.05	----	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg		----	<0.05	----	----	----
Parathion	56-38-2	0.2	mg/kg		----	<0.2	----	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		----	<0.05	----	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg		----	<0.05	----	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg		----	<0.05	----	----	----
Fenamiphos	22224-92-6	0.05	mg/kg		----	<0.05	----	----	----
Prothiofos	34643-46-4	0.05	mg/kg		----	<0.05	----	----	----
Ethion	563-12-2	0.05	mg/kg		----	<0.05	----	----	----
Carbophenothion	786-19-6	0.05	mg/kg		----	<0.05	----	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg		----	<0.05	----	----	----
EP068C: Triazines									
Atrazine	1912-24-9	0.05	mg/kg		----	<0.05	----	----	----
EP068D: Pyrethroids									
Bifenthrin	82657-04-3	0.05	mg/kg		----	<0.05	----	----	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		----	<0.5	----	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg		----	<0.5	----	----	----
2-Methylphenol	95-48-7	0.5	mg/kg		----	<0.5	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		----	<1	----	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg		----	<0.5	----	----	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		----	<0.5	----	----	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		----	<0.5	----	----	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		----	<0.5	----	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		----	<0.5	----	----	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		----	<0.5	----	----	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		----	<0.5	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	QC102_241129_0.00-0.15	QC104_241129_1.00-1.10	TP14_0.0-0.15_241128	TP14_0.4-0.5_241128	TP14_1.0-1.1_241128
				Sampling date / time	29-Nov-2024 11:10	29-Nov-2024 08:45	28-Nov-2024 15:05	28-Nov-2024 15:10	28-Nov-2024 15:20
Compound	CAS Number	LOR	Unit		EM2421125-025	EM2421125-027	EM2421125-029	EM2421125-030	EM2421125-031
					Result	Result	Result	Result	Result
EP075(SIM)A: Phenolic Compounds - Continued									
Pentachlorophenol	87-86-5	2	mg/kg		----	<2	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	**0.6**	**0.6**	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**1.2**	**1.2**	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	----	----
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	QC102_241129_0.00-0.15	QC104_241129_1.00-1.10	TP14_0.0-0.15_241128	TP14_0.4-0.5_241128	TP14_1.0-1.1_241128
				Sampling date / time	29-Nov-2024 11:10	29-Nov-2024 08:45	28-Nov-2024 15:05	28-Nov-2024 15:10	28-Nov-2024 15:20
Compound	CAS Number	LOR	Unit		EM2421125-025	EM2421125-027	EM2421125-029	EM2421125-030	EM2421125-031
					Result	Result	Result	Result	Result
EP080/071: Total Petroleum Hydrocarbons - Continued									
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	<50	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	----	----
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	----	----
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	<50	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	----	----
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	----	----
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	----	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		----	88.3	----	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		----	92.3	----	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		----	72.7	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		86.5	75.1	84.2	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	QC102_241129_0.00-0.15	QC104_241129_1.00-1.10	TP14_0.0-0.15_241128	TP14_0.4-0.5_241128	TP14_1.0-1.1_241128
				Sampling date / time	29-Nov-2024 11:10	29-Nov-2024 08:45	28-Nov-2024 15:05	28-Nov-2024 15:10	28-Nov-2024 15:20
Compound	CAS Number	LOR	Unit		EM2421125-025	EM2421125-027	EM2421125-029	EM2421125-030	EM2421125-031
					Result	Result	Result	Result	Result
EP075(SIM)S: Phenolic Compound Surrogates - Continued									
2-Chlorophenol-D4	93951-73-6	0.5	%		98.9	86.9	97.6	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%		61.5	51.6	67.2	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		96.2	87.3	93.9	----	----
Anthracene-d10	1719-06-8	0.5	%		104	91.7	102	----	----
4-Terphenyl-d14	1718-51-0	0.5	%		98.4	89.7	95.8	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		81.4	92.2	81.8	----	----
Toluene-D8	2037-26-5	0.2	%		82.3	96.4	86.8	----	----
4-Bromofluorobenzene	460-00-4	0.2	%		91.2	106	91.8	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	TP14_2.0-2.1_241128	TP29_0.0-0.15_241128	TP29_0.4-0.5_241128	TP29_1.0-1.1_241128	TP29_2.0-2.3_241128
			Sampling date / time	28-Nov-2024 15:25	28-Nov-2024 12:05	28-Nov-2024 14:10	28-Nov-2024 14:15	28-Nov-2024 14:20
Compound	CAS Number	LOR	Unit	EM2421125-032	EM2421125-033	EM2421125-034	EM2421125-035	EM2421125-036
				Result	Result	Result	Result	Result
EA001: pH in soil using 0.01M CaCl extract								
pH (CaCl2)	----	0.1	pH Unit	----	----	8.0	8.0	----
EA002: pH 1:5 (Soils)								
pH Value	----	0.1	pH Unit	----	----	9.3	9.4	----
EA002-AD: pH (Soils) dried at 40°C								
pH Value	----	0.1	pH Unit	----	----	9.2	9.2	----
EA003 :pH (field/fox)								
pH (F)	----	0.1	pH Unit	----	----	9.4	9.7	----
pH (Fox)	----	0.1	pH Unit	----	----	6.1	6.0	----
Reaction Rate	----	1	Reaction Unit	----	----	2	2	----
EA009: Net Acid Production Potential								
Net Acid Production Potential	----	0.5	kg H2SO4/t	----	----	-6.1	-4.4	----
EA010: Conductivity (1:5)								
Electrical Conductivity @ 25°C	----	1	µS/cm	----	----	744	486	----
EA010-AD: Conductivity (Soils) dried at 40°C								
Electrical Conductivity @ 25°C	----	1	µS/cm	----	----	746	550	----
EA033-A: Actual Acidity								
pH KCl (23A)	----	0.1	pH Unit	----	----	8.3	8.1	----
Titratable Actual Acidity (23F)	----	2	mole H+ / t	----	----	<2	<2	----
sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	----	----	<0.02	<0.02	----
EA033-B: Potential Acidity								
Chromium Reducible Sulfur (22B)	----	0.005	% S	----	----	0.012	0.016	----
acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	----	----	<10	10	----
EA033-C: Acid Neutralising Capacity								
Acid Neutralising Capacity (19A2)	----	0.01	% CaCO3	----	----	0.76	0.60	----
acidity - Acid Neutralising Capacity (a-19A2)	----	10	mole H+ / t	----	----	151	120	----
sulfidic - Acid Neutralising Capacity (s-19A2)	----	0.01	% pyrite S	----	----	0.24	0.19	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	TP14_2.0-2.1_241128	TP29_0.0-0.15_241128	TP29_0.4-0.5_241128	TP29_1.0-1.1_241128	TP29_2.0-2.3_241128
			Sampling date / time	28-Nov-2024 15:25	28-Nov-2024 12:05	28-Nov-2024 14:10	28-Nov-2024 14:15	28-Nov-2024 14:20
Compound	CAS Number	LOR	Unit	EM2421125-032	EM2421125-033	EM2421125-034	EM2421125-035	EM2421125-036
				Result	Result	Result	Result	Result
EA033-E: Acid Base Accounting								
ANC Fineness Factor	----	0.5	-	----	----	1.5	1.5	----
Net Acidity (sulfur units)	----	0.02	% S	----	----	<0.02	<0.02	----
Net Acidity (acidity units)	----	10	mole H+ / t	----	----	<10	<10	----
Liming Rate	----	1	kg CaCO3/t	----	----	<1	<1	----
Net Acidity excluding ANC (sulfur units)	----	0.02	% S	----	----	<0.02	<0.02	----
Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	----	----	<10	10	----
Liming Rate excluding ANC	----	1	kg CaCO3/t	----	----	<1	<1	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	0.1	%	----	----	----	3.5	----
Moisture Content	----	1.0	%	13.0	6.6	5.0	----	3.4
EA058: Emerson Aggregate Test								
Color (Munsell)	----	-	-	----	----	Red (2.5YR 5/6)	----	----
Texture	----	-	-	----	----	Loamy Sand	----	----
Emerson Class Number	EC/TC	-	-	----	----	7	----	----
EA150: Particle Sizing								
+75µm	----	1	%	----	----	----	98	----
+150µm	----	1	%	----	----	----	82	----
+300µm	----	1	%	----	----	----	30	----
+425µm	----	1	%	----	----	----	10	----
+600µm	----	1	%	----	----	----	1	----
+1180µm	----	1	%	----	----	----	<1	----
+2.36mm	----	1	%	----	----	----	<1	----
+4.75mm	----	1	%	----	----	----	<1	----
+9.5mm	----	1	%	----	----	----	<1	----
+19.0mm	----	1	%	----	----	----	<1	----
+37.5mm	----	1	%	----	----	----	<1	----
+75.0mm	----	1	%	----	----	----	<1	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP14_2.0-2.1_241128	TP29_0.0-0.15_241128	TP29_0.4-0.5_241128	TP29_1.0-1.1_241128	TP29_2.0-2.3_241128
				Sampling date / time	28-Nov-2024 15:25	28-Nov-2024 12:05	28-Nov-2024 14:10	28-Nov-2024 14:15	28-Nov-2024 14:20
Compound	CAS Number	LOR	Unit		EM2421125-032	EM2421125-033	EM2421125-034	EM2421125-035	EM2421125-036
					Result	Result	Result	Result	Result
EA150: Soil Classification based on Particle Size									
Clay (<2 µm)	----	1	%		----	----	----	2	----
Silt (2-60 µm)	----	1	%		----	----	----	1	----
Sand (0.06-2.00 mm)	----	1	%		----	----	----	97	----
Gravel (>2mm)	----	1	%		----	----	----	<1	----
Cobbles (>6cm)	----	1	%		----	----	----	<1	----
ED006: Exchangeable Cations on Alkaline Soils									
ø Exchangeable Calcium	----	0.2	meq/100g		----	----	1.5	1.9	----
ø Exchangeable Magnesium	----	0.2	meq/100g		----	----	0.9	0.8	----
ø Exchangeable Potassium	----	0.2	meq/100g		----	----	<0.2	<0.2	----
ø Exchangeable Sodium	----	0.2	meq/100g		----	----	2.7	1.8	----
ø Cation Exchange Capacity	----	0.2	meq/100g		----	----	5.3	4.7	----
ø Exchangeable Calcium Percent	----	0.2	%		----	----	29.0	40.9	----
ø Exchangeable Magnesium Percent	----	0.2	%		----	----	16.8	18.1	----
ø Exchangeable Potassium Percent	----	0.2	%		----	----	3.0	3.5	----
ø Exchangeable Sodium Percent	----	0.2	%		----	----	51.2	37.5	----
ø Calcium/Magnesium Ratio	----	0.2	-		----	----	1.7	2.3	----
ø Magnesium/Potassium Ratio	----	0.2	-		----	----	<0.2	<0.2	----
ED040N: Sulfate - Calcium Phosphate Soluble (NEPM)									
Sulfate as SO4 2-	14808-79-8	50	mg/kg		----	----	240	----	----
ED040T: Total Sulfur by ICPAES									
Sulfur as S	63705-05-5	100	mg/kg		----	----	130	----	----
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	10	mg/kg		----	----	750	450	----
EG005(ED093)T: Total Metals by ICP-AES									
Aluminium	7429-90-5	50	mg/kg		----	----	3600	----	----
Arsenic	7440-38-2	5	mg/kg		<5	<5	----	----	<5
Barium	7440-39-3	10	mg/kg		90	180	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP14_2.0-2.1_241128	TP29_0.0-0.15_241128	TP29_0.4-0.5_241128	TP29_1.0-1.1_241128	TP29_2.0-2.3_241128
				Sampling date / time	28-Nov-2024 15:25	28-Nov-2024 12:05	28-Nov-2024 14:10	28-Nov-2024 14:15	28-Nov-2024 14:20
Compound	CAS Number	LOR	Unit		EM2421125-032	EM2421125-033	EM2421125-034	EM2421125-035	EM2421125-036
					Result	Result	Result	Result	Result
EG005(ED093)T: Total Metals by ICP-AES - Continued									
Beryllium	7440-41-7	1	mg/kg		<1	<1	----	----	----
Boron	7440-42-8	50	mg/kg		<50	<50	<50	----	----
Cadmium	7440-43-9	1	mg/kg		<1	<1	----	----	<1
Chromium	7440-47-3	2	mg/kg		**15**	**6**	----	----	**6**
Cobalt	7440-48-4	2	mg/kg		**4**	**3**	----	----	----
Copper	7440-50-8	5	mg/kg		**30**	**334**	----	----	<5
Iron	7439-89-6	50	mg/kg		----	----	**6150**	----	----
Lead	7439-92-1	5	mg/kg		**6**	<5	----	----	<5
Manganese	7439-96-5	5	mg/kg		**135**	**38**	**28**	----	----
Nickel	7440-02-0	2	mg/kg		**8**	**2**	----	----	**2**
Selenium	7782-49-2	5	mg/kg		<5	<5	----	----	----
Vanadium	7440-62-2	5	mg/kg		**36**	**23**	----	----	----
Zinc	7440-66-6	5	mg/kg		**27**	**16**	----	----	**5**
Calcium	7440-70-2	50	mg/kg		----	----	**650**	----	----
Magnesium	7439-95-4	50	mg/kg		----	----	**1010**	----	----
Sodium	7440-23-5	50	mg/kg		----	----	**1240**	----	----
Potassium	7440-09-7	50	mg/kg		----	----	**760**	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	----	----	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)									
Hexavalent Chromium	18540-29-9	0.5	mg/kg		<0.5	<0.5	----	----	----
EK028SF: Weak Acid Dissociable CN by Segmented Flow Analyser									
Weak Acid Dissociable Cyanide	----	1	mg/kg		<1	<1	----	----	----
EK055: Ammonia as N									
Ammonia as N	7664-41-7	20	mg/kg		----	----	<20	----	----
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg		----	----	<0.1	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	TP14_2.0-2.1_241128	TP29_0.0-0.15_241128	TP29_0.4-0.5_241128	TP29_1.0-1.1_241128	TP29_2.0-2.3_241128
			Sampling date / time	28-Nov-2024 15:25	28-Nov-2024 12:05	28-Nov-2024 14:10	28-Nov-2024 14:15	28-Nov-2024 14:20
Compound	CAS Number	LOR	Unit	EM2421125-032	EM2421125-033	EM2421125-034	EM2421125-035	EM2421125-036
				Result	Result	Result	Result	Result
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N (Sol.)	14797-55-8	0.1	mg/kg	----	----	**0.4**	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	----	----	**0.4**	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	20	mg/kg	----	----	**40**	----	----
EK062: Total Nitrogen as N (TKN + NOx)								
^ Total Nitrogen as N	----	20	mg/kg	----	----	**40**	----	----
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	2	mg/kg	----	----	**32**	----	----
EK080: Bicarbonate Extractable Phosphorus (Colwell)								
Bicarbonate Ext. P (Colwell)	----	5	mg/kg	----	----	<5	----	----
EP004: Organic Matter								
Organic Matter	----	0.5	%	----	----	**1.1**	----	----
Total Organic Carbon	----	0.5	%	----	----	**0.7**	----	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	----	----	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	----	----	----
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	----	----	----
gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	<0.05	----	----	----
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	----	----	----
Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	----	----	----
Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	----	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	----	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	----	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	TP14_2.0-2.1_241128	TP29_0.0-0.15_241128	TP29_0.4-0.5_241128	TP29_1.0-1.1_241128	TP29_2.0-2.3_241128
			Sampling date / time	28-Nov-2024 15:25	28-Nov-2024 12:05	28-Nov-2024 14:10	28-Nov-2024 14:15	28-Nov-2024 14:20
Compound	CAS Number	LOR	Unit	EM2421125-032	EM2421125-033	EM2421125-034	EM2421125-035	EM2421125-036
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	----	----	----
Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	----	----	----
Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	----	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	----	----	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	<0.05	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	----	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	----	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	----	----	----
4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	----	----	----
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	----	----	----
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	----	----	----
Mirex	2385-85-5	0.20	mg/kg	<0.20	<0.20	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	<0.05	<0.05	----	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg	<0.05	<0.05	----	----	----
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	----	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	----	----	----
Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	----	----	----
Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	----	----	----
Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	----	----	----
Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	----	----	----
Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	----	----	----
Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	----	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	TP14_2.0-2.1_241128	TP29_0.0-0.15_241128	TP29_0.4-0.5_241128	TP29_1.0-1.1_241128	TP29_2.0-2.3_241128
			Sampling date / time	28-Nov-2024 15:25	28-Nov-2024 12:05	28-Nov-2024 14:10	28-Nov-2024 14:15	28-Nov-2024 14:20
Compound	CAS Number	LOR	Unit	EM2421125-032	EM2421125-033	EM2421125-034	EM2421125-035	EM2421125-036
				Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued								
Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	----	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	----	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	----	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	----	----	----
Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	----	----	----
Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	----	----	----
Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	----	----	----
Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	----	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	----	----	----
EP068C: Triazines								
Atrazine	1912-24-9	0.05	mg/kg	<0.05	<0.05	----	----	----
EP068D: Pyrethroids								
Bifenthrin	82657-04-3	0.05	mg/kg	<0.05	<0.05	----	----	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	----	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	----	----	----
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	----	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	----	----	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	----	----	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	----	----	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	----	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	----	----	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	----	----	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	----	----	----
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP14_2.0-2.1_241128	TP29_0.0-0.15_241128	TP29_0.4-0.5_241128	TP29_1.0-1.1_241128	TP29_2.0-2.3_241128
				Sampling date / time	28-Nov-2024 15:25	28-Nov-2024 12:05	28-Nov-2024 14:10	28-Nov-2024 14:15	28-Nov-2024 14:20
Compound	CAS Number	LOR	Unit		EM2421125-032	EM2421125-033	EM2421125-034	EM2421125-035	EM2421125-036
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	**0.6**	----	----	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**1.2**	----	----	**1.2**
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	----	----	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	----	----	<50
C15 - C28 Fraction	----	100	mg/kg		<100	<100	----	----	<100
C29 - C36 Fraction	----	100	mg/kg		<100	<100	----	----	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	----	----	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP14_2.0-2.1_241128	TP29_0.0-0.15_241128	TP29_0.4-0.5_241128	TP29_1.0-1.1_241128	TP29_2.0-2.3_241128
				Sampling date / time	28-Nov-2024 15:25	28-Nov-2024 12:05	28-Nov-2024 14:10	28-Nov-2024 14:15	28-Nov-2024 14:20
Compound	CAS Number	LOR	Unit		EM2421125-032	EM2421125-033	EM2421125-034	EM2421125-035	EM2421125-036
					Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	----	----	<10
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg		<10	<10	----	----	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	----	----	<50
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	----	----	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	----	----	<100
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		<50	<50	----	----	<50
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	50	mg/kg		<50	<50	----	----	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	----	----	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
^ **Sum of BTEX**	----	0.2	mg/kg		<0.2	<0.2	----	----	<0.2
^ **Total Xylenes**	----	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	----	----	<1
Radionuclides / Activity									
Gross alpha	----	500	Bq/kg DW		----	----	----	<500	----
Uranium 238	7440-61-1	10.0	Bq/kg DW		----	----	----	<10.0	----
Gross beta	----	500	Bq/kg DW		----	----	----	<500	----
Thorium 234	----	10.0	Bq/kg DW		----	----	----	<10.0	----
Thorium 230	----	50	Bq/kg DW		----	----	----	<60	----
Radium 226	13982-63-3	1.0	Bq/kg DW		----	----	----	**5.8**	----
Lead 210	14255-04-0	50	Bq/kg DW		----	----	----	<50	----
Uranium 235	15117-96-1	1.0	Bq/kg DW		----	----	----	<1.0	----
Protactinium 231	----	5	Bq/kg DW		----	----	----	<13.0	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	TP14_2.0-2.1_241128	TP29_0.0-0.15_241128	TP29_0.4-0.5_241128	TP29_1.0-1.1_241128	TP29_2.0-2.3_241128
			Sampling date / time	28-Nov-2024 15:25	28-Nov-2024 12:05	28-Nov-2024 14:10	28-Nov-2024 14:15	28-Nov-2024 14:20
Compound	CAS Number	LOR	Unit	EM2421125-032	EM2421125-033	EM2421125-034	EM2421125-035	EM2421125-036
				Result	Result	Result	Result	Result
Radionuclides / Activity - Continued								
Actinium 227	----	1	Bq/kg DW	----	----	----	<1.9	----
Thorium 227	----	1	Bq/kg DW	----	----	----	<1.9	----
Radium 223	----	1	Bq/kg DW	----	----	----	<2.4	----
Radium 228	7440-14-4	1.0	Bq/kg DW	----	----	----	7.4	----
Thorium 228	----	1.0	Bq/kg DW	----	----	----	7.4	----
Potassium 40	13966-00-2	10	Bq/kg DW	----	----	----	53	----
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	87.8	88.6	----	----	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.05	%	92.7	91.4	----	----	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.05	%	74.6	73.2	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	71.9	72.8	----	----	86.2
2-Chlorophenol-D4	93951-73-6	0.5	%	84.4	84.9	----	----	98.8
2.4.6-Tribromophenol	118-79-6	0.5	%	55.2	49.6	----	----	63.0
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	83.8	85.0	----	----	95.0
Anthracene-d10	1719-06-8	0.5	%	90.5	91.8	----	----	104
4-Terphenyl-d14	1718-51-0	0.5	%	87.2	87.9	----	----	97.6
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	81.9	78.9	----	----	80.4
Toluene-D8	2037-26-5	0.2	%	87.2	85.4	----	----	79.6
4-Bromofluorobenzene	460-00-4	0.2	%	93.3	87.0	----	----	87.4

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	QC603_241202	QC402_241202	QC603_241202 - Trip Control	----	----
			Sampling date / time	02-Dec-2024 07:30	02-Dec-2024 07:30	02-Dec-2024 07:30	----	----
Compound	CAS Number	LOR	Unit	EM2421125-037	EM2421125-038	EM2421125-039	--------	--------
				Result	Result	Result	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**7.2**	<1.0	**6.5**	**----**	**----**
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	**----**	**----**
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	**11**	<10	**14**	**----**	**----**
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	**----**	**----**
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	**----**	**----**
Toluene	108-88-3	0.5	mg/kg	**2.4**	<0.5	**3.0**	**----**	**----**
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	**0.6**	**----**	**----**
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	**1.3**	<0.5	**1.7**	**----**	**----**
ortho-Xylene	95-47-6	0.5	mg/kg	**0.7**	<0.5	**0.8**	**----**	**----**
^ Sum of BTEX	----	0.2	mg/kg	**4.4**	<0.2	**6.1**	**----**	**----**
^ Total Xylenes	----	0.5	mg/kg	**2.0**	<0.5	**2.5**	**----**	**----**
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	**----**	**----**
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	**82.8**	**86.6**	**76.3**	**----**	**----**
Toluene-D8	2037-26-5	0.2	%	**85.0**	**83.5**	**77.6**	**----**	**----**
4-Bromofluorobenzene	460-00-4	0.2	%	**93.2**	**96.1**	**81.5**	**----**	**----**

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	36	140
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	62	128
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	40	139
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	54	125
2-Chlorophenol-D4	93951-73-6	65	123
2.4.6-Tribromophenol	118-79-6	34	122
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	61	125
Anthracene-d10	1719-06-8	62	130
4-Terphenyl-d14	1718-51-0	67	133
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	51	125
Toluene-D8	2037-26-5	55	125
4-Bromofluorobenzene	460-00-4	56	124

Inter-Laboratory Testing

Analysis conducted by ALS Brisbane, NATA accreditation no. 825, site no. 818 (Chemistry / Biology).

(SOIL) EA003 :pH (field/fox)
(SOIL) EA009: Net Acid Production Potential
(SOIL) EA033-B: Potential Acidity
(SOIL) EA033-C: Acid Neutralising Capacity
(SOIL) EA033-D: Retained Acidity
(SOIL) EA033-A: Actual Acidity
(SOIL) EA033-E: Acid Base Accounting
(SOIL) EA029-D: Calcium Values
(SOIL) EA029-E: Magnesium Values
(SOIL) EA029-F: Excess Acid Neutralising Capacity
(SOIL) EA029-H: Acid Base Accounting
(SOIL) EA029-G: Retained Acidity
(SOIL) EA029-A: pH Measurements
(SOIL) EA029-C: Sulfur Trail
(SOIL) EA029-B: Acidity Trail
(SOIL) Radionuclides / Activity
(SOIL) EK080: Bicarbonate Extractable Phosphorus (Colwell)
(SOIL) EA058: Emerson Aggregate Test

Analysis conducted by ALS Newcastle, NATA accreditation no. 825, site no. 1656 (Chemistry / Biology).

(SOIL) EA150: Soil Classification based on Particle Size
(SOIL) EA150: Particle Sizing

QUALITY CONTROL REPORT

Work Order	: **EM2421125**	Page	: 1 of 33
Client	: **EMM CONSULTING PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: Simony Sakamoto	Contact	: Customer Services EM
Address	: Level 1, 70 Pirie Street Adelaide 5000	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +61 3 8549 9600
Project	: Olympic Dam	Date Samples Received	: 04-Dec-2024
Order number	: E240975	Date Analysis Commenced	: 06-Dec-2024
C-O-C number	: 76176	Issue Date	: 21-Jan-2025
Sampler	: Simony Sakamoto		
Site	: Olympic Dam		
Quote number	: EM24EMGAMM0004_V2		
No. of samples received	: 39		
No. of samples analysed	: 33		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Aleksandar Vujkovic	Laboratory Technician	Newcastle - Inorganics, Mayfield West, NSW
Beatriz Llarinas	Senior Chemist - Inorganics	Brisbane Inorganics, Stafford, QLD
Ben Felgendrejeris	Senior Acid Sulfate Soil Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
Dilani Fernando	Laboratory Coordinator	Melbourne Inorganics, Springvale, VIC
Jarwis Nheu	Non-Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Kim McCabe	Senior Inorganic Chemist	Brisbane External Subcontracting, Stafford, QLD
Nancy Wang	2IC Organic Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	2IC Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC
* = The final LOR has been raised due to dilution or other sample specific cause; adjusted LOR is shown in brackets. The duplicate ranges for Acceptable RPD% are applied to the final LOR where applicable.

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 6238948)									
EM2421059-125	Anonymous	EG005T: Iron	7439-89-6	50	mg/kg	13200	# 24100	58.4	0% - 20%
EM2421125-013	TP27_0.40-0.50_241129	EG005T: Cobalt	7440-48-4	2	mg/kg	39	# 58	37.4	0% - 20%
		EG005T: Copper	7440-50-8	5	mg/kg	1800	# 2520	33.6	0% - 20%
		EG005T: Iron	7439-89-6	50	mg/kg	18300	# 23100	23.1	0% - 20%
EM2421059-125	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	20	20	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	20	16	21.4	0% - 50%
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	4	2	40.6	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	9	8	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	5	7	34.5	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	33	25	28.5	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
		EG005T: Calcium	7440-70-2	50	mg/kg	340	300	11.5	No Limit
		EG005T: Magnesium	7439-95-4	50	mg/kg	520	450	14.1	0% - 50%
		EG005T: Sodium	7440-23-5	50	mg/kg	60	50	17.7	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 6238948) - continued									
EM2421059-125	Anonymous	EG005T: Potassium	7440-09-7	50	mg/kg	250	230	8.3	No Limit
EM2421125-013	TP27_0.40-0.50_241129	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	170	150	12.8	0% - 50%
		EG005T: Chromium	7440-47-3	2	mg/kg	12	11	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	7	7	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	14	12	9.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	8	8	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	75	74	1.4	0% - 50%
		EG005T: Selenium	7782-49-2	5	mg/kg	9	8	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	100	99	0.0	0% - 50%
		EG005T: Zinc	7440-66-6	5	mg/kg	27	24	10.7	No Limit
		EG005T: Aluminium	7429-90-5	50	mg/kg	10200	10500	3.7	0% - 20%
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
		EG005T: Calcium	7440-70-2	50	mg/kg	91600	94300	2.8	0% - 20%
		EG005T: Magnesium	7439-95-4	50	mg/kg	6350	6270	1.2	0% - 20%
		EG005T: Sodium	7440-23-5	50	mg/kg	6780	6930	2.2	0% - 20%
		EG005T: Potassium	7440-09-7	50	mg/kg	1500	1560	3.7	0% - 20%
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 6238949)									
EM2421125-029	TP14_0.0-0.15_241128	EG005T: Copper	7440-50-8	5	mg/kg	89	# 115	25.8	0% - 20%
		EG005T: Magnesium	7439-95-4	50	mg/kg	55500	51800	7.0	0% - 20%
		EG005T: Potassium	7440-09-7	50	mg/kg	1120	1150	2.7	0% - 20%
EM2421328-006	Anonymous	EG005T: Aluminium	7429-90-5	50	mg/kg	8270	7110	15.1	0% - 20%
		EG005T: Sodium	7440-23-5	50	mg/kg	1980	1960	1.3	0% - 20%
		EG005T: Potassium	7440-09-7	50	mg/kg	2860	2640	7.9	0% - 20%
EM2421125-029	TP14_0.0-0.15_241128	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	70	80	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	7	8	17.6	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	4	4	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	6	6	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	5	9	53.6	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	288	310	7.2	0% - 20%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	37	40	8.2	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	20	22	9.9	No Limit
		EG005T: Aluminium	7429-90-5	50	mg/kg	4470	5220	15.5	0% - 20%

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 6238949) - continued									
EM2421125-029	TP14_0.0-0.15_241128	EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
		EG005T: Iron	7439-89-6	50	mg/kg	8450	9760	14.3	0% - 20%
		EG005T: Calcium	7440-70-2	50	mg/kg	114000	93800	19.5	0% - 20%
		EG005T: Sodium	7440-23-5	50	mg/kg	5060	5560	9.5	0% - 20%
EM2421328-006	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	40	30	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	20	16	25.9	0% - 50%
		EG005T: Cobalt	7440-48-4	2	mg/kg	4	3	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	8	7	20.5	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	6	6	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	11	8	31.5	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	10	7	37.5	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	71	64	10.4	0% - 50%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	31	28	11.1	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	25	18	33.2	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
		EG005T: Iron	7439-89-6	50	mg/kg	16300	13500	18.7	0% - 20%
		EG005T: Calcium	7440-70-2	50	mg/kg	41500	42500	2.2	0% - 20%
		EG005T: Magnesium	7439-95-4	50	mg/kg	6650	5750	14.6	0% - 20%
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 6247016)									
EM2421125-016	TP04_0.4-0.5_241129	EG005T: Chromium	7440-47-3	2	mg/kg	11	9	15.9	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	5760	# 1150	133	0% - 20%
EM2421125-016	TP04_0.4-0.5_241129	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	6	9	30.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	6	7	25.4	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	10	12	23.3	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	9	10	15.1	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	16	19	20.6	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
		EG005T: Calcium	7440-70-2	50	mg/kg	105000	91500	13.8	0% - 20%
EA001: pH in soil using 0.01M CaCl extract (QC Lot: 6238719)									
EM2421125-016	TP04_0.4-0.5_241129	EA001: pH (CaCl2)	----	0.1	pH Unit	8.2	8.2	0.0	0% - 20%
EM2421179-029	Anonymous	EA001: pH (CaCl2)	----	0.1	pH Unit	7.9	7.9	0.0	0% - 20%

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EA002: pH 1:5 (Soils) (QC Lot: 6238708)									
EM2421125-022	TP15_0.4-0.5_241129	EA002: pH Value	----	0.1	pH Unit	6.9	6.9	0.0	0% - 20%
EA002-AD: pH (Soils) dried at 40°C (QC Lot: 6240763)									
EM2421125-016	TP04_0.4-0.5_241129	EA002-AD: pH Value	----	0.1	pH Unit	8.4	8.4	0.0	0% - 20%
EM2421321-012	Anonymous	EA002-AD: pH Value	----	0.1	pH Unit	8.5	8.5	0.0	0% - 20%
EA003 :pH (field/fox) (QC Lot: 6250559)									
EB2443247-001	Anonymous	EA003: pH (F)	----	0.1	pH Unit	8.0	8.1	1.6	0% - 20%
		EA003: pH (Fox)	----	0.1	pH Unit	4.0	3.7	7.9	0% - 20%
EB2443247-011	Anonymous	EA003: pH (F)	----	0.1	pH Unit	7.4	7.5	1.9	0% - 20%
		EA003: pH (Fox)	----	0.1	pH Unit	4.1	4.2	3.1	0% - 20%
EA003 :pH (field/fox) (QC Lot: 6250560)									
EM2421125-016	TP04_0.4-0.5_241129	EA003: pH (F)	----	0.1	pH Unit	8.6	8.5	0.0	0% - 20%
		EA003: pH (Fox)	----	0.1	pH Unit	10.5	10.4	0.0	0% - 20%
EA010: Conductivity (1:5) (QC Lot: 6238706)									
EM2421125-022	TP15_0.4-0.5_241129	EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	33	32	0.0	0% - 20%
EA010-AD: Conductivity (Soils) dried at 40°C (QC Lot: 6240764)									
EM2421125-016	TP04_0.4-0.5_241129	EA010-AD: Electrical Conductivity @ 25°C	----	1	µS/cm	6070	6040	0.5	0% - 20%
EM2421321-012	Anonymous	EA010-AD: Electrical Conductivity @ 25°C	----	1	µS/cm	1170	1170	0.3	0% - 20%
EA029-A: pH Measurements (QC Lot: 6263342)									
EM2421125-022	TP15_0.4-0.5_241129	EA029: pH KCl (23A)	----	0.1	pH Unit	8.8	8.8	0.0	0% - 20%
		EA029: pH OX (23B)	----	0.1	pH Unit	7.2	7.3	1.4	0% - 20%
EA029-B: Acidity Trail (QC Lot: 6263342)									
EM2421125-022	TP15_0.4-0.5_241129	EA029: sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	<0.020	<0.020	0.0	No Limit
		EA029: sulfidic - Titratable Peroxide Acidity (s-23G)	----	0.02	% pyrite S	<0.020	<0.020	0.0	No Limit
		EA029: sulfidic - Titratable Sulfidic Acidity (s-23H)	----	0.02	% pyrite S	<0.020	<0.020	0.0	No Limit
		EA029: Titratable Actual Acidity (23F)	----	2	mole H+ / t	<2	<2	0.0	No Limit
		EA029: Titratable Peroxide Acidity (23G)	----	2	mole H+ / t	<2	<2	0.0	No Limit
		EA029: Titratable Sulfidic Acidity (23H)	----	2	mole H+ / t	<2	<2	0.0	No Limit
EA029-C: Sulfur Trail (QC Lot: 6263342)									
EM2421125-022	TP15_0.4-0.5_241129	EA029: KCl Extractable Sulfur (23Ce)	----	0.02	% S	<0.020	<0.020	0.0	No Limit
		EA029: Peroxide Sulfur (23De)	----	0.02	% S	<0.020	<0.020	0.0	No Limit
		EA029: Peroxide Oxidisable Sulfur (23E)	----	0.02	% S	<0.020	<0.020	0.0	No Limit
		EA029: acidity - Peroxide Oxidisable Sulfur (a-23E)	----	10	mole H+ / t	<10	<10	0.0	No Limit
EA029-D: Calcium Values (QC Lot: 6263342)									
EM2421125-022	TP15_0.4-0.5_241129	EA029: KCl Extractable Calcium (23Vh)	----	0.02	% Ca	0.099	0.098	1.5	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EA029-D: Calcium Values (QC Lot: 6263342) - continued									
EM2421125-022	TP15_0.4-0.5_241129	EA029: Peroxide Calcium (23Wh)	----	0.02	% Ca	0.105	0.109	3.7	No Limit
		EA029: Acid Reacted Calcium (23X)	----	0.02	% Ca	<0.020	<0.020	0.0	No Limit
		EA029: sulfidic - Acid Reacted Calcium (s-23X)	----	0.02	% S	<0.020	<0.020	0.0	No Limit
		EA029: acidity - Acid Reacted Calcium (a-23X)	----	10	mole H+ / t	<10	<10	0.0	No Limit
EA029-E: Magnesium Values (QC Lot: 6263342)									
EM2421125-022	TP15_0.4-0.5_241129	EA029: KCl Extractable Magnesium (23Sm)	----	0.02	% Mg	<0.020	<0.020	0.0	No Limit
		EA029: Peroxide Magnesium (23Tm)	----	0.02	% Mg	0.023	0.026	12.0	No Limit
		EA029: Acid Reacted Magnesium (23U)	----	0.02	% Mg	0.023	0.026	12.0	No Limit
		EA029: sulfidic - Acid Reacted Magnesium (s-23U)	----	0.02	% S	0.030	0.034	12.0	No Limit
		EA029: Acidity - Acid Reacted Magnesium (a-23U)	----	10	mole H+ / t	19	21	12.0	No Limit
EA029-F: Excess Acid Neutralising Capacity (QC Lot: 6263342)									
EM2421125-022	TP15_0.4-0.5_241129	EA029: Excess Acid Neutralising Capacity (23Q)	----	0.02	% CaCO3	0.353	0.324	8.6	0% - 50%
		EA029: sulfidic - Excess Acid Neutralising Capacity (s-23Q)	----	0.02	% S	0.113	0.104	8.6	No Limit
		EA029: acidity - Excess Acid Neutralising Capacity (a-23Q)	----	10	mole H+ / t	70	65	8.6	No Limit
EA029-H: Acid Base Accounting (QC Lot: 6263342)									
EM2421125-022	TP15_0.4-0.5_241129	EA029: ANC Fineness Factor	----	0.5	-	1.5	1.5	0.0	No Limit
		EA029: Net Acidity (sulfur units)	----	0.02	% S	<0.02	<0.02	0.0	No Limit
		EA029: Net Acidity excluding ANC (sulfur units)	----	0.02	% S	<0.02	<0.02	0.0	No Limit
		EA029: Liming Rate	----	1	kg CaCO3/t	<1	<1	0.0	No Limit
		EA029: Liming Rate excluding ANC	----	1	kg CaCO3/t	<1	<1	0.0	No Limit
		EA029: Net Acidity (acidity units)	----	10	mole H+ / t	<10	<10	0.0	No Limit
		EA029: Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	<10	<10	0.0	No Limit
EA033-A: Actual Acidity (QC Lot: 6263335)									
EB2442670-002	Anonymous	EA033: sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	<0.02	<0.02	0.0	No Limit
		EA033: Titratable Actual Acidity (23F)	----	2	mole H+ / t	<2	<2	0.0	No Limit
		EA033: pH KCl (23A)	----	0.1	pH Unit	9.3	9.3	0.0	0% - 20%
EB2443263-008	Anonymous	EA033: sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	<0.02	<0.02	0.0	No Limit
		EA033: Titratable Actual Acidity (23F)	----	2	mole H+ / t	<2	<2	0.0	No Limit
		EA033: pH KCl (23A)	----	0.1	pH Unit	5.9	5.8	0.0	0% - 20%
EA033-A: Actual Acidity (QC Lot: 6263341)									
EM2421125-017	TP04_1.0-1.1_241129	EA033: sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	<0.02	<0.02	0.0	No Limit
		EA033: Titratable Actual Acidity (23F)	----	2	mole H+ / t	<2	<2	0.0	No Limit
		EA033: pH KCl (23A)	----	0.1	pH Unit	8.6	8.7	0.0	0% - 20%
ES2440560-007	Anonymous	EA033: sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	0.06	0.05	0.0	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EA033-A: Actual Acidity (QC Lot: 6263341) - continued									
ES2440560-007	Anonymous	EA033: Titratable Actual Acidity (23F)	----	2	mole H+ / t	36	32	11.6	0% - 50%
		EA033: pH KCl (23A)	----	0.1	pH Unit	4.5	4.5	0.0	0% - 20%
EA033-B: Potential Acidity (QC Lot: 6263335)									
EB2442670-002	Anonymous	EA033: Chromium Reducible Sulfur (22B)	----	0.005	% S	0.019	0.016	14.3	No Limit
		EA033: acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	12	10	14.3	No Limit
EB2443263-008	Anonymous	EA033: Chromium Reducible Sulfur (22B)	----	0.005	% S	0.013	0.015	12.5	No Limit
		EA033: acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	<10	<10	0.0	No Limit
EA033-B: Potential Acidity (QC Lot: 6263341)									
EM2421125-017	TP04_1.0-1.1_241129	EA033: Chromium Reducible Sulfur (22B)	----	0.005	% S	0.013	0.015	8.6	No Limit
		EA033: acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	<10	<10	0.0	No Limit
ES2440560-007	Anonymous	EA033: Chromium Reducible Sulfur (22B)	----	0.005	% S	0.015	0.013	16.7	No Limit
		EA033: acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	<10	<10	0.0	No Limit
EA033-C: Acid Neutralising Capacity (QC Lot: 6263335)									
EB2442670-002	Anonymous	EA033: Acid Neutralising Capacity (19A2)	----	0.01	% CaCO3	6.33	6.45	1.8	0% - 20%
		EA033: sulfidic - Acid Neutralising Capacity (s-19A2)	----	0.01	% pyrite S	2.03	2.07	1.8	0% - 20%
		EA033: acidity - Acid Neutralising Capacity (a-19A2)	----	10	mole H+ / t	1260	1290	1.8	0% - 20%
EA033-C: Acid Neutralising Capacity (QC Lot: 6263341)									
EM2421125-017	TP04_1.0-1.1_241129	EA033: Acid Neutralising Capacity (19A2)	----	0.01	% CaCO3	6.00	6.87	13.6	0% - 20%
		EA033: sulfidic - Acid Neutralising Capacity (s-19A2)	----	0.01	% pyrite S	1.92	2.20	13.6	0% - 20%
		EA033: acidity - Acid Neutralising Capacity (a-19A2)	----	10	mole H+ / t	1200	1370	13.6	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 6240918)									
EM2421125-001	TP28_0.0-0.1_241128	EA055: Moisture Content	----	0.1 (1.0)*	%	4.5	5.3	16.9	No Limit
EM2421125-019	QC103_241129	EA055: Moisture Content	----	0.1 (1.0)*	%	14.4	14.9	3.7	0% - 50%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 6240919)									
EM2421125-032	TP14_2.0-2.1_241128	EA055: Moisture Content	----	0.1 (1.0)*	%	13.0	14.0	7.4	0% - 50%
ED006: Exchangeable Cations on Alkaline Soils (QC Lot: 6240769)									
EM2421125-016	TP04_0.4-0.5_241129	ED006: Calcium/Magnesium Ratio	----	0.1 (0.2)*	-	6.4	6.2	3.0	0% - 20%
		ED006: Magnesium/Potassium Ratio	----	0.1 (0.2)*	-	5.0	5.3	5.6	0% - 20%
		ED006: Exchangeable Calcium Percent	----	0.2	%	60.5	60.0	0.8	0% - 20%
		ED006: Exchangeable Magnesium Percent	----	0.2	%	9.4	9.6	2.2	0% - 20%

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
ED006: Exchangeable Cations on Alkaline Soils (QC Lot: 6240769) - continued									
EM2421125-016	TP04_0.4-0.5_241129	ED006: Exchangeable Potassium Percent	----	0.2	%	1.9	1.8	0.0	No Limit
		ED006: Exchangeable Sodium Percent	----	0.2	%	28.2	28.6	1.1	0% - 20%
		ED006: Exchangeable Calcium	----	0.2	meq/100g	8.7	9.0	3.1	0% - 20%
		ED006: Exchangeable Magnesium	----	0.2	meq/100g	1.4	1.4	0.0	No Limit
		ED006: Exchangeable Potassium	----	0.2	meq/100g	0.3	0.3	0.0	No Limit
		ED006: Exchangeable Sodium	----	0.2	meq/100g	4.1	4.3	5.1	0% - 20%
		ED006: Cation Exchange Capacity	----	0.2	meq/100g	14.4	15.0	3.9	0% - 20%
EM2421321-012	Anonymous	ED006: Calcium/Magnesium Ratio	----	0.1 (0.2)*	-	0.8	0.8	0.0	No Limit
		ED006: Magnesium/Potassium Ratio	----	0.1 (0.2)*	-	5.7	5.5	2.6	0% - 20%
		ED006: Exchangeable Calcium Percent	----	0.2	%	28.8	28.7	0.0	0% - 20%
		ED006: Exchangeable Magnesium Percent	----	0.2	%	37.2	36.9	0.9	0% - 20%
		ED006: Exchangeable Potassium Percent	----	0.2	%	6.6	6.7	1.7	0% - 20%
		ED006: Exchangeable Sodium Percent	----	0.2	%	27.4	27.7	1.1	0% - 20%
		ED006: Exchangeable Calcium	----	0.2	meq/100g	4.4	4.4	0.0	0% - 20%
		ED006: Exchangeable Magnesium	----	0.2	meq/100g	5.6	5.7	0.0	0% - 20%
		ED006: Exchangeable Potassium	----	0.2	meq/100g	1.0	1.0	0.0	No Limit
		ED006: Exchangeable Sodium	----	0.2	meq/100g	4.2	4.3	3.1	0% - 20%
		ED006: Cation Exchange Capacity	----	0.2	meq/100g	15.2	15.5	2.1	0% - 20%
ED040N: Sulfate - Calcium Phosphate Soluble (NEPM) (QC Lot: 6240841)									
EM2421125-022	TP15_0.4-0.5_241129	ED040N: Sulfate as SO4 2-	14808-79-8	50	mg/kg	<50	<50	0.0	No Limit
EM2421426-022	Anonymous	ED040N: Sulfate as SO4 2-	14808-79-8	50	mg/kg	120	140	20.1	No Limit
ED045G: Chloride by Discrete Analyser (QC Lot: 6238707)									
EM2421125-022	TP15_0.4-0.5_241129	ED045G: Chloride	16887-00-6	10	mg/kg	30	30	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 6238947)									
EM2421059-125	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EM2421125-013	TP27_0.40-0.50_241129	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 6238950)									
EM2421125-029	TP14_0.0-0.15_241128	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EM2421328-006	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 6247015)									
EM2421125-016	TP04_0.4-0.5_241129	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EG048: Hexavalent Chromium (Alkaline Digest) (QC Lot: 6240598)									
EM2420785-003	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EM2421125-027	QC104_241129_1.00-1.10	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EK028SF: Weak Acid Dissociable CN by Segmented Flow Analyser (QC Lot: 6243799)									
EM2421125-002	TP28_0.4-0.5_241128	EK028SF: Weak Acid Dissociable Cyanide	----	1	mg/kg	<1	<1	0.0	No Limit
EM2421321-004	Anonymous	EK028SF: Weak Acid Dissociable Cyanide	----	1	mg/kg	<1	<1	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EK055: Ammonia as N (QC Lot: 6238964)									
EM2421125-022	TP15_0.4-0.5_241129	EK055: Ammonia as N	7664-41-7	20	mg/kg	<20	<20	0.0	No Limit
EM2421321-013	Anonymous	EK055: Ammonia as N	7664-41-7	20	mg/kg	<20	<20	0.0	No Limit
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 6238710)									
EM2421125-022	TP15_0.4-0.5_241129	EK057G: Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 6238709)									
EM2421125-022	TP15_0.4-0.5_241129	EK059G: Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	1.2	1.0	19.5	0% - 50%
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 6238962)									
EM2421321-012	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	20	mg/kg	2010	1820	10.2	0% - 20%
EM2421125-022	TP15_0.4-0.5_241129	EK061G: Total Kjeldahl Nitrogen as N	----	20	mg/kg	60	70	16.7	No Limit
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 6238961)									
EM2421125-022	TP15_0.4-0.5_241129	EK067G: Total Phosphorus as P	----	2	mg/kg	36	43	17.3	0% - 20%
EK080: Bicarbonate Extractable Phosphorus (Colwell) (QC Lot: 6259334)									
EB2443128-001	Anonymous	EK080: Bicarbonate Ext. P (Colwell)	----	5	mg/kg	<5	<5	0.0	No Limit
EP004: Organic Matter (QC Lot: 6240858)									
EM2421125-022	TP15_0.4-0.5_241129	EP004: Organic Matter	----	0.5	%	<0.5	<0.5	0.0	No Limit
		EP004: Total Organic Carbon	----	0.5	%	<0.5	<0.5	0.0	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 6239036)									
EM2421125-002	TP28_0.4-0.5_241128	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EM2421125-032	TP14_2.0-2.1_241128	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 6239037)									
EM2421125-002	TP28_0.4-0.5_241128	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP068A: Organochlorine Pesticides (OC) (QC Lot: 6239037) - continued									
EM2421125-002	TP28_0.4-0.5_241128	EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Mirex	2385-85-5	0.05 (0.20)*	mg/kg	<0.20	<0.20	0.0	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EM2421125-032	TP14_2.0-2.1_241128	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Mirex	2385-85-5	0.05 (0.20)*	mg/kg	<0.20	<0.20	0.0	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 6239037)									
EM2421125-002	TP28_0.4-0.5_241128	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 6239037) - continued									
EM2421125-002	TP28_0.4-0.5_241128	EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EM2421125-032	TP14_2.0-2.1_241128	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP068C: Triazines (QC Lot: 6239037)									
EM2421125-002	TP28_0.4-0.5_241128	EP068: Atrazine	1912-24-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
EM2421125-032	TP14_2.0-2.1_241128	EP068: Atrazine	1912-24-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
EP068D: Pyrethroids (QC Lot: 6239037)									
EM2421125-002	TP28_0.4-0.5_241128	EP068: Bifenthrin	82657-04-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
EM2421125-032	TP14_2.0-2.1_241128	EP068: Bifenthrin	82657-04-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 6239038)									
EM2421125-002	TP28_0.4-0.5_241128	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP075(SIM)A: Phenolic Compounds (QC Lot: 6239038) - continued									
EM2421125-002	TP28_0.4-0.5_241128	EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
EM2421125-032	TP14_2.0-2.1_241128	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 6239041)									
EM2421125-001	TP28_0.0-0.1_241128	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
EM2421321-008	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP075(SIM)A: Phenolic Compounds (QC Lot: 6239041) - continued									
EM2421321-008	Anonymous	EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 6247006)									
EM2421125-016	TP04_0.4-0.5_241129	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 6239038)									
EM2421125-002	TP28_0.4-0.5_241128	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 6239038) - continued									
EM2421125-002	TP28_0.4-0.5_241128	EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EM2421125-032	TP14_2.0-2.1_241128	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 6239041)									
EM2421125-001	TP28_0.0-0.1_241128	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 6239041) - continued									
EM2421321-008	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 6247006)									
EM2421125-016	TP04_0.4-0.5_241129	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 6238667)									
EM2421125-001	TP28_0.0-0.1_241128	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EM2421125-020	QC203_241129	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 6238679)									
EM2421130-022	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EM2421328-002	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 6239039)									
EM2421125-002	TP28_0.4-0.5_241128	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EM2421125-032	TP14_2.0-2.1_241128	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 6239042)									
EM2421125-001	TP28_0.0-0.1_241128	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EM2421321-008	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 6247005)									
EM2421125-016	TP04_0.4-0.5_241129	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 6247007)									
EM2421125-016	TP04_0.4-0.5_241129	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 6238667)									
EM2421125-001	TP28_0.0-0.1_241128	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EM2421125-020	QC203_241129	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 6238679)									
EM2421130-022	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EM2421328-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 6239039)									
EM2421125-002	TP28_0.4-0.5_241128	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EM2421125-032	TP14_2.0-2.1_241128	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 6239042)									

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 6239042) - continued									
EM2421125-001	TP28_0.0-0.1_241128	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EM2421321-008	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 6247005)									
EM2421125-016	TP04_0.4-0.5_241129	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 6247007)									
EM2421125-016	TP04_0.4-0.5_241129	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080: BTEXN (QC Lot: 6238667)									
EM2421125-001	TP28_0.0-0.1_241128	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
EM2421125-020	QC203_241129	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
EP080: BTEXN (QC Lot: 6238679)									
EM2421130-022	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
EM2421328-002	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP080: BTEXN (QC Lot: 6238679) - continued									
EM2421328-002	Anonymous	EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
EP080: BTEXN (QC Lot: 6247005)									
EM2421125-016	TP04_0.4-0.5_241129	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 6238948)								
EG005T: Aluminium	7429-90-5	50	mg/kg	<50	15910 mg/kg	116	70.0	130
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	123 mg/kg	109	70.0	130
EG005T: Barium	7440-39-3	10	mg/kg	<10	99.3 mg/kg	103	70.0	130
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	0.67 mg/kg	108	70.0	130
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	1.23 mg/kg	69.0	50.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	20.2 mg/kg	118	70.0	130
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	11.2 mg/kg	104	70.0	130
EG005T: Copper	7440-50-8	5	mg/kg	<5	55.9 mg/kg	102	70.0	130
EG005T: Iron	7439-89-6	50	mg/kg	<50	33227 mg/kg	115	70.0	130
EG005T: Lead	7439-92-1	5	mg/kg	<5	62.4 mg/kg	102	70.0	130
EG005T: Manganese	7439-96-5	5	mg/kg	<5	590 mg/kg	101	70.0	130
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.4 mg/kg	106	70.0	130
EG005T: Selenium	7782-49-2	5	mg/kg	<5	----	----	----	----
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	61.3 mg/kg	108	70.0	130
EG005T: Zinc	7440-66-6	5	mg/kg	<5	162 mg/kg	85.3	70.0	130
EG005T: Calcium	7440-70-2	50	mg/kg	<50	20010 mg/kg	93.6	70.0	130
EG005T: Magnesium	7439-95-4	50	mg/kg	<50	8484 mg/kg	101	70.0	130
EG005T: Sodium	7440-23-5	50	mg/kg	<50	901 mg/kg	116	70.0	130
EG005T: Potassium	7440-09-7	50	mg/kg	<50	2148 mg/kg	118	70.0	130
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 6238949)								
EG005T: Aluminium	7429-90-5	50	mg/kg	<50	15910 mg/kg	114	70.0	130
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	123 mg/kg	107	70.0	130
EG005T: Barium	7440-39-3	10	mg/kg	<10	99.3 mg/kg	100	70.0	130
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	0.67 mg/kg	106	70.0	130
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	1.23 mg/kg	68.3	50.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	20.2 mg/kg	116	70.0	130
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	11.2 mg/kg	102	70.0	130
EG005T: Copper	7440-50-8	5	mg/kg	<5	55.9 mg/kg	102	70.0	130

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 6238949) - continued								
EG005T: Iron	7439-89-6	50	mg/kg	<50	33227 mg/kg	113	70.0	130
EG005T: Lead	7439-92-1	5	mg/kg	<5	62.4 mg/kg	101	70.0	130
EG005T: Manganese	7439-96-5	5	mg/kg	<5	590 mg/kg	99.7	70.0	130
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.4 mg/kg	104	70.0	130
EG005T: Selenium	7782-49-2	5	mg/kg	<5	----	----	----	----
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	61.3 mg/kg	106	70.0	130
EG005T: Zinc	7440-66-6	5	mg/kg	<5	162 mg/kg	83.5	70.0	130
EG005T: Calcium	7440-70-2	50	mg/kg	<50	20010 mg/kg	92.6	70.0	130
EG005T: Magnesium	7439-95-4	50	mg/kg	<50	8484 mg/kg	100	70.0	130
EG005T: Sodium	7440-23-5	50	mg/kg	<50	901 mg/kg	114	70.0	130
EG005T: Potassium	7440-09-7	50	mg/kg	<50	2148 mg/kg	113	70.0	130
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 6247016)								
EG005T: Aluminium	7429-90-5	50	mg/kg	<50	15910 mg/kg	118	70.0	130
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	123 mg/kg	111	70.0	130
EG005T: Barium	7440-39-3	10	mg/kg	<10	99.3 mg/kg	103	70.0	130
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	0.67 mg/kg	96.6	70.0	130
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	1.23 mg/kg	80.4	50.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	20.2 mg/kg	108	70.0	130
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	11.2 mg/kg	103	70.0	130
EG005T: Copper	7440-50-8	5	mg/kg	<5	55.9 mg/kg	101	70.0	130
EG005T: Lead	7439-92-1	5	mg/kg	<5	62.4 mg/kg	107	70.0	130
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.4 mg/kg	107	70.0	130
EG005T: Selenium	7782-49-2	5	mg/kg	<5	----	----	----	----
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	61.3 mg/kg	104	70.0	130
EG005T: Zinc	7440-66-6	5	mg/kg	<5	162 mg/kg	88.0	70.0	130
EG005T: Calcium	7440-70-2	50	mg/kg	<50	20010 mg/kg	94.9	70.0	130
EG005T: Magnesium	7439-95-4	50	mg/kg	<50	8484 mg/kg	104	70.0	130
EG005T: Sodium	7440-23-5	50	mg/kg	<50	901 mg/kg	130	70.0	130
EG005T: Potassium	7440-09-7	50	mg/kg	<50	2148 mg/kg	109	70.0	130
EA001: pH in soil using 0.01M CaCl extract (QCLot: 6238719)								
EA001: pH (CaCl2)	----	----	pH Unit	----	4 pH Unit	100	98.8	101
				----	7 pH Unit	100	99.3	101
EA002: pH 1:5 (Soils) (QCLot: 6238708)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EA002: pH 1:5 (Soils) (QCLot: 6238708) - continued								
EA002: pH Value	----	----	pH Unit	----	4 pH Unit	100	98.8	101
				----	7 pH Unit	100	99.3	101
EA002-AD: pH (Soils) dried at 40°C (QCLot: 6240763)								
EA002-AD: pH Value	----	----	pH Unit	----	4 pH Unit	101	98.8	101
				----	7 pH Unit	100	99.3	101
EA010: Conductivity (1:5) (QCLot: 6238706)								
EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	1413 µS/cm	99.9	94.5	105
EA010-AD: Conductivity (Soils) dried at 40°C (QCLot: 6240764)								
EA010-AD: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	1413 µS/cm	100	90.0	110
EA029-A: pH Measurements (QCLot: 6263342)								
EA029: pH KCl (23A)	----	0.1	pH Unit	<0.1	4.7 pH Unit	99.5	70.0	130
EA029: pH OX (23B)	----	0.1	pH Unit	<0.1	4.5 pH Unit	104	70.0	130
EA029-B: Acidity Trail (QCLot: 6263342)								
EA029: Titratable Actual Acidity (23F)	----	2	mole H+ / t	<2	23.5 mole H+ / t	96.5	70.0	130
EA029: Titratable Peroxide Acidity (23G)	----	2	mole H+ / t	<2	46.5 mole H+ / t	95.3	70.0	130
EA029: Titratable Sulfidic Acidity (23H)	----	2	mole H+ / t	<2	----	----	----	----
EA029: sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	<0.020	----	----	----	----
EA029: sulfidic - Titratable Peroxide Acidity (s-23G)	----	0.02	% pyrite S	<0.020	----	----	----	----
EA029: sulfidic - Titratable Sulfidic Acidity (s-23H)	----	0.02	% pyrite S	<0.020	----	----	----	----
EA029-C: Sulfur Trail (QCLot: 6263342)								
EA029: KCl Extractable Sulfur (23Ce)	----	0.02	% S	<0.020	0.056 % S	110	70.0	130
EA029: Peroxide Sulfur (23De)	----	0.02	% S	<0.020	0.165 % S	95.6	70.0	130
EA029: Peroxide Oxidisable Sulfur (23E)	----	0.02	% S	<0.020	----	----	----	----
EA029: acidity - Peroxide Oxidisable Sulfur (a-23E)	----	10	mole H+ / t	<10	----	----	----	----
EA029-D: Calcium Values (QCLot: 6263342)								
EA029: KCl Extractable Calcium (23Vh)	----	0.02	% Ca	<0.020	0.188 % Ca	83.2	70.0	130
EA029: Peroxide Calcium (23Wh)	----	0.02	% Ca	<0.020	0.185 % Ca	93.9	70.0	130
EA029: Acid Reacted Calcium (23X)	----	0.02	% Ca	<0.020	----	----	----	----
EA029: acidity - Acid Reacted Calcium (a-23X)	----	10	mole H+ / t	<10	----	----	----	----
EA029: sulfidic - Acid Reacted Calcium (s-23X)	----	0.02	% S	<0.020	----	----	----	----
EA029-E: Magnesium Values (QCLot: 6263342)								
EA029: KCl Extractable Magnesium (23Sm)	----	0.02	% Mg	<0.020	0.154 % Mg	97.4	70.0	130
EA029: Peroxide Magnesium (23Tm)	----	0.02	% Mg	<0.020	0.19 % Mg	96.9	70.0	130
EA029: Acid Reacted Magnesium (23U)	----	0.02	% Mg	<0.020	----	----	----	----

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EA029-E: Magnesium Values (QCLot: 6263342) - continued								
EA029: Acidity - Acid Reacted Magnesium (a-23U)	----	10	mole H+ / t	<10	----	----	----	----
EA029: sulfidic - Acid Reacted Magnesium (s-23U)	----	0.02	% S	<0.020	----	----	----	----
EA029-F: Excess Acid Neutralising Capacity (QCLot: 6263342)								
EA029: Excess Acid Neutralising Capacity (23Q)	----	0.02	% CaCO3	<0.020	----	----	----	----
EA029: acidity - Excess Acid Neutralising Capacity (a-23Q)	----	10	mole H+ / t	<10	----	----	----	----
EA029: sulfidic - Excess Acid Neutralising Capacity (s-23Q)	----	0.02	% S	<0.020	----	----	----	----
EA029-H: Acid Base Accounting (QCLot: 6263342)								
EA029: ANC Fineness Factor	----	0.5	-	<0.5	----	----	----	----
EA029: Net Acidity (sulfur units)	----	0.02	% S	<0.02	----	----	----	----
EA029: Net Acidity (acidity units)	----	10	mole H+ / t	<10	----	----	----	----
EA029: Liming Rate	----	1	kg CaCO3/t	<1	----	----	----	----
EA029: Net Acidity excluding ANC (sulfur units)	----	0.02	% S	<0.02	----	----	----	----
EA029: Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	<10	----	----	----	----
EA029: Liming Rate excluding ANC	----	1	kg CaCO3/t	<1	----	----	----	----
EA033-A: Actual Acidity (QCLot: 6263335)								
EA033: pH KCl (23A)	----	----	pH Unit	----	4.7 pH Unit	98.8	80.0	120
EA033: Titratable Actual Acidity (23F)	----	2	mole H+ / t	<2	23.5 mole H+ / t	95.5	80.0	120
EA033: sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	<0.02	----	----	----	----
EA033-A: Actual Acidity (QCLot: 6263341)								
EA033: pH KCl (23A)	----	----	pH Unit	----	4.7 pH Unit	100	80.0	120
EA033: Titratable Actual Acidity (23F)	----	2	mole H+ / t	<2	23.5 mole H+ / t	96.6	80.0	120
EA033: sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	<0.02	----	----	----	----
EA033-B: Potential Acidity (QCLot: 6263335)								
EA033: Chromium Reducible Sulfur (22B)	----	0.005	% S	<0.005	0.283 % S	105	77.0	121
EA033: acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	<10	----	----	----	----
EA033-B: Potential Acidity (QCLot: 6263341)								
EA033: Chromium Reducible Sulfur (22B)	----	0.005	% S	<0.005	0.283 % S	105	77.0	121
EA033: acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	<10	----	----	----	----
EA033-C: Acid Neutralising Capacity (QCLot: 6263335)								
EA033: Acid Neutralising Capacity (19A2)	----	0.01	% CaCO3	<0.01	10 % CaCO3	95.1	91.0	112
EA033: acidity - Acid Neutralising Capacity (a-19A2)	----	10	mole H+ / t	<10	----	----	----	----
EA033: sulfidic - Acid Neutralising Capacity (s-19A2)	----	0.01	% pyrite S	<0.01	----	----	----	----
EA033-C: Acid Neutralising Capacity (QCLot: 6263341)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EA033-C: Acid Neutralising Capacity (QCLot: 6263341) - continued								
EA033: Acid Neutralising Capacity (19A2)	----	0.01	% CaCO3	<0.01	10 % CaCO3	102	91.0	112
EA033: acidity - Acid Neutralising Capacity (a-19A2)	----	10	mole H+ / t	<10	----	----	----	----
EA033: sulfidic - Acid Neutralising Capacity (s-19A2)	----	0.01	% pyrite S	<0.01	----	----	----	----
ED006: Exchangeable Cations on Alkaline Soils (QCLot: 6240769)								
ED006: Exchangeable Calcium	----	0.2	meq/100g	<0.2	33 meq/100g	68.7	66.6	101
ED006: Exchangeable Magnesium	----	0.2	meq/100g	<0.2	32 meq/100g	71.2	66.9	120
ED006: Exchangeable Potassium	----	0.2	meq/100g	<0.2	2.2 meq/100g	89.3	72.8	119
ED006: Exchangeable Sodium	----	0.2	meq/100g	<0.2	5.6 meq/100g	81.8	67.5	112
ED006: Cation Exchange Capacity	----	0.2	meq/100g	<0.2	----	----	----	----
ED006: Exchangeable Calcium Percent	----	0.2	%	<0.2	----	----	----	----
ED006: Exchangeable Magnesium Percent	----	0.2	%	<0.2	----	----	----	----
ED006: Exchangeable Potassium Percent	----	0.2	%	<0.2	----	----	----	----
ED006: Exchangeable Sodium Percent	----	0.2	%	<0.2	----	----	----	----
ED006: Calcium/Magnesium Ratio	----	0.1	-	<0.1	----	----	----	----
ED006: Magnesium/Potassium Ratio	----	0.1	-	<0.1	----	----	----	----
ED040N: Sulfate - Calcium Phosphate Soluble (NEPM) (QCLot: 6240841)								
ED040N: Sulfate as SO4 2-	14808-79-8	50	mg/kg	<50	3000 mg/kg	97.6	86.1	116
ED045G: Chloride by Discrete Analyser (QCLot: 6238707)								
ED045G: Chloride	16887-00-6	10	mg/kg	<10	50 mg/kg	104	85.5	120
				<10	5000 mg/kg	110	85.5	120
EG035T: Total Recoverable Mercury by FIMS (QCLot: 6238947)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.64 mg/kg	104	69.0	128
EG035T: Total Recoverable Mercury by FIMS (QCLot: 6238950)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.64 mg/kg	103	69.0	128
EG035T: Total Recoverable Mercury by FIMS (QCLot: 6247015)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.64 mg/kg	99.2	69.0	128
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 6240598)								
EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	20 mg/kg	73.8	70.0	130
EK028SF: Weak Acid Dissociable CN by Segmented Flow Analyser (QCLot: 6243799)								
EK028SF: Weak Acid Dissociable Cyanide	----	1	mg/kg	<1	20 mg/kg	128	70.0	130
EK055: Ammonia as N (QCLot: 6238964)								
EK055: Ammonia as N	7664-41-7	20	mg/kg	<20	25 mg/kg	99.4	83.0	109
EK057G: Nitrite as N by Discrete Analyser (QCLot: 6238710)								
EK057G: Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg	<0.1	2.5 mg/kg	102	88.9	113

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6238709)								
EK059G: Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	<0.1	2.5 mg/kg	101	89.5	119
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 6238962)								
EK061G: Total Kjeldahl Nitrogen as N	----	20	mg/kg	<20	500 mg/kg	84.8	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 6238961)								
EK067G: Total Phosphorus as P	----	2	mg/kg	<2	221 mg/kg	95.9	78.3	127
EK080: Bicarbonate Extractable Phosphorus (Colwell) (QCLot: 6259334)								
EK080: Bicarbonate Ext. P (Colwell)	----	5	mg/kg	<5	100 mg/kg	103	90.0	110
				<5	20.7 mg/kg	87.4	70.0	130
				<5	168 mg/kg	97.2	81.0	119
EP004: Organic Matter (QCLot: 6240858)								
EP004: Organic Matter	----	0.5	%	<0.5	77 %	107	70.0	130
EP004: Total Organic Carbon	----	0.5	%	<0.5	43.5 %	110	70.0	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 6239036)								
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	126	68.0	133
EP068A: Organochlorine Pesticides (OC) (QCLot: 6239037)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	97.3	71.8	126
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	73.1	72.2	125
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	101	70.0	124
EP068: gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	100	69.1	124
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	106	69.2	125
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	67.5	66.6	122
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	76.6	68.8	123
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	105	67.2	124
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	105	66.0	126
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	98.9	70.2	126
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	99.7	72.1	124
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	85.7	68.0	122
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	97.6	68.9	124
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	69.4	55.8	130
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	122	67.9	124
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	104	72.0	127
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	106	66.3	131
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	71.6	62.4	131
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	77.1	55.4	130

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP068A: Organochlorine Pesticides (OC) (QCLot: 6239037) - continued								
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	104	68.8	128
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	85.7	55.5	132
EP068: Mirex	2385-85-5	0.05	mg/kg	<0.05	0.5 mg/kg	# 75.2	92.4	102
EP068B: Organophosphorus Pesticides (OP) (QCLot: 6239037)								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	72.7	65.6	127
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	102	63.0	129
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	82.9	10.0	136
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	89.6	58.3	128
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	107	69.0	122
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	75.2	68.0	122
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	86.1	59.6	124
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	81.1	63.8	128
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	75.8	71.1	124
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	98.6	67.4	126
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	76.6	57.9	122
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	99.5	66.2	123
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	72.0	59.8	123
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	96.1	65.4	127
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	88.5	52.1	128
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	79.1	65.2	122
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	79.0	63.2	124
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	72.3	65.9	127
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	69.7	43.1	131
EP068C: Triazines (QCLot: 6239037)								
EP068: Atrazine	1912-24-9	0.05	mg/kg	<0.05	0.5 mg/kg	85.4	72.5	126
EP068D: Pyrethroids (QCLot: 6239037)								
EP068: Bifenthrin	82657-04-3	0.05	mg/kg	<0.05	0.5 mg/kg	91.8	67.9	128
EP075(SIM)A: Phenolic Compounds (QCLot: 6239038)								
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	3 mg/kg	92.1	81.2	121
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	3 mg/kg	95.4	83.2	120
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	3 mg/kg	94.1	81.6	123
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	6 mg/kg	90.4	79.7	129
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	3 mg/kg	78.5	49.8	129
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	3 mg/kg	89.8	81.5	127

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP075(SIM)A: Phenolic Compounds (QCLot: 6239038) - continued								
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	3 mg/kg	87.9	74.2	125
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	3 mg/kg	91.6	79.8	121
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	3 mg/kg	82.1	71.5	121
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	3 mg/kg	81.8	67.8	119
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	3 mg/kg	78.6	64.5	126
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	6 mg/kg	33.9	10.0	118
EP075(SIM)A: Phenolic Compounds (QCLot: 6239041)								
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	3 mg/kg	109	81.2	121
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	3 mg/kg	111	83.2	120
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	3 mg/kg	114	81.6	123
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	6 mg/kg	112	79.7	129
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	3 mg/kg	102	49.8	129
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	3 mg/kg	114	81.5	127
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	3 mg/kg	111	74.2	125
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	3 mg/kg	109	79.8	121
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	3 mg/kg	105	71.5	121
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	3 mg/kg	100	67.8	119
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	3 mg/kg	102	64.5	126
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	6 mg/kg	38.6	10.0	118
EP075(SIM)A: Phenolic Compounds (QCLot: 6247006)								
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	3 mg/kg	85.2	81.2	121
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	3 mg/kg	89.1	83.2	120
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	3 mg/kg	91.1	81.6	123
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	6 mg/kg	88.5	79.7	129
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	3 mg/kg	74.4	49.8	129
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	3 mg/kg	91.1	81.5	127
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	3 mg/kg	88.1	74.2	125
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	3 mg/kg	86.5	79.8	121
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	3 mg/kg	81.0	71.5	121
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	3 mg/kg	77.0	67.8	119
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	3 mg/kg	78.9	64.5	126
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	6 mg/kg	40.6	10.0	118
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 6239038)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	3 mg/kg	102	85.7	123

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 6239038) - continued								
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	3 mg/kg	96.0	81.0	123
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	3 mg/kg	102	83.6	120
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	3 mg/kg	98.3	81.3	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	3 mg/kg	100	79.4	123
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	3 mg/kg	101	81.7	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	3 mg/kg	99.2	78.3	124
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	3 mg/kg	102	79.9	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	3 mg/kg	98.5	76.9	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	3 mg/kg	106	80.9	130
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	3 mg/kg	89.2	70.0	121
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	3 mg/kg	99.1	80.4	130
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	3 mg/kg	87.5	70.2	123
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	3 mg/kg	89.4	67.9	122
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	3 mg/kg	90.4	65.8	123
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	3 mg/kg	92.9	65.8	127
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 6239041)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	3 mg/kg	116	85.7	123
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	3 mg/kg	117	81.0	123
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	3 mg/kg	118	83.6	120
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	3 mg/kg	115	81.3	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	3 mg/kg	117	79.4	123
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	3 mg/kg	119	81.7	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	3 mg/kg	117	78.3	124
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	3 mg/kg	119	79.9	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	3 mg/kg	116	76.9	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	3 mg/kg	121	80.9	130
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	3 mg/kg	111	70.0	121
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	3 mg/kg	122	80.4	130
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	3 mg/kg	112	70.2	123
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	3 mg/kg	111	67.9	122
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	3 mg/kg	112	65.8	123
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	3 mg/kg	113	65.8	127
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 6247006)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 6247006) - continued								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	3 mg/kg	92.5	85.7	123
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	3 mg/kg	92.6	81.0	123
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	3 mg/kg	93.5	83.6	120
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	3 mg/kg	92.0	81.3	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	3 mg/kg	92.6	79.4	123
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	3 mg/kg	95.2	81.7	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	3 mg/kg	92.3	78.3	124
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	3 mg/kg	94.2	79.9	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	3 mg/kg	91.4	76.9	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	3 mg/kg	95.2	80.9	130
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	3 mg/kg	87.4	70.0	121
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	3 mg/kg	95.5	80.4	130
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	3 mg/kg	87.2	70.2	123
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	3 mg/kg	85.1	67.9	122
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	3 mg/kg	85.8	65.8	123
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	3 mg/kg	87.4	65.8	127
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6238667)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	36 mg/kg	98.3	58.6	131
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6238679)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	36 mg/kg	86.9	58.6	131
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6239039)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	790 mg/kg	96.6	75.0	128
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	2730 mg/kg	95.8	82.0	123
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	1410 mg/kg	95.3	82.4	121
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6239042)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	790 mg/kg	95.5	75.0	128
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	2730 mg/kg	95.4	82.0	123
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	1410 mg/kg	94.0	82.4	121
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6247005)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	36 mg/kg	108	58.6	131
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6247007)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	790 mg/kg	96.0	75.0	128
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	2730 mg/kg	97.1	82.0	123

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6247007) - continued								
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	1410 mg/kg	94.2	82.4	121
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6238667)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	45 mg/kg	96.6	59.3	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6238679)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	45 mg/kg	84.7	59.3	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6239039)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	1080 mg/kg	97.3	77.0	130
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	3640 mg/kg	94.5	81.5	120
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	270 mg/kg	90.6	73.3	137
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6239042)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	1080 mg/kg	95.8	77.0	130
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	3640 mg/kg	93.2	81.5	120
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	270 mg/kg	94.4	73.3	137
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6247005)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	45 mg/kg	104	59.3	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6247007)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	1080 mg/kg	96.3	77.0	130
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	3640 mg/kg	94.9	81.5	120
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	270 mg/kg	96.4	73.3	137
EP080: BTEXN (QCLot: 6238667)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	2 mg/kg	80.6	61.6	117
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	2 mg/kg	83.4	65.8	125
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2 mg/kg	82.8	65.8	124
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4 mg/kg	86.8	64.8	134
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2 mg/kg	88.1	68.7	132
EP080: Naphthalene	91-20-3	1	mg/kg	<1	0.5 mg/kg	103	61.8	123
EP080: BTEXN (QCLot: 6238679)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	2 mg/kg	82.6	61.6	117
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	2 mg/kg	85.3	65.8	125
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2 mg/kg	85.7	65.8	124
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4 mg/kg	89.0	64.8	134
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2 mg/kg	89.5	68.7	132
EP080: Naphthalene	91-20-3	1	mg/kg	<1	0.5 mg/kg	80.7	61.8	123

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	LCS: Spike Recovery (%)	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP080: BTEXN (QCLot: 6247005)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	2 mg/kg	102	61.6	117
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	2 mg/kg	106	65.8	125
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2 mg/kg	106	65.8	124
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4 mg/kg	108	64.8	134
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2 mg/kg	113	68.7	132
EP080: Naphthalene	91-20-3	1	mg/kg	<1	0.5 mg/kg	114	61.8	123

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 6238948)							
EM2421059-128	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	87.0	78.0	124
		EG005T: Cadmium	7440-43-9	50 mg/kg	101	79.7	116
		EG005T: Chromium	7440-47-3	50 mg/kg	95.9	79.0	121
		EG005T: Copper	7440-50-8	250 mg/kg	98.7	80.0	120
		EG005T: Lead	7439-92-1	250 mg/kg	97.8	80.0	120
		EG005T: Nickel	7440-02-0	50 mg/kg	99.0	78.0	120
		EG005T: Zinc	7440-66-6	250 mg/kg	98.9	80.0	120
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 6238949)							
EM2421125-032	TP14_2.0-2.1_241128	EG005T: Arsenic	7440-38-2	50 mg/kg	96.7	78.0	124
		EG005T: Cadmium	7440-43-9	50 mg/kg	97.2	79.7	116
		EG005T: Chromium	7440-47-3	50 mg/kg	104	79.0	121
		EG005T: Copper	7440-50-8	250 mg/kg	97.0	80.0	120
		EG005T: Lead	7439-92-1	250 mg/kg	94.9	80.0	120
		EG005T: Nickel	7440-02-0	50 mg/kg	101	78.0	120
		EG005T: Zinc	7440-66-6	250 mg/kg	96.8	80.0	120
ED040N: Sulfate - Calcium Phosphate Soluble (NEPM) (QCLot: 6240841)							
EM2421125-030	TP14_0.4-0.5_241128	ED040N: Sulfate as SO4 2-	14808-79-8	3000 mg/kg	90.4	84.0	116
ED045G: Chloride by Discrete Analyser (QCLot: 6238707)							
EM2421125-022	TP15_0.4-0.5_241129	ED045G: Chloride	16887-00-6	2000 mg/kg	124	93.0	125
EG035T: Total Recoverable Mercury by FIMS (QCLot: 6238947)							
EM2421059-128	Anonymous	EG035T: Mercury	7439-97-6	0.5 mg/kg	105	70.0	130

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG035T: Total Recoverable Mercury by FIMS (QCLot: 6238950)							
EM2421125-032	TP14_2.0-2.1_241128	EG035T: Mercury	7439-97-6	0.5 mg/kg	106	70.0	130
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 6240598)							
EM2420785-012	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	20 mg/kg	70.8	58.0	114
EM2420785-012	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	20 mg/kg	87.3	58.0	114
EK028SF: Weak Acid Dissociable CN by Segmented Flow Analyser (QCLot: 6243799)							
EM2421125-007	TP03_2.0-2.1_241128	EK028SF: Weak Acid Dissociable Cyanide	----	20 mg/kg	87.3	70.0	130
EK055: Ammonia as N (QCLot: 6238964)							
EM2421125-030	TP14_0.4-0.5_241128	EK055: Ammonia as N	7664-41-7	100 mg/kg	100	80.0	110
EK057G: Nitrite as N by Discrete Analyser (QCLot: 6238710)							
EM2421125-030	TP14_0.4-0.5_241128	EK057G: Nitrite as N (Sol.)	14797-65-0	2.5 mg/kg	107	84.0	128
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6238709)							
EM2421125-030	TP14_0.4-0.5_241128	EK059G: Nitrite + Nitrate as N (Sol.)	----	2.5 mg/kg	# Not Determined	70.0	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 6238962)							
EM2421125-030	TP14_0.4-0.5_241128	EK061G: Total Kjeldahl Nitrogen as N	----	500 mg/kg	86.7	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 6238961)							
EM2421125-030	TP14_0.4-0.5_241128	EK067G: Total Phosphorus as P	----	100 mg/kg	81.9	70.0	130
EK080: Bicarbonate Extractable Phosphorus (Colwell) (QCLot: 6259334)							
EB2443128-002	Anonymous	EK080: Bicarbonate Ext. P (Colwell)	----	40 mg/kg	96.7	70.0	130
EP004: Organic Matter (QCLot: 6240858)							
EM2421125-030	TP14_0.4-0.5_241128	EP004: Organic Matter	----	2.49 %	# 140	70.0	120
		EP004: Total Organic Carbon	----	1.45 %	# 140	70.0	120
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 6239036)							
EM2421125-007	TP03_2.0-2.1_241128	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	101	63.2	144
EP068A: Organochlorine Pesticides (OC) (QCLot: 6239037)							
EM2421125-007	TP03_2.0-2.1_241128	EP068: gamma-BHC - (Lindane)	58-89-9	0.5 mg/kg	94.3	51.4	139
		EP068: Heptachlor	76-44-8	0.5 mg/kg	58.3	49.1	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	69.9	38.4	135
		EP068: Dieldrin	60-57-1	0.5 mg/kg	73.9	58.4	136
		EP068: Endrin	72-20-8	0.5 mg/kg	58.3	33.0	146
		EP068: 4.4`-DDT	50-29-3	0.5 mg/kg	65.0	20.0	133
EP068B: Organophosphorus Pesticides (OP) (QCLot: 6239037)							
EM2421125-007	TP03_2.0-2.1_241128	EP068: Diazinon	333-41-5	0.5 mg/kg	92.8	65.1	135
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	64.5	56.3	127
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	81.0	55.0	133

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP068B: Organophosphorus Pesticides (OP) (QCLot: 6239037) - continued							
EM2421125-007	TP03_2.0-2.1_241128	EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	80.1	55.1	133
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	51.8	43.8	128
EP075(SIM)A: Phenolic Compounds (QCLot: 6239038)							
EM2421125-011	TP02_2.0-2.1_241128	EP075(SIM): Phenol	108-95-2	3 mg/kg	79.8	77.1	119
		EP075(SIM): 2-Chlorophenol	95-57-8	3 mg/kg	84.5	78.9	123
		EP075(SIM): 2-Nitrophenol	88-75-5	3 mg/kg	73.1	43.8	136
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	3 mg/kg	68.1	61.5	120
		EP075(SIM): Pentachlorophenol	87-86-5	3 mg/kg	52.5	15.3	139
EP075(SIM)A: Phenolic Compounds (QCLot: 6239041)							
EM2421125-006	TP03_1.0-1.1_241128	EP075(SIM): Phenol	108-95-2	3 mg/kg	87.8	77.1	119
		EP075(SIM): 2-Chlorophenol	95-57-8	3 mg/kg	93.0	78.9	123
		EP075(SIM): 2-Nitrophenol	88-75-5	3 mg/kg	78.7	43.8	136
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	3 mg/kg	77.9	61.5	120
		EP075(SIM): Pentachlorophenol	87-86-5	3 mg/kg	59.8	15.3	139
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 6239038)							
EM2421125-011	TP02_2.0-2.1_241128	EP075(SIM): Acenaphthene	83-32-9	3 mg/kg	87.7	77.2	116
		EP075(SIM): Pyrene	129-00-0	3 mg/kg	89.2	65.5	136
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 6239041)							
EM2421125-006	TP03_1.0-1.1_241128	EP075(SIM): Acenaphthene	83-32-9	3 mg/kg	96.9	77.2	116
		EP075(SIM): Pyrene	129-00-0	3 mg/kg	96.5	65.5	136
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6238667)							
EM2421125-002	TP28_0.4-0.5_241128	EP080: C6 - C9 Fraction	----	28 mg/kg	71.2	33.4	124
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6238679)							
EM2421384-001	Anonymous	EP080: C6 - C9 Fraction	----	28 mg/kg	71.4	33.4	124
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6239039)							
EM2421125-011	TP02_2.0-2.1_241128	EP071: C10 - C14 Fraction	----	790 mg/kg	90.7	71.2	125
		EP071: C15 - C28 Fraction	----	2730 mg/kg	97.5	75.6	122
		EP071: C29 - C36 Fraction	----	1410 mg/kg	90.8	78.0	120
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6239042)							
EM2421125-008	TP02_0.0-0.15_241128	EP071: C10 - C14 Fraction	----	790 mg/kg	94.8	71.2	125
		EP071: C15 - C28 Fraction	----	2730 mg/kg	94.5	75.6	122
		EP071: C29 - C36 Fraction	----	1410 mg/kg	92.0	78.0	120
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6238667)							
EM2421125-002	TP28_0.4-0.5_241128	EP080: C6 - C10 Fraction	C6_C10	33 mg/kg	69.5	30.8	120
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6238679)							
EM2421384-001	Anonymous						

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6238679) - continued							
EM2421384-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	33 mg/kg	69.4	30.8	120
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6239039)							
EM2421125-011	TP02_2.0-2.1_241128	EP071: >C10 - C16 Fraction	----	1080 mg/kg	91.4	72.2	128
		EP071: >C16 - C34 Fraction	----	3640 mg/kg	94.6	76.5	119
		EP071: >C34 - C40 Fraction	----	270 mg/kg	89.4	66.8	138
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6239042)							
EM2421125-008	TP02_0.0-0.15_241128	EP071: >C10 - C16 Fraction	----	1080 mg/kg	95.3	72.2	128
		EP071: >C16 - C34 Fraction	----	3640 mg/kg	92.0	76.5	119
		EP071: >C34 - C40 Fraction	----	270 mg/kg	88.6	66.8	138
EP080: BTEXN (QCLot: 6238667)							
EM2421125-002	TP28_0.4-0.5_241128	EP080: Benzene	71-43-2	2 mg/kg	95.4	54.4	127
		EP080: Toluene	108-88-3	2 mg/kg	96.0	57.1	131
EP080: BTEXN (QCLot: 6238679)							
EM2421384-001	Anonymous	EP080: Benzene	71-43-2	2 mg/kg	85.3	54.4	127
		EP080: Toluene	108-88-3	2 mg/kg	85.4	57.1	131

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM2421125**	Page	: 1 of 24
Client	: **EMM CONSULTING PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: Simony Sakamoto	Telephone	: +61 3 8549 9600
Project	: Olympic Dam	Date Samples Received	: 04-Dec-2024
Site	: Olympic Dam	Issue Date	: 21-Jan-2025
Sampler	: Simony Sakamoto	No. of samples received	: 39
Order number	: E240975	No. of samples analysed	: 33

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **Duplicate outliers exist - please see following pages for full details.**
- **Laboratory Control outliers exist - please see following pages for full details.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, where applicable to the methodology, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **Analysis Holding Time Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Duplicate (DUP) RPDs							
EG005(ED093)T: Total Metals by ICP-AES	EM2421125--013	TP27_0.40-0.50_241129	**Cobalt**	7440-48-4	37.4 %	0% - 20%	**RPD exceeds LOR based limits**
EG005(ED093)T: Total Metals by ICP-AES	EM2421125--029	TP14_0.0-0.15_241128	**Copper**	7440-50-8	25.8 %	0% - 20%	**RPD exceeds LOR based limits**
EG005(ED093)T: Total Metals by ICP-AES	EM2421125--016	TP04_0.4-0.5_241129	**Copper**	7440-50-8	133 %	0% - 20%	**RPD exceeds LOR based limits**
EG005(ED093)T: Total Metals by ICP-AES	EM2421125--013	TP27_0.40-0.50_241129	**Copper**	7440-50-8	33.6 %	0% - 20%	**RPD exceeds LOR based limits**
EG005(ED093)T: Total Metals by ICP-AES	EM2421059--125	Anonymous	**Iron**	7439-89-6	58.4 %	0% - 20%	**RPD exceeds LOR based limits**
EG005(ED093)T: Total Metals by ICP-AES	EM2421125--013	TP27_0.40-0.50_241129	**Iron**	7439-89-6	23.1 %	0% - 20%	**RPD exceeds LOR based limits**
Laboratory Control Spike (LCS) Recoveries							
EP068A: Organochlorine Pesticides (OC)	QC-6239037-001	----	**Mirex**	2385-85-5	75.2 %	92.4-102%	**Recovery less than lower control limit**
Matrix Spike (MS) Recoveries							
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Ar	EM2421125--030	TP14_0.4-0.5_241128	**Nitrite + Nitrate as N (Sol.)**	----	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP004: Organic Matter	EM2421125--030	TP14_0.4-0.5_241128	**Organic Matter**	----	140 %	70.0-120%	**Recovery greater than upper data quality objective**
EP004: Organic Matter	EM2421125--030	TP14_0.4-0.5_241128	**Total Organic Carbon**	----	140 %	70.0-120%	**Recovery greater than upper data quality objective**

Outliers : Analysis Holding Time Compliance

Matrix: **SOIL**

Method / **Container** / Client Sample ID(s)		*Extraction / Preparation*			*Analysis*		
		Date extracted	*Due for extraction*	***Days overdue***	*Date analysed*	*Due for analysis*	***Days overdue***
EA001: pH in soil using 0.01M CaCl extract							
Soil Glass Jar - Unpreserved							
TP14_0.4-0.5_241128,	TP14_1.0-1.1_241128,	06-Dec-2024	05-Dec-2024	**1**	----	----	----
TP29_0.4-0.5_241128,	TP29_1.0-1.1_241128						
EA002: pH 1:5 (Soils)							
Soil Glass Jar - Unpreserved							
TP14_0.4-0.5_241128,	TP14_1.0-1.1_241128,	06-Dec-2024	05-Dec-2024	**1**	----	----	----
TP29_0.4-0.5_241128,	TP29_1.0-1.1_241128						
EA002-AD: pH (Soils) dried at 40°C							
Soil Glass Jar - Unpreserved							
TP14_0.4-0.5_241128,	TP14_1.0-1.1_241128,	12-Dec-2024	05-Dec-2024	**7**	----	----	----
TP29_0.4-0.5_241128,	TP29_1.0-1.1_241128						
Soil Glass Jar - Unpreserved							
TP04_0.4-0.5_241129,	TP15_0.4-0.5_241129,	12-Dec-2024	06-Dec-2024	**6**	----	----	----
TP15_1.0-1.1_241129							
EA010: Conductivity (1:5)							

Matrix: **SOIL**

Method / Container / Client Sample ID(s)		Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Days overdue	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Days overdue
EA010: Conductivity (1:5) - Analysis Holding Time Compliance							
Soil Glass Jar - Unpreserved							
TP14_0.4-0.5_241128,	TP14_1.0-1.1_241128,	06-Dec-2024	05-Dec-2024	1	----	----	----
TP29_0.4-0.5_241128,	TP29_1.0-1.1_241128						
EA010-AD: Conductivity (Soils) dried at 40°C							
Soil Glass Jar - Unpreserved							
TP14_0.4-0.5_241128,	TP14_1.0-1.1_241128,	12-Dec-2024	05-Dec-2024	7	----	----	----
TP29_0.4-0.5_241128,	TP29_1.0-1.1_241128						
Soil Glass Jar - Unpreserved							
TP04_0.4-0.5_241129,	TP15_0.4-0.5_241129,	12-Dec-2024	06-Dec-2024	6	----	----	----
TP15_1.0-1.1_241129							
ED040T: Total Sulfur by ICPAES							
Soil Glass Jar - Unpreserved							
TP14_0.4-0.5_241128,	TP29_0.4-0.5_241128	06-Dec-2024	05-Dec-2024	1	----	----	----
EK057G: Nitrite as N by Discrete Analyser							
Soil Glass Jar - Unpreserved							
TP14_0.4-0.5_241128,	TP29_0.4-0.5_241128	06-Dec-2024	05-Dec-2024	1	----	----	----

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Evaluation	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Evaluation
EA001: pH in soil using 0.01M CaCl extract								
Soil Glass Jar - Unpreserved (EA001)								
TP14_0.4-0.5_241128,	TP14_1.0-1.1_241128,	**28-Nov-2024**	**06-Dec-2024**	05-Dec-2024	×	**06-Dec-2024**	06-Dec-2024	✓
TP29_0.4-0.5_241128,	TP29_1.0-1.1_241128							
Soil Glass Jar - Unpreserved (EA001)								
TP04_0.4-0.5_241129,	TP15_0.4-0.5_241129,	**29-Nov-2024**	**06-Dec-2024**	06-Dec-2024	✓	**06-Dec-2024**	06-Dec-2024	✓
TP15_1.0-1.1_241129								

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA002: pH 1:5 (Soils)							
Soil Glass Jar - Unpreserved (EA002)							
TP14_0.4-0.5_241128, TP14_1.0-1.1_241128, TP29_0.4-0.5_241128, TP29_1.0-1.1_241128	**28-Nov-2024**	**06-Dec-2024**	05-Dec-2024	×	**06-Dec-2024**	06-Dec-2024	✓
Soil Glass Jar - Unpreserved (EA002)							
TP04_0.4-0.5_241129, TP15_0.4-0.5_241129, TP15_1.0-1.1_241129	**29-Nov-2024**	**06-Dec-2024**	06-Dec-2024	✓	**06-Dec-2024**	06-Dec-2024	✓
EA002-AD: pH (Soils) dried at 40°C							
Soil Glass Jar - Unpreserved (EA002-AD)							
TP14_0.4-0.5_241128, TP14_1.0-1.1_241128, TP29_0.4-0.5_241128, TP29_1.0-1.1_241128	**28-Nov-2024**	**12-Dec-2024**	05-Dec-2024	×	**12-Dec-2024**	12-Dec-2024	✓
Soil Glass Jar - Unpreserved (EA002-AD)							
TP04_0.4-0.5_241129, TP15_0.4-0.5_241129, TP15_1.0-1.1_241129	**29-Nov-2024**	**12-Dec-2024**	06-Dec-2024	×	**12-Dec-2024**	12-Dec-2024	✓
EA003 :pH (field/fox)							
Snap Lock Bag - frozen (EA003)							
TP28_0.4-0.5_241128, TP28_1.0-1.1_241128, TP03_0.4-0.5_241128, TP03_1.0-1.1_241128, TP02_0.4-0.5_241128, TP02_1.0-1.1_241128, TP14_0.4-0.5_241128, TP14_1.0-1.1_241128, TP29_0.4-0.5_241128, TP29_1.0-1.1_241128	**28-Nov-2024**	**11-Dec-2024**	24-Aug-2027	✓	**11-Dec-2024**	11-Mar-2025	✓
Snap Lock Bag - frozen (EA003)							
TP27_0.40-0.50_241129, TP27_1.0-1.1_241129, TP04_0.4-0.5_241129, TP04_1.0-1.1_241129, TP15_0.4-0.5_241129, TP15_1.0-1.1_241129	**29-Nov-2024**	**11-Dec-2024**	25-Aug-2027	✓	**11-Dec-2024**	11-Mar-2025	✓
EA010: Conductivity (1:5)							
Soil Glass Jar - Unpreserved (EA010)							
TP14_0.4-0.5_241128, TP14_1.0-1.1_241128, TP29_0.4-0.5_241128, TP29_1.0-1.1_241128	**28-Nov-2024**	**06-Dec-2024**	05-Dec-2024	×	**06-Dec-2024**	03-Jan-2025	✓
Soil Glass Jar - Unpreserved (EA010)							
TP04_0.4-0.5_241129, TP15_0.4-0.5_241129, TP15_1.0-1.1_241129	**29-Nov-2024**	**06-Dec-2024**	06-Dec-2024	✓	**06-Dec-2024**	03-Jan-2025	✓
EA010-AD: Conductivity (Soils) dried at 40°C							
Soil Glass Jar - Unpreserved (EA010-AD)							
TP14_0.4-0.5_241128, TP14_1.0-1.1_241128, TP29_0.4-0.5_241128, TP29_1.0-1.1_241128	**28-Nov-2024**	**12-Dec-2024**	05-Dec-2024	×	**12-Dec-2024**	09-Jan-2025	✓
Soil Glass Jar - Unpreserved (EA010-AD)							
TP04_0.4-0.5_241129, TP15_0.4-0.5_241129, TP15_1.0-1.1_241129	**29-Nov-2024**	**12-Dec-2024**	06-Dec-2024	×	**12-Dec-2024**	09-Jan-2025	✓
EA029-A: pH Measurements							
Snap Lock Bag - frozen (EA029)							
TP15_0.4-0.5_241129, TP15_1.0-1.1_241129	**29-Nov-2024**	**17-Dec-2024**	25-Aug-2027	✓	**17-Dec-2024**	17-Mar-2025	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA029-B: Acidity Trail								
Snap Lock Bag - frozen (EA029)								
TP15_0.4-0.5_241129,	TP15_1.0-1.1_241129	**29-Nov-2024**	**17-Dec-2024**	25-Aug-2027	✓	**17-Dec-2024**	17-Mar-2025	✓
EA029-C: Sulfur Trail								
Snap Lock Bag - frozen (EA029)								
TP15_0.4-0.5_241129,	TP15_1.0-1.1_241129	**29-Nov-2024**	**17-Dec-2024**	25-Aug-2027	✓	**17-Dec-2024**	17-Mar-2025	✓
EA029-D: Calcium Values								
Snap Lock Bag - frozen (EA029)								
TP15_0.4-0.5_241129,	TP15_1.0-1.1_241129	**29-Nov-2024**	**17-Dec-2024**	25-Aug-2027	✓	**17-Dec-2024**	17-Mar-2025	✓
EA029-E: Magnesium Values								
Snap Lock Bag - frozen (EA029)								
TP15_0.4-0.5_241129,	TP15_1.0-1.1_241129	**29-Nov-2024**	**17-Dec-2024**	25-Aug-2027	✓	**17-Dec-2024**	17-Mar-2025	✓
EA029-F: Excess Acid Neutralising Capacity								
Snap Lock Bag - frozen (EA029)								
TP15_0.4-0.5_241129,	TP15_1.0-1.1_241129	**29-Nov-2024**	**17-Dec-2024**	25-Aug-2027	✓	**17-Dec-2024**	17-Mar-2025	✓
EA029-G: Retained Acidity								
Snap Lock Bag - frozen (EA029)								
TP15_0.4-0.5_241129,	TP15_1.0-1.1_241129	**29-Nov-2024**	**17-Dec-2024**	25-Aug-2027	✓	**17-Dec-2024**	17-Mar-2025	✓
EA029-H: Acid Base Accounting								
Snap Lock Bag - frozen (EA029)								
TP15_0.4-0.5_241129,	TP15_1.0-1.1_241129	**29-Nov-2024**	**17-Dec-2024**	25-Aug-2027	✓	**17-Dec-2024**	17-Mar-2025	✓
EA033-A: Actual Acidity								
Snap Lock Bag - frozen (EA033)								
TP28_0.4-0.5_241128,	TP28_1.0-1.1_241128,	**28-Nov-2024**	**17-Dec-2024**	28-Nov-2025	✓	**17-Dec-2024**	17-Mar-2025	✓
TP03_0.4-0.5_241128,	TP03_1.0-1.1_241128,							
TP02_0.4-0.5_241128,	TP02_1.0-1.1_241128,							
TP14_0.4-0.5_241128,	TP14_1.0-1.1_241128,							
TP29_0.4-0.5_241128,	TP29_1.0-1.1_241128							
Snap Lock Bag - frozen (EA033)								
TP27_0.40-0.50_241129,	TP27_1.0-1.1_241129,	**29-Nov-2024**	**17-Dec-2024**	29-Nov-2025	✓	**17-Dec-2024**	17-Mar-2025	✓
TP04_0.4-0.5_241129,	TP04_1.0-1.1_241129,							
TP15_0.4-0.5_241129,	TP15_1.0-1.1_241129							

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA033-B: Potential Acidity								
Snap Lock Bag - frozen (EA033)								
TP28_0.4-0.5_241128,	TP28_1.0-1.1_241128,	**28-Nov-2024**	**17-Dec-2024**	28-Nov-2025	✓	**17-Dec-2024**	17-Mar-2025	✓
TP03_0.4-0.5_241128,	TP03_1.0-1.1_241128,							
TP02_0.4-0.5_241128,	TP02_1.0-1.1_241128,							
TP14_0.4-0.5_241128,	TP14_1.0-1.1_241128,							
TP29_0.4-0.5_241128,	TP29_1.0-1.1_241128							
Snap Lock Bag - frozen (EA033)								
TP27_0.40-0.50_241129,	TP27_1.0-1.1_241129,	**29-Nov-2024**	**17-Dec-2024**	29-Nov-2025	✓	**17-Dec-2024**	17-Mar-2025	✓
TP04_0.4-0.5_241129,	TP04_1.0-1.1_241129,							
TP15_0.4-0.5_241129,	TP15_1.0-1.1_241129							
EA033-C: Acid Neutralising Capacity								
Snap Lock Bag - frozen (EA033)								
TP28_0.4-0.5_241128,	TP28_1.0-1.1_241128,	**28-Nov-2024**	**17-Dec-2024**	28-Nov-2025	✓	**17-Dec-2024**	17-Mar-2025	✓
TP03_0.4-0.5_241128,	TP03_1.0-1.1_241128,							
TP02_0.4-0.5_241128,	TP02_1.0-1.1_241128,							
TP14_0.4-0.5_241128,	TP14_1.0-1.1_241128,							
TP29_0.4-0.5_241128,	TP29_1.0-1.1_241128							
Snap Lock Bag - frozen (EA033)								
TP27_0.40-0.50_241129,	TP27_1.0-1.1_241129,	**29-Nov-2024**	**17-Dec-2024**	29-Nov-2025	✓	**17-Dec-2024**	17-Mar-2025	✓
TP04_0.4-0.5_241129,	TP04_1.0-1.1_241129,							
TP15_0.4-0.5_241129,	TP15_1.0-1.1_241129							
EA033-D: Retained Acidity								
Snap Lock Bag - frozen (EA033)								
TP28_0.4-0.5_241128,	TP28_1.0-1.1_241128,	**28-Nov-2024**	**17-Dec-2024**	28-Nov-2025	✓	**17-Dec-2024**	17-Mar-2025	✓
TP03_0.4-0.5_241128,	TP03_1.0-1.1_241128,							
TP02_0.4-0.5_241128,	TP02_1.0-1.1_241128,							
TP14_0.4-0.5_241128,	TP14_1.0-1.1_241128,							
TP29_0.4-0.5_241128,	TP29_1.0-1.1_241128							
Snap Lock Bag - frozen (EA033)								
TP27_0.40-0.50_241129,	TP27_1.0-1.1_241129,	**29-Nov-2024**	**17-Dec-2024**	29-Nov-2025	✓	**17-Dec-2024**	17-Mar-2025	✓
TP04_0.4-0.5_241129,	TP04_1.0-1.1_241129,							
TP15_0.4-0.5_241129,	TP15_1.0-1.1_241129							

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA033-E: Acid Base Accounting							
Snap Lock Bag - frozen (EA033)							
TP28_0.4-0.5_241128, TP28_1.0-1.1_241128, TP03_0.4-0.5_241128, TP03_1.0-1.1_241128, TP02_0.4-0.5_241128, TP02_1.0-1.1_241128, TP14_0.4-0.5_241128, TP14_1.0-1.1_241128, TP29_0.4-0.5_241128, TP29_1.0-1.1_241128	**28-Nov-2024**	**17-Dec-2024**	28-Nov-2025	✓	**17-Dec-2024**	17-Mar-2025	✓
Snap Lock Bag - frozen (EA033)							
TP27_0.40-0.50_241129, TP27_1.0-1.1_241129, TP04_0.4-0.5_241129, TP04_1.0-1.1_241129, TP15_0.4-0.5_241129, TP15_1.0-1.1_241129	**29-Nov-2024**	**17-Dec-2024**	29-Nov-2025	✓	**17-Dec-2024**	17-Mar-2025	✓
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055)							
QC603_241202, QC402_241202, QC603_241202 - Trip Control	**02-Dec-2024**	**----**	----	----	**06-Dec-2024**	16-Dec-2024	✓
Soil Glass Jar - Unpreserved (EA055)							
TP28_0.0-0.1_241128, TP28_0.4-0.5_241128, TP03_1.0-1.1_241128, TP03_2.0-2.1_241128, TP02_0.0-0.15_241128, TP02_2.0-2.1_241128, TP14_0.0-0.15_241128, TP14_0.4-0.5_241128, TP14_1.0-1.1_241128, TP14_2.0-2.1_241128, TP29_0.0-0.15_241128, TP29_0.4-0.5_241128, TP29_1.0-1.1_241128, TP29_2.0-2.3_241128	**28-Nov-2024**	**----**	----	----	**06-Dec-2024**	12-Dec-2024	✓
Soil Glass Jar - Unpreserved (EA055)							
TP27_0.40-0.50_241129, TP27_1.0-1.1_241129, TP04_0.4-0.5_241129, TP04_1.4_241129, QC103_241129, TP15_0.0-0.15_241129, TP15_0.4-0.5_241129, TP15_1.0-1.1_241129, TP15_2.0-2.1_241129, QC102_241129_0.00-0.15, QC104_241129_1.00-1.10	**29-Nov-2024**	**----**	----	----	**06-Dec-2024**	13-Dec-2024	✓
EA058: Emerson Aggregate Test							
Snap Lock Bag (EA058)							
TP29_0.4-0.5_241128	**28-Nov-2024**	**----**	----	----	**13-Dec-2024**	27-May-2025	✓
Snap Lock Bag - frozen (EA058)							
TP15_0.4-0.5_241129	**29-Nov-2024**	**----**	----	----	**13-Dec-2024**	28-May-2025	✓
Soil Glass Jar - Unpreserved (EA058)							
TP14_0.4-0.5_241128	**28-Nov-2024**	**----**	----	----	**13-Dec-2024**	27-May-2025	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA150: Particle Sizing								
Snap Lock Bag (EA150H)								
TP28_0.4-0.5_241128,	TP03_1.0-1.1_241128,	**28-Nov-2024**	**----**	----	----	**24-Dec-2024**	27-May-2025	✓
TP02_0.4-0.5_241128,	TP14_0.4-0.5_241128,							
TP29_1.0-1.1_241128								
Snap Lock Bag (EA150H)								
TP27_1.0-1.1_241129,	TP04_1.0-1.1_241129,	**29-Nov-2024**	**----**	----	----	**24-Dec-2024**	28-May-2025	✓
TP15_1.0-1.1_241129								
EA150: Soil Classification based on Particle Size								
Snap Lock Bag (EA150H)								
TP28_0.4-0.5_241128,	TP03_1.0-1.1_241128,	**28-Nov-2024**	**----**	----	----	**24-Dec-2024**	27-May-2025	✓
TP02_0.4-0.5_241128,	TP14_0.4-0.5_241128,							
TP29_1.0-1.1_241128								
Snap Lock Bag (EA150H)								
TP27_1.0-1.1_241129,	TP04_1.0-1.1_241129,	**29-Nov-2024**	**----**	----	----	**24-Dec-2024**	28-May-2025	✓
TP15_1.0-1.1_241129								
ED006: Exchangeable Cations on Alkaline Soils								
Soil Glass Jar - Unpreserved (ED006)								
TP14_0.4-0.5_241128,	TP14_1.0-1.1_241128,	**28-Nov-2024**	**11-Dec-2024**	26-Dec-2024	✓	**12-Dec-2024**	26-Dec-2024	✓
TP29_0.4-0.5_241128,	TP29_1.0-1.1_241128							
Soil Glass Jar - Unpreserved (ED006)								
TP04_0.4-0.5_241129,	TP15_0.4-0.5_241129,	**29-Nov-2024**	**11-Dec-2024**	27-Dec-2024	✓	**12-Dec-2024**	27-Dec-2024	✓
TP15_1.0-1.1_241129								
ED007: Exchangeable Cations								
Soil Glass Jar - Unpreserved (ED007)								
TP14_0.4-0.5_241128,	TP14_1.0-1.1_241128,	**28-Nov-2024**	**11-Dec-2024**	26-Dec-2024	✓	**12-Dec-2024**	26-Dec-2024	✓
TP29_0.4-0.5_241128,	TP29_1.0-1.1_241128							
Soil Glass Jar - Unpreserved (ED007)								
TP04_0.4-0.5_241129,	TP15_0.4-0.5_241129,	**29-Nov-2024**	**11-Dec-2024**	27-Dec-2024	✓	**12-Dec-2024**	27-Dec-2024	✓
TP15_1.0-1.1_241129								
ED008: Exchangeable Cations								
Soil Glass Jar - Unpreserved (ED008)								
TP14_0.4-0.5_241128,	TP14_1.0-1.1_241128,	**28-Nov-2024**	**11-Dec-2024**	26-Dec-2024	✓	**12-Dec-2024**	26-Dec-2024	✓
TP29_0.4-0.5_241128,	TP29_1.0-1.1_241128							
Soil Glass Jar - Unpreserved (ED008)								
TP04_0.4-0.5_241129,	TP15_0.4-0.5_241129,	**29-Nov-2024**	**11-Dec-2024**	27-Dec-2024	✓	**12-Dec-2024**	27-Dec-2024	✓
TP15_1.0-1.1_241129								
ED040N: Sulfate - Calcium Phosphate Soluble (NEPM)								
Soil Glass Jar - Unpreserved (ED040N)								
TP14_0.4-0.5_241128,	TP29_0.4-0.5_241128	**28-Nov-2024**	**07-Dec-2024**	27-May-2025	✓	**09-Dec-2024**	27-May-2025	✓
Soil Glass Jar - Unpreserved (ED040N)								
TP15_0.4-0.5_241129		**29-Nov-2024**	**07-Dec-2024**	28-May-2025	✓	**09-Dec-2024**	28-May-2025	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
ED040T: Total Sulfur by ICPAES							
Soil Glass Jar - Unpreserved (ED040T)							
TP14_0.4-0.5_241128, TP29_0.4-0.5_241128	**28-Nov-2024**	**06-Dec-2024**	05-Dec-2024	×	**06-Dec-2024**	03-Jan-2025	✓
Soil Glass Jar - Unpreserved (ED040T)							
TP15_0.4-0.5_241129	**29-Nov-2024**	**06-Dec-2024**	06-Dec-2024	✓	**06-Dec-2024**	03-Jan-2025	✓
ED045G: Chloride by Discrete Analyser							
Soil Glass Jar - Unpreserved (ED045G)							
TP14_0.4-0.5_241128, TP14_1.0-1.1_241128, TP29_0.4-0.5_241128, TP29_1.0-1.1_241128	**28-Nov-2024**	**06-Dec-2024**	26-Dec-2024	✓	**07-Dec-2024**	03-Jan-2025	✓
Soil Glass Jar - Unpreserved (ED045G)							
TP04_0.4-0.5_241129, TP15_0.4-0.5_241129, TP15_1.0-1.1_241129	**29-Nov-2024**	**06-Dec-2024**	27-Dec-2024	✓	**07-Dec-2024**	03-Jan-2025	✓
EG005(ED093)T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
TP28_0.0-0.1_241128, TP28_0.4-0.5_241128, TP03_1.0-1.1_241128, TP03_2.0-2.1_241128, TP02_0.0-0.15_241128, TP02_2.0-2.1_241128, TP14_0.0-0.15_241128, TP14_0.4-0.5_241128, TP14_2.0-2.1_241128, TP29_0.0-0.15_241128, TP29_0.4-0.5_241128, TP29_2.0-2.3_241128	**28-Nov-2024**	**06-Dec-2024**	27-May-2025	✓	**06-Dec-2024**	27-May-2025	✓
Soil Glass Jar - Unpreserved (EG005T)							
TP27_0.40-0.50_241129, TP27_1.0-1.1_241129, TP04_1.4_241129, QC103_241129, TP15_0.0-0.15_241129, TP15_0.4-0.5_241129, TP15_2.0-2.1_241129, QC102_241129_0.00-0.15, QC104_241129_1.00-1.10	**29-Nov-2024**	**06-Dec-2024**	28-May-2025	✓	**06-Dec-2024**	28-May-2025	✓
Soil Glass Jar - Unpreserved (EG005T)							
TP04_0.4-0.5_241129	**29-Nov-2024**	**10-Dec-2024**	28-May-2025	✓	**10-Dec-2024**	28-May-2025	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
TP28_0.0-0.1_241128, TP28_0.4-0.5_241128, TP03_1.0-1.1_241128, TP03_2.0-2.1_241128, TP02_0.0-0.15_241128, TP02_2.0-2.1_241128, TP14_0.0-0.15_241128, TP14_2.0-2.1_241128, TP29_0.0-0.15_241128, TP29_2.0-2.3_241128	**28-Nov-2024**	**06-Dec-2024**	26-Dec-2024	✓	**06-Dec-2024**	26-Dec-2024	✓
Soil Glass Jar - Unpreserved (EG035T)							
TP27_0.40-0.50_241129, TP27_1.0-1.1_241129, TP04_1.4_241129, QC103_241129, TP15_0.0-0.15_241129, TP15_2.0-2.1_241129, QC102_241129_0.00-0.15, QC104_241129_1.00-1.10	**29-Nov-2024**	**06-Dec-2024**	27-Dec-2024	✓	**06-Dec-2024**	27-Dec-2024	✓
Soil Glass Jar - Unpreserved (EG035T)							
TP04_0.4-0.5_241129	**29-Nov-2024**	**10-Dec-2024**	27-Dec-2024	✓	**10-Dec-2024**	27-Dec-2024	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG048: Hexavalent Chromium (Alkaline Digest)							
Soil Glass Jar - Unpreserved (EG048G) TP28_0.4-0.5_241128, TP03_2.0-2.1_241128, TP02_2.0-2.1_241128, TP14_2.0-2.1_241128, TP29_0.0-0.15_241128	**28-Nov-2024**	**07-Dec-2024**	26-Dec-2024	✓	**10-Dec-2024**	14-Dec-2024	✓
Soil Glass Jar - Unpreserved (EG048G) TP27_1.0-1.1_241129, TP04_1.4_241129, QC103_241129, TP15_2.0-2.1_241129, QC104_241129_1.00-1.10	**29-Nov-2024**	**07-Dec-2024**	27-Dec-2024	✓	**10-Dec-2024**	14-Dec-2024	✓
EK028SF: Weak Acid Dissociable CN by Segmented Flow Analyser							
Soil Glass Jar - Unpreserved (EK028SF) TP28_0.4-0.5_241128, TP03_2.0-2.1_241128, TP02_2.0-2.1_241128, TP14_2.0-2.1_241128, TP29_0.0-0.15_241128	**28-Nov-2024**	**09-Dec-2024**	12-Dec-2024	✓	**11-Dec-2024**	23-Dec-2024	✓
Soil Glass Jar - Unpreserved (EK028SF) TP27_1.0-1.1_241129, TP04_1.4_241129, QC103_241129, TP15_2.0-2.1_241129, QC104_241129_1.00-1.10	**29-Nov-2024**	**09-Dec-2024**	13-Dec-2024	✓	**11-Dec-2024**	23-Dec-2024	✓
EK055: Ammonia as N							
Soil Glass Jar - Unpreserved (EK055) TP14_0.4-0.5_241128, TP29_0.4-0.5_241128	**28-Nov-2024**	**----**	----	----	**06-Dec-2024**	26-Dec-2024	✓
Soil Glass Jar - Unpreserved (EK055) TP15_0.4-0.5_241129	**29-Nov-2024**	**----**	----	----	**06-Dec-2024**	27-Dec-2024	✓
EK057G: Nitrite as N by Discrete Analyser							
Soil Glass Jar - Unpreserved (EK057G) TP14_0.4-0.5_241128, TP29_0.4-0.5_241128	**28-Nov-2024**	**06-Dec-2024**	05-Dec-2024	×	**07-Dec-2024**	08-Dec-2024	✓
Soil Glass Jar - Unpreserved (EK057G) TP15_0.4-0.5_241129	**29-Nov-2024**	**06-Dec-2024**	06-Dec-2024	✓	**07-Dec-2024**	08-Dec-2024	✓
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser							
Soil Glass Jar - Unpreserved (EK059G) TP14_0.4-0.5_241128, TP29_0.4-0.5_241128	**28-Nov-2024**	**06-Dec-2024**	26-Dec-2024	✓	**07-Dec-2024**	08-Dec-2024	✓
Soil Glass Jar - Unpreserved (EK059G) TP15_0.4-0.5_241129	**29-Nov-2024**	**06-Dec-2024**	27-Dec-2024	✓	**07-Dec-2024**	08-Dec-2024	✓
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser							
Soil Glass Jar - Unpreserved (EK061G) TP14_0.4-0.5_241128, TP29_0.4-0.5_241128	**28-Nov-2024**	**06-Dec-2024**	26-Dec-2024	✓	**11-Dec-2024**	03-Jan-2025	✓
Soil Glass Jar - Unpreserved (EK061G) TP15_0.4-0.5_241129	**29-Nov-2024**	**06-Dec-2024**	27-Dec-2024	✓	**11-Dec-2024**	03-Jan-2025	✓
EK067G: Total Phosphorus as P by Discrete Analyser							
Soil Glass Jar - Unpreserved (EK067G) TP14_0.4-0.5_241128, TP29_0.4-0.5_241128	**28-Nov-2024**	**06-Dec-2024**	26-Dec-2024	✓	**11-Dec-2024**	03-Jan-2025	✓
Soil Glass Jar - Unpreserved (EK067G) TP15_0.4-0.5_241129	**29-Nov-2024**	**06-Dec-2024**	27-Dec-2024	✓	**11-Dec-2024**	03-Jan-2025	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EK080: Bicarbonate Extractable Phosphorus (Colwell)							
Soil Glass Jar - Unpreserved (EK080) TP14_0.4-0.5_241128, TP29_0.4-0.5_241128	**28-Nov-2024**	**13-Dec-2024**	27-May-2025	✓	**17-Dec-2024**	27-May-2025	✓
Soil Glass Jar - Unpreserved (EK080) TP15_0.4-0.5_241129	**29-Nov-2024**	**13-Dec-2024**	28-May-2025	✓	**17-Dec-2024**	28-May-2025	✓
EP004: Organic Matter							
Soil Glass Jar - Unpreserved (EP004) TP14_0.4-0.5_241128, TP29_0.4-0.5_241128	**28-Nov-2024**	**06-Dec-2024**	26-Dec-2024	✓	**10-Dec-2024**	26-Dec-2024	✓
Soil Glass Jar - Unpreserved (EP004) TP15_0.4-0.5_241129	**29-Nov-2024**	**06-Dec-2024**	27-Dec-2024	✓	**10-Dec-2024**	27-Dec-2024	✓
EP066: Polychlorinated Biphenyls (PCB)							
Soil Glass Jar - Unpreserved (EP066) TP28_0.4-0.5_241128, TP03_2.0-2.1_241128, TP02_2.0-2.1_241128, TP14_2.0-2.1_241128, TP29_0.0-0.15_241128	**28-Nov-2024**	**06-Dec-2024**	12-Dec-2024	✓	**10-Dec-2024**	15-Jan-2025	✓
Soil Glass Jar - Unpreserved (EP066) TP27_1.0-1.1_241129, TP04_1.4_241129, QC103_241129, TP15_2.0-2.1_241129, QC104_241129_1.00-1.10	**29-Nov-2024**	**06-Dec-2024**	13-Dec-2024	✓	**10-Dec-2024**	15-Jan-2025	✓
EP068A: Organochlorine Pesticides (OC)							
Soil Glass Jar - Unpreserved (EP068) TP28_0.4-0.5_241128, TP03_2.0-2.1_241128, TP02_2.0-2.1_241128, TP14_2.0-2.1_241128, TP29_0.0-0.15_241128	**28-Nov-2024**	**06-Dec-2024**	12-Dec-2024	✓	**09-Dec-2024**	15-Jan-2025	✓
Soil Glass Jar - Unpreserved (EP068) TP27_1.0-1.1_241129, TP04_1.4_241129, QC103_241129, TP15_2.0-2.1_241129, QC104_241129_1.00-1.10	**29-Nov-2024**	**06-Dec-2024**	13-Dec-2024	✓	**09-Dec-2024**	15-Jan-2025	✓
EP068B: Organophosphorus Pesticides (OP)							
Soil Glass Jar - Unpreserved (EP068) TP28_0.4-0.5_241128, TP03_2.0-2.1_241128, TP02_2.0-2.1_241128, TP14_2.0-2.1_241128, TP29_0.0-0.15_241128	**28-Nov-2024**	**06-Dec-2024**	12-Dec-2024	✓	**09-Dec-2024**	15-Jan-2025	✓
Soil Glass Jar - Unpreserved (EP068) TP27_1.0-1.1_241129, TP04_1.4_241129, QC103_241129, TP15_2.0-2.1_241129, QC104_241129_1.00-1.10	**29-Nov-2024**	**06-Dec-2024**	13-Dec-2024	✓	**09-Dec-2024**	15-Jan-2025	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP068C: Triazines							
Soil Glass Jar - Unpreserved (EP068) TP28_0.4-0.5_241128, TP03_2.0-2.1_241128, TP02_2.0-2.1_241128, TP14_2.0-2.1_241128, TP29_0.0-0.15_241128	**28-Nov-2024**	**06-Dec-2024**	12-Dec-2024	✓	**09-Dec-2024**	15-Jan-2025	✓
Soil Glass Jar - Unpreserved (EP068) TP27_1.0-1.1_241129, TP04_1.4_241129, QC103_241129, TP15_2.0-2.1_241129, QC104_241129_1.00-1.10	**29-Nov-2024**	**06-Dec-2024**	13-Dec-2024	✓	**09-Dec-2024**	15-Jan-2025	✓
EP068D: Pyrethroids							
Soil Glass Jar - Unpreserved (EP068) TP28_0.4-0.5_241128, TP03_2.0-2.1_241128, TP02_2.0-2.1_241128, TP14_2.0-2.1_241128, TP29_0.0-0.15_241128	**28-Nov-2024**	**06-Dec-2024**	12-Dec-2024	✓	**09-Dec-2024**	15-Jan-2025	✓
Soil Glass Jar - Unpreserved (EP068) TP27_1.0-1.1_241129, TP04_1.4_241129, QC103_241129, TP15_2.0-2.1_241129, QC104_241129_1.00-1.10	**29-Nov-2024**	**06-Dec-2024**	13-Dec-2024	✓	**09-Dec-2024**	15-Jan-2025	✓
EP075(SIM)A: Phenolic Compounds							
Soil Glass Jar - Unpreserved (EP075(SIM)) TP28_0.4-0.5_241128, TP03_2.0-2.1_241128, TP02_2.0-2.1_241128, TP14_2.0-2.1_241128, TP29_0.0-0.15_241128	**28-Nov-2024**	**06-Dec-2024**	12-Dec-2024	✓	**09-Dec-2024**	15-Jan-2025	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) TP27_1.0-1.1_241129, TP04_1.4_241129, QC103_241129, TP15_2.0-2.1_241129, QC104_241129_1.00-1.10	**29-Nov-2024**	**06-Dec-2024**	13-Dec-2024	✓	**09-Dec-2024**	15-Jan-2025	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM)) TP28_0.4-0.5_241128, TP03_2.0-2.1_241128, TP02_2.0-2.1_241128, TP14_2.0-2.1_241128, TP29_0.0-0.15_241128	**28-Nov-2024**	**06-Dec-2024**	12-Dec-2024	✓	**09-Dec-2024**	15-Jan-2025	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) TP28_0.0-0.1_241128	**28-Nov-2024**	**07-Dec-2024**	12-Dec-2024	✓	**09-Dec-2024**	16-Jan-2025	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) TP03_1.0-1.1_241128, TP02_0.0-0.15_241128, TP14_0.0-0.15_241128, TP29_2.0-2.3_241128	**28-Nov-2024**	**07-Dec-2024**	12-Dec-2024	✓	**10-Dec-2024**	16-Jan-2025	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) TP27_1.0-1.1_241129, TP04_1.4_241129, QC103_241129, TP15_2.0-2.1_241129, QC104_241129_1.00-1.10	**29-Nov-2024**	**06-Dec-2024**	13-Dec-2024	✓	**09-Dec-2024**	15-Jan-2025	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) TP27_0.40-0.50_241129, TP15_0.0-0.15_241129, QC102_241129_0.00-0.15	**29-Nov-2024**	**07-Dec-2024**	13-Dec-2024	✓	**10-Dec-2024**	16-Jan-2025	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) TP04_0.4-0.5_241129	**29-Nov-2024**	**10-Dec-2024**	13-Dec-2024	✓	**11-Dec-2024**	19-Jan-2025	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP080) QC603_241202, QC402_241202, QC603_241202 - Trip Control	**02-Dec-2024**	**06-Dec-2024**	16-Dec-2024	✓	**06-Dec-2024**	16-Dec-2024	✓
Soil Glass Jar - Unpreserved (EP080) TP29_2.0-2.3_241128	**28-Nov-2024**	**06-Dec-2024**	12-Dec-2024	✓	**06-Dec-2024**	12-Dec-2024	✓
Soil Glass Jar - Unpreserved (EP071) TP28_0.4-0.5_241128, TP03_2.0-2.1_241128, TP02_2.0-2.1_241128, TP14_2.0-2.1_241128, TP29_0.0-0.15_241128	**28-Nov-2024**	**06-Dec-2024**	12-Dec-2024	✓	**09-Dec-2024**	15-Jan-2025	✓
Soil Glass Jar - Unpreserved (EP080) TP28_0.0-0.1_241128, TP28_0.4-0.5_241128, TP03_1.0-1.1_241128, TP03_2.0-2.1_241128, TP02_0.0-0.15_241128, TP02_2.0-2.1_241128, TP14_0.0-0.15_241128, TP14_2.0-2.1_241128, TP29_0.0-0.15_241128	**28-Nov-2024**	**06-Dec-2024**	12-Dec-2024	✓	**10-Dec-2024**	12-Dec-2024	✓
Soil Glass Jar - Unpreserved (EP071) TP28_0.0-0.1_241128, TP03_1.0-1.1_241128, TP02_0.0-0.15_241128, TP14_0.0-0.15_241128, TP29_2.0-2.3_241128	**28-Nov-2024**	**07-Dec-2024**	12-Dec-2024	✓	**09-Dec-2024**	16-Jan-2025	✓
Soil Glass Jar - Unpreserved (EP071) TP27_1.0-1.1_241129, TP04_1.4_241129, QC103_241129, TP15_2.0-2.1_241129, QC104_241129_1.00-1.10	**29-Nov-2024**	**06-Dec-2024**	13-Dec-2024	✓	**09-Dec-2024**	15-Jan-2025	✓
Soil Glass Jar - Unpreserved (EP080) TP27_0.40-0.50_241129, TP27_1.0-1.1_241129, TP04_1.4_241129, QC103_241129, TP15_0.0-0.15_241129, TP15_2.0-2.1_241129, QC102_241129_0.00-0.15, QC104_241129_1.00-1.10	**29-Nov-2024**	**06-Dec-2024**	13-Dec-2024	✓	**10-Dec-2024**	13-Dec-2024	✓
Soil Glass Jar - Unpreserved (EP071) TP27_0.40-0.50_241129, TP15_0.0-0.15_241129, QC102_241129_0.00-0.15	**29-Nov-2024**	**07-Dec-2024**	13-Dec-2024	✓	**09-Dec-2024**	16-Jan-2025	✓
Soil Glass Jar - Unpreserved (EP080) TP04_0.4-0.5_241129	**29-Nov-2024**	**10-Dec-2024**	13-Dec-2024	✓	**10-Dec-2024**	13-Dec-2024	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP080) QC603_241202, QC402_241202, QC603_241202 - Trip Control	**02-Dec-2024**	**06-Dec-2024**	16-Dec-2024	✓	**06-Dec-2024**	16-Dec-2024	✓
Soil Glass Jar - Unpreserved (EP080) TP29_2.0-2.3_241128	**28-Nov-2024**	**06-Dec-2024**	12-Dec-2024	✓	**06-Dec-2024**	12-Dec-2024	✓
Soil Glass Jar - Unpreserved (EP071) TP28_0.4-0.5_241128, TP03_2.0-2.1_241128, TP02_2.0-2.1_241128, TP14_2.0-2.1_241128, TP29_0.0-0.15_241128	**28-Nov-2024**	**06-Dec-2024**	12-Dec-2024	✓	**09-Dec-2024**	15-Jan-2025	✓
Soil Glass Jar - Unpreserved (EP080) TP28_0.0-0.1_241128, TP28_0.4-0.5_241128, TP03_1.0-1.1_241128, TP03_2.0-2.1_241128, TP02_0.0-0.15_241128, TP02_2.0-2.1_241128, TP14_0.0-0.15_241128, TP14_2.0-2.1_241128, TP29_0.0-0.15_241128	**28-Nov-2024**	**06-Dec-2024**	12-Dec-2024	✓	**10-Dec-2024**	12-Dec-2024	✓
Soil Glass Jar - Unpreserved (EP071) TP28_0.0-0.1_241128, TP03_1.0-1.1_241128, TP02_0.0-0.15_241128, TP14_0.0-0.15_241128, TP29_2.0-2.3_241128	**28-Nov-2024**	**07-Dec-2024**	12-Dec-2024	✓	**09-Dec-2024**	16-Jan-2025	✓
Soil Glass Jar - Unpreserved (EP071) TP27_1.0-1.1_241129, TP04_1.4_241129, QC103_241129, TP15_2.0-2.1_241129, QC104_241129_1.00-1.10	**29-Nov-2024**	**06-Dec-2024**	13-Dec-2024	✓	**09-Dec-2024**	15-Jan-2025	✓
Soil Glass Jar - Unpreserved (EP080) TP27_0.40-0.50_241129, TP27_1.0-1.1_241129, TP04_1.4_241129, QC103_241129, TP15_0.0-0.15_241129, TP15_2.0-2.1_241129, QC102_241129_0.00-0.15, QC104_241129_1.00-1.10	**29-Nov-2024**	**06-Dec-2024**	13-Dec-2024	✓	**10-Dec-2024**	13-Dec-2024	✓
Soil Glass Jar - Unpreserved (EP071) TP27_0.40-0.50_241129, TP15_0.0-0.15_241129, QC102_241129_0.00-0.15	**29-Nov-2024**	**07-Dec-2024**	13-Dec-2024	✓	**09-Dec-2024**	16-Jan-2025	✓
Soil Glass Jar - Unpreserved (EP080) TP04_0.4-0.5_241129	**29-Nov-2024**	**10-Dec-2024**	13-Dec-2024	✓	**10-Dec-2024**	13-Dec-2024	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080) QC603_241202, QC402_241202, QC603_241202 - Trip Control	**02-Dec-2024**	**06-Dec-2024**	16-Dec-2024	✓	**06-Dec-2024**	16-Dec-2024	✓
Soil Glass Jar - Unpreserved (EP080) TP29_2.0-2.3_241128	**28-Nov-2024**	**06-Dec-2024**	12-Dec-2024	✓	**06-Dec-2024**	12-Dec-2024	✓
Soil Glass Jar - Unpreserved (EP080) TP28_0.0-0.1_241128, TP28_0.4-0.5_241128, TP03_1.0-1.1_241128, TP03_2.0-2.1_241128, TP02_0.0-0.15_241128, TP02_2.0-2.1_241128, TP14_0.0-0.15_241128, TP14_2.0-2.1_241128, TP29_0.0-0.15_241128	**28-Nov-2024**	**06-Dec-2024**	12-Dec-2024	✓	**10-Dec-2024**	12-Dec-2024	✓
Soil Glass Jar - Unpreserved (EP080) TP27_0.40-0.50_241129, TP27_1.0-1.1_241129, TP04_1.4_241129, QC103_241129, TP15_0.0-0.15_241129, TP15_2.0-2.1_241129, QC102_241129_0.00-0.15, QC104_241129_1.00-1.10	**29-Nov-2024**	**06-Dec-2024**	13-Dec-2024	✓	**10-Dec-2024**	13-Dec-2024	✓
Soil Glass Jar - Unpreserved (EP080) TP04_0.4-0.5_241129	**29-Nov-2024**	**10-Dec-2024**	13-Dec-2024	✓	**10-Dec-2024**	13-Dec-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Bicarbonate Extractable P (Colwell)	EK080	1	6	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Buchi Ammonia	EK055	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride Soluble By Discrete Analyser	ED045G	1	7	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chromium Suite for Acid Sulphate Soils	EA033	4	39	**10.26**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Electrical Conductivity (1:5)	EA010	1	7	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Electrical Conductivity (1:5) on 40°C dried soil	EA010-AD	2	11	**18.18**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Exchangeable Cations on Alkaline Soils	ED006	2	10	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055	3	28	**10.71**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser	EK059G	1	3	**33.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N - Soluble by Discrete Analyser	EK057G	1	3	**33.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Organic Matter	EP004	1	5	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	5	32	**15.63**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	2	13	**15.38**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH (1:5)	EA002	1	9	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH (1:5) on 40°C dried soil	EA002-AD	2	11	**18.18**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH field/fox	EA003	3	28	**10.71**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH in soil using a 0.01M CaCl2 extract	EA001	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	2	13	**15.38**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate - Calcium Phosphate Soluble	ED040N	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Suspension Peroxide Oxidation-Combined Acidity and Sulphate	EA029	1	5	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TKN as N By Discrete Analyser	EK061G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	5	35	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	10	38	**26.32**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus By Discrete Analyser	EK067G	1	3	**33.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	5	32	**15.63**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	5	36	**13.89**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
WAD Cyanide by Segmented Flow Analyser	EK028SF	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Bicarbonate Extractable P (Colwell)	EK080	3	6	**50.00**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
Buchi Ammonia	EK055	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride Soluble By Discrete Analyser	ED045G	2	7	**28.57**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chromium Suite for Acid Sulphate Soils	EA033	2	39	**5.13**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Electrical Conductivity (1:5)	EA010	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Control Samples (LCS) - Continued							
Electrical Conductivity (1:5) on 40°C dried soil	EA010-AD	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Exchangeable Cations on Alkaline Soils	ED006	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser	EK059G	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N - Soluble by Discrete Analyser	EK057G	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Organic Matter	EP004	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	3	32	**9.38**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH (1:5)	EA002	2	9	**22.22**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH (1:5) on 40°C dried soil	EA002-AD	2	11	**18.18**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH in soil using a 0.01M CaCl2 extract	EA001	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate - Calcium Phosphate Soluble	ED040N	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Suspension Peroxide Oxidation-Combined Acidity and Sulphate	EA029	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TKN as N By Discrete Analyser	EK061G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	3	35	**8.57**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	4	38	**10.53**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus By Discrete Analyser	EK067G	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	3	32	**9.38**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	3	36	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
WAD Cyanide by Segmented Flow Analyser	EK028SF	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Bicarbonate Extractable P (Colwell)	EK080	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Buchi Ammonia	EK055	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride Soluble By Discrete Analyser	ED045G	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chromium Suite for Acid Sulphate Soils	EA033	2	39	**5.13**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Electrical Conductivity (1:5)	EA010	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Electrical Conductivity (1:5) on 40°C dried soil	EA010-AD	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Exchangeable Cations on Alkaline Soils	ED006	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser	EK059G	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N - Soluble by Discrete Analyser	EK057G	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Organic Matter	EP004	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	3	32	**9.38**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate - Calcium Phosphate Soluble	ED040N	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Method Blanks (MB) - Continued							
Suspension Peroxide Oxidation-Combined Acidity and Sulphate	EA029	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TKN as N By Discrete Analyser	EK061G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	3	35	**8.57**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	4	38	**10.53**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus By Discrete Analyser	EK067G	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	3	32	**9.38**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	3	36	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
WAD Cyanide by Segmented Flow Analyser	EK028SF	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Bicarbonate Extractable P (Colwell)	EK080	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Buchi Ammonia	EK055	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride Soluble By Discrete Analyser	ED045G	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser	EK059G	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N - Soluble by Discrete Analyser	EK057G	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Organic Matter	EP004	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	2	32	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate - Calcium Phosphate Soluble	ED040N	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TKN as N By Discrete Analyser	EK061G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	35	**5.71**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	38	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus By Discrete Analyser	EK067G	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	32	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	36	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
WAD Cyanide by Segmented Flow Analyser	EK028SF	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH in soil using a 0.01M CaCl2 extract	EA001	SOIL	In house: Referenced to Rayment and Lyons 4B3 (mod.) or 4B4 (mod.) 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM Schedule B(3).
pH (1:5)	EA002	SOIL	In house: Referenced to Rayment and Lyons 4A1 and APHA 4500H+. pH is determined on soil samples after a 1:5 soil/water leach. This method is compliant with NEPM Schedule B(3).
pH (1:5) on 40°C dried soil	EA002-AD	SOIL	In house: Referenced to Rayment and Lyons 4A1 and APHA 4500H+. pH is determined on 40°C dried soil after a 1:5 soil/water leach. This method is compliant with NEPM Schedule B(3)
pH field/fox	EA003	SOIL	In house: Referenced to Ahern et al 1998 - determined on a 1:5 soil/water extract designed to simulate field measured pH and pH after the extract has been oxidised with peroxide.
Net Acid Production Potential	EA009	SOIL	In house: Referenced to Coastech Research (Canada)(Mod.). NAPP = Acid Production Potential (APP or MAP-Maximum Acid Potential) minus Neutralising Capacity (ANC). NAPP may be +ve, zero or -ve.
Electrical Conductivity (1:5)	EA010	SOIL	In house: Referenced to Rayment and Lyons 3A1 and APHA 2510. Conductivity is determined on soil samples using a 1:5 soil/water leach. This method is compliant with NEPM Schedule B(3).
Electrical Conductivity (1:5) on 40°C dried soil	EA010-AD	SOIL	In house: Referenced to Rayment and Lyons 3A1 and APHA 2510. Conductivity is determined on soil samples dried at 40°C using a 1:5 soil/water leach. This method is compliant with NEPM Schedule B(3).
Suspension Peroxide Oxidation-Combined Acidity and Sulphate	EA029	SOIL	In house: Referenced to Ahern et al 2004 - a suspension peroxide oxidation method following the 'sulfur trail' by determining the level of 1M KCL extractable sulfur and the sulfur level after oxidation of soil sulphides. The 'acidity trail' is followed by measurement of TAA, TPA and TSA. Liming Rate is based on results for samples as submitted and incorporates a minimum safety factor of 1.5.
Chromium Suite for Acid Sulphate Soils	EA033	SOIL	In house: Referenced to Ahern et al 2004. This method covers the determination of Chromium Reducible Sulfur (SCR); pHKCl; titratable actual acidity (TAA); acid neutralising capacity by back titration (ANC); and net acid soluble sulfur (SNAS) which incorporates peroxide sulfur. It applies to soils and sediments (including sands) derived from coastal regions. Liming Rate is based on results for samples as submitted and incorporates a minimum safety factor of 1.5.
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Emerson Aggregate Test	EA058	SOIL	In house: Referenced to AS1289.3.8.1. Testing is performed only on soils with suitable aggregates; sands and gravels are usually unsuitable for this test. The test classifies the behaviour of soil aggregates, when immersed, on their coherence in water.
Particle Size Analysis by Hydrometer	EA150H	SOIL	Particle Size Analysis by Hydrometer according to AS1289.3.6.3
Gross Alpha and Beta activity in solids	EA250	SOIL	In house: Referenced to ISO 9697 / CSN 757611. Determination of Gross Alpha and Beta activity in soil and sediment by Thick Source method. An appropriate mass of sample is dried and pulverised prior to direct activity counting. (If required, Potassium may be determined separately and results corrected accordingly for 40K.) Analysis is performed by ALS (Czech Republic) who hold technical accreditation #1163 for Gross alpha and beta activity under CAI. CAI are a European accreditation body, equivalent to NATA in Australila and recognised internationally by NATA under ILAC.

Analytical Methods	Method	Matrix	Method Descriptions
Radionuclides (Natural) in Soil / Sediment	EA252	SOIL	Individual Natural Radionuclides in soil / sediment by High Resolution Gamma Spectrometry. Analysis is performed by ALS (Czech Republic) who hold technical accreditation #1163 for Gamma Spectrometry under CAI. CAI are a European accreditation body, equivalent to NATA in Australila and recognised internationally by NATA under ILAC.
Exchangeable Cations on Alkaline Soils	* ED006	SOIL	In house: Referenced to Soil Survey Test Method C5. Soluble salts are removed from the sample prior to analysis. Cations are exchanged from the sample by contact with alcoholic ammonium chloride at pH 8.5. They are then quantitated in the final solution by ICPAES and reported as meq/100g of original soil.
Exchangeable Cations	ED007	SOIL	In house: Referenced to Rayment & Lyons Method 15A1. Cations are exchanged from the sample by contact with Ammonium Chloride. They are then quantitated in the final solution by ICPAES and reported as meq/100g of original soil. This method is compliant with NEPM Schedule B(3).
Exchangeable Cations with pre-treatment	ED008	SOIL	In house: Referenced to Rayment & Lyons Method 15A2. Soluble salts are removed from the sample prior to analysis. Cations are exchanged from the sample by contact with Ammonium Chloride. They are then quantitated in the final solution by ICPAES and reported as meq/100g of original soil. This method is compliant with NEPM Schedule B(3).
Sulfate - Calcium Phosphate Soluble	ED040N	SOIL	In house: The sample is extracted with a calcium phosphate solution. The phosphate ion displaces the adsorbed sulfate while calcium ions depress the extraction of interfering S from soil organic matter. SO4 in the extract is determined by ICPAES and reported as dry weight in the original soil. This method is compliant with NEPM Schedule B(3).
Sulfate as SO4 2- Total	ED040T	SOIL	In house: Total Sulfate is determined off a HCl digestion by ICPAES as S , and reported as SO4
Chloride Soluble By Discrete Analyser	ED045G	SOIL	In house: Referenced to APHA 4500 Cl - G. The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride.in the presence of ferric ions the librated thiocynate forms highly-coloured ferric thiocynate which is measured at 480 nm. Analysis is performed on a 1:5 soil / water leachate.
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3)
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	SOIL	In house: Referenced to USEPA SW846, Method 3060. Hexavalent chromium is extracted by alkaline digestion. The digest is determined by photometrically by automatic discrete analyser, following pH adjustment. The instrument uses colour development using dephenylcarbazide. Each run of samples is measured against a five-point calibration curve. This method is compliant with NEPM Schedule B(3)

Analytical Methods	Method	Matrix	Method Descriptions
WAD Cyanide by Segmented Flow Analyser	EK028SF	SOIL	In house: Referenced to APHA 4500-CN C&O / ISO 14403. Caustic leachates of soil samples are introduced into an automated segmented flow analyser. Hydrogen cyanide is liberated from a slightly acidified (pH 4.5) and is dialysed. Tight cyanide complexes that would not be amenable to oxidation by chlorine are not converted. Iron cyanide complexes are precipitated with zinc acetate. Liberated HCN diffuses through a membrane into a stream of sodium hydroxide where it is carried as CN- The cyanide in caustic solution is buffered to pH 5.2 and further converted to cyanogen chloride by reaction with chloramine-T. Cyanogen chloride subsequently reacts with 4-pyridine carboxylic and 1,3-dimethylbarbituric acids to give a red colour complex. This colour is measured at 600 nm. This method is compliant with NEPM Schedule B(3).
Buchi Ammonia	EK055	SOIL	In house: Referenced to APHA 4500-NH3 B&G, H Samples are steam distilled (Buchi) prior to analysis and quantified using titration, FIA or Discrete Analyser.
Nitrite as N - Soluble by Discrete Analyser	EK057G	SOIL	In house: Referenced to APHA 4500-NO3- B. Nitrite in a water extract is determined by direct colourimetry by Discrete Analyser.
Nitrate as N - Soluble by Discrete Analyser	EK058G	SOIL	In house: Referenced to APHA 4500-NO3- F. Nitrate in the 1:5 soil:water extract is reduced to nitrite by way of a chemical reduction followed by quantification by Discrete Analyser. Nitrite is determined seperately by direct colourimetry and result for Nitrate calculated as the difference between the two results.
Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser	EK059G	SOIL	In house: Thermo Scientific Method D08727 and NEMI (National Environmental Method Index) Method ID: 9171. This method covers the determination of total oxidised nitrogen (NOx-N) and nitrate (NO3-N) by calculation, Combined oxidised Nitrogen (NO2+NO3) in a water extract is determined by direct colourimetry by Discrete Analyser.
TKN as N By Discrete Analyser	EK061G	SOIL	In house: Referenced to APHA 4500-Norg-D Soil samples are digested using Kjeldahl digestion followed by determination by Discrete Analyser.
Total Nitrogen as N (TKN + NOx) By Discrete Analyser	EK062G	SOIL	In house: Referenced to APHA 4500 Norg/NO3- Total Nitrogen is determined as the sum of TKN and Oxidised Nitrrogen, each determined seperately as N.
Total Phosphorus By Discrete Analyser	EK067G	SOIL	In house: Referenced to APHA 4500 P-B&F This procedure involves sulfuric acid digestion and quantification using Discrete Analyser.
Bicarbonate Extractable P (Colwell)	EK080	SOIL	In house: Referenced to Rayment & Lyons Method 9B1 Phosphorus is extracted from the soil using 0.5M NaHCO3 at a 1:100 soil:solution ratio and determined by FIA.
Organic Matter	EP004	SOIL	In house: Referenced to AS1289.4.1.1. Dichromate oxidation method after Walkley and Black. This method is compliant with NEPM Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3).
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM Schedule B(3).
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015 Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM Schedule B(3).
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)

Analytical Methods	Method	Matrix	Method Descriptions
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM Schedule B(3) amended.

Preparation Methods	Method	Matrix	Method Descriptions
NaOH leach for CN in Soils	CN-PR	SOIL	In house: APHA 4500 CN. Samples are extracted by end-over-end tumbling with NaOH.
pH in soil using a 0.01M CaCl2 extract	EA001-PR	SOIL	In house: Referenced to Rayment and Lyons 4B1, 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM Schedule B(3).
Exchangeable Cations Preparation Method (Alkaline Soils)	* ED006PR	SOIL	In house: Referenced to Rayment and Lyons method 15C1.
Exchangeable Cations Preparation Method	ED007PR	SOIL	In house: Referenced to Rayment & Lyons method 15A1. A 1M NH4Cl extraction by end over end tumbling at a ratio of 1:20. There is no pretreatment for soluble salts. Extracts can be run by ICP for cations.
Calcium Phosphate Extraction for Sulphate as SO4 2-	ED040NPR	SOIL	The sample is extracted with a calcium phosphate solution. The phosphate ion displaces the adsorbed sulphate while calcium ions depress the extraction of interfering S from soil organic matter. SO4 in the extract is determined by ICPAES and reported as dry weight in the original soil. This method is compliant with NEPM Schedule B(3).
Alkaline digestion for Hexavalent Chromium	EG048PR	SOIL	In house: Referenced to USEPA SW846, Method 3060A.
TKN/TP Digestion	EK061/EK067	SOIL	In house: Referenced to APHA 4500 Norg- D; APHA 4500 P - H. Macro Kjeldahl digestion.
Sample Preparation for Bicarbonate Extractable P (Colwell)	EK080-PR	SOIL	In house: Referenced to Rayment & Lyons Method 9B1 Phosphorus is extracted from the soil using 0.5M NaHCO3 at a 1:100 soil:solution ratio.
Drying only	EN020D	SOIL	In house
Drying at 85 degrees, bagging and labelling (ASS)	EN020PR	SOIL	In house
HCl Digest	EN24	SOIL	1g of soil is digested in 30 ml of 30% HCl and the resultant digest bulked and filtered for analysis by ICP.
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of reagent grade water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
1:5 solid / water leach following drying at 40°C	EN34-AD	SOIL	10 g of 40°C dried soil is mixed with 50 mL of reagent grade water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).
Organic Matter	EP004-PR	SOIL	In house: Referenced to AS1289.4.1.1. Dichromate oxidation method after Walkley and Black. This method is compliant with NEPM Schedule B(3).
Dry and Pulverise (up to 100g)	GEO30	SOIL	#
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.

Preparation Methods	*Method*	*Matrix*	*Method Descriptions*
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.

Certificate of Analysis

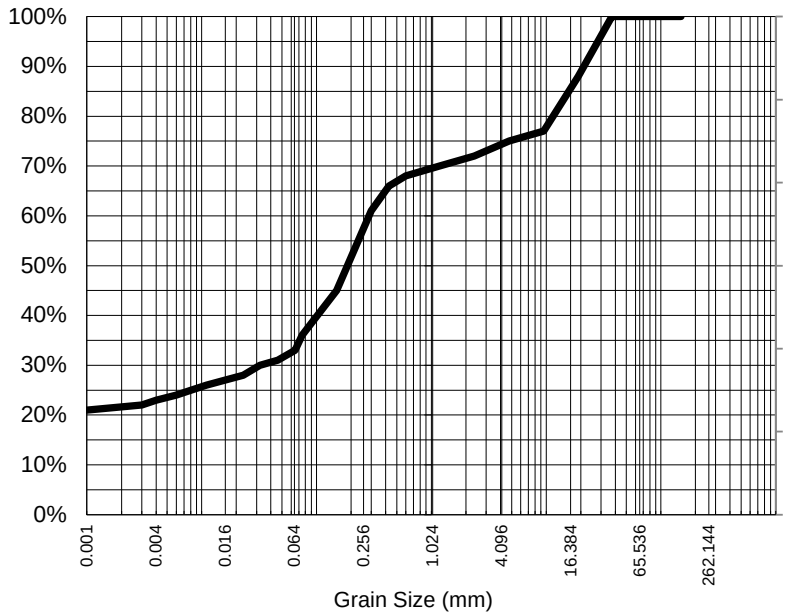
ALS Laboratory Group Pty Ltd
5/585 Maitland Road
Mayfield West, NSW 2304
pH 02 4014 2500
fax 02 4968 0349
samples.newcastle@alsenviro.com

ALS Environmental

Newcastle, NSW

CLIENT:	Simony Sakamoto	**DATE REPORTED:**	24-Dec-2024
COMPANY:	EMM CONSULTING PTY LTD	**DATE RECEIVED:**	4-Dec-2024
ADDRESS:	Level 1, 70 Pirie Street Adelaide	**REPORT NO:**	EM2421125-002 / PSD
PROJECT:	Olympic Dam	**SAMPLE ID:**	TP28_0.4-0.5_241128

Particle Size Distribution



Particle Size (mm)	% Passing
37.5	100%
19.0	88%
9.50	77%
4.75	75%
2.36	72%
1.18	70%
0.600	68%
0.425	66%
0.300	61%
0.150	45%
0.075	36%
Particle Size (microns)	
46	31%
32	30%
23	28%
16	27%
11	26%
8	25%
6	24%
4	23%
1	21%

Median Particle Size (mm)*	0.197

Analysis Notes

Samples analysed as received.

**** Soil Particle Density required for Hydrometer analysis according to AS 1289.3.5.1—2006 was not requested by the client . Typical sediment SPD values used for calculations and consequently, NATA endorsement does not apply to hydrometer results***

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Sample Comments:

Loss on Pretreatment NA

Sample Description: SAND, FINES, GRAVEL

Test Method: AS1289.3.6.1/AS1289.3.6.3

Soil Particle Density (<2.36mm) NR

Analysed: 19-Dec-24

Limit of Reporting: 1%

Dispersion Method Shaker

NATA Accreditation: 825 Site: Newcastle
This document is issued in accordance with NATA's accreditation requirements. Accredited for compliance with ISO/IEC 17025. This document shall not be reproduced, except in full.

NATA
WORLD RECOGNISED ACCREDITATION

Aleksandar Vujkovic
Laboratory Supervisor
Authorised Signatory

Certificate of Analysis

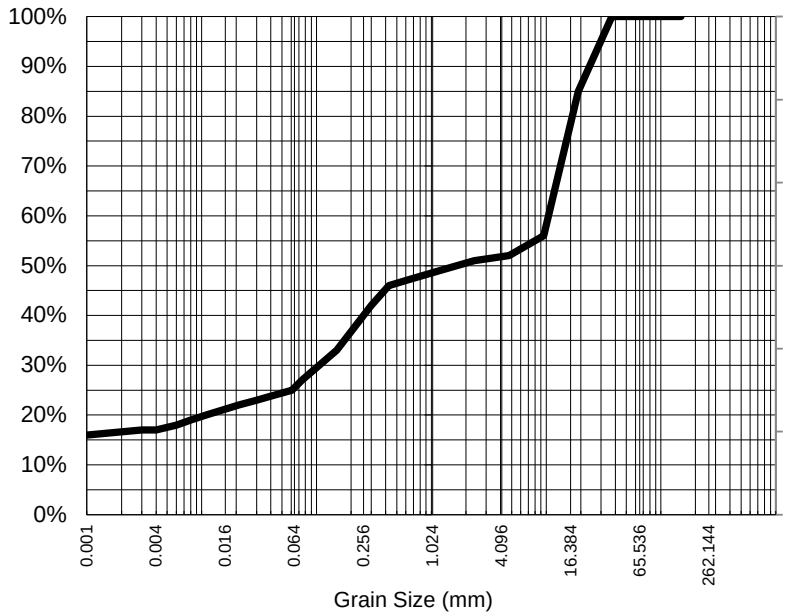
ALS Laboratory Group Pty Ltd
5/585 Maitland Road
Mayfield West, NSW 2304
pH 02 4014 2500
fax 02 4968 0349
samples.newcastle@alsenviro.com

ALS Environmental

Newcastle, NSW

CLIENT:	Simony Sakamoto	**DATE REPORTED:**	24-Dec-2024
COMPANY:	EMM CONSULTING PTY LTD	**DATE RECEIVED:**	4-Dec-2024
ADDRESS:	Level 1, 70 Pirie Street Adelaide	**REPORT NO:**	EM2421125-006 / PSD
PROJECT:	Olympic Dam	**SAMPLE ID:**	TP03_1.0-1.1_241128

Particle Size Distribution



Particle Size (mm)	% Passing
37.5	100%
19.0	85%
9.50	56%
4.75	52%
2.36	51%
1.18	49%
0.600	47%
0.425	46%
0.300	42%
0.150	33%
0.075	27%
Particle Size (microns)	
43	24%
30	23%
21	22%
15	21%
11	20%
8	19%
6	18%
4	17%
1	16%

Median Particle Size (mm)*	1.770

Analysis Notes

Samples analysed as received.

**** Soil Particle Density required for Hydrometer analysis according to AS 1289.3.5.1—2006 was not requested by the client . Typical sediment SPD values used for calculations and consequently, NATA endorsement does not apply to hydrometer results***

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Sample Comments:

Loss on Pretreatment NA

Sample Description: GRAVEL, SAND, FINES

Test Method: AS1289.3.6.1/AS1289.3.6.3

Soil Particle Density (<2.36mm) NR

Analysed: 19-Dec-24

Limit of Reporting: 1%

Dispersion Method Shaker

NATA Accreditation: 825 Site: Newcastle
This document is issued in accordance with NATA's accreditation requirements. Accredited for compliance with ISO/IEC 17025. This document shall not be reproduced, except in full.

Aleksandar Vujkovic
Laboratory Supervisor
Authorised Signatory

Certificate of Analysis

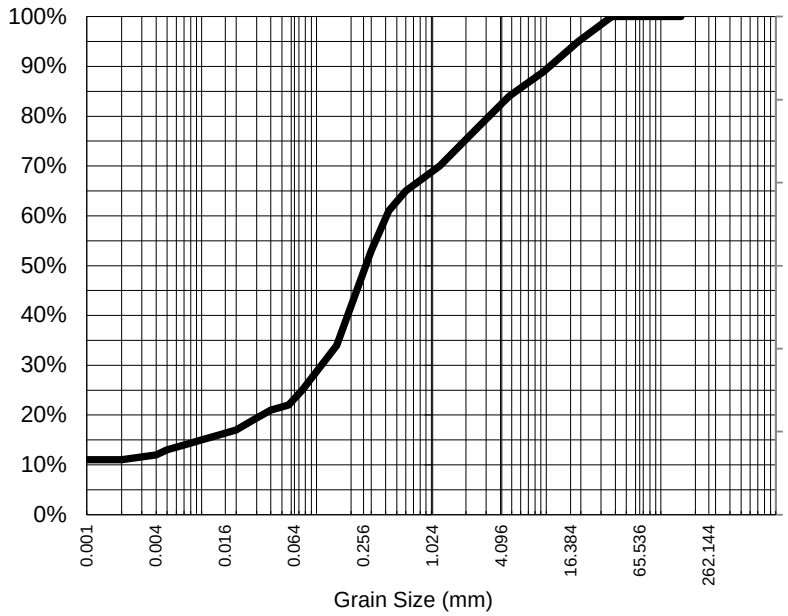
ALS Laboratory Group Pty Ltd
5/585 Maitland Road
Mayfield West, NSW 2304
pH 02 4014 2500
fax 02 4968 0349
samples.newcastle@alsenviro.com

ALS Environmental

Newcastle, NSW

CLIENT:	Simony Sakamoto	**DATE REPORTED:**	24-Dec-2024
COMPANY:	EMM CONSULTING PTY LTD	**DATE RECEIVED:**	4-Dec-2024
ADDRESS:	Level 1, 70 Pirie Street Adelaide	**REPORT NO:**	EM2421125-009 / PSD
PROJECT:	Olympic Dam	**SAMPLE ID:**	TP02_0.4-0.5_241128

Particle Size Distribution



Particle Size (mm)	% Passing
37.5	100%
19.0	95%
9.50	89%
4.75	84%
2.36	77%
1.18	70%
0.600	65%
0.425	61%
0.300	53%
0.150	34%
0.075	25%
Particle Size (microns)	
40	21%
28	19%
20	17%
14	16%
10	15%
7	14%
5	13%
4	12%
1	11%

Median Particle Size (mm)*	0.276

Analysis Notes

Samples analysed as received.

**** Soil Particle Density required for Hydrometer analysis according to AS 1289.3.5.1—2006 was not requested by the client . Typical sediment SPD values used for calculations and consequently, NATA endorsement does not apply to hydrometer results***

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Sample Comments:

Loss on Pretreatment NA

Sample Description: SAND, GRAVEL, FINES

Test Method: AS1289.3.6.1/AS1289.3.6.3

Soil Particle Density (<2.36mm) NR

Analysed: 19-Dec-24

Limit of Reporting: 1%

Dispersion Method Shaker

NATA Accreditation: 825 Site: Newcastle
This document is issued in accordance with NATA's accreditation requirements. Accredited for compliance with ISO/IEC 17025. This document shall not be reproduced, except in full.

NATA
WORLD RECOGNISED ACCREDITATION

Aleksandar Vujkovic
Laboratory Supervisor
Authorised Signatory

Certificate of Analysis

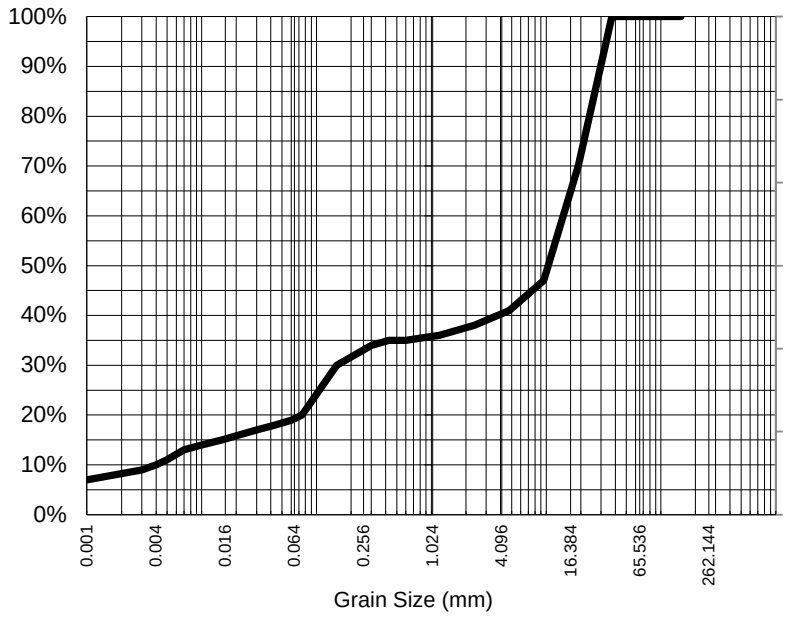
ALS Laboratory Group Pty Ltd
5/585 Maitland Road
Mayfield West, NSW 2304
pH 02 4014 2500
fax 02 4968 0349
samples.newcastle@alsenviro.com

ALS Environmental

Newcastle, NSW

CLIENT:	Simony Sakamoto	**DATE REPORTED:**	24-Dec-2024
COMPANY:	EMM CONSULTING PTY LTD	**DATE RECEIVED:**	4-Dec-2024
ADDRESS:	Level 1, 70 Pirie Street Adelaide	**REPORT NO:**	EM2421125-014 / PSD
PROJECT:	Olympic Dam	**SAMPLE ID:**	TP27_1.0-1.1_241129

Particle Size Distribution



Particle Size (mm)	% Passing
37.5	100%
19.0	70%
9.50	47%
4.75	41%
2.36	38%
1.18	36%
0.600	35%
0.425	35%
0.300	34%
0.150	30%
0.075	20%
Particle Size (microns)	
43	18%
30	17%
21	16%
15	15%
10	14%
7	13%
5	11%
4	10%
1	7%

Median Particle Size (mm)*	10.739

Analysis Notes

Samples analysed as received.

**** Soil Particle Density required for Hydrometer analysis according to AS 1289.3.5.1—2006 was not requested by the client . Typical sediment SPD values used for calculations and consequently, NATA endorsement does not apply to hydrometer results***

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Sample Comments:

Loss on Pretreatment NA

Sample Description: GRAVEL, FINES, SAND

Test Method: AS1289.3.6.1/AS1289.3.6.3

Soil Particle Density (<2.36mm) NR

Analysed: 19-Dec-24

Limit of Reporting: 1%

Dispersion Method Shaker

NATA Accreditation: 825 Site: Newcastle
This document is issued in accordance with NATA's accreditation requirements. Accredited for compliance with ISO/IEC 17025. This document shall not be reproduced, except in full.

NATA
WORLD RECOGNISED ACCREDITATION

Aleksandar Vujkovic
Laboratory Supervisor
Authorised Signatory

Certificate of Analysis

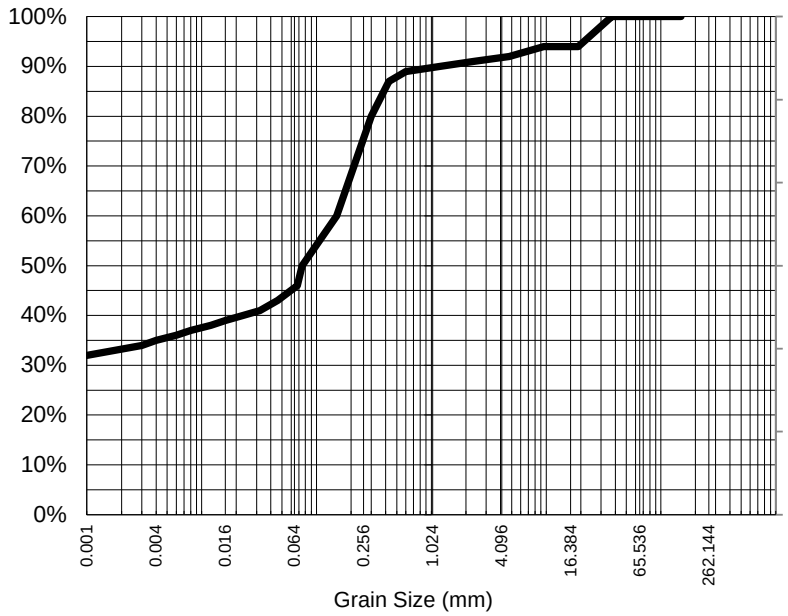
ALS Laboratory Group Pty Ltd
5/585 Maitland Road
Mayfield West, NSW 2304
pH 02 4014 2500
fax 02 4968 0349
samples.newcastle@alsenviro.com

ALS Environmental

Newcastle, NSW

CLIENT:	Simony Sakamoto	**DATE REPORTED:**	24-Dec-2024
COMPANY:	EMM CONSULTING PTY LTD	**DATE RECEIVED:**	4-Dec-2024
ADDRESS:	Level 1, 70 Pirie Street Adelaide	**REPORT NO:**	EM2421125-017 / PSD
PROJECT:	Olympic Dam	**SAMPLE ID:**	TP04_1.0-1.1_241129

Particle Size Distribution



Particle Size (mm)	% Passing
37.5	100%
19.0	94%
9.50	94%
4.75	92%
2.36	91%
1.18	90%
0.600	89%
0.425	87%
0.300	80%
0.150	60%
0.075	50%
Particle Size (microns)	
46	43%
32	41%
23	40%
16	39%
12	38%
8	37%
6	36%
4	35%
1	32%

Median Particle Size (mm)*	0.075

Analysis Notes

Samples analysed as received.

**** Soil Particle Density required for Hydrometer analysis according to AS 1289.3.5.1—2006 was not requested by the client . Typical sediment SPD values used for calculations and consequently, NATA endorsement does not apply to hydrometer results***

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Sample Comments:

Loss on Pretreatment NA

Sample Description: SAND, FINES, GRAVEL

Test Method: AS1289.3.6.1/AS1289.3.6.3

Soil Particle Density (<2.36mm) NR

Analysed: 19-Dec-24

Limit of Reporting: 1%

Dispersion Method Shaker

NATA Accreditation: 825 Site: Newcastle
This document is issued in accordance with NATA's accreditation requirements. Accredited for compliance with ISO/IEC 17025. This document shall not be reproduced, except in full.

NATA
WORLD RECOGNISED ACCREDITATION

Aleksandar Vujkovic
Laboratory Supervisor
Authorised Signatory

Certificate of Analysis

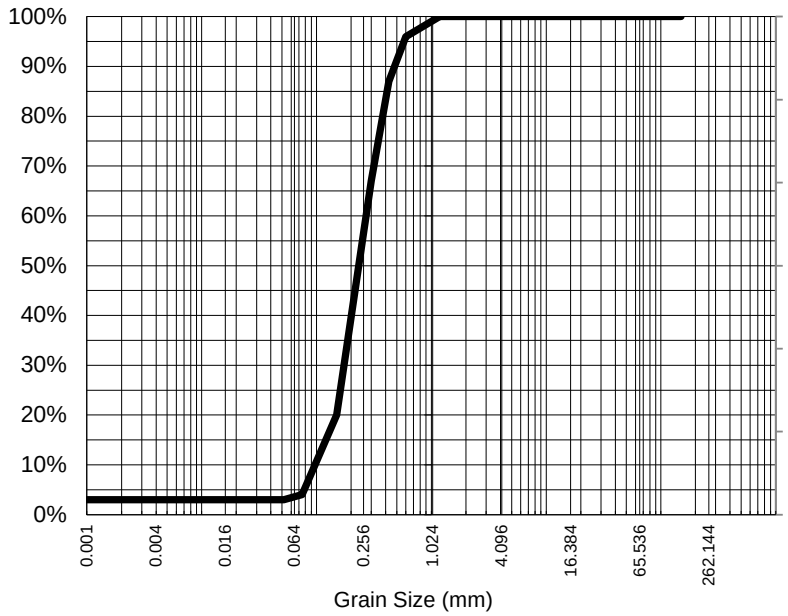
ALS Laboratory Group Pty Ltd
5/585 Maitland Road
Mayfield West, NSW 2304
pH 02 4014 2500
fax 02 4968 0349
samples.newcastle@alsenviro.com

ALS Environmental

Newcastle, NSW

CLIENT:	Simony Sakamoto	**DATE REPORTED:**	24-Dec-2024
COMPANY:	EMM CONSULTING PTY LTD	**DATE RECEIVED:**	4-Dec-2024
ADDRESS:	Level 1, 70 Pirie Street Adelaide	**REPORT NO:**	EM2421125-023 / PSD
PROJECT:	Olympic Dam	**SAMPLE ID:**	TP15_1.0-1.1_241129

Particle Size Distribution



Particle Size (mm)	% Passing
1.18	100%
0.600	96%
0.425	87%
0.300	67%
0.150	20%
0.075	4%
Particle Size (microns)	
37	3%
26	3%
18	3%
13	3%
9	3%
7	3%
5	3%
3	3%
1	3%

Median Particle Size (mm)*	0.246

Analysis Notes

Samples analysed as received.

**** Soil Particle Density required for Hydrometer analysis according to AS 1289.3.5.1—2006 was not requested by the client . Typical sediment SPD values used for calculations and consequently, NATA endorsement does not apply to hydrometer results***

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Sample Comments:	AS1289.3.6.3 states that hydrometer analysis is not applicable for samples containing <10% fines (<75um). Results should be assessed accordingly	**Analysed:**	19-Dec-24
Loss on Pretreatment	NA	**Limit of Reporting:**	1%
Sample Description:	SAND, VEG	**Dispersion Method**	Shaker
Test Method:	AS1289.3.6.1/AS1289.3.6.3		
Soil Particle Density (<2.36mm)	NR		

NATA Accreditation: 825 Site: Newcastle
This document is issued in accordance with NATA's accreditation requirements. Accredited for compliance with ISO/IEC 17025. This document shall not be reproduced, except in full.

Aleksandar Vujkovic
Laboratory Supervisor
Authorised Signatory

Certificate of Analysis

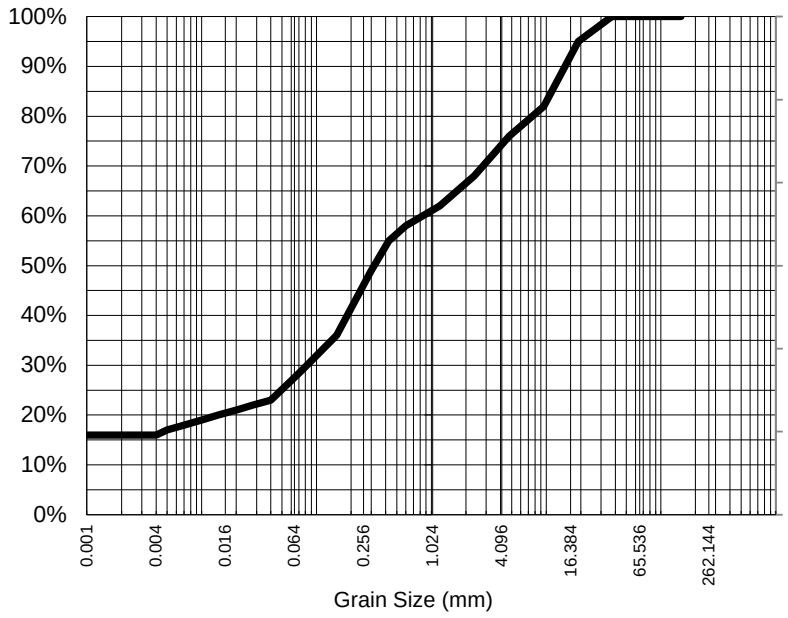
ALS Laboratory Group Pty Ltd
5/585 Maitland Road
Mayfield West, NSW 2304
pH 02 4014 2500
fax 02 4968 0349
samples.newcastle@alsenviro.com

ALS Environmental

Newcastle, NSW

CLIENT:	Simony Sakamoto	**DATE REPORTED:**	24-Dec-2024
COMPANY:	EMM CONSULTING PTY LTD	**DATE RECEIVED:**	4-Dec-2024
ADDRESS:	Level 1, 70 Pirie Street Adelaide	**REPORT NO:**	EM2421125-030 / PSD
PROJECT:	Olympic Dam	**SAMPLE ID:**	TP14_0.4-0.5_241128

Particle Size Distribution



Particle Size (mm)	% Passing
37.5	100%
19.0	95%
9.50	82%
4.75	76%
2.36	68%
1.18	62%
0.600	58%
0.425	55%
0.300	49%
0.150	36%
0.075	29%
Particle Size (microns)	
40	23%
28	22%
20	21%
14	20%
10	19%
7	18%
5	17%
4	16%
1	16%

Median Particle Size (mm)*	0.321

Analysis Notes

Samples analysed as received.

**** Soil Particle Density required for Hydrometer analysis according to AS 1289.3.5.1—2006 was not requested by the client . Typical sediment SPD values used for calculations and consequently, NATA endorsement does not apply to hydrometer results***

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Sample Comments:

Loss on Pretreatment NA

Sample Description: SAND, GRAVEL, FINES

Test Method: AS1289.3.6.1/AS1289.3.6.3

Soil Particle Density (<2.36mm) NR

Analysed: 19-Dec-24

Limit of Reporting: 1%

Dispersion Method Shaker

NATA Accreditation: 825 Site: Newcastle
This document is issued in accordance with NATA's accreditation requirements. Accredited for compliance with ISO/IEC 17025. This document shall not be reproduced, except in full.

NATA
WORLD RECOGNISED ACCREDITATION

Aleksandar Vujkovic
Laboratory Supervisor
Authorised Signatory

Certificate of Analysis

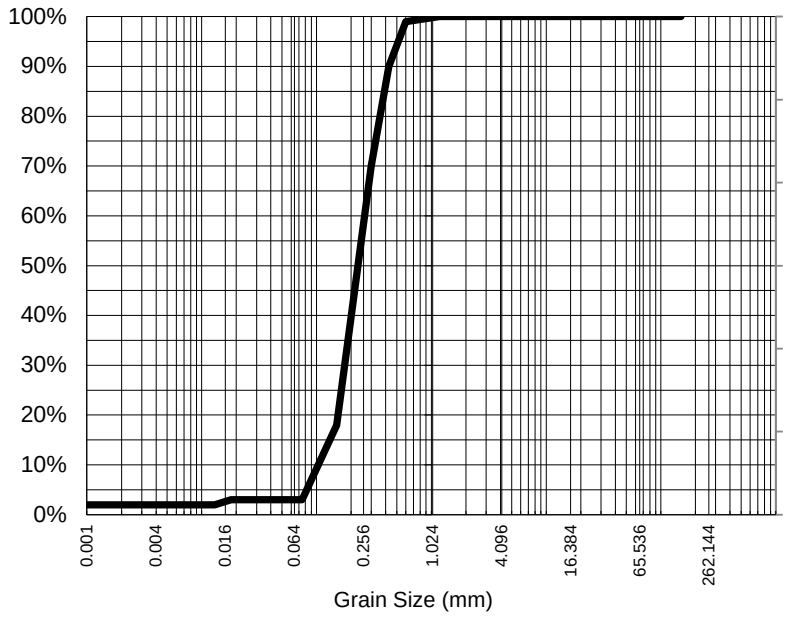
ALS Laboratory Group Pty Ltd
5/585 Maitland Road
Mayfield West, NSW 2304
pH 02 4014 2500
fax 02 4968 0349
samples.newcastle@alsenviro.com

ALS Environmental

Newcastle, NSW

CLIENT:	Simony Sakamoto	**DATE REPORTED:**	24-Dec-2024
COMPANY:	EMM CONSULTING PTY LTD	**DATE RECEIVED:**	4-Dec-2024
ADDRESS:	Level 1, 70 Pirie Street Adelaide	**REPORT NO:**	EM2421125-035 / PSD
PROJECT:	Olympic Dam	**SAMPLE ID:**	TP29_1.0-1.1_241128

Particle Size Distribution



Particle Size (mm)	% Passing
1.18	100%
0.600	99%
0.425	90%
0.300	70%
0.150	18%
0.075	3%
Particle Size (microns)	
37	3%
26	3%
18	3%
13	2%
9	2%
7	2%
5	2%
3	2%
1	2%

Median Particle Size (mm)*	0.242

Analysis Notes

Samples analysed as received.

**** Soil Particle Density required for Hydrometer analysis according to AS 1289.3.5.1—2006 was not requested by the client . Typical sediment SPD values used for calculations and consequently, NATA endorsement does not apply to hydrometer results***

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Sample Comments:	AS1289.3.6.3 states that hydrometer analysis is not applicable for samples containing <10% fines (<75um). Results should be assessed accordingly	**Analysed:**	19-Dec-24
Loss on Pretreatment	NA	**Limit of Reporting:**	1%
Sample Description:	SAND, VEG	**Dispersion Method**	Shaker
Test Method:	AS1289.3.6.1/AS1289.3.6.3		
Soil Particle Density (<2.36mm)	NR		

NATA Accreditation: 825 Site: Newcastle
This document is issued in accordance with NATA's accreditation requirements. Accredited for compliance with ISO/IEC 17025. This document shall not be reproduced, except in full.

Aleksandar Vujkovic
Laboratory Supervisor
Authorised Signatory

CERTIFICATE OF ANALYSIS

Work Order	: **PR24F4167**	Issue Date	: 20-Jan-2025
Customer	: **Australian Laboratory Services Pty Ltd.**	Laboratory	: ALS Czech Republic, s.r.o.
Contact	: results address	Contact	: Client Service
Address	: 2 Byth Street 4051 Stafford QLD Australia	Address	: Na Harfe 336/9 Prague 9 - Vysocany 190 00 Czech Republic
E-mail	: subresults.bri@alsglobal.com	E-mail	: customer.support@alsglobal.com
Telephone	: ----	Telephone	: +420 226 226 228
Project	: EM2421125	Page	: 1 of 2
Order number	: 510998	Date Samples Received	: 27-Dec-2024
		Quote number	: PR2015ALSEN-AU0002 (CZ-251-15-0965)
Site	: ----	Date of test	: 27-Dec-2024 - 20-Jan-2025
Sampled by	: customer	QC Level	: ALS CR Standard Quality Control Schedule

General Comments

This report shall not be reproduced except in full, without prior written approval from the laboratory. The laboratory is not responsible for the sample data supplied by the customer and their impact on the validity of the result.
The laboratory declares that the test results relate only to the listed samples. If "ALS" is not included in the test report in the "Sampled by" section, then the results refer to the sample as received.
Sample(s) PR24F4167/001,002, method S-RAD-NAT: The reference date for activity concentrations of radionuclides is 28.11.2024
Sample(s) PR24F4167/002, method S-RAD-NAT: The LoR values in radiology are valid only for background samples with very low activity (background samples) and
depend on many factors, on the analyzed mass of the sample, but mainly on the activity of other radionuclides. If the activity of
some radionuclide is higher the spectrum background is increased and this influences the evaluation of LoD of other radionuclides.
LoD values are evaluated for each radionuclide. The LoR values are only informative and are valid
for samples with low content of radionuclides and with sufficient mass.
Sample(s) PR24F4167/001, method S-RAD-NAT: LOR increased due to the low weight of the sample.

Responsible for accuracy

Testing Laboratory No. 1163
Accredited by CAI according to
CSN EN ISO/IEC 17025:2018

Signatories	*Position*
Lubomír Pokorný	Country Manager









The company is certified according to ČSN EN ISO 14001 (Environmental management systems) and ČSN ISO 45001 (Occupational health and safety management systems)

Analytical Results

Sub-Matrix: **SOIL**	*Client sample ID*	**TP28_0.4-0.5_2411 28**		**TP29_1.0-1.1_2411 28**		**----**	
	Laboratory sample ID	*PR24F4167001*		*PR24F4167002*		----	
	Client sampling date / time	28-Nov-2024 09:25		28-Nov-2024 02:15		----	
Parameter	*Method*	*LOR*	*Unit*	**Result**	**MU**	**Result**	**MU**	**Result**	**MU**
Physical Parameters									
Dry matter @ 105°C	S-DRY-GRCI	0.10	%	**87.4**	± 5.0%	**95.3**	± 5.0%	**----**	----
Radiological Parameters									
Gross alpha activity	S-GAA-PRO	500	Bq/kg DW	**1060**	± 34.8%	<500	----	**----**	----
Gross beta activity	S-GBA-PRO	500	Bq/kg DW	**720**	± 48.6%	<500	----	**----**	----
Uranium 238	S-RAD-NAT	10	Bq/kg DW	**56**	± 60.0%	<10	----	**----**	----
Thorium 234	S-RAD-NAT	10	Bq/kg DW	**56**	± 60.0%	<10	----	**----**	----
Thorium 230	S-RAD-NAT	50	Bq/kg DW	<320	----	<60	----	**----**	----
Radium 226	S-RAD-NAT	1.0	Bq/kg DW	**481**	± 15.0%	**5.8**	± 20.0%	**----**	----
Lead 210	S-RAD-NAT	50	Bq/kg DW	**187**	± 20.0%	<50	----	**----**	----
Uranium 235	S-RAD-NAT	1.0	Bq/kg DW	<4.1	----	<1.0	----	**----**	----
Protactinium 231	S-RAD-NAT	5.0	Bq/kg DW	<74.0	----	<13.0	----	**----**	----
Actinium 227	S-RAD-NAT	1.0	Bq/kg DW	<19.0	----	<1.9	----	**----**	----
Thorium 227	S-RAD-NAT	1.0	Bq/kg DW	<19.0	----	<1.9	----	**----**	----
Radium 223	S-RAD-NAT	1.0	Bq/kg DW	<21.0	----	<2.4	----	**----**	----
Radium 228	S-RAD-NAT	1.0	Bq/kg DW	**24.3**	± 20.0%	**7.4**	± 20.0%	**----**	----
Thorium 228	S-RAD-NAT	1.0	Bq/kg DW	**24.2**	± 15.0%	**7.4**	± 15.2%	**----**	----
Potassium 40	S-RAD-NAT	10	Bq/kg DW	**216**	± 20.0%	**53**	± 20.4%	**----**	----

When sampling date is not provided by the client, the laboratory determines it for procedural reasons, then it is equal to the date of receipt of the sample to the laboratory and is displayed in brackets. Measurement uncertainty is expressed as expanded measurement uncertainty with coverage factor k = 2, representing 95% confidence level.

Key: LOR = Limit of reporting; MU = Measurement Uncertainty. The MU does not include sampling uncertainty.

Brief Method Summaries

Analytical Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
S-DRY-GRCI	CZ_SOP_D06_01_045 (CSN ISO 11465, CSN EN 12880, CSN EN 14346:2007), CZ_SOP_D06_07_046 (CSN ISO 11465, CSN EN 12880, CSN EN 14346:2007, CSN 46 5735) Determination of dry matter by gravimetry and determination of moisture by calculation from measured values.
S-GAA-PRO	CZ_SOP_D06_07_368 (CSN 75 7611; CSN EN ISO 18589-6; ISO 9696) Determination of gross alpha mass activity by direct measurement of the sample by means of alpha radiation analyser.
S-GBA-PRO	CZ_SOP_D06_07_369 (CSN 75 7612; CSN EN ISO 9697; CSN EN ISO 18589-6) Determination of gross beta mass activity by direct measurement of the sample by means of beta radiation analyser.
S-RAD-NAT	CZ_SOP_D06_07_367 (CSN EN ISO 10703; CSN EN ISO 18589-3; SUJB Recommendation “Measurement and evaluation of natural radionuclides in building materials”, DR-RO-5.2 (Rev. 0.0), Prague 2017) Non-destructive determination of radionuclides by high resolution gamma-spectrometry and calculation of the mass activity index I (ACI) from the measured volumetric activities of individual radionuclides.

Preparation Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
S-PPHOM.07	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
S-PPHOM0.3	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
S-PPHOM4	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).

The symbol "*" for the method indicates a test outside the scope of accreditation of the laboratory or subcontractor. If the UNICO-SUB code is stated in the method table, this only informs that the tests have been performed by a subcontractor and the results are given in an annex to the test report, including information on test accreditation. If the lab used for matrix outside the scope of accreditation or non-standard sample matrix procedure specified in the accredited method and issues non-accredited results, this fact is stated on the title page of this protocol in the section "Notes". If the test report shows the results of subcontracting, the place of performance of the test is outside the laboratories of ALS Czech Republic, s.r.o.

The method for calculating of the summation parameters is available on request in the customer service.

The end of the certificate of analysis

CHAIN OF CUSTODY

COC#: 75724 *ALS Laboratory:* EB Brisbane Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME: 3/12 11-2

CLIENT: EMGAMM - EMM CONSULTING PTY LTD

PROJECT: Olympic Dam

SITE: Olympic Dam

ORDER NO: E240975

PROJECT MANAGER: Simony Sakamoto

PRIMARY SAMPLER: Simony Sakamoto

CONTACT PH: 0412799277 SAMPLER MOBILE: 0412799277

QUOTE NO: EM24EMGAMM0004_V2 / EM2024EMGAMM0004

EMAIL REPORTS TO: ssakamoto@emmconsulting.com.au, ESdat_AU+emmconsulting@ESdatLabSync.net, dcondon@emmconsulting.com.au

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	

Other comments: FREIGHT

SAMPLE DETAILS							ANALYSIS REQUIRED									
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Acid-Base Accounting SOIL	Analysis NOT REQUIRED	Basic Suite SOIL	Contam 1 SOIL	Contam 2 - NEPM 2013 B1 Table 1A HIL - Basic Suite SOIL	Particle size analysis SOIL	Radiation Suite SOIL	Topsoil Suite SOIL	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	TP016_0.0-0.15_241126_0.00-0.15	Soil	26/11/2024 07:10 AM	SOIL	ALS: 1 Non ALS: 0	No				X						
002	TP016_0.4-0.5-241126_0.40-0.50	soil	26/11/2024 07:15 AM	SOIL	ALS: 4 Non ALS: 0	No	X				X	X		X		
003	TP016-1.0-1.1_241126_1.00-1.10		26/11/2024 07:30 AM	SOIL	ALS: 5 Non ALS: 0	No	X		X			X				
004	TP08_0.0-0.15_241126_0.00-0.15		26/11/2024 08:16 AM	SOIL	ALS: 1 Non ALS: 0	No				X						
005	TP08_0.4-0.5_241126_0.40-0.50		26/11/2024 08:20 AM	SOIL	ALS: 5 Non ALS: 0	No	X					X		X		
006	TP08_1.0-1.2_241126_1.00-1.20		26/11/2024 08:35 AM	SOIL	ALS: 5 Non ALS: 0	No	X		X		X		X			
007	TP13_0.0-0.15_241126_0.00-0.15		26/11/2024 09:15 AM	SOIL	ALS: 1 Non ALS: 0	No				X						

Environmental Division Melbourne

Work Order Reference

EM2421130

Telephone : +61-3-8549 9600

CHAIN OF CUSTODY

COC#: 75724 ALS Laboratory: EB Brisbane Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME: 3/12 11-25

CLIENT: EMGAMM - EMM CONSULTING PTY LTD

PROJECT: Olympic Dam

SITE: Olympic Dam

ORDER NO: E240975

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

PROJECT MANAGER: Simony Sakamoto CONTACT PH: 0412799277 SAMPLER MOBILE: 0412799277

PRIMARY SAMPLER: Simony Sakamoto QUOTE NO: EM24EMGAMM0004_V2 / EM2024EMGAMM0004

EMAIL REPORTS TO: ssakamoto@emmconsulting.com.au, ESdat_AU+emmconsulting@ESdatLabSync.net, dcondon@emmconsulting.com.au

SAMPLE DETAILS							ANALYSIS REQUIRED									
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Acid-Base Accounting SOIL	Analysis NOT REQUIRED	Basic Suite SOIL	Contam 1 SOIL	Contam 2 - NEPM 2013 B1 Table 1A HIL - Basic Suite SOIL	Particle size analysis SOIL	Radiation Suite SOIL	Topsoil Suite SOIL	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
008	TP13_0.8-0.9_241126_0.80-0.90		26/11/2024 09:30 AM	SOIL	ALS: 4 Non ALS: 0	No	X		X		X					
009	TP13_0.3-0.4_241126_0.30-0.40		26/11/2024 09:20 AM	SOIL	ALS: 5 Non ALS: 0	No	X		X			X		X		
010	TP10_0.0-0.5_241126_0.00-0.15		26/11/2024 01:58 PM	SOIL	ALS: 1 Non ALS: 0	Yes		-								
011	TP10_0.0-0.3_241126_0.00-0.30		26/11/2024 11:20 AM	SOIL	ALS: 4 Non ALS: 0	No	X							X		
012	TP10_0.4-0.5_241126		26/11/2024 11:14 AM	SOIL	ALS: 1 Non ALS: 0	No				X						
013	TP10_1.0-1.3-241126_1.00-1.30		26/11/2024 11:25 AM	SOIL	ALS: 5 Non ALS: 0	No	X		X		X	X				
014	TP17_0.0-0.15_241126		26/11/2024 10:25 AM	SOIL	ALS: 1 Non ALS: 0	Yes		-								

CHAIN OF CUSTODY

COC#: 75724 ALS Laboratory: EB Brisbane Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME: 3/12 4:25

CLIENT: EMGAMM - EMM CONSULTING PTY LTD

PROJECT: Olympic Dam

SITE: Olympic Dam

ORDER NO: E240975

PROJECT MANAGER: Simony Sakamoto CONTACT PH: 0412799277 SAMPLER MOBILE: 0412799277

PRIMARY SAMPLER: Simony Sakamoto QUOTE NO: EM24EMGAMM0004_V2 / EM2024EMGAMM0004

EMAIL REPORTS TO: ssakamoto@emmconsulting.com.au, ESdat_AU+emmconsulting@ESdatLabSync.net, dcondon@emmconsulting.com.au

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED									
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Acid-Base Accounting SOIL	Analysis NOT REQUIRED	Basic Suite SOIL	Contam 1 SOIL	Contam 2 - NEPM 2013 B1 Table 1A HIL - Basic Suite SOIL	Particle size analysis SOIL	Radiation Suite SOIL	Topsoil Suite SOIL	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
015	TP17_0.4-0.5_241126_0.50-0.50		26/11/2024 10:35 AM	SOIL	ALS: 5 Non ALS: 0	No	X				X			X		
016	TP_1.0-1.1_241126_1.00-1.10		26/11/2024 10:45 AM	SOIL	ALS: 5 Non ALS: 0	No	X		X			X				
017	TP07_0.4-0.5_241125		25/11/2024 01:30 PM	SOIL	ALS: 6 Non ALS: 0	No	X					X		X		
018	TP07_0.0-0.15_241125_0.00-0.15		25/11/2024 01:31 PM	SOIL	ALS: 1 Non ALS: 0	No				X						
019	TP07_1.0-1.1_241125		25/11/2024 01:30 PM	SOIL	ALS: 4 Non ALS: 0	No	X		X		X					
020	TP09_0.0-0.15_241126_0.00-0.15		25/11/2024 03:00 PM	SOIL	ALS: 1 Non ALS: 0	Yes		-								
021	TP09_0.4-0.5_241125_0.40-0.50		25/11/2024 02:30 PM	SOIL	ALS: 1 Non ALS: 0	No					X					

CHAIN OF CUSTODY

COC#: 75724 ALS Laboratory: EB Brisbane Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME: 3/12 (AM) 4:20

CLIENT: EMGAMM - EMM CONSULTING PTY LTD

PROJECT: Olympic Dam

SITE: Olympic Dam

ORDER NO: E240975

PROJECT MANAGER: Simony Sakamoto

PRIMARY SAMPLER: Simony Sakamoto

CONTACT PH: 0412799277 SAMPLER MOBILE: 0412799277

QUOTE NO: EM24EMGAMM0004_V2 / EM2024EMGAMM0004

EMAIL REPORTS TO: ssakamoto@emmconsulting.com.au, ESdat_AU+emmconsulting@ESdatLabSync.net, dcondon@emmconsulting.com.au

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED									
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Acid-Base Accounting SOIL	Analysis NOT REQUIRED	Basic Suite SOIL	Contam 1 SOIL	Contam 2 - NEPM 2013 B1 Table 1A HIL - Basic Suite SOIL	Particle size analysis SOIL	Radiation Suite SOIL	Topsoil Suite SOIL	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
022	TP09_1.0-1.1_241125_1.00-1.10		25/11/2024 02:30 PM	SOIL	ALS: 1 Non ALS: 0	Yes		-								
023	TP09_2.0-2.1_241125_2.00-2.10		25/11/2024 02:30 PM	SOIL	ALS: 1 Non ALS: 0	No					X					
024	TP09_1.0-1.5_241125_1.00-1.50		25/11/2024 02:30 PM	SOIL	ALS: 4 Non ALS: 0	No	X		X			X				

25 TP-017_2.0-2.1-241126 26/11/24 24/11/24 X

CHAIN OF CUSTODY

COC#: 75724 ALS Laboratory: EB Brisbane Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: EMGAMM - EMM CONSULTING PTY LTD

PROJECT: Olympic Dam

SITE: Olympic Dam

ORDER NO: E240975

PROJECT MANAGER: Simony Sakamoto

PRIMARY SAMPLER: Simony Sakamoto

CONTACT PH: 0412799277 SAMPLER MOBILE: 0412799277

QUOTE NO: EM24EMGAMM0004_V2 / EM2024EMGAMM0004

EMAIL REPORTS TO: ssakamoto@emmconsulting.com.au, ESdat_AU+emmconsulting@ESdatLabSync.net, dcondon@emmconsulting.com.au

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	TP016_0.0-	Soil Glass Jar - Unpreserved	250 mL	00260623001067	Orange	No	
002	TP016_0.4-0.5-	Soil Glass Jar - Unpreserved	250 mL	00260623001077	Orange	No	
002	TP016_0.4-0.5-	Soil Glass Jar - Unpreserved	250 mL	00260623001076	Orange	No	
002	TP016_0.4-0.5-	Snap Lock Bag - frozen	1 Medium	00130822035215	Green	No	
002	TP016_0.4-0.5-	Snap Lock Bag	1 Medium	00130822035214	Green	No	
003	TP016-1.0-	Snap Lock Bag - frozen	1 Medium	00130822035337	Green	No	
003	TP016-1.0-	Snap Lock Bag	1 Medium	00130822035336	Green	No	
003	TP016-1.0-	Snap Lock Bag	1 Medium	00130822035658	Green	No	
003	TP016-1.0-	Soil Glass Jar - Unpreserved	250 mL	00260623001081	Orange	No	
003	TP016-1.0-	Soil Glass Jar - Unpreserved	150 mL	00260623109354	Orange	No	
004	TP08_0.0-	Soil Glass Jar - Unpreserved	250 mL	00260623001323	Orange	No	
005	TP08_0.4-	Snap Lock Bag - frozen	1 Medium	00130822035302	Green	No	
005	TP08_0.4-	Snap Lock Bag	1 Medium	00130822035335	Green	No	
005	TP08_0.4-	Snap Lock Bag	1 Medium	00130822035307	Green	No	
005	TP08_0.4-	Soil Glass Jar - Unpreserved	250 mL	00260623001336	Orange	No	
005	TP08_0.4-	Soil Glass Jar - Unpreserved	250 mL	00260623001338	Orange	No	
006	TP08_1.0-	Snap Lock Bag - frozen	1 Medium	00130822035646	Green	No	
006	TP08_1.0-	Snap Lock Bag	1 Medium	00130822035647	Green	No	
006	TP08_1.0-	Snap Lock Bag	1 Medium	00130822035645	Green	No	
006	TP08_1.0-	Soil Glass Jar - Unpreserved	250 mL	00260623001286	Orange	No	
006	TP08_1.0-	Soil Glass Jar - Unpreserved	250 mL	00260623001297	Orange	No	
007	TP13_0.0-	Soil Glass Jar - Unpreserved	250 mL	00260623001060	Orange	No	
008	TP13_0.8-	Soil Glass Jar - Unpreserved	250 mL	00260623001068	Orange	No	
008	TP13_0.8-	Soil Glass Jar - Unpreserved	150 mL	00260623109323	Orange	No	
008	TP13_0.8-	Soil Glass Jar - Unpreserved	250 mL	00260623001240	Orange	No	
008	TP13_0.8-	Snap Lock Bag - frozen	1 Medium	00130)220356/7	Green	No	

CHAIN OF CUSTODY

COC#: 75724 ALS Laboratory: EB Brisbane Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: EMGAMM - EMM CONSULTING PTY LTD

PROJECT: Olympic Dam

SITE: Olympic Dam

ORDER NO: E240975

PROJECT MANAGER: Simony Sakamoto

PRIMARY SAMPLER: Simony Sakamoto

CONTACT PH: 0412799277 SAMPLER MOBILE: 0412799277

QUOTE NO: EM24EMGAMM0004_V2 / EM2024EMGAMM0004

EMAIL REPORTS TO: ssakamoto@emmconsulting.com.au, ESdat_AU+emmconsulting@ESdatLabSync.net, dcondon@emmconsulting.com.au

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

009	TP13_0.3-	Snap Lock Bag - frozen	1 Medium	00130822035606	Green	No	
009	TP13_0.3-	Snap Lock Bag	1 Medium	00130822035334	Green	No	
009	TP13_0.3-	Snap Lock Bag	1 Medium	00130822035586	Green	No	
009	TP13_0.3-	Soil Glass Jar - Unpreserved	250 mL	00260623001187	Orange	No	
009	TP13_0.3-	Soil Glass Jar - Unpreserved	250 mL	00260623001214	Orange	No	
010	TP10_0.0-	Soil Glass Jar - Unpreserved	250 mL	00260623001017	Orange	No	
011	TP10_0.0-	Snap Lock Bag - frozen	1 Medium	00130822035303	Green	No	
011	TP10_0.0-	Snap Lock Bag	1 Medium	00130822035304	Green	No	
011	TP10_0.0-	Soil Glass Jar - Unpreserved	250 mL	00260623001108	Orange	No	
011	TP10_0.0-	Soil Glass Jar - Unpreserved	150 mL	00260623109314	Orange	No	
012	TP10_0.4-0.5_241126	Soil Glass Jar - Unpreserved	250 mL	00260623001246	Orange	No	
013	TP10_1.0-1.3-241126_1.00	Soil Glass Jar - Unpreserved	150 mL	00260623109373	Orange	No	
013	TP10_1.0-1.3-241126_1.00	Soil Glass Jar - Unpreserved	250 mL	00260623001099	Orange	No	
013	TP10_1.0-1.3-241126_1.00	Soil Glass Jar - Unpreserved	250 mL	00260623001199	Orange	No	
013	TP10_1.0-1.3-241126_1.00	Snap Lock Bag - frozen	1 Medium	00130822035644	Green	No	
013	TP10_1.0-1.3-241126_1.00	Snap Lock Bag	1 Medium	00130822035683	Green	No	
014	TP17_0.0-0.15_241126	Soil Glass Jar - Unpreserved	250 mL	00260623001024	Orange	No	
015	TP17_0.4-	Soil Glass Jar - Unpreserved	250 mL	00260623001176	Orange	No	
015	TP17_0.4-	Soil Glass Jar - Unpreserved	150 mL	00260623109318	Orange	No	
015	TP17_0.4-	Soil Glass Jar - Unpreserved	250 mL	00260623001211	Orange	No	
015	TP17_0.4-	Snap Lock Bag - frozen	1 Medium	00130822035672	Green	No	
015	TP17_0.4-	Snap Lock Bag	1 Medium	00130822035673	Green	No	
016	TP_1.0-1.1_241126_1.00-	Soil Glass Jar - Unpreserved	250 mL	00260623001091	Orange	No	
016	TP_1.0-1.1_241126_1.00-	Soil Glass Jar - Unpreserved	150 mL	00260623109317	Orange	No	
016	TP_1.0-1.1_241126_1.00-	Soil Glass Jar - Unpreserved	250 mL	00260623001073	Orange	No	
016	TP_1.0-1.1_241126_1.00-	Snap Lock Bag - frozen	1 Medium	00130822035663	Green	No	
016	TP_1.0-1.1_241126_1.00-	Snap Lock Bag	1 Medium	00130822035684	Green	No	

CHAIN OF CUSTODY

COC#: 75724 *ALS Laboratory:* EB Brisbane Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: EMGAMM - EMM CONSULTING PTY LTD

PROJECT: Olympic Dam

SITE: Olympic Dam

ORDER NO: E240975

PROJECT MANAGER: Simony Sakamoto

PRIMARY SAMPLER: Simony Sakamoto

CONTACT PH: 0412799277 SAMPLER MOBILE: 0412799277

QUOTE NO: EM24EMGAMM0004_V2 / EM2024EMGAMM0004

EMAIL REPORTS TO: ssakamoto@emmconsulting.com.au, ESdat_AU+emmconsulting@ESdatLabSync.net, dcondon@emmconsulting.com.au

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

017	TP07_0.4-0.5_241125	Soil Glass Jar - Unpreserved	250 mL	00260623001227	Orange	No	
017	TP07_0.4-0.5_241125	Soil Glass Jar - Unpreserved	250 mL	00260623001182	Orange	No	
017	TP07_0.4-0.5_241125	Soil Glass Jar - Unpreserved	150 mL	00260623109357	Orange	No	
017	TP07_0.4-0.5_241125	Snap Lock Bag - frozen	1 Medium	00130822035605	Green	No	
017	TP07_0.4-0.5_241125	Snap Lock Bag	1 Medium	00130822035653	Green	No	
017	TP07_0.4-0.5_241125	Snap Lock Bag	1 Medium	00130822035652	Green	No	
018	TP07_0.0-	Soil Glass Jar - Unpreserved	250 mL	00260623001033	Orange	No	
019	TP07_1.0-1.1_241125	Soil Glass Jar - Unpreserved	150 mL	00260623109385	Orange	No	
019	TP07_1.0-1.1_241125	Soil Glass Jar - Unpreserved	250 mL	00260623001061	Orange	No	
019	TP07_1.0-1.1_241125	Soil Glass Jar - Unpreserved	250 mL	00260623001166	Orange	No	
019	TP07_1.0-1.1_241125	Snap Lock Bag - frozen	1 Medium	00130822035642	Green	No	
020	TP09_0.0-	Soil Glass Jar - Unpreserved	250 mL	00260623001055	Orange	No	
021	TP09_0.4-	Soil Glass Jar - Unpreserved	250 mL	00260623001243	Orange	No	
022	TP09_1.0-	Soil Glass Jar - Unpreserved	250 mL	00260623001102	Orange	No	
023	TP09_2.0-	Soil Glass Jar - Unpreserved	250 mL	00260623001100	Orange	No	
024	TP09_1.0-	Soil Glass Jar - Unpreserved	250 mL	00260623001101	Orange	No	
024	TP09_1.0-	Soil Glass Jar - Unpreserved	150 mL	00260623109495	Orange	No	
024	TP09_1.0-	Snap Lock Bag	1 Medium	00130822035666	Green	No	
024	TP09_1.0-	Snap Lock Bag - frozen	1 Medium	00130822035667	Green	No	

Total Bottle Count: ALS: 72, Non ALS: 0

Caitlin Walker

From: Scott Richardson
Sent: Tuesday, 3 December 2024 4:17 PM
To: Samples Melbourne; Caitlin Walker
Subject: FW: [EXTERNAL] - E240975 - Olympic Dam Samples - COC 75724 and 76176

sted changes.

ng tomorrow.

ardson
levelopment Officer, Environmental,
Springvale, Victoria

right solutions.
right partner.

M: +61 (0)497473805
P: +61 (0)385499602
Scott.richardson@alsglobal.com
2-4 Westall Rd
Springvale VIC 3171
Australia
alsglobal.com

EnviroMail 145 Australia - Putting out the fire on emerging contaminants (HBCDs)
EnviroMail 146 Australia - PFAS: Internal Standards, Surrogates & Isotope Dilutions
EnviroMail 147 Australia - PFAS: Emerged or emerging?
EnviroMail 148 Australia – Interpreting TOP Assay
EnviroMail 151 Australia - Expanding the scope of PFAS analysis in soils and waters

From: Simony Sakamoto <ssakamoto@emmconsulting.com.au>
Sent: Tuesday, December 3, 2024 3:06 PM
To: Scott Richardson <scott.richardson@ALSGlobal.com>
Cc: Kieren Burns <Kieren.Burns@alsglobal.com>
Subject: [EXTERNAL] - E240975 - Olympic Dam Samples - COC 75724 and 76176

CAUTION: This email originated from outside of ALS. Do not click links or open attachments unless you recognize the sender and are sure content is relevant to you.

Hi Scott,

From the first samples, here are the some retractions to be included on the Compass COC.

COC **75724**	TP-016_0.4–0.5_241126	Remove PSA analysis.
COC **75724**	TP-017_1.0–1.1_241126	Current name is TP_1.0-1.1_241126
COC **75724**	TP-017_2.0–2.1_241126 24	Missing from COC – Analysis for Contam 1 - TRH, BTEXN, PAH
COC **76176**	TP-004_0.4–0.5_241129	Instead of Basic Suite, should be analysed for Contam 1 - TRH,

When you sent the photos from the last physical COC I can compare and see any discrepancies too.

Thank you!

Kind regards,

Simony Sakamoto
Senior Environmental Scientist – Contamination Land Assessment



T 08 8232 2253
M 0412 799 277
LI Connect on LinkedIn
emmconsulting.com.au

ADELAIDE | Level 4, 74 Pirie Street, Adelaide SA 5000

Our offices will be closed from Friday 20 December 2024 and will reopen on Monday 6 January 2025.



Please consider the environment before printing my email.
This email and any files transmitted with it are confidential and are only to be read or used by the intended recipient as it may contain confidential information. Confidentiality or privilege is not waived or lost by erroneous transmission. If you have received this email in error, or are not the intended recipient, please notify the sender immediately and delete this email from your computer. You must not disclose, distribute, copy or use the information herein if you are not the intended recipient.

Message protected by MailGuard: e-mail anti-virus, anti-spam and content filtering.
https://www.mailguard.com.au/mg

Report this message as spam

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **EM2421130**		
Client	: **EMM CONSULTING PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: Simony Sakamoto	Contact	: Customer Services EM
Address	: Level 1, 70 Pirie Street Adelaide 5000	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: ssakamoto@emmconsulting.com.au	E-mail	: ALSEnviro.Melbourne@alsglobal.com
Telephone	: ----	Telephone	: +61 3 8549 9600
Facsimile	: ----	Facsimile	: +61-3-8549 9626
Project	: Olympic Dam	Page	: 1 of 5
Order number	: E240975	Quote number	: EM2024EMGAMM0004 (EM24EMGAMM0004_V2)
C-O-C number	: 75724	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Olympic Dam		
Sampler	: Simony Sakamoto		

Dates

Date Samples Received	: 03-Nov-2024 11:55	Issue Date	: 05-Dec-2024
Client Requested Due Date	: 09-Jan-2025	Scheduled Reporting Date	: **12-Dec-2024**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Intact.
No. of coolers/boxes	: 4	Temperature	: 13.9°C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 25 / 23

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please direct any queries related to sample condition / numbering / breakages to Client Services.**
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- Unless otherwise stated, analytical work for this work order will be conducted at ALS Melbourne, NATA accreditation no. 825, site no. 13778.
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Preliminary results will be available on the scheduled reporting date listed in this report. However the final report with Gross beta/alpha activity and Individual National Radionuclides analysis will be complete on 09/01.
- A sampling date discrepancy has been noted on the COC. Please inform ALS if changes are to be made to the SRN.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Any sample identifications that cannot be displayed entirely in the analysis summary table will be listed below.

EM2421130-001 : 26-Nov-2024 08:10 : TP16_0.0-0.15_241126
EM2421130-004 : 26-Nov-2024 09:16 : TP08_0.0-0.15_241126
EM2421130-007 : 26-Nov-2024 10:15 : TP13_0.0-0.15_241126
EM2421130-014 : 26-Nov-2024 11:25 : TP17_0.0-0.15_241126
EM2421130-018 : 25-Nov-2024 14:31 : TP07_0.0-0.15_241125
EM2421130-020 : 25-Nov-2024 16:00 : TP09_0.0-0.15_241126

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	SOIL - EA002 pH (1:5)	SOIL - EA003 pH field/fox	SOIL - EA009 Net Acid Production Potential (NAPP)	SOIL - EA010 (solids): Electrical Conductivity (1:5)	SOIL - EA055-103 Moisture Content	SOIL - EG005T (solids) Total Metals by ICP-AES	SOIL - S-26 8 metals/TRH/BTEXN/PAH
EM2421130-001	26-Nov-2024 08:10	TP16_0.0-0.15_241126					✓		✓
EM2421130-002	26-Nov-2024 08:15	TP16_0.4-0.5_241126	✓	✓	✓	✓	✓	✓	
EM2421130-003	26-Nov-2024 08:30	TP16_1.0-1.1_241126	✓	✓	✓	✓	✓		
EM2421130-004	26-Nov-2024 09:16	TP08_0.0-0.15_241126					✓		✓
EM2421130-005	26-Nov-2024 09:20	TP08_0.4-0.5_241126	✓	✓	✓	✓	✓	✓	
EM2421130-006	26-Nov-2024 09:35	TP08_1.0-1.2_241126	✓	✓	✓	✓	✓		
EM2421130-007	26-Nov-2024 10:15	TP13_0.0-0.15_241126					✓		✓
EM2421130-008	26-Nov-2024 10:30	TP13_0.8-0.9_241126	✓	✓	✓	✓	✓		
EM2421130-009	26-Nov-2024 10:20	TP13_0.3-0.4_241126	✓	✓	✓	✓	✓	✓	
EM2421130-011	26-Nov-2024 12:20	TP10_0.0-0.3_241126	✓	✓	✓	✓	✓	✓	
EM2421130-012	26-Nov-2024 12:14	TP10_0.4-0.5_241126					✓		✓
EM2421130-013	26-Nov-2024 12:25	TP10_1.0-1.3-241126	✓	✓	✓	✓	✓		
EM2421130-015	26-Nov-2024 11:35	TP17_0.4-0.5_241126	✓	✓	✓	✓	✓	✓	
EM2421130-016	26-Nov-2024 11:45	TP17_1.0-1.1_241126	✓	✓	✓	✓	✓		
EM2421130-017	25-Nov-2024 14:30	TP07_0.4-0.5_241125	✓	✓	✓	✓	✓	✓	
EM2421130-018	25-Nov-2024 14:31	TP07_0.0-0.15_241125					✓		✓
EM2421130-019	25-Nov-2024 14:30	TP07_1.0-1.1_241125	✓	✓	✓	✓	✓		
EM2421130-020	25-Nov-2024 16:00	TP09_0.0-0.15_241126					✓		
EM2421130-021	25-Nov-2024 15:30	TP09_0.4-0.5_241125					✓		
EM2421130-022	25-Nov-2024 15:30	TP09_1.0-1.1_241125					✓		✓
EM2421130-023	25-Nov-2024 15:30	TP09_2.0-2.1_241125					✓		
EM2421130-024	25-Nov-2024 15:30	TP09_1.0-1.5_241125	✓	✓	✓	✓	✓	✓	
EM2421130-025	26-Nov-2024 00:00	TP17_2.0_2.1_241126					✓		✓

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	SOIL - EA001 pH (CaCl)	SOIL - ED040N Calcium Phosphate Extractable Sulfate	SOIL - ED045G (solids) Chloride Soluble by Discrete Analyser	SOIL - EK080 Bicarbonate Extractable P (Colwell)	SOIL - EP004 (Carbon) Organic Matter & Total Organic Carbon (Calc.)	SOIL - NT-8S NH3, NO2, NO3, NOX, TKN, TN, TP	SOIL - P-21/1 (Melb) NEPM (2013) HIL Table 1A(1) Screen
EM2421130-002	26-Nov-2024 08:15	TP16_0.4-0.5_241126	✓	✓	✓	✓	✓	✓	✓
EM2421130-003	26-Nov-2024 08:30	TP16_1.0-1.1_241126	✓		✓				
EM2421130-005	26-Nov-2024 09:20	TP08_0.4-0.5_241126	✓	✓	✓	✓	✓	✓	
EM2421130-006	26-Nov-2024 09:35	TP08_1.0-1.2_241126	✓		✓				✓
EM2421130-008	26-Nov-2024 10:30	TP13_0.8-0.9_241126	✓		✓				✓
EM2421130-009	26-Nov-2024 10:20	TP13_0.3-0.4_241126	✓	✓	✓	✓	✓	✓	
EM2421130-011	26-Nov-2024 12:20	TP10_0.0-0.3_241126	✓	✓	✓	✓	✓	✓	
EM2421130-013	26-Nov-2024 12:25	TP10_1.0-1.3-241126	✓		✓				✓
EM2421130-015	26-Nov-2024 11:35	TP17_0.4-0.5_241126	✓	✓	✓	✓	✓	✓	✓
EM2421130-016	26-Nov-2024 11:45	TP17_1.0-1.1_241126	✓		✓				
EM2421130-017	25-Nov-2024 14:30	TP07_0.4-0.5_241125	✓	✓	✓	✓	✓	✓	
EM2421130-019	25-Nov-2024 14:30	TP07_1.0-1.1_241125	✓		✓				✓
EM2421130-020	25-Nov-2024 16:00	TP09_0.0-0.15_241126							✓
EM2421130-021	25-Nov-2024 15:30	TP09_0.4-0.5_241125							✓
EM2421130-023	25-Nov-2024 15:30	TP09_2.0-2.1_241125							✓
EM2421130-024	25-Nov-2024 15:30	TP09_1.0-1.5_241125	✓	✓	✓	✓	✓	✓	

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	SOIL - AG-1 EM Only Agricultural (CEC) Soil Suite 1 (pretest air dried)	SOIL - EA033 Chromium Suite for Acid Sulphate Soils	SOIL - EA058 Emerson Aggregate Test	SOIL - EA150H Particle Size Analysis by Hydrometer: AS1289	SOIL - EA250 Gross beta/alpha activity in Soils	SOIL - EA252 Individual Natural Radionuclides by HR Gamma	SOIL - ED040T Sulfur Sulfur as S
EM2421130-002	26-Nov-2024 08:15	TP16_0.4-0.5_241126	✓	✓	✓				✓
EM2421130-003	26-Nov-2024 08:30	TP16_1.0-1.1_241126	✓	✓		✓			
EM2421130-005	26-Nov-2024 09:20	TP08_0.4-0.5_241126	✓	✓	✓	✓			✓
EM2421130-006	26-Nov-2024 09:35	TP08_1.0-1.2_241126	✓	✓			✓	✓	
EM2421130-008	26-Nov-2024 10:30	TP13_0.8-0.9_241126	✓	✓					
EM2421130-009	26-Nov-2024 10:20	TP13_0.3-0.4_241126	✓	✓	✓	✓			✓
EM2421130-011	26-Nov-2024 12:20	TP10_0.0-0.3_241126	✓	✓	✓				✓
EM2421130-013	26-Nov-2024 12:25	TP10_1.0-1.3-241126	✓	✓		✓			
EM2421130-015	26-Nov-2024 11:35	TP17_0.4-0.5_241126	✓	✓	✓				✓
EM2421130-016	26-Nov-2024 11:45	TP17_1.0-1.1_241126	✓	✓		✓			
EM2421130-017	25-Nov-2024 14:30	TP07_0.4-0.5_241125	✓	✓	✓	✓			✓
EM2421130-019	25-Nov-2024 14:30	TP07_1.0-1.1_241125	✓	✓					
EM2421130-024	25-Nov-2024 15:30	TP09_1.0-1.5_241125	✓	✓	✓				✓

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	(On Hold) SOIL No analysis requested
EM2421130-010	26-Nov-2024 14:58	TP10_0.0-0.5_241126	✓
EM2421130-014	26-Nov-2024 11:25	TP17_0.0-0.15_241126	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ALL INVOICES

- A4 - AU Tax Invoice (INV)	Email	finance@emmconsulting.com.au

DANIEL CONDON

- *AU Certificate of Analysis - NATA (COA)	Email	dcondon@emmconsulting.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	dcondon@emmconsulting.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	dcondon@emmconsulting.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	dcondon@emmconsulting.com.au
- Attachment - Report (SUBCO)	Email	dcondon@emmconsulting.com.au
- Chain of Custody (CoC) (COC)	Email	dcondon@emmconsulting.com.au
- EDI Format - ESDAT (ESDAT)	Email	dcondon@emmconsulting.com.au
- EPA Waste Classification & Categorisation Guideline Report (COA_GL_EPA_WASTE)	Email	dcondon@emmconsulting.com.au

ESDAT CONTAM TEAM

- EDI Format - ESDAT (ESDAT)	Email	ESdat_AU+emmconsulting@ESdatLabSync.net

Simony Sakamoto

- *AU Certificate of Analysis - NATA (COA)	Email	ssakamoto@emmconsulting.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	ssakamoto@emmconsulting.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	ssakamoto@emmconsulting.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	ssakamoto@emmconsulting.com.au
- A4 - AU Tax Invoice (INV)	Email	ssakamoto@emmconsulting.com.au
- Attachment - Report (SUBCO)	Email	ssakamoto@emmconsulting.com.au
- Chain of Custody (CoC) (COC)	Email	ssakamoto@emmconsulting.com.au
- EDI Format - ESDAT (ESDAT)	Email	ssakamoto@emmconsulting.com.au
- EPA Waste Classification & Categorisation Guideline Report (COA_GL_EPA_WASTE)	Email	ssakamoto@emmconsulting.com.au

Inter-Laboratory Testing

Analysis conducted by ALS Brisbane, NATA accreditation no. 825, site no. 818 (Chemistry / Biology).

(SOIL) Radionuclides / Activity
(SOIL) EA003 :pH (field/fox)
(SOIL) EA009: Net Acid Production Potential
(SOIL) EA033-B: Potential Acidity
(SOIL) EA033-C: Acid Neutralising Capacity
(SOIL) EA033-D: Retained Acidity
(SOIL) EA033-A: Actual Acidity
(SOIL) EA033-E: Acid Base Accounting
(SOIL) EK080: Bicarbonate Extractable Phosphorus (Colwell)
(SOIL) EA058: Emerson Aggregate Test

Analysis conducted by ALS Newcastle, NATA accreditation no. 825, site no. 1656 (Chemistry / Biology).

(SOIL) EA150: Soil Classification based on Particle Size
(SOIL) EA150: Particle Sizing

CERTIFICATE OF ANALYSIS

Work Order	: **EM2421130**	Page	: 1 of 52
Client	: **EMM CONSULTING PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: Simony Sakamoto	Contact	: Customer Services EM
Address	: Level 1, 70 Pirie Street Adelaide 5000	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +61 3 8549 9600
Project	: Olympic Dam	Date Samples Received	: 03-Nov-2024 11:55
Order number	: E240975	Date Analysis Commenced	: 03-Dec-2024
C-O-C number	: 75724	Issue Date	: 21-Jan-2025 17:30
Sampler	: Simony Sakamoto		
Site	: Olympic Dam		
Quote number	: EM24EMGAMM0004_V2		
No. of samples received	: 25		
No. of samples analysed	: 23		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Aleksandar Vujkovic	Laboratory Technician	Newcastle - Inorganics, Mayfield West, NSW
Beatriz Llarinas	Senior Chemist - Inorganics	Brisbane Inorganics, Stafford, QLD
Ben Felgendrejeris	Senior Acid Sulfate Soil Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
Dilani Fernando	Laboratory Coordinator	Melbourne Inorganics, Springvale, VIC
Jarwis Nheu	Non-Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Kim McCabe	Senior Inorganic Chemist	Brisbane External Subcontracting, Stafford, QLD
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD
Nancy Wang	2IC Organic Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	2IC Organic Chemist	Melbourne Organics, Springvale, VIC
Nikki Stepniewski	Senior Inorganic Instrument Chemist	Melbourne Inorganics, Springvale, VIC
Satishkumar Trivedi	Senior Acid Sulfate Soil Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EA150H: Soil Particle Density required for Hydrometer analysis according to AS 1289.3.5.1 2006 was not requested by the client. Typical sediment SPD values used for calculations and consequently NATA endorsement does not apply to hydrometer results.
- ALS is not NATA accredited for the analysis of Exchangeable Cations on Alkaline Soils when performed under ALS Method ED006.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP068: Where reported, Total OCP is the sum of the reported concentrations of all Organochlorine Pesticides at or above LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.
- ASS: EA033 (CRS Suite): Analysis is performed as per the Acid Sulfate Soils Laboratory Methods Guidelines (2004) and the updated National Acid Sulfate Soils Guidance: National acid sulfate soils identification and laboratory methods manual, Department of Agriculture and Water Resources, Canberra, ACT (2018)
- ED040N : EM2421130 #5 Poor matrix spike recovery for Sulfate- Calcium Phosphate Soluble due to sample matrix. Confirmed by re-preparation and re-analysis.
- ASS: EA033 (CRS Suite):Retained Acidity not required because pH KCl greater than or equal to 4.5
- A sampling date discrepancy has been noted on the COC. Please inform ALS if changes are to be made to the SRN.
- EG005-T : EM2421130 #20 Poor duplicate precision for total metals due to sample matrix. Confirmed by re-digestion and re-analysis.
- EP068: Bias high Monocroptophos in LCS deemed acceptable due to relevant target analytes being less than LOR.
- ASS: EA033 (CRS Suite): Laboratory determinations of ANC needs to be corroborated by effectiveness of the measured ANC in relation to incubation ANC. Unless corroborated, the results of ANC testing should be discounted when determining Net Acidity for comparison with action criteria, or for the determination of the acidity hazard and required liming amounts.
- ASS: EA033 (CRS Suite): Liming rate is calculated and reported on a dry weight basis assuming use of fine agricultural lime (CaCO3) and using a safety factor of 1.5 to allow for non-homogeneous mixing and poor reactivity of lime. For conversion of Liming Rate from 'kg/t dry weight' to 'kg/m3 in-situ soil', multiply 'reported results' x 'wet bulk density of soil in t/m3'.
- ASS: EA013 (ANC) Fizz Rating: 0- None; 1- Slight; 2- Moderate; 3- Strong; 4- Very Strong; 5- Lime.
- Radiological work undertaken by ALS Laboratory Group (Ceska Lipa) under CAI accreditation No. L1163. Report No. PR24F4131. NATA and CAI accreditations' are both recognised under ILAC.
- ASS: EA003 (NATA Field and F(ox) screening): pH F(ox) Reaction Rate: 1 - Slight; 2 - Moderate; 3 - Strong; 4 - Extreme
- EA058 Emerson: V. = Very, D. = Dark, L. = Light, VD. = Very Dark

- ED007 and ED008: When Exchangeable Al is reported from these methods, it should be noted that Rayment & Lyons (2011) suggests Exchange Acidity by 1M KCl - Method 15G1 (ED005) is a more suitable method for the determination of exchange acidity (H+ + Al3+).
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	TP16_0.0-0.15_241126	TP16_0.4-0.5_241126	TP16_1.0-1.1_241126	TP08_0.0-0.15_241126	TP08_0.4-0.5_241126
			Sampling date / time	26-Nov-2024 08:10	26-Nov-2024 08:15	26-Nov-2024 08:30	26-Nov-2024 09:16	26-Nov-2024 09:20
Compound	CAS Number	LOR	Unit	EM2421130-001	EM2421130-002	EM2421130-003	EM2421130-004	EM2421130-005
				Result	Result	Result	Result	Result
EA001: pH in soil using 0.01M CaCl extract								
pH (CaCl2)	----	0.1	pH Unit	----	7.8	7.8	----	7.8
EA002: pH 1:5 (Soils)								
pH Value	----	0.1	pH Unit	----	9.6	9.3	----	9.2
EA002-AD: pH (Soils) dried at 40°C								
pH Value	----	0.1	pH Unit	----	8.8	8.7	----	8.6
EA003 :pH (field/fox)								
pH (F)	----	0.1	pH Unit	----	9.1	8.8	----	8.9
pH (Fox)	----	0.1	pH Unit	----	7.2	7.0	----	7.4
Reaction Rate	----	1	Reaction Unit	----	2	2	----	3
EA009: Net Acid Production Potential								
Net Acid Production Potential	----	0.5	kg H2SO4/t	----	-275	-206	----	-245
EA010: Conductivity (1:5)								
Electrical Conductivity @ 25°C	----	1	µS/cm	----	1520	1980	----	1700
EA010-AD: Conductivity (Soils) dried at 40°C								
Electrical Conductivity @ 25°C	----	1	µS/cm	----	1930	2440	----	2120
EA033-A: Actual Acidity								
pH KCl (23A)	----	0.1	pH Unit	----	9.1	9.1	----	9.1
Titratable Actual Acidity (23F)	----	2	mole H+ / t	----	<2	<2	----	<2
sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	----	<0.02	<0.02	----	<0.02
EA033-B: Potential Acidity								
Chromium Reducible Sulfur (22B)	----	0.005	% S	----	0.012	0.011	----	0.012
acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	----	<10	<10	----	<10
EA033-C: Acid Neutralising Capacity								
Acid Neutralising Capacity (19A2)	----	0.01	% CaCO3	----	30.3	21.7	----	27.3
acidity - Acid Neutralising Capacity (a-19A2)	----	10	mole H+ / t	----	6050	4330	----	5460
sulfidic - Acid Neutralising Capacity (s-19A2)	----	0.01	% pyrite S	----	9.70	6.94	----	8.76

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	TP16_0.0-0.15_241126	TP16_0.4-0.5_241126	TP16_1.0-1.1_241126	TP08_0.0-0.15_241126	TP08_0.4-0.5_241126
			Sampling date / time	26-Nov-2024 08:10	26-Nov-2024 08:15	26-Nov-2024 08:30	26-Nov-2024 09:16	26-Nov-2024 09:20
Compound	CAS Number	LOR	Unit	EM2421130-001	EM2421130-002	EM2421130-003	EM2421130-004	EM2421130-005
				Result	Result	Result	Result	Result
EA033-E: Acid Base Accounting								
ANC Fineness Factor	----	0.5	-	----	1.5	1.5	----	1.5
Net Acidity (sulfur units)	----	0.02	% S	----	<0.02	<0.02	----	<0.02
Net Acidity (acidity units)	----	10	mole H+ / t	----	<10	<10	----	<10
Liming Rate	----	1	kg CaCO3/t	----	<1	<1	----	<1
Net Acidity excluding ANC (sulfur units)	----	0.02	% S	----	<0.02	<0.02	----	<0.02
Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	----	<10	<10	----	<10
Liming Rate excluding ANC	----	1	kg CaCO3/t	----	<1	<1	----	<1
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	0.1	%	----	----	9.5	----	----
Moisture Content	----	1.0	%	10.9	10.4	----	7.2	7.2
EA058: Emerson Aggregate Test								
Color (Munsell)	----	-	-	----	Light Reddish Brown (5YR 6/4)	----	----	Light Reddish Brown (5YR 6/4)
Texture	----	-	-	----	Sandy Clay Loam	----	----	Sandy Loam
Emerson Class Number	EC/TC	-	-	----	4	----	----	4
EA150: Particle Sizing								
+75µm	----	1	%	----	----	84	----	80
+150µm	----	1	%	----	----	74	----	71
+300µm	----	1	%	----	----	57	----	58
+425µm	----	1	%	----	----	51	----	53
+600µm	----	1	%	----	----	48	----	51
+1180µm	----	1	%	----	----	45	----	49
+2.36mm	----	1	%	----	----	40	----	47
+4.75mm	----	1	%	----	----	33	----	42
+9.5mm	----	1	%	----	----	22	----	35
+19.0mm	----	1	%	----	----	<1	----	9
+37.5mm	----	1	%	----	----	<1	----	<1

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP16_0.0-0.15_241126	TP16_0.4-0.5_241126	TP16_1.0-1.1_241126	TP08_0.0-0.15_241126	TP08_0.4-0.5_241126
				Sampling date / time	26-Nov-2024 08:10	26-Nov-2024 08:15	26-Nov-2024 08:30	26-Nov-2024 09:16	26-Nov-2024 09:20
Compound	CAS Number	LOR	Unit		EM2421130-001	EM2421130-002	EM2421130-003	EM2421130-004	EM2421130-005
					Result	Result	Result	Result	Result
EA150: Particle Sizing - Continued									
+75.0mm	----	1	%		----	----	<1	----	<1
EA150: Soil Classification based on Particle Size									
Clay (<2 µm)	----	1	%		----	----	4	----	7
Silt (2-60 µm)	----	1	%		----	----	10	----	10
Sand (0.06-2.00 mm)	----	1	%		----	----	45	----	36
Gravel (>2mm)	----	1	%		----	----	41	----	47
Cobbles (>6cm)	----	1	%		----	----	<1	----	<1
ED006: Exchangeable Cations on Alkaline Soils									
ø Exchangeable Calcium	----	0.2	meq/100g		----	4.9	5.3	----	6.6
ø Exchangeable Magnesium	----	0.2	meq/100g		----	1.4	1.4	----	2.0
ø Exchangeable Potassium	----	0.2	meq/100g		----	<0.2	<0.2	----	0.2
ø Exchangeable Sodium	----	0.2	meq/100g		----	1.9	1.4	----	1.3
ø Cation Exchange Capacity	----	0.2	meq/100g		----	8.4	8.2	----	10.1
ø Exchangeable Calcium Percent	----	0.2	%		----	58.6	64.7	----	65.1
ø Exchangeable Magnesium Percent	----	0.2	%		----	17.2	16.7	----	20.2
ø Exchangeable Potassium Percent	----	0.2	%		----	1.6	2.1	----	2.1
ø Exchangeable Sodium Percent	----	0.2	%		----	22.6	16.5	----	12.6
ø Calcium/Magnesium Ratio	----	0.2	-		----	3.4	3.9	----	3.2
ø Magnesium/Potassium Ratio	----	0.2	-		----	<0.2	<0.2	----	----
ø Magnesium/Potassium Ratio	----	0.2	-		----	----	----	----	9.7
ED040N: Sulfate - Calcium Phosphate Soluble (NEPM)									
Sulfate as SO4 2-	14808-79-8	50	mg/kg		----	360	----	----	350
ED040T: Total Sulfur by ICPAES									
Sulfur as S	63705-05-5	100	mg/kg		----	520	----	----	480
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	10	mg/kg		----	2960	3510	----	3000
EG005(ED093)T: Total Metals by ICP-AES									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP16_0.0-0.15_241126	TP16_0.4-0.5_241126	TP16_1.0-1.1_241126	TP08_0.0-0.15_241126	TP08_0.4-0.5_241126
				Sampling date / time	26-Nov-2024 08:10	26-Nov-2024 08:15	26-Nov-2024 08:30	26-Nov-2024 09:16	26-Nov-2024 09:20
Compound	CAS Number	LOR	Unit		EM2421130-001	EM2421130-002	EM2421130-003	EM2421130-004	EM2421130-005
					Result	Result	Result	Result	Result
EG005(ED093)T: Total Metals by ICP-AES - Continued									
Aluminium	7429-90-5	50	mg/kg		----	8780	----	----	8880
Arsenic	7440-38-2	5	mg/kg		<5	<5	----	<5	----
Barium	7440-39-3	10	mg/kg		----	500	----	----	----
Beryllium	7440-41-7	1	mg/kg		----	<1	----	----	----
Boron	7440-42-8	50	mg/kg		----	<50	----	----	<50
Cadmium	7440-43-9	1	mg/kg		<1	<1	----	<1	----
Chromium	7440-47-3	2	mg/kg		11	10	----	10	----
Cobalt	7440-48-4	2	mg/kg		----	4	----	----	----
Copper	7440-50-8	5	mg/kg		10	13	----	15	----
Iron	7439-89-6	50	mg/kg		----	10000	----	----	10300
Lead	7439-92-1	5	mg/kg		<5	<5	----	<5	----
Manganese	7439-96-5	5	mg/kg		----	56	----	----	59
Nickel	7440-02-0	2	mg/kg		7	6	----	6	----
Selenium	7782-49-2	5	mg/kg		----	<5	----	----	----
Vanadium	7440-62-2	5	mg/kg		----	61	----	----	----
Zinc	7440-66-6	5	mg/kg		17	18	----	19	----
Calcium	7440-70-2	50	mg/kg		----	121000	----	----	113000
Magnesium	7439-95-4	50	mg/kg		----	4670	----	----	4300
Sodium	7440-23-5	50	mg/kg		----	2690	----	----	2060
Potassium	7440-09-7	50	mg/kg		----	1280	----	----	1510
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	----	<0.1	----
EG048: Hexavalent Chromium (Alkaline Digest)									
Hexavalent Chromium	18540-29-9	0.5	mg/kg		----	<0.5	----	----	----
EK028SF: Weak Acid Dissociable CN by Segmented Flow Analyser									
Weak Acid Dissociable Cyanide	----	1	mg/kg		----	<1	----	----	----
EK055: Ammonia as N									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP16_0.0-0.15_241126	TP16_0.4-0.5_241126	TP16_1.0-1.1_241126	TP08_0.0-0.15_241126	TP08_0.4-0.5_241126
				Sampling date / time	26-Nov-2024 08:10	26-Nov-2024 08:15	26-Nov-2024 08:30	26-Nov-2024 09:16	26-Nov-2024 09:20
Compound	CAS Number	LOR	Unit		EM2421130-001	EM2421130-002	EM2421130-003	EM2421130-004	EM2421130-005
					Result	Result	Result	Result	Result
EK055: Ammonia as N - Continued									
Ammonia as N	7664-41-7	20	mg/kg		----	<20	----	----	<20
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg		----	<0.1	----	----	<0.1
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N (Sol.)	14797-55-8	0.1	mg/kg		----	**7.7**	----	----	**9.4**
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg		----	**7.7**	----	----	**9.4**
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	20	mg/kg		----	**250**	----	----	**310**
EK062: Total Nitrogen as N (TKN + NOx)									
^ Total Nitrogen as N	----	20	mg/kg		----	**260**	----	----	**320**
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	2	mg/kg		----	**130**	----	----	**156**
EK080: Bicarbonate Extractable Phosphorus (Colwell)									
Bicarbonate Ext. P (Colwell)	----	5	mg/kg		----	<5	----	----	<5
EP004: Organic Matter									
Organic Matter	----	0.5	%		----	<0.5	----	----	<0.5
Total Organic Carbon	----	0.5	%		----	<0.5	----	----	<0.5
EP066: Polychlorinated Biphenyls (PCB)									
Total Polychlorinated biphenyls	----	0.1	mg/kg		----	<0.1	----	----	----
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		----	<0.05	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		----	<0.05	----	----	----
beta-BHC	319-85-7	0.05	mg/kg		----	<0.05	----	----	----
gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg		----	<0.05	----	----	----
delta-BHC	319-86-8	0.05	mg/kg		----	<0.05	----	----	----
Heptachlor	76-44-8	0.05	mg/kg		----	<0.05	----	----	----

Analytical Results

Sub-Matrix: SOIL
(Matrix: SOIL)

Compound	CAS Number	LOR	Unit	Sample ID	TP16_0.0-0.15_241126	TP16_0.4-0.5_241126	TP16_1.0-1.1_241126	TP08_0.0-0.15_241126	TP08_0.4-0.5_241126
				Sampling date / time	26-Nov-2024 08:10	26-Nov-2024 08:15	26-Nov-2024 08:30	26-Nov-2024 09:16	26-Nov-2024 09:20
					EM2421130-001	EM2421130-002	EM2421130-003	EM2421130-004	EM2421130-005
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
Aldrin	309-00-2	0.05	mg/kg		----	<0.05	----	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg		----	<0.05	----	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg		----	<0.05	----	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg		----	<0.05	----	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg		----	<0.05	----	----	----
Dieldrin	60-57-1	0.05	mg/kg		----	<0.05	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg		----	<0.05	----	----	----
Endrin	72-20-8	0.05	mg/kg		----	<0.05	----	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg		----	<0.05	----	----	----
^ **Endosulfan (sum)**	115-29-7	0.05	mg/kg		----	<0.05	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg		----	<0.05	----	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg		----	<0.05	----	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg		----	<0.05	----	----	----
4.4`-DDT	50-29-3	0.2	mg/kg		----	<0.2	----	----	----
Endrin ketone	53494-70-5	0.05	mg/kg		----	<0.05	----	----	----
Methoxychlor	72-43-5	0.2	mg/kg		----	<0.2	----	----	----
Mirex	2385-85-5	0.20	mg/kg		----	<0.20	----	----	----
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.05	mg/kg		----	<0.05	----	----	----
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.05	mg/kg		----	<0.05	----	----	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		----	<0.05	----	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg		----	<0.05	----	----	----
Monocrotophos	6923-22-4	0.2	mg/kg		----	<0.2	----	----	----
Dimethoate	60-51-5	0.05	mg/kg		----	<0.05	----	----	----
Diazinon	333-41-5	0.05	mg/kg		----	<0.05	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		----	<0.05	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP16_0.0-0.15_241126	TP16_0.4-0.5_241126	TP16_1.0-1.1_241126	TP08_0.0-0.15_241126	TP08_0.4-0.5_241126
				Sampling date / time	26-Nov-2024 08:10	26-Nov-2024 08:15	26-Nov-2024 08:30	26-Nov-2024 09:16	26-Nov-2024 09:20
Compound	CAS Number	LOR	Unit		EM2421130-001	EM2421130-002	EM2421130-003	EM2421130-004	EM2421130-005
					Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued									
Parathion-methyl	298-00-0	0.2	mg/kg		----	<0.2	----	----	----
Malathion	121-75-5	0.05	mg/kg		----	<0.05	----	----	----
Fenthion	55-38-9	0.05	mg/kg		----	<0.05	----	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg		----	<0.05	----	----	----
Parathion	56-38-2	0.2	mg/kg		----	<0.2	----	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		----	<0.05	----	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg		----	<0.05	----	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg		----	<0.05	----	----	----
Fenamiphos	22224-92-6	0.05	mg/kg		----	<0.05	----	----	----
Prothiofos	34643-46-4	0.05	mg/kg		----	<0.05	----	----	----
Ethion	563-12-2	0.05	mg/kg		----	<0.05	----	----	----
Carbophenothion	786-19-6	0.05	mg/kg		----	<0.05	----	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg		----	<0.05	----	----	----
EP068C: Triazines									
Atrazine	1912-24-9	0.05	mg/kg		----	<0.05	----	----	----
EP068D: Pyrethroids									
Bifenthrin	82657-04-3	0.05	mg/kg		----	<0.05	----	----	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		----	<0.5	----	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg		----	<0.5	----	----	----
2-Methylphenol	95-48-7	0.5	mg/kg		----	<0.5	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		----	<1	----	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg		----	<0.5	----	----	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		----	<0.5	----	----	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		----	<0.5	----	----	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		----	<0.5	----	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		----	<0.5	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP16_0.0-0.15_241126	TP16_0.4-0.5_241126	TP16_1.0-1.1_241126	TP08_0.0-0.15_241126	TP08_0.4-0.5_241126
				Sampling date / time	26-Nov-2024 08:10	26-Nov-2024 08:15	26-Nov-2024 08:30	26-Nov-2024 09:16	26-Nov-2024 09:20
Compound	CAS Number	LOR	Unit		EM2421130-001	EM2421130-002	EM2421130-003	EM2421130-004	EM2421130-005
					Result	Result	Result	Result	Result
EP075(SIM)A: Phenolic Compounds - Continued									
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		----	<0.5	----	----	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		----	<0.5	----	----	----
Pentachlorophenol	87-86-5	2	mg/kg		----	<2	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	----	<0.5	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	----	<0.5	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	----	<0.5	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	----	<0.5	----
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	----	<0.5	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	----	<0.5	----
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	----	<0.5	----
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	----	<0.5	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	----	<0.5	----
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	----	<0.5	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	<0.5	----	<0.5	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	----	<0.5	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	----	<0.5	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	----	<0.5	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	----	<0.5	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	----	<0.5	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	----	<0.5	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	----	<0.5	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	**0.6**	----	**0.6**	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**1.2**	----	**1.2**	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	----	<10	----
C10 - C14 Fraction	----	50	mg/kg		<50	<50	----	<50	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP16_0.0-0.15_241126	TP16_0.4-0.5_241126	TP16_1.0-1.1_241126	TP08_0.0-0.15_241126	TP08_0.4-0.5_241126
				Sampling date / time	26-Nov-2024 08:10	26-Nov-2024 08:15	26-Nov-2024 08:30	26-Nov-2024 09:16	26-Nov-2024 09:20
Compound	CAS Number	LOR	Unit		EM2421130-001	EM2421130-002	EM2421130-003	EM2421130-004	EM2421130-005
					Result	Result	Result	Result	Result
EP080/071: Total Petroleum Hydrocarbons - Continued									
C15 - C28 Fraction	----	100	mg/kg		<100	<100	----	<100	----
C29 - C36 Fraction	----	100	mg/kg		<100	<100	----	<100	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	----	<50	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	----	<10	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	----	<10	----
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	----	<50	----
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	----	<100	----
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	----	<100	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	----	<50	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	----	<50	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	----	<0.2	----
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	----	<0.5	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	----	<0.5	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	----	<0.5	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	----	<0.5	----
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	----	<0.2	----
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	----	<0.5	----
Naphthalene	91-20-3	1	mg/kg		<1	<1	----	<1	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		----	**88.7**	----	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		----	**83.1**	----	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		----	**82.1**	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP16_0.0-0.15_241126	TP16_0.4-0.5_241126	TP16_1.0-1.1_241126	TP08_0.0-0.15_241126	TP08_0.4-0.5_241126
				Sampling date / time	26-Nov-2024 08:10	26-Nov-2024 08:15	26-Nov-2024 08:30	26-Nov-2024 09:16	26-Nov-2024 09:20
Compound	CAS Number	LOR	Unit		EM2421130-001	EM2421130-002	EM2421130-003	EM2421130-004	EM2421130-005
					Result	Result	Result	Result	Result
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**96.3**	**93.6**	**----**	**91.0**	**----**
2-Chlorophenol-D4	93951-73-6	0.5	%		**105**	**102**	**----**	**99.0**	**----**
2.4.6-Tribromophenol	118-79-6	0.5	%		**79.2**	**68.0**	**----**	**66.5**	**----**
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		**101**	**100**	**----**	**98.9**	**----**
Anthracene-d10	1719-06-8	0.5	%		**109**	**107**	**----**	**105**	**----**
4-Terphenyl-d14	1718-51-0	0.5	%		**104**	**103**	**----**	**102**	**----**
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**95.0**	**87.6**	**----**	**101**	**----**
Toluene-D8	2037-26-5	0.2	%		**86.2**	**85.6**	**----**	**94.5**	**----**
4-Bromofluorobenzene	460-00-4	0.2	%		**105**	**106**	**----**	**108**	**----**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	TP08_1.0-1.2_241126	TP13_0.0-0.15_241126	TP13_0.8-0.9_241126	TP13_0.3-0.4_241126	TP10_0.0-0.3_241126
			Sampling date / time	26-Nov-2024 09:35	26-Nov-2024 10:15	26-Nov-2024 10:30	26-Nov-2024 10:20	26-Nov-2024 12:20
Compound	CAS Number	LOR	Unit	EM2421130-006	EM2421130-007	EM2421130-008	EM2421130-009	EM2421130-011
				Result	Result	Result	Result	Result
EA001: pH in soil using 0.01M CaCl extract								
pH (CaCl2)	----	0.1	pH Unit	**7.9**	**----**	**7.8**	**7.7**	**7.8**
EA002: pH 1:5 (Soils)								
pH Value	----	0.1	pH Unit	**9.8**	**----**	**9.4**	**9.3**	**9.4**
EA002-AD: pH (Soils) dried at 40°C								
pH Value	----	0.1	pH Unit	**9.0**	**----**	**8.7**	**8.6**	**8.8**
EA003 :pH (field/fox)								
pH (F)	----	0.1	pH Unit	**8.8**	**----**	**8.8**	**9.0**	**9.0**
pH (Fox)	----	0.1	pH Unit	**7.3**	**----**	**7.0**	**6.8**	**6.9**
Reaction Rate	----	1	Reaction Unit	**3**	**----**	**3**	**3**	**3**
EA009: Net Acid Production Potential								
Net Acid Production Potential	----	0.5	kg H2SO4/t	**-276**	**----**	**-343**	**-355**	**-317**
EA010: Conductivity (1:5)								
Electrical Conductivity @ 25°C	----	1	µS/cm	**939**	**----**	**515**	**314**	**283**
EA010-AD: Conductivity (Soils) dried at 40°C								
Electrical Conductivity @ 25°C	----	1	µS/cm	**1600**	**----**	**591**	**410**	**358**
EA033-A: Actual Acidity								
pH KCl (23A)	----	0.1	pH Unit	**9.1**	**----**	**9.0**	**9.1**	**9.2**
Titratable Actual Acidity (23F)	----	2	mole H+ / t	<2	**----**	<2	<2	<2
sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	<0.02	**----**	<0.02	<0.02	<0.02
EA033-B: Potential Acidity								
Chromium Reducible Sulfur (22B)	----	0.005	% S	**0.010**	**----**	**0.012**	**0.014**	**0.015**
acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	<10	**----**	<10	<10	<10
EA033-C: Acid Neutralising Capacity								
Acid Neutralising Capacity (19A2)	----	0.01	% CaCO3	**29.2**	**----**	**35.3**	**34.9**	**33.1**
acidity - Acid Neutralising Capacity (a-19A2)	----	10	mole H+ / t	**5840**	**----**	**7060**	**6970**	**6610**
sulfidic - Acid Neutralising Capacity (s-19A2)	----	0.01	% pyrite S	**9.35**	**----**	**11.3**	**11.2**	**10.6**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	TP08_1.0-1.2_241126	TP13_0.0-0.15_241126	TP13_0.8-0.9_241126	TP13_0.3-0.4_241126	TP10_0.0-0.3_241126
			Sampling date / time	26-Nov-2024 09:35	26-Nov-2024 10:15	26-Nov-2024 10:30	26-Nov-2024 10:20	26-Nov-2024 12:20
Compound	CAS Number	LOR	Unit	EM2421130-006	EM2421130-007	EM2421130-008	EM2421130-009	EM2421130-011
				Result	Result	Result	Result	Result
EA033-E: Acid Base Accounting								
ANC Fineness Factor	----	0.5	-	1.5	----	1.5	1.5	1.5
Net Acidity (sulfur units)	----	0.02	% S	<0.02	----	<0.02	<0.02	<0.02
Net Acidity (acidity units)	----	10	mole H+ / t	<10	----	<10	<10	<10
Liming Rate	----	1	kg CaCO3/t	<1	----	<1	<1	<1
Net Acidity excluding ANC (sulfur units)	----	0.02	% S	<0.02	----	<0.02	<0.02	<0.02
Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	<10	----	<10	<10	<10
Liming Rate excluding ANC	----	1	kg CaCO3/t	<1	----	<1	<1	<1
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	15.4	11.4	8.0	11.4	10.3
EA058: Emerson Aggregate Test								
Color (Munsell)	----	-	-	----	----	----	Red (2.5YR 5/6)	Red (2.5YR 5/8)
Texture	----	-	-	----	----	----	Clayey Sand	Clayey Sand
Emerson Class Number	EC/TC	-	-	----	----	----	7	7
EA150: Particle Sizing								
+75µm	----	1	%	----	----	----	90	----
+150µm	----	1	%	----	----	----	82	----
+300µm	----	1	%	----	----	----	66	----
+425µm	----	1	%	----	----	----	61	----
+600µm	----	1	%	----	----	----	59	----
+1180µm	----	1	%	----	----	----	57	----
+2.36mm	----	1	%	----	----	----	55	----
+4.75mm	----	1	%	----	----	----	49	----
+9.5mm	----	1	%	----	----	----	38	----
+19.0mm	----	1	%	----	----	----	<1	----
+37.5mm	----	1	%	----	----	----	<1	----
+75.0mm	----	1	%	----	----	----	<1	----
EA150: Soil Classification based on Particle Size								

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP08_1.0-1.2_241126	TP13_0.0-0.15_241126	TP13_0.8-0.9_241126	TP13_0.3-0.4_241126	TP10_0.0-0.3_241126
				Sampling date / time	26-Nov-2024 09:35	26-Nov-2024 10:15	26-Nov-2024 10:30	26-Nov-2024 10:20	26-Nov-2024 12:20
Compound	CAS Number	LOR	Unit		EM2421130-006	EM2421130-007	EM2421130-008	EM2421130-009	EM2421130-011
					Result	Result	Result	Result	Result
EA150: Soil Classification based on Particle Size - Continued									
Clay (<2 µm)	----	1	%		----	----	----	4	----
Silt (2-60 µm)	----	1	%		----	----	----	5	----
Sand (0.06-2.00 mm)	----	1	%		----	----	----	35	----
Gravel (>2mm)	----	1	%		----	----	----	56	----
Cobbles (>6cm)	----	1	%		----	----	----	<1	----
ED006: Exchangeable Cations on Alkaline Soils									
ø Exchangeable Calcium	----	0.2	meq/100g		5.0	----	6.1	6.6	5.6
ø Exchangeable Magnesium	----	0.2	meq/100g		1.8	----	1.8	1.1	1.5
ø Exchangeable Potassium	----	0.2	meq/100g		0.3	----	1.3	1.3	0.7
ø Exchangeable Sodium	----	0.2	meq/100g		2.1	----	0.3	0.3	0.4
ø Cation Exchange Capacity	----	0.2	meq/100g		9.1	----	9.5	9.2	8.2
ø Exchangeable Calcium Percent	----	0.2	%		54.5	----	63.7	71.6	68.2
ø Exchangeable Magnesium Percent	----	0.2	%		19.8	----	19.5	11.9	17.9
ø Exchangeable Potassium Percent	----	0.2	%		2.9	----	13.7	13.6	8.4
ø Exchangeable Sodium Percent	----	0.2	%		22.7	----	3.1	2.9	5.6
ø Calcium/Magnesium Ratio	----	0.2	-		2.7	----	3.3	6.0	3.8
ø Magnesium/Potassium Ratio	----	0.2	-		6.8	----	1.4	0.9	2.1
ED040N: Sulfate - Calcium Phosphate Soluble (NEPM)									
Sulfate as SO4 2-	14808-79-8	50	mg/kg		----	----	----	250	120
ED040T: Total Sulfur by ICPAES									
Sulfur as S	63705-05-5	100	mg/kg		----	----	----	200	140
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	10	mg/kg		1450	----	520	120	170
EG005(ED093)T: Total Metals by ICP-AES									
Aluminium	7429-90-5	50	mg/kg		----	----	----	9120	8070
Arsenic	7440-38-2	5	mg/kg		<5	<5	<5	----	----
Barium	7440-39-3	10	mg/kg		400	----	340	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP08_1.0-1.2_241126	TP13_0.0-0.15_241126	TP13_0.8-0.9_241126	TP13_0.3-0.4_241126	TP10_0.0-0.3_241126
				Sampling date / time	26-Nov-2024 09:35	26-Nov-2024 10:15	26-Nov-2024 10:30	26-Nov-2024 10:20	26-Nov-2024 12:20
Compound	CAS Number	LOR	Unit		EM2421130-006	EM2421130-007	EM2421130-008	EM2421130-009	EM2421130-011
					Result	Result	Result	Result	Result
EG005(ED093)T: Total Metals by ICP-AES - Continued									
Beryllium	7440-41-7	1	mg/kg		<1	----	<1	----	----
Boron	7440-42-8	50	mg/kg		<50	----	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	----	----
Chromium	7440-47-3	2	mg/kg		**10**	**9**	**10**	----	----
Cobalt	7440-48-4	2	mg/kg		**4**	----	**4**	----	----
Copper	7440-50-8	5	mg/kg		**14**	**48**	**75**	----	----
Iron	7439-89-6	50	mg/kg		----	----	----	**9980**	**10100**
Lead	7439-92-1	5	mg/kg		<5	<5	<5	----	----
Manganese	7439-96-5	5	mg/kg		**50**	----	**58**	**66**	**80**
Nickel	7440-02-0	2	mg/kg		**6**	**6**	**6**	----	----
Selenium	7782-49-2	5	mg/kg		<5	----	<5	----	----
Vanadium	7440-62-2	5	mg/kg		**48**	----	**38**	----	----
Zinc	7440-66-6	5	mg/kg		**17**	**20**	**18**	----	----
Calcium	7440-70-2	50	mg/kg		----	----	----	**74200**	**58200**
Magnesium	7439-95-4	50	mg/kg		----	----	----	**3550**	**3120**
Sodium	7440-23-5	50	mg/kg		----	----	----	**260**	**290**
Potassium	7440-09-7	50	mg/kg		----	----	----	**2480**	**2050**
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	<0.1	----	----
EG048: Hexavalent Chromium (Alkaline Digest)									
Hexavalent Chromium	18540-29-9	0.5	mg/kg		<0.5	----	<0.5	----	----
EK028SF: Weak Acid Dissociable CN by Segmented Flow Analyser									
Weak Acid Dissociable Cyanide	----	1	mg/kg		<1	----	<1	----	----
EK055: Ammonia as N									
Ammonia as N	7664-41-7	20	mg/kg		----	----	----	<20	<20
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg		----	----	----	<0.1	<0.1

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP08_1.0-1.2_241126	TP13_0.0-0.15_241126	TP13_0.8-0.9_241126	TP13_0.3-0.4_241126	TP10_0.0-0.3_241126
				Sampling date / time	26-Nov-2024 09:35	26-Nov-2024 10:15	26-Nov-2024 10:30	26-Nov-2024 10:20	26-Nov-2024 12:20
Compound	CAS Number	LOR	Unit		EM2421130-006	EM2421130-007	EM2421130-008	EM2421130-009	EM2421130-011
					Result	Result	Result	Result	Result
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N (Sol.)	14797-55-8	0.1	mg/kg		----	----	----	**9.0**	**4.4**
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg		----	----	----	**9.0**	**4.4**
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	20	mg/kg		----	----	----	**550**	**340**
EK062: Total Nitrogen as N (TKN + NOx)									
^ Total Nitrogen as N	----	20	mg/kg		----	----	----	**560**	**340**
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	2	mg/kg		----	----	----	**185**	**122**
EK080: Bicarbonate Extractable Phosphorus (Colwell)									
Bicarbonate Ext. P (Colwell)	----	5	mg/kg		----	----	----	**10**	**5**
EP004: Organic Matter									
Organic Matter	----	0.5	%		----	----	----	<0.5	<0.5
Total Organic Carbon	----	0.5	%		----	----	----	<0.5	<0.5
EP066: Polychlorinated Biphenyls (PCB)									
Total Polychlorinated biphenyls	----	0.1	mg/kg		<0.1	----	<0.1	----	----
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		<0.05	----	<0.05	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		<0.05	----	<0.05	----	----
beta-BHC	319-85-7	0.05	mg/kg		<0.05	----	<0.05	----	----
gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg		<0.05	----	<0.05	----	----
delta-BHC	319-86-8	0.05	mg/kg		<0.05	----	<0.05	----	----
Heptachlor	76-44-8	0.05	mg/kg		<0.05	----	<0.05	----	----
Aldrin	309-00-2	0.05	mg/kg		<0.05	----	<0.05	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg		<0.05	----	<0.05	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg		<0.05	----	<0.05	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg		<0.05	----	<0.05	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP08_1.0-1.2_241126	TP13_0.0-0.15_241126	TP13_0.8-0.9_241126	TP13_0.3-0.4_241126	TP10_0.0-0.3_241126
				Sampling date / time	26-Nov-2024 09:35	26-Nov-2024 10:15	26-Nov-2024 10:30	26-Nov-2024 10:20	26-Nov-2024 12:20
Compound	CAS Number	LOR	Unit		EM2421130-006	EM2421130-007	EM2421130-008	EM2421130-009	EM2421130-011
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
cis-Chlordane	5103-71-9	0.05	mg/kg		<0.05	----	<0.05	----	----
Dieldrin	60-57-1	0.05	mg/kg		<0.05	----	<0.05	----	----
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	----	<0.05	----	----
Endrin	72-20-8	0.05	mg/kg		<0.05	----	<0.05	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	----	<0.05	----	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg		<0.05	----	<0.05	----	----
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	----	<0.05	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	----	<0.05	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	----	<0.05	----	----
4.4`-DDT	50-29-3	0.2	mg/kg		<0.2	----	<0.2	----	----
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	----	<0.05	----	----
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	----	<0.2	----	----
Mirex	2385-85-5	0.20	mg/kg		<0.20	----	<0.20	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		<0.05	----	<0.05	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	----	<0.05	----	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		<0.05	----	<0.05	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg		<0.05	----	<0.05	----	----
Monocrotophos	6923-22-4	0.2	mg/kg		<0.2	----	<0.2	----	----
Dimethoate	60-51-5	0.05	mg/kg		<0.05	----	<0.05	----	----
Diazinon	333-41-5	0.05	mg/kg		<0.05	----	<0.05	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		<0.05	----	<0.05	----	----
Parathion-methyl	298-00-0	0.2	mg/kg		<0.2	----	<0.2	----	----
Malathion	121-75-5	0.05	mg/kg		<0.05	----	<0.05	----	----
Fenthion	55-38-9	0.05	mg/kg		<0.05	----	<0.05	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg		<0.05	----	<0.05	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP08_1.0-1.2_241126	TP13_0.0-0.15_241126	TP13_0.8-0.9_241126	TP13_0.3-0.4_241126	TP10_0.0-0.3_241126
				Sampling date / time	26-Nov-2024 09:35	26-Nov-2024 10:15	26-Nov-2024 10:30	26-Nov-2024 10:20	26-Nov-2024 12:20
Compound	CAS Number	LOR	Unit		EM2421130-006	EM2421130-007	EM2421130-008	EM2421130-009	EM2421130-011
					Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued									
Parathion	56-38-2	0.2	mg/kg		<0.2	----	<0.2	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		<0.05	----	<0.05	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg		<0.05	----	<0.05	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg		<0.05	----	<0.05	----	----
Fenamiphos	22224-92-6	0.05	mg/kg		<0.05	----	<0.05	----	----
Prothiofos	34643-46-4	0.05	mg/kg		<0.05	----	<0.05	----	----
Ethion	563-12-2	0.05	mg/kg		<0.05	----	<0.05	----	----
Carbophenothion	786-19-6	0.05	mg/kg		<0.05	----	<0.05	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg		<0.05	----	<0.05	----	----
EP068C: Triazines									
Atrazine	1912-24-9	0.05	mg/kg		<0.05	----	<0.05	----	----
EP068D: Pyrethroids									
Bifenthrin	82657-04-3	0.05	mg/kg		<0.05	----	<0.05	----	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		<0.5	----	<0.5	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg		<0.5	----	<0.5	----	----
2-Methylphenol	95-48-7	0.5	mg/kg		<0.5	----	<0.5	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	----	<1	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg		<0.5	----	<0.5	----	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		<0.5	----	<0.5	----	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		<0.5	----	<0.5	----	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		<0.5	----	<0.5	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		<0.5	----	<0.5	----	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		<0.5	----	<0.5	----	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		<0.5	----	<0.5	----	----
Pentachlorophenol	87-86-5	2	mg/kg		<2	----	<2	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP08_1.0-1.2_241126	TP13_0.0-0.15_241126	TP13_0.8-0.9_241126	TP13_0.3-0.4_241126	TP10_0.0-0.3_241126
				Sampling date / time	26-Nov-2024 09:35	26-Nov-2024 10:15	26-Nov-2024 10:30	26-Nov-2024 10:20	26-Nov-2024 12:20
Compound	CAS Number	LOR	Unit		EM2421130-006	EM2421130-007	EM2421130-008	EM2421130-009	EM2421130-011
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	**0.6**	**0.6**	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**1.2**	**1.2**	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	----	----
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	<50	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP08_1.0-1.2_241126	TP13_0.0-0.15_241126	TP13_0.8-0.9_241126	TP13_0.3-0.4_241126	TP10_0.0-0.3_241126
				Sampling date / time	26-Nov-2024 09:35	26-Nov-2024 10:15	26-Nov-2024 10:30	26-Nov-2024 10:20	26-Nov-2024 12:20
Compound	CAS Number	LOR	Unit		EM2421130-006	EM2421130-007	EM2421130-008	EM2421130-009	EM2421130-011
					Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	----	----
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	----	----
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	<50	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	----	----
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	----	----
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	----	----
Radionuclides / Activity									
Gross alpha	----	500	Bq/kg DW		<500	----	----	----	----
Uranium 238	7440-61-1	10.0	Bq/kg DW		**13.0**	----	----	----	----
Gross beta	----	500	Bq/kg DW		<500	----	----	----	----
Thorium 234	----	10.0	Bq/kg DW		**13.0**	----	----	----	----
Thorium 230	----	50	Bq/kg DW		<55	----	----	----	----
Radium 226	13982-63-3	1.0	Bq/kg DW		**12.4**	----	----	----	----
Lead 210	14255-04-0	50	Bq/kg DW		<50	----	----	----	----
Uranium 235	15117-96-1	1.0	Bq/kg DW		<1.0	----	----	----	----
Protactinium 231	----	5	Bq/kg DW		<11.0	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	TP08_1.0-1.2_241126	TP13_0.0-0.15_241126	TP13_0.8-0.9_241126	TP13_0.3-0.4_241126	TP10_0.0-0.3_241126
			Sampling date / time	26-Nov-2024 09:35	26-Nov-2024 10:15	26-Nov-2024 10:30	26-Nov-2024 10:20	26-Nov-2024 12:20
Compound	CAS Number	LOR	Unit	EM2421130-006	EM2421130-007	EM2421130-008	EM2421130-009	EM2421130-011
				Result	Result	Result	Result	Result
Radionuclides / Activity - Continued								
Actinium 227	----	1	Bq/kg DW	<1.9	----	----	----	----
Thorium 227	----	1	Bq/kg DW	<1.9	----	----	----	----
Radium 223	----	1	Bq/kg DW	<2.1	----	----	----	----
Radium 228	7440-14-4	1.0	Bq/kg DW	**10.8**	----	----	----	----
Thorium 228	----	1.0	Bq/kg DW	**13.5**	----	----	----	----
Potassium 40	13966-00-2	10	Bq/kg DW	**92**	----	----	----	----
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	**93.7**	----	**98.2**	----	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.05	%	**86.5**	----	**89.3**	----	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.05	%	**87.0**	----	**96.1**	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	**94.4**	**87.9**	**90.4**	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%	**101**	**96.1**	**98.2**	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%	**66.6**	**72.4**	**67.0**	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	**102**	**98.3**	**99.1**	----	----
Anthracene-d10	1719-06-8	0.5	%	**107**	**104**	**104**	----	----
4-Terphenyl-d14	1718-51-0	0.5	%	**106**	**99.5**	**103**	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	**85.4**	**90.0**	**85.2**	----	----
Toluene-D8	2037-26-5	0.2	%	**84.8**	**82.9**	**87.3**	----	----
4-Bromofluorobenzene	460-00-4	0.2	%	**103**	**96.4**	**105**	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	TP10_0.4-0.5_241126	TP10_1.0-1.3-241126	TP17_0.4-0.5_241126	TP17_1.0-1.1_241126	TP07_0.4-0.5_241125
			Sampling date / time	26-Nov-2024 12:14	26-Nov-2024 12:25	26-Nov-2024 11:35	26-Nov-2024 11:45	25-Nov-2024 14:30
Compound	CAS Number	LOR	Unit	EM2421130-012	EM2421130-013	EM2421130-015	EM2421130-016	EM2421130-017
				Result	Result	Result	Result	Result
EA001: pH in soil using 0.01M CaCl extract								
pH (CaCl2)	----	0.1	pH Unit	----	7.9	7.6	7.6	8.3
EA002: pH 1:5 (Soils)								
pH Value	----	0.1	pH Unit	----	9.4	9.5	9.4	9.4
EA002-AD: pH (Soils) dried at 40°C								
pH Value	----	0.1	pH Unit	----	8.8	8.7	8.8	8.8
EA003 :pH (field/fox)								
pH (F)	----	0.1	pH Unit	----	9.0	8.5	8.9	8.9
pH (Fox)	----	0.1	pH Unit	----	7.0	5.4	5.7	7.1
Reaction Rate	----	1	Reaction Unit	----	3	2	2	3
EA009: Net Acid Production Potential								
Net Acid Production Potential	----	0.5	kg H2SO4/t	----	-262	-38.1	-20.8	-109
EA010: Conductivity (1:5)								
Electrical Conductivity @ 25°C	----	1	µS/cm	----	1140	97	204	316
EA010-AD: Conductivity (Soils) dried at 40°C								
Electrical Conductivity @ 25°C	----	1	µS/cm	----	1480	102	195	387
EA033-A: Actual Acidity								
pH KCl (23A)	----	0.1	pH Unit	----	9.2	9.2	9.2	9.0
Titratable Actual Acidity (23F)	----	2	mole H+ / t	----	<2	<2	<2	<2
sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	----	<0.02	<0.02	<0.02	<0.02
EA033-B: Potential Acidity								
Chromium Reducible Sulfur (22B)	----	0.005	% S	----	0.017	0.010	0.012	0.012
acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	----	10	<10	<10	<10
EA033-C: Acid Neutralising Capacity								
Acid Neutralising Capacity (19A2)	----	0.01	% CaCO3	----	26.9	2.08	2.68	11.4
acidity - Acid Neutralising Capacity (a-19A2)	----	10	mole H+ / t	----	5370	415	535	2270
sulfidic - Acid Neutralising Capacity (s-19A2)	----	0.01	% pyrite S	----	8.61	0.66	0.86	3.64

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	TP10_0.4-0.5_241126	TP10_1.0-1.3-241126	TP17_0.4-0.5_241126	TP17_1.0-1.1_241126	TP07_0.4-0.5_241125
			Sampling date / time	26-Nov-2024 12:14	26-Nov-2024 12:25	26-Nov-2024 11:35	26-Nov-2024 11:45	25-Nov-2024 14:30
Compound	CAS Number	LOR	Unit	EM2421130-012	EM2421130-013	EM2421130-015	EM2421130-016	EM2421130-017
				Result	Result	Result	Result	Result
EA033-E: Acid Base Accounting								
ANC Fineness Factor	----	0.5	-	----	1.5	1.5	1.5	1.5
Net Acidity (sulfur units)	----	0.02	% S	----	<0.02	<0.02	<0.02	<0.02
Net Acidity (acidity units)	----	10	mole H+ / t	----	<10	<10	<10	<10
Liming Rate	----	1	kg CaCO3/t	----	<1	<1	<1	<1
Net Acidity excluding ANC (sulfur units)	----	0.02	% S	----	<0.02	<0.02	<0.02	<0.02
Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	----	10	<10	<10	<10
Liming Rate excluding ANC	----	1	kg CaCO3/t	----	<1	<1	<1	<1
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	0.1	%	----	----	----	2.5	----
Moisture Content	----	1.0	%	9.2	6.5	2.7	----	6.7
EA058: Emerson Aggregate Test								
Color (Munsell)	----	-	-	----	----	Red (2.5YR 4/8)	----	Red (2.5YR 5/6)
Texture	----	-	-	----	----	Sand	----	Clayey Sand
Emerson Class Number	EC/TC	-	-	----	----	8	----	4
EA150: Particle Sizing								
+75µm	----	1	%	----	88	----	94	88
+150µm	----	1	%	----	80	----	75	77
+300µm	----	1	%	----	66	----	33	59
+425µm	----	1	%	----	63	----	16	52
+600µm	----	1	%	----	61	----	5	47
+1180µm	----	1	%	----	59	----	<1	45
+2.36mm	----	1	%	----	55	----	<1	45
+4.75mm	----	1	%	----	49	----	<1	43
+9.5mm	----	1	%	----	39	----	<1	38
+19.0mm	----	1	%	----	6	----	<1	5
+37.5mm	----	1	%	----	<1	----	<1	<1
+75.0mm	----	1	%	----	<1	----	<1	<1

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	TP10_0.4-0.5_241126	TP10_1.0-1.3-241126	TP17_0.4-0.5_241126	TP17_1.0-1.1_241126	TP07_0.4-0.5_241125
			Sampling date / time	26-Nov-2024 12:14	26-Nov-2024 12:25	26-Nov-2024 11:35	26-Nov-2024 11:45	25-Nov-2024 14:30
Compound	CAS Number	LOR	Unit	EM2421130-012	EM2421130-013	EM2421130-015	EM2421130-016	EM2421130-017
				Result	Result	Result	Result	Result
EA150: Soil Classification based on Particle Size								
Clay (<2 µm)	----	1	%	----	5	----	3	3
Silt (2-60 µm)	----	1	%	----	6	----	2	7
Sand (0.06-2.00 mm)	----	1	%	----	32	----	95	45
Gravel (>2mm)	----	1	%	----	57	----	<1	45
Cobbles (>6cm)	----	1	%	----	<1	----	<1	<1
ED006: Exchangeable Cations on Alkaline Soils								
ø Exchangeable Calcium	----	0.2	meq/100g	----	4.6	2.4	3.0	5.7
ø Exchangeable Magnesium	----	0.2	meq/100g	----	1.7	0.4	1.1	1.5
ø Exchangeable Potassium	----	0.2	meq/100g	----	0.3	0.4	0.2	0.7
ø Exchangeable Sodium	----	0.2	meq/100g	----	0.9	<0.2	0.4	0.5
ø Cation Exchange Capacity	----	0.2	meq/100g	----	7.5	3.2	4.7	8.4
ø Exchangeable Calcium Percent	----	0.2	%	----	60.9	75.1	63.3	67.7
ø Exchangeable Magnesium Percent	----	0.2	%	----	23.2	13.7	23.4	18.3
ø Exchangeable Potassium Percent	----	0.2	%	----	3.8	11.2	5.1	7.8
ø Exchangeable Sodium Percent	----	0.2	%	----	12.1	<0.2	8.2	6.2
ø Calcium/Magnesium Ratio	----	0.2	-	----	2.6	5.5	2.7	3.7
ø Magnesium/Potassium Ratio	----	0.2	-	----	6.0	1.2	4.6	2.3
ED040N: Sulfate - Calcium Phosphate Soluble (NEPM)								
Sulfate as SO4 2-	14808-79-8	50	mg/kg	----	----	60	----	100
ED040T: Total Sulfur by ICPAES								
Sulfur as S	63705-05-5	100	mg/kg	----	----	<100	----	<100
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	10	mg/kg	----	1610	10	60	280
EG005(ED093)T: Total Metals by ICP-AES								
Aluminium	7429-90-5	50	mg/kg	----	----	2310	----	7950
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	----	----
Barium	7440-39-3	10	mg/kg	----	180	20	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP10_0.4-0.5_241126	TP10_1.0-1.3-241126	TP17_0.4-0.5_241126	TP17_1.0-1.1_241126	TP07_0.4-0.5_241125
				Sampling date / time	26-Nov-2024 12:14	26-Nov-2024 12:25	26-Nov-2024 11:35	26-Nov-2024 11:45	25-Nov-2024 14:30
Compound	CAS Number	LOR	Unit		EM2421130-012	EM2421130-013	EM2421130-015	EM2421130-016	EM2421130-017
					Result	Result	Result	Result	Result
EG005(ED093)T: Total Metals by ICP-AES - Continued									
Beryllium	7440-41-7	1	mg/kg		----	<1	<1	----	----
Boron	7440-42-8	50	mg/kg		----	<50	<50	----	<50
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	----	----
Chromium	7440-47-3	2	mg/kg		**9**	**6**	**5**	----	----
Cobalt	7440-48-4	2	mg/kg		----	**4**	<2	----	----
Copper	7440-50-8	5	mg/kg		**78**	**21**	**37**	----	----
Iron	7439-89-6	50	mg/kg		----	----	**5260**	----	**11400**
Lead	7439-92-1	5	mg/kg		<5	<5	<5	----	----
Manganese	7439-96-5	5	mg/kg		----	**31**	**28**	----	**71**
Nickel	7440-02-0	2	mg/kg		**6**	**6**	<2	----	----
Selenium	7782-49-2	5	mg/kg		----	<5	<5	----	----
Vanadium	7440-62-2	5	mg/kg		----	**46**	**14**	----	----
Zinc	7440-66-6	5	mg/kg		**17**	**14**	**5**	----	----
Calcium	7440-70-2	50	mg/kg		----	----	**790**	----	**17300**
Magnesium	7439-95-4	50	mg/kg		----	----	**500**	----	**2780**
Sodium	7440-23-5	50	mg/kg		----	----	<50	----	**410**
Potassium	7440-09-7	50	mg/kg		----	----	**630**	----	**1720**
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	<0.1	----	----
EG048: Hexavalent Chromium (Alkaline Digest)									
Hexavalent Chromium	18540-29-9	0.5	mg/kg		----	<0.5	<0.5	----	----
EK028SF: Weak Acid Dissociable CN by Segmented Flow Analyser									
Weak Acid Dissociable Cyanide	----	1	mg/kg		----	<1	<1	----	----
EK055: Ammonia as N									
Ammonia as N	7664-41-7	20	mg/kg		----	----	<20	----	<20
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg		----	----	<0.1	----	<0.1

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP10_0.4-0.5_241126	TP10_1.0-1.3-241126	TP17_0.4-0.5_241126	TP17_1.0-1.1_241126	TP07_0.4-0.5_241125
				Sampling date / time	26-Nov-2024 12:14	26-Nov-2024 12:25	26-Nov-2024 11:35	26-Nov-2024 11:45	25-Nov-2024 14:30
Compound	CAS Number	LOR	Unit		EM2421130-012	EM2421130-013	EM2421130-015	EM2421130-016	EM2421130-017
					Result	Result	Result	Result	Result
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N (Sol.)	14797-55-8	0.1	mg/kg		----	----	**4.7**	----	**6.4**
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg		----	----	**4.7**	----	**6.4**
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	20	mg/kg		----	----	**90**	----	**250**
EK062: Total Nitrogen as N (TKN + NOx)									
^ Total Nitrogen as N	----	20	mg/kg		----	----	**90**	----	**260**
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	2	mg/kg		----	----	**49**	----	**107**
EK080: Bicarbonate Extractable Phosphorus (Colwell)									
Bicarbonate Ext. P (Colwell)	----	5	mg/kg		----	----	<5	----	<5
EP004: Organic Matter									
Organic Matter	----	0.5	%		----	----	<0.5	----	<0.5
Total Organic Carbon	----	0.5	%		----	----	<0.5	----	<0.5
EP066: Polychlorinated Biphenyls (PCB)									
Total Polychlorinated biphenyls	----	0.1	mg/kg		----	<0.1	<0.1	----	----
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		----	<0.05	<0.05	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		----	<0.05	<0.05	----	----
beta-BHC	319-85-7	0.05	mg/kg		----	<0.05	<0.05	----	----
gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg		----	<0.05	<0.05	----	----
delta-BHC	319-86-8	0.05	mg/kg		----	<0.05	<0.05	----	----
Heptachlor	76-44-8	0.05	mg/kg		----	<0.05	<0.05	----	----
Aldrin	309-00-2	0.05	mg/kg		----	<0.05	<0.05	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg		----	<0.05	<0.05	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg		----	<0.05	<0.05	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg		----	<0.05	<0.05	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	TP10_0.4-0.5_241126	TP10_1.0-1.3-241126	TP17_0.4-0.5_241126	TP17_1.0-1.1_241126	TP07_0.4-0.5_241125
			Sampling date / time	26-Nov-2024 12:14	26-Nov-2024 12:25	26-Nov-2024 11:35	26-Nov-2024 11:45	25-Nov-2024 14:30
Compound	CAS Number	LOR	Unit	EM2421130-012	EM2421130-013	EM2421130-015	EM2421130-016	EM2421130-017
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
cis-Chlordane	5103-71-9	0.05	mg/kg	----	<0.05	<0.05	----	----
Dieldrin	60-57-1	0.05	mg/kg	----	<0.05	<0.05	----	----
4.4`-DDE	72-55-9	0.05	mg/kg	----	<0.05	<0.05	----	----
Endrin	72-20-8	0.05	mg/kg	----	<0.05	<0.05	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg	----	<0.05	<0.05	----	----
^ **Endosulfan (sum)**	115-29-7	0.05	mg/kg	----	<0.05	<0.05	----	----
4.4`-DDD	72-54-8	0.05	mg/kg	----	<0.05	<0.05	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg	----	<0.05	<0.05	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg	----	<0.05	<0.05	----	----
4.4`-DDT	50-29-3	0.2	mg/kg	----	<0.2	<0.2	----	----
Endrin ketone	53494-70-5	0.05	mg/kg	----	<0.05	<0.05	----	----
Methoxychlor	72-43-5	0.2	mg/kg	----	<0.2	<0.2	----	----
Mirex	2385-85-5	0.20	mg/kg	----	<0.20	<0.20	----	----
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.05	mg/kg	----	<0.05	<0.05	----	----
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.05	mg/kg	----	<0.05	<0.05	----	----
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.05	mg/kg	----	<0.05	<0.05	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg	----	<0.05	<0.05	----	----
Monocrotophos	6923-22-4	0.2	mg/kg	----	<0.2	<0.2	----	----
Dimethoate	60-51-5	0.05	mg/kg	----	<0.05	<0.05	----	----
Diazinon	333-41-5	0.05	mg/kg	----	<0.05	<0.05	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	----	<0.05	<0.05	----	----
Parathion-methyl	298-00-0	0.2	mg/kg	----	<0.2	<0.2	----	----
Malathion	121-75-5	0.05	mg/kg	----	<0.05	<0.05	----	----
Fenthion	55-38-9	0.05	mg/kg	----	<0.05	<0.05	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg	----	<0.05	<0.05	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	TP10_0.4-0.5_241126	TP10_1.0-1.3-241126	TP17_0.4-0.5_241126	TP17_1.0-1.1_241126	TP07_0.4-0.5_241125
			Sampling date / time	26-Nov-2024 12:14	26-Nov-2024 12:25	26-Nov-2024 11:35	26-Nov-2024 11:45	25-Nov-2024 14:30
Compound	CAS Number	LOR	Unit	EM2421130-012	EM2421130-013	EM2421130-015	EM2421130-016	EM2421130-017
				Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued								
Parathion	56-38-2	0.2	mg/kg	----	<0.2	<0.2	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg	----	<0.05	<0.05	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg	----	<0.05	<0.05	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg	----	<0.05	<0.05	----	----
Fenamiphos	22224-92-6	0.05	mg/kg	----	<0.05	<0.05	----	----
Prothiofos	34643-46-4	0.05	mg/kg	----	<0.05	<0.05	----	----
Ethion	563-12-2	0.05	mg/kg	----	<0.05	<0.05	----	----
Carbophenothion	786-19-6	0.05	mg/kg	----	<0.05	<0.05	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg	----	<0.05	<0.05	----	----
EP068C: Triazines								
Atrazine	1912-24-9	0.05	mg/kg	----	<0.05	<0.05	----	----
EP068D: Pyrethroids								
Bifenthrin	82657-04-3	0.05	mg/kg	----	<0.05	<0.05	----	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	----	<0.5	<0.5	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg	----	<0.5	<0.5	----	----
2-Methylphenol	95-48-7	0.5	mg/kg	----	<0.5	<0.5	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	----	<1	<1	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg	----	<0.5	<0.5	----	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg	----	<0.5	<0.5	----	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg	----	<0.5	<0.5	----	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg	----	<0.5	<0.5	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	----	<0.5	<0.5	----	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	----	<0.5	<0.5	----	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	----	<0.5	<0.5	----	----
Pentachlorophenol	87-86-5	2	mg/kg	----	<2	<2	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	TP10_0.4-0.5_241126	TP10_1.0-1.3-241126	TP17_0.4-0.5_241126	TP17_1.0-1.1_241126	TP07_0.4-0.5_241125
			Sampling date / time	26-Nov-2024 12:14	26-Nov-2024 12:25	26-Nov-2024 11:35	26-Nov-2024 11:45	25-Nov-2024 14:30
Compound	CAS Number	LOR	Unit	EM2421130-012	EM2421130-013	EM2421130-015	EM2421130-016	EM2421130-017
				Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	**0.6**	**0.6**	**0.6**	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	**1.2**	**1.2**	**1.2**	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	----	----
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	----	----
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	----	----
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP10_0.4-0.5_241126	TP10_1.0-1.3-241126	TP17_0.4-0.5_241126	TP17_1.0-1.1_241126	TP07_0.4-0.5_241125
				Sampling date / time	26-Nov-2024 12:14	26-Nov-2024 12:25	26-Nov-2024 11:35	26-Nov-2024 11:45	25-Nov-2024 14:30
Compound	CAS Number	LOR	Unit		EM2421130-012	EM2421130-013	EM2421130-015	EM2421130-016	EM2421130-017
					Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	----	----
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	----	----
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	<50	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	----	----
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	----	----
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	----	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		----	**95.2**	**94.7**	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		----	**85.9**	**88.9**	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		----	**96.2**	**103**	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**89.3**	**93.0**	**88.3**	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		**97.6**	**99.6**	**94.5**	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%		**66.7**	**68.2**	**59.3**	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP10_0.4-0.5_241126	TP10_1.0-1.3-241126	TP17_0.4-0.5_241126	TP17_1.0-1.1_241126	TP07_0.4-0.5_241125
				Sampling date / time	26-Nov-2024 12:14	26-Nov-2024 12:25	26-Nov-2024 11:35	26-Nov-2024 11:45	25-Nov-2024 14:30
Compound	CAS Number	LOR	Unit		EM2421130-012	EM2421130-013	EM2421130-015	EM2421130-016	EM2421130-017
					Result	Result	Result	Result	Result
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		**99.4**	**101**	**96.8**	**----**	**----**
Anthracene-d10	1719-06-8	0.5	%		**105**	**106**	**102**	**----**	**----**
4-Terphenyl-d14	1718-51-0	0.5	%		**103**	**105**	**103**	**----**	**----**
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**94.4**	**88.5**	**88.9**	**----**	**----**
Toluene-D8	2037-26-5	0.2	%		**85.1**	**91.9**	**91.8**	**----**	**----**
4-Bromofluorobenzene	460-00-4	0.2	%		**101**	**112**	**109**	**----**	**----**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	TP07_0.0-0.15_241125	TP07_1.0-1.1_241125	TP09_0.0-0.15_241126	TP09_0.4-0.5_241125	TP09_1.0-1.1_241125
			Sampling date / time	25-Nov-2024 14:31	25-Nov-2024 14:30	25-Nov-2024 16:00	25-Nov-2024 15:30	25-Nov-2024 15:30
Compound	CAS Number	LOR	Unit	EM2421130-018	EM2421130-019	EM2421130-020	EM2421130-021	EM2421130-022
				Result	Result	Result	Result	Result
EA001: pH in soil using 0.01M CaCl extract								
pH (CaCl2)	----	0.1	pH Unit	----	**8.3**	----	----	----
EA002: pH 1:5 (Soils)								
pH Value	----	0.1	pH Unit	----	**9.4**	----	----	----
EA002-AD: pH (Soils) dried at 40°C								
pH Value	----	0.1	pH Unit	----	**8.8**	----	----	----
EA003 :pH (field/fox)								
pH (F)	----	0.1	pH Unit	----	**9.2**	----	----	----
pH (Fox)	----	0.1	pH Unit	----	**7.1**	----	----	----
Reaction Rate	----	1	Reaction Unit	----	**3**	----	----	----
EA009: Net Acid Production Potential								
Net Acid Production Potential	----	0.5	kg H2SO4/t	----	**-301**	----	----	----
EA010: Conductivity (1:5)								
Electrical Conductivity @ 25°C	----	1	µS/cm	----	**419**	----	----	----
EA010-AD: Conductivity (Soils) dried at 40°C								
Electrical Conductivity @ 25°C	----	1	µS/cm	----	**504**	----	----	----
EA033-A: Actual Acidity								
pH KCl (23A)	----	0.1	pH Unit	----	**9.1**	----	----	----
Titratable Actual Acidity (23F)	----	2	mole H+ / t	----	<2	----	----	----
sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	----	<0.02	----	----	----
EA033-B: Potential Acidity								
Chromium Reducible Sulfur (22B)	----	0.005	% S	----	**0.011**	----	----	----
acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	----	<10	----	----	----
EA033-C: Acid Neutralising Capacity								
Acid Neutralising Capacity (19A2)	----	0.01	% CaCO3	----	**31.4**	----	----	----
acidity - Acid Neutralising Capacity (a-19A2)	----	10	mole H+ / t	----	**6270**	----	----	----
sulfidic - Acid Neutralising Capacity (s-19A2)	----	0.01	% pyrite S	----	**10.0**	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	TP07_0.0-0.15_241125	TP07_1.0-1.1_241125	TP09_0.0-0.15_241126	TP09_0.4-0.5_241125	TP09_1.0-1.1_241125
			Sampling date / time	25-Nov-2024 14:31	25-Nov-2024 14:30	25-Nov-2024 16:00	25-Nov-2024 15:30	25-Nov-2024 15:30
Compound	CAS Number	LOR	Unit	EM2421130-018	EM2421130-019	EM2421130-020	EM2421130-021	EM2421130-022
				Result	Result	Result	Result	Result
EA033-E: Acid Base Accounting								
ANC Fineness Factor	----	0.5	-	----	1.5	----	----	----
Net Acidity (sulfur units)	----	0.02	% S	----	<0.02	----	----	----
Net Acidity (acidity units)	----	10	mole H+ / t	----	<10	----	----	----
Liming Rate	----	1	kg CaCO3/t	----	<1	----	----	----
Net Acidity excluding ANC (sulfur units)	----	0.02	% S	----	<0.02	----	----	----
Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	----	<10	----	----	----
Liming Rate excluding ANC	----	1	kg CaCO3/t	----	<1	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	6.6	6.2	3.1	3.4	5.4
ED006: Exchangeable Cations on Alkaline Soils								
ø Exchangeable Calcium	----	0.2	meq/100g	----	5.9	----	----	----
ø Exchangeable Magnesium	----	0.2	meq/100g	----	1.8	----	----	----
ø Exchangeable Potassium	----	0.2	meq/100g	----	0.6	----	----	----
ø Exchangeable Sodium	----	0.2	meq/100g	----	0.6	----	----	----
ø Cation Exchange Capacity	----	0.2	meq/100g	----	8.8	----	----	----
ø Exchangeable Calcium Percent	----	0.2	%	----	67.1	----	----	----
ø Exchangeable Magnesium Percent	----	0.2	%	----	20.4	----	----	----
ø Exchangeable Potassium Percent	----	0.2	%	----	6.2	----	----	----
ø Exchangeable Sodium Percent	----	0.2	%	----	6.3	----	----	----
ø Calcium/Magnesium Ratio	----	0.2	-	----	3.3	----	----	----
ø Magnesium/Potassium Ratio	----	0.2	-	----	3.3	----	----	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	10	mg/kg	----	460	----	----	----
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	<5
Barium	7440-39-3	10	mg/kg	----	140	40	70	----
Beryllium	7440-41-7	1	mg/kg	----	<1	<1	<1	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP07_0.0-0.15_241125	TP07_1.0-1.1_241125	TP09_0.0-0.15_241126	TP09_0.4-0.5_241125	TP09_1.0-1.1_241125
				Sampling date / time	25-Nov-2024 14:31	25-Nov-2024 14:30	25-Nov-2024 16:00	25-Nov-2024 15:30	25-Nov-2024 15:30
Compound	CAS Number	LOR	Unit		EM2421130-018	EM2421130-019	EM2421130-020	EM2421130-021	EM2421130-022
					Result	Result	Result	Result	Result
EG005(ED093)T: Total Metals by ICP-AES - Continued									
Boron	7440-42-8	50	mg/kg		----	<50	<50	<50	----
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg		11	10	6	9	8
Cobalt	7440-48-4	2	mg/kg		----	3	<2	2	----
Copper	7440-50-8	5	mg/kg		111	66	178	21	18
Lead	7439-92-1	5	mg/kg		<5	<5	<5	<5	<5
Manganese	7439-96-5	5	mg/kg		----	64	53	63	----
Nickel	7440-02-0	2	mg/kg		5	5	2	4	4
Selenium	7782-49-2	5	mg/kg		----	<5	<5	<5	----
Vanadium	7440-62-2	5	mg/kg		----	25	16	19	----
Zinc	7440-66-6	5	mg/kg		17	15	9	12	12
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)									
Hexavalent Chromium	18540-29-9	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
EK028SF: Weak Acid Dissociable CN by Segmented Flow Analyser									
Weak Acid Dissociable Cyanide	----	1	mg/kg		----	<1	<1	<1	----
EP066: Polychlorinated Biphenyls (PCB)									
Total Polychlorinated biphenyls	----	0.1	mg/kg		----	<0.1	<0.1	<0.1	----
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		----	<0.05	<0.05	<0.05	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		----	<0.05	<0.05	<0.05	----
beta-BHC	319-85-7	0.05	mg/kg		----	<0.05	<0.05	<0.05	----
gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg		----	<0.05	<0.05	<0.05	----
delta-BHC	319-86-8	0.05	mg/kg		----	<0.05	<0.05	<0.05	----
Heptachlor	76-44-8	0.05	mg/kg		----	<0.05	<0.05	<0.05	----
Aldrin	309-00-2	0.05	mg/kg		----	<0.05	<0.05	<0.05	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP07_0.0-0.15_241125	TP07_1.0-1.1_241125	TP09_0.0-0.15_241126	TP09_0.4-0.5_241125	TP09_1.0-1.1_241125
				Sampling date / time	25-Nov-2024 14:31	25-Nov-2024 14:30	25-Nov-2024 16:00	25-Nov-2024 15:30	25-Nov-2024 15:30
Compound	CAS Number	LOR	Unit		EM2421130-018	EM2421130-019	EM2421130-020	EM2421130-021	EM2421130-022
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
Heptachlor epoxide	1024-57-3	0.05	mg/kg		----	<0.05	<0.05	<0.05	----
trans-Chlordane	5103-74-2	0.05	mg/kg		----	<0.05	<0.05	<0.05	----
alpha-Endosulfan	959-98-8	0.05	mg/kg		----	<0.05	<0.05	<0.05	----
cis-Chlordane	5103-71-9	0.05	mg/kg		----	<0.05	<0.05	<0.05	----
Dieldrin	60-57-1	0.05	mg/kg		----	<0.05	<0.05	<0.05	----
4.4`-DDE	72-55-9	0.05	mg/kg		----	<0.05	<0.05	<0.05	----
Endrin	72-20-8	0.05	mg/kg		----	<0.05	<0.05	<0.05	----
beta-Endosulfan	33213-65-9	0.05	mg/kg		----	<0.05	<0.05	<0.05	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg		----	<0.05	<0.05	<0.05	----
4.4`-DDD	72-54-8	0.05	mg/kg		----	<0.05	<0.05	<0.05	----
Endrin aldehyde	7421-93-4	0.05	mg/kg		----	<0.05	<0.05	<0.05	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg		----	<0.05	<0.05	<0.05	----
4.4`-DDT	50-29-3	0.2	mg/kg		----	<0.2	<0.2	<0.2	----
Endrin ketone	53494-70-5	0.05	mg/kg		----	<0.05	<0.05	<0.05	----
Methoxychlor	72-43-5	0.2	mg/kg		----	<0.2	<0.2	<0.2	----
Mirex	2385-85-5	0.20	mg/kg		----	<0.20	<0.20	<0.20	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		----	<0.05	<0.05	<0.05	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		----	<0.05	<0.05	<0.05	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		----	<0.05	<0.05	<0.05	----
Demeton-S-methyl	919-86-8	0.05	mg/kg		----	<0.05	<0.05	<0.05	----
Monocrotophos	6923-22-4	0.2	mg/kg		----	<0.2	<0.2	<0.2	----
Dimethoate	60-51-5	0.05	mg/kg		----	<0.05	<0.05	<0.05	----
Diazinon	333-41-5	0.05	mg/kg		----	<0.05	<0.05	<0.05	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		----	<0.05	<0.05	<0.05	----
Parathion-methyl	298-00-0	0.2	mg/kg		----	<0.2	<0.2	<0.2	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP07_0.0-0.15_241125	TP07_1.0-1.1_241125	TP09_0.0-0.15_241126	TP09_0.4-0.5_241125	TP09_1.0-1.1_241125
				Sampling date / time	25-Nov-2024 14:31	25-Nov-2024 14:30	25-Nov-2024 16:00	25-Nov-2024 15:30	25-Nov-2024 15:30
Compound	CAS Number	LOR	Unit		EM2421130-018	EM2421130-019	EM2421130-020	EM2421130-021	EM2421130-022
					Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued									
Malathion	121-75-5	0.05	mg/kg		----	<0.05	<0.05	<0.05	----
Fenthion	55-38-9	0.05	mg/kg		----	<0.05	<0.05	<0.05	----
Chlorpyrifos	2921-88-2	0.05	mg/kg		----	<0.05	<0.05	<0.05	----
Parathion	56-38-2	0.2	mg/kg		----	<0.2	<0.2	<0.2	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		----	<0.05	<0.05	<0.05	----
Chlorfenvinphos	470-90-6	0.05	mg/kg		----	<0.05	<0.05	<0.05	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg		----	<0.05	<0.05	<0.05	----
Fenamiphos	22224-92-6	0.05	mg/kg		----	<0.05	<0.05	<0.05	----
Prothiofos	34643-46-4	0.05	mg/kg		----	<0.05	<0.05	<0.05	----
Ethion	563-12-2	0.05	mg/kg		----	<0.05	<0.05	<0.05	----
Carbophenothion	786-19-6	0.05	mg/kg		----	<0.05	<0.05	<0.05	----
Azinphos Methyl	86-50-0	0.05	mg/kg		----	<0.05	<0.05	<0.05	----
EP068C: Triazines									
Atrazine	1912-24-9	0.05	mg/kg		----	<0.05	<0.05	<0.05	----
EP068D: Pyrethroids									
Bifenthrin	82657-04-3	0.05	mg/kg		----	<0.05	<0.05	<0.05	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
2-Chlorophenol	95-57-8	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
2-Methylphenol	95-48-7	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		----	<1	<1	<1	----
2-Nitrophenol	88-75-5	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		----	<0.5	<0.5	<0.5	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP07_0.0-0.15_241125	TP07_1.0-1.1_241125	TP09_0.0-0.15_241126	TP09_0.4-0.5_241125	TP09_1.0-1.1_241125
				Sampling date / time	25-Nov-2024 14:31	25-Nov-2024 14:30	25-Nov-2024 16:00	25-Nov-2024 15:30	25-Nov-2024 15:30
Compound	CAS Number	LOR	Unit		EM2421130-018	EM2421130-019	EM2421130-020	EM2421130-021	EM2421130-022
					Result	Result	Result	Result	Result
EP075(SIM)A: Phenolic Compounds - Continued									
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
Pentachlorophenol	87-86-5	2	mg/kg		----	<2	<2	<2	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	**0.6**	**0.6**	**0.6**	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**1.2**	**1.2**	**1.2**	**1.2**
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP07_0.0-0.15_241125	TP07_1.0-1.1_241125	TP09_0.0-0.15_241126	TP09_0.4-0.5_241125	TP09_1.0-1.1_241125
				Sampling date / time	25-Nov-2024 14:31	25-Nov-2024 14:30	25-Nov-2024 16:00	25-Nov-2024 15:30	25-Nov-2024 15:30
Compound	CAS Number	LOR	Unit		EM2421130-018	EM2421130-019	EM2421130-020	EM2421130-021	EM2421130-022
					Result	Result	Result	Result	Result
EP080/071: Total Petroleum Hydrocarbons - Continued									
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		----	95.3	96.1	107	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		----	86.0	87.4	92.4	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		----	98.8	69.0	77.8	----
EP075(SIM)S: Phenolic Compound Surrogates									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP07_0.0-0.15_241125	TP07_1.0-1.1_241125	TP09_0.0-0.15_241126	TP09_0.4-0.5_241125	TP09_1.0-1.1_241125
				Sampling date / time	25-Nov-2024 14:31	25-Nov-2024 14:30	25-Nov-2024 16:00	25-Nov-2024 15:30	25-Nov-2024 15:30
Compound	CAS Number	LOR	Unit		EM2421130-018	EM2421130-019	EM2421130-020	EM2421130-021	EM2421130-022
					Result	Result	Result	Result	Result
EP075(SIM)S: Phenolic Compound Surrogates - Continued									
Phenol-d6	13127-88-3	0.5	%		98.2	87.5	89.4	103	85.8
2-Chlorophenol-D4	93951-73-6	0.5	%		105	94.1	97.4	111	91.2
2.4.6-Tribromophenol	118-79-6	0.5	%		68.5	63.8	64.9	71.6	64.8
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		108	97.3	97.7	111	92.6
Anthracene-d10	1719-06-8	0.5	%		113	102	103	116	99.4
4-Terphenyl-d14	1718-51-0	0.5	%		114	102	101	116	93.3
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		92.5	88.2	88.4	97.3	88.1
Toluene-D8	2037-26-5	0.2	%		84.1	81.7	89.1	87.3	88.4
4-Bromofluorobenzene	460-00-4	0.2	%		101	94.2	96.3	106	98.2

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	TP09_2.0-2.1_241125	TP09_1.0-1.5_241125	TP17_2.0_2.1_241126	----	----
			Sampling date / time	25-Nov-2024 15:30	25-Nov-2024 15:30	26-Nov-2024 00:00	----	----
Compound	CAS Number	LOR	Unit	EM2421130-023	EM2421130-024	EM2421130-025	--------	--------
				Result	Result	Result	----	----
EA001: pH in soil using 0.01M CaCl extract								
pH (CaCl2)	----	0.1	pH Unit	----	8.4	----	----	----
EA002: pH 1:5 (Soils)								
pH Value	----	0.1	pH Unit	----	9.6	----	----	----
EA002-AD: pH (Soils) dried at 40°C								
pH Value	----	0.1	pH Unit	----	9.0	----	----	----
EA003 :pH (field/fox)								
pH (F)	----	0.1	pH Unit	----	9.2	----	----	----
pH (Fox)	----	0.1	pH Unit	----	6.9	----	----	----
Reaction Rate	----	1	Reaction Unit	----	3	----	----	----
EA009: Net Acid Production Potential								
Net Acid Production Potential	----	0.5	kg H2SO4/t	----	-210	----	----	----
EA010: Conductivity (1:5)								
Electrical Conductivity @ 25°C	----	1	µS/cm	----	180	----	----	----
EA010-AD: Conductivity (Soils) dried at 40°C								
Electrical Conductivity @ 25°C	----	1	µS/cm	----	203	----	----	----
EA033-A: Actual Acidity								
pH KCl (23A)	----	0.1	pH Unit	----	9.2	----	----	----
Titratable Actual Acidity (23F)	----	2	mole H+ / t	----	<2	----	----	----
sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	----	<0.02	----	----	----
EA033-B: Potential Acidity								
Chromium Reducible Sulfur (22B)	----	0.005	% S	----	0.014	----	----	----
acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	----	<10	----	----	----
EA033-C: Acid Neutralising Capacity								
Acid Neutralising Capacity (19A2)	----	0.01	% CaCO3	----	21.9	----	----	----
acidity - Acid Neutralising Capacity (a-19A2)	----	10	mole H+ / t	----	4380	----	----	----
sulfidic - Acid Neutralising Capacity (s-19A2)	----	0.01	% pyrite S	----	7.03	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	TP09_2.0-2.1_241125	TP09_1.0-1.5_241125	TP17_2.0_2.1_241126	----	----
			Sampling date / time	25-Nov-2024 15:30	25-Nov-2024 15:30	26-Nov-2024 00:00	----	----
Compound	CAS Number	LOR	Unit	EM2421130-023	EM2421130-024	EM2421130-025	--------	--------
				Result	Result	Result	----	----
EA033-E: Acid Base Accounting								
ANC Fineness Factor	----	0.5	-	**----**	**1.5**	**----**	**----**	**----**
Net Acidity (sulfur units)	----	0.02	% S	**----**	<0.02	**----**	**----**	**----**
Net Acidity (acidity units)	----	10	mole H+ / t	**----**	<10	**----**	**----**	**----**
Liming Rate	----	1	kg CaCO3/t	**----**	<1	**----**	**----**	**----**
Net Acidity excluding ANC (sulfur units)	----	0.02	% S	**----**	<0.02	**----**	**----**	**----**
Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	**----**	<10	**----**	**----**	**----**
Liming Rate excluding ANC	----	1	kg CaCO3/t	**----**	<1	**----**	**----**	**----**
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**5.2**	**6.1**	**1.9**	**----**	**----**
EA058: Emerson Aggregate Test								
Color (Munsell)	----	-	-	**----**	**Light Reddish Brown (5YR 6/4)**	**----**	**----**	**----**
Texture	----	-	-	**----**	**Clayey Sand**	**----**	**----**	**----**
Emerson Class Number	EC/TC	-	-	**----**	**4**	**----**	**----**	**----**
ED006: Exchangeable Cations on Alkaline Soils								
ø Exchangeable Calcium	----	0.2	meq/100g	**----**	**4.0**	**----**	**----**	**----**
ø Exchangeable Magnesium	----	0.2	meq/100g	**----**	**1.0**	**----**	**----**	**----**
ø Exchangeable Potassium	----	0.2	meq/100g	**----**	**0.3**	**----**	**----**	**----**
ø Exchangeable Sodium	----	0.2	meq/100g	**----**	**0.3**	**----**	**----**	**----**
ø Cation Exchange Capacity	----	0.2	meq/100g	**----**	**5.6**	**----**	**----**	**----**
ø Exchangeable Calcium Percent	----	0.2	%	**----**	**72.0**	**----**	**----**	**----**
ø Exchangeable Magnesium Percent	----	0.2	%	**----**	**18.0**	**----**	**----**	**----**
ø Exchangeable Potassium Percent	----	0.2	%	**----**	**5.1**	**----**	**----**	**----**
ø Exchangeable Sodium Percent	----	0.2	%	**----**	**4.8**	**----**	**----**	**----**
ø Calcium/Magnesium Ratio	----	0.2	-	**----**	**4.0**	**----**	**----**	**----**
ø Magnesium/Potassium Ratio	----	0.2	-	**----**	**3.5**	**----**	**----**	**----**
ED040N: Sulfate - Calcium Phosphate Soluble (NEPM)								
Sulfate as SO4 2-	14808-79-8	50	mg/kg	**----**	<50	**----**	**----**	**----**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	TP09_2.0-2.1_241125	TP09_1.0-1.5_241125	TP17_2.0_2.1_241126	----	----
			Sampling date / time	25-Nov-2024 15:30	25-Nov-2024 15:30	26-Nov-2024 00:00	----	----
Compound	CAS Number	LOR	Unit	EM2421130-023	EM2421130-024	EM2421130-025	--------	--------
				Result	Result	Result	----	----
ED040N: Sulfate - Calcium Phosphate Soluble (NEPM) - Continued								
ED040T: Total Sulfur by ICPAES								
Sulfur as S	63705-05-5	100	mg/kg	----	**200**	----	----	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	10	mg/kg	----	**160**	----	----	----
EG005(ED093)T: Total Metals by ICP-AES								
Aluminium	7429-90-5	50	mg/kg	----	**5320**	----	----	----
Arsenic	7440-38-2	5	mg/kg	<5	----	<5	----	----
Barium	7440-39-3	10	mg/kg	**240**	----	----	----	----
Beryllium	7440-41-7	1	mg/kg	<1	----	----	----	----
Boron	7440-42-8	50	mg/kg	<50	<50	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	----	<1	----	----
Chromium	7440-47-3	2	mg/kg	**8**	----	**6**	----	----
Cobalt	7440-48-4	2	mg/kg	**3**	----	----	----	----
Copper	7440-50-8	5	mg/kg	**25**	----	**13**	----	----
Iron	7439-89-6	50	mg/kg	----	**6370**	----	----	----
Lead	7439-92-1	5	mg/kg	<5	----	<5	----	----
Manganese	7439-96-5	5	mg/kg	**43**	**38**	----	----	----
Nickel	7440-02-0	2	mg/kg	**4**	----	<2	----	----
Selenium	7782-49-2	5	mg/kg	<5	----	----	----	----
Vanadium	7440-62-2	5	mg/kg	**27**	----	----	----	----
Zinc	7440-66-6	5	mg/kg	**13**	----	**6**	----	----
Calcium	7440-70-2	50	mg/kg	----	**62100**	----	----	----
Magnesium	7439-95-4	50	mg/kg	----	**2610**	----	----	----
Sodium	7440-23-5	50	mg/kg	----	**260**	----	----	----
Potassium	7440-09-7	50	mg/kg	----	**1040**	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	----	<0.1	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	TP09_2.0-2.1_241125	TP09_1.0-1.5_241125	TP17_2.0_2.1_241126	----	----
			Sampling date / time	25-Nov-2024 15:30	25-Nov-2024 15:30	26-Nov-2024 00:00	----	----
Compound	CAS Number	LOR	Unit	EM2421130-023	EM2421130-024	EM2421130-025	--------	--------
				Result	Result	Result	----	----
EG048: Hexavalent Chromium (Alkaline Digest)								
Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	----	----	----	----
EK028SF: Weak Acid Dissociable CN by Segmented Flow Analyser								
Weak Acid Dissociable Cyanide	----	1	mg/kg	<1	----	----	----	----
EK055: Ammonia as N								
Ammonia as N	7664-41-7	20	mg/kg	----	<20	----	----	----
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg	----	<0.1	----	----	----
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N (Sol.)	14797-55-8	0.1	mg/kg	----	**2.1**	----	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	----	**2.1**	----	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	20	mg/kg	----	**170**	----	----	----
EK062: Total Nitrogen as N (TKN + NOx)								
^ Total Nitrogen as N	----	20	mg/kg	----	**170**	----	----	----
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	2	mg/kg	----	**89**	----	----	----
EK080: Bicarbonate Extractable Phosphorus (Colwell)								
Bicarbonate Ext. P (Colwell)	----	5	mg/kg	----	<5	----	----	----
EP004: Organic Matter								
Organic Matter	----	0.5	%	----	<0.5	----	----	----
Total Organic Carbon	----	0.5	%	----	<0.5	----	----	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	----	----	----	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	----	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	----	----	----	----
beta-BHC	319-85-7	0.05	mg/kg	<0.05	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	TP09_2.0-2.1_241125	TP09_1.0-1.5_241125	TP17_2.0_2.1_241126	----	----
			Sampling date / time	25-Nov-2024 15:30	25-Nov-2024 15:30	26-Nov-2024 00:00	----	----
Compound	CAS Number	LOR	Unit	EM2421130-023	EM2421130-024	EM2421130-025	--------	--------
				Result	Result	Result	----	----
EP068A: Organochlorine Pesticides (OC) - Continued								
gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	----	----	----	----
delta-BHC	319-86-8	0.05	mg/kg	<0.05	----	----	----	----
Heptachlor	76-44-8	0.05	mg/kg	<0.05	----	----	----	----
Aldrin	309-00-2	0.05	mg/kg	<0.05	----	----	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	----	----	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	----	----	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	----	----	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	----	----	----	----
Dieldrin	60-57-1	0.05	mg/kg	<0.05	----	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	----	----	----	----
Endrin	72-20-8	0.05	mg/kg	<0.05	----	----	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	----	----	----	----
^ **Endosulfan (sum)**	115-29-7	0.05	mg/kg	<0.05	----	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	----	----	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	----	----	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	----	----	----	----
4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	----	----	----	----
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	----	----	----	----
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	----	----	----	----
Mirex	2385-85-5	0.20	mg/kg	<0.20	----	----	----	----
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.05	mg/kg	<0.05	----	----	----	----
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-29-3	0.05	mg/kg	<0.05	----	----	----	----
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.05	mg/kg	<0.05	----	----	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	----	----	----	----
Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	TP09_2.0-2.1_241125	TP09_1.0-1.5_241125	TP17_2.0_2.1_241126	----	----
			Sampling date / time	25-Nov-2024 15:30	25-Nov-2024 15:30	26-Nov-2024 00:00	----	----
Compound	CAS Number	LOR	Unit	EM2421130-023	EM2421130-024	EM2421130-025	--------	--------
				Result	Result	Result	----	----
EP068B: Organophosphorus Pesticides (OP) - Continued								
Dimethoate	60-51-5	0.05	mg/kg	<0.05	----	----	----	----
Diazinon	333-41-5	0.05	mg/kg	<0.05	----	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	----	----	----	----
Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	----	----	----	----
Malathion	121-75-5	0.05	mg/kg	<0.05	----	----	----	----
Fenthion	55-38-9	0.05	mg/kg	<0.05	----	----	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	----	----	----	----
Parathion	56-38-2	0.2	mg/kg	<0.2	----	----	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	----	----	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	----	----	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	----	----	----	----
Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	----	----	----	----
Prothiofos	34643-46-4	0.05	mg/kg	<0.05	----	----	----	----
Ethion	563-12-2	0.05	mg/kg	<0.05	----	----	----	----
Carbophenothion	786-19-6	0.05	mg/kg	<0.05	----	----	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	----	----	----	----
EP068C: Triazines								
Atrazine	1912-24-9	0.05	mg/kg	<0.05	----	----	----	----
EP068D: Pyrethroids								
Bifenthrin	82657-04-3	0.05	mg/kg	<0.05	----	----	----	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	<0.5	----	----	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	----	----	----	----
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	----	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	----	----	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	----	----	----	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	TP09_2.0-2.1_241125	TP09_1.0-1.5_241125	TP17_2.0_2.1_241126	----	----
			Sampling date / time	25-Nov-2024 15:30	25-Nov-2024 15:30	26-Nov-2024 00:00	----	----
Compound	CAS Number	LOR	Unit	EM2421130-023	EM2421130-024	EM2421130-025	--------	--------
				Result	Result	Result	----	----
EP075(SIM)A: Phenolic Compounds - Continued								
2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	----	----	----	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	----	----	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	----	----	----	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	----	----	----	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	----	----	----	----
Pentachlorophenol	87-86-5	2	mg/kg	<2	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	----	<0.5	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	----	<0.5	----	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	----	<0.5	----	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	----	<0.5	----	----
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	----	<0.5	----	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	----	<0.5	----	----
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	----	<0.5	----	----
Pyrene	129-00-0	0.5	mg/kg	<0.5	----	<0.5	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	----	<0.5	----	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	----	<0.5	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	----	<0.5	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	----	<0.5	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	----	<0.5	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	----	<0.5	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	----	<0.5	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	----	<0.5	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	----	<0.5	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	----	<0.5	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	**0.6**	----	**0.6**	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	**1.2**	----	**1.2**	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP09_2.0-2.1_241125	TP09_1.0-1.5_241125	TP17_2.0_2.1_241126	----	----
				Sampling date / time	25-Nov-2024 15:30	25-Nov-2024 15:30	26-Nov-2024 00:00	----	----
Compound	CAS Number	LOR	Unit		EM2421130-023	EM2421130-024	EM2421130-025	--------	--------
					Result	Result	Result	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	----	<10	----	----
C10 - C14 Fraction	----	50	mg/kg		<50	----	<50	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	----	<100	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	----	<100	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	----	<50	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	----	<10	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	----	<10	----	----
>C10 - C16 Fraction	----	50	mg/kg		<50	----	<50	----	----
>C16 - C34 Fraction	----	100	mg/kg		<100	----	<100	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	----	<100	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	----	<50	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	----	<50	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	----	<0.2	----	----
Toluene	108-88-3	0.5	mg/kg		<0.5	----	<0.5	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	----	<0.5	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	----	<0.5	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	----	<0.5	----	----
^ Sum of BTEX	----	0.2	mg/kg		<0.2	----	<0.2	----	----
^ Total Xylenes	----	0.5	mg/kg		<0.5	----	<0.5	----	----
Naphthalene	91-20-3	1	mg/kg		<1	----	<1	----	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		**98.5**	----	----	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		**86.5**	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	TP09_2.0-2.1_241125	TP09_1.0-1.5_241125	TP17_2.0_2.1_241126	----	----
			Sampling date / time	25-Nov-2024 15:30	25-Nov-2024 15:30	26-Nov-2024 00:00	----	----
Compound	CAS Number	LOR	Unit	EM2421130-023	EM2421130-024	EM2421130-025	--------	--------
				Result	Result	Result	----	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.05	%	**76.5**	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	**86.3**	----	**87.4**	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%	**95.0**	----	**95.5**	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%	**82.2**	----	**75.2**	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	**103**	----	**103**	----	----
Anthracene-d10	1719-06-8	0.5	%	**104**	----	**105**	----	----
4-Terphenyl-d14	1718-51-0	0.5	%	**98.1**	----	**96.4**	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	**94.0**	----	**85.8**	----	----
Toluene-D8	2037-26-5	0.2	%	**90.4**	----	**84.8**	----	----
4-Bromofluorobenzene	460-00-4	0.2	%	**103**	----	**93.3**	----	----

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	36	140
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	62	128
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	40	139
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	54	125
2-Chlorophenol-D4	93951-73-6	65	123
2.4.6-Tribromophenol	118-79-6	34	122
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	61	125
Anthracene-d10	1719-06-8	62	130
4-Terphenyl-d14	1718-51-0	67	133
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	51	125
Toluene-D8	2037-26-5	55	125
4-Bromofluorobenzene	460-00-4	56	124

Inter-Laboratory Testing

Analysis conducted by ALS Brisbane, NATA accreditation no. 825, site no. 818 (Chemistry / Biology).

(SOIL) EA003 :pH (field/fox)

(SOIL) EA009: Net Acid Production Potential

(SOIL) EK080: Bicarbonate Extractable Phosphorus (Colwell)

(SOIL) EA033-B: Potential Acidity

(SOIL) EA033-C: Acid Neutralising Capacity

(SOIL) EA033-D: Retained Acidity

(SOIL) EA033-A: Actual Acidity

(SOIL) EA033-E: Acid Base Accounting

(SOIL) EA058: Emerson Aggregate Test

(SOIL) Radionuclides / Activity

Analysis conducted by ALS Newcastle, NATA accreditation no. 825, site no. 1656 (Chemistry / Biology).

(SOIL) EA150: Soil Classification based on Particle Size

(SOIL) EA150: Particle Sizing

Automated Guideline Comparison Report

Work Order	: **EM2421130**	Page	: 1 of 42
Client	: **EMM CONSULTING PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: Simony Sakamoto		
Address	: Level 1, 70 Pirie Street Adelaide 5000	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: ssakamoto@emmconsulting.com.au	E-mail	: ALSEnviro.Melbourne@alsglobal.com
Telephone	: ----	Telephone	: +61 3 8549 9600
Facsimile	: ----	Facsimile	: +61-3-8549 9626
Project	: Olympic Dam	Date Received	: 03-Nov-2024 11:55
Order number	: E240975	Date Analysed	: 03-Dec-2024
C-O-C number	: 75724	Date Issued	: 21-Jan-2025 17:31
No. of samples received	: 25		
No. of samples analysed	: 23	Quote number	: EM24EMGAMM0004_V2

General Comments

Only results in the 'Analytical Results' section have been compared to the guideline.

Additional information pertinent to this report will be found in the following separate attachments: Certificate of Analysis, Quality Control Report, QA/QC Compliance Assessment to Assist with Quality Review and Sample Receipt Notification.

Summary of Thresholds Reached or Exceeded

Results for all samples detailed in this report are below the upper threshold limits for Fill Material.

Results for all samples detailed in this report are below the upper threshold limits for Fill Material.

Analytical Results

NEPM (2013) Table 1A - Schedule B1 Guideline on Investigation Levels for Soil and Groundwater - Health investigation levels
Health investigation levels for soil contaminants - Commercial / industrial D: HIL D

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	TP16_0.0-0.15_241126 Sampling date/time: 26-Nov-2024 08:10 EM2421130-001	MU	TP16_0.4-0.5_241126 Sampling date/time: 26-Nov-2024 08:15 EM2421130-002	MU	TP16_1.0-1.1_241126 Sampling date/time: 26-Nov-2024 08:30 EM2421130-003	MU	TP08_0.0-0.15_241126 Sampling date/time: 26-Nov-2024 09:16 EM2421130-004	MU	TP08_0.4-0.5_241126 Sampling date/time: 26-Nov-2024 09:20 EM2421130-005	MU
EG005(ED093)T: Total Metals by ICP-AES															
Beryllium	EG005T	1	mg/kg	----	500	----		<1	--	----		----		----	
Boron	EG005T	50	mg/kg	----	300000	----		<50	--	----		----		<50	--
Cobalt	EG005T	2	mg/kg	----	4000	----		**4**	± 0.5	----		----		----	
Manganese	EG005T	5	mg/kg	----	60000	----		**56**	± 6	----		----		**59**	± 6
Selenium	EG005T	5	mg/kg	----	10000	----		<5	--	----		----		----	
Arsenic	EG005T	5	mg/kg	----	3000	<5	--	<5	--	----		<5	--	----	
Cadmium	EG005T	1	mg/kg	----	900	<1	--	<1	--	----		<1	--	----	
Copper	EG005T	5	mg/kg	----	240000	**10**	± 1	**13**	± 2	----		**15**	± 2	----	
Lead	EG005T	5	mg/kg	----	1500	<5	--	<5	--	----		<5	--	----	
Nickel	EG005T	2	mg/kg	----	6000	**7**	± 0.7	**6**	± 0.7	----		**6**	± 0.7	----	
Zinc	EG005T	5	mg/kg	----	400000	**17**	± 3	**18**	± 3	----		**19**	± 3	----	
EG035T: Total Recoverable Mercury by FIMS															
Mercury	EG035T	0.1	mg/kg	----	730	<0.1	--	<0.1	--	----		<0.1	--	----	
EG048: Hexavalent Chromium (Alkaline Digest)															
Hexavalent Chromium	EG048G	0.5	mg/kg	----	3600	----		<0.5	--	----		----		----	
EP066: Polychlorinated Biphenyls (PCB)															
Total Polychlorinated biphenyls	EP066	0.1	mg/kg	----	7	----		<0.1		----		----		----	
EP068A: Organochlorine Pesticides (OC)															
Hexachlorobenzene (HCB)	EP068	0.05	mg/kg	----	80	----		<0.05		----		----		----	
Heptachlor	EP068	0.05	mg/kg	----	50	----		<0.05		----		----		----	
Endrin	EP068	0.05	mg/kg	----	100	----		<0.05		----		----		----	
Endosulfan (sum)	EP068	0.05	mg/kg	----	2000	----		<0.05		----		----		----	
Methoxychlor	EP068	0.2	mg/kg	----	2500	----		<0.2		----		----		----	
Mirex	EP068	0.20	mg/kg	----	100	----		<0.20		----		----		----	
Sum of Aldrin + Dieldrin	EP068	0.05	mg/kg	----	45	----		<0.05		----		----		----	
Sum of DDD + DDE + DDT	EP068	0.05	mg/kg	----	3600	----		<0.05		----		----		----	
EP068B: Organophosphorus Pesticides (OP)															
Chlorpyrifos	EP068	0.05	mg/kg	----	2000	----		<0.05		----		----		----	
EP068C: Triazines															
Atrazine	EP068	0.05	mg/kg	----	2500	----		<0.05		----		----		----	
EP068D: Pyrethroids															

NEPM (2013) Table 1A - Schedule B1 Guideline on Investigation Levels for Soil and Groundwater - Health investigation levels
Health investigation levels for soil contaminants - Commercial / industrial D: HIL D

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	TP16_0.0-0.15_241126	TP16_0.4-0.5_241126	TP16_1.0-1.1_241126	TP08_0.0-0.15_241126	TP08_0.4-0.5_241126
Sample ID										
Sampling date/time						26-Nov-2024 08:10	26-Nov-2024 08:15	26-Nov-2024 08:30	26-Nov-2024 09:16	26-Nov-2024 09:20
						EM2421130-001 MU	EM2421130-002 MU	EM2421130-003 MU	EM2421130-004 MU	EM2421130-005 MU
EP068D: Pyrethroids - Continued										
Bifenthrin	EP068	0.05	mg/kg	----	4500	----	<0.05	----	----	----
EP075(SIM)A: Phenolic Compounds										
Phenol	EP075(SIM)	0.5	mg/kg	----	240000	----	<0.5	----	----	----
Pentachlorophenol	EP075(SIM)	2	mg/kg	----	660	----	<2	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons										
Sum of polycyclic aromatic hydrocarbons	EP075(SIM)	0.5	mg/kg	----	4000	<0.5	<0.5	----	<0.5	----
Benzo(a)pyrene TEQ (zero)	EP075(SIM)	0.5	mg/kg	----	40	<0.5	<0.5	----	<0.5	----
Benzo(a)pyrene TEQ (half LOR)	EP075(SIM)	0.5	mg/kg	----	40	**0.6**	**0.6**	----	**0.6**	----
Benzo(a)pyrene TEQ (LOR)	EP075(SIM)	0.5	mg/kg	----	40	**1.2**	**1.2**	----	**1.2**	----

NEPM (2013) Table 1A - Schedule B1 Guideline on Investigation Levels for Soil and Groundwater - Health investigation levels
Health investigation levels for soil contaminants - Recreational C: HIL C

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	TP16_0.0-0.15_241126	TP16_0.4-0.5_241126	TP16_1.0-1.1_241126	TP08_0.0-0.15_241126	TP08_0.4-0.5_241126
Sample ID										
Sampling date/time						26-Nov-2024 08:10	26-Nov-2024 08:15	26-Nov-2024 08:30	26-Nov-2024 09:16	26-Nov-2024 09:20
						EM2421130-001 MU	EM2421130-002 MU	EM2421130-003 MU	EM2421130-004 MU	EM2421130-005 MU
EG005(ED093)T: Total Metals by ICP-AES										
Beryllium	EG005T	1	mg/kg	----	90	----	<1 --	----	----	----
Boron	EG005T	50	mg/kg	----	20000	----	<50 --	----	----	<50 --
Cobalt	EG005T	2	mg/kg	----	300	----	**4** ± 0.5	----	----	----
Manganese	EG005T	5	mg/kg	----	19000	----	**56** ± 6	----	----	**59** ± 6
Selenium	EG005T	5	mg/kg	----	700	----	<5 --	----	----	----
Arsenic	EG005T	5	mg/kg	----	300	<5 --	<5 --	----	<5 --	----
Cadmium	EG005T	1	mg/kg	----	90	<1 --	<1 --	----	<1 --	----
Copper	EG005T	5	mg/kg	----	17000	**10** ± 1	**13** ± 2	----	**15** ± 2	----
Lead	EG005T	5	mg/kg	----	600	<5 --	<5 --	----	<5 --	----
Nickel	EG005T	2	mg/kg	----	1200	**7** ± 0.7	**6** ± 0.7	----	**6** ± 0.7	----
Zinc	EG005T	5	mg/kg	----	30000	**17** ± 3	**18** ± 3	----	**19** ± 3	----
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	80	<0.1 --	<0.1 --	----	<0.1 --	----
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	300	----	<0.5 --	----	----	----
EP066: Polychlorinated Biphenyls (PCB)										
Total Polychlorinated biphenyls	EP066	0.1	mg/kg	----	1	----	<0.1	----	----	----
EP068A: Organochlorine Pesticides (OC)										
Hexachlorobenzene (HCB)	EP068	0.05	mg/kg	----	10	----	<0.05	----	----	----
Heptachlor	EP068	0.05	mg/kg	----	10	----	<0.05	----	----	----
Endrin	EP068	0.05	mg/kg	----	20	----	<0.05	----	----	----
Endosulfan (sum)	EP068	0.05	mg/kg	----	340	----	<0.05	----	----	----
Methoxychlor	EP068	0.2	mg/kg	----	400	----	<0.2	----	----	----
Mirex	EP068	0.20	mg/kg	----	20	----	<0.20	----	----	----
Sum of Aldrin + Dieldrin	EP068	0.05	mg/kg	----	10	----	<0.05	----	----	----
Sum of DDD + DDE + DDT	EP068	0.05	mg/kg	----	400	----	<0.05	----	----	----
EP068B: Organophosphorus Pesticides (OP)										
Chlorpyrifos	EP068	0.05	mg/kg	----	250	----	<0.05	----	----	----
EP068C: Triazines										
Atrazine	EP068	0.05	mg/kg	----	400	----	<0.05	----	----	----
EP068D: Pyrethroids										
Bifenthrin	EP068	0.05	mg/kg	----	730	----	<0.05	----	----	----

NEPM (2013) Table 1A - Schedule B1 Guideline on Investigation Levels for Soil and Groundwater - Health investigation levels
Health investigation levels for soil contaminants - Recreational C: HIL C

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	TP16_0.0-0.15_241126	TP16_0.4-0.5_241126	TP16_1.0-1.1_241126	TP08_0.0-0.15_241126	TP08_0.4-0.5_241126
Sampling date/time						26-Nov-2024 08:10	26-Nov-2024 08:15	26-Nov-2024 08:30	26-Nov-2024 09:16	26-Nov-2024 09:20
						EM2421130-001 MU	EM2421130-002 MU	EM2421130-003 MU	EM2421130-004 MU	EM2421130-005 MU
EP075(SIM)A: Phenolic Compounds										
Phenol	EP075(SIM)	0.5	mg/kg	----	40000	----	<0.5	----	----	----
Pentachlorophenol	EP075(SIM)	2	mg/kg	----	120	----	<2	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons										
Sum of polycyclic aromatic hydrocarbons	EP075(SIM)	0.5	mg/kg	----	300	<0.5	<0.5	----	<0.5	----
Benzo(a)pyrene TEQ (zero)	EP075(SIM)	0.5	mg/kg	----	3	<0.5	<0.5	----	<0.5	----
Benzo(a)pyrene TEQ (half LOR)	EP075(SIM)	0.5	mg/kg	----	3	**0.6**	**0.6**	----	**0.6**	----
Benzo(a)pyrene TEQ (LOR)	EP075(SIM)	0.5	mg/kg	----	3	**1.2**	**1.2**	----	**1.2**	----

NEPM (2013) Table 1A - Schedule B1 Guideline on Investigation Levels for Soil and Groundwater - Health investigation levels
Health investigation levels for soil contaminants - Residential A: HIL A

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	TP16_0.0-0.15_241126 (Sample ID) / 26-Nov-2024 08:10 / EM2421130-001	MU	TP16_0.4-0.5_241126 / 26-Nov-2024 08:15 / EM2421130-002	MU	TP16_1.0-1.1_241126 / 26-Nov-2024 08:30 / EM2421130-003	MU	TP08_0.0-0.15_241126 / 26-Nov-2024 09:16 / EM2421130-004	MU	TP08_0.4-0.5_241126 / 26-Nov-2024 09:20 / EM2421130-005	MU
EG005(ED093)T: Total Metals by ICP-AES															
Beryllium	EG005T	1	mg/kg	----	60	----		<1	--	----		----		----	
Boron	EG005T	50	mg/kg	----	4500	----		<50	--	----		----		<50	--
Cobalt	EG005T	2	mg/kg	----	100	----		**4**	± 0.5	----		----		----	
Manganese	EG005T	5	mg/kg	----	3800	----		**56**	± 6	----		----		**59**	± 6
Selenium	EG005T	5	mg/kg	----	200	----		<5	--	----		----		----	
Arsenic	EG005T	5	mg/kg	----	100	<5	--	<5	--	----		<5	--	----	
Cadmium	EG005T	1	mg/kg	----	20	<1	--	<1	--	----		<1	--	----	
Copper	EG005T	5	mg/kg	----	6000	**10**	± 1	**13**	± 2	----		**15**	± 2	----	
Lead	EG005T	5	mg/kg	----	300	<5	--	<5	--	----		<5	--	----	
Nickel	EG005T	2	mg/kg	----	400	**7**	± 0.7	**6**	± 0.7	----		**6**	± 0.7	----	
Zinc	EG005T	5	mg/kg	----	7400	**17**	± 3	**18**	± 3	----		**19**	± 3	----	
EG035T: Total Recoverable Mercury by FIMS															
Mercury	EG035T	0.1	mg/kg	----	40	<0.1	--	<0.1	--	----		<0.1	--	----	
EG048: Hexavalent Chromium (Alkaline Digest)															
Hexavalent Chromium	EG048G	0.5	mg/kg	----	100	----		<0.5	--	----		----		----	
EP066: Polychlorinated Biphenyls (PCB)															
Total Polychlorinated biphenyls	EP066	0.1	mg/kg	----	1	----		<0.1		----		----		----	
EP068A: Organochlorine Pesticides (OC)															
Hexachlorobenzene (HCB)	EP068	0.05	mg/kg	----	10	----		<0.05		----		----		----	
Heptachlor	EP068	0.05	mg/kg	----	6	----		<0.05		----		----		----	
Endrin	EP068	0.05	mg/kg	----	10	----		<0.05		----		----		----	
Endosulfan (sum)	EP068	0.05	mg/kg	----	270	----		<0.05		----		----		----	
Methoxychlor	EP068	0.2	mg/kg	----	300	----		<0.2		----		----		----	
Mirex	EP068	0.20	mg/kg	----	10	----		<0.20		----		----		----	
Sum of Aldrin + Dieldrin	EP068	0.05	mg/kg	----	6	----		<0.05		----		----		----	
Sum of DDD + DDE + DDT	EP068	0.05	mg/kg	----	240	----		<0.05		----		----		----	
EP068B: Organophosphorus Pesticides (OP)															
Chlorpyrifos	EP068	0.05	mg/kg	----	160	----		<0.05		----		----		----	
EP068C: Triazines															
Atrazine	EP068	0.05	mg/kg	----	320	----		<0.05		----		----		----	
EP068D: Pyrethroids															
Bifenthrin	EP068	0.05	mg/kg	----	600	----		<0.05		----		----		----	

NEPM (2013) Table 1A - Schedule B1 Guideline on Investigation Levels for Soil and Groundwater - Health investigation levels
Health investigation levels for soil contaminants - Residential A: HIL A

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	TP16_0.0-0.15 _241126	TP16_0.4-0.5_ 241126	TP16_1.0-1.1_ 241126	TP08_0.0-0.15 _241126	TP08_0.4-0.5_ 241126
Sample ID										
Sampling date/time						26-Nov-2024 08:10	26-Nov-2024 08:15	26-Nov-2024 08:30	26-Nov-2024 09:16	26-Nov-2024 09:20
						EM2421130-001 MU	EM2421130-002 MU	EM2421130-003 MU	EM2421130-004 MU	EM2421130-005 MU
EP075(SIM)A: Phenolic Compounds										
Phenol	EP075(SIM)	0.5	mg/kg	----	3000	----	<0.5	----	----	----
Pentachlorophenol	EP075(SIM)	2	mg/kg	----	100	----	<2	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons										
Sum of polycyclic aromatic hydrocarbons	EP075(SIM)	0.5	mg/kg	----	300	<0.5	<0.5	----	<0.5	----
Benzo(a)pyrene TEQ (zero)	EP075(SIM)	0.5	mg/kg	----	3	<0.5	<0.5	----	<0.5	----
Benzo(a)pyrene TEQ (half LOR)	EP075(SIM)	0.5	mg/kg	----	3	**0.6**	**0.6**	----	**0.6**	----
Benzo(a)pyrene TEQ (LOR)	EP075(SIM)	0.5	mg/kg	----	3	**1.2**	**1.2**	----	**1.2**	----

NEPM (2013) Table 1A - Schedule B1 Guideline on Investigation Levels for Soil and Groundwater - Health investigation levels
Health investigation levels for soil contaminants - Residential B: HIL B

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	TP16_0.0-0.15_241126	TP16_0.4-0.5_241126	TP16_1.0-1.1_241126	TP08_0.0-0.15_241126	TP08_0.4-0.5_241126
Sampling date/time						26-Nov-2024 08:10	26-Nov-2024 08:15	26-Nov-2024 08:30	26-Nov-2024 09:16	26-Nov-2024 09:20
Sample ID						EM2421130-001 MU	EM2421130-002 MU	EM2421130-003 MU	EM2421130-004 MU	EM2421130-005 MU
EG005(ED093)T: Total Metals by ICP-AES										
Beryllium	EG005T	1	mg/kg	----	90	----	<1 --	----	----	----
Boron	EG005T	50	mg/kg	----	40000	----	<50 --	----	----	<50 --
Cobalt	EG005T	2	mg/kg	----	600	----	**4** ± 0.5	----	----	----
Manganese	EG005T	5	mg/kg	----	14000	----	**56** ± 6	----	----	**59** ± 6
Selenium	EG005T	5	mg/kg	----	1400	----	<5 --	----	----	----
Arsenic	EG005T	5	mg/kg	----	500	<5 --	<5 --	----	<5 --	----
Cadmium	EG005T	1	mg/kg	----	150	<1 --	<1 --	----	<1 --	----
Copper	EG005T	5	mg/kg	----	30000	**10** ± 1	**13** ± 2	----	**15** ± 2	----
Lead	EG005T	5	mg/kg	----	1200	<5 --	<5 --	----	<5 --	----
Nickel	EG005T	2	mg/kg	----	1200	**7** ± 0.7	**6** ± 0.7	----	**6** ± 0.7	----
Zinc	EG005T	5	mg/kg	----	60000	**17** ± 3	**18** ± 3	----	**19** ± 3	----
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	120	<0.1 --	<0.1 --	----	<0.1 --	----
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	500	----	<0.5 --	----	----	----
EP066: Polychlorinated Biphenyls (PCB)										
Total Polychlorinated biphenyls	EP066	0.1	mg/kg	----	1	----	<0.1	----	----	----
EP068A: Organochlorine Pesticides (OC)										
Hexachlorobenzene (HCB)	EP068	0.05	mg/kg	----	15	----	<0.05	----	----	----
Heptachlor	EP068	0.05	mg/kg	----	10	----	<0.05	----	----	----
Endrin	EP068	0.05	mg/kg	----	20	----	<0.05	----	----	----
Endosulfan (sum)	EP068	0.05	mg/kg	----	400	----	<0.05	----	----	----
Methoxychlor	EP068	0.2	mg/kg	----	500	----	<0.2	----	----	----
Mirex	EP068	0.20	mg/kg	----	20	----	<0.20	----	----	----
Sum of Aldrin + Dieldrin	EP068	0.05	mg/kg	----	10	----	<0.05	----	----	----
Sum of DDD + DDE + DDT	EP068	0.05	mg/kg	----	600	----	<0.05	----	----	----
EP068B: Organophosphorus Pesticides (OP)										
Chlorpyrifos	EP068	0.05	mg/kg	----	340	----	<0.05	----	----	----
EP068C: Triazines										
Atrazine	EP068	0.05	mg/kg	----	470	----	<0.05	----	----	----
EP068D: Pyrethroids										
Bifenthrin	EP068	0.05	mg/kg	----	840	----	<0.05	----	----	----

NEPM (2013) Table 1A - Schedule B1 Guideline on Investigation Levels for Soil and Groundwater - Health investigation levels
Health investigation levels for soil contaminants - Residential B: HIL B

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	*Sample ID* / *Sampling date/time*	TP16_0.0-0.15_241126 26-Nov-2024 08:10 EM2421130-001 MU	TP16_0.4-0.5_241126 26-Nov-2024 08:15 EM2421130-002 MU	TP16_1.0-1.1_241126 26-Nov-2024 08:30 EM2421130-003 MU	TP08_0.0-0.15_241126 26-Nov-2024 09:16 EM2421130-004 MU	TP08_0.4-0.5_241126 26-Nov-2024 09:20 EM2421130-005 MU
EP075(SIM)A: Phenolic Compounds											
Phenol	EP075(SIM)	0.5	mg/kg	----	45000		----	<0.5	----	----	----
Pentachlorophenol	EP075(SIM)	2	mg/kg	----	130		----	<2	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons											
Sum of polycyclic aromatic hydrocarbons	EP075(SIM)	0.5	mg/kg	----	400		<0.5	<0.5	----	<0.5	----
Benzo(a)pyrene TEQ (zero)	EP075(SIM)	0.5	mg/kg	----	4		<0.5	<0.5	----	<0.5	----
Benzo(a)pyrene TEQ (half LOR)	EP075(SIM)	0.5	mg/kg	----	4		**0.6**	**0.6**	----	**0.6**	----
Benzo(a)pyrene TEQ (LOR)	EP075(SIM)	0.5	mg/kg	----	4		**1.2**	**1.2**	----	**1.2**	----

NEPM (2013) Table 1A - Schedule B1 Guideline on Investigation Levels for Soil and Groundwater - Health investigation levels
Health investigation levels for soil contaminants - Commercial / industrial D: HIL D

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	TP08_1.0-1.2_241126	TP13_0.0-0.15_241126	TP13_0.8-0.9_241126	TP13_0.3-0.4_241126	TP10_0.0-0.3_241126
Sample ID										
Sampling date/time						26-Nov-2024 09:35	26-Nov-2024 10:15	26-Nov-2024 10:30	26-Nov-2024 10:20	26-Nov-2024 12:20
						EM2421130-006 MU	EM2421130-007 MU	EM2421130-008 MU	EM2421130-009 MU	EM2421130-011 MU
EG005(ED093)T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	3000	<5 --	<5 --	<5 --	----	----
Beryllium	EG005T	1	mg/kg	----	500	<1 --	----	<1 --	----	----
Boron	EG005T	50	mg/kg	----	300000	<50 --	----	<50 --	<50 --	<50 --
Cadmium	EG005T	1	mg/kg	----	900	<1 --	<1 --	<1 --	----	----
Cobalt	EG005T	2	mg/kg	----	4000	**4** ± 0.5	----	**4** ± 0.5	----	----
Copper	EG005T	5	mg/kg	----	240000	**14** ± 2	**48** ± 6	**75** ± 9	----	----
Lead	EG005T	5	mg/kg	----	1500	<5 --	<5 --	<5 --	----	----
Manganese	EG005T	5	mg/kg	----	60000	**50** ± 6	----	**58** ± 6	**66** ± 7	**80** ± 8
Nickel	EG005T	2	mg/kg	----	6000	**6** ± 0.6	**6** ± 0.7	**6** ± 0.6	----	----
Selenium	EG005T	5	mg/kg	----	10000	<5 --	----	<5 --	----	----
Zinc	EG005T	5	mg/kg	----	400000	**17** ± 3	**20** ± 3	**18** ± 3	----	----
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	730	<0.1 --	<0.1 --	<0.1 --	----	----
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	3600	<0.5 --	----	<0.5 --	----	----
EP066: Polychlorinated Biphenyls (PCB)										
Total Polychlorinated biphenyls	EP066	0.1	mg/kg	----	7	<0.1	----	<0.1	----	----
EP068A: Organochlorine Pesticides (OC)										
Hexachlorobenzene (HCB)	EP068	0.05	mg/kg	----	80	<0.05	----	<0.05	----	----
Heptachlor	EP068	0.05	mg/kg	----	50	<0.05	----	<0.05	----	----
Endrin	EP068	0.05	mg/kg	----	100	<0.05	----	<0.05	----	----
Endosulfan (sum)	EP068	0.05	mg/kg	----	2000	<0.05	----	<0.05	----	----
Methoxychlor	EP068	0.2	mg/kg	----	2500	<0.2	----	<0.2	----	----
Mirex	EP068	0.20	mg/kg	----	100	<0.20	----	<0.20	----	----
Sum of Aldrin + Dieldrin	EP068	0.05	mg/kg	----	45	<0.05	----	<0.05	----	----
Sum of DDD + DDE + DDT	EP068	0.05	mg/kg	----	3600	<0.05	----	<0.05	----	----
EP068B: Organophosphorus Pesticides (OP)										
Chlorpyrifos	EP068	0.05	mg/kg	----	2000	<0.05	----	<0.05	----	----
EP068C: Triazines										
Atrazine	EP068	0.05	mg/kg	----	2500	<0.05	----	<0.05	----	----
EP068D: Pyrethroids										
Bifenthrin	EP068	0.05	mg/kg	----	4500	<0.05	----	<0.05	----	----

NEPM (2013) Table 1A - Schedule B1 Guideline on Investigation Levels for Soil and Groundwater - Health investigation levels
Health investigation levels for soil contaminants - Commercial / industrial D: HIL D

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	*Sample ID* / *Sampling date/time*	TP08_1.0-1.2_241126 26-Nov-2024 09:35 EM2421130-006 MU	TP13_0.0-0.15_241126 26-Nov-2024 10:15 EM2421130-007 MU	TP13_0.8-0.9_241126 26-Nov-2024 10:30 EM2421130-008 MU	TP13_0.3-0.4_241126 26-Nov-2024 10:20 EM2421130-009 MU	TP10_0.0-0.3_241126 26-Nov-2024 12:20 EM2421130-011 MU
EP075(SIM)A: Phenolic Compounds											
Phenol	EP075(SIM)	0.5	mg/kg	----	240000		<0.5	----	<0.5	----	----
Pentachlorophenol	EP075(SIM)	2	mg/kg	----	660		<2	----	<2	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons											
Sum of polycyclic aromatic hydrocarbons	EP075(SIM)	0.5	mg/kg	----	4000		<0.5	<0.5	<0.5	----	----
Benzo(a)pyrene TEQ (zero)	EP075(SIM)	0.5	mg/kg	----	40		<0.5	<0.5	<0.5	----	----
Benzo(a)pyrene TEQ (half LOR)	EP075(SIM)	0.5	mg/kg	----	40		**0.6**	**0.6**	**0.6**	----	----
Benzo(a)pyrene TEQ (LOR)	EP075(SIM)	0.5	mg/kg	----	40		**1.2**	**1.2**	**1.2**	----	----

NEPM (2013) Table 1A - Schedule B1 Guideline on Investigation Levels for Soil and Groundwater - Health investigation levels
Health investigation levels for soil contaminants - Recreational C: HIL C

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	Sample ID	TP08_1.0-1.2_241126	TP13_0.0-0.15_241126	TP13_0.8-0.9_241126	TP13_0.3-0.4_241126	TP10_0.0-0.3_241126
						Sampling date/time	26-Nov-2024 09:35	26-Nov-2024 10:15	26-Nov-2024 10:30	26-Nov-2024 10:20	26-Nov-2024 12:20
							EM2421130-006 MU	EM2421130-007 MU	EM2421130-008 MU	EM2421130-009 MU	EM2421130-011 MU
EG005(ED093)T: Total Metals by ICP-AES											
Arsenic	EG005T	5	mg/kg	----	300		<5 --	<5 --	<5 --	----	----
Beryllium	EG005T	1	mg/kg	----	90		<1 --	----	<1 --	----	----
Boron	EG005T	50	mg/kg	----	20000		<50 --	----	<50 --	<50 --	<50 --
Cadmium	EG005T	1	mg/kg	----	90		<1 --	<1 --	<1 --	----	----
Cobalt	EG005T	2	mg/kg	----	300		**4** ± 0.5	----	**4** ± 0.5	----	----
Copper	EG005T	5	mg/kg	----	17000		**14** ± 2	**48** ± 6	**75** ± 9	----	----
Lead	EG005T	5	mg/kg	----	600		<5 --	<5 --	<5 --	----	----
Manganese	EG005T	5	mg/kg	----	19000		**50** ± 6	----	**58** ± 6	**66** ± 7	**80** ± 8
Nickel	EG005T	2	mg/kg	----	1200		**6** ± 0.6	**6** ± 0.7	**6** ± 0.6	----	----
Selenium	EG005T	5	mg/kg	----	700		<5 --	----	<5 --	----	----
Zinc	EG005T	5	mg/kg	----	30000		**17** ± 3	**20** ± 3	**18** ± 3	----	----
EG035T: Total Recoverable Mercury by FIMS											
Mercury	EG035T	0.1	mg/kg	----	80		<0.1 --	<0.1 --	<0.1 --	----	----
EG048: Hexavalent Chromium (Alkaline Digest)											
Hexavalent Chromium	EG048G	0.5	mg/kg	----	300		<0.5 --	----	<0.5 --	----	----
EP066: Polychlorinated Biphenyls (PCB)											
Total Polychlorinated biphenyls	EP066	0.1	mg/kg	----	1		<0.1	----	<0.1	----	----
EP068A: Organochlorine Pesticides (OC)											
Hexachlorobenzene (HCB)	EP068	0.05	mg/kg	----	10		<0.05	----	<0.05	----	----
Heptachlor	EP068	0.05	mg/kg	----	10		<0.05	----	<0.05	----	----
Endrin	EP068	0.05	mg/kg	----	20		<0.05	----	<0.05	----	----
Endosulfan (sum)	EP068	0.05	mg/kg	----	340		<0.05	----	<0.05	----	----
Methoxychlor	EP068	0.2	mg/kg	----	400		<0.2	----	<0.2	----	----
Mirex	EP068	0.20	mg/kg	----	20		<0.20	----	<0.20	----	----
Sum of Aldrin + Dieldrin	EP068	0.05	mg/kg	----	10		<0.05	----	<0.05	----	----
Sum of DDD + DDE + DDT	EP068	0.05	mg/kg	----	400		<0.05	----	<0.05	----	----
EP068B: Organophosphorus Pesticides (OP)											
Chlorpyrifos	EP068	0.05	mg/kg	----	250		<0.05	----	<0.05	----	----
EP068C: Triazines											
Atrazine	EP068	0.05	mg/kg	----	400		<0.05	----	<0.05	----	----
EP068D: Pyrethroids											
Bifenthrin	EP068	0.05	mg/kg	----	730		<0.05	----	<0.05	----	----

NEPM (2013) Table 1A - Schedule B1 Guideline on Investigation Levels for Soil and Groundwater - Health investigation levels
Health investigation levels for soil contaminants - Recreational C: HIL C

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	*Sample ID* / *Sampling date/time* TP08_1.0-1.2_241126 26-Nov-2024 09:35 EM2421130-006 MU	TP13_0.0-0.15_241126 26-Nov-2024 10:15 EM2421130-007 MU	TP13_0.8-0.9_241126 26-Nov-2024 10:30 EM2421130-008 MU	TP13_0.3-0.4_241126 26-Nov-2024 10:20 EM2421130-009 MU	TP10_0.0-0.3_241126 26-Nov-2024 12:20 EM2421130-011 MU
EP075(SIM)A: Phenolic Compounds										
Phenol	EP075(SIM)	0.5	mg/kg	----	40000	<0.5	----	<0.5	----	----
Pentachlorophenol	EP075(SIM)	2	mg/kg	----	120	<2	----	<2	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons										
Sum of polycyclic aromatic hydrocarbons	EP075(SIM)	0.5	mg/kg	----	300	<0.5	<0.5	<0.5	----	----
Benzo(a)pyrene TEQ (zero)	EP075(SIM)	0.5	mg/kg	----	3	<0.5	<0.5	<0.5	----	----
Benzo(a)pyrene TEQ (half LOR)	EP075(SIM)	0.5	mg/kg	----	3	**0.6**	**0.6**	**0.6**	----	----
Benzo(a)pyrene TEQ (LOR)	EP075(SIM)	0.5	mg/kg	----	3	**1.2**	**1.2**	**1.2**	----	----

NEPM (2013) Table 1A - Schedule B1 Guideline on Investigation Levels for Soil and Groundwater - Health investigation levels
Health investigation levels for soil contaminants - Residential A: HIL A

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	Sample ID	TP08_1.0-1.2_241126	TP13_0.0-0.15_241126	TP13_0.8-0.9_241126	TP13_0.3-0.4_241126	TP10_0.0-0.3_241126
						Sampling date/time	26-Nov-2024 09:35	26-Nov-2024 10:15	26-Nov-2024 10:30	26-Nov-2024 10:20	26-Nov-2024 12:20
							EM2421130-006 MU	EM2421130-007 MU	EM2421130-008 MU	EM2421130-009 MU	EM2421130-011 MU
EG005(ED093)T: Total Metals by ICP-AES											
Arsenic	EG005T	5	mg/kg	----	100		<5 --	<5 --	<5 --	----	----
Beryllium	EG005T	1	mg/kg	----	60		<1 --	----	<1 --	----	----
Boron	EG005T	50	mg/kg	----	4500		<50 --	----	<50 --	<50 --	<50 --
Cadmium	EG005T	1	mg/kg	----	20		<1 --	<1 --	<1 --	----	----
Cobalt	EG005T	2	mg/kg	----	100		**4** ± 0.5	----	**4** ± 0.5	----	----
Copper	EG005T	5	mg/kg	----	6000		**14** ± 2	**48** ± 6	**75** ± 9	----	----
Lead	EG005T	5	mg/kg	----	300		<5 --	<5 --	<5 --	----	----
Manganese	EG005T	5	mg/kg	----	3800		**50** ± 6	----	**58** ± 6	**66** ± 7	**80** ± 8
Nickel	EG005T	2	mg/kg	----	400		**6** ± 0.6	**6** ± 0.7	**6** ± 0.6	----	----
Selenium	EG005T	5	mg/kg	----	200		<5 --	----	<5 --	----	----
Zinc	EG005T	5	mg/kg	----	7400		**17** ± 3	**20** ± 3	**18** ± 3	----	----
EG035T: Total Recoverable Mercury by FIMS											
Mercury	EG035T	0.1	mg/kg	----	40		<0.1 --	<0.1 --	<0.1 --	----	----
EG048: Hexavalent Chromium (Alkaline Digest)											
Hexavalent Chromium	EG048G	0.5	mg/kg	----	100		<0.5 --	----	<0.5 --	----	----
EP066: Polychlorinated Biphenyls (PCB)											
Total Polychlorinated biphenyls	EP066	0.1	mg/kg	----	1		<0.1	----	<0.1	----	----
EP068A: Organochlorine Pesticides (OC)											
Hexachlorobenzene (HCB)	EP068	0.05	mg/kg	----	10		<0.05	----	<0.05	----	----
Heptachlor	EP068	0.05	mg/kg	----	6		<0.05	----	<0.05	----	----
Endrin	EP068	0.05	mg/kg	----	10		<0.05	----	<0.05	----	----
Endosulfan (sum)	EP068	0.05	mg/kg	----	270		<0.05	----	<0.05	----	----
Methoxychlor	EP068	0.2	mg/kg	----	300		<0.2	----	<0.2	----	----
Mirex	EP068	0.20	mg/kg	----	10		<0.20	----	<0.20	----	----
Sum of Aldrin + Dieldrin	EP068	0.05	mg/kg	----	6		<0.05	----	<0.05	----	----
Sum of DDD + DDE + DDT	EP068	0.05	mg/kg	----	240		<0.05	----	<0.05	----	----
EP068B: Organophosphorus Pesticides (OP)											
Chlorpyrifos	EP068	0.05	mg/kg	----	160		<0.05	----	<0.05	----	----
EP068C: Triazines											
Atrazine	EP068	0.05	mg/kg	----	320		<0.05	----	<0.05	----	----
EP068D: Pyrethroids											
Bifenthrin	EP068	0.05	mg/kg	----	600		<0.05	----	<0.05	----	----

NEPM (2013) Table 1A - Schedule B1 Guideline on Investigation Levels for Soil and Groundwater - Health investigation levels
Health investigation levels for soil contaminants - Residential A: HIL A

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	*Sample ID* / *Sampling date/time* TP08_1.0-1.2_241126 26-Nov-2024 09:35 EM2421130-006 MU	TP13_0.0-0.15_241126 26-Nov-2024 10:15 EM2421130-007 MU	TP13_0.8-0.9_241126 26-Nov-2024 10:30 EM2421130-008 MU	TP13_0.3-0.4_241126 26-Nov-2024 10:20 EM2421130-009 MU	TP10_0.0-0.3_241126 26-Nov-2024 12:20 EM2421130-011 MU
EP075(SIM)A: Phenolic Compounds										
Phenol	EP075(SIM)	0.5	mg/kg	----	3000	<0.5	----	<0.5	----	----
Pentachlorophenol	EP075(SIM)	2	mg/kg	----	100	<2	----	<2	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons										
Sum of polycyclic aromatic hydrocarbons	EP075(SIM)	0.5	mg/kg	----	300	<0.5	<0.5	<0.5	----	----
Benzo(a)pyrene TEQ (zero)	EP075(SIM)	0.5	mg/kg	----	3	<0.5	<0.5	<0.5	----	----
Benzo(a)pyrene TEQ (half LOR)	EP075(SIM)	0.5	mg/kg	----	3	**0.6**	**0.6**	**0.6**	----	----
Benzo(a)pyrene TEQ (LOR)	EP075(SIM)	0.5	mg/kg	----	3	**1.2**	**1.2**	**1.2**	----	----

NEPM (2013) Table 1A - Schedule B1 Guideline on Investigation Levels for Soil and Groundwater - Health investigation levels
Health investigation levels for soil contaminants - Residential B: HIL B

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	Sample ID / Sampling date/time	TP08_1.0-1.2_241126 26-Nov-2024 09:35 EM2421130-006 MU	TP13_0.0-0.15_241126 26-Nov-2024 10:15 EM2421130-007 MU	TP13_0.8-0.9_241126 26-Nov-2024 10:30 EM2421130-008 MU	TP13_0.3-0.4_241126 26-Nov-2024 10:20 EM2421130-009 MU	TP10_0.0-0.3_241126 26-Nov-2024 12:20 EM2421130-011 MU
EG005(ED093)T: Total Metals by ICP-AES											
Arsenic	EG005T	5	mg/kg	----	500		<5 --	<5 --	<5 --	----	----
Beryllium	EG005T	1	mg/kg	----	90		<1 --	----	<1 --	----	----
Boron	EG005T	50	mg/kg	----	40000		<50 --	----	<50 --	<50 --	<50 --
Cadmium	EG005T	1	mg/kg	----	150		<1 --	<1 --	<1 --	----	----
Cobalt	EG005T	2	mg/kg	----	600		**4** ± 0.5	----	**4** ± 0.5	----	----
Copper	EG005T	5	mg/kg	----	30000		**14** ± 2	**48** ± 6	**75** ± 9	----	----
Lead	EG005T	5	mg/kg	----	1200		<5 --	<5 --	<5 --	----	----
Manganese	EG005T	5	mg/kg	----	14000		**50** ± 6	----	**58** ± 6	**66** ± 7	**80** ± 8
Nickel	EG005T	2	mg/kg	----	1200		**6** ± 0.6	**6** ± 0.7	**6** ± 0.6	----	----
Selenium	EG005T	5	mg/kg	----	1400		<5 --	----	<5 --	----	----
Zinc	EG005T	5	mg/kg	----	60000		**17** ± 3	**20** ± 3	**18** ± 3	----	----
EG035T: Total Recoverable Mercury by FIMS											
Mercury	EG035T	0.1	mg/kg	----	120		<0.1 --	<0.1 --	<0.1 --	----	----
EG048: Hexavalent Chromium (Alkaline Digest)											
Hexavalent Chromium	EG048G	0.5	mg/kg	----	500		<0.5 --	----	<0.5 --	----	----
EP066: Polychlorinated Biphenyls (PCB)											
Total Polychlorinated biphenyls	EP066	0.1	mg/kg	----	1		<0.1	----	<0.1	----	----
EP068A: Organochlorine Pesticides (OC)											
Hexachlorobenzene (HCB)	EP068	0.05	mg/kg	----	15		<0.05	----	<0.05	----	----
Heptachlor	EP068	0.05	mg/kg	----	10		<0.05	----	<0.05	----	----
Endrin	EP068	0.05	mg/kg	----	20		<0.05	----	<0.05	----	----
Endosulfan (sum)	EP068	0.05	mg/kg	----	400		<0.05	----	<0.05	----	----
Methoxychlor	EP068	0.2	mg/kg	----	500		<0.2	----	<0.2	----	----
Mirex	EP068	0.20	mg/kg	----	20		<0.20	----	<0.20	----	----
Sum of Aldrin + Dieldrin	EP068	0.05	mg/kg	----	10		<0.05	----	<0.05	----	----
Sum of DDD + DDE + DDT	EP068	0.05	mg/kg	----	600		<0.05	----	<0.05	----	----
EP068B: Organophosphorus Pesticides (OP)											
Chlorpyrifos	EP068	0.05	mg/kg	----	340		<0.05	----	<0.05	----	----
EP068C: Triazines											
Atrazine	EP068	0.05	mg/kg	----	470		<0.05	----	<0.05	----	----
EP068D: Pyrethroids											
Bifenthrin	EP068	0.05	mg/kg	----	840		<0.05	----	<0.05	----	----

NEPM (2013) Table 1A - Schedule B1 Guideline on Investigation Levels for Soil and Groundwater - Health investigation levels
Health investigation levels for soil contaminants - Residential B: HIL B

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	*Sample ID* / *Sampling date/time* TP08_1.0-1.2_241126 26-Nov-2024 09:35 EM2421130-006 MU	TP13_0.0-0.15_241126 26-Nov-2024 10:15 EM2421130-007 MU	TP13_0.8-0.9_241126 26-Nov-2024 10:30 EM2421130-008 MU	TP13_0.3-0.4_241126 26-Nov-2024 10:20 EM2421130-009 MU	TP10_0.0-0.3_241126 26-Nov-2024 12:20 EM2421130-011 MU
EP075(SIM)A: Phenolic Compounds										
Phenol	EP075(SIM)	0.5	mg/kg	----	45000	<0.5	----	<0.5	----	----
Pentachlorophenol	EP075(SIM)	2	mg/kg	----	130	<2	----	<2	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons										
Sum of polycyclic aromatic hydrocarbons	EP075(SIM)	0.5	mg/kg	----	400	<0.5	<0.5	<0.5	----	----
Benzo(a)pyrene TEQ (zero)	EP075(SIM)	0.5	mg/kg	----	4	<0.5	<0.5	<0.5	----	----
Benzo(a)pyrene TEQ (half LOR)	EP075(SIM)	0.5	mg/kg	----	4	**0.6**	**0.6**	**0.6**	----	----
Benzo(a)pyrene TEQ (LOR)	EP075(SIM)	0.5	mg/kg	----	4	**1.2**	**1.2**	**1.2**	----	----

NEPM (2013) Table 1A - Schedule B1 Guideline on Investigation Levels for Soil and Groundwater - Health investigation levels
Health investigation levels for soil contaminants - Commercial / industrial D: HIL D

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	TP10_0.4-0.5_241126 (Sample ID) / 26-Nov-2024 12:14 (Sampling date/time) / EM2421130-012	MU	TP10_1.0-1.3-241126 / 26-Nov-2024 12:25 / EM2421130-013	MU	TP17_0.4-0.5_241126 / 26-Nov-2024 11:35 / EM2421130-015	MU	TP17_1.0-1.1_241126 / 26-Nov-2024 11:45 / EM2421130-016	MU	TP07_0.4-0.5_241125 / 25-Nov-2024 14:30 / EM2421130-017	MU
EG005(ED093)T: Total Metals by ICP-AES															
Beryllium	EG005T	1	mg/kg	----	500	----		<1	--	<1	--	----		----	
Boron	EG005T	50	mg/kg	----	300000	----		<50	--	<50	--	----		<50	--
Cobalt	EG005T	2	mg/kg	----	4000	----		**4**	± 0.5	<2	--	----		----	
Manganese	EG005T	5	mg/kg	----	60000	----		**31**	± 4	**28**	± 4	----		**71**	± 8
Selenium	EG005T	5	mg/kg	----	10000	----		<5	--	<5	--	----		----	
Arsenic	EG005T	5	mg/kg	----	3000	<5	--	<5	--	<5	--	----		----	
Cadmium	EG005T	1	mg/kg	----	900	<1	--	<1	--	<1	--	----		----	
Copper	EG005T	5	mg/kg	----	240000	**78**	± 9	**21**	± 3	**37**	± 4	----		----	
Lead	EG005T	5	mg/kg	----	1500	<5	--	<5	--	<5	--	----		----	
Nickel	EG005T	2	mg/kg	----	6000	**6**	± 0.6	**6**	± 0.7	<2	--	----		----	
Zinc	EG005T	5	mg/kg	----	400000	**17**	± 3	**14**	± 3	**5**	± 2	----		----	
EG035T: Total Recoverable Mercury by FIMS															
Mercury	EG035T	0.1	mg/kg	----	730	<0.1	--	<0.1	--	<0.1	--	----		----	
EG048: Hexavalent Chromium (Alkaline Digest)															
Hexavalent Chromium	EG048G	0.5	mg/kg	----	3600	----		<0.5	--	<0.5	--	----		----	
EP066: Polychlorinated Biphenyls (PCB)															
Total Polychlorinated biphenyls	EP066	0.1	mg/kg	----	7	----		<0.1		<0.1		----		----	
EP068A: Organochlorine Pesticides (OC)															
Hexachlorobenzene (HCB)	EP068	0.05	mg/kg	----	80	----		<0.05		<0.05		----		----	
Heptachlor	EP068	0.05	mg/kg	----	50	----		<0.05		<0.05		----		----	
Endrin	EP068	0.05	mg/kg	----	100	----		<0.05		<0.05		----		----	
Endosulfan (sum)	EP068	0.05	mg/kg	----	2000	----		<0.05		<0.05		----		----	
Methoxychlor	EP068	0.2	mg/kg	----	2500	----		<0.2		<0.2		----		----	
Mirex	EP068	0.20	mg/kg	----	100	----		<0.20		<0.20		----		----	
Sum of Aldrin + Dieldrin	EP068	0.05	mg/kg	----	45	----		<0.05		<0.05		----		----	
Sum of DDD + DDE + DDT	EP068	0.05	mg/kg	----	3600	----		<0.05		<0.05		----		----	
EP068B: Organophosphorus Pesticides (OP)															
Chlorpyrifos	EP068	0.05	mg/kg	----	2000	----		<0.05		<0.05		----		----	
EP068C: Triazines															
Atrazine	EP068	0.05	mg/kg	----	2500	----		<0.05		<0.05		----		----	
EP068D: Pyrethroids															
Bifenthrin	EP068	0.05	mg/kg	----	4500	----		<0.05		<0.05		----		----	

NEPM (2013) Table 1A - Schedule B1 Guideline on Investigation Levels for Soil and Groundwater - Health investigation levels
Health investigation levels for soil contaminants - Commercial / industrial D: HIL D

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	*Sample ID* / *Sampling date/time* TP10_0.4-0.5_241126 26-Nov-2024 12:14 EM2421130-012 MU	TP10_1.0-1.3-241126 26-Nov-2024 12:25 EM2421130-013 MU	TP17_0.4-0.5_241126 26-Nov-2024 11:35 EM2421130-015 MU	TP17_1.0-1.1_241126 26-Nov-2024 11:45 EM2421130-016 MU	TP07_0.4-0.5_241125 25-Nov-2024 14:30 EM2421130-017 MU
EP075(SIM)A: Phenolic Compounds										
Phenol	EP075(SIM)	0.5	mg/kg	----	240000	**----**	<0.5	<0.5	**----**	**----**
Pentachlorophenol	EP075(SIM)	2	mg/kg	----	660	**----**	<2	<2	**----**	**----**
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons										
Sum of polycyclic aromatic hydrocarbons	EP075(SIM)	0.5	mg/kg	----	4000	<0.5	<0.5	<0.5	**----**	**----**
Benzo(a)pyrene TEQ (zero)	EP075(SIM)	0.5	mg/kg	----	40	<0.5	<0.5	<0.5	**----**	**----**
Benzo(a)pyrene TEQ (half LOR)	EP075(SIM)	0.5	mg/kg	----	40	**0.6**	**0.6**	**0.6**	**----**	**----**
Benzo(a)pyrene TEQ (LOR)	EP075(SIM)	0.5	mg/kg	----	40	**1.2**	**1.2**	**1.2**	**----**	**----**

NEPM (2013) Table 1A - Schedule B1 Guideline on Investigation Levels for Soil and Groundwater - Health investigation levels
Health investigation levels for soil contaminants - Recreational C: HIL C

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	Sample ID	TP10_0.4-0.5_241126	TP10_1.0-1.3-241126	TP17_0.4-0.5_241126	TP17_1.0-1.1_241126	TP07_0.4-0.5_241125
						Sampling date/time	26-Nov-2024 12:14	26-Nov-2024 12:25	26-Nov-2024 11:35	26-Nov-2024 11:45	25-Nov-2024 14:30
							EM2421130-012 MU	EM2421130-013 MU	EM2421130-015 MU	EM2421130-016 MU	EM2421130-017 MU
EG005(ED093)T: Total Metals by ICP-AES											
Beryllium	EG005T	1	mg/kg	----	90		----	<1 --	<1 --	----	----
Boron	EG005T	50	mg/kg	----	20000		----	<50 --	<50 --	----	<50 --
Cobalt	EG005T	2	mg/kg	----	300		----	**4** ± 0.5	<2 --	----	----
Manganese	EG005T	5	mg/kg	----	19000		----	**31** ± 4	**28** ± 4	----	**71** ± 8
Selenium	EG005T	5	mg/kg	----	700		----	<5 --	<5 --	----	----
Arsenic	EG005T	5	mg/kg	----	300		<5 --	<5 --	<5 --	----	----
Cadmium	EG005T	1	mg/kg	----	90		<1 --	<1 --	<1 --	----	----
Copper	EG005T	5	mg/kg	----	17000		**78** ± 9	**21** ± 3	**37** ± 4	----	----
Lead	EG005T	5	mg/kg	----	600		<5 --	<5 --	<5 --	----	----
Nickel	EG005T	2	mg/kg	----	1200		**6** ± 0.6	**6** ± 0.7	<2 --	----	----
Zinc	EG005T	5	mg/kg	----	30000		**17** ± 3	**14** ± 3	**5** ± 2	----	----
EG035T: Total Recoverable Mercury by FIMS											
Mercury	EG035T	0.1	mg/kg	----	80		<0.1 --	<0.1 --	<0.1 --	----	----
EG048: Hexavalent Chromium (Alkaline Digest)											
Hexavalent Chromium	EG048G	0.5	mg/kg	----	300		----	<0.5 --	<0.5 --	----	----
EP066: Polychlorinated Biphenyls (PCB)											
Total Polychlorinated biphenyls	EP066	0.1	mg/kg	----	1		----	<0.1	<0.1	----	----
EP068A: Organochlorine Pesticides (OC)											
Hexachlorobenzene (HCB)	EP068	0.05	mg/kg	----	10		----	<0.05	<0.05	----	----
Heptachlor	EP068	0.05	mg/kg	----	10		----	<0.05	<0.05	----	----
Endrin	EP068	0.05	mg/kg	----	20		----	<0.05	<0.05	----	----
Endosulfan (sum)	EP068	0.05	mg/kg	----	340		----	<0.05	<0.05	----	----
Methoxychlor	EP068	0.2	mg/kg	----	400		----	<0.2	<0.2	----	----
Mirex	EP068	0.20	mg/kg	----	20		----	<0.20	<0.20	----	----
Sum of Aldrin + Dieldrin	EP068	0.05	mg/kg	----	10		----	<0.05	<0.05	----	----
Sum of DDD + DDE + DDT	EP068	0.05	mg/kg	----	400		----	<0.05	<0.05	----	----
EP068B: Organophosphorus Pesticides (OP)											
Chlorpyrifos	EP068	0.05	mg/kg	----	250		----	<0.05	<0.05	----	----
EP068C: Triazines											
Atrazine	EP068	0.05	mg/kg	----	400		----	<0.05	<0.05	----	----
EP068D: Pyrethroids											
Bifenthrin	EP068	0.05	mg/kg	----	730		----	<0.05	<0.05	----	----

NEPM (2013) Table 1A - Schedule B1 Guideline on Investigation Levels for Soil and Groundwater - Health investigation levels
Health investigation levels for soil contaminants - Recreational C: HIL C

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	TP10_0.4-0.5_241126	TP10_1.0-1.3-241126	TP17_0.4-0.5_241126	TP17_1.0-1.1_241126	TP07_0.4-0.5_241125
Sample ID										
Sampling date/time						26-Nov-2024 12:14	26-Nov-2024 12:25	26-Nov-2024 11:35	26-Nov-2024 11:45	25-Nov-2024 14:30
						EM2421130-012 MU	EM2421130-013 MU	EM2421130-015 MU	EM2421130-016 MU	EM2421130-017 MU
EP075(SIM)A: Phenolic Compounds										
Phenol	EP075(SIM)	0.5	mg/kg	----	40000	**----**	<0.5	<0.5	**----**	**----**
Pentachlorophenol	EP075(SIM)	2	mg/kg	----	120	**----**	<2	<2	**----**	**----**
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons										
Sum of polycyclic aromatic hydrocarbons	EP075(SIM)	0.5	mg/kg	----	300	<0.5	<0.5	<0.5	**----**	**----**
Benzo(a)pyrene TEQ (zero)	EP075(SIM)	0.5	mg/kg	----	3	<0.5	<0.5	<0.5	**----**	**----**
Benzo(a)pyrene TEQ (half LOR)	EP075(SIM)	0.5	mg/kg	----	3	**0.6**	**0.6**	**0.6**	**----**	**----**
Benzo(a)pyrene TEQ (LOR)	EP075(SIM)	0.5	mg/kg	----	3	**1.2**	**1.2**	**1.2**	**----**	**----**

NEPM (2013) Table 1A - Schedule B1 Guideline on Investigation Levels for Soil and Groundwater - Health investigation levels
Health investigation levels for soil contaminants - Residential A: HIL A

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	Sample ID	TP10_0.4-0.5_241126	TP10_1.0-1.3-241126	TP17_0.4-0.5_241126	TP17_1.0-1.1_241126	TP07_0.4-0.5_241125
						Sampling date/time	26-Nov-2024 12:14	26-Nov-2024 12:25	26-Nov-2024 11:35	26-Nov-2024 11:45	25-Nov-2024 14:30
							EM2421130-012 MU	EM2421130-013 MU	EM2421130-015 MU	EM2421130-016 MU	EM2421130-017 MU
EG005(ED093)T: Total Metals by ICP-AES											
Beryllium	EG005T	1	mg/kg	----	60		----	<1 --	<1 --	----	----
Boron	EG005T	50	mg/kg	----	4500		----	<50 --	<50 --	----	<50 --
Cobalt	EG005T	2	mg/kg	----	100		----	**4** ± 0.5	<2 --	----	----
Manganese	EG005T	5	mg/kg	----	3800		----	**31** ± 4	**28** ± 4	----	**71** ± 8
Selenium	EG005T	5	mg/kg	----	200		----	<5 --	<5 --	----	----
Arsenic	EG005T	5	mg/kg	----	100		<5 --	<5 --	<5 --	----	----
Cadmium	EG005T	1	mg/kg	----	20		<1 --	<1 --	<1 --	----	----
Copper	EG005T	5	mg/kg	----	6000		**78** ± 9	**21** ± 3	**37** ± 4	----	----
Lead	EG005T	5	mg/kg	----	300		<5 --	<5 --	<5 --	----	----
Nickel	EG005T	2	mg/kg	----	400		**6** ± 0.6	**6** ± 0.7	<2 --	----	----
Zinc	EG005T	5	mg/kg	----	7400		**17** ± 3	**14** ± 3	**5** ± 2	----	----
EG035T: Total Recoverable Mercury by FIMS											
Mercury	EG035T	0.1	mg/kg	----	40		<0.1 --	<0.1 --	<0.1 --	----	----
EG048: Hexavalent Chromium (Alkaline Digest)											
Hexavalent Chromium	EG048G	0.5	mg/kg	----	100		----	<0.5 --	<0.5 --	----	----
EP066: Polychlorinated Biphenyls (PCB)											
Total Polychlorinated biphenyls	EP066	0.1	mg/kg	----	1		----	<0.1	<0.1	----	----
EP068A: Organochlorine Pesticides (OC)											
Hexachlorobenzene (HCB)	EP068	0.05	mg/kg	----	10		----	<0.05	<0.05	----	----
Heptachlor	EP068	0.05	mg/kg	----	6		----	<0.05	<0.05	----	----
Endrin	EP068	0.05	mg/kg	----	10		----	<0.05	<0.05	----	----
Endosulfan (sum)	EP068	0.05	mg/kg	----	270		----	<0.05	<0.05	----	----
Methoxychlor	EP068	0.2	mg/kg	----	300		----	<0.2	<0.2	----	----
Mirex	EP068	0.20	mg/kg	----	10		----	<0.20	<0.20	----	----
Sum of Aldrin + Dieldrin	EP068	0.05	mg/kg	----	6		----	<0.05	<0.05	----	----
Sum of DDD + DDE + DDT	EP068	0.05	mg/kg	----	240		----	<0.05	<0.05	----	----
EP068B: Organophosphorus Pesticides (OP)											
Chlorpyrifos	EP068	0.05	mg/kg	----	160		----	<0.05	<0.05	----	----
EP068C: Triazines											
Atrazine	EP068	0.05	mg/kg	----	320		----	<0.05	<0.05	----	----
EP068D: Pyrethroids											
Bifenthrin	EP068	0.05	mg/kg	----	600		----	<0.05	<0.05	----	----

NEPM (2013) Table 1A - Schedule B1 Guideline on Investigation Levels for Soil and Groundwater - Health investigation levels
Health investigation levels for soil contaminants - Residential A: HIL A

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	*Sample ID* / *Sampling date/time* TP10_0.4-0.5_241126 26-Nov-2024 12:14 EM2421130-012 MU	TP10_1.0-1.3-241126 26-Nov-2024 12:25 EM2421130-013 MU	TP17_0.4-0.5_241126 26-Nov-2024 11:35 EM2421130-015 MU	TP17_1.0-1.1_241126 26-Nov-2024 11:45 EM2421130-016 MU	TP07_0.4-0.5_241125 25-Nov-2024 14:30 EM2421130-017 MU
EP075(SIM)A: Phenolic Compounds										
Phenol	EP075(SIM)	0.5	mg/kg	----	3000	**----**	<0.5	<0.5	**----**	**----**
Pentachlorophenol	EP075(SIM)	2	mg/kg	----	100	**----**	<2	<2	**----**	**----**
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons										
Sum of polycyclic aromatic hydrocarbons	EP075(SIM)	0.5	mg/kg	----	300	<0.5	<0.5	<0.5	**----**	**----**
Benzo(a)pyrene TEQ (zero)	EP075(SIM)	0.5	mg/kg	----	3	<0.5	<0.5	<0.5	**----**	**----**
Benzo(a)pyrene TEQ (half LOR)	EP075(SIM)	0.5	mg/kg	----	3	**0.6**	**0.6**	**0.6**	**----**	**----**
Benzo(a)pyrene TEQ (LOR)	EP075(SIM)	0.5	mg/kg	----	3	**1.2**	**1.2**	**1.2**	**----**	**----**

NEPM (2013) Table 1A - Schedule B1 Guideline on Investigation Levels for Soil and Groundwater - Health investigation levels
Health investigation levels for soil contaminants - Residential B: HIL B

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	TP10_0.4-0.5_241126 (Sample ID) / 26-Nov-2024 12:14 (Sampling date/time) / EM2421130-012	MU	TP10_1.0-1.3-241126 / 26-Nov-2024 12:25 / EM2421130-013	MU	TP17_0.4-0.5_241126 / 26-Nov-2024 11:35 / EM2421130-015	MU	TP17_1.0-1.1_241126 / 26-Nov-2024 11:45 / EM2421130-016	MU	TP07_0.4-0.5_241125 / 25-Nov-2024 14:30 / EM2421130-017	MU
EG005(ED093)T: Total Metals by ICP-AES															
Beryllium	EG005T	1	mg/kg	----	90	----		<1	--	<1	--	----		----	
Boron	EG005T	50	mg/kg	----	40000	----		<50	--	<50	--	----		<50	--
Cobalt	EG005T	2	mg/kg	----	600	----		**4**	± 0.5	<2	--	----		----	
Manganese	EG005T	5	mg/kg	----	14000	----		**31**	± 4	**28**	± 4	----		**71**	± 8
Selenium	EG005T	5	mg/kg	----	1400	----		<5	--	<5	--	----		----	
Arsenic	EG005T	5	mg/kg	----	500	<5	--	<5	--	<5	--	----		----	
Cadmium	EG005T	1	mg/kg	----	150	<1	--	<1	--	<1	--	----		----	
Copper	EG005T	5	mg/kg	----	30000	**78**	± 9	**21**	± 3	**37**	± 4	----		----	
Lead	EG005T	5	mg/kg	----	1200	<5	--	<5	--	<5	--	----		----	
Nickel	EG005T	2	mg/kg	----	1200	**6**	± 0.6	**6**	± 0.7	<2	--	----		----	
Zinc	EG005T	5	mg/kg	----	60000	**17**	± 3	**14**	± 3	**5**	± 2	----		----	
EG035T: Total Recoverable Mercury by FIMS															
Mercury	EG035T	0.1	mg/kg	----	120	<0.1	--	<0.1	--	<0.1	--	----		----	
EG048: Hexavalent Chromium (Alkaline Digest)															
Hexavalent Chromium	EG048G	0.5	mg/kg	----	500	----		<0.5	--	<0.5	--	----		----	
EP066: Polychlorinated Biphenyls (PCB)															
Total Polychlorinated biphenyls	EP066	0.1	mg/kg	----	1	----		<0.1		<0.1		----		----	
EP068A: Organochlorine Pesticides (OC)															
Hexachlorobenzene (HCB)	EP068	0.05	mg/kg	----	15	----		<0.05		<0.05		----		----	
Heptachlor	EP068	0.05	mg/kg	----	10	----		<0.05		<0.05		----		----	
Endrin	EP068	0.05	mg/kg	----	20	----		<0.05		<0.05		----		----	
Endosulfan (sum)	EP068	0.05	mg/kg	----	400	----		<0.05		<0.05		----		----	
Methoxychlor	EP068	0.2	mg/kg	----	500	----		<0.2		<0.2		----		----	
Mirex	EP068	0.20	mg/kg	----	20	----		<0.20		<0.20		----		----	
Sum of Aldrin + Dieldrin	EP068	0.05	mg/kg	----	10	----		<0.05		<0.05		----		----	
Sum of DDD + DDE + DDT	EP068	0.05	mg/kg	----	600	----		<0.05		<0.05		----		----	
EP068B: Organophosphorus Pesticides (OP)															
Chlorpyrifos	EP068	0.05	mg/kg	----	340	----		<0.05		<0.05		----		----	
EP068C: Triazines															
Atrazine	EP068	0.05	mg/kg	----	470	----		<0.05		<0.05		----		----	
EP068D: Pyrethroids															
Bifenthrin	EP068	0.05	mg/kg	----	840	----		<0.05		<0.05		----		----	

NEPM (2013) Table 1A - Schedule B1 Guideline on Investigation Levels for Soil and Groundwater - Health investigation levels
Health investigation levels for soil contaminants - Residential B: HIL B

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	*Sample ID* / *Sampling date/time* TP10_0.4-0.5_241126 26-Nov-2024 12:14 EM2421130-012 MU	TP10_1.0-1.3-241126 26-Nov-2024 12:25 EM2421130-013 MU	TP17_0.4-0.5_241126 26-Nov-2024 11:35 EM2421130-015 MU	TP17_1.0-1.1_241126 26-Nov-2024 11:45 EM2421130-016 MU	TP07_0.4-0.5_241125 25-Nov-2024 14:30 EM2421130-017 MU
EP075(SIM)A: Phenolic Compounds										
Phenol	EP075(SIM)	0.5	mg/kg	----	45000	**----**	<0.5	<0.5	**----**	**----**
Pentachlorophenol	EP075(SIM)	2	mg/kg	----	130	**----**	<2	<2	**----**	**----**
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons										
Sum of polycyclic aromatic hydrocarbons	EP075(SIM)	0.5	mg/kg	----	400	<0.5	<0.5	<0.5	**----**	**----**
Benzo(a)pyrene TEQ (zero)	EP075(SIM)	0.5	mg/kg	----	4	<0.5	<0.5	<0.5	**----**	**----**
Benzo(a)pyrene TEQ (half LOR)	EP075(SIM)	0.5	mg/kg	----	4	**0.6**	**0.6**	**0.6**	**----**	**----**
Benzo(a)pyrene TEQ (LOR)	EP075(SIM)	0.5	mg/kg	----	4	**1.2**	**1.2**	**1.2**	**----**	**----**

NEPM (2013) Table 1A - Schedule B1 Guideline on Investigation Levels for Soil and Groundwater - Health investigation levels
Health investigation levels for soil contaminants - Commercial / industrial D: HIL D

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	TP07_0.0-0.15_241125	TP07_1.0-1.1_241125	TP09_0.0-0.15_241126	TP09_0.4-0.5_241125	TP09_1.0-1.1_241125
Sample ID										
Sampling date/time						25-Nov-2024 14:31	25-Nov-2024 14:30	25-Nov-2024 16:00	25-Nov-2024 15:30	25-Nov-2024 15:30
						EM2421130-018 MU	EM2421130-019 MU	EM2421130-020 MU	EM2421130-021 MU	EM2421130-022 MU
EG005(ED093)T: Total Metals by ICP-AES										
Beryllium	EG005T	1	mg/kg	----	500	----	<1 --	<1 --	<1 --	----
Boron	EG005T	50	mg/kg	----	300000	----	<50 --	<50 --	<50 --	----
Cobalt	EG005T	2	mg/kg	----	4000	----	**3** ± 0.4	<2 --	**2** ± 0.4	----
Manganese	EG005T	5	mg/kg	----	60000	----	**64** ± 7	**53** ± 6	**63** ± 7	----
Selenium	EG005T	5	mg/kg	----	10000	----	<5 --	<5 --	<5 --	----
Arsenic	EG005T	5	mg/kg	----	3000	<5 --	<5 --	<5 --	<5 --	<5 --
Cadmium	EG005T	1	mg/kg	----	900	<1 --	<1 --	<1 --	<1 --	<1 --
Copper	EG005T	5	mg/kg	----	240000	**111** ± 13	**66** ± 8	**178** ± 22	**21** ± 3	**18** ± 2
Lead	EG005T	5	mg/kg	----	1500	<5 --	<5 --	<5 --	<5 --	<5 --
Nickel	EG005T	2	mg/kg	----	6000	**5** ± 0.6	**5** ± 0.5	**2** ± 0.3	**4** ± 0.4	**4** ± 0.5
Zinc	EG005T	5	mg/kg	----	400000	**17** ± 3	**15** ± 3	**9** ± 2	**12** ± 3	**12** ± 3
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	730	<0.1 --	<0.1 --	<0.1 --	<0.1 --	<0.1 --
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	3600	----	<0.5 --	<0.5 --	<0.5 --	----
EP066: Polychlorinated Biphenyls (PCB)										
Total Polychlorinated biphenyls	EP066	0.1	mg/kg	----	7	----	<0.1	<0.1	<0.1	----
EP068A: Organochlorine Pesticides (OC)										
Hexachlorobenzene (HCB)	EP068	0.05	mg/kg	----	80	----	<0.05	<0.05	<0.05	----
Heptachlor	EP068	0.05	mg/kg	----	50	----	<0.05	<0.05	<0.05	----
Endrin	EP068	0.05	mg/kg	----	100	----	<0.05	<0.05	<0.05	----
Endosulfan (sum)	EP068	0.05	mg/kg	----	2000	----	<0.05	<0.05	<0.05	----
Methoxychlor	EP068	0.2	mg/kg	----	2500	----	<0.2	<0.2	<0.2	----
Mirex	EP068	0.20	mg/kg	----	100	----	<0.20	<0.20	<0.20	----
Sum of Aldrin + Dieldrin	EP068	0.05	mg/kg	----	45	----	<0.05	<0.05	<0.05	----
Sum of DDD + DDE + DDT	EP068	0.05	mg/kg	----	3600	----	<0.05	<0.05	<0.05	----
EP068B: Organophosphorus Pesticides (OP)										
Chlorpyrifos	EP068	0.05	mg/kg	----	2000	----	<0.05	<0.05	<0.05	----
EP068C: Triazines										
Atrazine	EP068	0.05	mg/kg	----	2500	----	<0.05	<0.05	<0.05	----
EP068D: Pyrethroids										

NEPM (2013) Table 1A - Schedule B1 Guideline on Investigation Levels for Soil and Groundwater - Health investigation levels
Health investigation levels for soil contaminants - Commercial / industrial D: HIL D

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	*Sample ID* / *Sampling date/time*	TP07_0.0-0.15_241125 25-Nov-2024 14:31	TP07_1.0-1.1_241125 25-Nov-2024 14:30	TP09_0.0-0.15_241126 25-Nov-2024 16:00	TP09_0.4-0.5_241125 25-Nov-2024 15:30	TP09_1.0-1.1_241125 25-Nov-2024 15:30
							EM2421130-018 MU	EM2421130-019 MU	EM2421130-020 MU	EM2421130-021 MU	EM2421130-022 MU
EP068D: Pyrethroids - Continued											
Bifenthrin	EP068	0.05	mg/kg	----	4500		**----**	<0.05	<0.05	<0.05	**----**
EP075(SIM)A: Phenolic Compounds											
Phenol	EP075(SIM)	0.5	mg/kg	----	240000		**----**	<0.5	<0.5	<0.5	**----**
Pentachlorophenol	EP075(SIM)	2	mg/kg	----	660		**----**	<2	<2	<2	**----**
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons											
Sum of polycyclic aromatic hydrocarbons	EP075(SIM)	0.5	mg/kg	----	4000		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ (zero)	EP075(SIM)	0.5	mg/kg	----	40		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ (half LOR)	EP075(SIM)	0.5	mg/kg	----	40		**0.6**	**0.6**	**0.6**	**0.6**	**0.6**
Benzo(a)pyrene TEQ (LOR)	EP075(SIM)	0.5	mg/kg	----	40		**1.2**	**1.2**	**1.2**	**1.2**	**1.2**

NEPM (2013) Table 1A - Schedule B1 Guideline on Investigation Levels for Soil and Groundwater - Health investigation levels
Health investigation levels for soil contaminants - Recreational C: HIL C

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	Sample ID / Sampling date/time	TP07_0.0-0.15_241125 25-Nov-2024 14:31 EM2421130-018 MU	TP07_1.0-1.1_241125 25-Nov-2024 14:30 EM2421130-019 MU	TP09_0.0-0.15_241126 25-Nov-2024 16:00 EM2421130-020 MU	TP09_0.4-0.5_241125 25-Nov-2024 15:30 EM2421130-021 MU	TP09_1.0-1.1_241125 25-Nov-2024 15:30 EM2421130-022 MU
EG005(ED093)T: Total Metals by ICP-AES											
Beryllium	EG005T	1	mg/kg	----	90		----	<1 --	<1 --	<1 --	----
Boron	EG005T	50	mg/kg	----	20000		----	<50 --	<50 --	<50 --	----
Cobalt	EG005T	2	mg/kg	----	300		----	**3** ± 0.4	<2 --	**2** ± 0.4	----
Manganese	EG005T	5	mg/kg	----	19000		----	**64** ± 7	**53** ± 6	**63** ± 7	----
Selenium	EG005T	5	mg/kg	----	700		----	<5 --	<5 --	<5 --	----
Arsenic	EG005T	5	mg/kg	----	300		<5 --	<5 --	<5 --	<5 --	<5 --
Cadmium	EG005T	1	mg/kg	----	90		<1 --	<1 --	<1 --	<1 --	<1 --
Copper	EG005T	5	mg/kg	----	17000		**111** ± 13	**66** ± 8	**178** ± 22	**21** ± 3	**18** ± 2
Lead	EG005T	5	mg/kg	----	600		<5 --	<5 --	<5 --	<5 --	<5 --
Nickel	EG005T	2	mg/kg	----	1200		**5** ± 0.6	**5** ± 0.5	**2** ± 0.3	**4** ± 0.4	**4** ± 0.5
Zinc	EG005T	5	mg/kg	----	30000		**17** ± 3	**15** ± 3	**9** ± 2	**12** ± 3	**12** ± 3
EG035T: Total Recoverable Mercury by FIMS											
Mercury	EG035T	0.1	mg/kg	----	80		<0.1 --	<0.1 --	<0.1 --	<0.1 --	<0.1 --
EG048: Hexavalent Chromium (Alkaline Digest)											
Hexavalent Chromium	EG048G	0.5	mg/kg	----	300		----	<0.5 --	<0.5 --	<0.5 --	----
EP066: Polychlorinated Biphenyls (PCB)											
Total Polychlorinated biphenyls	EP066	0.1	mg/kg	----	1		----	<0.1	<0.1	<0.1	----
EP068A: Organochlorine Pesticides (OC)											
Hexachlorobenzene (HCB)	EP068	0.05	mg/kg	----	10		----	<0.05	<0.05	<0.05	----
Heptachlor	EP068	0.05	mg/kg	----	10		----	<0.05	<0.05	<0.05	----
Endrin	EP068	0.05	mg/kg	----	20		----	<0.05	<0.05	<0.05	----
Endosulfan (sum)	EP068	0.05	mg/kg	----	340		----	<0.05	<0.05	<0.05	----
Methoxychlor	EP068	0.2	mg/kg	----	400		----	<0.2	<0.2	<0.2	----
Mirex	EP068	0.20	mg/kg	----	20		----	<0.20	<0.20	<0.20	----
Sum of Aldrin + Dieldrin	EP068	0.05	mg/kg	----	10		----	<0.05	<0.05	<0.05	----
Sum of DDD + DDE + DDT	EP068	0.05	mg/kg	----	400		----	<0.05	<0.05	<0.05	----
EP068B: Organophosphorus Pesticides (OP)											
Chlorpyrifos	EP068	0.05	mg/kg	----	250		----	<0.05	<0.05	<0.05	----
EP068C: Triazines											
Atrazine	EP068	0.05	mg/kg	----	400		----	<0.05	<0.05	<0.05	----
EP068D: Pyrethroids											

NEPM (2013) Table 1A - Schedule B1 Guideline on Investigation Levels for Soil and Groundwater - Health investigation levels
Health investigation levels for soil contaminants - Recreational C: HIL C

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	TP07_0.0-0.15 _241125	TP07_1.0-1.1_ 241125	TP09_0.0-0.15 _241126	TP09_0.4-0.5_ 241125	TP09_1.0-1.1_ 241125
Sample ID										
Sampling date/time						25-Nov-2024 14:31	25-Nov-2024 14:30	25-Nov-2024 16:00	25-Nov-2024 15:30	25-Nov-2024 15:30
						EM2421130-018 MU	EM2421130-019 MU	EM2421130-020 MU	EM2421130-021 MU	EM2421130-022 MU
EP068D: Pyrethroids - Continued										
Bifenthrin	EP068	0.05	mg/kg	----	730	**----**	<0.05	<0.05	<0.05	**----**
EP075(SIM)A: Phenolic Compounds										
Phenol	EP075(SIM)	0.5	mg/kg	----	40000	**----**	<0.5	<0.5	<0.5	**----**
Pentachlorophenol	EP075(SIM)	2	mg/kg	----	120	**----**	<2	<2	<2	**----**
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons										
Sum of polycyclic aromatic hydrocarbons	EP075(SIM)	0.5	mg/kg	----	300	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ (zero)	EP075(SIM)	0.5	mg/kg	----	3	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ (half LOR)	EP075(SIM)	0.5	mg/kg	----	3	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**
Benzo(a)pyrene TEQ (LOR)	EP075(SIM)	0.5	mg/kg	----	3	**1.2**	**1.2**	**1.2**	**1.2**	**1.2**

NEPM (2013) Table 1A - Schedule B1 Guideline on Investigation Levels for Soil and Groundwater - Health investigation levels
Health investigation levels for soil contaminants - Residential A: HIL A

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	TP07_0.0-0.15_241125 (Sample ID) / 25-Nov-2024 14:31 (Sampling date/time) / EM2421130-018	MU	TP07_1.0-1.1_241125 / 25-Nov-2024 14:30 / EM2421130-019	MU	TP09_0.0-0.15_241126 / 25-Nov-2024 16:00 / EM2421130-020	MU	TP09_0.4-0.5_241125 / 25-Nov-2024 15:30 / EM2421130-021	MU	TP09_1.0-1.1_241125 / 25-Nov-2024 15:30 / EM2421130-022	MU
EG005(ED093)T: Total Metals by ICP-AES															
Beryllium	EG005T	1	mg/kg	----	60	----		<1	--	<1	--	<1	--	----	
Boron	EG005T	50	mg/kg	----	4500	----		<50	--	<50	--	<50	--	----	
Cobalt	EG005T	2	mg/kg	----	100	----		**3**	± 0.4	<2	--	**2**	± 0.4	----	
Manganese	EG005T	5	mg/kg	----	3800	----		**64**	± 7	**53**	± 6	**63**	± 7	----	
Selenium	EG005T	5	mg/kg	----	200	----		<5	--	<5	--	<5	--	----	
Arsenic	EG005T	5	mg/kg	----	100	<5	--	<5	--	<5	--	<5	--	<5	--
Cadmium	EG005T	1	mg/kg	----	20	<1	--	<1	--	<1	--	<1	--	<1	--
Copper	EG005T	5	mg/kg	----	6000	**111**	± 13	**66**	± 8	**178**	± 22	**21**	± 3	**18**	± 2
Lead	EG005T	5	mg/kg	----	300	<5	--	<5	--	<5	--	<5	--	<5	--
Nickel	EG005T	2	mg/kg	----	400	**5**	± 0.6	**5**	± 0.5	**2**	± 0.3	**4**	± 0.4	**4**	± 0.5
Zinc	EG005T	5	mg/kg	----	7400	**17**	± 3	**15**	± 3	**9**	± 2	**12**	± 3	**12**	± 3
EG035T: Total Recoverable Mercury by FIMS															
Mercury	EG035T	0.1	mg/kg	----	40	<0.1	--	<0.1	--	<0.1	--	<0.1	--	<0.1	--
EG048: Hexavalent Chromium (Alkaline Digest)															
Hexavalent Chromium	EG048G	0.5	mg/kg	----	100	----		<0.5	--	<0.5	--	<0.5	--	----	
EP066: Polychlorinated Biphenyls (PCB)															
Total Polychlorinated biphenyls	EP066	0.1	mg/kg	----	1	----		<0.1		<0.1		<0.1		----	
EP068A: Organochlorine Pesticides (OC)															
Hexachlorobenzene (HCB)	EP068	0.05	mg/kg	----	10	----		<0.05		<0.05		<0.05		----	
Heptachlor	EP068	0.05	mg/kg	----	6	----		<0.05		<0.05		<0.05		----	
Endrin	EP068	0.05	mg/kg	----	10	----		<0.05		<0.05		<0.05		----	
Endosulfan (sum)	EP068	0.05	mg/kg	----	270	----		<0.05		<0.05		<0.05		----	
Methoxychlor	EP068	0.2	mg/kg	----	300	----		<0.2		<0.2		<0.2		----	
Mirex	EP068	0.20	mg/kg	----	10	----		<0.20		<0.20		<0.20		----	
Sum of Aldrin + Dieldrin	EP068	0.05	mg/kg	----	6	----		<0.05		<0.05		<0.05		----	
Sum of DDD + DDE + DDT	EP068	0.05	mg/kg	----	240	----		<0.05		<0.05		<0.05		----	
EP068B: Organophosphorus Pesticides (OP)															
Chlorpyrifos	EP068	0.05	mg/kg	----	160	----		<0.05		<0.05		<0.05		----	
EP068C: Triazines															
Atrazine	EP068	0.05	mg/kg	----	320	----		<0.05		<0.05		<0.05		----	
EP068D: Pyrethroids															

NEPM (2013) Table 1A - Schedule B1 Guideline on Investigation Levels for Soil and Groundwater - Health investigation levels
Health investigation levels for soil contaminants - Residential A: HIL A

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	TP07_0.0-0.15_241125	TP07_1.0-1.1_241125	TP09_0.0-0.15_241126	TP09_0.4-0.5_241125	TP09_1.0-1.1_241125
Sample ID										
Sampling date/time						25-Nov-2024 14:31	25-Nov-2024 14:30	25-Nov-2024 16:00	25-Nov-2024 15:30	25-Nov-2024 15:30
						EM2421130-018 MU	EM2421130-019 MU	EM2421130-020 MU	EM2421130-021 MU	EM2421130-022 MU
EP068D: Pyrethroids - Continued										
Bifenthrin	EP068	0.05	mg/kg	----	600	**----**	<0.05	<0.05	<0.05	**----**
EP075(SIM)A: Phenolic Compounds										
Phenol	EP075(SIM)	0.5	mg/kg	----	3000	**----**	<0.5	<0.5	<0.5	**----**
Pentachlorophenol	EP075(SIM)	2	mg/kg	----	100	**----**	<2	<2	<2	**----**
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons										
Sum of polycyclic aromatic hydrocarbons	EP075(SIM)	0.5	mg/kg	----	300	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ (zero)	EP075(SIM)	0.5	mg/kg	----	3	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ (half LOR)	EP075(SIM)	0.5	mg/kg	----	3	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**
Benzo(a)pyrene TEQ (LOR)	EP075(SIM)	0.5	mg/kg	----	3	**1.2**	**1.2**	**1.2**	**1.2**	**1.2**

NEPM (2013) Table 1A - Schedule B1 Guideline on Investigation Levels for Soil and Groundwater - Health investigation levels
Health investigation levels for soil contaminants - Residential B: HIL B

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	TP07_0.0-0.15_241125 (Sample ID) / 25-Nov-2024 14:31 (Sampling date/time) / EM2421130-018	MU	TP07_1.0-1.1_241125 / 25-Nov-2024 14:30 / EM2421130-019	MU	TP09_0.0-0.15_241126 / 25-Nov-2024 16:00 / EM2421130-020	MU	TP09_0.4-0.5_241125 / 25-Nov-2024 15:30 / EM2421130-021	MU	TP09_1.0-1.1_241125 / 25-Nov-2024 15:30 / EM2421130-022	MU
EG005(ED093)T: Total Metals by ICP-AES															
Beryllium	EG005T	1	mg/kg	----	90	----		<1	--	<1	--	<1	--	----	
Boron	EG005T	50	mg/kg	----	40000	----		<50	--	<50	--	<50	--	----	
Cobalt	EG005T	2	mg/kg	----	600	----		**3**	± 0.4	<2	--	**2**	± 0.4	----	
Manganese	EG005T	5	mg/kg	----	14000	----		**64**	± 7	**53**	± 6	**63**	± 7	----	
Selenium	EG005T	5	mg/kg	----	1400	----		<5	--	<5	--	<5	--	----	
Arsenic	EG005T	5	mg/kg	----	500	<5	--	<5	--	<5	--	<5	--	<5	--
Cadmium	EG005T	1	mg/kg	----	150	<1	--	<1	--	<1	--	<1	--	<1	--
Copper	EG005T	5	mg/kg	----	30000	**111**	± 13	**66**	± 8	**178**	± 22	**21**	± 3	**18**	± 2
Lead	EG005T	5	mg/kg	----	1200	<5	--	<5	--	<5	--	<5	--	<5	--
Nickel	EG005T	2	mg/kg	----	1200	**5**	± 0.6	**5**	± 0.5	**2**	± 0.3	**4**	± 0.4	**4**	± 0.5
Zinc	EG005T	5	mg/kg	----	60000	**17**	± 3	**15**	± 3	**9**	± 2	**12**	± 3	**12**	± 3
EG035T: Total Recoverable Mercury by FIMS															
Mercury	EG035T	0.1	mg/kg	----	120	<0.1	--	<0.1	--	<0.1	--	<0.1	--	<0.1	--
EG048: Hexavalent Chromium (Alkaline Digest)															
Hexavalent Chromium	EG048G	0.5	mg/kg	----	500	----		<0.5	--	<0.5	--	<0.5	--	----	
EP066: Polychlorinated Biphenyls (PCB)															
Total Polychlorinated biphenyls	EP066	0.1	mg/kg	----	1	----		<0.1		<0.1		<0.1		----	
EP068A: Organochlorine Pesticides (OC)															
Hexachlorobenzene (HCB)	EP068	0.05	mg/kg	----	15	----		<0.05		<0.05		<0.05		----	
Heptachlor	EP068	0.05	mg/kg	----	10	----		<0.05		<0.05		<0.05		----	
Endrin	EP068	0.05	mg/kg	----	20	----		<0.05		<0.05		<0.05		----	
Endosulfan (sum)	EP068	0.05	mg/kg	----	400	----		<0.05		<0.05		<0.05		----	
Methoxychlor	EP068	0.2	mg/kg	----	500	----		<0.2		<0.2		<0.2		----	
Mirex	EP068	0.20	mg/kg	----	20	----		<0.20		<0.20		<0.20		----	
Sum of Aldrin + Dieldrin	EP068	0.05	mg/kg	----	10	----		<0.05		<0.05		<0.05		----	
Sum of DDD + DDE + DDT	EP068	0.05	mg/kg	----	600	----		<0.05		<0.05		<0.05		----	
EP068B: Organophosphorus Pesticides (OP)															
Chlorpyrifos	EP068	0.05	mg/kg	----	340	----		<0.05		<0.05		<0.05		----	
EP068C: Triazines															
Atrazine	EP068	0.05	mg/kg	----	470	----		<0.05		<0.05		<0.05		----	
EP068D: Pyrethroids															

NEPM (2013) Table 1A - Schedule B1 Guideline on Investigation Levels for Soil and Groundwater - Health investigation levels
Health investigation levels for soil contaminants - Residential B: HIL B

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	*Sample ID* / *Sampling date/time*	TP07_0.0-0.15_241125 25-Nov-2024 14:31 EM2421130-018 MU	TP07_1.0-1.1_241125 25-Nov-2024 14:30 EM2421130-019 MU	TP09_0.0-0.15_241126 25-Nov-2024 16:00 EM2421130-020 MU	TP09_0.4-0.5_241125 25-Nov-2024 15:30 EM2421130-021 MU	TP09_1.0-1.1_241125 25-Nov-2024 15:30 EM2421130-022 MU
EP068D: Pyrethroids - Continued											
Bifenthrin	EP068	0.05	mg/kg	----	840		**----**	<0.05	<0.05	<0.05	**----**
EP075(SIM)A: Phenolic Compounds											
Phenol	EP075(SIM)	0.5	mg/kg	----	45000		**----**	<0.5	<0.5	<0.5	**----**
Pentachlorophenol	EP075(SIM)	2	mg/kg	----	130		**----**	<2	<2	<2	**----**
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons											
Sum of polycyclic aromatic hydrocarbons	EP075(SIM)	0.5	mg/kg	----	400		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ (zero)	EP075(SIM)	0.5	mg/kg	----	4		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ (half LOR)	EP075(SIM)	0.5	mg/kg	----	4		**0.6**	**0.6**	**0.6**	**0.6**	**0.6**
Benzo(a)pyrene TEQ (LOR)	EP075(SIM)	0.5	mg/kg	----	4		**1.2**	**1.2**	**1.2**	**1.2**	**1.2**

NEPM (2013) Table 1A - Schedule B1 Guideline on Investigation Levels for Soil and Groundwater - Health investigation levels
Health investigation levels for soil contaminants - Commercial / industrial D: HIL D

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	*Sample ID* / *Sampling date/time* / Guideline Lower Limit	Guideline Upper Limit	**TP09_2.0-2.1_241125** 25-Nov-2024 15:30 **EM2421130-023** MU	**TP09_1.0-1.5_241125** 25-Nov-2024 15:30 **EM2421130-024** MU	**TP17_2.0_2.1_241126** 26-Nov-2024 15:00 **EM2421130-025** MU	---- ----	---- ----
EG005(ED093)T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	3000	<5 --	----	<5 --	----	----
Beryllium	EG005T	1	mg/kg	----	500	<1 --	----	----	----	----
Boron	EG005T	50	mg/kg	----	300000	<50 --	<50 --	----	----	----
Cadmium	EG005T	1	mg/kg	----	900	<1 --	----	<1 --	----	----
Cobalt	EG005T	2	mg/kg	----	4000	**3** ± 0.4	----	----	----	----
Copper	EG005T	5	mg/kg	----	240000	**25** ± 3	----	**13** ± 2	----	----
Lead	EG005T	5	mg/kg	----	1500	<5 --	----	<5 --	----	----
Manganese	EG005T	5	mg/kg	----	60000	**43** ± 5	**38** ± 4	----	----	----
Nickel	EG005T	2	mg/kg	----	6000	**4** ± 0.5	----	<2 --	----	----
Selenium	EG005T	5	mg/kg	----	10000	<5 --	----	----	----	----
Zinc	EG005T	5	mg/kg	----	400000	**13** ± 3	----	**6** ± 2	----	----
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	730	<0.1 --	----	<0.1 --	----	----
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	3600	<0.5 --	----	----	----	----
EP066: Polychlorinated Biphenyls (PCB)										
Total Polychlorinated biphenyls	EP066	0.1	mg/kg	----	7	<0.1	----	----	----	----
EP068A: Organochlorine Pesticides (OC)										
Hexachlorobenzene (HCB)	EP068	0.05	mg/kg	----	80	<0.05	----	----	----	----
Heptachlor	EP068	0.05	mg/kg	----	50	<0.05	----	----	----	----
Endrin	EP068	0.05	mg/kg	----	100	<0.05	----	----	----	----
Endosulfan (sum)	EP068	0.05	mg/kg	----	2000	<0.05	----	----	----	----
Methoxychlor	EP068	0.2	mg/kg	----	2500	<0.2	----	----	----	----
Mirex	EP068	0.20	mg/kg	----	100	<0.20	----	----	----	----
Sum of Aldrin + Dieldrin	EP068	0.05	mg/kg	----	45	<0.05	----	----	----	----
Sum of DDD + DDE + DDT	EP068	0.05	mg/kg	----	3600	<0.05	----	----	----	----
EP068B: Organophosphorus Pesticides (OP)										
Chlorpyrifos	EP068	0.05	mg/kg	----	2000	<0.05	----	----	----	----
EP068C: Triazines										
Atrazine	EP068	0.05	mg/kg	----	2500	<0.05	----	----	----	----
EP068D: Pyrethroids										
Bifenthrin	EP068	0.05	mg/kg	----	4500	<0.05	----	----	----	----
EP075(SIM)A: Phenolic Compounds										

NEPM (2013) Table 1A - Schedule B1 Guideline on Investigation Levels for Soil and Groundwater - Health investigation levels
Health investigation levels for soil contaminants - Commercial / industrial D: HIL D

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	*Sample ID* / *Sampling date/time*	Guideline Lower Limit	Guideline Upper Limit	**TP09_2.0-2.1_241125** 25-Nov-2024 15:30 **EM2421130-023** MU	**TP09_1.0-1.5_241125** 25-Nov-2024 15:30 **EM2421130-024** MU	**TP17_2.0_2.1_241126** 26-Nov-2024 15:00 **EM2421130-025** MU	**----** ----	**----** ----
EP075(SIM)A: Phenolic Compounds - Continued											
Phenol	EP075(SIM)	0.5	mg/kg		----	240000	<0.5	**----**	**----**	**----**	**----**
Pentachlorophenol	EP075(SIM)	2	mg/kg		----	660	<2	**----**	**----**	**----**	**----**
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons											
Sum of polycyclic aromatic hydrocarbons	EP075(SIM)	0.5	mg/kg		----	4000	<0.5	**----**	<0.5	**----**	**----**
Benzo(a)pyrene TEQ (zero)	EP075(SIM)	0.5	mg/kg		----	40	<0.5	**----**	<0.5	**----**	**----**
Benzo(a)pyrene TEQ (half LOR)	EP075(SIM)	0.5	mg/kg		----	40	**0.6**	**----**	**0.6**	**----**	**----**
Benzo(a)pyrene TEQ (LOR)	EP075(SIM)	0.5	mg/kg		----	40	**1.2**	**----**	**1.2**	**----**	**----**

NEPM (2013) Table 1A - Schedule B1 Guideline on Investigation Levels for Soil and Groundwater - Health investigation levels
Health investigation levels for soil contaminants - Recreational C: HIL C

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	Sample ID: TP09_2.0-2.1_241125	Sample ID: TP09_1.0-1.5_241125	Sample ID: TP17_2.0_2.1_241126	----	----
						Sampling date/time: 25-Nov-2024 15:30	Sampling date/time: 25-Nov-2024 15:30	Sampling date/time: 26-Nov-2024 15:00	----	----
						EM2421130-023 MU	EM2421130-024 MU	EM2421130-025 MU		
EG005(ED093)T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	300	<5 --	----	<5 --	----	----
Beryllium	EG005T	1	mg/kg	----	90	<1 --	----	----	----	----
Boron	EG005T	50	mg/kg	----	20000	<50 --	<50 --	----	----	----
Cadmium	EG005T	1	mg/kg	----	90	<1 --	----	<1 --	----	----
Cobalt	EG005T	2	mg/kg	----	300	**3** ± 0.4	----	----	----	----
Copper	EG005T	5	mg/kg	----	17000	**25** ± 3	----	**13** ± 2	----	----
Lead	EG005T	5	mg/kg	----	600	<5 --	----	<5 --	----	----
Manganese	EG005T	5	mg/kg	----	19000	**43** ± 5	**38** ± 4	----	----	----
Nickel	EG005T	2	mg/kg	----	1200	**4** ± 0.5	----	<2 --	----	----
Selenium	EG005T	5	mg/kg	----	700	<5 --	----	----	----	----
Zinc	EG005T	5	mg/kg	----	30000	**13** ± 3	----	**6** ± 2	----	----
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	80	<0.1 --	----	<0.1 --	----	----
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	300	<0.5 --	----	----	----	----
EP066: Polychlorinated Biphenyls (PCB)										
Total Polychlorinated biphenyls	EP066	0.1	mg/kg	----	1	<0.1	----	----	----	----
EP068A: Organochlorine Pesticides (OC)										
Hexachlorobenzene (HCB)	EP068	0.05	mg/kg	----	10	<0.05	----	----	----	----
Heptachlor	EP068	0.05	mg/kg	----	10	<0.05	----	----	----	----
Endrin	EP068	0.05	mg/kg	----	20	<0.05	----	----	----	----
Endosulfan (sum)	EP068	0.05	mg/kg	----	340	<0.05	----	----	----	----
Methoxychlor	EP068	0.2	mg/kg	----	400	<0.2	----	----	----	----
Mirex	EP068	0.20	mg/kg	----	20	<0.20	----	----	----	----
Sum of Aldrin + Dieldrin	EP068	0.05	mg/kg	----	10	<0.05	----	----	----	----
Sum of DDD + DDE + DDT	EP068	0.05	mg/kg	----	400	<0.05	----	----	----	----
EP068B: Organophosphorus Pesticides (OP)										
Chlorpyrifos	EP068	0.05	mg/kg	----	250	<0.05	----	----	----	----
EP068C: Triazines										
Atrazine	EP068	0.05	mg/kg	----	400	<0.05	----	----	----	----
EP068D: Pyrethroids										
Bifenthrin	EP068	0.05	mg/kg	----	730	<0.05	----	----	----	----
EP075(SIM)A: Phenolic Compounds										

NEPM (2013) Table 1A - Schedule B1 Guideline on Investigation Levels for Soil and Groundwater - Health investigation levels
Health investigation levels for soil contaminants - Recreational C: HIL C

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	*Sample ID* / *Sampling date/time* / Guideline Lower Limit	Guideline Upper Limit	**TP09_2.0-2.1_241125** 25-Nov-2024 15:30 **EM2421130-023** MU	**TP09_1.0-1.5_241125** 25-Nov-2024 15:30 **EM2421130-024** MU	**TP17_2.0_2.1_241126** 26-Nov-2024 15:00 **EM2421130-025** MU	---- ----	---- ----
EP075(SIM)A: Phenolic Compounds - Continued										
Phenol	EP075(SIM)	0.5	mg/kg	----	40000	<0.5	----	----	----	----
Pentachlorophenol	EP075(SIM)	2	mg/kg	----	120	<2	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons										
Sum of polycyclic aromatic hydrocarbons	EP075(SIM)	0.5	mg/kg	----	300	<0.5	----	<0.5	----	----
Benzo(a)pyrene TEQ (zero)	EP075(SIM)	0.5	mg/kg	----	3	<0.5	----	<0.5	----	----
Benzo(a)pyrene TEQ (half LOR)	EP075(SIM)	0.5	mg/kg	----	3	**0.6**	----	**0.6**	----	----
Benzo(a)pyrene TEQ (LOR)	EP075(SIM)	0.5	mg/kg	----	3	**1.2**	----	**1.2**	----	----

NEPM (2013) Table 1A - Schedule B1 Guideline on Investigation Levels for Soil and Groundwater - Health investigation levels
Health investigation levels for soil contaminants - Residential A: HIL A

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	Sample ID: TP09_2.0-2.1_241125	Sample ID: TP09_1.0-1.5_241125	Sample ID: TP17_2.0_2.1_241126	Sample ID: ----	Sample ID: ----
			Sampling date/time			25-Nov-2024 15:30	25-Nov-2024 15:30	26-Nov-2024 15:00	----	----
						EM2421130-023 MU	EM2421130-024 MU	EM2421130-025 MU		
EG005(ED093)T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	100	<5 --	----	<5 --	----	----
Beryllium	EG005T	1	mg/kg	----	60	<1 --	----	----	----	----
Boron	EG005T	50	mg/kg	----	4500	<50 --	<50 --	----	----	----
Cadmium	EG005T	1	mg/kg	----	20	<1 --	----	<1 --	----	----
Cobalt	EG005T	2	mg/kg	----	100	**3** ± 0.4	----	----	----	----
Copper	EG005T	5	mg/kg	----	6000	**25** ± 3	----	**13** ± 2	----	----
Lead	EG005T	5	mg/kg	----	300	<5 --	----	<5 --	----	----
Manganese	EG005T	5	mg/kg	----	3800	**43** ± 5	**38** ± 4	----	----	----
Nickel	EG005T	2	mg/kg	----	400	**4** ± 0.5	----	<2 --	----	----
Selenium	EG005T	5	mg/kg	----	200	<5 --	----	----	----	----
Zinc	EG005T	5	mg/kg	----	7400	**13** ± 3	----	**6** ± 2	----	----
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	40	<0.1 --	----	<0.1 --	----	----
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	100	<0.5 --	----	----	----	----
EP066: Polychlorinated Biphenyls (PCB)										
Total Polychlorinated biphenyls	EP066	0.1	mg/kg	----	1	<0.1	----	----	----	----
EP068A: Organochlorine Pesticides (OC)										
Hexachlorobenzene (HCB)	EP068	0.05	mg/kg	----	10	<0.05	----	----	----	----
Heptachlor	EP068	0.05	mg/kg	----	6	<0.05	----	----	----	----
Endrin	EP068	0.05	mg/kg	----	10	<0.05	----	----	----	----
Endosulfan (sum)	EP068	0.05	mg/kg	----	270	<0.05	----	----	----	----
Methoxychlor	EP068	0.2	mg/kg	----	300	<0.2	----	----	----	----
Mirex	EP068	0.20	mg/kg	----	10	<0.20	----	----	----	----
Sum of Aldrin + Dieldrin	EP068	0.05	mg/kg	----	6	<0.05	----	----	----	----
Sum of DDD + DDE + DDT	EP068	0.05	mg/kg	----	240	<0.05	----	----	----	----
EP068B: Organophosphorus Pesticides (OP)										
Chlorpyrifos	EP068	0.05	mg/kg	----	160	<0.05	----	----	----	----
EP068C: Triazines										
Atrazine	EP068	0.05	mg/kg	----	320	<0.05	----	----	----	----
EP068D: Pyrethroids										
Bifenthrin	EP068	0.05	mg/kg	----	600	<0.05	----	----	----	----
EP075(SIM)A: Phenolic Compounds										

NEPM (2013) Table 1A - Schedule B1 Guideline on Investigation Levels for Soil and Groundwater - Health investigation levels
Health investigation levels for soil contaminants - Residential A: HIL A

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	*Sample ID* / *Sampling date/time* / Guideline Lower Limit	Guideline Upper Limit	**TP09_2.0-2.1_241125** 25-Nov-2024 15:30 **EM2421130-023** MU	**TP09_1.0-1.5_241125** 25-Nov-2024 15:30 **EM2421130-024** MU	**TP17_2.0_2.1_241126** 26-Nov-2024 15:00 **EM2421130-025** MU	**----** ----	**----** ----
EP075(SIM)A: Phenolic Compounds - Continued										
Phenol	EP075(SIM)	0.5	mg/kg	----	3000	<0.5	**----**	**----**	**----**	**----**
Pentachlorophenol	EP075(SIM)	2	mg/kg	----	100	<2	**----**	**----**	**----**	**----**
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons										
Sum of polycyclic aromatic hydrocarbons	EP075(SIM)	0.5	mg/kg	----	300	<0.5	**----**	<0.5	**----**	**----**
Benzo(a)pyrene TEQ (zero)	EP075(SIM)	0.5	mg/kg	----	3	<0.5	**----**	<0.5	**----**	**----**
Benzo(a)pyrene TEQ (half LOR)	EP075(SIM)	0.5	mg/kg	----	3	**0.6**	**----**	**0.6**	**----**	**----**
Benzo(a)pyrene TEQ (LOR)	EP075(SIM)	0.5	mg/kg	----	3	**1.2**	**----**	**1.2**	**----**	**----**

NEPM (2013) Table 1A - Schedule B1 Guideline on Investigation Levels for Soil and Groundwater - Health investigation levels
Health investigation levels for soil contaminants - Residential B: HIL B

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	Sample ID: TP09_2.0-2.1_241125	Sample ID: TP09_1.0-1.5_241125	Sample ID: TP17_2.0_2.1_241126	----	----
						Sampling date/time: 25-Nov-2024 15:30	Sampling date/time: 25-Nov-2024 15:30	Sampling date/time: 26-Nov-2024 15:00	----	----
						EM2421130-023 MU	EM2421130-024 MU	EM2421130-025 MU		
EG005(ED093)T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	500	<5 --	----	<5 --	----	----
Beryllium	EG005T	1	mg/kg	----	90	<1 --	----	----	----	----
Boron	EG005T	50	mg/kg	----	40000	<50 --	<50 --	----	----	----
Cadmium	EG005T	1	mg/kg	----	150	<1 --	----	<1 --	----	----
Cobalt	EG005T	2	mg/kg	----	600	**3** ± 0.4	----	----	----	----
Copper	EG005T	5	mg/kg	----	30000	**25** ± 3	----	**13** ± 2	----	----
Lead	EG005T	5	mg/kg	----	1200	<5 --	----	<5 --	----	----
Manganese	EG005T	5	mg/kg	----	14000	**43** ± 5	**38** ± 4	----	----	----
Nickel	EG005T	2	mg/kg	----	1200	**4** ± 0.5	----	<2 --	----	----
Selenium	EG005T	5	mg/kg	----	1400	<5 --	----	----	----	----
Zinc	EG005T	5	mg/kg	----	60000	**13** ± 3	----	**6** ± 2	----	----
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	120	<0.1 --	----	<0.1 --	----	----
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	500	<0.5 --	----	----	----	----
EP066: Polychlorinated Biphenyls (PCB)										
Total Polychlorinated biphenyls	EP066	0.1	mg/kg	----	1	<0.1	----	----	----	----
EP068A: Organochlorine Pesticides (OC)										
Hexachlorobenzene (HCB)	EP068	0.05	mg/kg	----	15	<0.05	----	----	----	----
Heptachlor	EP068	0.05	mg/kg	----	10	<0.05	----	----	----	----
Endrin	EP068	0.05	mg/kg	----	20	<0.05	----	----	----	----
Endosulfan (sum)	EP068	0.05	mg/kg	----	400	<0.05	----	----	----	----
Methoxychlor	EP068	0.2	mg/kg	----	500	<0.2	----	----	----	----
Mirex	EP068	0.20	mg/kg	----	20	<0.20	----	----	----	----
Sum of Aldrin + Dieldrin	EP068	0.05	mg/kg	----	10	<0.05	----	----	----	----
Sum of DDD + DDE + DDT	EP068	0.05	mg/kg	----	600	<0.05	----	----	----	----
EP068B: Organophosphorus Pesticides (OP)										
Chlorpyrifos	EP068	0.05	mg/kg	----	340	<0.05	----	----	----	----
EP068C: Triazines										
Atrazine	EP068	0.05	mg/kg	----	470	<0.05	----	----	----	----
EP068D: Pyrethroids										
Bifenthrin	EP068	0.05	mg/kg	----	840	<0.05	----	----	----	----
EP075(SIM)A: Phenolic Compounds										

NEPM (2013) Table 1A - Schedule B1 Guideline on Investigation Levels for Soil and Groundwater - Health investigation levels
Health investigation levels for soil contaminants - Residential B: HIL B

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	*Sample ID* / *Sampling date/time*	Guideline Lower Limit	Guideline Upper Limit	TP09_2.0-2.1_241125 25-Nov-2024 15:30 EM2421130-023 MU	TP09_1.0-1.5_241125 25-Nov-2024 15:30 EM2421130-024 MU	TP17_2.0_2.1_241126 26-Nov-2024 15:00 EM2421130-025 MU	---- ----	---- ----
EP075(SIM)A: Phenolic Compounds - Continued											
Phenol	EP075(SIM)	0.5	mg/kg	----	45000	<0.5	----	----	----	----	
Pentachlorophenol	EP075(SIM)	2	mg/kg	----	130	<2	----	----	----	----	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons											
Sum of polycyclic aromatic hydrocarbons	EP075(SIM)	0.5	mg/kg	----	400	<0.5	----	<0.5	----	----	
Benzo(a)pyrene TEQ (zero)	EP075(SIM)	0.5	mg/kg	----	4	<0.5	----	<0.5	----	----	
Benzo(a)pyrene TEQ (half LOR)	EP075(SIM)	0.5	mg/kg	----	4	**0.6**	----	**0.6**	----	----	
Benzo(a)pyrene TEQ (LOR)	EP075(SIM)	0.5	mg/kg	----	4	**1.2**	----	**1.2**	----	----	

QUALITY CONTROL REPORT

Work Order	: **EM2421130**	Page	: 1 of 24
Client	: **EMM CONSULTING PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: Simony Sakamoto	Contact	: Customer Services EM
Address	: Level 1, 70 Pirie Street Adelaide 5000	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +61 3 8549 9600
Project	: Olympic Dam	Date Samples Received	: 03-Nov-2024
Order number	: E240975	Date Analysis Commenced	: 03-Dec-2024
C-O-C number	: 75724	Issue Date	: 21-Jan-2025
Sampler	: Simony Sakamoto		
Site	: Olympic Dam		
Quote number	: EM24EMGAMM0004_V2		
No. of samples received	: 25		
No. of samples analysed	: 23		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Aleksandar Vujkovic	Laboratory Technician	Newcastle - Inorganics, Mayfield West, NSW
Beatriz Llarinas	Senior Chemist - Inorganics	Brisbane Inorganics, Stafford, QLD
Ben Felgendrejeris	Senior Acid Sulfate Soil Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
Dilani Fernando	Laboratory Coordinator	Melbourne Inorganics, Springvale, VIC
Jarwis Nheu	Non-Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Kim McCabe	Senior Inorganic Chemist	Brisbane External Subcontracting, Stafford, QLD
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD
Nancy Wang	2IC Organic Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	2IC Organic Chemist	Melbourne Organics, Springvale, VIC
Nikki Stepniewski	Senior Inorganic Instrument Chemist	Melbourne Inorganics, Springvale, VIC
Satishkumar Trivedi	Senior Acid Sulfate Soil Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC
* = The final LOR has been raised due to dilution or other sample specific cause; adjusted LOR is shown in brackets. The duplicate ranges for Acceptable RPD% are applied to the final LOR where applicable.

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 6244303)									
EM2420433-002	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	<10	<10	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	13	10	19.7	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	27	18	42.4	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	6	<5	24.7	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	45	49	7.1	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Aluminium	7429-90-5	50	mg/kg	3500	2930	17.8	0% - 20%
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
		EG005T: Iron	7439-89-6	50	mg/kg	5850	6590	11.9	0% - 20%
		EG005T: Calcium	7440-70-2	50	mg/kg	180	200	12.5	No Limit
		EG005T: Magnesium	7439-95-4	50	mg/kg	230	300	28.1	No Limit
		EG005T: Sodium	7440-23-5	50	mg/kg	80	100	27.0	No Limit
		EG005T: Potassium	7440-09-7	50	mg/kg	60	70	0.0	No Limit
EM2421130-001	TP16_0.0-0.15_241126	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 6244303) - continued									
EM2421130-001	TP16_0.0-0.15_241126	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	100	140	41.2	0% - 50%
		EG005T: Chromium	7440-47-3	2	mg/kg	11	11	0.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	4	4	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	7	7	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	10	10	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	66	74	11.1	0% - 50%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	28	28	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	17	17	0.0	No Limit
		EG005T: Aluminium	7429-90-5	50	mg/kg	10000	10000	0.4	0% - 20%
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
		EG005T: Iron	7439-89-6	50	mg/kg	11700	11000	6.4	0% - 20%
		EG005T: Calcium	7440-70-2	50	mg/kg	48100	50900	5.6	0% - 20%
		EG005T: Magnesium	7439-95-4	50	mg/kg	4280	4280	0.0	0% - 20%
		EG005T: Sodium	7440-23-5	50	mg/kg	1230	1210	1.4	0% - 20%
		EG005T: Potassium	7440-09-7	50	mg/kg	1540	1570	1.8	0% - 20%
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 6244304)									
EM2421130-020	TP09_0.0-0.15_241126	EG005T: Copper	7440-50-8	5	mg/kg	178	165	7.9	0% - 20%
		EG005T: Calcium	7440-70-2	50	mg/kg	3570	# 7840	74.8	0% - 20%
		EG005T: Magnesium	7439-95-4	50	mg/kg	1830	1830	0.0	0% - 20%
EM2421130-020	TP09_0.0-0.15_241126	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	40	70	49.9	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	6	7	0.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	3	44.4	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	2	3	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	53	57	8.2	0% - 50%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	16	18	11.7	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	9	12	26.2	No Limit
		EG005T: Aluminium	7429-90-5	50	mg/kg	3490	3920	11.6	0% - 20%
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
		EG005T: Iron	7439-89-6	50	mg/kg	6370	7390	14.9	0% - 20%

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 6244304) - continued									
EM2421130-020	TP09_0.0-0.15_241126	EG005T: Sodium	7440-23-5	50	mg/kg	370	390	5.5	No Limit
		EG005T: Potassium	7440-09-7	50	mg/kg	870	950	9.2	0% - 50%
EM2421131-010	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	<10	10	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	5	6	28.4	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	6	5	18.5	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	20	23	12.9	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	12	21	52.3	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Aluminium	7429-90-5	50	mg/kg	1790	1720	4.2	0% - 20%
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
		EG005T: Iron	7439-89-6	50	mg/kg	4510	5300	16.2	0% - 20%
		EG005T: Calcium	7440-70-2	50	mg/kg	480	370	26.3	No Limit
		EG005T: Magnesium	7439-95-4	50	mg/kg	300	280	6.5	No Limit
		EG005T: Sodium	7440-23-5	50	mg/kg	<50	<50	0.0	No Limit
		EG005T: Potassium	7440-09-7	50	mg/kg	440	430	3.7	No Limit
EA001: pH in soil using 0.01M CaCl extract (QC Lot: 6231682)									
EM2421130-002	TP16_0.4-0.5_241126	EA001: pH (CaCl2)	----	0.1	pH Unit	7.8	7.8	0.0	0% - 20%
EM2421130-016	TP17_1.0-1.1_241126	EA001: pH (CaCl2)	----	0.1	pH Unit	7.6	7.6	0.0	0% - 20%
EA001: pH in soil using 0.01M CaCl extract (QC Lot: 6232200)									
EM2421130-017	TP07_0.4-0.5_241125	EA001: pH (CaCl2)	----	0.1	pH Unit	8.3	8.3	0.0	0% - 20%
EA002: pH 1:5 (Soils) (QC Lot: 6231688)									
EM2421130-002	TP16_0.4-0.5_241126	EA002: pH Value	----	0.1	pH Unit	9.6	9.6	0.0	0% - 20%
EA002: pH 1:5 (Soils) (QC Lot: 6232191)									
EM2421084-001	Anonymous	EA002: pH Value	----	0.1	pH Unit	8.3	8.3	0.0	0% - 20%
EM2421131-010	Anonymous	EA002: pH Value	----	0.1	pH Unit	9.2	9.1	1.6	0% - 20%
EA002-AD: pH (Soils) dried at 40°C (QC Lot: 6234520)									
EM2421130-002	TP16_0.4-0.5_241126	EA002-AD: pH Value	----	0.1	pH Unit	8.8	8.8	0.0	0% - 20%
EM2421130-017	TP07_0.4-0.5_241125	EA002-AD: pH Value	----	0.1	pH Unit	8.8	8.8	0.0	0% - 20%
EA003 :pH (field/fox) (QC Lot: 6245250)									
EB2441733-002	Anonymous	EA003: pH (F)	----	0.1	pH Unit	6.7	6.7	0.0	0% - 20%

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EA003 :pH (field/fox) (QC Lot: 6245250) - continued									
EB2441733-002	Anonymous	EA003: pH (Fox)	----	0.1	pH Unit	4.0	3.9	0.0	0% - 20%
EM2421130-002	TP16_0.4-0.5_241126	EA003: pH (F)	----	0.1	pH Unit	9.1	9.0	0.0	0% - 20%
		EA003: pH (Fox)	----	0.1	pH Unit	7.2	7.2	0.0	0% - 20%
EA003 :pH (field/fox) (QC Lot: 6245251)									
EM2421130-017	TP07_0.4-0.5_241125	EA003: pH (F)	----	0.1	pH Unit	8.9	8.9	0.0	0% - 20%
		EA003: pH (Fox)	----	0.1	pH Unit	7.1	7.0	0.0	0% - 20%
EM2421131-021	Anonymous	EA003: pH (F)	----	0.1	pH Unit	8.3	8.3	0.0	0% - 20%
		EA003: pH (Fox)	----	0.1	pH Unit	10.3	10.5	1.2	0% - 20%
EA010: Conductivity (1:5) (QC Lot: 6231684)									
EM2421130-016	TP17_1.0-1.1_241126	EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	204	201	1.7	0% - 20%
EM2421130-002	TP16_0.4-0.5_241126	EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	1520	1440	5.3	0% - 20%
EA010: Conductivity (1:5) (QC Lot: 6232188)									
EM2421084-001	Anonymous	EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	770	816	5.8	0% - 20%
EM2421131-010	Anonymous	EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	68	65	5.5	0% - 20%
EA010-AD: Conductivity (Soils) dried at 40°C (QC Lot: 6234521)									
EM2421130-002	TP16_0.4-0.5_241126	EA010-AD: Electrical Conductivity @ 25°C	----	1	µS/cm	1930	1930	0.0	0% - 20%
EM2421130-017	TP07_0.4-0.5_241125	EA010-AD: Electrical Conductivity @ 25°C	----	1	µS/cm	387	387	0.0	0% - 20%
EA033-A: Actual Acidity (QC Lot: 6248281)									
EM2421130-002	TP16_0.4-0.5_241126	EA033: sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	<0.02	<0.02	0.0	No Limit
		EA033: Titratable Actual Acidity (23F)	----	2	mole H+ / t	<2	<2	0.0	No Limit
		EA033: pH KCl (23A)	----	0.1	pH Unit	9.1	9.1	0.0	0% - 20%
EM2421130-017	TP07_0.4-0.5_241125	EA033: sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	<0.02	<0.02	0.0	No Limit
		EA033: Titratable Actual Acidity (23F)	----	2	mole H+ / t	<2	<2	0.0	No Limit
		EA033: pH KCl (23A)	----	0.1	pH Unit	9.0	9.0	0.0	0% - 20%
EA033-B: Potential Acidity (QC Lot: 6248281)									
EM2421130-002	TP16_0.4-0.5_241126	EA033: Chromium Reducible Sulfur (22B)	----	0.005	% S	0.012	0.012	0.0	No Limit
		EA033: acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	<10	<10	0.0	No Limit
EM2421130-017	TP07_0.4-0.5_241125	EA033: Chromium Reducible Sulfur (22B)	----	0.005	% S	0.012	0.011	8.9	No Limit
		EA033: acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	<10	<10	0.0	No Limit
EA033-C: Acid Neutralising Capacity (QC Lot: 6248281)									
EM2421130-002	TP16_0.4-0.5_241126	EA033: Acid Neutralising Capacity (19A2)	----	0.01	% CaCO3	30.3	30.6	0.9	0% - 20%
		EA033: sulfidic - Acid Neutralising Capacity (s-19A2)	----	0.01	% pyrite S	9.70	9.78	0.9	0% - 20%
		EA033: acidity - Acid Neutralising Capacity (a-19A2)	----	10	mole H+ / t	6050	6100	0.9	0% - 20%

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EA033-C: Acid Neutralising Capacity (QC Lot: 6248281) - continued									
EM2421130-017	TP07_0.4-0.5_241125	EA033: Acid Neutralising Capacity (19A2)	----	0.01	% CaCO3	11.4	11.4	0.4	0% - 20%
		EA033: sulfidic - Acid Neutralising Capacity (s-19A2)	----	0.01	% pyrite S	3.64	3.66	0.4	0% - 20%
		EA033: acidity - Acid Neutralising Capacity (a-19A2)	----	10	mole H+ / t	2270	2280	0.4	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 6245424)									
EM2420745-001	Anonymous	EA055: Moisture Content	----	0.1 (1.0)*	%	46.2	45.4	1.9	0% - 20%
EM2421130-009	TP13_0.3-0.4_241126	EA055: Moisture Content	----	0.1 (1.0)*	%	11.4	11.5	1.1	0% - 50%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 6245425)									
EM2421130-022	TP09_1.0-1.1_241125	EA055: Moisture Content	----	0.1 (1.0)*	%	5.4	5.7	4.0	No Limit
EM2421520-015	Anonymous	EA055: Moisture Content	----	0.1 (1.0)*	%	22.1	21.4	3.3	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 6248505)									
EM2421130-003	TP16_1.0-1.1_241126	EA055: Moisture Content	----	0.1	%	9.5	9.4	0.0	0% - 20%
EM2421131-013	Anonymous	EA055: Moisture Content	----	0.1 (1.0)*	%	7.4	7.5	1.4	No Limit
ED006: Exchangeable Cations on Alkaline Soils (QC Lot: 6234524)									
EM2421130-002	TP16_0.4-0.5_241126	ED006: Calcium/Magnesium Ratio	----	0.1 (0.2)*	-	3.4	3.2	5.2	0% - 50%
		ED006: Magnesium/Potassium Ratio	----	0.1 (0.2)*	-	<0.2	<0.2	0.0	No Limit
		ED006: Exchangeable Calcium Percent	----	0.2	%	58.6	55.9	4.7	0% - 20%
		ED006: Exchangeable Magnesium Percent	----	0.2	%	17.2	17.3	0.0	0% - 20%
		ED006: Exchangeable Potassium Percent	----	0.2	%	1.6	<0.2	155	No Limit
		ED006: Exchangeable Sodium Percent	----	0.2	%	22.6	26.8	17.2	0% - 20%
		ED006: Exchangeable Calcium	----	0.2	meq/100g	4.9	4.4	10.3	0% - 20%
		ED006: Exchangeable Magnesium	----	0.2	meq/100g	1.4	1.4	0.0	No Limit
		ED006: Exchangeable Potassium	----	0.2	meq/100g	<0.2	<0.2	0.0	No Limit
		ED006: Exchangeable Sodium	----	0.2	meq/100g	1.9	2.1	11.7	0% - 50%
		ED006: Cation Exchange Capacity	----	0.2	meq/100g	8.4	7.9	5.5	0% - 20%
EM2421130-017	TP07_0.4-0.5_241125	ED006: Calcium/Magnesium Ratio	----	0.1 (0.2)*	-	3.7	3.6	0.0	0% - 50%
		ED006: Magnesium/Potassium Ratio	----	0.1 (0.2)*	-	2.3	2.4	0.0	0% - 50%
		ED006: Exchangeable Calcium Percent	----	0.2	%	67.7	67.5	0.3	0% - 20%
		ED006: Exchangeable Magnesium Percent	----	0.2	%	18.3	18.5	1.3	0% - 20%
		ED006: Exchangeable Potassium Percent	----	0.2	%	7.8	7.8	0.0	0% - 20%
		ED006: Exchangeable Sodium Percent	----	0.2	%	6.2	6.2	0.0	0% - 20%
		ED006: Exchangeable Calcium	----	0.2	meq/100g	5.7	5.9	3.6	0% - 20%
		ED006: Exchangeable Magnesium	----	0.2	meq/100g	1.5	1.6	0.0	No Limit
		ED006: Exchangeable Potassium	----	0.2	meq/100g	0.7	0.7	0.0	No Limit
		ED006: Exchangeable Sodium	----	0.2	meq/100g	0.5	0.5	0.0	No Limit
		ED006: Cation Exchange Capacity	----	0.2	meq/100g	8.4	8.8	3.9	0% - 20%

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
ED040N: Sulfate - Calcium Phosphate Soluble (NEPM) (QC Lot: 6245413)									
EM2421130-002	TP16_0.4-0.5_241126	ED040N: Sulfate as SO4 2-	14808-79-8	50	mg/kg	360	360	0.0	No Limit
EM2421406-005	Anonymous	ED040N: Sulfate as SO4 2-	14808-79-8	50	mg/kg	<50	<50	0.0	No Limit
ED045G: Chloride by Discrete Analyser (QC Lot: 6231687)									
EM2421130-016	TP17_1.0-1.1_241126	ED045G: Chloride	16887-00-6	10	mg/kg	60	60	0.0	No Limit
EM2421130-002	TP16_0.4-0.5_241126	ED045G: Chloride	16887-00-6	10	mg/kg	2960	2610	12.4	0% - 20%
ED045G: Chloride by Discrete Analyser (QC Lot: 6232190)									
EM2421084-001	Anonymous	ED045G: Chloride	16887-00-6	10	mg/kg	1100	1160	4.8	0% - 20%
EM2421131-010	Anonymous	ED045G: Chloride	16887-00-6	10	mg/kg	70	20	89.5	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 6244302)									
EM2420433-002	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EM2421130-001	TP16_0.0-0.15_241126	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 6244305)									
EM2421130-020	TP09_0.0-0.15_241126	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EM2421131-010	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EG048: Hexavalent Chromium (Alkaline Digest) (QC Lot: 6245381)									
EM2421130-002	TP16_0.4-0.5_241126	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EM2421131-003	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EK028SF: Weak Acid Dissociable CN by Segmented Flow Analyser (QC Lot: 6243799)									
EM2421125-002	Anonymous	EK028SF: Weak Acid Dissociable Cyanide	----	1	mg/kg	<1	<1	0.0	No Limit
EM2421321-004	Anonymous	EK028SF: Weak Acid Dissociable Cyanide	----	1	mg/kg	<1	<1	0.0	No Limit
EK028SF: Weak Acid Dissociable CN by Segmented Flow Analyser (QC Lot: 6248394)									
EM2421130-002	TP16_0.4-0.5_241126	EK028SF: Weak Acid Dissociable Cyanide	----	1	mg/kg	<1	<1	0.0	No Limit
EM2421131-013	Anonymous	EK028SF: Weak Acid Dissociable Cyanide	----	1	mg/kg	<1	<1	0.0	No Limit
EK055: Ammonia as N (QC Lot: 6235807)									
EM2421130-002	TP16_0.4-0.5_241126	EK055: Ammonia as N	7664-41-7	20	mg/kg	<20	<20	0.0	No Limit
EK055: Ammonia as N (QC Lot: 6246698)									
EM2421130-024	TP09_1.0-1.5_241125	EK055: Ammonia as N	7664-41-7	20	mg/kg	<20	<20	0.0	No Limit
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 6231686)									
EM2421130-002	TP16_0.4-0.5_241126	EK057G: Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 6232193)									
EM2421131-010	Anonymous	EK057G: Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 6237083)									
EM2421130-024	TP09_1.0-1.5_241125	EK057G: Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 6231685)									
EM2421130-002	TP16_0.4-0.5_241126	EK059G: Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	7.7	7.4	3.1	0% - 20%

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 6232192)									
EM2421131-010	Anonymous	EK059G: Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	0.9	0.7	19.7	No Limit
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 6237084)									
EM2421130-024	TP09_1.0-1.5_241125	EK059G: Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	2.1	2.1	0.0	0% - 20%
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 6235806)									
EM2421262-002	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	20	mg/kg	40	40	0.0	No Limit
EM2421130-002	TP16_0.4-0.5_241126	EK061G: Total Kjeldahl Nitrogen as N	----	20	mg/kg	250	240	4.3	0% - 50%
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 6246697)									
EM2421130-024	TP09_1.0-1.5_241125	EK061G: Total Kjeldahl Nitrogen as N	----	20	mg/kg	170	130	28.1	No Limit
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 6235805)									
EM2421130-002	TP16_0.4-0.5_241126	EK067G: Total Phosphorus as P	----	2	mg/kg	130	132	1.6	0% - 20%
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 6246696)									
EM2421130-024	TP09_1.0-1.5_241125	EK067G: Total Phosphorus as P	----	2	mg/kg	89	82	8.0	0% - 20%
EK080: Bicarbonate Extractable Phosphorus (Colwell) (QC Lot: 6248837)									
EB2442438-001	Anonymous	EK080: Bicarbonate Ext. P (Colwell)	----	5 (250)*	mg/kg	6920	6820	1.5	0% - 20%
EP2417978-001	Anonymous	EK080: Bicarbonate Ext. P (Colwell)	----	5	mg/kg	9	10	0.0	No Limit
EP004: Organic Matter (QC Lot: 6246766)									
EM2420919-005	Anonymous	EP004: Organic Matter	----	0.5	%	<0.5	<0.5	0.0	No Limit
		EP004: Total Organic Carbon	----	0.5	%	<0.5	<0.5	0.0	No Limit
EM2421130-024	TP09_1.0-1.5_241125	EP004: Organic Matter	----	0.5	%	<0.5	<0.5	0.0	No Limit
		EP004: Total Organic Carbon	----	0.5	%	<0.5	<0.5	0.0	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 6239513)									
EM2421130-002	TP16_0.4-0.5_241126	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 6239512)									
EM2421130-002	TP16_0.4-0.5_241126	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP068A: Organochlorine Pesticides (OC) (QC Lot: 6239512) - continued									
EM2421130-002	TP16_0.4-0.5_241126	EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Mirex	2385-85-5	0.05 (0.20)*	mg/kg	<0.20	<0.20	0.0	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 6239512)									
EM2421130-002	TP16_0.4-0.5_241126	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP068C: Triazines (QC Lot: 6239512)									
EM2421130-002	TP16_0.4-0.5_241126	EP068: Atrazine	1912-24-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
EP068D: Pyrethroids (QC Lot: 6239512)									
EM2421130-002	TP16_0.4-0.5_241126	EP068: Bifenthrin	82657-04-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 6239510)									
EM2421130-019	TP07_1.0-1.1_241125	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP075(SIM)A: Phenolic Compounds (QC Lot: 6239510) - continued									
EM2421130-019	TP07_1.0-1.1_241125	EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
EM2421130-002	TP16_0.4-0.5_241126	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 6239510)									
EM2421130-019	TP07_1.0-1.1_241125	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 6239510) - continued									
EM2421130-019	TP07_1.0-1.1_241125	EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EM2421130-002	TP16_0.4-0.5_241126	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 6231692)									
EM2421130-002	TP16_0.4-0.5_241126	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 6232314)									
EM2421130-001	TP16_0.0-0.15_241126	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EM2421131-005	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 6238679)									
EM2421130-022	TP09_1.0-1.1_241125	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EM2421328-002	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 6239511)									
EM2421130-019	TP07_1.0-1.1_241125	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EM2421130-002	TP16_0.4-0.5_241126	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 6231692)									
EM2421130-002	TP16_0.4-0.5_241126	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 6232314)									
EM2421130-001	TP16_0.0-0.15_241126	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 6232314) - continued									
EM2421131-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 6238679)									
EM2421130-022	TP09_1.0-1.1_241125	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EM2421328-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 6239511)									
EM2421130-019	TP07_1.0-1.1_241125	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EM2421130-002	TP16_0.4-0.5_241126	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080: BTEXN (QC Lot: 6231692)									
EM2421130-002	TP16_0.4-0.5_241126	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
EP080: BTEXN (QC Lot: 6232314)									
EM2421130-001	TP16_0.0-0.15_241126	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
EM2421131-005	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
EP080: BTEXN (QC Lot: 6238679)									
EM2421130-022	TP09_1.0-1.1_241125	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP080: BTEXN (QC Lot: 6238679) - continued									
EM2421130-022	TP09_1.0-1.1_241125	EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
EM2421328-002	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 6244303)								
EG005T: Aluminium	7429-90-5	50	mg/kg	<50	15910 mg/kg	111	70.0	130
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	123 mg/kg	101	70.0	130
EG005T: Barium	7440-39-3	10	mg/kg	<10	99.3 mg/kg	106	70.0	130
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	0.67 mg/kg	92.9	70.0	130
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	1.23 mg/kg	70.8	50.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	20.2 mg/kg	108	70.0	130
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	11.2 mg/kg	96.3	70.0	130
EG005T: Copper	7440-50-8	5	mg/kg	<5	55.9 mg/kg	101	70.0	130
EG005T: Iron	7439-89-6	50	mg/kg	<50	33227 mg/kg	110	70.0	130
EG005T: Lead	7439-92-1	5	mg/kg	<5	62.4 mg/kg	98.8	70.0	130
EG005T: Manganese	7439-96-5	5	mg/kg	<5	590 mg/kg	95.2	70.0	130
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.4 mg/kg	98.0	70.0	130
EG005T: Selenium	7782-49-2	5	mg/kg	<5	----	----	----	----
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	61.3 mg/kg	96.1	70.0	130
EG005T: Zinc	7440-66-6	5	mg/kg	<5	162 mg/kg	78.6	70.0	130
EG005T: Calcium	7440-70-2	50	mg/kg	<50	20010 mg/kg	92.2	70.0	130
EG005T: Magnesium	7439-95-4	50	mg/kg	<50	8484 mg/kg	96.2	70.0	130
EG005T: Sodium	7440-23-5	50	mg/kg	<50	901 mg/kg	120	70.0	130
EG005T: Potassium	7440-09-7	50	mg/kg	<50	2148 mg/kg	117	70.0	130
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 6244304)								
EG005T: Aluminium	7429-90-5	50	mg/kg	<50	15910 mg/kg	113	70.0	130
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	123 mg/kg	105	70.0	130
EG005T: Barium	7440-39-3	10	mg/kg	<10	99.3 mg/kg	109	70.0	130
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	0.67 mg/kg	95.8	70.0	130
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	1.23 mg/kg	70.6	50.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	20.2 mg/kg	112	70.0	130
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	11.2 mg/kg	99.0	70.0	130
EG005T: Copper	7440-50-8	5	mg/kg	<5	55.9 mg/kg	104	70.0	130

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 6244304) - continued								
EG005T: Iron	7439-89-6	50	mg/kg	<50	33227 mg/kg	115	70.0	130
EG005T: Lead	7439-92-1	5	mg/kg	<5	62.4 mg/kg	103	70.0	130
EG005T: Manganese	7439-96-5	5	mg/kg	<5	590 mg/kg	99.4	70.0	130
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.4 mg/kg	102	70.0	130
EG005T: Selenium	7782-49-2	5	mg/kg	<5	----	----	----	----
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	61.3 mg/kg	101	70.0	130
EG005T: Zinc	7440-66-6	5	mg/kg	<5	162 mg/kg	82.2	70.0	130
EG005T: Calcium	7440-70-2	50	mg/kg	<50	20010 mg/kg	96.2	70.0	130
EG005T: Magnesium	7439-95-4	50	mg/kg	<50	8484 mg/kg	99.3	70.0	130
EG005T: Sodium	7440-23-5	50	mg/kg	<50	901 mg/kg	121	70.0	130
EG005T: Potassium	7440-09-7	50	mg/kg	<50	2148 mg/kg	118	70.0	130
EA001: pH in soil using 0.01M CaCl extract (QCLot: 6231682)								
EA001: pH (CaCl2)	----	----	pH Unit	----	4 pH Unit	100	98.8	101
				----	7 pH Unit	100	99.3	101
EA001: pH in soil using 0.01M CaCl extract (QCLot: 6232200)								
EA001: pH (CaCl2)	----	----	pH Unit	----	4 pH Unit	100	98.8	101
				----	7 pH Unit	100	99.3	101
EA002: pH 1:5 (Soils) (QCLot: 6231688)								
EA002: pH Value	----	----	pH Unit	----	4 pH Unit	100	98.8	101
				----	7 pH Unit	100	99.3	101
EA002: pH 1:5 (Soils) (QCLot: 6232191)								
EA002: pH Value	----	----	pH Unit	----	4 pH Unit	100	98.8	101
				----	7 pH Unit	100	99.3	101
EA002-AD: pH (Soils) dried at 40°C (QCLot: 6234520)								
EA002-AD: pH Value	----	----	pH Unit	----	4 pH Unit	101	98.8	101
				----	7 pH Unit	100	99.3	101
EA010: Conductivity (1:5) (QCLot: 6231684)								
EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	1413 µS/cm	99.9	94.5	105
EA010: Conductivity (1:5) (QCLot: 6232188)								
EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	1413 µS/cm	99.9	94.5	105
EA010-AD: Conductivity (Soils) dried at 40°C (QCLot: 6234521)								
EA010-AD: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	1413 µS/cm	100	90.0	110
EA033-A: Actual Acidity (QCLot: 6248281)								
EA033: pH KCl (23A)	----	----	pH Unit	----	4.7 pH Unit	96.8	80.0	120

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EA033-A: Actual Acidity (QCLot: 6248281) - continued								
EA033: Titratable Actual Acidity (23F)	----	2	mole H+ / t	<2	23.5 mole H+ / t	101	80.0	120
EA033: sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	<0.02	----	----	----	----
EA033-B: Potential Acidity (QCLot: 6248281)								
EA033: Chromium Reducible Sulfur (22B)	----	0.005	% S	<0.005	0.283 % S	101	77.0	121
EA033: acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	<10	----	----	----	----
EA033-C: Acid Neutralising Capacity (QCLot: 6248281)								
EA033: Acid Neutralising Capacity (19A2)	----	0.01	% CaCO3	<0.01	10 % CaCO3	98.8	91.0	112
EA033: acidity - Acid Neutralising Capacity (a-19A2)	----	10	mole H+ / t	<10	----	----	----	----
EA033: sulfidic - Acid Neutralising Capacity (s-19A2)	----	0.01	% pyrite S	<0.01	----	----	----	----
ED006: Exchangeable Cations on Alkaline Soils (QCLot: 6234524)								
ED006: Exchangeable Calcium	----	0.2	meq/100g	<0.2	33 meq/100g	76.6	66.6	101
ED006: Exchangeable Magnesium	----	0.2	meq/100g	<0.2	32 meq/100g	73.9	66.9	120
ED006: Exchangeable Potassium	----	0.2	meq/100g	<0.2	2.2 meq/100g	101	72.8	119
ED006: Exchangeable Sodium	----	0.2	meq/100g	<0.2	5.6 meq/100g	85.9	67.5	112
ED006: Cation Exchange Capacity	----	0.2	meq/100g	<0.2	----	----	----	----
ED006: Exchangeable Calcium Percent	----	0.2	%	<0.2	----	----	----	----
ED006: Exchangeable Magnesium Percent	----	0.2	%	<0.2	----	----	----	----
ED006: Exchangeable Potassium Percent	----	0.2	%	<0.2	----	----	----	----
ED006: Exchangeable Sodium Percent	----	0.2	%	<0.2	----	----	----	----
ED006: Calcium/Magnesium Ratio	----	0.1	-	<0.1	----	----	----	----
ED006: Magnesium/Potassium Ratio	----	0.1	-	<0.1	----	----	----	----
ED040N: Sulfate - Calcium Phosphate Soluble (NEPM) (QCLot: 6245413)								
ED040N: Sulfate as SO4 2-	14808-79-8	50	mg/kg	<50	3000 mg/kg	102	86.1	116
ED045G: Chloride by Discrete Analyser (QCLot: 6231687)								
ED045G: Chloride	16887-00-6	10	mg/kg	<10	50 mg/kg	105	85.5	120
				<10	5000 mg/kg	110	85.5	120
ED045G: Chloride by Discrete Analyser (QCLot: 6232190)								
ED045G: Chloride	16887-00-6	10	mg/kg	<10	50 mg/kg	98.8	85.5	120
				<10	5000 mg/kg	110	85.5	120
EG035T: Total Recoverable Mercury by FIMS (QCLot: 6244302)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.64 mg/kg	98.4	69.0	128
EG035T: Total Recoverable Mercury by FIMS (QCLot: 6244305)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.64 mg/kg	100	69.0	128
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 6245381)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 6245381) - continued								
EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	20 mg/kg	104	70.0	130
EK028SF: Weak Acid Dissociable CN by Segmented Flow Analyser (QCLot: 6243799)								
EK028SF: Weak Acid Dissociable Cyanide	----	1	mg/kg	<1	20 mg/kg	128	70.0	130
EK028SF: Weak Acid Dissociable CN by Segmented Flow Analyser (QCLot: 6248394)								
EK028SF: Weak Acid Dissociable Cyanide	----	1	mg/kg	<1	20 mg/kg	127	70.0	130
EK055: Ammonia as N (QCLot: 6235807)								
EK055: Ammonia as N	7664-41-7	20	mg/kg	<20	25 mg/kg	99.4	83.0	109
EK055: Ammonia as N (QCLot: 6246698)								
EK055: Ammonia as N	7664-41-7	20	mg/kg	<20	25 mg/kg	101	83.0	109
EK057G: Nitrite as N by Discrete Analyser (QCLot: 6231686)								
EK057G: Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg	<0.1	2.5 mg/kg	94.7	88.9	113
EK057G: Nitrite as N by Discrete Analyser (QCLot: 6232193)								
EK057G: Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg	<0.1	2.5 mg/kg	108	88.9	113
EK057G: Nitrite as N by Discrete Analyser (QCLot: 6237083)								
EK057G: Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg	<0.1	2.5 mg/kg	108	88.9	113
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6231685)								
EK059G: Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	<0.1	2.5 mg/kg	102	89.5	119
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6232192)								
EK059G: Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	<0.1	2.5 mg/kg	102	89.5	119
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6237084)								
EK059G: Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	<0.1	2.5 mg/kg	101	89.5	119
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 6235806)								
EK061G: Total Kjeldahl Nitrogen as N	----	20	mg/kg	<20	500 mg/kg	92.0	70.0	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 6246697)								
EK061G: Total Kjeldahl Nitrogen as N	----	20	mg/kg	<20	500 mg/kg	87.9	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 6235805)								
EK067G: Total Phosphorus as P	----	2	mg/kg	<2	221 mg/kg	91.2	78.3	127
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 6246696)								
EK067G: Total Phosphorus as P	----	2	mg/kg	<2	221 mg/kg	99.8	78.3	127
EK080: Bicarbonate Extractable Phosphorus (Colwell) (QCLot: 6248837)								
EK080: Bicarbonate Ext. P (Colwell)	----	5	mg/kg	<5	100 mg/kg	105	90.0	110
				<5	20.7 mg/kg	91.3	70.0	130
				<5	168 mg/kg	110	81.0	119
EP004: Organic Matter (QCLot: 6246766)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP004: Organic Matter (QCLot: 6246766) - continued								
EP004: Organic Matter	----	0.5	%	<0.5	77 %	110	70.0	130
EP004: Total Organic Carbon	----	0.5	%	<0.5	43.5 %	112	70.0	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 6239513)								
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	113	68.0	133
EP068A: Organochlorine Pesticides (OC) (QCLot: 6239512)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	95.4	71.8	126
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	89.2	72.2	125
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	104	70.0	124
EP068: gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	101	69.1	124
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	106	69.2	125
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	94.0	66.6	122
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	98.0	68.8	123
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	96.8	67.2	124
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	99.4	66.0	126
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	105	70.2	126
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	102	72.1	124
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	115	68.0	122
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	121	68.9	124
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	103	55.8	130
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	122	67.9	124
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	124	72.0	127
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	83.7	66.3	131
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	95.9	62.4	131
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	91.6	55.4	130
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	91.3	68.8	128
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	93.9	55.5	132
EP068: Mirex	2385-85-5	0.05	mg/kg	<0.05	0.5 mg/kg	101	92.4	102
EP068B: Organophosphorus Pesticides (OP) (QCLot: 6239512)								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	96.8	65.6	127
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	110	63.0	129
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	# 158	10.0	136
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	98.0	58.3	128
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	110	69.0	122
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	98.4	68.0	122

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP068B: Organophosphorus Pesticides (OP) (QCLot: 6239512) - continued								
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	82.7	59.6	124
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	101	63.8	128
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	109	71.1	124
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	112	67.4	126
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	78.0	57.9	122
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	109	66.2	123
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	89.3	59.8	123
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	88.2	65.4	127
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	98.1	52.1	128
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	109	65.2	122
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	96.8	63.2	124
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	92.6	65.9	127
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	51.3	43.1	131
EP068C: Triazines (QCLot: 6239512)								
EP068: Atrazine	1912-24-9	0.05	mg/kg	<0.05	0.5 mg/kg	105	72.5	126
EP068D: Pyrethroids (QCLot: 6239512)								
EP068: Bifenthrin	82657-04-3	0.05	mg/kg	<0.05	0.5 mg/kg	101	67.9	128
EP075(SIM)A: Phenolic Compounds (QCLot: 6239510)								
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	3 mg/kg	103	81.2	121
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	3 mg/kg	104	83.2	120
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	3 mg/kg	104	81.6	123
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	6 mg/kg	103	79.7	129
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	3 mg/kg	84.9	49.8	129
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	3 mg/kg	100	81.5	127
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	3 mg/kg	101	74.2	125
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	3 mg/kg	106	79.8	121
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	3 mg/kg	97.9	71.5	121
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	3 mg/kg	92.7	67.8	119
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	3 mg/kg	98.9	64.5	126
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	6 mg/kg	25.6	10.0	118
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 6239510)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	3 mg/kg	101	85.7	123
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	3 mg/kg	106	81.0	123
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	3 mg/kg	102	83.6	120

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 6239510) - continued								
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	3 mg/kg	98.4	81.3	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	3 mg/kg	98.9	79.4	123
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	3 mg/kg	102	81.7	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	3 mg/kg	102	78.3	124
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	3 mg/kg	104	79.9	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	3 mg/kg	104	76.9	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	3 mg/kg	96.8	80.9	130
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	3 mg/kg	90.0	70.0	121
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	3 mg/kg	94.4	80.4	130
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	3 mg/kg	94.6	70.2	123
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	3 mg/kg	91.8	67.9	122
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	3 mg/kg	91.9	65.8	123
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	3 mg/kg	91.5	65.8	127
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6231692)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	36 mg/kg	106	58.6	131
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6232314)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	36 mg/kg	91.0	58.6	131
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6238679)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	36 mg/kg	86.9	58.6	131
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6239511)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	790 mg/kg	99.0	75.0	128
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	2730 mg/kg	100	82.0	123
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	1410 mg/kg	98.0	82.4	121
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6231692)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	45 mg/kg	98.7	59.3	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6232314)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	45 mg/kg	89.1	59.3	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6238679)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	45 mg/kg	84.7	59.3	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6239511)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	1080 mg/kg	99.5	77.0	130
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	3640 mg/kg	98.9	81.5	120
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	270 mg/kg	98.6	73.3	137

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP080: BTEXN (QCLot: 6231692)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	2 mg/kg	99.7	61.6	117
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	2 mg/kg	107	65.8	125
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2 mg/kg	103	65.8	124
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4 mg/kg	106	64.8	134
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2 mg/kg	110	68.7	132
EP080: Naphthalene	91-20-3	1	mg/kg	<1	0.5 mg/kg	108	61.8	123
EP080: BTEXN (QCLot: 6232314)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	2 mg/kg	93.5	61.6	117
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	2 mg/kg	91.3	65.8	125
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2 mg/kg	90.7	65.8	124
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4 mg/kg	92.8	64.8	134
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2 mg/kg	95.2	68.7	132
EP080: Naphthalene	91-20-3	1	mg/kg	<1	0.5 mg/kg	88.9	61.8	123
EP080: BTEXN (QCLot: 6238679)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	2 mg/kg	82.6	61.6	117
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	2 mg/kg	85.3	65.8	125
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2 mg/kg	85.7	65.8	124
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4 mg/kg	89.0	64.8	134
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2 mg/kg	89.5	68.7	132
EP080: Naphthalene	91-20-3	1	mg/kg	<1	0.5 mg/kg	80.7	61.8	123

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 6244303)							
EM2420433-008	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	104	78.0	124
		EG005T: Cadmium	7440-43-9	50 mg/kg	105	79.7	116
		EG005T: Chromium	7440-47-3	50 mg/kg	91.5	79.0	121
		EG005T: Copper	7440-50-8	250 mg/kg	105	80.0	120
		EG005T: Lead	7439-92-1	250 mg/kg	108	80.0	120

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 6244303) - continued							
EM2420433-008	Anonymous	EG005T: Nickel	7440-02-0	50 mg/kg	97.4	78.0	120
		EG005T: Zinc	7440-66-6	250 mg/kg	105	80.0	120
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 6244304)							
EM2421130-021	TP09_0.4-0.5_241125	EG005T: Arsenic	7440-38-2	50 mg/kg	107	78.0	124
		EG005T: Cadmium	7440-43-9	50 mg/kg	97.3	79.7	116
		EG005T: Chromium	7440-47-3	50 mg/kg	97.7	79.0	121
		EG005T: Copper	7440-50-8	250 mg/kg	107	80.0	120
		EG005T: Lead	7439-92-1	250 mg/kg	102	80.0	120
		EG005T: Nickel	7440-02-0	50 mg/kg	95.9	78.0	120
		EG005T: Zinc	7440-66-6	250 mg/kg	94.8	80.0	120
ED040N: Sulfate - Calcium Phosphate Soluble (NEPM) (QCLot: 6245413)							
EM2421130-005	TP08_0.4-0.5_241126	ED040N: Sulfate as SO4 2-	14808-79-8	3000 mg/kg	# 80.6	84.0	116
ED045G: Chloride by Discrete Analyser (QCLot: 6231687)							
EM2421130-003	TP16_1.0-1.1_241126	ED045G: Chloride	16887-00-6	2000 mg/kg	108	93.0	125
ED045G: Chloride by Discrete Analyser (QCLot: 6232190)							
EM2421084-002	Anonymous	ED045G: Chloride	16887-00-6	4000 mg/kg	125	93.0	125
EG035T: Total Recoverable Mercury by FIMS (QCLot: 6244302)							
EM2420433-008	Anonymous	EG035T: Mercury	7439-97-6	0.5 mg/kg	111	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 6244305)							
EM2421130-021	TP09_0.4-0.5_241125	EG035T: Mercury	7439-97-6	0.5 mg/kg	105	70.0	130
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 6245381)							
EM2421130-006	TP08_1.0-1.2_241126	EG048G: Hexavalent Chromium	18540-29-9	20 mg/kg	79.0	58.0	114
EM2421130-006	TP08_1.0-1.2_241126	EG048G: Hexavalent Chromium	18540-29-9	20 mg/kg	79.9	58.0	114
EK028SF: Weak Acid Dissociable CN by Segmented Flow Analyser (QCLot: 6243799)							
EM2421125-007	Anonymous	EK028SF: Weak Acid Dissociable Cyanide	----	20 mg/kg	87.3	70.0	130
EK028SF: Weak Acid Dissociable CN by Segmented Flow Analyser (QCLot: 6248394)							
EM2421130-006	TP08_1.0-1.2_241126	EK028SF: Weak Acid Dissociable Cyanide	----	20 mg/kg	96.6	70.0	130
EK055: Ammonia as N (QCLot: 6235807)							
EM2421130-005	TP08_0.4-0.5_241126	EK055: Ammonia as N	7664-41-7	100 mg/kg	93.6	80.0	110
EK057G: Nitrite as N by Discrete Analyser (QCLot: 6231686)							
EM2421130-005	TP08_0.4-0.5_241126	EK057G: Nitrite as N (Sol.)	14797-65-0	5 mg/kg	107	84.0	128
EK057G: Nitrite as N by Discrete Analyser (QCLot: 6232193)							
EM2421131-003	Anonymous	EK057G: Nitrite as N (Sol.)	14797-65-0	2.5 mg/kg	107	84.0	128
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6231685)							

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6231685) - continued							
EM2421130-005	TP08_0.4-0.5_241126	EK059G: Nitrite + Nitrate as N (Sol.)	----	5 mg/kg	91.6	70.0	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6232192)							
EM2421131-003	Anonymous	EK059G: Nitrite + Nitrate as N (Sol.)	----	12.5 mg/kg	110	70.0	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 6235806)							
EM2421130-005	TP08_0.4-0.5_241126	EK061G: Total Kjeldahl Nitrogen as N	----	500 mg/kg	90.6	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 6235805)							
EM2421130-005	TP08_0.4-0.5_241126	EK067G: Total Phosphorus as P	----	100 mg/kg	77.9	70.0	130
EK080: Bicarbonate Extractable Phosphorus (Colwell) (QCLot: 6248837)							
EM2421130-002	TP16_0.4-0.5_241126	EK080: Bicarbonate Ext. P (Colwell)	----	40 mg/kg	98.0	70.0	130
EP004: Organic Matter (QCLot: 6246766)							
EM2420919-020	Anonymous	EP004: Organic Matter	----	4.28 %	81.2	70.0	120
		EP004: Total Organic Carbon	----	2.48 %	81.3	70.0	120
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 6239513)							
EM2421130-006	TP08_1.0-1.2_241126	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	116	63.2	144
EP068A: Organochlorine Pesticides (OC) (QCLot: 6239512)							
EM2421130-006	TP08_1.0-1.2_241126	EP068: gamma-BHC - (Lindane)	58-89-9	0.5 mg/kg	96.3	51.4	139
		EP068: Heptachlor	76-44-8	0.5 mg/kg	89.1	49.1	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	96.3	38.4	135
		EP068: Dieldrin	60-57-1	0.5 mg/kg	110	58.4	136
		EP068: Endrin	72-20-8	0.5 mg/kg	88.3	33.0	146
		EP068: 4.4`-DDT	50-29-3	0.5 mg/kg	81.3	20.0	133
EP068B: Organophosphorus Pesticides (OP) (QCLot: 6239512)							
EM2421130-006	TP08_1.0-1.2_241126	EP068: Diazinon	333-41-5	0.5 mg/kg	103	65.1	135
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	89.7	56.3	127
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	99.7	55.0	133
		EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	85.8	55.1	133
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	80.5	43.8	128
EP075(SIM)A: Phenolic Compounds (QCLot: 6239510)							
EM2421130-002	TP16_0.4-0.5_241126	EP075(SIM): Phenol	108-95-2	3 mg/kg	92.4	77.1	119
		EP075(SIM): 2-Chlorophenol	95-57-8	3 mg/kg	95.6	78.9	123
		EP075(SIM): 2-Nitrophenol	88-75-5	3 mg/kg	55.8	43.8	136
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	3 mg/kg	84.1	61.5	120
		EP075(SIM): Pentachlorophenol	87-86-5	3 mg/kg	24.5	15.3	139
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 6239510)							
EM2421130-002	TP16_0.4-0.5_241126	EP075(SIM): Acenaphthene	83-32-9	3 mg/kg	92.6	77.2	116

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 6239510) - continued							
EM2421130-002	TP16_0.4-0.5_241126	EP075(SIM): Pyrene	129-00-0	3 mg/kg	90.3	65.5	136
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6231692)							
EM2421130-006	TP08_1.0-1.2_241126	EP080: C6 - C9 Fraction	----	28 mg/kg	88.7	33.4	124
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6232314)							
EM2421130-004	TP08_0.0-0.15_241126	EP080: C6 - C9 Fraction	----	28 mg/kg	79.9	33.4	124
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6238679)							
EM2421384-001	Anonymous	EP080: C6 - C9 Fraction	----	28 mg/kg	71.4	33.4	124
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6239511)							
EM2421130-001	TP16_0.0-0.15_241126	EP071: C10 - C14 Fraction	----	790 mg/kg	99.4	71.2	125
		EP071: C15 - C28 Fraction	----	2730 mg/kg	100.0	75.6	122
		EP071: C29 - C36 Fraction	----	1410 mg/kg	97.6	78.0	120
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6231692)							
EM2421130-006	TP08_1.0-1.2_241126	EP080: C6 - C10 Fraction	C6_C10	33 mg/kg	82.8	30.8	120
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6232314)							
EM2421130-004	TP08_0.0-0.15_241126	EP080: C6 - C10 Fraction	C6_C10	33 mg/kg	78.2	30.8	120
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6238679)							
EM2421384-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	33 mg/kg	69.4	30.8	120
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6239511)							
EM2421130-001	TP16_0.0-0.15_241126	EP071: >C10 - C16 Fraction	----	1080 mg/kg	99.3	72.2	128
		EP071: >C16 - C34 Fraction	----	3640 mg/kg	98.5	76.5	119
		EP071: >C34 - C40 Fraction	----	270 mg/kg	99.1	66.8	138
EP080: BTEXN (QCLot: 6231692)							
EM2421130-006	TP08_1.0-1.2_241126	EP080: Benzene	71-43-2	2 mg/kg	99.0	54.4	127
		EP080: Toluene	108-88-3	2 mg/kg	102	57.1	131
EP080: BTEXN (QCLot: 6232314)							
EM2421130-004	TP08_0.0-0.15_241126	EP080: Benzene	71-43-2	2 mg/kg	91.3	54.4	127
		EP080: Toluene	108-88-3	2 mg/kg	92.9	57.1	131
EP080: BTEXN (QCLot: 6238679)							
EM2421384-001	Anonymous	EP080: Benzene	71-43-2	2 mg/kg	85.3	54.4	127
		EP080: Toluene	108-88-3	2 mg/kg	85.4	57.1	131

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM2421130**	Page	: 1 of 21
Client	: **EMM CONSULTING PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: Simony Sakamoto	Telephone	: +61 3 8549 9600
Project	: Olympic Dam	Date Samples Received	: 03-Nov-2024
Site	: Olympic Dam	Issue Date	: 21-Jan-2025
Sampler	: Simony Sakamoto	No. of samples received	: 25
Order number	: E240975	No. of samples analysed	: 23

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **Duplicate outliers exist - please see following pages for full details.**
- **Laboratory Control outliers exist - please see following pages for full details.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, where applicable to the methodology, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **Analysis Holding Time Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Duplicate (DUP) RPDs							
EG005(ED093)T: Total Metals by ICP-AES	EM2421130--020	TP09_0.0-0.15_241126	**Calcium**	7440-70-2	74.8 %	0% - 20%	**RPD exceeds LOR based limits**
Laboratory Control Spike (LCS) Recoveries							
EP068B: Organophosphorus Pesticides (OP)	QC-6239512-001	----	**Monocrotophos**	6923-22-4	158 %	10.0-136%	**Recovery greater than upper control limit**
Matrix Spike (MS) Recoveries							
ED040N: Sulfate - Calcium Phosphate Soluble (NEPM)	EM2421130--005	TP08_0.4-0.5_241126	**Sulfate as SO4 2-**	14808-79-8	80.6 %	84.0-116%	**Recovery less than lower data quality objective**

Outliers : Analysis Holding Time Compliance

Matrix: **SOIL**

Method / Container / Client Sample ID(s)		Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EA001: pH in soil using 0.01M CaCl extract							
Soil Glass Jar - Unpreserved							
TP07_0.4-0.5_241125, TP09_1.0-1.5_241125	TP07_1.0-1.1_241125,	04-Dec-2024	02-Dec-2024	**2**	----	----	----
EA002: pH 1:5 (Soils)							
Soil Glass Jar - Unpreserved							
TP07_0.4-0.5_241125, TP09_1.0-1.5_241125	TP07_1.0-1.1_241125,	04-Dec-2024	02-Dec-2024	**2**	----	----	----
EA002-AD: pH (Soils) dried at 40°C							
Soil Glass Jar - Unpreserved							
TP07_0.4-0.5_241125, TP09_1.0-1.5_241125	TP07_1.0-1.1_241125,	05-Dec-2024	02-Dec-2024	**3**	----	----	----
Soil Glass Jar - Unpreserved							
TP16_0.4-0.5_241126, TP08_0.4-0.5_241126, TP13_0.8-0.9_241126, TP10_0.0-0.3_241126, TP17_0.4-0.5_241126,	TP16_1.0-1.1_241126, TP08_1.0-1.2_241126, TP13_0.3-0.4_241126, TP10_1.0-1.3-241126, TP17_1.0-1.1_241126	05-Dec-2024	03-Dec-2024	**2**	----	----	----
EA010: Conductivity (1:5)							
Soil Glass Jar - Unpreserved							
TP07_0.4-0.5_241125, TP09_1.0-1.5_241125	TP07_1.0-1.1_241125,	04-Dec-2024	02-Dec-2024	**2**	----	----	----
EA010-AD: Conductivity (Soils) dried at 40°C							
Soil Glass Jar - Unpreserved							
TP07_0.4-0.5_241125, TP09_1.0-1.5_241125	TP07_1.0-1.1_241125,	05-Dec-2024	02-Dec-2024	**3**	----	----	----

Matrix: **SOIL**

Method / Container / Client Sample ID(s)	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Days overdue	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Days overdue
EA010-AD: Conductivity (Soils) dried at 40°C - Analysis Holding Time Compliance						
Soil Glass Jar - Unpreserved						
TP16_0.4-0.5_241126, TP16_1.0-1.1_241126, TP08_0.4-0.5_241126, TP08_1.0-1.2_241126, TP13_0.8-0.9_241126, TP13_0.3-0.4_241126, TP10_0.0-0.3_241126, TP10_1.0-1.3-241126, TP17_0.4-0.5_241126, TP17_1.0-1.1_241126	05-Dec-2024	03-Dec-2024	2	----	----	----
ED040T: Total Sulfur by ICPAES						
Soil Glass Jar - Unpreserved						
TP07_0.4-0.5_241125	03-Dec-2024	02-Dec-2024	1	----	----	----
Soil Glass Jar - Unpreserved						
TP09_1.0-1.5_241125	05-Dec-2024	02-Dec-2024	3	----	----	----
EK057G: Nitrite as N by Discrete Analyser						
Soil Glass Jar - Unpreserved						
TP07_0.4-0.5_241125	04-Dec-2024	02-Dec-2024	2	----	----	----
Soil Glass Jar - Unpreserved						
TP09_1.0-1.5_241125	05-Dec-2024	02-Dec-2024	3	----	----	----

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Evaluation	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Evaluation
EA001: pH in soil using 0.01M CaCl extract							
Soil Glass Jar - Unpreserved (EA001)							
TP07_0.4-0.5_241125, TP07_1.0-1.1_241125, TP09_1.0-1.5_241125	**25-Nov-2024**	**04-Dec-2024**	02-Dec-2024	×	**04-Dec-2024**	04-Dec-2024	✓
Soil Glass Jar - Unpreserved (EA001)							
TP16_0.4-0.5_241126, TP16_1.0-1.1_241126, TP08_0.4-0.5_241126, TP08_1.0-1.2_241126, TP13_0.8-0.9_241126, TP13_0.3-0.4_241126, TP10_0.0-0.3_241126, TP10_1.0-1.3-241126, TP17_0.4-0.5_241126, TP17_1.0-1.1_241126	**26-Nov-2024**	**03-Dec-2024**	03-Dec-2024	✓	**03-Dec-2024**	04-Dec-2024	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA002: pH 1:5 (Soils)								
Soil Glass Jar - Unpreserved (EA002)								
TP07_0.4-0.5_241125,	TP07_1.0-1.1_241125,	**25-Nov-2024**	**04-Dec-2024**	02-Dec-2024	×	**04-Dec-2024**	04-Dec-2024	✓
TP09_1.0-1.5_241125								
Soil Glass Jar - Unpreserved (EA002)								
TP16_0.4-0.5_241126,	TP16_1.0-1.1_241126,	**26-Nov-2024**	**03-Dec-2024**	03-Dec-2024	✓	**04-Dec-2024**	04-Dec-2024	✓
TP08_0.4-0.5_241126,	TP08_1.0-1.2_241126,							
TP13_0.8-0.9_241126,	TP13_0.3-0.4_241126,							
TP10_0.0-0.3_241126,	TP10_1.0-1.3-241126,							
TP17_0.4-0.5_241126,	TP17_1.0-1.1_241126							
EA002-AD: pH (Soils) dried at 40°C								
Soil Glass Jar - Unpreserved (EA002-AD)								
TP07_0.4-0.5_241125,	TP07_1.0-1.1_241125,	**25-Nov-2024**	**05-Dec-2024**	02-Dec-2024	×	**05-Dec-2024**	05-Dec-2024	✓
TP09_1.0-1.5_241125								
Soil Glass Jar - Unpreserved (EA002-AD)								
TP16_0.4-0.5_241126,	TP16_1.0-1.1_241126,	**26-Nov-2024**	**05-Dec-2024**	03-Dec-2024	×	**05-Dec-2024**	05-Dec-2024	✓
TP08_0.4-0.5_241126,	TP08_1.0-1.2_241126,							
TP13_0.8-0.9_241126,	TP13_0.3-0.4_241126,							
TP10_0.0-0.3_241126,	TP10_1.0-1.3-241126,							
TP17_0.4-0.5_241126,	TP17_1.0-1.1_241126							
EA003 :pH (field/fox)								
Snap Lock Bag - frozen (EA003)								
TP07_0.4-0.5_241125,	TP07_1.0-1.1_241125,	**25-Nov-2024**	**10-Dec-2024**	21-Aug-2027	✓	**11-Dec-2024**	10-Mar-2025	✓
TP09_1.0-1.5_241125								
Snap Lock Bag - frozen (EA003)								
TP16_0.4-0.5_241126,	TP16_1.0-1.1_241126,	**26-Nov-2024**	**10-Dec-2024**	22-Aug-2027	✓	**11-Dec-2024**	10-Mar-2025	✓
TP08_0.4-0.5_241126,	TP08_1.0-1.2_241126,							
TP13_0.8-0.9_241126,	TP13_0.3-0.4_241126,							
TP10_0.0-0.3_241126,	TP10_1.0-1.3-241126,							
TP17_0.4-0.5_241126,	TP17_1.0-1.1_241126							
EA010: Conductivity (1:5)								
Soil Glass Jar - Unpreserved (EA010)								
TP07_0.4-0.5_241125,	TP07_1.0-1.1_241125,	**25-Nov-2024**	**04-Dec-2024**	02-Dec-2024	×	**04-Dec-2024**	01-Jan-2025	✓
TP09_1.0-1.5_241125								
Soil Glass Jar - Unpreserved (EA010)								
TP16_0.4-0.5_241126,	TP16_1.0-1.1_241126,	**26-Nov-2024**	**03-Dec-2024**	03-Dec-2024	✓	**04-Dec-2024**	31-Dec-2024	✓
TP08_0.4-0.5_241126,	TP08_1.0-1.2_241126,							
TP13_0.8-0.9_241126,	TP13_0.3-0.4_241126,							
TP10_0.0-0.3_241126,	TP10_1.0-1.3-241126,							
TP17_0.4-0.5_241126,	TP17_1.0-1.1_241126							

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA010-AD: Conductivity (Soils) dried at 40°C								
Soil Glass Jar - Unpreserved (EA010-AD)								
TP07_0.4-0.5_241125,	TP07_1.0-1.1_241125,	**25-Nov-2024**	**05-Dec-2024**	02-Dec-2024	×	**05-Dec-2024**	02-Jan-2025	✓
TP09_1.0-1.5_241125								
Soil Glass Jar - Unpreserved (EA010-AD)								
TP16_0.4-0.5_241126,	TP16_1.0-1.1_241126,	**26-Nov-2024**	**05-Dec-2024**	03-Dec-2024	×	**05-Dec-2024**	02-Jan-2025	✓
TP08_0.4-0.5_241126,	TP08_1.0-1.2_241126,							
TP13_0.8-0.9_241126,	TP13_0.3-0.4_241126,							
TP10_0.0-0.3_241126,	TP10_1.0-1.3-241126,							
TP17_0.4-0.5_241126,	TP17_1.0-1.1_241126							
EA033-A: Actual Acidity								
Snap Lock Bag - frozen (EA033)								
TP07_0.4-0.5_241125,	TP07_1.0-1.1_241125,	**25-Nov-2024**	**11-Dec-2024**	25-Nov-2025	✓	**11-Dec-2024**	11-Mar-2025	✓
TP09_1.0-1.5_241125								
Snap Lock Bag - frozen (EA033)								
TP16_0.4-0.5_241126,	TP16_1.0-1.1_241126,	**26-Nov-2024**	**11-Dec-2024**	26-Nov-2025	✓	**11-Dec-2024**	11-Mar-2025	✓
TP08_0.4-0.5_241126,	TP08_1.0-1.2_241126,							
TP13_0.8-0.9_241126,	TP13_0.3-0.4_241126,							
TP10_0.0-0.3_241126,	TP10_1.0-1.3-241126,							
TP17_0.4-0.5_241126,	TP17_1.0-1.1_241126							
EA033-B: Potential Acidity								
Snap Lock Bag - frozen (EA033)								
TP07_0.4-0.5_241125,	TP07_1.0-1.1_241125,	**25-Nov-2024**	**11-Dec-2024**	25-Nov-2025	✓	**11-Dec-2024**	11-Mar-2025	✓
TP09_1.0-1.5_241125								
Snap Lock Bag - frozen (EA033)								
TP16_0.4-0.5_241126,	TP16_1.0-1.1_241126,	**26-Nov-2024**	**11-Dec-2024**	26-Nov-2025	✓	**11-Dec-2024**	11-Mar-2025	✓
TP08_0.4-0.5_241126,	TP08_1.0-1.2_241126,							
TP13_0.8-0.9_241126,	TP13_0.3-0.4_241126,							
TP10_0.0-0.3_241126,	TP10_1.0-1.3-241126,							
TP17_0.4-0.5_241126,	TP17_1.0-1.1_241126							
EA033-C: Acid Neutralising Capacity								
Snap Lock Bag - frozen (EA033)								
TP07_0.4-0.5_241125,	TP07_1.0-1.1_241125,	**25-Nov-2024**	**11-Dec-2024**	25-Nov-2025	✓	**11-Dec-2024**	11-Mar-2025	✓
TP09_1.0-1.5_241125								
Snap Lock Bag - frozen (EA033)								
TP16_0.4-0.5_241126,	TP16_1.0-1.1_241126,	**26-Nov-2024**	**11-Dec-2024**	26-Nov-2025	✓	**11-Dec-2024**	11-Mar-2025	✓
TP08_0.4-0.5_241126,	TP08_1.0-1.2_241126,							
TP13_0.8-0.9_241126,	TP13_0.3-0.4_241126,							
TP10_0.0-0.3_241126,	TP10_1.0-1.3-241126,							
TP17_0.4-0.5_241126,	TP17_1.0-1.1_241126							

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA033-D: Retained Acidity								
Snap Lock Bag - frozen (EA033)								
TP07_0.4-0.5_241125,	TP07_1.0-1.1_241125,	**25-Nov-2024**	**11-Dec-2024**	25-Nov-2025	✓	**11-Dec-2024**	11-Mar-2025	✓
TP09_1.0-1.5_241125								
Snap Lock Bag - frozen (EA033)								
TP16_0.4-0.5_241126,	TP16_1.0-1.1_241126,	**26-Nov-2024**	**11-Dec-2024**	26-Nov-2025	✓	**11-Dec-2024**	11-Mar-2025	✓
TP08_0.4-0.5_241126,	TP08_1.0-1.2_241126,							
TP13_0.8-0.9_241126,	TP13_0.3-0.4_241126,							
TP10_0.0-0.3_241126,	TP10_1.0-1.3-241126,							
TP17_0.4-0.5_241126,	TP17_1.0-1.1_241126							
EA033-E: Acid Base Accounting								
Snap Lock Bag - frozen (EA033)								
TP07_0.4-0.5_241125,	TP07_1.0-1.1_241125,	**25-Nov-2024**	**11-Dec-2024**	25-Nov-2025	✓	**11-Dec-2024**	11-Mar-2025	✓
TP09_1.0-1.5_241125								
Snap Lock Bag - frozen (EA033)								
TP16_0.4-0.5_241126,	TP16_1.0-1.1_241126,	**26-Nov-2024**	**11-Dec-2024**	26-Nov-2025	✓	**11-Dec-2024**	11-Mar-2025	✓
TP08_0.4-0.5_241126,	TP08_1.0-1.2_241126,							
TP13_0.8-0.9_241126,	TP13_0.3-0.4_241126,							
TP10_0.0-0.3_241126,	TP10_1.0-1.3-241126,							
TP17_0.4-0.5_241126,	TP17_1.0-1.1_241126							
EA055: Moisture Content (Dried @ 105-110°C)								
Soil Glass Jar - Unpreserved (EA055)								
TP07_0.4-0.5_241125,	TP07_0.0-0.15_241125,	**25-Nov-2024**	**----**	----	----	**09-Dec-2024**	09-Dec-2024	✓
TP07_1.0-1.1_241125,	TP09_0.0-0.15_241126,							
TP09_0.4-0.5_241125,	TP09_1.0-1.1_241125,							
TP09_2.0-2.1_241125,	TP09_1.0-1.5_241125							
Soil Glass Jar - Unpreserved (EA055)								
TP16_0.0-0.15_241126,	TP16_0.4-0.5_241126,	**26-Nov-2024**	**----**	----	----	**09-Dec-2024**	10-Dec-2024	✓
TP08_0.0-0.15_241126,	TP08_0.4-0.5_241126,							
TP08_1.0-1.2_241126,	TP13_0.0-0.15_241126,							
TP13_0.8-0.9_241126,	TP13_0.3-0.4_241126,							
TP10_0.0-0.3_241126,	TP10_0.4-0.5_241126,							
TP10_1.0-1.3-241126,	TP17_0.4-0.5_241126,							
TP17_2.0_2.1_241126								
Soil Glass Jar - Unpreserved (EA055)								
TP16_1.0-1.1_241126,	TP17_1.0-1.1_241126	**26-Nov-2024**	**----**	----	----	**10-Dec-2024**	10-Dec-2024	✓
EA058: Emerson Aggregate Test								
Soil Glass Jar - Unpreserved (EA058)								
TP07_0.4-0.5_241125,	TP09_1.0-1.5_241125	**25-Nov-2024**	**----**	----	----	**10-Dec-2024**	24-May-2025	✓
Soil Glass Jar - Unpreserved (EA058)								
TP16_0.4-0.5_241126,	TP08_0.4-0.5_241126,	**26-Nov-2024**	**----**	----	----	**10-Dec-2024**	25-May-2025	✓
TP13_0.3-0.4_241126,	TP10_0.0-0.3_241126,							
TP17_0.4-0.5_241126								

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA150: Particle Sizing							
Snap Lock Bag (EA150H) TP07_0.4-0.5_241125	**25-Nov-2024**	**----**	----	----	**09-Dec-2024**	24-May-2025	✓
Snap Lock Bag (EA150H) TP16_1.0-1.1_241126, TP08_0.4-0.5_241126, TP13_0.3-0.4_241126, TP10_1.0-1.3-241126, TP17_1.0-1.1_241126	**26-Nov-2024**	**----**	----	----	**09-Dec-2024**	25-May-2025	✓
EA150: Soil Classification based on Particle Size							
Snap Lock Bag (EA150H) TP07_0.4-0.5_241125	**25-Nov-2024**	**----**	----	----	**09-Dec-2024**	24-May-2025	✓
Snap Lock Bag (EA150H) TP16_1.0-1.1_241126, TP08_0.4-0.5_241126, TP13_0.3-0.4_241126, TP10_1.0-1.3-241126, TP17_1.0-1.1_241126	**26-Nov-2024**	**----**	----	----	**09-Dec-2024**	25-May-2025	✓
ED006: Exchangeable Cations on Alkaline Soils							
Soil Glass Jar - Unpreserved (ED006) TP07_0.4-0.5_241125, TP07_1.0-1.1_241125, TP09_1.0-1.5_241125	**25-Nov-2024**	**04-Dec-2024**	23-Dec-2024	✓	**11-Dec-2024**	23-Dec-2024	✓
Soil Glass Jar - Unpreserved (ED006) TP16_0.4-0.5_241126, TP16_1.0-1.1_241126, TP08_0.4-0.5_241126, TP08_1.0-1.2_241126, TP13_0.8-0.9_241126, TP13_0.3-0.4_241126, TP10_0.0-0.3_241126, TP10_1.0-1.3-241126, TP17_0.4-0.5_241126, TP17_1.0-1.1_241126	**26-Nov-2024**	**04-Dec-2024**	24-Dec-2024	✓	**11-Dec-2024**	24-Dec-2024	✓
ED007: Exchangeable Cations							
Soil Glass Jar - Unpreserved (ED007) TP07_0.4-0.5_241125, TP07_1.0-1.1_241125, TP09_1.0-1.5_241125	**25-Nov-2024**	**04-Dec-2024**	23-Dec-2024	✓	**11-Dec-2024**	23-Dec-2024	✓
Soil Glass Jar - Unpreserved (ED007) TP16_0.4-0.5_241126, TP16_1.0-1.1_241126, TP08_0.4-0.5_241126, TP08_1.0-1.2_241126, TP13_0.8-0.9_241126, TP13_0.3-0.4_241126, TP10_0.0-0.3_241126, TP10_1.0-1.3-241126, TP17_0.4-0.5_241126, TP17_1.0-1.1_241126	**26-Nov-2024**	**04-Dec-2024**	24-Dec-2024	✓	**11-Dec-2024**	24-Dec-2024	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
ED008: Exchangeable Cations							
Soil Glass Jar - Unpreserved (ED008)							
TP07_0.4-0.5_241125, TP07_1.0-1.1_241125, TP09_1.0-1.5_241125	**25-Nov-2024**	**04-Dec-2024**	23-Dec-2024	✓	**11-Dec-2024**	23-Dec-2024	✓
Soil Glass Jar - Unpreserved (ED008)							
TP16_0.4-0.5_241126, TP16_1.0-1.1_241126, TP08_0.4-0.5_241126, TP08_1.0-1.2_241126, TP13_0.8-0.9_241126, TP13_0.3-0.4_241126, TP10_0.0-0.3_241126, TP10_1.0-1.3-241126, TP17_0.4-0.5_241126, TP17_1.0-1.1_241126	**26-Nov-2024**	**04-Dec-2024**	24-Dec-2024	✓	**11-Dec-2024**	24-Dec-2024	✓
ED040N: Sulfate - Calcium Phosphate Soluble (NEPM)							
Soil Glass Jar - Unpreserved (ED040N)							
TP07_0.4-0.5_241125, TP09_1.0-1.5_241125	**25-Nov-2024**	**10-Dec-2024**	24-May-2025	✓	**10-Dec-2024**	24-May-2025	✓
Soil Glass Jar - Unpreserved (ED040N)							
TP16_0.4-0.5_241126, TP08_0.4-0.5_241126, TP13_0.3-0.4_241126, TP10_0.0-0.3_241126, TP17_0.4-0.5_241126	**26-Nov-2024**	**10-Dec-2024**	25-May-2025	✓	**10-Dec-2024**	25-May-2025	✓
ED040T: Total Sulfur by ICPAES							
Soil Glass Jar - Unpreserved (ED040T)							
TP07_0.4-0.5_241125	**25-Nov-2024**	**03-Dec-2024**	02-Dec-2024	×	**03-Dec-2024**	31-Dec-2024	✓
Soil Glass Jar - Unpreserved (ED040T)							
TP09_1.0-1.5_241125	**25-Nov-2024**	**05-Dec-2024**	02-Dec-2024	×	**05-Dec-2024**	02-Jan-2025	✓
Soil Glass Jar - Unpreserved (ED040T)							
TP16_0.4-0.5_241126, TP08_0.4-0.5_241126, TP13_0.3-0.4_241126, TP10_0.0-0.3_241126, TP17_0.4-0.5_241126	**26-Nov-2024**	**03-Dec-2024**	03-Dec-2024	✓	**03-Dec-2024**	31-Dec-2024	✓
ED045G: Chloride by Discrete Analyser							
Soil Glass Jar - Unpreserved (ED045G)							
TP07_0.4-0.5_241125, TP07_1.0-1.1_241125, TP09_1.0-1.5_241125	**25-Nov-2024**	**04-Dec-2024**	23-Dec-2024	✓	**07-Dec-2024**	01-Jan-2025	✓
Soil Glass Jar - Unpreserved (ED045G)							
TP16_0.4-0.5_241126, TP16_1.0-1.1_241126, TP08_0.4-0.5_241126, TP08_1.0-1.2_241126, TP13_0.8-0.9_241126, TP13_0.3-0.4_241126, TP10_0.0-0.3_241126, TP10_1.0-1.3-241126, TP17_0.4-0.5_241126, TP17_1.0-1.1_241126	**26-Nov-2024**	**03-Dec-2024**	24-Dec-2024	✓	**05-Dec-2024**	31-Dec-2024	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG005(ED093)T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
TP07_0.4-0.5_241125, TP07_0.0-0.15_241125, TP07_1.0-1.1_241125, TP09_0.0-0.15_241126, TP09_0.4-0.5_241125, TP09_1.0-1.1_241125, TP09_2.0-2.1_241125, TP09_1.0-1.5_241125	**25-Nov-2024**	**10-Dec-2024**	24-May-2025	✓	**10-Dec-2024**	24-May-2025	✓
Soil Glass Jar - Unpreserved (EG005T)							
TP16_0.0-0.15_241126, TP16_0.4-0.5_241126, TP08_0.0-0.15_241126, TP08_0.4-0.5_241126, TP08_1.0-1.2_241126, TP13_0.0-0.15_241126, TP13_0.8-0.9_241126, TP13_0.3-0.4_241126, TP10_0.0-0.3_241126, TP10_0.4-0.5_241126, TP10_1.0-1.3-241126, TP17_0.4-0.5_241126, TP17_2.0_2.1_241126	**26-Nov-2024**	**10-Dec-2024**	25-May-2025	✓	**10-Dec-2024**	25-May-2025	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
TP07_0.0-0.15_241125, TP07_1.0-1.1_241125, TP09_0.0-0.15_241126, TP09_0.4-0.5_241125, TP09_1.0-1.1_241125, TP09_2.0-2.1_241125	**25-Nov-2024**	**10-Dec-2024**	23-Dec-2024	✓	**10-Dec-2024**	23-Dec-2024	✓
Soil Glass Jar - Unpreserved (EG035T)							
TP16_0.0-0.15_241126, TP16_0.4-0.5_241126, TP08_0.0-0.15_241126, TP08_1.0-1.2_241126, TP13_0.0-0.15_241126, TP13_0.8-0.9_241126, TP10_0.4-0.5_241126, TP10_1.0-1.3-241126, TP17_0.4-0.5_241126, TP17_2.0_2.1_241126	**26-Nov-2024**	**10-Dec-2024**	24-Dec-2024	✓	**10-Dec-2024**	24-Dec-2024	✓
EG048: Hexavalent Chromium (Alkaline Digest)							
Soil Glass Jar - Unpreserved (EG048G)							
TP07_1.0-1.1_241125, TP09_0.0-0.15_241126, TP09_0.4-0.5_241125, TP09_2.0-2.1_241125	**25-Nov-2024**	**11-Dec-2024**	23-Dec-2024	✓	**12-Dec-2024**	18-Dec-2024	✓
Soil Glass Jar - Unpreserved (EG048G)							
TP16_0.4-0.5_241126, TP08_1.0-1.2_241126, TP13_0.8-0.9_241126, TP10_1.0-1.3-241126, TP17_0.4-0.5_241126	**26-Nov-2024**	**11-Dec-2024**	24-Dec-2024	✓	**12-Dec-2024**	18-Dec-2024	✓
EK028SF: Weak Acid Dissociable CN by Segmented Flow Analyser							
Soil Glass Jar - Unpreserved (EK028SF)							
TP07_1.0-1.1_241125, TP09_0.0-0.15_241126, TP09_0.4-0.5_241125, TP09_2.0-2.1_241125	**25-Nov-2024**	**09-Dec-2024**	09-Dec-2024	✓	**11-Dec-2024**	23-Dec-2024	✓
Soil Glass Jar - Unpreserved (EK028SF)							
TP16_0.4-0.5_241126, TP08_1.0-1.2_241126, TP13_0.8-0.9_241126, TP10_1.0-1.3-241126, TP17_0.4-0.5_241126	**26-Nov-2024**	**10-Dec-2024**	10-Dec-2024	✓	**12-Dec-2024**	24-Dec-2024	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EK055: Ammonia as N							
Soil Glass Jar - Unpreserved (EK055) TP07_0.4-0.5_241125	**25-Nov-2024**	**----**	----	----	**05-Dec-2024**	23-Dec-2024	✓
Soil Glass Jar - Unpreserved (EK055) TP09_1.0-1.5_241125	**25-Nov-2024**	**----**	----	----	**10-Dec-2024**	23-Dec-2024	✓
Soil Glass Jar - Unpreserved (EK055) TP16_0.4-0.5_241126, TP08_0.4-0.5_241126, TP13_0.3-0.4_241126, TP10_0.0-0.3_241126, TP17_0.4-0.5_241126	**26-Nov-2024**	**----**	----	----	**05-Dec-2024**	24-Dec-2024	✓
EK057G: Nitrite as N by Discrete Analyser							
Soil Glass Jar - Unpreserved (EK057G) TP07_0.4-0.5_241125	**25-Nov-2024**	**04-Dec-2024**	02-Dec-2024	×	**06-Dec-2024**	06-Dec-2024	✓
Soil Glass Jar - Unpreserved (EK057G) TP09_1.0-1.5_241125	**25-Nov-2024**	**05-Dec-2024**	02-Dec-2024	×	**06-Dec-2024**	07-Dec-2024	✓
Soil Glass Jar - Unpreserved (EK057G) TP16_0.4-0.5_241126, TP08_0.4-0.5_241126, TP13_0.3-0.4_241126, TP10_0.0-0.3_241126, TP17_0.4-0.5_241126	**26-Nov-2024**	**03-Dec-2024**	03-Dec-2024	✓	**04-Dec-2024**	05-Dec-2024	✓
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser							
Soil Glass Jar - Unpreserved (EK059G) TP07_0.4-0.5_241125	**25-Nov-2024**	**04-Dec-2024**	23-Dec-2024	✓	**06-Dec-2024**	06-Dec-2024	✓
Soil Glass Jar - Unpreserved (EK059G) TP09_1.0-1.5_241125	**25-Nov-2024**	**05-Dec-2024**	23-Dec-2024	✓	**06-Dec-2024**	07-Dec-2024	✓
Soil Glass Jar - Unpreserved (EK059G) TP16_0.4-0.5_241126, TP08_0.4-0.5_241126, TP13_0.3-0.4_241126, TP10_0.0-0.3_241126, TP17_0.4-0.5_241126	**26-Nov-2024**	**03-Dec-2024**	24-Dec-2024	✓	**04-Dec-2024**	05-Dec-2024	✓
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser							
Soil Glass Jar - Unpreserved (EK061G) TP07_0.4-0.5_241125	**25-Nov-2024**	**05-Dec-2024**	23-Dec-2024	✓	**10-Dec-2024**	02-Jan-2025	✓
Soil Glass Jar - Unpreserved (EK061G) TP09_1.0-1.5_241125	**25-Nov-2024**	**10-Dec-2024**	23-Dec-2024	✓	**11-Dec-2024**	07-Jan-2025	✓
Soil Glass Jar - Unpreserved (EK061G) TP16_0.4-0.5_241126, TP08_0.4-0.5_241126, TP13_0.3-0.4_241126, TP10_0.0-0.3_241126, TP17_0.4-0.5_241126	**26-Nov-2024**	**05-Dec-2024**	24-Dec-2024	✓	**10-Dec-2024**	02-Jan-2025	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EK067G: Total Phosphorus as P by Discrete Analyser							
Soil Glass Jar - Unpreserved (EK067G) TP07_0.4-0.5_241125	**25-Nov-2024**	**05-Dec-2024**	23-Dec-2024	✓	**10-Dec-2024**	02-Jan-2025	✓
Soil Glass Jar - Unpreserved (EK067G) TP09_1.0-1.5_241125	**25-Nov-2024**	**10-Dec-2024**	23-Dec-2024	✓	**11-Dec-2024**	07-Jan-2025	✓
Soil Glass Jar - Unpreserved (EK067G) TP16_0.4-0.5_241126, TP08_0.4-0.5_241126, TP13_0.3-0.4_241126, TP10_0.0-0.3_241126, TP17_0.4-0.5_241126	**26-Nov-2024**	**05-Dec-2024**	24-Dec-2024	✓	**10-Dec-2024**	02-Jan-2025	✓
EK080: Bicarbonate Extractable Phosphorus (Colwell)							
Soil Glass Jar - Unpreserved (EK080) TP07_0.4-0.5_241125, TP09_1.0-1.5_241125	**25-Nov-2024**	**10-Dec-2024**	24-May-2025	✓	**12-Dec-2024**	24-May-2025	✓
Soil Glass Jar - Unpreserved (EK080) TP16_0.4-0.5_241126, TP08_0.4-0.5_241126, TP13_0.3-0.4_241126, TP10_0.0-0.3_241126, TP17_0.4-0.5_241126	**26-Nov-2024**	**10-Dec-2024**	25-May-2025	✓	**12-Dec-2024**	25-May-2025	✓
EP004: Organic Matter							
Soil Glass Jar - Unpreserved (EP004) TP07_0.4-0.5_241125, TP09_1.0-1.5_241125	**25-Nov-2024**	**10-Dec-2024**	23-Dec-2024	✓	**12-Dec-2024**	23-Dec-2024	✓
Soil Glass Jar - Unpreserved (EP004) TP16_0.4-0.5_241126, TP08_0.4-0.5_241126, TP13_0.3-0.4_241126, TP10_0.0-0.3_241126, TP17_0.4-0.5_241126	**26-Nov-2024**	**10-Dec-2024**	24-Dec-2024	✓	**12-Dec-2024**	24-Dec-2024	✓
EP066: Polychlorinated Biphenyls (PCB)							
Soil Glass Jar - Unpreserved (EP066) TP07_1.0-1.1_241125, TP09_0.0-0.15_241126, TP09_0.4-0.5_241125, TP09_2.0-2.1_241125	**25-Nov-2024**	**09-Dec-2024**	09-Dec-2024	✓	**11-Dec-2024**	18-Jan-2025	✓
Soil Glass Jar - Unpreserved (EP066) TP16_0.4-0.5_241126	**26-Nov-2024**	**09-Dec-2024**	10-Dec-2024	✓	**10-Dec-2024**	18-Jan-2025	✓
Soil Glass Jar - Unpreserved (EP066) TP08_1.0-1.2_241126, TP13_0.8-0.9_241126, TP10_1.0-1.3-241126, TP17_0.4-0.5_241126	**26-Nov-2024**	**09-Dec-2024**	10-Dec-2024	✓	**11-Dec-2024**	18-Jan-2025	✓
EP068A: Organochlorine Pesticides (OC)							
Soil Glass Jar - Unpreserved (EP068) TP07_1.0-1.1_241125, TP09_0.0-0.15_241126, TP09_0.4-0.5_241125, TP09_2.0-2.1_241125	**25-Nov-2024**	**09-Dec-2024**	09-Dec-2024	✓	**10-Dec-2024**	18-Jan-2025	✓
Soil Glass Jar - Unpreserved (EP068) TP16_0.4-0.5_241126, TP08_1.0-1.2_241126, TP13_0.8-0.9_241126, TP10_1.0-1.3-241126, TP17_0.4-0.5_241126	**26-Nov-2024**	**09-Dec-2024**	10-Dec-2024	✓	**10-Dec-2024**	18-Jan-2025	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP068B: Organophosphorus Pesticides (OP)							
Soil Glass Jar - Unpreserved (EP068) TP07_1.0-1.1_241125, TP09_0.0-0.15_241126, TP09_0.4-0.5_241125, TP09_2.0-2.1_241125	**25-Nov-2024**	**09-Dec-2024**	09-Dec-2024	✓	**10-Dec-2024**	18-Jan-2025	✓
Soil Glass Jar - Unpreserved (EP068) TP16_0.4-0.5_241126, TP08_1.0-1.2_241126, TP13_0.8-0.9_241126, TP10_1.0-1.3-241126, TP17_0.4-0.5_241126	**26-Nov-2024**	**09-Dec-2024**	10-Dec-2024	✓	**10-Dec-2024**	18-Jan-2025	✓
EP068C: Triazines							
Soil Glass Jar - Unpreserved (EP068) TP07_1.0-1.1_241125, TP09_0.0-0.15_241126, TP09_0.4-0.5_241125, TP09_2.0-2.1_241125	**25-Nov-2024**	**09-Dec-2024**	09-Dec-2024	✓	**10-Dec-2024**	18-Jan-2025	✓
Soil Glass Jar - Unpreserved (EP068) TP16_0.4-0.5_241126, TP08_1.0-1.2_241126, TP13_0.8-0.9_241126, TP10_1.0-1.3-241126, TP17_0.4-0.5_241126	**26-Nov-2024**	**09-Dec-2024**	10-Dec-2024	✓	**10-Dec-2024**	18-Jan-2025	✓
EP068D: Pyrethroids							
Soil Glass Jar - Unpreserved (EP068) TP07_1.0-1.1_241125, TP09_0.0-0.15_241126, TP09_0.4-0.5_241125, TP09_2.0-2.1_241125	**25-Nov-2024**	**09-Dec-2024**	09-Dec-2024	✓	**10-Dec-2024**	18-Jan-2025	✓
Soil Glass Jar - Unpreserved (EP068) TP16_0.4-0.5_241126, TP08_1.0-1.2_241126, TP13_0.8-0.9_241126, TP10_1.0-1.3-241126, TP17_0.4-0.5_241126	**26-Nov-2024**	**09-Dec-2024**	10-Dec-2024	✓	**10-Dec-2024**	18-Jan-2025	✓
EP075(SIM)A: Phenolic Compounds							
Soil Glass Jar - Unpreserved (EP075(SIM)) TP07_1.0-1.1_241125, TP09_0.0-0.15_241126, TP09_0.4-0.5_241125, TP09_2.0-2.1_241125	**25-Nov-2024**	**09-Dec-2024**	09-Dec-2024	✓	**12-Dec-2024**	18-Jan-2025	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) TP16_0.4-0.5_241126, TP08_1.0-1.2_241126, TP13_0.8-0.9_241126, TP10_1.0-1.3-241126, TP17_0.4-0.5_241126	**26-Nov-2024**	**09-Dec-2024**	10-Dec-2024	✓	**12-Dec-2024**	18-Jan-2025	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM)) TP07_0.0-0.15_241125, TP07_1.0-1.1_241125, TP09_0.0-0.15_241126, TP09_0.4-0.5_241125, TP09_1.0-1.1_241125, TP09_2.0-2.1_241125	**25-Nov-2024**	**09-Dec-2024**	09-Dec-2024	✓	**12-Dec-2024**	18-Jan-2025	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) TP16_0.0-0.15_241126, TP16_0.4-0.5_241126, TP08_0.0-0.15_241126, TP08_1.0-1.2_241126, TP13_0.0-0.15_241126, TP13_0.8-0.9_241126, TP10_0.4-0.5_241126, TP10_1.0-1.3-241126, TP17_0.4-0.5_241126, TP17_2.0_2.1_241126	**26-Nov-2024**	**09-Dec-2024**	10-Dec-2024	✓	**12-Dec-2024**	18-Jan-2025	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP080) TP07_0.0-0.15_241125, TP07_1.0-1.1_241125, TP09_0.4-0.5_241125, TP09_2.0-2.1_241125	**25-Nov-2024**	**04-Dec-2024**	09-Dec-2024	✓	**09-Dec-2024**	09-Dec-2024	✓
Soil Glass Jar - Unpreserved (EP080) TP09_0.0-0.15_241126, TP09_1.0-1.1_241125	**25-Nov-2024**	**06-Dec-2024**	09-Dec-2024	✓	**06-Dec-2024**	09-Dec-2024	✓
Soil Glass Jar - Unpreserved (EP071) TP07_0.0-0.15_241125, TP07_1.0-1.1_241125, TP09_0.0-0.15_241126, TP09_0.4-0.5_241125, TP09_1.0-1.1_241125, TP09_2.0-2.1_241125	**25-Nov-2024**	**09-Dec-2024**	09-Dec-2024	✓	**10-Dec-2024**	18-Jan-2025	✓
Soil Glass Jar - Unpreserved (EP080) TP16_0.4-0.5_241126, TP08_1.0-1.2_241126, TP13_0.8-0.9_241126, TP10_1.0-1.3-241126, TP17_0.4-0.5_241126	**26-Nov-2024**	**03-Dec-2024**	10-Dec-2024	✓	**05-Dec-2024**	10-Dec-2024	✓
Soil Glass Jar - Unpreserved (EP080) TP16_0.0-0.15_241126, TP08_0.0-0.15_241126, TP13_0.0-0.15_241126, TP10_0.4-0.5_241126	**26-Nov-2024**	**04-Dec-2024**	10-Dec-2024	✓	**09-Dec-2024**	10-Dec-2024	✓
Soil Glass Jar - Unpreserved (EP080) TP17_2.0_2.1_241126	**26-Nov-2024**	**06-Dec-2024**	10-Dec-2024	✓	**06-Dec-2024**	10-Dec-2024	✓
Soil Glass Jar - Unpreserved (EP071) TP16_0.0-0.15_241126, TP16_0.4-0.5_241126, TP08_0.0-0.15_241126, TP08_1.0-1.2_241126, TP13_0.0-0.15_241126, TP13_0.8-0.9_241126, TP10_0.4-0.5_241126, TP10_1.0-1.3-241126, TP17_0.4-0.5_241126, TP17_2.0_2.1_241126	**26-Nov-2024**	**09-Dec-2024**	10-Dec-2024	✓	**10-Dec-2024**	18-Jan-2025	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP080) TP07_0.0-0.15_241125, TP07_1.0-1.1_241125, TP09_0.4-0.5_241125, TP09_2.0-2.1_241125	**25-Nov-2024**	**04-Dec-2024**	09-Dec-2024	✓	**09-Dec-2024**	09-Dec-2024	✓
Soil Glass Jar - Unpreserved (EP080) TP09_0.0-0.15_241126, TP09_1.0-1.1_241125	**25-Nov-2024**	**06-Dec-2024**	09-Dec-2024	✓	**06-Dec-2024**	09-Dec-2024	✓
Soil Glass Jar - Unpreserved (EP071) TP07_0.0-0.15_241125, TP07_1.0-1.1_241125, TP09_0.0-0.15_241126, TP09_0.4-0.5_241125, TP09_1.0-1.1_241125, TP09_2.0-2.1_241125	**25-Nov-2024**	**09-Dec-2024**	09-Dec-2024	✓	**10-Dec-2024**	18-Jan-2025	✓
Soil Glass Jar - Unpreserved (EP080) TP16_0.4-0.5_241126, TP08_1.0-1.2_241126, TP13_0.8-0.9_241126, TP10_1.0-1.3-241126, TP17_0.4-0.5_241126	**26-Nov-2024**	**03-Dec-2024**	10-Dec-2024	✓	**05-Dec-2024**	10-Dec-2024	✓
Soil Glass Jar - Unpreserved (EP080) TP16_0.0-0.15_241126, TP08_0.0-0.15_241126, TP13_0.0-0.15_241126, TP10_0.4-0.5_241126	**26-Nov-2024**	**04-Dec-2024**	10-Dec-2024	✓	**09-Dec-2024**	10-Dec-2024	✓
Soil Glass Jar - Unpreserved (EP080) TP17_2.0_2.1_241126	**26-Nov-2024**	**06-Dec-2024**	10-Dec-2024	✓	**06-Dec-2024**	10-Dec-2024	✓
Soil Glass Jar - Unpreserved (EP071) TP16_0.0-0.15_241126, TP16_0.4-0.5_241126, TP08_0.0-0.15_241126, TP08_1.0-1.2_241126, TP13_0.0-0.15_241126, TP13_0.8-0.9_241126, TP10_0.4-0.5_241126, TP10_1.0-1.3-241126, TP17_0.4-0.5_241126, TP17_2.0_2.1_241126	**26-Nov-2024**	**09-Dec-2024**	10-Dec-2024	✓	**10-Dec-2024**	18-Jan-2025	✓
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080) TP07_0.0-0.15_241125, TP07_1.0-1.1_241125, TP09_0.4-0.5_241125, TP09_2.0-2.1_241125	**25-Nov-2024**	**04-Dec-2024**	09-Dec-2024	✓	**09-Dec-2024**	09-Dec-2024	✓
Soil Glass Jar - Unpreserved (EP080) TP09_0.0-0.15_241126, TP09_1.0-1.1_241125	**25-Nov-2024**	**06-Dec-2024**	09-Dec-2024	✓	**06-Dec-2024**	09-Dec-2024	✓
Soil Glass Jar - Unpreserved (EP080) TP16_0.4-0.5_241126, TP08_1.0-1.2_241126, TP13_0.8-0.9_241126, TP10_1.0-1.3-241126, TP17_0.4-0.5_241126	**26-Nov-2024**	**03-Dec-2024**	10-Dec-2024	✓	**05-Dec-2024**	10-Dec-2024	✓
Soil Glass Jar - Unpreserved (EP080) TP16_0.0-0.15_241126, TP08_0.0-0.15_241126, TP13_0.0-0.15_241126, TP10_0.4-0.5_241126	**26-Nov-2024**	**04-Dec-2024**	10-Dec-2024	✓	**09-Dec-2024**	10-Dec-2024	✓
Soil Glass Jar - Unpreserved (EP080) TP17_2.0_2.1_241126	**26-Nov-2024**	**06-Dec-2024**	10-Dec-2024	✓	**06-Dec-2024**	10-Dec-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Bicarbonate Extractable P (Colwell)	EK080	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Buchi Ammonia	EK055	2	9	**22.22**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride Soluble By Discrete Analyser	ED045G	4	22	**18.18**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chromium Suite for Acid Sulphate Soils	EA033	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Electrical Conductivity (1:5)	EA010	4	23	**17.39**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Electrical Conductivity (1:5) on 40°C dried soil	EA010-AD	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Exchangeable Cations on Alkaline Soils	ED006	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055	6	49	**12.24**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser	EK059G	3	9	**33.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N - Soluble by Discrete Analyser	EK057G	3	9	**33.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Organic Matter	EP004	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	2	16	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	9	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH (1:5)	EA002	3	22	**13.64**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH (1:5) on 40°C dried soil	EA002-AD	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH field/fox	EA003	4	40	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH in soil using a 0.01M CaCl2 extract	EA001	3	17	**17.65**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	9	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate - Calcium Phosphate Soluble	ED040N	2	13	**15.38**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TKN as N By Discrete Analyser	EK061G	3	13	**23.08**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	4	34	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	5	40	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus By Discrete Analyser	EK067G	2	9	**22.22**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	16	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	5	43	**11.63**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
WAD Cyanide by Segmented Flow Analyser	EK028SF	4	35	**11.43**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Bicarbonate Extractable P (Colwell)	EK080	3	15	**20.00**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
Buchi Ammonia	EK055	2	9	**22.22**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride Soluble By Discrete Analyser	ED045G	4	22	**18.18**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chromium Suite for Acid Sulphate Soils	EA033	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Electrical Conductivity (1:5)	EA010	2	23	**8.70**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Electrical Conductivity (1:5) on 40°C dried soil	EA010-AD	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Exchangeable Cations on Alkaline Soils	ED006	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Control Samples (LCS) - Continued							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser	EK059G	3	9	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N - Soluble by Discrete Analyser	EK057G	3	9	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Organic Matter	EP004	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH (1:5)	EA002	4	22	**18.18**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH (1:5) on 40°C dried soil	EA002-AD	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH in soil using a 0.01M CaCl2 extract	EA001	4	17	**23.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate - Calcium Phosphate Soluble	ED040N	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TKN as N By Discrete Analyser	EK061G	2	13	**15.38**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	34	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus By Discrete Analyser	EK067G	2	9	**22.22**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	3	43	**6.98**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
WAD Cyanide by Segmented Flow Analyser	EK028SF	2	35	**5.71**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Bicarbonate Extractable P (Colwell)	EK080	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Buchi Ammonia	EK055	2	9	**22.22**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride Soluble By Discrete Analyser	ED045G	2	22	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chromium Suite for Acid Sulphate Soils	EA033	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Electrical Conductivity (1:5)	EA010	2	23	**8.70**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Electrical Conductivity (1:5) on 40°C dried soil	EA010-AD	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Exchangeable Cations on Alkaline Soils	ED006	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser	EK059G	3	9	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N - Soluble by Discrete Analyser	EK057G	3	9	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Organic Matter	EP004	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate - Calcium Phosphate Soluble	ED040N	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TKN as N By Discrete Analyser	EK061G	2	13	**15.38**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	34	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus By Discrete Analyser	EK067G	2	9	**22.22**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Method Blanks (MB) - Continued							
TRH - Semivolatile Fraction	EP071	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	3	43	**6.98**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
WAD Cyanide by Segmented Flow Analyser	EK028SF	2	35	**5.71**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Bicarbonate Extractable P (Colwell)	EK080	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Buchi Ammonia	EK055	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride Soluble By Discrete Analyser	ED045G	2	22	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser	EK059G	2	9	**22.22**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N - Soluble by Discrete Analyser	EK057G	2	9	**22.22**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Organic Matter	EP004	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate - Calcium Phosphate Soluble	ED040N	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TKN as N By Discrete Analyser	EK061G	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	34	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus By Discrete Analyser	EK067G	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	3	43	**6.98**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
WAD Cyanide by Segmented Flow Analyser	EK028SF	2	35	**5.71**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH in soil using a 0.01M CaCl2 extract	EA001	SOIL	In house: Referenced to Rayment and Lyons 4B3 (mod.) or 4B4 (mod.) 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM Schedule B(3).
pH (1:5)	EA002	SOIL	In house: Referenced to Rayment and Lyons 4A1 and APHA 4500H+. pH is determined on soil samples after a 1:5 soil/water leach. This method is compliant with NEPM Schedule B(3).
pH (1:5) on 40°C dried soil	EA002-AD	SOIL	In house: Referenced to Rayment and Lyons 4A1 and APHA 4500H+. pH is determined on 40°C dried soil after a 1:5 soil/water leach. This method is compliant with NEPM Schedule B(3)
pH field/fox	EA003	SOIL	In house: Referenced to Ahern et al 1998 - determined on a 1:5 soil/water extract designed to simulate field measured pH and pH after the extract has been oxidised with peroxide.
Net Acid Production Potential	EA009	SOIL	In house: Referenced to Coastech Research (Canada)(Mod.). NAPP = Acid Production Potential (APP or MAP-Maximum Acid Potential) minus Neutralising Capacity (ANC). NAPP may be +ve, zero or -ve.
Electrical Conductivity (1:5)	EA010	SOIL	In house: Referenced to Rayment and Lyons 3A1 and APHA 2510. Conductivity is determined on soil samples using a 1:5 soil/water leach. This method is compliant with NEPM Schedule B(3).
Electrical Conductivity (1:5) on 40°C dried soil	EA010-AD	SOIL	In house: Referenced to Rayment and Lyons 3A1 and APHA 2510. Conductivity is determined on soil samples dried at 40°C using a 1:5 soil/water leach. This method is compliant with NEPM Schedule B(3).
Chromium Suite for Acid Sulphate Soils	EA033	SOIL	In house: Referenced to Ahern et al 2004. This method covers the determination of Chromium Reducible Sulfur (SCR); pHKCl; titratable actual acidity (TAA); acid neutralising capacity by back titration (ANC); and net acid soluble sulfur (SNAS) which incorporates peroxide sulfur. It applies to soils and sediments (including sands) derived from coastal regions. Liming Rate is based on results for samples as submitted and incorporates a minimum safety factor of 1.5.
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Emerson Aggregate Test	EA058	SOIL	In house: Referenced to AS1289.3.8.1. Testing is performed only on soils with suitable aggregates; sands and gravels are usually unsuitable for this test. The test classifies the behaviour of soil aggregates, when immersed, on their coherence in water.
Particle Size Analysis by Hydrometer	EA150H	SOIL	Particle Size Analysis by Hydrometer according to AS1289.3.6.3
Gross Alpha and Beta activity in solids	EA250	SOIL	In house: Referenced to ISO 9697 / CSN 757611. Determination of Gross Alpha and Beta activity in soil and sediment by Thick Source method. An appropriate mass of sample is dried and pulverised prior to direct activity counting. (If required, Potassium may be determined separately and results corrected accordingly for 40K.) Analysis is performed by ALS (Czech Republic) who hold technical accreditation #1163 for Gross alpha and beta activity under CAI. CAI are a European accreditation body, equivalent to NATA in Australila and recognised internationally by NATA under ILAC.
Radionuclides (Natural) in Soil / Sediment	EA252	SOIL	Individual Natural Radionuclides in soil / sediment by High Resolution Gamma Spectrometry. Analysis is performed by ALS (Czech Republic) who hold technical accreditation #1163 for Gamma Spectrometry under CAI. CAI are a European accreditation body, equivalent to NATA in Australila and recognised internationally by NATA under ILAC.

Analytical Methods	Method	Matrix	Method Descriptions
Exchangeable Cations on Alkaline Soils	* ED006	SOIL	In house: Referenced to Soil Survey Test Method C5. Soluble salts are removed from the sample prior to analysis. Cations are exchanged from the sample by contact with alcoholic ammonium chloride at pH 8.5. They are then quantitated in the final solution by ICPAES and reported as meq/100g of original soil.
Exchangeable Cations	ED007	SOIL	In house: Referenced to Rayment & Lyons Method 15A1. Cations are exchanged from the sample by contact with Ammonium Chloride. They are then quantitated in the final solution by ICPAES and reported as meq/100g of original soil. This method is compliant with NEPM Schedule B(3).
Exchangeable Cations with pre-treatment	ED008	SOIL	In house: Referenced to Rayment & Lyons Method 15A2. Soluble salts are removed from the sample prior to analysis. Cations are exchanged from the sample by contact with Ammonium Chloride. They are then quantitated in the final solution by ICPAES and reported as meq/100g of original soil. This method is compliant with NEPM Schedule B(3).
Sulfate - Calcium Phosphate Soluble	ED040N	SOIL	In house: The sample is extracted with a calcium phosphate solution. The phosphate ion displaces the adsorbed sulfate while calcium ions depress the extraction of interfering S from soil organic matter. SO4 in the extract is determined by ICPAES and reported as dry weight in the original soil. This method is compliant with NEPM Schedule B(3).
Sulfate as SO4 2- Total	ED040T	SOIL	In house: Total Sulfate is determined off a HCl digestion by ICPAES as S , and reported as SO4
Chloride Soluble By Discrete Analyser	ED045G	SOIL	In house: Referenced to APHA 4500 Cl - G. The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride.in the presence of ferric ions the librated thiocynate forms highly-coloured ferric thiocynate which is measured at 480 nm. Analysis is performed on a 1:5 soil / water leachate.
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3)
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	SOIL	In house: Referenced to USEPA SW846, Method 3060. Hexavalent chromium is extracted by alkaline digestion. The digest is determined by photometrically by automatic discrete analyser, following pH adjustment. The instrument uses colour development using dephenylcarbazide. Each run of samples is measured against a five-point calibration curve. This method is compliant with NEPM Schedule B(3)
WAD Cyanide by Segmented Flow Analyser	EK028SF	SOIL	In house: Referenced to APHA 4500-CN C&O / ISO 14403. Caustic leachates of soil samples are introduced into an automated segmented flow analyser. Hydrogen cyanide is liberated from a slightly acidified (pH 4.5) and is dialysed. Tight cyanide complexes that would not be amenable to oxidation by chlorine are not converted. Iron cyanide complexes are precipitated with zinc acetate. Liberated HCN diffuses through a membrane into a stream of sodium hydroxide where it is carried as CN- The cyanide in caustic solution is buffered to pH 5.2 and further converted to cyanogen chloride by reaction with chloramine-T. Cyanogen chloride subsequently reacts with 4-pyridine carboxylic and 1,3-dimethylbarbituric acids to give a red colour complex. This colour is measured at 600 nm. This method is compliant with NEPM Schedule B(3).

Analytical Methods	Method	Matrix	Method Descriptions
Buchi Ammonia	EK055	SOIL	In house: Referenced to APHA 4500-NH3 B&G, H Samples are steam distilled (Buchi) prior to analysis and quantified using titration, FIA or Discrete Analyser.
Nitrite as N - Soluble by Discrete Analyser	EK057G	SOIL	In house: Referenced to APHA 4500-NO3- B. Nitrite in a water extract is determined by direct colourimetry by Discrete Analyser.
Nitrate as N - Soluble by Discrete Analyser	EK058G	SOIL	In house: Referenced to APHA 4500-NO3- F. Nitrate in the 1:5 soil:water extract is reduced to nitrite by way of a chemical reduction followed by quantification by Discrete Analyser. Nitrite is determined seperately by direct colourimetry and result for Nitrate calculated as the difference between the two results.
Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser	EK059G	SOIL	In house: Thermo Scientific Method D08727 and NEMI (National Environmental Method Index) Method ID: 9171. This method covers the determination of total oxidised nitrogen (NOx-N) and nitrate (NO3-N) by calculation, Combined oxidised Nitrogen (NO2+NO3) in a water extract is determined by direct colourimetry by Discrete Analyser.
TKN as N By Discrete Analyser	EK061G	SOIL	In house: Referenced to APHA 4500-Norg-D Soil samples are digested using Kjeldahl digestion followed by determination by Discrete Analyser.
Total Nitrogen as N (TKN + NOx) By Discrete Analyser	EK062G	SOIL	In house: Referenced to APHA 4500 Norg/NO3- Total Nitrogen is determined as the sum of TKN and Oxidised Nitrrogen, each determined seperately as N.
Total Phosphorus By Discrete Analyser	EK067G	SOIL	In house: Referenced to APHA 4500 P-B&F This procedure involves sulfuric acid digestion and quantification using Discrete Analyser.
Bicarbonate Extractable P (Colwell)	EK080	SOIL	In house: Referenced to Rayment & Lyons Method 9B1 Phosphorus is extracted from the soil using 0.5M NaHCO3 at a 1:100 soil:solution ratio and determined by FIA.
Organic Matter	EP004	SOIL	In house: Referenced to AS1289.4.1.1. Dichromate oxidation method after Walkley and Black. This method is compliant with NEPM Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3).
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM Schedule B(3).
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015 Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM Schedule B(3).
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM Schedule B(3) amended.

Preparation Methods	Method	Matrix	Method Descriptions
NaOH leach for CN in Soils	CN-PR	SOIL	In house: APHA 4500 CN. Samples are extracted by end-over-end tumbling with NaOH.
pH in soil using a 0.01M CaCl2 extract	EA001-PR	SOIL	In house: Referenced to Rayment and Lyons 4B1, 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM Schedule B(3).

Preparation Methods	Method	Matrix	Method Descriptions
Exchangeable Cations Preparation Method (Alkaline Soils)	* ED006PR	SOIL	In house: Referenced to Rayment and Lyons method 15C1.
Exchangeable Cations Preparation Method	ED007PR	SOIL	In house: Referenced to Rayment & Lyons method 15A1. A 1M NH4Cl extraction by end over end tumbling at a ratio of 1:20. There is no pretreatment for soluble salts. Extracts can be run by ICP for cations.
Calcium Phosphate Extraction for Sulphate as SO4 2-	ED040NPR	SOIL	The sample is extracted with a calcium phosphate solution. The phosphate ion displaces the adsorbed sulphate while calcium ions depress the extraction of interfering S from soil organic matter. SO4 in the extract is determined by ICPAES and reported as dry weight in the original soil. This method is compliant with NEPM Schedule B(3).
Alkaline digestion for Hexavalent Chromium	EG048PR	SOIL	In house: Referenced to USEPA SW846, Method 3060A.
TKN/TP Digestion	EK061/EK067	SOIL	In house: Referenced to APHA 4500 Norg- D; APHA 4500 P - H. Macro Kjeldahl digestion.
Sample Preparation for Bicarbonate Extractable P (Colwell)	EK080-PR	SOIL	In house: Referenced to Rayment & Lyons Method 9B1 Phosphorus is extracted from the soil using 0.5M NaHCO3 at a 1:100 soil:solution ratio.
Drying only	EN020D	SOIL	In house
Drying at 85 degrees, bagging and labelling (ASS)	EN020PR	SOIL	In house
HCl Digest	EN24	SOIL	1g of soil is digested in 30 ml of 30% HCl and the resultant digest bulked and filtered for analysis by ICP.
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of reagent grade water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
1:5 solid / water leach following drying at 40°C	EN34-AD	SOIL	10 g of 40°C dried soil is mixed with 50 mL of reagent grade water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).
Organic Matter	EP004-PR	SOIL	In house: Referenced to AS1289.4.1.1. Dichromate oxidation method after Walkley and Black. This method is compliant with NEPM Schedule B(3).
Dry and Pulverise (up to 100g)	GEO30	SOIL	#
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.

Certificate of Analysis

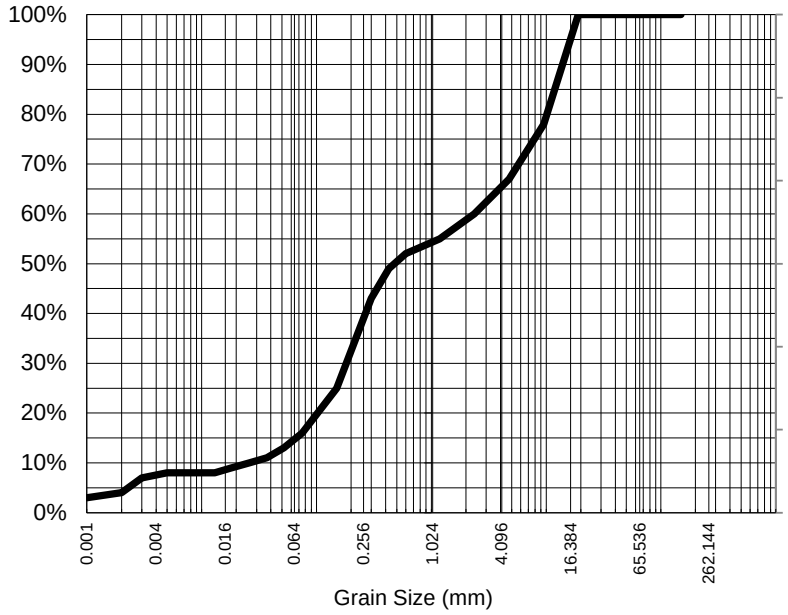
ALS Laboratory Group Pty Ltd
5/585 Maitland Road
Mayfield West, NSW 2304
pH 02 4014 2500
fax 02 4968 0349
samples.newcastle@alsenviro.com

ALS Environmental

Newcastle, NSW

CLIENT:	Simony Sakamoto	**DATE REPORTED:**	9-Dec-2024
COMPANY:	EMM CONSULTING PTY LTD	**DATE RECEIVED:**	3-Nov-2024
ADDRESS:	Level 1, 70 Pirie Street Adelaide	**REPORT NO:**	EM2421130-003 / PSD
PROJECT:	Olympic Dam	**SAMPLE ID:**	TP16_1.0-1.1_241126

Particle Size Distribution



Particle Size (mm)	% Passing
19.0	100%
9.50	78%
4.75	67%
2.36	60%
1.18	55%
0.600	52%
0.425	49%
0.300	43%
0.150	25%
0.075	16%
Particle Size (microns)	
37	11%
26	10%
18	9%
13	8%
9	8%
7	8%
5	8%
3	7%
1	3%

Median Particle Size (mm)*	0.483

Analysis Notes

Samples analysed as received.

**** Soil Particle Density required for Hydrometer analysis according to AS 1289.3.5.1—2006 was not requested by the client . Typical sediment SPD values used for calculations and consequently, NATA endorsement does not apply to hydrometer results***

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Sample Comments:

Analysed: 7-Dec-24

Loss on Pretreatment NA

Limit of Reporting: 1%

Sample Description: SAND, GRAVEL, FINES

Dispersion Method Shaker

Test Method: AS1289.3.6.1/AS1289.3.6.3

Soil Particle Density (<2.36mm) NR

NATA Accreditation: 825 Site: Newcastle
This document is issued in accordance with NATA's accreditation requirements. Accredited for compliance with ISO/IEC 17025. This document shall not be reproduced, except in full.

NATA
WORLD RECOGNISED ACCREDITATION

Aleksandar Vujkovic
Laboratory Supervisor
Authorised Signatory

Certificate of Analysis

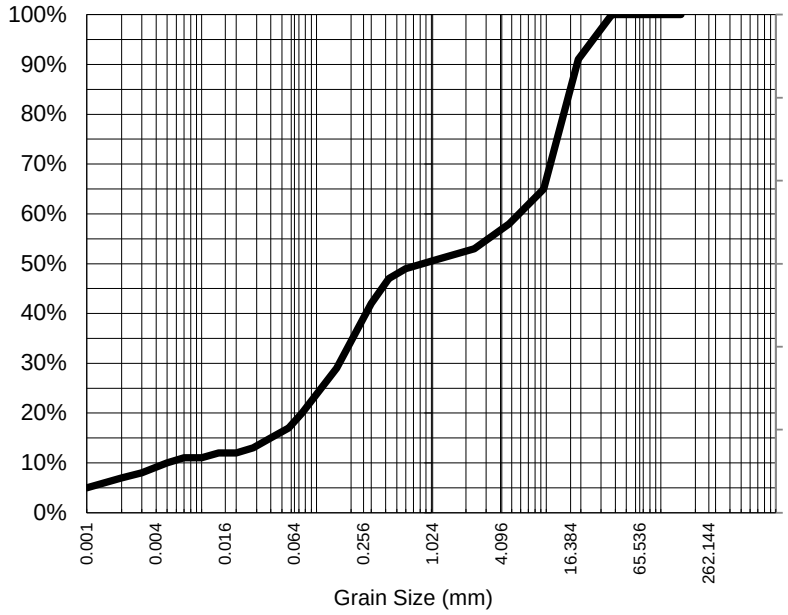
ALS Laboratory Group Pty Ltd
5/585 Maitland Road
Mayfield West, NSW 2304
pH 02 4014 2500
fax 02 4968 0349
samples.newcastle@alsenviro.com

ALS Environmental

Newcastle, NSW

CLIENT:	Simony Sakamoto	**DATE REPORTED:**	9-Dec-2024
COMPANY:	EMM CONSULTING PTY LTD	**DATE RECEIVED:**	3-Nov-2024
ADDRESS:	Level 1, 70 Pirie Street Adelaide	**REPORT NO:**	EM2421130-005 / PSD
PROJECT:	Olympic Dam	**SAMPLE ID:**	TP08_0.4-0.5_241126

Particle Size Distribution



Particle Size (mm)	% Passing
37.5	100%
19.0	91%
9.50	65%
4.75	58%
2.36	53%
1.18	51%
0.600	49%
0.425	47%
0.300	42%
0.150	29%
0.075	20%
Particle Size (microns)	
40	15%
28	13%
20	12%
14	12%
10	11%
7	11%
5	10%
3	8%
1	5%

Median Particle Size (mm)*	0.890

Analysis Notes

Samples analysed as received.

**** Soil Particle Density required for Hydrometer analysis according to AS 1289.3.5.1—2006 was not requested by the client . Typical sediment SPD values used for calculations and consequently, NATA endorsement does not apply to hydrometer results***

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Sample Comments:

Analysed: 7-Dec-24

Loss on Pretreatment NA

Limit of Reporting: 1%

Sample Description: GRAVEL, SAND, FINES

Dispersion Method Shaker

Test Method: AS1289.3.6.1/AS1289.3.6.3

Soil Particle Density (<2.36mm) NR

NATA Accreditation: 825 Site: Newcastle
This document is issued in accordance with NATA's accreditation requirements. Accredited for compliance with ISO/IEC 17025. This document shall not be reproduced, except in full.

NATA
WORLD RECOGNISED ACCREDITATION

Aleksandar Vujkovic
Laboratory Supervisor
Authorised Signatory

Certificate of Analysis

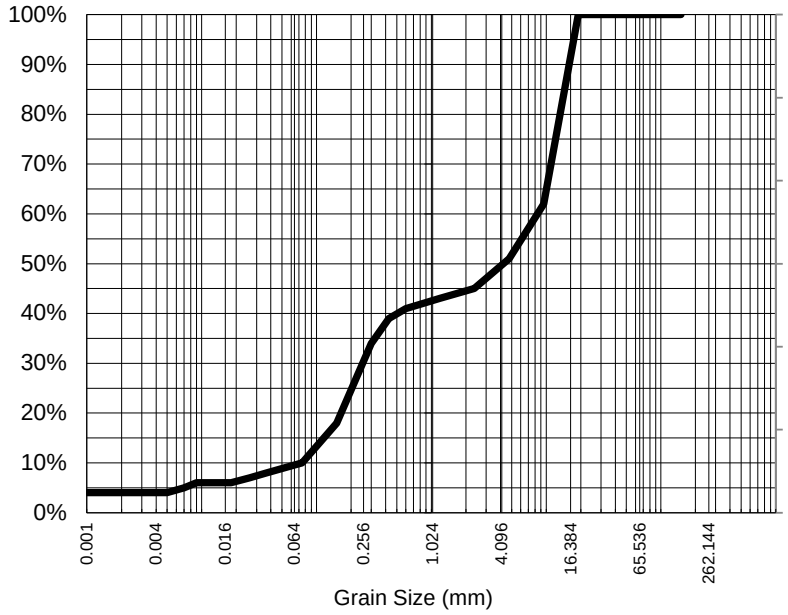
ALS Laboratory Group Pty Ltd
5/585 Maitland Road
Mayfield West, NSW 2304
pH 02 4014 2500
fax 02 4968 0349
samples.newcastle@alsenviro.com

ALS Environmental

Newcastle, NSW

CLIENT:	Simony Sakamoto	**DATE REPORTED:**	9-Dec-2024
COMPANY:	EMM CONSULTING PTY LTD	**DATE RECEIVED:**	3-Nov-2024
ADDRESS:	Level 1, 70 Pirie Street Adelaide	**REPORT NO:**	EM2421130-009 / PSD
PROJECT:	Olympic Dam	**SAMPLE ID:**	TP13_0.3-0.4_241126

Particle Size Distribution



Particle Size (mm)	% Passing
19.0	100%
9.50	62%
4.75	51%
2.36	45%
1.18	43%
0.600	41%
0.425	39%
0.300	34%
0.150	18%
0.075	10%
Particle Size (microns)	
37	8%
26	7%
18	6%
13	6%
9	6%
7	5%
5	4%
3	4%
1	4%

Median Particle Size (mm)*	4.352

Analysis Notes

Samples analysed as received.

**** Soil Particle Density required for Hydrometer analysis according to AS 1289.3.5.1—2006 was not requested by the client . Typical sediment SPD values used for calculations and consequently, NATA endorsement does not apply to hydrometer results***

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Sample Comments:	AS1289.3.6.3 states that hydrometer analysis is not applicable for samples containing <10% fines (<75um). Results should be assessed accordingly	**Analysed:**	7-Dec-24
Loss on Pretreatment	NA	**Limit of Reporting:**	1%
Sample Description:	GRAVEL, SAND, FINES	**Dispersion Method**	Shaker
Test Method:	AS1289.3.6.1/AS1289.3.6.3		
Soil Particle Density (<2.36mm)	NR		

NATA Accreditation: 825 Site: Newcastle
This document is issued in accordance with NATA's accreditation requirements. Accredited for compliance with ISO/IEC 17025. This document shall not be reproduced, except in full.

NATA
WORLD RECOGNISED ACCREDITATION

Aleksandar Vujkovic
Laboratory Supervisor
Authorised Signatory

Certificate of Analysis

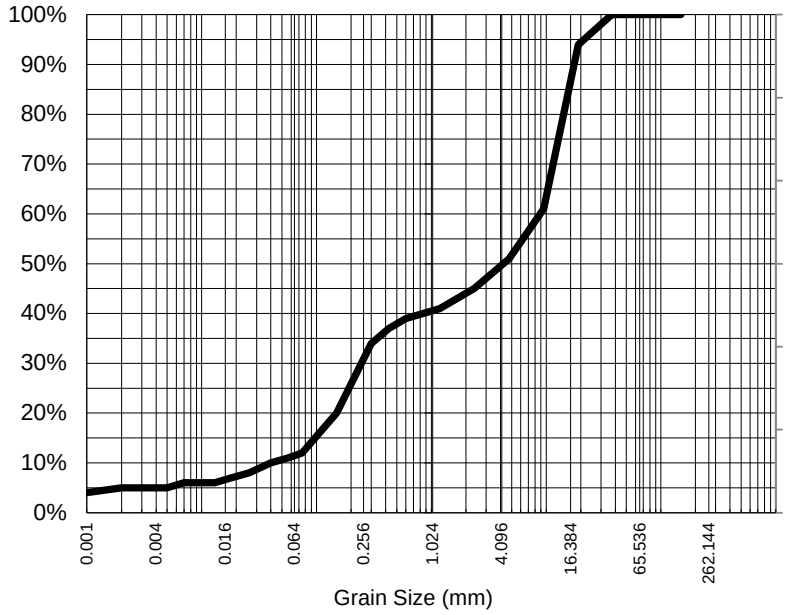
ALS Laboratory Group Pty Ltd
5/585 Maitland Road
Mayfield West, NSW 2304
pH 02 4014 2500
fax 02 4968 0349
samples.newcastle@alsenviro.com

ALS Environmental

Newcastle, NSW

CLIENT:	Simony Sakamoto	**DATE REPORTED:**	9-Dec-2024
COMPANY:	EMM CONSULTING PTY LTD	**DATE RECEIVED:**	3-Nov-2024
ADDRESS:	Level 1, 70 Pirie Street Adelaide	**REPORT NO:**	EM2421130-013 / PSD
PROJECT:	Olympic Dam	**SAMPLE ID:**	TP10_1.0-1.3-241126

Particle Size Distribution



Particle Size (mm)	% Passing
37.5	100%
19.0	94%
9.50	61%
4.75	51%
2.36	45%
1.18	41%
0.600	39%
0.425	37%
0.300	34%
0.150	20%
0.075	12%
Particle Size (microns)	
40	10%
26	8%
18	7%
13	6%
9	6%
7	6%
5	5%
3	5%
1	4%

Median Particle Size (mm)*	4.352

Analysis Notes

Samples analysed as received.

**** Soil Particle Density required for Hydrometer analysis according to AS 1289.3.5.1—2006 was not requested by the client . Typical sediment SPD values used for calculations and consequently, NATA endorsement does not apply to hydrometer results***

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Sample Comments:

Analysed: 7-Dec-24

Loss on Pretreatment NA

Limit of Reporting: 1%

Sample Description: GRAVEL, SAND, FINES

Dispersion Method Shaker

Test Method: AS1289.3.6.1/AS1289.3.6.3

Soil Particle Density (<2.36mm) NR

NATA Accreditation: 825 Site: Newcastle
This document is issued in accordance with NATA's accreditation requirements. Accredited for compliance with ISO/IEC 17025. This document shall not be reproduced, except in full.

NATA
WORLD RECOGNISED ACCREDITATION

Aleksandar Vujkovic
Laboratory Supervisor
Authorised Signatory

Certificate of Analysis

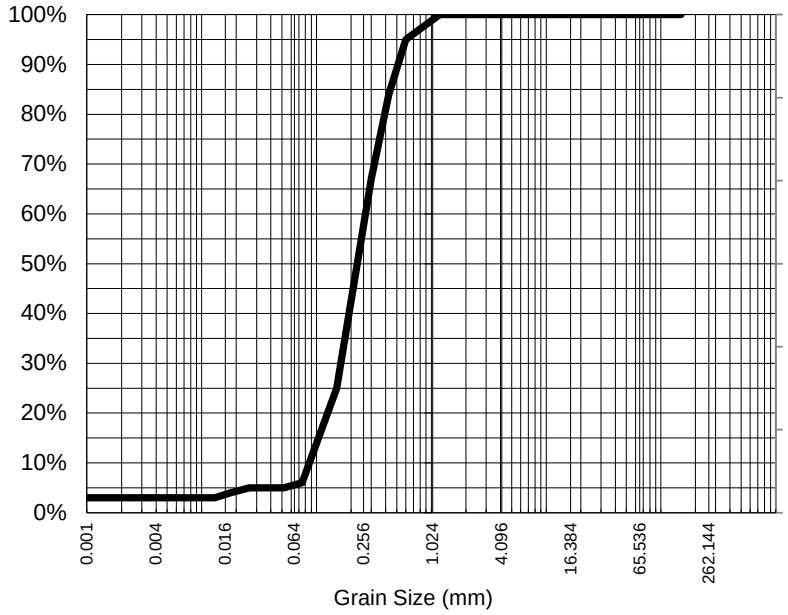
ALS Laboratory Group Pty Ltd
5/585 Maitland Road
Mayfield West, NSW 2304
pH 02 4014 2500
fax 02 4968 0349
samples.newcastle@alsenviro.com

ALS Environmental

Newcastle, NSW

CLIENT:	Simony Sakamoto	**DATE REPORTED:**	9-Dec-2024
COMPANY:	EMM CONSULTING PTY LTD	**DATE RECEIVED:**	3-Nov-2024
ADDRESS:	Level 1, 70 Pirie Street Adelaide	**REPORT NO:**	EM2421130-016 / PSD
PROJECT:	Olympic Dam	**SAMPLE ID:**	TP17_1.0-1.1_241126

Particle Size Distribution



Particle Size (mm)	% Passing
1.18	100%
0.600	95%
0.425	84%
0.300	67%
0.150	25%
0.075	6%
Particle Size (microns)	
37	5%
26	5%
18	4%
13	3%
9	3%
7	3%
5	3%
3	3%
1	3%

Median Particle Size (mm)*	0.239

Analysis Notes

Samples analysed as received.

**** Soil Particle Density required for Hydrometer analysis according to AS 1289.3.5.1—2006 was not requested by the client . Typical sediment SPD values used for calculations and consequently, NATA endorsement does not apply to hydrometer results***

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Sample Comments:	AS1289.3.6.3 states that hydrometer analysis is not applicable for samples containing <10% fines (<75um). Results should be assessed accordingly	**Analysed:**	7-Dec-24
Loss on Pretreatment	NA	**Limit of Reporting:**	1%
Sample Description:	SAND, FINES	**Dispersion Method**	Shaker
Test Method:	AS1289.3.6.1/AS1289.3.6.3		
Soil Particle Density (<2.36mm)	NR		

NATA Accreditation: 825 Site: Newcastle
This document is issued in accordance with NATA's accreditation requirements. Accredited for compliance with ISO/IEC 17025. This document shall not be reproduced, except in full.

NATA
WORLD RECOGNISED ACCREDITATION

Aleksandar Vujkovic
Laboratory Supervisor
Authorised Signatory

Certificate of Analysis

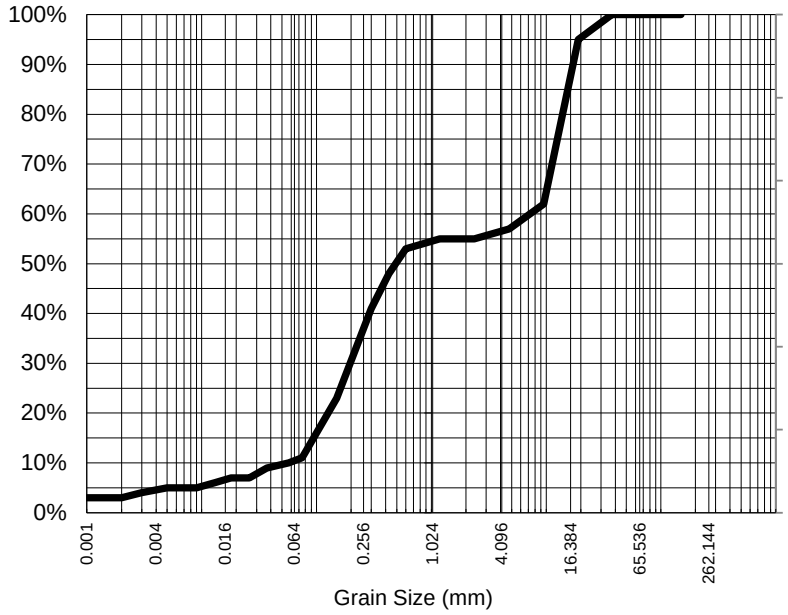
ALS Laboratory Group Pty Ltd
5/585 Maitland Road
Mayfield West, NSW 2304
pH 02 4014 2500
fax 02 4968 0349
samples.newcastle@alsenviro.com

ALS Environmental

Newcastle, NSW

CLIENT:	Simony Sakamoto	**DATE REPORTED:**	9-Dec-2024
COMPANY:	EMM CONSULTING PTY LTD	**DATE RECEIVED:**	3-Nov-2024
ADDRESS:	Level 1, 70 Pirie Street Adelaide	**REPORT NO:**	EM2421130-017 / PSD
PROJECT:	Olympic Dam	**SAMPLE ID:**	TP07_0.4-0.5_241125

Particle Size Distribution



Particle Size (mm)	% Passing
37.5	100%
19.0	95%
9.50	62%
4.75	57%
2.36	55%
1.18	55%
0.600	53%
0.425	48%
0.300	41%
0.150	23%
0.075	11%
Particle Size (microns)	
37	9%
26	7%
18	7%
13	6%
9	5%
7	5%
5	5%
3	4%
1	3%

Median Particle Size (mm)*	0.495

Analysis Notes

Samples analysed as received.

**** Soil Particle Density required for Hydrometer analysis according to AS 1289.3.5.1—2006 was not requested by the client . Typical sediment SPD values used for calculations and consequently, NATA endorsement does not apply to hydrometer results***

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Sample Comments:

Analysed: 7-Dec-24

Loss on Pretreatment NA

Limit of Reporting: 1%

Sample Description: GRAVEL, SAND, FINES

Dispersion Method Shaker

Test Method: AS1289.3.6.1/AS1289.3.6.3

Soil Particle Density (<2.36mm) NR

NATA Accreditation: 825 Site: Newcastle
This document is issued in accordance with NATA's accreditation requirements. Accredited for compliance with ISO/IEC 17025. This document shall not be reproduced, except in full.

NATA
WORLD RECOGNISED ACCREDITATION

Aleksandar Vujkovic
Laboratory Supervisor
Authorised Signatory

CERTIFICATE OF ANALYSIS

Work Order	: **PR24G0641**	Issue Date	: 20-Jan-2025
Customer	: **Australian Laboratory Services Pty Ltd.**	Laboratory	: ALS Czech Republic, s.r.o.
Contact	: results address	Contact	: Client Service
Address	: 2 Byth Street 4051 Stafford QLD Australia	Address	: Na Harfe 336/9 Prague 9 - Vysocany 190 00 Czech Republic
E-mail	: subresults.bri@alsglobal.com	E-mail	: customer.support@alsglobal.com
Telephone	: ----	Telephone	: +420 226 226 228
Project	: EM2421131	Page	: 1 of 2
Order number	: 510977	Date Samples Received	: 27-Dec-2024
		Quote number	: PR2015ALSEN-AU0002 (CZ-251-15-0965)
Site	: ----	Date of test	: 30-Dec-2024 - 20-Jan-2025
Sampled by	: customer	QC Level	: ALS CR Standard Quality Control Schedule

General Comments

This report shall not be reproduced except in full, without prior written approval from the laboratory. The laboratory is not responsible for the sample data supplied by the customer and their impact on the validity of the result.
The laboratory declares that the test results relate only to the listed samples. If "ALS" is not included in the test report in the "Sampled by" section, then the results refer to the sample as received.
Sample(s) PR24G0641/001-003, method S-RAD-NAT: The reference date for activity concentrations of radionuclides is 27.11.2024
Sample(s) PR24G0641/001-003, method S-RAD-NAT: The LoR values in radiology are valid only for background samples with very low activity (background samples) and
depend on many factors, on the analyzed mass of the sample, but mainly on the activity of other radionuclides. If the activity of
some radionuclide is higher the spectrum background is increased and this influences the evaluation of LoD of other radionuclides.
LoD values are evaluated for each radionuclide. The LoR values are only informative and are valid
for samples with low content of radionuclides and with sufficient mass.

Responsible for accuracy

Testing Laboratory No. 1163
Accredited by CAI according to
CSN EN ISO/IEC 17025:2018

Signatories	*Position*
Lubomír Pokorný	Country Manager









The company is certified according to ČSN EN ISO 14001 (Environmental management systems) and ČSN ISO 45001 (Occupational health and safety management systems)

Analytical Results

Sub-Matrix: **SOIL**

	Client sample ID	TP05_1.0-1.1_241127		TP11_2.0-2.1_241127		TP06_1.0-1.6_241127	
	Laboratory sample ID	PR24G0641001		PR24G0641002		PR24G0641003	
	Client sampling date / time	27-Nov-2024 12:10		27-Nov-2024 11:15		27-Nov-2024 15:43	
Parameter	*Method*	*LOR*	*Unit*	**Result**	**MU**	**Result**	**MU**	**Result**	**MU**
Physical Parameters									
Dry matter @ 105°C	S-DRY-GRCI	0.10	%	**91.3**	± 5.0%	**96.8**	± 5.0%	**93.3**	± 5.0%
Radiological Parameters									
Gross alpha activity	S-GAA-PRO	500	Bq/kg DW	<500	----	<500	----	<500	----
Gross beta activity	S-GBA-PRO	500	Bq/kg DW	<500	----	<500	----	<500	----
Uranium 238	S-RAD-NAT	10	Bq/kg DW	<14	----	<10	----	**20**	± 45.0%
Thorium 234	S-RAD-NAT	10	Bq/kg DW	<14	----	<10	----	**20**	± 45.0%
Thorium 230	S-RAD-NAT	50	Bq/kg DW	<70	----	<60	----	<105	----
Radium 226	S-RAD-NAT	1.0	Bq/kg DW	**12.2**	± 15.1%	**5.8**	± 20.0%	**78.2**	± 15.0%
Lead 210	S-RAD-NAT	50	Bq/kg DW	<50	----	<50	----	**62**	± 20.0%
Uranium 235	S-RAD-NAT	1.0	Bq/kg DW	<1.0	----	<1.0	----	**1.9**	± 55.0%
Protactinium 231	S-RAD-NAT	5.0	Bq/kg DW	<14.0	----	<8.8	----	<16.0	----
Actinium 227	S-RAD-NAT	1.0	Bq/kg DW	<2.2	----	<1.7	----	**3.2**	± 30.0%
Thorium 227	S-RAD-NAT	1.0	Bq/kg DW	<2.2	----	<1.7	----	**3.5**	± 30.0%
Radium 223	S-RAD-NAT	1.0	Bq/kg DW	<2.8	----	<1.8	----	**2.9**	± 35.0%
Radium 228	S-RAD-NAT	1.0	Bq/kg DW	**18.5**	± 15.0%	**6.7**	± 20.0%	**9.8**	± 20.0%
Thorium 228	S-RAD-NAT	1.0	Bq/kg DW	**18.2**	± 15.0%	**7.3**	± 15.2%	**10.0**	± 15.1%
Potassium 40	S-RAD-NAT	10	Bq/kg DW	**197**	± 20.0%	**55**	± 20.3%	**85**	± 20.1%

When sampling date is not provided by the client, the laboratory determines it for procedural reasons, then it is equal to the date of receipt of the sample to the laboratory and is displayed in brackets. Measurement uncertainty is expressed as expanded measurement uncertainty with coverage factor k = 2, representing 95% confidence level.

Key: LOR = Limit of reporting; MU = Measurement Uncertainty. The MU does not include sampling uncertainty.

Brief Method Summaries

Analytical Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
S-DRY-GRCI	CZ_SOP_D06_01_045 (CSN ISO 11465, CSN EN 12880, CSN EN 14346:2007), CZ_SOP_D06_07_046 (CSN ISO 11465, CSN EN 12880, CSN EN 14346:2007, CSN 46 5735) Determination of dry matter by gravimetry and determination of moisture by calculation from measured values.
S-GAA-PRO	CZ_SOP_D06_07_368 (CSN 75 7611; CSN EN ISO 18589-6; ISO 9696) Determination of gross alpha mass activity by direct measurement of the sample by means of alpha radiation analyser.
S-GBA-PRO	CZ_SOP_D06_07_369 (CSN 75 7612; CSN EN ISO 9697; CSN EN ISO 18589-6) Determination of gross beta mass activity by direct measurement of the sample by means of beta radiation analyser.
S-RAD-NAT	CZ_SOP_D06_07_367 (CSN EN ISO 10703; CSN EN ISO 18589-3; SUJB Recommendation “Measurement and evaluation of natural radionuclides in building materials”, DR-RO-5.2 (Rev. 0.0), Prague 2017) Non-destructive determination of radionuclides by high resolution gamma-spectrometry and calculation of the mass activity index I (ACI) from the measured volumetric activities of individual radionuclides.

Preparation Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
S-PPHOM.07	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
S-PPHOM0.3	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).

The symbol "*" for the method indicates a test outside the scope of accreditation of the laboratory or subcontractor. If the UNICO-SUB code is stated in the method table, this only informs that the tests have been performed by a subcontractor and the results are given in an annex to the test report, including information on test accreditation. If the lab used for matrix outside the scope of accreditation or non-standard sample matrix procedure specified in the accredited method and issues non-accredited results, this fact is stated on the title page of this protocol in the section "Notes". If the test report shows the results of subcontracting, the place of performance of the test is outside the laboratories of ALS Czech Republic, s.r.o.

The method for calculating of the summation parameters is available on request in the customer service.

The end of the certificate of analysis

CHAIN OF CUSTODY

COC#: 75723 ALS Laboratory: EB Brisbane Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME: 3/12, 11-25

CLIENT: EMGAMM - EMM CONSULTING PTY LTD

PROJECT: Olympic Dam

SITE: Olympic Dam

ORDER NO: E240975

PROJECT MANAGER: Simony Sakamoto

PRIMARY SAMPLER: Simony Sakamoto

CONTACT PH: 0412799277 SAMPLER MOBILE: 0412799277

QUOTE NO: EM24EMGAMM0004_V2 / EM2024EMGAMM0004

EMAIL REPORTS TO: ssakamoto@emmconsulting.com.au, ESdat_AU+emmconsulting@ESdatLabSync.net, dcondon@emmconsulting.com.au

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED										
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Acid-Base Accounting SOIL	Analysis NOT REQUIRED	Basic Suite SOIL	Contam 1 SOIL	Contam 2 - NEPM 2013 B1 Table 1A HIL - Basic Suite SOIL	Particle size analysis SOIL	QC/QC Trip Blank SOIL	QC/QC Trip Spike SOIL	Radiation Suite SOIL	Topsoil Suite SOIL	ALTERNATIVE ANALYSIS
001	TP05_0.0-0.15_241127_0.00-0.15		27/11/2024 10:59 AM	SOIL	ALS: 1 Non ALS: 0	No				X							
002	TP05_0.4.0.5-241127_0.40 - -0.50		27/11/2024 11:05 AM	SOIL	ALS: 1 Non ALS: 0	Yes		-									
003	TP05_1.0-1.1_241127_1.00-1.10		27/11/2024 11:10 AM	SOIL	ALS: 8 Non ALS: 0	No	X				X	X			X	X	
004	TP05_2.0-2.1_241127_2.00-2.10		27/11/2024 11:20 AM	SOIL	ALS: 3 Non ALS: 0	No	X		X								
005	TP26_0.0-0.15_241127_0.00-0.15		27/11/2024 08:50 AM	SOIL	ALS: 1 Non ALS: 0	No				X							
006	TP26_0.4-0.5_241127_0.40-0.50		27/11/2024 09:00 AM	SOIL	ALS: 1 Non ALS: 0	Yes		-									
007	TP26_1.0-1.1_241127_1.00-1.10		27/11/2024 09:05 PM	SOIL	ALS: 1 Non ALS: 0	No					X						

Environmental Division Melbourne

Work Order Reference

EM2421131

Telephone : + 61-3-8549 9600

CHAIN OF CUSTODY

COC#: 75723 ALS Laboratory: EB Brisbane Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: EMGAMM - EMM CONSULTING PTY LTD

PROJECT: Olympic Dam

SITE: Olympic Dam

ORDER NO: E240975

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

PROJECT MANAGER: Simony Sakamoto CONTACT PH: 0412799277 SAMPLER MOBILE: 0412799277

PRIMARY SAMPLER: Simony Sakamoto QUOTE NO: EM24EMGAMM0004_V2 / EM2024EMGAMM0004

EMAIL REPORTS TO: ssakamoto@emmconsulting.com.au, ESdat_AU+emmconsulting@ESdatLabSync.net, dcondon@emmconsulting.com.au

ANALYSIS REQUIRED
ADDITIONAL INFORMATION

CHAIN OF CUSTODY

COC#: 75723 *ALS Laboratory:* EB Brisbane Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME: 3/12 Q24

CLIENT: EMGAMM - EMM CONSULTING PTY LTD

PROJECT: Olympic Dam

SITE: Olympic Dam

ORDER NO: E240975

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

PROJECT MANAGER: Simony Sakamoto CONTACT PH: 0412799277 SAMPLER MOBILE: 0412799277

PRIMARY SAMPLER: Simony Sakamoto QUOTE NO: EM24EMGAMM0004_V2 / EM2024EMGAMM0004

EMAIL REPORTS TO: ssakamoto@emmconsulting.com.au, ESdat_AU+emmconsulting@ESdatLabSync.net, dcondon@emmconsulting.com.au

SAMPLE DETAILS							ANALYSIS REQUIRED											
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Acid-Base Accounting SOIL	Analysis NOT REQUIRED	Basic Suite SOIL	Contam 1 SOIL	Contam 2 - NEPM 2013 B1 Table 1A HIL - Basic Suite SOIL	Particle size analysis SOIL	QC/QC Trip Blank SOIL	QC/QC Trip Spike SOIL	Radiation Suite SOIL	Topsoil Suite SOIL	ALTERNATIVE ANALYSIS
008	TP26_2.0-2.1_241127_2.00-2.10		27/11/2024 09:07 AM	SOIL	ALS: 1 Non ALS: 0	Yes		-									
009	TP11_0.0-0.15_241127_0.00-0.15		27/11/2024 10:00 AM	SOIL	ALS: 1 Non ALS: 0	Yes		-									
010	TP11_0.4-0.5_241127_0.40-0.50		27/11/2024 10:05 AM	SOIL	ALS: 5 Non ALS: 0	No	X				X	X				X	
011	TP11_1.0-1.1_241127_1.00-1.10		27/11/2024 10:10 AM	SOIL	ALS: 1 Non ALS: 0	No				X							
012	TP11_2.0-2.1_241127_3.00-2.10		27/11/2024 10:15 AM	SOIL	ALS: 5 Non ALS: 0	No	X		X						X		
013	QC101_241127_1.00-1.10		27/11/2024 11:10 AM	SOIL	ALS: 1 Non ALS: 0	No					X						
014	QC201_241127_1.00-1.10		27/11/2024 11:10 AM	SOIL	ALS: 1 Non ALS: 0	No					X						

CHAIN OF CUSTODY

COC#: 75723 *ALS Laboratory:* EB Brisbane Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: EMGAMM - EMM CONSULTING PTY LTD

PROJECT: Olympic Dam

SITE: Olympic Dam

ORDER NO: E240975

PROJECT MANAGER: Simony Sakamoto CONTACT PH: 0412799277 SAMPLER MOBILE: 0412799277

PRIMARY SAMPLER: Simony Sakamoto QUOTE NO: EM24EMGAMM0004_V2 / EM2024EMGAMM0004

EMAIL REPORTS TO: ssakamoto@emmconsulting.com.au, ESdat_AU+emmconsulting@ESdatLabSync.net, dcondon@emmconsulting.com.au

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free Ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

ANALYSIS REQUIRED
ADDITIONAL INFORMATION
Send to Envirolab

CHAIN OF CUSTODY

COC#: 75723 *ALS Laboratory:* EB Brisbane Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: EMGAMM - EMM CONSULTING PTY LTD

PROJECT: Olympic Dam

SITE: Olympic Dam

ORDER NO: E240975

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

PROJECT MANAGER: Simony Sakamoto CONTACT PH: 0412799277 SAMPLER MOBILE: 0412799277

PRIMARY SAMPLER: Simony Sakamoto QUOTE NO: EM24EMGAMM0004_V2 / EM2024EMGAMM0004

EMAIL REPORTS TO: ssakamoto@emmconsulting.com.au, ESdat_AU+emmconsulting@ESdatLabSync.net, dcondon@emmconsulting.com.au

SAMPLE DETAILS							ANALYSIS REQUIRED											
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Acid-Base Accounting SOIL	Analysis NOT REQUIRED	Basic Suite SOIL	Contam 1 SOIL	Contam 2 - NEPM 2013 B1 Table 1A HIL - Basic Suite SOIL	Particle size analysis SOIL	QC/QC Trip Blank SOIL	QC/QC Trip Spike SOIL	Radiation Suite SOIL	Topsoil Suite SOIL	ALTERNATIVE ANALYSIS
015	TP26_1.0-2.0_241127_1.00-2.00		27/11/2024 09:07 AM	SOIL	ALS: 2 Non ALS: 0	No	X										
016	TP26_0.3-1.0_241127_0.30-1.00		27/11/2024 09:00 PM	SOIL	ALS: 2 Non ALS: 0	No	X										
017	TP06_0.0-0.15_241127_0.00-0.15		27/11/2024 02:30 PM	SOIL	ALS: 1 Non ALS: 0	No				X							
018	TP06_0.4-0.5_241127_0.40-0.50		27/11/2024 02:35 PM	SOIL	ALS: 3 Non ALS: 0	No	X										
019	TP06_1.0-1.1_241127		27/11/2024 02:40 PM	SOIL	ALS: 1 Non ALS: 0	No					X						
020	TP06_1.6_241127_1.50-1.60		27/11/2024 02:48 PM	SOIL	ALS: 1 Non ALS: 0	Yes		-									
021	TP06_1.0-1.6_241127_1.00-1.60		27/11/2024 02:43 PM	SOIL	ALS: 3 Non ALS: 0	No	X					X			X		

CHAIN OF CUSTODY

COC#: 75723 *ALS Laboratory:* EB Brisbane Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: EMGAMM - EMM CONSULTING PTY LTD

PROJECT: Olympic Dam

SITE: Olympic Dam

ORDER NO: E240975

PROJECT MANAGER: Simony Sakamoto CONTACT PH: 0412799277 SAMPLER MOBILE: 0412799277

PRIMARY SAMPLER: Simony Sakamoto QUOTE NO: EM24EMGAMM0004_V2 / EM2024EMGAMM0004

EMAIL REPORTS TO: ssakamoto@emmconsulting.com.au, ESdat_AU+emmconsulting@ESdatLabSync.net, dcondon@emmconsulting.com.au

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

ANALYSIS REQUIRED
ADDITIONAL INFORMATION
radiological was sent via large bag without label/barcode

CHAIN OF CUSTODY

COC#: 75723 *ALS Laboratory*: EB Brisbane Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: EMGAMM - EMM CONSULTING PTY LTD

PROJECT: Olympic Dam

SITE: Olympic Dam

ORDER NO: E240975

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

PROJECT MANAGER: Simony Sakamoto CONTACT PH: 0412799277 SAMPLER MOBILE: 0412799277

PRIMARY SAMPLER: Simony Sakamoto QUOTE NO: EM24EMGAMM0004_V2 / EM2024EMGAMM0004

EMAIL REPORTS TO: ssakamoto@emmconsulting.com.au, ESdat_AU+emmconsulting@ESdatLabSync.net, dcondon@emmconsulting.com.au

SAMPLE DETAILS							ANALYSIS REQUIRED										
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Acid-Base Accounting SOIL	Analysis NOT REQUIRED	Basic Suite SOIL	Contam 1 SOIL	Contam 2 - NEPM 2013 B1 Table 1A HIL - Basic Suite SOIL	Particle size analysis SOIL	QC/QC Trip Blank SOIL	QC/QC Trip Spike SOIL	Radiation Suite SOIL	Topsoil Suite SOIL	ALTERNATIVE ANALYSIS
022	QC602_241128		28/11/2024 06:15 AM	SOIL	ALS: 1 Non ALS: 0	No								X			
023	QC401_241128		28/11/2024 06:15 AM	SOIL	ALS: 1 Non ALS: 0	No							X				

024 Trip Spike Control X

025 TP13_0.3-0.4_241126

CHAIN OF CUSTODY

COC#: 75723 *ALS Laboratory:* EB Brisbane Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: EMGAMM - EMM CONSULTING PTY LTD

PROJECT: Olympic Dam

SITE: Olympic Dam

ORDER NO: E240975

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

PROJECT MANAGER: Simony Sakamoto CONTACT PH: 0412799277 SAMPLER MOBILE: 0412799277

PRIMARY SAMPLER: Simony Sakamoto QUOTE NO: EM24EMGAMM0004_V2 / EM2024EMGAMM0004

EMAIL REPORTS TO: ssakamoto@emmconsulting.com.au, ESdat_AU+emmconsulting@ESdatLabSync.net, dcondon@emmconsulting.com.au

ANALYSIS REQUIRED
ADDITIONAL INFORMATION

CHAIN OF CUSTODY

COC#: 75723 *ALS Laboratory:* EB Brisbane Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: EMGAMM - EMM CONSULTING PTY LTD

PROJECT: Olympic Dam

SITE: Olympic Dam

ORDER NO: E240975

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

PROJECT MANAGER: Simony Sakamoto CONTACT PH: 0412799277 SAMPLER MOBILE: 0412799277

PRIMARY SAMPLER: Simony Sakamoto QUOTE NO: EM24EMGAMM0004_V2 / EM2024EMGAMM0004

EMAIL REPORTS TO: ssakamoto@emmconsulting.com.au, ESdat_AU+emmconsulting@ESdatLabSync.net, dcondon@emmconsulting.com.au

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	TP05_0.0-	Soil Glass Jar - Unpreserved	250 mL	00260623001264	Orange	No	
002	TP05_0.4.0.5-241127_0.40	Soil Glass Jar - Unpreserved	250 mL	00260623001334	Orange	No	
003	TP05_1.0-	Soil Glass Jar - Unpreserved	250 mL	00260623001042	Orange	No	
003	TP05_1.0-	Soil Glass Jar - Unpreserved	250 mL	00260623001026	Orange	No	
003	TP05_1.0-	Soil Glass Jar - Unpreserved	150 mL	00260623109305	Orange	No	
003	TP05_1.0-	Snap Lock Bag	1 Medium	00130822035632	Green	No	
003	TP05_1.0-	Snap Lock Bag	1 Medium	00130822035631	Green	No	
003	TP05_1.0-	Snap Lock Bag	1 Medium	00130822035213	Green	No	
003	TP05_1.0-	Snap Lock Bag	1 Medium	00130822035630	Green	No	
003	TP05_1.0-	Snap Lock Bag - frozen	1 Medium	00130822035301	Green	No	
004	TP05_2.0-2.1_241127	Soil Glass Jar - Unpreserved	250 mL	00260623001103	Orange	No	
004	TP05_2.0-2.1_241127	Soil Glass Jar - Unpreserved	250 mL	00260623001278	Orange	No	
004	TP05_2.0-2.1_241127	Snap Lock Bag - frozen	1 Medium	00130822035650	Green	No	
005	TP26_0.0-	Soil Glass Jar - Unpreserved	250 mL	00260623001217	Orange	No	
006	TP26_0.4-	Soil Glass Jar - Unpreserved	250 mL	00260623001059	Orange	No	
007	TP26_1.0-	Soil Glass Jar - Unpreserved	250 mL	00260623001063	Orange	No	
008	TP26_2.0-	Soil Glass Jar - Unpreserved	250 mL	00260623001080	Orange	No	
009	TP11_0.0-	Soil Glass Jar - Unpreserved	250 mL	00260623001021	Orange	No	
010	TP11_0.4-	Soil Glass Jar - Unpreserved	250 mL	00260623001029	Orange	No	
010	TP11_0.4-	Soil Glass Jar - Unpreserved	250 mL	00260623001104	Orange	No	
010	TP11_0.4-	Soil Glass Jar - Unpreserved	150 mL	00260623109348	Orange	No	
010	TP11_0.4-	Snap Lock Bag	1 Medium	00130)220353/5	Green	No	
010	TP11_0.4-	Snap Lock Bag - frozen	1 Medium	00130822035306	Green	No	
011	TP11_1.0-	Soil Glass Jar - Unpreserved	250 mL	00260623001111	Orange	No	
012	TP11_2.0-	Soil Glass Jar - Unpreserved	250 mL	00260623001105	Orange	No	
012	TP11_2.0-	Soil Glass Jar - Unpreserved	250 mL	00260623001183	Orange	No	

CHAIN OF CUSTODY

COC#: 75723 *ALS Laboratory:* EB Brisbane Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: EMGAMM - EMM CONSULTING PTY LTD

PROJECT: Olympic Dam

SITE: Olympic Dam

ORDER NO: E240975

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

PROJECT MANAGER: Simony Sakamoto CONTACT PH: 0412799277 SAMPLER MOBILE: 0412799277

PRIMARY SAMPLER: Simony Sakamoto QUOTE NO: EM24EMGAMM0004_V2 / EM2024EMGAMM0004

EMAIL REPORTS TO: ssakamoto@emmconsulting.com.au, ESdat_AU+emmconsulting@ESdatLabSync.net, dcondon@emmconsulting.com.au

012	TP11_2.0-	Snap Lock Bag	1 Medium	00130822035655	Green	No	
012	TP11_2.0-	Snap Lock Bag	1 Medium	00130822035649	Green	No	
012	TP11_2.0-	Snap Lock Bag - frozen	1 Medium	00130822035654	Green	No	
013	QC101_241127_1.00-1.10	Soil Glass Jar - Unpreserved	250 mL	00260623001032	Orange	No	
014	QC201_241127_1.00-1.10	Soil Glass Jar - Unpreserved	250 mL	00260623001269	Orange	No	
015	TP26_1.0-	Soil Glass Jar - Unpreserved	150 mL	00260623109325	Orange	No	
015	TP26_1.0-	Snap Lock Bag - frozen	1 Medium	00130822035648	Green	No	
016	TP26_0.3-	Soil Glass Jar - Unpreserved	150 mL	00260623109321	Orange	No	
016	TP26_0.3-	Snap Lock Bag - frozen	1 Medium	00130822035665	Green	No	
017	TP06_0.0-	Soil Glass Jar - Unpreserved	250 mL	00260623001069	Orange	No	
018	TP06_0.4-	Soil Glass Jar - Unpreserved	250 mL	00260623001027	Orange	No	
018	TP06_0.4-	Soil Glass Jar - Unpreserved	150 mL	00260623109304	Orange	No	
018	TP06_0.4-	Snap Lock Bag - frozen	1 Medium	00130822035634	Green	No	
019	TP06_1.0-1.1_241127	Soil Glass Jar - Unpreserved	250 mL	00260623001087	Orange	No	
020	TP06_1.6_241127_1.50-	Soil Glass Jar - Unpreserved	250 mL	00260623001083	Orange	No	
021	TP06_1.0-	Soil Glass Jar - Unpreserved	150 mL	00260623109311	Orange	No	
021	TP06_1.0-	Snap Lock Bag	1 Medium	00130822035633	Green	No	
021	TP06_1.0-	Snap Lock Bag - frozen	1 Medium	00130822035635	Green	No	
022	QC602_241128	Soil Glass Jar - Unpreserved	150 mL	002607220620	Orange	No	
023	QC401_241128	Soil Glass Jar - Unpreserved	150 mL	00260623109184	Orange	No	

Total Bottle Count: ALS: 46, Non ALS: 0

CERTIFICATE OF ANALYSIS

Work Order	: **EM2421131**	Page	: 1 of 34
Client	: **EMM CONSULTING PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: Simony Sakamoto	Contact	: Customer Services EM
Address	: Level 1, 70 Pirie Street Adelaide 5000	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +61 3 8549 9600
Project	: Olympic Dam	Date Samples Received	: 03-Nov-2024 11:55
Order number	: E240975	Date Analysis Commenced	: 04-Dec-2024
C-O-C number	: 75723	Issue Date	: 21-Jan-2025 17:40
Sampler	: Simony Sakamoto		
Site	: Olympic Dam		
Quote number	: EM24EMGAMM0004_V2		
No. of samples received	: 23		
No. of samples analysed	: 18		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Aleksandar Vujkovic	Laboratory Technician	Newcastle - Inorganics, Mayfield West, NSW
Beatriz Llarinas	Senior Chemist - Inorganics	Brisbane Inorganics, Stafford, QLD
Ben Felgendrejeris	Senior Acid Sulfate Soil Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
Dilani Fernando	Laboratory Coordinator	Melbourne Inorganics, Springvale, VIC
Eric Chau	Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Jarwis Nheu	Non-Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Kim McCabe	Senior Inorganic Chemist	Brisbane External Subcontracting, Stafford, QLD
Nancy Wang	2IC Organic Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	2IC Organic Chemist	Melbourne Organics, Springvale, VIC
Nikki Stepniewski	Senior Inorganic Instrument Chemist	Melbourne Inorganics, Springvale, VIC
Satishkumar Trivedi	Senior Acid Sulfate Soil Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EA150H: Soil Particle Density required for Hydrometer analysis according to AS 1289.3.5.1 2006 was not requested by the client. Typical sediment SPD values used for calculations and consequently NATA endorsement does not apply to hydrometer results.
- EG005T: EM2421131 #17, sample heterogeneity has been observed for copper, with the following results obtained: 2440 mg/kg, and 1020 mg/kg.
- EG005T: EM2421131 #5, sample heterogeneity has been observed for copper, with the following results obtained: 3750 mg/kg, and 3150 mg/kg.
- ALS is not NATA accredited for the analysis of Exchangeable Cations on Alkaline Soils when performed under ALS Method ED006.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP068: Where reported, Total OCP is the sum of the reported concentrations of all Organochlorine Pesticides at or above LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.
- ASS: EA033 (CRS Suite): Analysis is performed as per the Acid Sulfate Soils Laboratory Methods Guidelines (2004) and the updated National Acid Sulfate Soils Guidance: National acid sulfate soils identification and laboratory methods manual, Department of Agriculture and Water Resources, Canberra, ACT (2018)
- EP080: Samples (EM2421131-022,024) TRIP SPIKE and TRIP SPIKE CONTROL contain volatile compounds spiked into the sample containers prior to dispatch from the laboratory.
- ED040N : EM2421130 #5 Poor matrix spike recovery for Sulfate- Calcium Phosphate Soluble due to sample matrix. Confirmed by re-preparation and re-analysis.
- ASS: EA033 (CRS Suite):Retained Acidity not required because pH KCl greater than or equal to 4.5
- EG005-T : EM2421130 #20 Poor duplicate precision for total metals due to sample matrix. Confirmed by re-digestion and re-analysis.
- Radiological work undertaken by ALS Laboratory Group (Ceska Lipa) under CAI accreditation No. L1163. Report No PR24G0641. NATA and CAI accreditations are both recognised under ILAC.
- ASS: EA033 (CRS Suite): Laboratory determinations of ANC needs to be corroborated by effectiveness of the measured ANC in relation to incubation ANC. Unless corroborated, the results of ANC testing should be discounted when determining Net Acidity for comparison with action criteria, or for the determination of the acidity hazard and required liming amounts.
- ASS: EA033 (CRS Suite): Liming rate is calculated and reported on a dry weight basis assuming use of fine agricultural lime (CaCO3) and using a safety factor of 1.5 to allow for non-homogeneous mixing and poor reactivity of lime. For conversion of Liming Rate from 'kg/t dry weight' to 'kg/m3 in-situ soil', multiply 'reported results' x 'wet bulk density of soil in t/m3'.
- ASS: EA013 (ANC) Fizz Rating: 0- None; 1- Slight; 2- Moderate; 3- Strong; 4- Very Strong; 5- Lime.
- Radiological work undertaken by ALS Laboratory Group (Ceska Lipa) under CAI accreditation No. L1163. Report No. $$. NATA and CAI accreditations' are both recognised under ILAC.
- ASS: EA003 (NATA Field and F(ox) screening): pH F(ox) Reaction Rate: 1 - Slight; 2 - Moderate; 3 - Strong; 4 - Extreme

- EA058 Emerson: V. = Very, D. = Dark, L. = Light, VD. = Very Dark
- ED007 and ED008: When Exchangeable Al is reported from these methods, it should be noted that Rayment & Lyons (2011) suggests Exchange Acidity by 1M KCl - Method 15G1 (ED005) is a more suitable method for the determination of exchange acidity (H+ + Al3+).
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	TP05_0.0-0.15_241127	TP05_1.0-1.1_241127	TP05_2.0-2.1_241127	TP26_0.0-0.15_241127	TP26_1.0-1.1_241127
			Sampling date / time	27-Nov-2024 11:59	27-Nov-2024 12:10	27-Nov-2024 12:20	27-Nov-2024 09:50	27-Nov-2024 22:05
Compound	CAS Number	LOR	Unit	EM2421131-001	EM2421131-003	EM2421131-004	EM2421131-005	EM2421131-007
				Result	Result	Result	Result	Result
EA001: pH in soil using 0.01M CaCl extract								
pH (CaCl2)	----	0.1	pH Unit	----	8.6	8.6	----	----
EA002: pH 1:5 (Soils)								
pH Value	----	0.1	pH Unit	----	9.8	9.5	----	----
EA002-AD: pH (Soils) dried at 40°C								
pH Value	----	0.1	pH Unit	----	9.1	9.0	----	----
EA003 :pH (field/fox)								
pH (F)	----	0.1	pH Unit	----	9.2	9.0	----	----
pH (Fox)	----	0.1	pH Unit	----	9.6	10.0	----	----
Reaction Rate	----	1	Reaction Unit	----	4	4	----	----
EA009: Net Acid Production Potential								
Net Acid Production Potential	----	0.5	kg H2SO4/t	----	-37.2	-57.9	----	----
EA010: Conductivity (1:5)								
Electrical Conductivity @ 25°C	----	1	µS/cm	----	1450	1800	----	----
EA010-AD: Conductivity (Soils) dried at 40°C								
Electrical Conductivity @ 25°C	----	1	µS/cm	----	1820	2110	----	----
EA033-A: Actual Acidity								
pH KCl (23A)	----	0.1	pH Unit	----	8.7	8.7	----	----
Titratable Actual Acidity (23F)	----	2	mole H+ / t	----	<2	<2	----	----
sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	----	<0.02	<0.02	----	----
EA033-B: Potential Acidity								
Chromium Reducible Sulfur (22B)	----	0.005	% S	----	0.014	0.012	----	----
acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	----	<10	<10	----	----
EA033-C: Acid Neutralising Capacity								
Acid Neutralising Capacity (19A2)	----	0.01	% CaCO3	----	3.56	5.74	----	----
acidity - Acid Neutralising Capacity (a-19A2)	----	10	mole H+ / t	----	712	1150	----	----
sulfidic - Acid Neutralising Capacity (s-19A2)	----	0.01	% pyrite S	----	1.14	1.84	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP05_0.0-0.15_241127	TP05_1.0-1.1_241127	TP05_2.0-2.1_241127	TP26_0.0-0.15_241127	TP26_1.0-1.1_241127
				Sampling date / time	27-Nov-2024 11:59	27-Nov-2024 12:10	27-Nov-2024 12:20	27-Nov-2024 09:50	27-Nov-2024 22:05
Compound	CAS Number	LOR	Unit		EM2421131-001	EM2421131-003	EM2421131-004	EM2421131-005	EM2421131-007
					Result	Result	Result	Result	Result
EA033-E: Acid Base Accounting									
ANC Fineness Factor	----	0.5	-		----	1.5	1.5	----	----
Net Acidity (sulfur units)	----	0.02	% S		----	<0.02	<0.02	----	----
Net Acidity (acidity units)	----	10	mole H+ / t		----	<10	<10	----	----
Liming Rate	----	1	kg CaCO3/t		----	<1	<1	----	----
Net Acidity excluding ANC (sulfur units)	----	0.02	% S		----	<0.02	<0.02	----	----
Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t		----	<10	<10	----	----
Liming Rate excluding ANC	----	1	kg CaCO3/t		----	<1	<1	----	----
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	0.1	%		----	----	8.4	----	----
Moisture Content	----	1.0	%		8.7	8.9	----	8.0	11.1
EA058: Emerson Aggregate Test									
Color (Munsell)	----	-	-		----	Red (2.5YR 5/6)	----	----	----
Texture	----	-	-		----	Sandy Clay Loam	----	----	----
Emerson Class Number	EC/TC	-	-		----	2	----	----	----
EA150: Particle Sizing									
+75µm	----	1	%		----	74	----	----	----
+150µm	----	1	%		----	66	----	----	----
+300µm	----	1	%		----	40	----	----	----
+425µm	----	1	%		----	29	----	----	----
+600µm	----	1	%		----	26	----	----	----
+1180µm	----	1	%		----	25	----	----	----
+2.36mm	----	1	%		----	25	----	----	----
+4.75mm	----	1	%		----	25	----	----	----
+9.5mm	----	1	%		----	25	----	----	----
+19.0mm	----	1	%		----	6	----	----	----
+37.5mm	----	1	%		----	<1	----	----	----
+75.0mm	----	1	%		----	<1	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP05_0.0-0.15_241127	TP05_1.0-1.1_241127	TP05_2.0-2.1_241127	TP26_0.0-0.15_241127	TP26_1.0-1.1_241127
				Sampling date / time	27-Nov-2024 11:59	27-Nov-2024 12:10	27-Nov-2024 12:20	27-Nov-2024 09:50	27-Nov-2024 22:05
Compound	CAS Number	LOR	Unit		EM2421131-001	EM2421131-003	EM2421131-004	EM2421131-005	EM2421131-007
					Result	Result	Result	Result	Result
EA150: Soil Classification based on Particle Size									
Clay (<2 µm)	----	1	%		----	18	----	----	----
Silt (2-60 µm)	----	1	%		----	5	----	----	----
Sand (0.06-2.00 mm)	----	1	%		----	52	----	----	----
Gravel (>2mm)	----	1	%		----	25	----	----	----
Cobbles (>6cm)	----	1	%		----	<1	----	----	----
ED006: Exchangeable Cations on Alkaline Soils									
ø Exchangeable Calcium	----	0.2	meq/100g		----	5.2	5.4	----	----
ø Exchangeable Magnesium	----	0.2	meq/100g		----	3.9	3.9	----	----
ø Exchangeable Potassium	----	0.2	meq/100g		----	0.6	0.5	----	----
ø Exchangeable Sodium	----	0.2	meq/100g		----	5.4	5.8	----	----
ø Cation Exchange Capacity	----	0.2	meq/100g		----	15.0	15.6	----	----
ø Exchangeable Calcium Percent	----	0.2	%		----	34.4	34.4	----	----
ø Exchangeable Magnesium Percent	----	0.2	%		----	25.8	24.9	----	----
ø Exchangeable Potassium Percent	----	0.2	%		----	4.0	3.4	----	----
ø Exchangeable Sodium Percent	----	0.2	%		----	35.8	37.2	----	----
ø Calcium/Magnesium Ratio	----	0.2	-		----	1.3	1.4	----	----
ø Magnesium/Potassium Ratio	----	0.2	-		----	6.4	7.2	----	----
ED040N: Sulfate - Calcium Phosphate Soluble (NEPM)									
Sulfate as SO4 2-	14808-79-8	50	mg/kg		----	550	----	----	----
ED040T: Total Sulfur by ICPAES									
Sulfur as S	63705-05-5	100	mg/kg		----	290	----	----	----
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	10	mg/kg		----	2000	2120	----	----
EG005(ED093)T: Total Metals by ICP-AES									
Aluminium	7429-90-5	50	mg/kg		----	15100	----	----	----
Barium	7440-39-3	10	mg/kg		----	90	----	120	680
Beryllium	7440-41-7	1	mg/kg		----	<1	----	<1	<1

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP05_0.0-0.15_241127	TP05_1.0-1.1_241127	TP05_2.0-2.1_241127	TP26_0.0-0.15_241127	TP26_1.0-1.1_241127
				Sampling date / time	27-Nov-2024 11:59	27-Nov-2024 12:10	27-Nov-2024 12:20	27-Nov-2024 09:50	27-Nov-2024 22:05
Compound	CAS Number	LOR	Unit		EM2421131-001	EM2421131-003	EM2421131-004	EM2421131-005	EM2421131-007
					Result	Result	Result	Result	Result
EG005(ED093)T: Total Metals by ICP-AES - Continued									
Boron	7440-42-8	50	mg/kg		----	<50	----	<50	<50
Cobalt	7440-48-4	2	mg/kg		----	4	----	54	7
Iron	7439-89-6	50	mg/kg		----	19300	----	----	----
Manganese	7439-96-5	5	mg/kg		----	125	----	345	93
Selenium	7782-49-2	5	mg/kg		----	<5	----	<5	<5
Vanadium	7440-62-2	5	mg/kg		----	69	----	26	135
Calcium	7440-70-2	50	mg/kg		----	13000	----	----	----
Magnesium	7439-95-4	50	mg/kg		----	4840	----	----	----
Sodium	7440-23-5	50	mg/kg		----	3280	----	----	----
Potassium	7440-09-7	50	mg/kg		----	3120	----	----	----
Arsenic	7440-38-2	5	mg/kg		<5	<5	----	<5	17
Cadmium	7440-43-9	1	mg/kg		<1	<1	----	<1	<1
Chromium	7440-47-3	2	mg/kg		12	16	----	9	12
Copper	7440-50-8	5	mg/kg		11	12	----	3750	90
Lead	7439-92-1	5	mg/kg		<5	5	----	10	6
Nickel	7440-02-0	2	mg/kg		7	9	----	5	7
Zinc	7440-66-6	5	mg/kg		17	24	----	21	24
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	----	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)									
Hexavalent Chromium	18540-29-9	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
EK028SF: Weak Acid Dissociable CN by Segmented Flow Analyser									
Weak Acid Dissociable Cyanide	----	1	mg/kg		----	<1	----	<1	<1
EK055: Ammonia as N									
Ammonia as N	7664-41-7	20	mg/kg		----	<20	----	----	----
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg		----	<0.1	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP05_0.0-0.15_241127	TP05_1.0-1.1_241127	TP05_2.0-2.1_241127	TP26_0.0-0.15_241127	TP26_1.0-1.1_241127
				Sampling date / time	27-Nov-2024 11:59	27-Nov-2024 12:10	27-Nov-2024 12:20	27-Nov-2024 09:50	27-Nov-2024 22:05
Compound	CAS Number	LOR	Unit		EM2421131-001	EM2421131-003	EM2421131-004	EM2421131-005	EM2421131-007
					Result	Result	Result	Result	Result
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N (Sol.)	14797-55-8	0.1	mg/kg		----	**0.5**	----	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg		----	**0.5**	----	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	20	mg/kg		----	**150**	----	----	----
EK062: Total Nitrogen as N (TKN + NOx)									
^ Total Nitrogen as N	----	20	mg/kg		----	**150**	----	----	----
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	2	mg/kg		----	**122**	----	----	----
EK080: Bicarbonate Extractable Phosphorus (Colwell)									
Bicarbonate Ext. P (Colwell)	----	5	mg/kg		----	<5	----	----	----
EP004: Organic Matter									
Organic Matter	----	0.5	%		----	<0.5	----	----	----
Total Organic Carbon	----	0.5	%		----	<0.5	----	----	----
EP066: Polychlorinated Biphenyls (PCB)									
Total Polychlorinated biphenyls	----	0.1	mg/kg		----	<0.1	----	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		----	<0.05	----	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		----	<0.05	----	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg		----	<0.05	----	<0.05	<0.05
gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg		----	<0.05	----	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg		----	<0.05	----	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg		----	<0.05	----	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg		----	<0.05	----	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg		----	<0.05	----	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg		----	<0.05	----	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg		----	<0.05	----	<0.05	<0.05

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP05_0.0-0.15_241127	TP05_1.0-1.1_241127	TP05_2.0-2.1_241127	TP26_0.0-0.15_241127	TP26_1.0-1.1_241127
				Sampling date / time	27-Nov-2024 11:59	27-Nov-2024 12:10	27-Nov-2024 12:20	27-Nov-2024 09:50	27-Nov-2024 22:05
Compound	CAS Number	LOR	Unit		EM2421131-001	EM2421131-003	EM2421131-004	EM2421131-005	EM2421131-007
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
cis-Chlordane	5103-71-9	0.05	mg/kg		----	<0.05	----	<0.05	<0.05
Dieldrin	60-57-1	0.05	mg/kg		----	<0.05	----	<0.05	<0.05
4.4`-DDE	72-55-9	0.05	mg/kg		----	<0.05	----	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg		----	<0.05	----	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg		----	<0.05	----	<0.05	<0.05
^ Endosulfan (sum)	115-29-7	0.05	mg/kg		----	<0.05	----	<0.05	<0.05
4.4`-DDD	72-54-8	0.05	mg/kg		----	<0.05	----	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg		----	<0.05	----	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg		----	<0.05	----	<0.05	<0.05
4.4`-DDT	50-29-3	0.2	mg/kg		----	<0.2	----	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg		----	<0.05	----	<0.05	<0.05
Methoxychlor	72-43-5	0.2	mg/kg		----	<0.2	----	<0.2	<0.2
Mirex	2385-85-5	0.20	mg/kg		----	<0.20	----	<0.20	<0.20
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		----	<0.05	----	<0.05	<0.05
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		----	<0.05	----	<0.05	<0.05
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		----	<0.05	----	<0.05	<0.05
Demeton-S-methyl	919-86-8	0.05	mg/kg		----	<0.05	----	<0.05	<0.05
Monocrotophos	6923-22-4	0.2	mg/kg		----	<0.2	----	<0.2	<0.2
Dimethoate	60-51-5	0.05	mg/kg		----	<0.05	----	<0.05	<0.05
Diazinon	333-41-5	0.05	mg/kg		----	<0.05	----	<0.05	<0.05
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		----	<0.05	----	<0.05	<0.05
Parathion-methyl	298-00-0	0.2	mg/kg		----	<0.2	----	<0.2	<0.2
Malathion	121-75-5	0.05	mg/kg		----	<0.05	----	<0.05	<0.05
Fenthion	55-38-9	0.05	mg/kg		----	<0.05	----	<0.05	<0.05
Chlorpyrifos	2921-88-2	0.05	mg/kg		----	<0.05	----	<0.05	<0.05

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP05_0.0-0.15_241127	TP05_1.0-1.1_241127	TP05_2.0-2.1_241127	TP26_0.0-0.15_241127	TP26_1.0-1.1_241127
				Sampling date / time	27-Nov-2024 11:59	27-Nov-2024 12:10	27-Nov-2024 12:20	27-Nov-2024 09:50	27-Nov-2024 22:05
Compound	CAS Number	LOR	Unit		EM2421131-001	EM2421131-003	EM2421131-004	EM2421131-005	EM2421131-007
					Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued									
Parathion	56-38-2	0.2	mg/kg		----	<0.2	----	<0.2	<0.2
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		----	<0.05	----	<0.05	<0.05
Chlorfenvinphos	470-90-6	0.05	mg/kg		----	<0.05	----	<0.05	<0.05
Bromophos-ethyl	4824-78-6	0.05	mg/kg		----	<0.05	----	<0.05	<0.05
Fenamiphos	22224-92-6	0.05	mg/kg		----	<0.05	----	<0.05	<0.05
Prothiofos	34643-46-4	0.05	mg/kg		----	<0.05	----	<0.05	<0.05
Ethion	563-12-2	0.05	mg/kg		----	<0.05	----	<0.05	<0.05
Carbophenothion	786-19-6	0.05	mg/kg		----	<0.05	----	<0.05	<0.05
Azinphos Methyl	86-50-0	0.05	mg/kg		----	<0.05	----	<0.05	<0.05
EP068C: Triazines									
Atrazine	1912-24-9	0.05	mg/kg		----	<0.05	----	<0.05	<0.05
EP068D: Pyrethroids									
Bifenthrin	82657-04-3	0.05	mg/kg		----	<0.05	----	<0.05	<0.05
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg		----	<1	----	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg		----	<2	----	<2	<2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP05_0.0-0.15_241127	TP05_1.0-1.1_241127	TP05_2.0-2.1_241127	TP26_0.0-0.15_241127	TP26_1.0-1.1_241127
				Sampling date / time	27-Nov-2024 11:59	27-Nov-2024 12:10	27-Nov-2024 12:20	27-Nov-2024 09:50	27-Nov-2024 22:05
Compound	CAS Number	LOR	Unit		EM2421131-001	EM2421131-003	EM2421131-004	EM2421131-005	EM2421131-007
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	----	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	----	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	----	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	----	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	----	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	----	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	----	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	----	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	----	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	----	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	<0.5	----	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	----	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	----	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	----	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	----	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	----	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	----	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	----	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	**0.6**	----	**0.6**	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**1.2**	----	**1.2**	**1.2**
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	----	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	----	<50	<50
C15 - C28 Fraction	----	100	mg/kg		<100	<100	----	<100	<100
C29 - C36 Fraction	----	100	mg/kg		<100	<100	----	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	----	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP05_0.0-0.15_241127	TP05_1.0-1.1_241127	TP05_2.0-2.1_241127	TP26_0.0-0.15_241127	TP26_1.0-1.1_241127
				Sampling date / time	27-Nov-2024 11:59	27-Nov-2024 12:10	27-Nov-2024 12:20	27-Nov-2024 09:50	27-Nov-2024 22:05
Compound	CAS Number	LOR	Unit		EM2421131-001	EM2421131-003	EM2421131-004	EM2421131-005	EM2421131-007
					Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	----	<10	<10
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg		<10	<10	----	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	----	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	----	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	----	<100	<100
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		<50	<50	----	<50	<50
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	50	mg/kg		<50	<50	----	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	----	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	----	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	----	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	----	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	----	<0.5	<0.5
^ **Sum of BTEX**	----	0.2	mg/kg		<0.2	<0.2	----	<0.2	<0.2
^ **Total Xylenes**	----	0.5	mg/kg		<0.5	<0.5	----	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	----	<1	<1
Radionuclides / Activity									
Gross alpha	----	500	Bq/kg DW		----	<500	----	----	----
Uranium 238	7440-61-1	10	Bq/kg DW		----	<14	----	----	----
Gross beta	----	500	Bq/kg DW		----	<500	----	----	----
Thorium 234	----	10	Bq/kg DW		----	<14	----	----	----
Thorium 230	----	50	Bq/kg DW		----	<70	----	----	----
Radium 226	13982-63-3	1.0	Bq/kg DW		----	**12.2**	----	----	----
Lead 210	14255-04-0	50	Bq/kg DW		----	<50	----	----	----
Uranium 235	15117-96-1	1.0	Bq/kg DW		----	<1.0	----	----	----
Protactinium 231	----	5	Bq/kg DW		----	<14.0	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP05_0.0-0.15_241127	TP05_1.0-1.1_241127	TP05_2.0-2.1_241127	TP26_0.0-0.15_241127	TP26_1.0-1.1_241127
				Sampling date / time	27-Nov-2024 11:59	27-Nov-2024 12:10	27-Nov-2024 12:20	27-Nov-2024 09:50	27-Nov-2024 22:05
Compound	CAS Number	LOR	Unit		EM2421131-001	EM2421131-003	EM2421131-004	EM2421131-005	EM2421131-007
					Result	Result	Result	Result	Result
Radionuclides / Activity - Continued									
Actinium 227	----	1	Bq/kg DW		----	<2.2	----	----	----
Thorium 227	----	1	Bq/kg DW		----	<2.2	----	----	----
Radium 223	----	1	Bq/kg DW		----	<2.8	----	----	----
Radium 228	7440-14-4	1.0	Bq/kg DW		----	18.5	----	----	----
Thorium 228	----	1.0	Bq/kg DW		----	18.2	----	----	----
Potassium 40	13966-00-2	10	Bq/kg DW		----	197	----	----	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		----	100	----	99.2	100
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		----	91.6	----	92.6	89.8
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		----	89.1	----	97.2	90.4
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		95.4	98.2	----	91.1	89.7
2-Chlorophenol-D4	93951-73-6	0.5	%		108	112	----	103	103
2.4.6-Tribromophenol	118-79-6	0.5	%		74.3	75.7	----	70.0	69.2
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		103	107	----	99.0	98.4
Anthracene-d10	1719-06-8	0.5	%		112	113	----	108	107
4-Terphenyl-d14	1718-51-0	0.5	%		106	109	----	102	101
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		86.7	102	----	92.9	94.2
Toluene-D8	2037-26-5	0.2	%		79.9	92.9	----	83.8	85.6
4-Bromofluorobenzene	460-00-4	0.2	%		92.2	109	----	97.2	101

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	TP11_0.4-0.5_241127	TP11_1.0-1.1_241127	TP11_2.0-2.1_241127	QC101_241127	TP26_1.0-2.0_241127
			Sampling date / time	27-Nov-2024 11:05	27-Nov-2024 11:10	27-Nov-2024 11:15	27-Nov-2024 12:10	27-Nov-2024 10:07
Compound	CAS Number	LOR	Unit	EM2421131-010	EM2421131-011	EM2421131-012	EM2421131-013	EM2421131-015
				Result	Result	Result	Result	Result
EA001: pH in soil using 0.01M CaCl extract								
pH (CaCl2)	----	0.1	pH Unit	7.8	----	8.1	----	----
EA002: pH 1:5 (Soils)								
pH Value	----	0.1	pH Unit	9.2	----	9.8	----	----
EA002-AD: pH (Soils) dried at 40°C								
pH Value	----	0.1	pH Unit	8.4	----	9.3	----	----
EA003 :pH (field/fox)								
pH (F)	----	0.1	pH Unit	8.5	----	9.6	----	8.2
pH (Fox)	----	0.1	pH Unit	5.2	----	5.6	----	7.3
Reaction Rate	----	1	Reaction Unit	2	----	2	----	3
EA009: Net Acid Production Potential								
Net Acid Production Potential	----	0.5	kg H2SO4/t	0.3	----	-1.3	----	-36.2
EA010: Conductivity (1:5)								
Electrical Conductivity @ 25°C	----	1	µS/cm	68	----	111	----	----
EA010-AD: Conductivity (Soils) dried at 40°C								
Electrical Conductivity @ 25°C	----	1	µS/cm	52	----	161	----	----
EA033-A: Actual Acidity								
pH KCl (23A)	----	0.1	pH Unit	8.3	----	9.0	----	8.3
Titratable Actual Acidity (23F)	----	2	mole H+ / t	<2	----	<2	----	<2
sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	<0.02	----	<0.02	----	<0.02
EA033-B: Potential Acidity								
Chromium Reducible Sulfur (22B)	----	0.005	% S	0.011	----	0.011	----	0.012
acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	<10	----	<10	----	<10
EA033-C: Acid Neutralising Capacity								
Acid Neutralising Capacity (19A2)	----	0.01	% CaCO3	0.54	----	0.69	----	13.5
acidity - Acid Neutralising Capacity (a-19A2)	----	10	mole H+ / t	107	----	139	----	2700
sulfidic - Acid Neutralising Capacity (s-19A2)	----	0.01	% pyrite S	0.17	----	0.22	----	4.33

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	TP11_0.4-0.5_241127	TP11_1.0-1.1_241127	TP11_2.0-2.1_241127	QC101_241127	TP26_1.0-2.0_241127
			Sampling date / time	27-Nov-2024 11:05	27-Nov-2024 11:10	27-Nov-2024 11:15	27-Nov-2024 12:10	27-Nov-2024 10:07
Compound	CAS Number	LOR	Unit	EM2421131-010	EM2421131-011	EM2421131-012	EM2421131-013	EM2421131-015
				Result	Result	Result	Result	Result
EA033-E: Acid Base Accounting								
ANC Fineness Factor	----	0.5	-	**1.5**	**----**	**1.5**	**----**	**1.5**
Net Acidity (sulfur units)	----	0.02	% S	<0.02	**----**	<0.02	**----**	<0.02
Net Acidity (acidity units)	----	10	mole H+ / t	<10	**----**	<10	**----**	<10
Liming Rate	----	1	kg CaCO3/t	<1	**----**	<1	**----**	<1
Net Acidity excluding ANC (sulfur units)	----	0.02	% S	<0.02	**----**	<0.02	**----**	<0.02
Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	<10	**----**	<10	**----**	<10
Liming Rate excluding ANC	----	1	kg CaCO3/t	<1	**----**	<1	**----**	<1
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	0.1	%	**----**	**----**	**2.5**	**----**	**----**
Moisture Content	----	1.0	%	**3.9**	**2.4**	**----**	**7.4**	**----**
EA058: Emerson Aggregate Test								
Color (Munsell)	----	-	-	**Red (2.5YR 4/8)**	**----**	**----**	**----**	**----**
Texture	----	-	-	**Sand**	**----**	**----**	**----**	**----**
Emerson Class Number	EC/TC	-	-	**8**	**----**	**----**	**----**	**----**
EA150: Particle Sizing								
+75µm	----	1	%	**98**	**----**	**----**	**----**	**----**
+150µm	----	1	%	**84**	**----**	**----**	**----**	**----**
+300µm	----	1	%	**22**	**----**	**----**	**----**	**----**
+425µm	----	1	%	**5**	**----**	**----**	**----**	**----**
+600µm	----	1	%	<1	**----**	**----**	**----**	**----**
+1180µm	----	1	%	<1	**----**	**----**	**----**	**----**
+2.36mm	----	1	%	<1	**----**	**----**	**----**	**----**
+4.75mm	----	1	%	<1	**----**	**----**	**----**	**----**
+9.5mm	----	1	%	<1	**----**	**----**	**----**	**----**
+19.0mm	----	1	%	<1	**----**	**----**	**----**	**----**
+37.5mm	----	1	%	<1	**----**	**----**	**----**	**----**
+75.0mm	----	1	%	<1	**----**	**----**	**----**	**----**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	TP11_0.4-0.5_241127	TP11_1.0-1.1_241127	TP11_2.0-2.1_241127	QC101_241127	TP26_1.0-2.0_241127
			Sampling date / time	27-Nov-2024 11:05	27-Nov-2024 11:10	27-Nov-2024 11:15	27-Nov-2024 12:10	27-Nov-2024 10:07
Compound	CAS Number	LOR	Unit	EM2421131-010	EM2421131-011	EM2421131-012	EM2421131-013	EM2421131-015
				Result	Result	Result	Result	Result
EA150: Soil Classification based on Particle Size								
Clay (<2 µm)	----	1	%	**2**	----	----	----	----
Silt (2-60 µm)	----	1	%	<1	----	----	----	----
Sand (0.06-2.00 mm)	----	1	%	**98**	----	----	----	----
Gravel (>2mm)	----	1	%	<1	----	----	----	----
Cobbles (>6cm)	----	1	%	<1	----	----	----	----
ED006: Exchangeable Cations on Alkaline Soils								
ø Exchangeable Calcium	----	0.2	meq/100g	**1.3**	----	**1.9**	----	----
ø Exchangeable Magnesium	----	0.2	meq/100g	<0.2	----	**0.6**	----	----
ø Exchangeable Potassium	----	0.2	meq/100g	**0.2**	----	<0.2	----	----
ø Exchangeable Sodium	----	0.2	meq/100g	<0.2	----	**0.7**	----	----
ø Cation Exchange Capacity	----	0.2	meq/100g	**1.5**	----	**3.4**	----	----
ø Exchangeable Calcium Percent	----	0.2	%	**86.1**	----	**57.2**	----	----
ø Exchangeable Magnesium Percent	----	0.2	%	<0.2	----	**17.8**	----	----
ø Exchangeable Potassium Percent	----	0.2	%	**13.9**	----	**5.1**	----	----
ø Exchangeable Sodium Percent	----	0.2	%	<0.2	----	**19.8**	----	----
ø Calcium/Magnesium Ratio	----	0.2	-	<0.2	----	----	----	----
ø Calcium/Magnesium Ratio	----	0.2	-	----	----	**3.2**	----	----
ø Magnesium/Potassium Ratio	----	0.2	-	----	----	<0.2	----	----
ø Magnesium/Potassium Ratio	----	0.2	-	<0.2	----	----	----	----
ED040N: Sulfate - Calcium Phosphate Soluble (NEPM)								
Sulfate as SO4 2-	14808-79-8	50	mg/kg	<50	----	----	----	----
ED040T: Total Sulfur by ICPAES								
Sulfur as S	63705-05-5	100	mg/kg	<100	----	----	----	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	10	mg/kg	**70**	----	**70**	----	----
EG005(ED093)T: Total Metals by ICP-AES								
Aluminium	7429-90-5	50	mg/kg	**1790**	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP11_0.4-0.5_241127	TP11_1.0-1.1_241127	TP11_2.0-2.1_241127	QC101_241127	TP26_1.0-2.0_241127
				Sampling date / time	27-Nov-2024 11:05	27-Nov-2024 11:10	27-Nov-2024 11:15	27-Nov-2024 12:10	27-Nov-2024 10:07
Compound	CAS Number	LOR	Unit		EM2421131-010	EM2421131-011	EM2421131-012	EM2421131-013	EM2421131-015
					Result	Result	Result	Result	Result
EG005(ED093)T: Total Metals by ICP-AES - Continued									
Barium	7440-39-3	10	mg/kg		<10	----	----	**170**	----
Beryllium	7440-41-7	1	mg/kg		<1	----	----	<1	----
Boron	7440-42-8	50	mg/kg		<50	----	----	<50	----
Cobalt	7440-48-4	2	mg/kg		<2	----	----	**4**	----
Iron	7439-89-6	50	mg/kg		**4510**	----	----	----	----
Manganese	7439-96-5	5	mg/kg		**20**	----	----	**104**	----
Selenium	7782-49-2	5	mg/kg		<5	----	----	<5	----
Vanadium	7440-62-2	5	mg/kg		**12**	----	----	**54**	----
Calcium	7440-70-2	50	mg/kg		**480**	----	----	----	----
Magnesium	7439-95-4	50	mg/kg		**300**	----	----	----	----
Sodium	7440-23-5	50	mg/kg		<50	----	----	----	----
Potassium	7440-09-7	50	mg/kg		**440**	----	----	----	----
Arsenic	7440-38-2	5	mg/kg		<5	<5	----	<5	----
Cadmium	7440-43-9	1	mg/kg		<1	<1	----	<1	----
Chromium	7440-47-3	2	mg/kg		**5**	**5**	----	**13**	----
Copper	7440-50-8	5	mg/kg		**6**	**76**	----	**12**	----
Lead	7439-92-1	5	mg/kg		<5	<5	----	<5	----
Nickel	7440-02-0	2	mg/kg		<2	<2	----	**7**	----
Zinc	7440-66-6	5	mg/kg		<5	**6**	----	**19**	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	----	<0.1	----
EG048: Hexavalent Chromium (Alkaline Digest)									
Hexavalent Chromium	18540-29-9	0.5	mg/kg		<0.5	----	----	<0.5	----
EK028SF: Weak Acid Dissociable CN by Segmented Flow Analyser									
Weak Acid Dissociable Cyanide	----	1	mg/kg		<1	----	----	<1	----
EK055: Ammonia as N									
Ammonia as N	7664-41-7	20	mg/kg		<20	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	TP11_0.4-0.5_241127	TP11_1.0-1.1_241127	TP11_2.0-2.1_241127	QC101_241127	TP26_1.0-2.0_241127
			Sampling date / time	27-Nov-2024 11:05	27-Nov-2024 11:10	27-Nov-2024 11:15	27-Nov-2024 12:10	27-Nov-2024 10:07
Compound	CAS Number	LOR	Unit	EM2421131-010	EM2421131-011	EM2421131-012	EM2421131-013	EM2421131-015
				Result	Result	Result	Result	Result
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg	<0.1	----	----	----	----
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N (Sol.)	14797-55-8	0.1	mg/kg	**0.9**	----	----	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	**0.9**	----	----	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	20	mg/kg	**90**	----	----	----	----
EK062: Total Nitrogen as N (TKN + NOx)								
^ Total Nitrogen as N	----	20	mg/kg	**90**	----	----	----	----
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	2	mg/kg	**45**	----	----	----	----
EK080: Bicarbonate Extractable Phosphorus (Colwell)								
Bicarbonate Ext. P (Colwell)	----	5	mg/kg	<5	----	----	----	----
EP004: Organic Matter								
Organic Matter	----	0.5	%	<0.5	----	----	----	----
Total Organic Carbon	----	0.5	%	<0.5	----	----	----	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	----	----	<0.1	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	----	----	<0.05	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	----	----	<0.05	----
beta-BHC	319-85-7	0.05	mg/kg	<0.05	----	----	<0.05	----
gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	----	----	<0.05	----
delta-BHC	319-86-8	0.05	mg/kg	<0.05	----	----	<0.05	----
Heptachlor	76-44-8	0.05	mg/kg	<0.05	----	----	<0.05	----
Aldrin	309-00-2	0.05	mg/kg	<0.05	----	----	<0.05	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	----	----	<0.05	----
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	----	----	<0.05	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP11_0.4-0.5_241127	TP11_1.0-1.1_241127	TP11_2.0-2.1_241127	QC101_241127	TP26_1.0-2.0_241127
				Sampling date / time	27-Nov-2024 11:05	27-Nov-2024 11:10	27-Nov-2024 11:15	27-Nov-2024 12:10	27-Nov-2024 10:07
Compound	CAS Number	LOR	Unit		EM2421131-010	EM2421131-011	EM2421131-012	EM2421131-013	EM2421131-015
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
alpha-Endosulfan	959-98-8	0.05	mg/kg		<0.05	----	----	<0.05	----
cis-Chlordane	5103-71-9	0.05	mg/kg		<0.05	----	----	<0.05	----
Dieldrin	60-57-1	0.05	mg/kg		<0.05	----	----	<0.05	----
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	----	----	<0.05	----
Endrin	72-20-8	0.05	mg/kg		<0.05	----	----	<0.05	----
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	----	----	<0.05	----
^ **Endosulfan (sum)**	115-29-7	0.05	mg/kg		<0.05	----	----	<0.05	----
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	----	----	<0.05	----
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	----	----	<0.05	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	----	----	<0.05	----
4.4`-DDT	50-29-3	0.2	mg/kg		<0.2	----	----	<0.2	----
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	----	----	<0.05	----
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	----	----	<0.2	----
Mirex	2385-85-5	0.20	mg/kg		<0.20	----	----	<0.20	----
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.05	mg/kg		<0.05	----	----	<0.05	----
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	----	----	<0.05	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		<0.05	----	----	<0.05	----
Demeton-S-methyl	919-86-8	0.05	mg/kg		<0.05	----	----	<0.05	----
Monocrotophos	6923-22-4	0.2	mg/kg		<0.2	----	----	<0.2	----
Dimethoate	60-51-5	0.05	mg/kg		<0.05	----	----	<0.05	----
Diazinon	333-41-5	0.05	mg/kg		<0.05	----	----	<0.05	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		<0.05	----	----	<0.05	----
Parathion-methyl	298-00-0	0.2	mg/kg		<0.2	----	----	<0.2	----
Malathion	121-75-5	0.05	mg/kg		<0.05	----	----	<0.05	----
Fenthion	55-38-9	0.05	mg/kg		<0.05	----	----	<0.05	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	TP11_0.4-0.5_241127	TP11_1.0-1.1_241127	TP11_2.0-2.1_241127	QC101_241127	TP26_1.0-2.0_241127
			Sampling date / time	27-Nov-2024 11:05	27-Nov-2024 11:10	27-Nov-2024 11:15	27-Nov-2024 12:10	27-Nov-2024 10:07
Compound	CAS Number	LOR	Unit	EM2421131-010	EM2421131-011	EM2421131-012	EM2421131-013	EM2421131-015
				Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued								
Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	----	----	<0.05	----
Parathion	56-38-2	0.2	mg/kg	<0.2	----	----	<0.2	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	----	----	<0.05	----
Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	----	----	<0.05	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	----	----	<0.05	----
Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	----	----	<0.05	----
Prothiofos	34643-46-4	0.05	mg/kg	<0.05	----	----	<0.05	----
Ethion	563-12-2	0.05	mg/kg	<0.05	----	----	<0.05	----
Carbophenothion	786-19-6	0.05	mg/kg	<0.05	----	----	<0.05	----
Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	----	----	<0.05	----
EP068C: Triazines								
Atrazine	1912-24-9	0.05	mg/kg	<0.05	----	----	<0.05	----
EP068D: Pyrethroids								
Bifenthrin	82657-04-3	0.05	mg/kg	<0.05	----	----	<0.05	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	<0.5	----	----	<0.5	----
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	----	----	<0.5	----
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	----	----	<0.5	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	----	----	<1	----
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	----	----	<0.5	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	----	----	<0.5	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	----	----	<0.5	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	----	----	<0.5	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	----	----	<0.5	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	----	----	<0.5	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	----	----	<0.5	----
Pentachlorophenol	87-86-5	2	mg/kg	<2	----	----	<2	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP11_0.4-0.5_241127	TP11_1.0-1.1_241127	TP11_2.0-2.1_241127	QC101_241127	TP26_1.0-2.0_241127
				Sampling date / time	27-Nov-2024 11:05	27-Nov-2024 11:10	27-Nov-2024 11:15	27-Nov-2024 12:10	27-Nov-2024 10:07
Compound	CAS Number	LOR	Unit		EM2421131-010	EM2421131-011	EM2421131-012	EM2421131-013	EM2421131-015
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	----	<0.5	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	----	<0.5	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	----	<0.5	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	----	<0.5	----
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	----	<0.5	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	----	<0.5	----
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	----	<0.5	----
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	----	<0.5	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	----	<0.5	----
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	----	<0.5	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	<0.5	----	<0.5	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	----	<0.5	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	----	<0.5	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	----	<0.5	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	----	<0.5	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	----	<0.5	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	----	<0.5	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	----	<0.5	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	**0.6**	----	**0.6**	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**1.2**	----	**1.2**	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	----	<10	----
C10 - C14 Fraction	----	50	mg/kg		<50	<50	----	<50	----
C15 - C28 Fraction	----	100	mg/kg		<100	<100	----	<100	----
C29 - C36 Fraction	----	100	mg/kg		<100	<100	----	<100	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	----	<50	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP11_0.4-0.5_241127	TP11_1.0-1.1_241127	TP11_2.0-2.1_241127	QC101_241127	TP26_1.0-2.0_241127
				Sampling date / time	27-Nov-2024 11:05	27-Nov-2024 11:10	27-Nov-2024 11:15	27-Nov-2024 12:10	27-Nov-2024 10:07
Compound	CAS Number	LOR	Unit		EM2421131-010	EM2421131-011	EM2421131-012	EM2421131-013	EM2421131-015
					Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	----	<10	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	----	<10	----
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	----	<50	----
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	----	<100	----
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	----	<100	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	----	<50	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	----	<50	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	----	<0.2	----
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	----	<0.5	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	----	<0.5	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	----	<0.5	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	----	<0.5	----
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	----	<0.2	----
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	----	<0.5	----
Naphthalene	91-20-3	1	mg/kg		<1	<1	----	<1	----
Radionuclides / Activity									
Gross alpha	----	500	Bq/kg DW		----	----	<500	----	----
Uranium 238	7440-61-1	10.0	Bq/kg DW		----	----	<10.0	----	----
Gross beta	----	500	Bq/kg DW		----	----	<500	----	----
Thorium 234	----	10.0	Bq/kg DW		----	----	<10.0	----	----
Thorium 230	----	50	Bq/kg DW		----	----	<60	----	----
Radium 226	13982-63-3	1.0	Bq/kg DW		----	----	**5.8**	----	----
Lead 210	14255-04-0	50	Bq/kg DW		----	----	<50	----	----
Uranium 235	15117-96-1	1.0	Bq/kg DW		----	----	<1.0	----	----
Protactinium 231	----	5	Bq/kg DW		----	----	<8.8	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	TP11_0.4-0.5_241127	TP11_1.0-1.1_241127	TP11_2.0-2.1_241127	QC101_241127	TP26_1.0-2.0_241127
			Sampling date / time	27-Nov-2024 11:05	27-Nov-2024 11:10	27-Nov-2024 11:15	27-Nov-2024 12:10	27-Nov-2024 10:07
Compound	CAS Number	LOR	Unit	EM2421131-010	EM2421131-011	EM2421131-012	EM2421131-013	EM2421131-015
				Result	Result	Result	Result	Result
Radionuclides / Activity - Continued								
Actinium 227	----	1	Bq/kg DW	----	----	<1.7	----	----
Thorium 227	----	1	Bq/kg DW	----	----	<1.7	----	----
Radium 223	----	1	Bq/kg DW	----	----	<1.8	----	----
Radium 228	7440-14-4	1.0	Bq/kg DW	----	----	6.7	----	----
Thorium 228	----	1.0	Bq/kg DW	----	----	7.3	----	----
Potassium 40	13966-00-2	10	Bq/kg DW	----	----	55	----	----
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	101	----	----	97.0	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.05	%	95.9	----	----	87.6	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.05	%	95.7	----	----	85.9	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	90.4	89.5	----	97.1	----
2-Chlorophenol-D4	93951-73-6	0.5	%	102	102	----	111	----
2.4.6-Tribromophenol	118-79-6	0.5	%	69.5	61.7	----	72.3	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	99.5	97.7	----	109	----
Anthracene-d10	1719-06-8	0.5	%	110	104	----	114	----
4-Terphenyl-d14	1718-51-0	0.5	%	106	100	----	112	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	85.3	94.6	----	94.1	----
Toluene-D8	2037-26-5	0.2	%	73.9	86.9	----	87.8	----
4-Bromofluorobenzene	460-00-4	0.2	%	87.6	97.8	----	99.3	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	TP26_0.3-1.0_241127	TP06_0.0-0.15_241127	TP06_0.4-0.5_241127	TP06_1.0-1.1_241127	TP06_1.0-1.6_241127
			Sampling date / time	27-Nov-2024 22:00	27-Nov-2024 15:30	27-Nov-2024 15:35	27-Nov-2024 15:40	27-Nov-2024 15:43
Compound	CAS Number	LOR	Unit	EM2421131-016	EM2421131-017	EM2421131-018	EM2421131-019	EM2421131-021
				Result	Result	Result	Result	Result
EA003 :pH (field/fox)								
pH (F)	----	0.1	pH Unit	**8.2**	**----**	**8.4**	**----**	**8.3**
pH (Fox)	----	0.1	pH Unit	**9.8**	**----**	**8.2**	**----**	**10.3**
Reaction Rate	----	1	Reaction Unit	**4**	**----**	**3**	**----**	**4**
EA009: Net Acid Production Potential								
Net Acid Production Potential	----	0.5	kg H2SO4/t	**-184**	**----**	**-87.6**	**----**	**-682**
EA033-A: Actual Acidity								
pH KCl (23A)	----	0.1	pH Unit	**8.7**	**----**	**8.9**	**----**	**8.7**
Titratable Actual Acidity (23F)	----	2	mole H+ / t	<2	**----**	<2	**----**	<2
sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	<0.02	**----**	<0.02	**----**	<0.02
EA033-B: Potential Acidity								
Chromium Reducible Sulfur (22B)	----	0.005	% S	**0.012**	**----**	**0.014**	**----**	**0.013**
acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	<10	**----**	<10	**----**	<10
EA033-C: Acid Neutralising Capacity								
Acid Neutralising Capacity (19A2)	----	0.01	% CaCO3	**18.8**	**----**	**9.74**	**----**	**71.5**
acidity - Acid Neutralising Capacity (a-19A2)	----	10	mole H+ / t	**3750**	**----**	**1940**	**----**	**14300**
sulfidic - Acid Neutralising Capacity (s-19A2)	----	0.01	% pyrite S	**6.01**	**----**	**3.12**	**----**	**22.9**
EA033-E: Acid Base Accounting								
ANC Fineness Factor	----	0.5	-	**1.5**	**----**	**1.5**	**----**	**1.5**
Net Acidity (sulfur units)	----	0.02	% S	<0.02	**----**	<0.02	**----**	<0.02
Net Acidity (acidity units)	----	10	mole H+ / t	<10	**----**	<10	**----**	<10
Liming Rate	----	1	kg CaCO3/t	<1	**----**	<1	**----**	<1
Net Acidity excluding ANC (sulfur units)	----	0.02	% S	<0.02	**----**	<0.02	**----**	<0.02
Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	<10	**----**	<10	**----**	<10
Liming Rate excluding ANC	----	1	kg CaCO3/t	<1	**----**	<1	**----**	<1
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**----**	**12.5**	**----**	**6.6**	**----**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP26_0.3-1.0_241127	TP06_0.0-0.15_241127	TP06_0.4-0.5_241127	TP06_1.0-1.1_241127	TP06_1.0-1.6_241127
				Sampling date / time	27-Nov-2024 22:00	27-Nov-2024 15:30	27-Nov-2024 15:35	27-Nov-2024 15:40	27-Nov-2024 15:43
Compound	CAS Number	LOR	Unit		EM2421131-016	EM2421131-017	EM2421131-018	EM2421131-019	EM2421131-021
					Result	Result	Result	Result	Result
EA150: Particle Sizing									
+75µm	----	1	%		----	----	----	----	74
+150µm	----	1	%		----	----	----	----	53
+300µm	----	1	%		----	----	----	----	43
+425µm	----	1	%		----	----	----	----	41
+600µm	----	1	%		----	----	----	----	39
+1180µm	----	1	%		----	----	----	----	37
+2.36mm	----	1	%		----	----	----	----	35
+4.75mm	----	1	%		----	----	----	----	32
+9.5mm	----	1	%		----	----	----	----	28
+19.0mm	----	1	%		----	----	----	----	5
+37.5mm	----	1	%		----	----	----	----	<1
+75.0mm	----	1	%		----	----	----	----	<1
EA150: Soil Classification based on Particle Size									
Clay (<2 µm)	----	1	%		----	----	----	----	7
Silt (2-60 µm)	----	1	%		----	----	----	----	12
Sand (0.06-2.00 mm)	----	1	%		----	----	----	----	45
Gravel (>2mm)	----	1	%		----	----	----	----	36
Cobbles (>6cm)	----	1	%		----	----	----	----	<1
EG005(ED093)T: Total Metals by ICP-AES									
Barium	7440-39-3	10	mg/kg		----	----	----	160	----
Beryllium	7440-41-7	1	mg/kg		----	----	----	1	----
Boron	7440-42-8	50	mg/kg		----	----	----	<50	----
Cobalt	7440-48-4	2	mg/kg		----	----	----	10	----
Manganese	7439-96-5	5	mg/kg		----	----	----	300	----
Selenium	7782-49-2	5	mg/kg		----	----	----	<5	----
Vanadium	7440-62-2	5	mg/kg		----	----	----	90	----
Arsenic	7440-38-2	5	mg/kg		----	<5	----	13	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP26_0.3-1.0_241127	TP06_0.0-0.15_241127	TP06_0.4-0.5_241127	TP06_1.0-1.1_241127	TP06_1.0-1.6_241127
				Sampling date / time	27-Nov-2024 22:00	27-Nov-2024 15:30	27-Nov-2024 15:35	27-Nov-2024 15:40	27-Nov-2024 15:43
Compound	CAS Number	LOR	Unit		EM2421131-016	EM2421131-017	EM2421131-018	EM2421131-019	EM2421131-021
					Result	Result	Result	Result	Result
EG005(ED093)T: Total Metals by ICP-AES - Continued									
Cadmium	7440-43-9	1	mg/kg		----	<1	----	<1	----
Chromium	7440-47-3	2	mg/kg		----	**7**	----	**6**	----
Copper	7440-50-8	5	mg/kg		----	**1020**	----	**862**	----
Lead	7439-92-1	5	mg/kg		----	**5**	----	**22**	----
Nickel	7440-02-0	2	mg/kg		----	**5**	----	**5**	----
Zinc	7440-66-6	5	mg/kg		----	**19**	----	**18**	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		----	<0.1	----	<0.1	----
EG048: Hexavalent Chromium (Alkaline Digest)									
Hexavalent Chromium	18540-29-9	0.5	mg/kg		----	----	----	<0.5	----
EK028SF: Weak Acid Dissociable CN by Segmented Flow Analyser									
Weak Acid Dissociable Cyanide	----	1	mg/kg		----	----	----	<1	----
EP066: Polychlorinated Biphenyls (PCB)									
Total Polychlorinated biphenyls	----	0.1	mg/kg		----	----	----	<0.1	----
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		----	----	----	<0.05	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		----	----	----	<0.05	----
beta-BHC	319-85-7	0.05	mg/kg		----	----	----	<0.05	----
gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg		----	----	----	<0.05	----
delta-BHC	319-86-8	0.05	mg/kg		----	----	----	<0.05	----
Heptachlor	76-44-8	0.05	mg/kg		----	----	----	<0.05	----
Aldrin	309-00-2	0.05	mg/kg		----	----	----	<0.05	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg		----	----	----	<0.05	----
trans-Chlordane	5103-74-2	0.05	mg/kg		----	----	----	<0.05	----
alpha-Endosulfan	959-98-8	0.05	mg/kg		----	----	----	<0.05	----
cis-Chlordane	5103-71-9	0.05	mg/kg		----	----	----	<0.05	----
Dieldrin	60-57-1	0.05	mg/kg		----	----	----	<0.05	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP26_0.3-1.0_241127	TP06_0.0-0.15_241127	TP06_0.4-0.5_241127	TP06_1.0-1.1_241127	TP06_1.0-1.6_241127
				Sampling date / time	27-Nov-2024 22:00	27-Nov-2024 15:30	27-Nov-2024 15:35	27-Nov-2024 15:40	27-Nov-2024 15:43
Compound	CAS Number	LOR	Unit		EM2421131-016	EM2421131-017	EM2421131-018	EM2421131-019	EM2421131-021
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
4.4`-DDE	72-55-9	0.05	mg/kg		----	----	----	<0.05	----
Endrin	72-20-8	0.05	mg/kg		----	----	----	<0.05	----
beta-Endosulfan	33213-65-9	0.05	mg/kg		----	----	----	<0.05	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg		----	----	----	<0.05	----
4.4`-DDD	72-54-8	0.05	mg/kg		----	----	----	<0.05	----
Endrin aldehyde	7421-93-4	0.05	mg/kg		----	----	----	<0.05	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg		----	----	----	<0.05	----
4.4`-DDT	50-29-3	0.2	mg/kg		----	----	----	<0.2	----
Endrin ketone	53494-70-5	0.05	mg/kg		----	----	----	<0.05	----
Methoxychlor	72-43-5	0.2	mg/kg		----	----	----	<0.2	----
Mirex	2385-85-5	0.20	mg/kg		----	----	----	<0.20	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		----	----	----	<0.05	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		----	----	----	<0.05	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		----	----	----	<0.05	----
Demeton-S-methyl	919-86-8	0.05	mg/kg		----	----	----	<0.05	----
Monocrotophos	6923-22-4	0.2	mg/kg		----	----	----	<0.2	----
Dimethoate	60-51-5	0.05	mg/kg		----	----	----	<0.05	----
Diazinon	333-41-5	0.05	mg/kg		----	----	----	<0.05	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		----	----	----	<0.05	----
Parathion-methyl	298-00-0	0.2	mg/kg		----	----	----	<0.2	----
Malathion	121-75-5	0.05	mg/kg		----	----	----	<0.05	----
Fenthion	55-38-9	0.05	mg/kg		----	----	----	<0.05	----
Chlorpyrifos	2921-88-2	0.05	mg/kg		----	----	----	<0.05	----
Parathion	56-38-2	0.2	mg/kg		----	----	----	<0.2	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		----	----	----	<0.05	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP26_0.3-1.0_241127	TP06_0.0-0.15_241127	TP06_0.4-0.5_241127	TP06_1.0-1.1_241127	TP06_1.0-1.6_241127
				Sampling date / time	27-Nov-2024 22:00	27-Nov-2024 15:30	27-Nov-2024 15:35	27-Nov-2024 15:40	27-Nov-2024 15:43
Compound	CAS Number	LOR	Unit		EM2421131-016	EM2421131-017	EM2421131-018	EM2421131-019	EM2421131-021
					Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued									
Chlorfenvinphos	470-90-6	0.05	mg/kg		----	----	----	<0.05	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg		----	----	----	<0.05	----
Fenamiphos	22224-92-6	0.05	mg/kg		----	----	----	<0.05	----
Prothiofos	34643-46-4	0.05	mg/kg		----	----	----	<0.05	----
Ethion	563-12-2	0.05	mg/kg		----	----	----	<0.05	----
Carbophenothion	786-19-6	0.05	mg/kg		----	----	----	<0.05	----
Azinphos Methyl	86-50-0	0.05	mg/kg		----	----	----	<0.05	----
EP068C: Triazines									
Atrazine	1912-24-9	0.05	mg/kg		----	----	----	<0.05	----
EP068D: Pyrethroids									
Bifenthrin	82657-04-3	0.05	mg/kg		----	----	----	<0.05	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		----	----	----	<0.5	----
2-Chlorophenol	95-57-8	0.5	mg/kg		----	----	----	<0.5	----
2-Methylphenol	95-48-7	0.5	mg/kg		----	----	----	<0.5	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		----	----	----	<1	----
2-Nitrophenol	88-75-5	0.5	mg/kg		----	----	----	<0.5	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		----	----	----	<0.5	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		----	----	----	<0.5	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		----	----	----	<0.5	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		----	----	----	<0.5	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		----	----	----	<0.5	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		----	----	----	<0.5	----
Pentachlorophenol	87-86-5	2	mg/kg		----	----	----	<2	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		----	<0.5	----	<0.5	----
Acenaphthylene	208-96-8	0.5	mg/kg		----	<0.5	----	<0.5	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP26_0.3-1.0_241127	TP06_0.0-0.15_241127	TP06_0.4-0.5_241127	TP06_1.0-1.1_241127	TP06_1.0-1.6_241127
				Sampling date / time	27-Nov-2024 22:00	27-Nov-2024 15:30	27-Nov-2024 15:35	27-Nov-2024 15:40	27-Nov-2024 15:43
Compound	CAS Number	LOR	Unit		EM2421131-016	EM2421131-017	EM2421131-018	EM2421131-019	EM2421131-021
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Acenaphthene	83-32-9	0.5	mg/kg		----	<0.5	----	<0.5	----
Fluorene	86-73-7	0.5	mg/kg		----	<0.5	----	<0.5	----
Phenanthrene	85-01-8	0.5	mg/kg		----	<0.5	----	<0.5	----
Anthracene	120-12-7	0.5	mg/kg		----	<0.5	----	<0.5	----
Fluoranthene	206-44-0	0.5	mg/kg		----	<0.5	----	<0.5	----
Pyrene	129-00-0	0.5	mg/kg		----	<0.5	----	<0.5	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		----	<0.5	----	<0.5	----
Chrysene	218-01-9	0.5	mg/kg		----	<0.5	----	<0.5	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		----	<0.5	----	<0.5	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		----	<0.5	----	<0.5	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		----	<0.5	----	<0.5	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		----	<0.5	----	<0.5	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		----	<0.5	----	<0.5	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		----	<0.5	----	<0.5	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		----	<0.5	----	<0.5	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		----	<0.5	----	<0.5	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		----	**0.6**	----	**0.6**	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		----	**1.2**	----	**1.2**	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		----	<10	----	<10	----
C10 - C14 Fraction	----	50	mg/kg		----	<50	----	<50	----
C15 - C28 Fraction	----	100	mg/kg		----	<100	----	<100	----
C29 - C36 Fraction	----	100	mg/kg		----	<100	----	<100	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		----	<50	----	<50	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		----	<10	----	<10	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	TP26_0.3-1.0_241127	TP06_0.0-0.15_241127	TP06_0.4-0.5_241127	TP06_1.0-1.1_241127	TP06_1.0-1.6_241127
			Sampling date / time	27-Nov-2024 22:00	27-Nov-2024 15:30	27-Nov-2024 15:35	27-Nov-2024 15:40	27-Nov-2024 15:43
Compound	CAS Number	LOR	Unit	EM2421131-016	EM2421131-017	EM2421131-018	EM2421131-019	EM2421131-021
				Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued								
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg	----	<10	----	<10	----
>C10 - C16 Fraction	----	50	mg/kg	----	<50	----	<50	----
>C16 - C34 Fraction	----	100	mg/kg	----	<100	----	<100	----
>C34 - C40 Fraction	----	100	mg/kg	----	<100	----	<100	----
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg	----	<50	----	<50	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	50	mg/kg	----	<50	----	<50	----
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	----	<0.2	----	<0.2	----
Toluene	108-88-3	0.5	mg/kg	----	<0.5	----	<0.5	----
Ethylbenzene	100-41-4	0.5	mg/kg	----	<0.5	----	<0.5	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	----	<0.5	----	<0.5	----
ortho-Xylene	95-47-6	0.5	mg/kg	----	<0.5	----	<0.5	----
^ **Sum of BTEX**	----	0.2	mg/kg	----	<0.2	----	<0.2	----
^ **Total Xylenes**	----	0.5	mg/kg	----	<0.5	----	<0.5	----
Naphthalene	91-20-3	1	mg/kg	----	<1	----	<1	----
Radionuclides / Activity								
Gross alpha	----	500	Bq/kg DW	----	----	----	----	<500
Uranium 238	7440-61-1	10.0	Bq/kg DW	----	----	----	----	**20.0**
Gross beta	----	500	Bq/kg DW	----	----	----	----	<500
Thorium 234	----	10.0	Bq/kg DW	----	----	----	----	**20.0**
Thorium 230	----	50	Bq/kg DW	----	----	----	----	<105
Radium 226	13982-63-3	1.0	Bq/kg DW	----	----	----	----	**78.2**
Lead 210	14255-04-0	50	Bq/kg DW	----	----	----	----	**62**
Uranium 235	15117-96-1	1.0	Bq/kg DW	----	----	----	----	**1.9**
Protactinium 231	----	5	Bq/kg DW	----	----	----	----	<16.0
Actinium 227	----	1.0	Bq/kg DW	----	----	----	----	**3.2**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	TP26_0.3-1.0_241127	TP06_0.0-0.15_241127	TP06_0.4-0.5_241127	TP06_1.0-1.1_241127	TP06_1.0-1.6_241127
			Sampling date / time	27-Nov-2024 22:00	27-Nov-2024 15:30	27-Nov-2024 15:35	27-Nov-2024 15:40	27-Nov-2024 15:43
Compound	CAS Number	LOR	Unit	EM2421131-016	EM2421131-017	EM2421131-018	EM2421131-019	EM2421131-021
				Result	Result	Result	Result	Result
Radionuclides / Activity - Continued								
Thorium 227	----	1.0	Bq/kg DW	----	----	----	----	3.5
Radium 223	----	1.0	Bq/kg DW	----	----	----	----	2.9
Radium 228	7440-14-4	1.0	Bq/kg DW	----	----	----	----	9.8
Thorium 228	----	1.0	Bq/kg DW	----	----	----	----	10.0
Potassium 40	13966-00-2	10	Bq/kg DW	----	----	----	----	85
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	----	----	----	99.2	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.05	%	----	----	----	87.2	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.05	%	----	----	----	89.5	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	----	85.0	----	90.5	----
2-Chlorophenol-D4	93951-73-6	0.5	%	----	97.3	----	104	----
2.4.6-Tribromophenol	118-79-6	0.5	%	----	59.4	----	66.9	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	----	93.0	----	99.4	----
Anthracene-d10	1719-06-8	0.5	%	----	97.8	----	107	----
4-Terphenyl-d14	1718-51-0	0.5	%	----	95.2	----	101	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	----	92.7	----	99.3	----
Toluene-D8	2037-26-5	0.2	%	----	84.5	----	89.0	----
4-Bromofluorobenzene	460-00-4	0.2	%	----	96.8	----	101	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	QC602_241128	QC401_241128	Trip Spike Control	----	----
			Sampling date / time	28-Nov-2024 07:15	28-Nov-2024 07:15	28-Nov-2024 00:00	----	----
Compound	CAS Number	LOR	Unit	EM2421131-022	EM2421131-023	EM2421131-024	--------	--------
				Result	Result	Result	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**5.8**	<1.0	**5.8**	**----**	**----**
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	**----**	**----**
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	**----**	**----**
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	**----**	**----**
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	**----**	**----**
Toluene	108-88-3	0.5	mg/kg	**0.8**	<0.5	**2.0**	**----**	**----**
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	**----**	**----**
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	**1.0**	**----**	**----**
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	**----**	**----**
^ Sum of BTEX	----	0.2	mg/kg	**0.8**	<0.2	**3.0**	**----**	**----**
^ Total Xylenes	----	0.5	mg/kg	<0.5	<0.5	**1.0**	**----**	**----**
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	**----**	**----**
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	**87.6**	**94.2**	**91.0**	**----**	**----**
Toluene-D8	2037-26-5	0.2	%	**83.2**	**82.3**	**87.2**	**----**	**----**
4-Bromofluorobenzene	460-00-4	0.2	%	**94.6**	**94.1**	**95.0**	**----**	**----**

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	36	140
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	62	128
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	40	139
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	54	125
2-Chlorophenol-D4	93951-73-6	65	123
2.4.6-Tribromophenol	118-79-6	34	122
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	61	125
Anthracene-d10	1719-06-8	62	130
4-Terphenyl-d14	1718-51-0	67	133
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	51	125
Toluene-D8	2037-26-5	55	125
4-Bromofluorobenzene	460-00-4	56	124

Inter-Laboratory Testing

Analysis conducted by ALS Brisbane, NATA accreditation no. 825, site no. 818 (Chemistry / Biology).

(SOIL) Radionuclides / Activity

(SOIL) EA033-B: Potential Acidity

(SOIL) EA033-C: Acid Neutralising Capacity

(SOIL) EA033-D: Retained Acidity

(SOIL) EA033-A: Actual Acidity

(SOIL) EA033-E: Acid Base Accounting

(SOIL) EA003 :pH (field/fox)

(SOIL) EA009: Net Acid Production Potential

(SOIL) EK080: Bicarbonate Extractable Phosphorus (Colwell)

(SOIL) EA058: Emerson Aggregate Test

Analysis conducted by ALS Newcastle, NATA accreditation no. 825, site no. 1656 (Chemistry / Biology).

(SOIL) EA150: Soil Classification based on Particle Size

(SOIL) EA150: Particle Sizing

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **EM2421131**		
Client	: **EMM CONSULTING PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: Simony Sakamoto	Contact	: Customer Services EM
Address	: Level 1, 70 Pirie Street Adelaide 5000	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: ssakamoto@emmconsulting.com.au	E-mail	: ALSEnviro.Melbourne@alsglobal.com
Telephone	: ----	Telephone	: +61 3 8549 9600
Facsimile	: ----	Facsimile	: +61-3-8549 9626
Project	: Olympic Dam	Page	: 1 of 5
Order number	: E240975	Quote number	: EM2024EMGAMM0004 (EM24EMGAMM0004_V2)
C-O-C number	: 75723	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Olympic Dam		
Sampler	: Simony Sakamoto		

Dates

Date Samples Received	: 03-Nov-2024 11:55	Issue Date	: 05-Dec-2024
Client Requested Due Date	: 09-Jan-2025	Scheduled Reporting Date	: **12-Dec-2024**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Intact.
No. of coolers/boxes	: 4	Temperature	: 13.9°C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 23 / 18

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please direct any queries related to sample condition / numbering / breakages to Client Services.**
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- Unless otherwise stated, analytical work for this work order will be conducted at ALS Melbourne, NATA accreditation no. 825, site no. 13778.
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Preliminary results will be available on the scheduled reporting date listed in this report. However the final report with Gross beta/alpha activity and Individual National Radionuclides analysis will be complete on 09/01.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Any sample identifications that cannot be displayed entirely in the analysis summary table will be listed below.

EM2421131-001 : 27-Nov-2024 11:59 : TP05_0.0-0.15_241127
EM2421131-005 : 27-Nov-2024 09:50 : TP26_0.0-0.15_241127
EM2421131-009 : 27-Nov-2024 11:00 : TP11_0.0-0.15_241127
EM2421131-017 : 27-Nov-2024 15:30 : TP06_0.0-0.15_241127

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	(On Hold) SOIL No analysis requested	SOIL - EA002 pH (1:5)	SOIL - EA003 pH field/fox	SOIL - EA009 Net Acid Production Potential (NAPP)	SOIL - EA010 (solids): Electrical Conductivity (1:5)	SOIL - EA055-103 Moisture Content	SOIL - S-26 8 metals/TRH/BTEXN/PAH
EM2421131-001	27-Nov-2024 11:59	TP05_0.0-0.15_241127						✓	✓
EM2421131-002	27-Nov-2024 12:05	TP05_0.4-0.5_241127	✓						
EM2421131-003	27-Nov-2024 12:10	TP05_1.0-1.1_241127		✓	✓	✓	✓	✓	
EM2421131-004	27-Nov-2024 12:20	TP05_2.0-2.1_241127		✓	✓	✓	✓	✓	
EM2421131-005	27-Nov-2024 09:50	TP26_0.0-0.15_241127						✓	✓
EM2421131-006	27-Nov-2024 10:00	TP26_0.4-0.5_241127	✓						
EM2421131-007	27-Nov-2024 22:05	TP26_1.0-1.1_241127						✓	✓
EM2421131-008	27-Nov-2024 10:07	TP26_2.0-2.1_241127	✓						
EM2421131-009	27-Nov-2024 11:00	TP11_0.0-0.15_241127	✓						
EM2421131-010	27-Nov-2024 11:05	TP11_0.4-0.5_241127		✓	✓	✓	✓	✓	
EM2421131-011	27-Nov-2024 11:10	TP11_1.0-1.1_241127						✓	✓
EM2421131-012	27-Nov-2024 11:15	TP11_2.0-2.1_241127		✓	✓	✓	✓	✓	
EM2421131-013	27-Nov-2024 12:10	QC101_241127						✓	
EM2421131-015	27-Nov-2024 10:07	TP26_1.0-2.0_241127			✓	✓			
EM2421131-016	27-Nov-2024 22:00	TP26_0.3-1.0_241127			✓	✓			
EM2421131-017	27-Nov-2024 15:30	TP06_0.0-0.15_241127						✓	✓
EM2421131-018	27-Nov-2024 15:35	TP06_0.4-0.5_241127			✓	✓			
EM2421131-019	27-Nov-2024 15:40	TP06_1.0-1.1_241127						✓	
EM2421131-020	27-Nov-2024 15:48	TP06_1.6_241127	✓						
EM2421131-021	27-Nov-2024 15:43	TP06_1.0-1.6_241127			✓	✓			
EM2421131-022	28-Nov-2024 07:15	QC602_241128						✓	
EM2421131-023	28-Nov-2024 07:15	QC401_241128						✓	
EM2421131-024	28-Nov-2024 00:00	Trip Spike Control						✓	

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	SOIL - EA001 pH (CaCl)	SOIL - ED040N Calcium Phosphate Extractable Sulfate	SOIL - ED045G (solids) Chloride Soluble by Discrete Analyser	SOIL - EG005T (solids) Total Metals by ICP-AES	SOIL - EK080 Bicarbonate Extractable P (Colwell)	SOIL - EP004 (Carbon) Organic Matter & Total Organic Carbon (Calc.)	SOIL - P-21/1 (Melb) NEPM (2013) HIL Table 1A(1) Screen
EM2421131-003	27-Nov-2024 12:10	TP05_1.0-1.1_241127	✓	✓	✓	✓	✓	✓	✓
EM2421131-004	27-Nov-2024 12:20	TP05_2.0-2.1_241127	✓		✓				
EM2421131-005	27-Nov-2024 09:50	TP26_0.0-0.15_241127							✓
EM2421131-007	27-Nov-2024 22:05	TP26_1.0-1.1_241127							✓
EM2421131-010	27-Nov-2024 11:05	TP11_0.4-0.5_241127	✓	✓	✓	✓	✓	✓	✓
EM2421131-012	27-Nov-2024 11:15	TP11_2.0-2.1_241127	✓		✓				
EM2421131-013	27-Nov-2024 12:10	QC101_241127							✓
EM2421131-019	27-Nov-2024 15:40	TP06_1.0-1.1_241127							✓

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	SOIL - EA033 Chromium Suite for Acid Sulphate Soils	SOIL - EA058 Emerson Aggregate Test	SOIL - EA150H Particle Size Analysis by Hydrometer: AS1289	SOIL - EA250 Gross beta/alpha activity in Soils	SOIL - EA252 Individual Natural Radionuclides by HR Gamma	SOIL - ED040T Sulfur Sulfur as S	SOIL - NT-8S NH3, NO2, NO3, NOX, TKN, TN, TP
EM2421131-003	27-Nov-2024 12:10	TP05_1.0-1.1_241127	✓	✓	✓	✓	✓	✓	✓
EM2421131-004	27-Nov-2024 12:20	TP05_2.0-2.1_241127	✓						
EM2421131-010	27-Nov-2024 11:05	TP11_0.4-0.5_241127	✓	✓	✓			✓	✓
EM2421131-012	27-Nov-2024 11:15	TP11_2.0-2.1_241127	✓			✓	✓		
EM2421131-015	27-Nov-2024 10:07	TP26_1.0-2.0_241127	✓						
EM2421131-016	27-Nov-2024 22:00	TP26_0.3-1.0_241127	✓						
EM2421131-018	27-Nov-2024 15:35	TP06_0.4-0.5_241127	✓						
EM2421131-021	27-Nov-2024 15:43	TP06_1.0-1.6_241127	✓		✓	✓	✓		

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	SOIL - AG-1 EM Only Agricultural (CEC) Soil Suite 1 (pretest air dried)	SOIL - S-18 TRH(C6-C9)/BTEXN
EM2421131-003	27-Nov-2024 12:10	TP05_1.0-1.1_241127	✓	
EM2421131-004	27-Nov-2024 12:20	TP05_2.0-2.1_241127	✓	
EM2421131-010	27-Nov-2024 11:05	TP11_0.4-0.5_241127	✓	
EM2421131-012	27-Nov-2024 11:15	TP11_2.0-2.1_241127	✓	
EM2421131-022	28-Nov-2024 07:15	QC602_241128		✓
EM2421131-023	28-Nov-2024 07:15	QC401_241128		✓
EM2421131-024	28-Nov-2024 00:00	Trip Spike Control		✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ALL INVOICES

- A4 - AU Tax Invoice (INV)	Email	finance@emmconsulting.com.au

DANIEL CONDON

- *AU Certificate of Analysis - NATA (COA)	Email	dcondon@emmconsulting.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	dcondon@emmconsulting.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	dcondon@emmconsulting.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	dcondon@emmconsulting.com.au
- Attachment - Report (SUBCO)	Email	dcondon@emmconsulting.com.au
- Chain of Custody (CoC) (COC)	Email	dcondon@emmconsulting.com.au
- EDI Format - ESDAT (ESDAT)	Email	dcondon@emmconsulting.com.au
- EPA Waste Classification & Categorisation Guideline Report (COA_GL_EPA_WASTE)	Email	dcondon@emmconsulting.com.au

ESDAT CONTAM TEAM

- EDI Format - ESDAT (ESDAT)	Email	ESdat_AU+emmconsulting@ESdatLabSync.net

Simony Sakamoto

- *AU Certificate of Analysis - NATA (COA)	Email	ssakamoto@emmconsulting.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	ssakamoto@emmconsulting.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	ssakamoto@emmconsulting.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	ssakamoto@emmconsulting.com.au
- A4 - AU Tax Invoice (INV)	Email	ssakamoto@emmconsulting.com.au
- Attachment - Report (SUBCO)	Email	ssakamoto@emmconsulting.com.au
- Chain of Custody (CoC) (COC)	Email	ssakamoto@emmconsulting.com.au
- EDI Format - ESDAT (ESDAT)	Email	ssakamoto@emmconsulting.com.au
- EPA Waste Classification & Categorisation Guideline Report (COA_GL_EPA_WASTE)	Email	ssakamoto@emmconsulting.com.au

Inter-Laboratory Testing

Analysis conducted by ALS Brisbane, NATA accreditation no. 825, site no. 818 (Chemistry / Biology).

(SOIL) EA003 :pH (field/fox)
(SOIL) EA009: Net Acid Production Potential
(SOIL) Radionuclides / Activity
(SOIL) EA033-B: Potential Acidity
(SOIL) EA033-C: Acid Neutralising Capacity
(SOIL) EA033-D: Retained Acidity
(SOIL) EA033-A: Actual Acidity
(SOIL) EA033-E: Acid Base Accounting
(SOIL) EK080: Bicarbonate Extractable Phosphorus (Colwell)
(SOIL) EA058: Emerson Aggregate Test

Analysis conducted by ALS Newcastle, NATA accreditation no. 825, site no. 1656 (Chemistry / Biology).

(SOIL) EA150: Soil Classification based on Particle Size
(SOIL) EA150: Particle Sizing

Automated Guideline Comparison Report

Work Order	: **EM2421131**	Page	: 1 of 34
Client	: **EMM CONSULTING PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: Simony Sakamoto		
Address	: Level 1, 70 Pirie Street Adelaide 5000	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: ssakamoto@emmconsulting.com.au	E-mail	: ALSEnviro.Melbourne@alsglobal.com
Telephone	: ----	Telephone	: +61 3 8549 9600
Facsimile	: ----	Facsimile	: +61-3-8549 9626
Project	: Olympic Dam	Date Received	: 03-Nov-2024 11:55
Order number	: E240975	Date Analysed	: 04-Dec-2024
C-O-C number	: 75723	Date Issued	: 21-Jan-2025 17:35
No. of samples received	: 23		
No. of samples analysed	: 18	Quote number	: EM24EMGAMM0004_V2

General Comments

Only results in the 'Analytical Results' section have been compared to the guideline.

Additional information pertinent to this report will be found in the following separate attachments: Certificate of Analysis, Quality Control Report, QA/QC Compliance Assessment to Assist with Quality Review and Sample Receipt Notification.

Summary of Thresholds Reached or Exceeded

Results for all samples detailed in this report are below the upper threshold limits for Fill Material.

Results for all samples detailed in this report are below the upper threshold limits for Fill Material.

Analytical Results

NEPM (2013) Table 1A - Schedule B1 Guideline on Investigation Levels for Soil and Groundwater - Health investigation levels
Health investigation levels for soil contaminants - Commercial / industrial D: HIL D

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	TP05_0.0-0.15_241127 Sampling date/time: 27-Nov-2024 11:59 EM2421131-001 MU	TP05_1.0-1.1_241127 Sampling date/time: 27-Nov-2024 12:10 EM2421131-003 MU	TP05_2.0-2.1_241127 Sampling date/time: 27-Nov-2024 12:20 EM2421131-004 MU	TP26_0.0-0.15_241127 Sampling date/time: 27-Nov-2024 09:50 EM2421131-005 MU	TP26_1.0-1.1_241127 Sampling date/time: 27-Nov-2024 22:05 EM2421131-007 MU
EG005(ED093)T: Total Metals by ICP-AES										
Beryllium	EG005T	1	mg/kg	----	500	----	<1 --	----	<1 --	<1 --
Boron	EG005T	50	mg/kg	----	300000	----	<50 --	----	<50 --	<50 --
Cobalt	EG005T	2	mg/kg	----	4000	----	**4** ± 0.6	----	**54** ± 6	**7** ± 0.8
Manganese	EG005T	5	mg/kg	----	60000	----	**125** ± 13	----	**345** ± 34	**93** ± 10
Selenium	EG005T	5	mg/kg	----	10000	----	<5 --	----	<5 --	<5 --
Arsenic	EG005T	5	mg/kg	----	3000	<5 --	<5 --	----	<5 --	**17** ± 3
Cadmium	EG005T	1	mg/kg	----	900	<1 --	<1 --	----	<1 --	<1 --
Copper	EG005T	5	mg/kg	----	240000	**11** ± 1	**12** ± 2	----	**3750** ± 451	**90** ± 11
Lead	EG005T	5	mg/kg	----	1500	<5 --	**5** ± 0.9	----	**10** ± 1	**6** ± 1
Nickel	EG005T	2	mg/kg	----	6000	**7** ± 0.7	**9** ± 0.9	----	**5** ± 0.6	**7** ± 0.8
Zinc	EG005T	5	mg/kg	----	400000	**17** ± 3	**24** ± 4	----	**21** ± 3	**24** ± 4
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	730	<0.1 --	<0.1 --	----	<0.1 --	<0.1 --
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	3600	----	<0.5 --	----	<0.5 --	<0.5 --
EP066: Polychlorinated Biphenyls (PCB)										
Total Polychlorinated biphenyls	EP066	0.1	mg/kg	----	7	----	<0.1	----	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)										
Hexachlorobenzene (HCB)	EP068	0.05	mg/kg	----	80	----	<0.05	----	<0.05	<0.05
Heptachlor	EP068	0.05	mg/kg	----	50	----	<0.05	----	<0.05	<0.05
Endrin	EP068	0.05	mg/kg	----	100	----	<0.05	----	<0.05	<0.05
Endosulfan (sum)	EP068	0.05	mg/kg	----	2000	----	<0.05	----	<0.05	<0.05
Methoxychlor	EP068	0.2	mg/kg	----	2500	----	<0.2	----	<0.2	<0.2
Mirex	EP068	0.20	mg/kg	----	100	----	<0.20	----	<0.20	<0.20
Sum of Aldrin + Dieldrin	EP068	0.05	mg/kg	----	45	----	<0.05	----	<0.05	<0.05
Sum of DDD + DDE + DDT	EP068	0.05	mg/kg	----	3600	----	<0.05	----	<0.05	<0.05
EP068B: Organophosphorus Pesticides (OP)										
Chlorpyrifos	EP068	0.05	mg/kg	----	2000	----	<0.05	----	<0.05	<0.05
EP068C: Triazines										
Atrazine	EP068	0.05	mg/kg	----	2500	----	<0.05	----	<0.05	<0.05

NEPM (2013) Table 1A - Schedule B1 Guideline on Investigation Levels for Soil and Groundwater - Health investigation levels
Health investigation levels for soil contaminants - Commercial / industrial D: HIL D

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	*Sample ID* / *Sampling date/time*	TP05_0.0-0.15_241127 27-Nov-2024 11:59 EM2421131-001 MU	TP05_1.0-1.1_241127 27-Nov-2024 12:10 EM2421131-003 MU	TP05_2.0-2.1_241127 27-Nov-2024 12:20 EM2421131-004 MU	TP26_0.0-0.15_241127 27-Nov-2024 09:50 EM2421131-005 MU	TP26_1.0-1.1_241127 27-Nov-2024 22:05 EM2421131-007 MU
EP068D: Pyrethroids											
Bifenthrin	EP068	0.05	mg/kg	----	4500		----	<0.05	----	<0.05	<0.05
EP075(SIM)A: Phenolic Compounds											
Phenol	EP075(SIM)	0.5	mg/kg	----	240000		----	<0.5	----	<0.5	<0.5
Pentachlorophenol	EP075(SIM)	2	mg/kg	----	660		----	<2	----	<2	<2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons											
Sum of polycyclic aromatic hydrocarbons	EP075(SIM)	0.5	mg/kg	----	4000		<0.5	<0.5	----	<0.5	<0.5
Benzo(a)pyrene TEQ (zero)	EP075(SIM)	0.5	mg/kg	----	40		<0.5	<0.5	----	<0.5	<0.5
Benzo(a)pyrene TEQ (half LOR)	EP075(SIM)	0.5	mg/kg	----	40		**0.6**	**0.6**	----	**0.6**	**0.6**
Benzo(a)pyrene TEQ (LOR)	EP075(SIM)	0.5	mg/kg	----	40		**1.2**	**1.2**	----	**1.2**	**1.2**

NEPM (2013) Table 1A - Schedule B1 Guideline on Investigation Levels for Soil and Groundwater - Health investigation levels
Health investigation levels for soil contaminants - Recreational C: HIL C

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	Sample ID / Sampling date/time	TP05_0.0-0.15_241127 27-Nov-2024 11:59 EM2421131-001	MU	TP05_1.0-1.1_241127 27-Nov-2024 12:10 EM2421131-003	MU	TP05_2.0-2.1_241127 27-Nov-2024 12:20 EM2421131-004	MU	TP26_0.0-0.15_241127 27-Nov-2024 09:50 EM2421131-005	MU	TP26_1.0-1.1_241127 27-Nov-2024 22:05 EM2421131-007	MU
EG005(ED093)T: Total Metals by ICP-AES																
Beryllium	EG005T	1	mg/kg	----	90		----		<1	--	----		<1	--	<1	--
Boron	EG005T	50	mg/kg	----	20000		----		<50	--	----		<50	--	<50	--
Cobalt	EG005T	2	mg/kg	----	300		----		**4**	± 0.6	----		**54**	± 6	**7**	± 0.8
Manganese	EG005T	5	mg/kg	----	19000		----		**125**	± 13	----		**345**	± 34	**93**	± 10
Selenium	EG005T	5	mg/kg	----	700		----		<5	--	----		<5	--	<5	--
Arsenic	EG005T	5	mg/kg	----	300		<5	--	<5	--	----		<5	--	**17**	± 3
Cadmium	EG005T	1	mg/kg	----	90		<1	--	<1	--	----		<1	--	<1	--
Copper	EG005T	5	mg/kg	----	17000		**11**	± 1	**12**	± 2	----		**3750**	± 451	**90**	± 11
Lead	EG005T	5	mg/kg	----	600		<5	--	**5**	± 0.9	----		**10**	± 1	**6**	± 1
Nickel	EG005T	2	mg/kg	----	1200		**7**	± 0.7	**9**	± 0.9	----		**5**	± 0.6	**7**	± 0.8
Zinc	EG005T	5	mg/kg	----	30000		**17**	± 3	**24**	± 4	----		**21**	± 3	**24**	± 4
EG035T: Total Recoverable Mercury by FIMS																
Mercury	EG035T	0.1	mg/kg	----	80		<0.1	--	<0.1	--	----		<0.1	--	<0.1	--
EG048: Hexavalent Chromium (Alkaline Digest)																
Hexavalent Chromium	EG048G	0.5	mg/kg	----	300		----		<0.5	--	----		<0.5	--	<0.5	--
EP066: Polychlorinated Biphenyls (PCB)																
Total Polychlorinated biphenyls	EP066	0.1	mg/kg	----	1		----		<0.1		----		<0.1		<0.1	
EP068A: Organochlorine Pesticides (OC)																
Hexachlorobenzene (HCB)	EP068	0.05	mg/kg	----	10		----		<0.05		----		<0.05		<0.05	
Heptachlor	EP068	0.05	mg/kg	----	10		----		<0.05		----		<0.05		<0.05	
Endrin	EP068	0.05	mg/kg	----	20		----		<0.05		----		<0.05		<0.05	
Endosulfan (sum)	EP068	0.05	mg/kg	----	340		----		<0.05		----		<0.05		<0.05	
Methoxychlor	EP068	0.2	mg/kg	----	400		----		<0.2		----		<0.2		<0.2	
Mirex	EP068	0.20	mg/kg	----	20		----		<0.20		----		<0.20		<0.20	
Sum of Aldrin + Dieldrin	EP068	0.05	mg/kg	----	10		----		<0.05		----		<0.05		<0.05	
Sum of DDD + DDE + DDT	EP068	0.05	mg/kg	----	400		----		<0.05		----		<0.05		<0.05	
EP068B: Organophosphorus Pesticides (OP)																
Chlorpyrifos	EP068	0.05	mg/kg	----	250		----		<0.05		----		<0.05		<0.05	
EP068C: Triazines																
Atrazine	EP068	0.05	mg/kg	----	400		----		<0.05		----		<0.05		<0.05	
EP068D: Pyrethroids																

NEPM (2013) Table 1A - Schedule B1 Guideline on Investigation Levels for Soil and Groundwater - Health investigation levels
Health investigation levels for soil contaminants - Recreational C: HIL C

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	TP05_0.0-0.15_241127	TP05_1.0-1.1_241127	TP05_2.0-2.1_241127	TP26_0.0-0.15_241127	TP26_1.0-1.1_241127
Sample ID										
Sampling date/time						27-Nov-2024 11:59	27-Nov-2024 12:10	27-Nov-2024 12:20	27-Nov-2024 09:50	27-Nov-2024 22:05
						EM2421131-001 MU	EM2421131-003 MU	EM2421131-004 MU	EM2421131-005 MU	EM2421131-007 MU
EP068D: Pyrethroids - Continued										
Bifenthrin	EP068	0.05	mg/kg	----	730	----	<0.05	----	<0.05	<0.05
EP075(SIM)A: Phenolic Compounds										
Phenol	EP075(SIM)	0.5	mg/kg	----	40000	----	<0.5	----	<0.5	<0.5
Pentachlorophenol	EP075(SIM)	2	mg/kg	----	120	----	<2	----	<2	<2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons										
Sum of polycyclic aromatic hydrocarbons	EP075(SIM)	0.5	mg/kg	----	300	<0.5	<0.5	----	<0.5	<0.5
Benzo(a)pyrene TEQ (zero)	EP075(SIM)	0.5	mg/kg	----	3	<0.5	<0.5	----	<0.5	<0.5
Benzo(a)pyrene TEQ (half LOR)	EP075(SIM)	0.5	mg/kg	----	3	**0.6**	**0.6**	----	**0.6**	**0.6**
Benzo(a)pyrene TEQ (LOR)	EP075(SIM)	0.5	mg/kg	----	3	**1.2**	**1.2**	----	**1.2**	**1.2**

NEPM (2013) Table 1A - Schedule B1 Guideline on Investigation Levels for Soil and Groundwater - Health investigation levels
Health investigation levels for soil contaminants - Residential A: HIL A

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	Sample ID / Sampling date/time	TP05_0.0-0.15_241127 27-Nov-2024 11:59 EM2421131-001	MU	TP05_1.0-1.1_241127 27-Nov-2024 12:10 EM2421131-003	MU	TP05_2.0-2.1_241127 27-Nov-2024 12:20 EM2421131-004	MU	TP26_0.0-0.15_241127 27-Nov-2024 09:50 EM2421131-005	MU	TP26_1.0-1.1_241127 27-Nov-2024 22:05 EM2421131-007	MU
EG005(ED093)T: Total Metals by ICP-AES																
Beryllium	EG005T	1	mg/kg	----	60		----		<1	--	----		<1	--	<1	--
Boron	EG005T	50	mg/kg	----	4500		----		<50	--	----		<50	--	<50	--
Cobalt	EG005T	2	mg/kg	----	100		----		**4**	± 0.6	----		**54**	± 6	**7**	± 0.8
Manganese	EG005T	5	mg/kg	----	3800		----		**125**	± 13	----		**345**	± 34	**93**	± 10
Selenium	EG005T	5	mg/kg	----	200		----		<5	--	----		<5	--	<5	--
Arsenic	EG005T	5	mg/kg	----	100		<5	--	<5	--	----		<5	--	**17**	± 3
Cadmium	EG005T	1	mg/kg	----	20		<1	--	<1	--	----		<1	--	<1	--
Copper	EG005T	5	mg/kg	----	6000		**11**	± 1	**12**	± 2	----		**3750**	± 451	**90**	± 11
Lead	EG005T	5	mg/kg	----	300		<5	--	**5**	± 0.9	----		**10**	± 1	**6**	± 1
Nickel	EG005T	2	mg/kg	----	400		**7**	± 0.7	**9**	± 0.9	----		**5**	± 0.6	**7**	± 0.8
Zinc	EG005T	5	mg/kg	----	7400		**17**	± 3	**24**	± 4	----		**21**	± 3	**24**	± 4
EG035T: Total Recoverable Mercury by FIMS																
Mercury	EG035T	0.1	mg/kg	----	40		<0.1	--	<0.1	--	----		<0.1	--	<0.1	--
EG048: Hexavalent Chromium (Alkaline Digest)																
Hexavalent Chromium	EG048G	0.5	mg/kg	----	100		----		<0.5	--	----		<0.5	--	<0.5	--
EP066: Polychlorinated Biphenyls (PCB)																
Total Polychlorinated biphenyls	EP066	0.1	mg/kg	----	1		----		<0.1		----		<0.1		<0.1	
EP068A: Organochlorine Pesticides (OC)																
Hexachlorobenzene (HCB)	EP068	0.05	mg/kg	----	10		----		<0.05		----		<0.05		<0.05	
Heptachlor	EP068	0.05	mg/kg	----	6		----		<0.05		----		<0.05		<0.05	
Endrin	EP068	0.05	mg/kg	----	10		----		<0.05		----		<0.05		<0.05	
Endosulfan (sum)	EP068	0.05	mg/kg	----	270		----		<0.05		----		<0.05		<0.05	
Methoxychlor	EP068	0.2	mg/kg	----	300		----		<0.2		----		<0.2		<0.2	
Mirex	EP068	0.20	mg/kg	----	10		----		<0.20		----		<0.20		<0.20	
Sum of Aldrin + Dieldrin	EP068	0.05	mg/kg	----	6		----		<0.05		----		<0.05		<0.05	
Sum of DDD + DDE + DDT	EP068	0.05	mg/kg	----	240		----		<0.05		----		<0.05		<0.05	
EP068B: Organophosphorus Pesticides (OP)																
Chlorpyrifos	EP068	0.05	mg/kg	----	160		----		<0.05		----		<0.05		<0.05	
EP068C: Triazines																
Atrazine	EP068	0.05	mg/kg	----	320		----		<0.05		----		<0.05		<0.05	
EP068D: Pyrethroids																

NEPM (2013) Table 1A - Schedule B1 Guideline on Investigation Levels for Soil and Groundwater - Health investigation levels
Health investigation levels for soil contaminants - Residential A: HIL A

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	TP05_0.0-0.15_241127	TP05_1.0-1.1_241127	TP05_2.0-2.1_241127	TP26_0.0-0.15_241127	TP26_1.0-1.1_241127
Sample ID										
Sampling date/time						27-Nov-2024 11:59	27-Nov-2024 12:10	27-Nov-2024 12:20	27-Nov-2024 09:50	27-Nov-2024 22:05
						EM2421131-001 MU	EM2421131-003 MU	EM2421131-004 MU	EM2421131-005 MU	EM2421131-007 MU
EP068D: Pyrethroids - Continued										
Bifenthrin	EP068	0.05	mg/kg	----	600	----	<0.05	----	<0.05	<0.05
EP075(SIM)A: Phenolic Compounds										
Phenol	EP075(SIM)	0.5	mg/kg	----	3000	----	<0.5	----	<0.5	<0.5
Pentachlorophenol	EP075(SIM)	2	mg/kg	----	100	----	<2	----	<2	<2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons										
Sum of polycyclic aromatic hydrocarbons	EP075(SIM)	0.5	mg/kg	----	300	<0.5	<0.5	----	<0.5	<0.5
Benzo(a)pyrene TEQ (zero)	EP075(SIM)	0.5	mg/kg	----	3	<0.5	<0.5	----	<0.5	<0.5
Benzo(a)pyrene TEQ (half LOR)	EP075(SIM)	0.5	mg/kg	----	3	**0.6**	**0.6**	----	**0.6**	**0.6**
Benzo(a)pyrene TEQ (LOR)	EP075(SIM)	0.5	mg/kg	----	3	**1.2**	**1.2**	----	**1.2**	**1.2**

NEPM (2013) Table 1A - Schedule B1 Guideline on Investigation Levels for Soil and Groundwater - Health investigation levels
Health investigation levels for soil contaminants - Residential B: HIL B

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	TP05_0.0-0.15_241127	TP05_1.0-1.1_241127	TP05_2.0-2.1_241127	TP26_0.0-0.15_241127	TP26_1.0-1.1_241127
Sample ID										
Sampling date/time						27-Nov-2024 11:59	27-Nov-2024 12:10	27-Nov-2024 12:20	27-Nov-2024 09:50	27-Nov-2024 22:05
						EM2421131-001 MU	EM2421131-003 MU	EM2421131-004 MU	EM2421131-005 MU	EM2421131-007 MU
EG005(ED093)T: Total Metals by ICP-AES										
Beryllium	EG005T	1	mg/kg	----	90	----	<1 --	----	<1 --	<1 --
Boron	EG005T	50	mg/kg	----	40000	----	<50 --	----	<50 --	<50 --
Cobalt	EG005T	2	mg/kg	----	600	----	**4** ± 0.6	----	**54** ± 6	**7** ± 0.8
Manganese	EG005T	5	mg/kg	----	14000	----	**125** ± 13	----	**345** ± 34	**93** ± 10
Selenium	EG005T	5	mg/kg	----	1400	----	<5 --	----	<5 --	<5 --
Arsenic	EG005T	5	mg/kg	----	500	<5 --	<5 --	----	<5 --	**17** ± 3
Cadmium	EG005T	1	mg/kg	----	150	<1 --	<1 --	----	<1 --	<1 --
Copper	EG005T	5	mg/kg	----	30000	**11** ± 1	**12** ± 2	----	**3750** ± 451	**90** ± 11
Lead	EG005T	5	mg/kg	----	1200	<5 --	**5** ± 0.9	----	**10** ± 1	**6** ± 1
Nickel	EG005T	2	mg/kg	----	1200	**7** ± 0.7	**9** ± 0.9	----	**5** ± 0.6	**7** ± 0.8
Zinc	EG005T	5	mg/kg	----	60000	**17** ± 3	**24** ± 4	----	**21** ± 3	**24** ± 4
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	120	<0.1 --	<0.1 --	----	<0.1 --	<0.1 --
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	500	----	<0.5 --	----	<0.5 --	<0.5 --
EP066: Polychlorinated Biphenyls (PCB)										
Total Polychlorinated biphenyls	EP066	0.1	mg/kg	----	1	----	<0.1	----	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)										
Hexachlorobenzene (HCB)	EP068	0.05	mg/kg	----	15	----	<0.05	----	<0.05	<0.05
Heptachlor	EP068	0.05	mg/kg	----	10	----	<0.05	----	<0.05	<0.05
Endrin	EP068	0.05	mg/kg	----	20	----	<0.05	----	<0.05	<0.05
Endosulfan (sum)	EP068	0.05	mg/kg	----	400	----	<0.05	----	<0.05	<0.05
Methoxychlor	EP068	0.2	mg/kg	----	500	----	<0.2	----	<0.2	<0.2
Mirex	EP068	0.20	mg/kg	----	20	----	<0.20	----	<0.20	<0.20
Sum of Aldrin + Dieldrin	EP068	0.05	mg/kg	----	10	----	<0.05	----	<0.05	<0.05
Sum of DDD + DDE + DDT	EP068	0.05	mg/kg	----	600	----	<0.05	----	<0.05	<0.05
EP068B: Organophosphorus Pesticides (OP)										
Chlorpyrifos	EP068	0.05	mg/kg	----	340	----	<0.05	----	<0.05	<0.05
EP068C: Triazines										
Atrazine	EP068	0.05	mg/kg	----	470	----	<0.05	----	<0.05	<0.05
EP068D: Pyrethroids										

NEPM (2013) Table 1A - Schedule B1 Guideline on Investigation Levels for Soil and Groundwater - Health investigation levels
Health investigation levels for soil contaminants - Residential B: HIL B

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	TP05_0.0-0.15_241127	TP05_1.0-1.1_241127	TP05_2.0-2.1_241127	TP26_0.0-0.15_241127	TP26_1.0-1.1_241127
Sample ID										
Sampling date/time						27-Nov-2024 11:59	27-Nov-2024 12:10	27-Nov-2024 12:20	27-Nov-2024 09:50	27-Nov-2024 22:05
						EM2421131-001 MU	EM2421131-003 MU	EM2421131-004 MU	EM2421131-005 MU	EM2421131-007 MU
EP068D: Pyrethroids - Continued										
Bifenthrin	EP068	0.05	mg/kg	----	840	----	<0.05	----	<0.05	<0.05
EP075(SIM)A: Phenolic Compounds										
Phenol	EP075(SIM)	0.5	mg/kg	----	45000	----	<0.5	----	<0.5	<0.5
Pentachlorophenol	EP075(SIM)	2	mg/kg	----	130	----	<2	----	<2	<2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons										
Sum of polycyclic aromatic hydrocarbons	EP075(SIM)	0.5	mg/kg	----	400	<0.5	<0.5	----	<0.5	<0.5
Benzo(a)pyrene TEQ (zero)	EP075(SIM)	0.5	mg/kg	----	4	<0.5	<0.5	----	<0.5	<0.5
Benzo(a)pyrene TEQ (half LOR)	EP075(SIM)	0.5	mg/kg	----	4	**0.6**	**0.6**	----	**0.6**	**0.6**
Benzo(a)pyrene TEQ (LOR)	EP075(SIM)	0.5	mg/kg	----	4	**1.2**	**1.2**	----	**1.2**	**1.2**

NEPM (2013) Table 1A - Schedule B1 Guideline on Investigation Levels for Soil and Groundwater - Health investigation levels
Health investigation levels for soil contaminants - Commercial / industrial D: HIL D

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	TP11_0.4-0.5_241127	TP11_1.0-1.1_241127	TP11_2.0-2.1_241127	QC101_241127	TP26_1.0-2.0_241127
Sample ID										
Sampling date/time						27-Nov-2024 11:05	27-Nov-2024 11:10	27-Nov-2024 11:15	27-Nov-2024 12:10	27-Nov-2024 10:07
						EM2421131-010 MU	EM2421131-011 MU	EM2421131-012 MU	EM2421131-013 MU	EM2421131-015 MU
EG005(ED093)T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	3000	<5 --	<5 --	----	<5 --	----
Beryllium	EG005T	1	mg/kg	----	500	<1 --	----	----	<1 --	----
Boron	EG005T	50	mg/kg	----	300000	<50 --	----	----	<50 --	----
Cadmium	EG005T	1	mg/kg	----	900	<1 --	<1 --	----	<1 --	----
Cobalt	EG005T	2	mg/kg	----	4000	<2 --	----	----	**4** ± 0.5	----
Copper	EG005T	5	mg/kg	----	240000	**6** ± 0.9	**76** ± 9	----	**12** ± 2	----
Lead	EG005T	5	mg/kg	----	1500	<5 --	<5 --	----	<5 --	----
Manganese	EG005T	5	mg/kg	----	60000	**20** ± 3	----	----	**104** ± 11	----
Nickel	EG005T	2	mg/kg	----	6000	<2 --	<2 --	----	**7** ± 0.8	----
Selenium	EG005T	5	mg/kg	----	10000	<5 --	----	----	<5 --	----
Zinc	EG005T	5	mg/kg	----	400000	<5 --	**6** ± 2	----	**19** ± 3	----
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	730	<0.1 --	<0.1 --	----	<0.1 --	----
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	3600	<0.5 --	----	----	<0.5 --	----
EP066: Polychlorinated Biphenyls (PCB)										
Total Polychlorinated biphenyls	EP066	0.1	mg/kg	----	7	<0.1	----	----	<0.1	----
EP068A: Organochlorine Pesticides (OC)										
Hexachlorobenzene (HCB)	EP068	0.05	mg/kg	----	80	<0.05	----	----	<0.05	----
Heptachlor	EP068	0.05	mg/kg	----	50	<0.05	----	----	<0.05	----
Endrin	EP068	0.05	mg/kg	----	100	<0.05	----	----	<0.05	----
Endosulfan (sum)	EP068	0.05	mg/kg	----	2000	<0.05	----	----	<0.05	----
Methoxychlor	EP068	0.2	mg/kg	----	2500	<0.2	----	----	<0.2	----
Mirex	EP068	0.20	mg/kg	----	100	<0.20	----	----	<0.20	----
Sum of Aldrin + Dieldrin	EP068	0.05	mg/kg	----	45	<0.05	----	----	<0.05	----
Sum of DDD + DDE + DDT	EP068	0.05	mg/kg	----	3600	<0.05	----	----	<0.05	----
EP068B: Organophosphorus Pesticides (OP)										
Chlorpyrifos	EP068	0.05	mg/kg	----	2000	<0.05	----	----	<0.05	----
EP068C: Triazines										
Atrazine	EP068	0.05	mg/kg	----	2500	<0.05	----	----	<0.05	----
EP068D: Pyrethroids										

NEPM (2013) Table 1A - Schedule B1 Guideline on Investigation Levels for Soil and Groundwater - Health investigation levels
Health investigation levels for soil contaminants - Commercial / industrial D: HIL D

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	*Sample ID* / *Sampling date/time*	Guideline Lower Limit	Guideline Upper Limit	TP11_0.4-0.5_241127 27-Nov-2024 11:05 EM2421131-010 MU	TP11_1.0-1.1_241127 27-Nov-2024 11:10 EM2421131-011 MU	TP11_2.0-2.1_241127 27-Nov-2024 11:15 EM2421131-012 MU	QC101_241127 27-Nov-2024 12:10 EM2421131-013 MU	TP26_1.0-2.0_241127 27-Nov-2024 10:07 EM2421131-015 MU
EP068D: Pyrethroids - Continued											
Bifenthrin	EP068	0.05	mg/kg		----	4500	<0.05	----	----	<0.05	----
EP075(SIM)A: Phenolic Compounds											
Phenol	EP075(SIM)	0.5	mg/kg		----	240000	<0.5	----	----	<0.5	----
Pentachlorophenol	EP075(SIM)	2	mg/kg		----	660	<2	----	----	<2	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons											
Sum of polycyclic aromatic hydrocarbons	EP075(SIM)	0.5	mg/kg		----	4000	<0.5	<0.5	----	<0.5	----
Benzo(a)pyrene TEQ (zero)	EP075(SIM)	0.5	mg/kg		----	40	<0.5	<0.5	----	<0.5	----
Benzo(a)pyrene TEQ (half LOR)	EP075(SIM)	0.5	mg/kg		----	40	**0.6**	**0.6**	----	**0.6**	----
Benzo(a)pyrene TEQ (LOR)	EP075(SIM)	0.5	mg/kg		----	40	**1.2**	**1.2**	----	**1.2**	----

NEPM (2013) Table 1A - Schedule B1 Guideline on Investigation Levels for Soil and Groundwater - Health investigation levels
Health investigation levels for soil contaminants - Recreational C: HIL C

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	TP11_0.4-0.5_241127	TP11_1.0-1.1_241127	TP11_2.0-2.1_241127	QC101_241127	TP26_1.0-2.0_241127
Sample ID										
Sampling date/time						27-Nov-2024 11:05	27-Nov-2024 11:10	27-Nov-2024 11:15	27-Nov-2024 12:10	27-Nov-2024 10:07
						EM2421131-010 MU	EM2421131-011 MU	EM2421131-012 MU	EM2421131-013 MU	EM2421131-015 MU
EG005(ED093)T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	300	<5 --	<5 --	----	<5 --	----
Beryllium	EG005T	1	mg/kg	----	90	<1 --	----	----	<1 --	----
Boron	EG005T	50	mg/kg	----	20000	<50 --	----	----	<50 --	----
Cadmium	EG005T	1	mg/kg	----	90	<1 --	<1 --	----	<1 --	----
Cobalt	EG005T	2	mg/kg	----	300	<2 --	----	----	**4** ± 0.5	----
Copper	EG005T	5	mg/kg	----	17000	**6** ± 0.9	**76** ± 9	----	**12** ± 2	----
Lead	EG005T	5	mg/kg	----	600	<5 --	<5 --	----	<5 --	----
Manganese	EG005T	5	mg/kg	----	19000	**20** ± 3	----	----	**104** ± 11	----
Nickel	EG005T	2	mg/kg	----	1200	<2 --	<2 --	----	**7** ± 0.8	----
Selenium	EG005T	5	mg/kg	----	700	<5 --	----	----	<5 --	----
Zinc	EG005T	5	mg/kg	----	30000	<5 --	**6** ± 2	----	**19** ± 3	----
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	80	<0.1 --	<0.1 --	----	<0.1 --	----
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	300	<0.5 --	----	----	<0.5 --	----
EP066: Polychlorinated Biphenyls (PCB)										
Total Polychlorinated biphenyls	EP066	0.1	mg/kg	----	1	<0.1	----	----	<0.1	----
EP068A: Organochlorine Pesticides (OC)										
Hexachlorobenzene (HCB)	EP068	0.05	mg/kg	----	10	<0.05	----	----	<0.05	----
Heptachlor	EP068	0.05	mg/kg	----	10	<0.05	----	----	<0.05	----
Endrin	EP068	0.05	mg/kg	----	20	<0.05	----	----	<0.05	----
Endosulfan (sum)	EP068	0.05	mg/kg	----	340	<0.05	----	----	<0.05	----
Methoxychlor	EP068	0.2	mg/kg	----	400	<0.2	----	----	<0.2	----
Mirex	EP068	0.20	mg/kg	----	20	<0.20	----	----	<0.20	----
Sum of Aldrin + Dieldrin	EP068	0.05	mg/kg	----	10	<0.05	----	----	<0.05	----
Sum of DDD + DDE + DDT	EP068	0.05	mg/kg	----	400	<0.05	----	----	<0.05	----
EP068B: Organophosphorus Pesticides (OP)										
Chlorpyrifos	EP068	0.05	mg/kg	----	250	<0.05	----	----	<0.05	----
EP068C: Triazines										
Atrazine	EP068	0.05	mg/kg	----	400	<0.05	----	----	<0.05	----
EP068D: Pyrethroids										

NEPM (2013) Table 1A - Schedule B1 Guideline on Investigation Levels for Soil and Groundwater - Health investigation levels
Health investigation levels for soil contaminants - Recreational C: HIL C

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	*Sample ID* / *Sampling date/time*	Guideline Lower Limit	Guideline Upper Limit	TP11_0.4-0.5_241127 27-Nov-2024 11:05 EM2421131-010 MU	TP11_1.0-1.1_241127 27-Nov-2024 11:10 EM2421131-011 MU	TP11_2.0-2.1_241127 27-Nov-2024 11:15 EM2421131-012 MU	QC101_241127 27-Nov-2024 12:10 EM2421131-013 MU	TP26_1.0-2.0_241127 27-Nov-2024 10:07 EM2421131-015 MU
EP068D: Pyrethroids - Continued											
Bifenthrin	EP068	0.05	mg/kg	----	730	<0.05	----	----	<0.05	----	
EP075(SIM)A: Phenolic Compounds											
Phenol	EP075(SIM)	0.5	mg/kg	----	40000	<0.5	----	----	<0.5	----	
Pentachlorophenol	EP075(SIM)	2	mg/kg	----	120	<2	----	----	<2	----	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons											
Sum of polycyclic aromatic hydrocarbons	EP075(SIM)	0.5	mg/kg	----	300	<0.5	<0.5	----	<0.5	----	
Benzo(a)pyrene TEQ (zero)	EP075(SIM)	0.5	mg/kg	----	3	<0.5	<0.5	----	<0.5	----	
Benzo(a)pyrene TEQ (half LOR)	EP075(SIM)	0.5	mg/kg	----	3	**0.6**	**0.6**	----	**0.6**	----	
Benzo(a)pyrene TEQ (LOR)	EP075(SIM)	0.5	mg/kg	----	3	**1.2**	**1.2**	----	**1.2**	----	

NEPM (2013) Table 1A - Schedule B1 Guideline on Investigation Levels for Soil and Groundwater - Health investigation levels
Health investigation levels for soil contaminants - Residential A: HIL A

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	TP11_0.4-0.5_241127	TP11_1.0-1.1_241127	TP11_2.0-2.1_241127	QC101_241127	TP26_1.0-2.0_241127
Sample ID										
Sampling date/time						27-Nov-2024 11:05	27-Nov-2024 11:10	27-Nov-2024 11:15	27-Nov-2024 12:10	27-Nov-2024 10:07
						EM2421131-010 MU	EM2421131-011 MU	EM2421131-012 MU	EM2421131-013 MU	EM2421131-015 MU
EG005(ED093)T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	100	<5 --	<5 --	----	<5 --	----
Beryllium	EG005T	1	mg/kg	----	60	<1 --	----	----	<1 --	----
Boron	EG005T	50	mg/kg	----	4500	<50 --	----	----	<50 --	----
Cadmium	EG005T	1	mg/kg	----	20	<1 --	<1 --	----	<1 --	----
Cobalt	EG005T	2	mg/kg	----	100	<2 --	----	----	**4** ± 0.5	----
Copper	EG005T	5	mg/kg	----	6000	**6** ± 0.9	**76** ± 9	----	**12** ± 2	----
Lead	EG005T	5	mg/kg	----	300	<5 --	<5 --	----	<5 --	----
Manganese	EG005T	5	mg/kg	----	3800	**20** ± 3	----	----	**104** ± 11	----
Nickel	EG005T	2	mg/kg	----	400	<2 --	<2 --	----	**7** ± 0.8	----
Selenium	EG005T	5	mg/kg	----	200	<5 --	----	----	<5 --	----
Zinc	EG005T	5	mg/kg	----	7400	<5 --	**6** ± 2	----	**19** ± 3	----
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	40	<0.1 --	<0.1 --	----	<0.1 --	----
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	100	<0.5 --	----	----	<0.5 --	----
EP066: Polychlorinated Biphenyls (PCB)										
Total Polychlorinated biphenyls	EP066	0.1	mg/kg	----	1	<0.1	----	----	<0.1	----
EP068A: Organochlorine Pesticides (OC)										
Hexachlorobenzene (HCB)	EP068	0.05	mg/kg	----	10	<0.05	----	----	<0.05	----
Heptachlor	EP068	0.05	mg/kg	----	6	<0.05	----	----	<0.05	----
Endrin	EP068	0.05	mg/kg	----	10	<0.05	----	----	<0.05	----
Endosulfan (sum)	EP068	0.05	mg/kg	----	270	<0.05	----	----	<0.05	----
Methoxychlor	EP068	0.2	mg/kg	----	300	<0.2	----	----	<0.2	----
Mirex	EP068	0.20	mg/kg	----	10	<0.20	----	----	<0.20	----
Sum of Aldrin + Dieldrin	EP068	0.05	mg/kg	----	6	<0.05	----	----	<0.05	----
Sum of DDD + DDE + DDT	EP068	0.05	mg/kg	----	240	<0.05	----	----	<0.05	----
EP068B: Organophosphorus Pesticides (OP)										
Chlorpyrifos	EP068	0.05	mg/kg	----	160	<0.05	----	----	<0.05	----
EP068C: Triazines										
Atrazine	EP068	0.05	mg/kg	----	320	<0.05	----	----	<0.05	----
EP068D: Pyrethroids										

NEPM (2013) Table 1A - Schedule B1 Guideline on Investigation Levels for Soil and Groundwater - Health investigation levels
Health investigation levels for soil contaminants - Residential A: HIL A

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	*Sample ID* / *Sampling date/time*	TP11_0.4-0.5_241127 27-Nov-2024 11:05 EM2421131-010 MU	TP11_1.0-1.1_241127 27-Nov-2024 11:10 EM2421131-011 MU	TP11_2.0-2.1_241127 27-Nov-2024 11:15 EM2421131-012 MU	QC101_241127 27-Nov-2024 12:10 EM2421131-013 MU	TP26_1.0-2.0_241127 27-Nov-2024 10:07 EM2421131-015 MU
EP068D: Pyrethroids - Continued											
Bifenthrin	EP068	0.05	mg/kg	----	600		<0.05	----	----	<0.05	----
EP075(SIM)A: Phenolic Compounds											
Phenol	EP075(SIM)	0.5	mg/kg	----	3000		<0.5	----	----	<0.5	----
Pentachlorophenol	EP075(SIM)	2	mg/kg	----	100		<2	----	----	<2	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons											
Sum of polycyclic aromatic hydrocarbons	EP075(SIM)	0.5	mg/kg	----	300		<0.5	<0.5	----	<0.5	----
Benzo(a)pyrene TEQ (zero)	EP075(SIM)	0.5	mg/kg	----	3		<0.5	<0.5	----	<0.5	----
Benzo(a)pyrene TEQ (half LOR)	EP075(SIM)	0.5	mg/kg	----	3		**0.6**	**0.6**	----	**0.6**	----
Benzo(a)pyrene TEQ (LOR)	EP075(SIM)	0.5	mg/kg	----	3		**1.2**	**1.2**	----	**1.2**	----

NEPM (2013) Table 1A - Schedule B1 Guideline on Investigation Levels for Soil and Groundwater - Health investigation levels
Health investigation levels for soil contaminants - Residential B: HIL B

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	TP11_0.4-0.5_241127	TP11_1.0-1.1_241127	TP11_2.0-2.1_241127	QC101_241127	TP26_1.0-2.0_241127
Sampling date/time						27-Nov-2024 11:05	27-Nov-2024 11:10	27-Nov-2024 11:15	27-Nov-2024 12:10	27-Nov-2024 10:07
Sample ID						EM2421131-010 MU	EM2421131-011 MU	EM2421131-012 MU	EM2421131-013 MU	EM2421131-015 MU
EG005(ED093)T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	500	<5 --	<5 --	----	<5 --	----
Beryllium	EG005T	1	mg/kg	----	90	<1 --	----	----	<1 --	----
Boron	EG005T	50	mg/kg	----	40000	<50 --	----	----	<50 --	----
Cadmium	EG005T	1	mg/kg	----	150	<1 --	<1 --	----	<1 --	----
Cobalt	EG005T	2	mg/kg	----	600	<2 --	----	----	**4** ± 0.5	----
Copper	EG005T	5	mg/kg	----	30000	**6** ± 0.9	**76** ± 9	----	**12** ± 2	----
Lead	EG005T	5	mg/kg	----	1200	<5 --	<5 --	----	<5 --	----
Manganese	EG005T	5	mg/kg	----	14000	**20** ± 3	----	----	**104** ± 11	----
Nickel	EG005T	2	mg/kg	----	1200	<2 --	<2 --	----	**7** ± 0.8	----
Selenium	EG005T	5	mg/kg	----	1400	<5 --	----	----	<5 --	----
Zinc	EG005T	5	mg/kg	----	60000	<5 --	**6** ± 2	----	**19** ± 3	----
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	120	<0.1 --	<0.1 --	----	<0.1 --	----
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	500	<0.5 --	----	----	<0.5 --	----
EP066: Polychlorinated Biphenyls (PCB)										
Total Polychlorinated biphenyls	EP066	0.1	mg/kg	----	1	<0.1	----	----	<0.1	----
EP068A: Organochlorine Pesticides (OC)										
Hexachlorobenzene (HCB)	EP068	0.05	mg/kg	----	15	<0.05	----	----	<0.05	----
Heptachlor	EP068	0.05	mg/kg	----	10	<0.05	----	----	<0.05	----
Endrin	EP068	0.05	mg/kg	----	20	<0.05	----	----	<0.05	----
Endosulfan (sum)	EP068	0.05	mg/kg	----	400	<0.05	----	----	<0.05	----
Methoxychlor	EP068	0.2	mg/kg	----	500	<0.2	----	----	<0.2	----
Mirex	EP068	0.20	mg/kg	----	20	<0.20	----	----	<0.20	----
Sum of Aldrin + Dieldrin	EP068	0.05	mg/kg	----	10	<0.05	----	----	<0.05	----
Sum of DDD + DDE + DDT	EP068	0.05	mg/kg	----	600	<0.05	----	----	<0.05	----
EP068B: Organophosphorus Pesticides (OP)										
Chlorpyrifos	EP068	0.05	mg/kg	----	340	<0.05	----	----	<0.05	----
EP068C: Triazines										
Atrazine	EP068	0.05	mg/kg	----	470	<0.05	----	----	<0.05	----
EP068D: Pyrethroids										

NEPM (2013) Table 1A - Schedule B1 Guideline on Investigation Levels for Soil and Groundwater - Health investigation levels
Health investigation levels for soil contaminants - Residential B: HIL B

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	TP11_0.4-0.5_241127	TP11_1.0-1.1_241127	TP11_2.0-2.1_241127	QC101_241127	TP26_1.0-2.0_241127
Sample ID										
Sampling date/time						27-Nov-2024 11:05	27-Nov-2024 11:10	27-Nov-2024 11:15	27-Nov-2024 12:10	27-Nov-2024 10:07
						EM2421131-010 MU	EM2421131-011 MU	EM2421131-012 MU	EM2421131-013 MU	EM2421131-015 MU
EP068D: Pyrethroids - Continued										
Bifenthrin	EP068	0.05	mg/kg	----	840	<0.05	----	----	<0.05	----
EP075(SIM)A: Phenolic Compounds										
Phenol	EP075(SIM)	0.5	mg/kg	----	45000	<0.5	----	----	<0.5	----
Pentachlorophenol	EP075(SIM)	2	mg/kg	----	130	<2	----	----	<2	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons										
Sum of polycyclic aromatic hydrocarbons	EP075(SIM)	0.5	mg/kg	----	400	<0.5	<0.5	----	<0.5	----
Benzo(a)pyrene TEQ (zero)	EP075(SIM)	0.5	mg/kg	----	4	<0.5	<0.5	----	<0.5	----
Benzo(a)pyrene TEQ (half LOR)	EP075(SIM)	0.5	mg/kg	----	4	**0.6**	**0.6**	----	**0.6**	----
Benzo(a)pyrene TEQ (LOR)	EP075(SIM)	0.5	mg/kg	----	4	**1.2**	**1.2**	----	**1.2**	----

NEPM (2013) Table 1A - Schedule B1 Guideline on Investigation Levels for Soil and Groundwater - Health investigation levels
Health investigation levels for soil contaminants - Commercial / industrial D: HIL D

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	TP26_0.3-1.0_241127	TP06_0.0-0.15_241127	TP06_0.4-0.5_241127	TP06_1.0-1.1_241127	TP06_1.0-1.6_241127
Sample ID										
Sampling date/time						27-Nov-2024 22:00	27-Nov-2024 15:30	27-Nov-2024 15:35	27-Nov-2024 15:40	27-Nov-2024 15:43
						EM2421131-016 MU	EM2421131-017 MU	EM2421131-018 MU	EM2421131-019 MU	EM2421131-021 MU
EG005(ED093)T: Total Metals by ICP-AES										
Beryllium	EG005T	1	mg/kg	----	500	----	----	----	**1** ± 0.2	----
Boron	EG005T	50	mg/kg	----	300000	----	----	----	<50 --	----
Cobalt	EG005T	2	mg/kg	----	4000	----	----	----	**10** ± 1	----
Manganese	EG005T	5	mg/kg	----	60000	----	----	----	**300** ± 30	----
Selenium	EG005T	5	mg/kg	----	10000	----	----	----	<5 --	----
Arsenic	EG005T	5	mg/kg	----	3000	----	<5 --	----	**13** ± 2	----
Cadmium	EG005T	1	mg/kg	----	900	----	<1 --	----	<1 --	----
Copper	EG005T	5	mg/kg	----	240000	----	**1020** ± 122	----	**862** ± 104	----
Lead	EG005T	5	mg/kg	----	1500	----	**5** ± 1.0	----	**22** ± 2	----
Nickel	EG005T	2	mg/kg	----	6000	----	**5** ± 0.6	----	**5** ± 0.6	----
Zinc	EG005T	5	mg/kg	----	400000	----	**19** ± 3	----	**18** ± 3	----
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	730	----	<0.1 --	----	<0.1 --	----
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	3600	----	----	----	<0.5 --	----
EP066: Polychlorinated Biphenyls (PCB)										
Total Polychlorinated biphenyls	EP066	0.1	mg/kg	----	7	----	----	----	<0.1	----
EP068A: Organochlorine Pesticides (OC)										
Hexachlorobenzene (HCB)	EP068	0.05	mg/kg	----	80	----	----	----	<0.05	----
Heptachlor	EP068	0.05	mg/kg	----	50	----	----	----	<0.05	----
Endrin	EP068	0.05	mg/kg	----	100	----	----	----	<0.05	----
Endosulfan (sum)	EP068	0.05	mg/kg	----	2000	----	----	----	<0.05	----
Methoxychlor	EP068	0.2	mg/kg	----	2500	----	----	----	<0.2	----
Mirex	EP068	0.20	mg/kg	----	100	----	----	----	<0.20	----
Sum of Aldrin + Dieldrin	EP068	0.05	mg/kg	----	45	----	----	----	<0.05	----
Sum of DDD + DDE + DDT	EP068	0.05	mg/kg	----	3600	----	----	----	<0.05	----
EP068B: Organophosphorus Pesticides (OP)										
Chlorpyrifos	EP068	0.05	mg/kg	----	2000	----	----	----	<0.05	----
EP068C: Triazines										
Atrazine	EP068	0.05	mg/kg	----	2500	----	----	----	<0.05	----
EP068D: Pyrethroids										

NEPM (2013) Table 1A - Schedule B1 Guideline on Investigation Levels for Soil and Groundwater - Health investigation levels
Health investigation levels for soil contaminants - Commercial / industrial D: HIL D

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	TP26_0.3-1.0_241127	TP06_0.0-0.15_241127	TP06_0.4-0.5_241127	TP06_1.0-1.1_241127	TP06_1.0-1.6_241127
Sample ID										
Sampling date/time						27-Nov-2024 22:00	27-Nov-2024 15:30	27-Nov-2024 15:35	27-Nov-2024 15:40	27-Nov-2024 15:43
						EM2421131-016 MU	EM2421131-017 MU	EM2421131-018 MU	EM2421131-019 MU	EM2421131-021 MU
EP068D: Pyrethroids - Continued										
Bifenthrin	EP068	0.05	mg/kg	----	4500	----	----	----	<0.05	----
EP075(SIM)A: Phenolic Compounds										
Phenol	EP075(SIM)	0.5	mg/kg	----	240000	----	----	----	<0.5	----
Pentachlorophenol	EP075(SIM)	2	mg/kg	----	660	----	----	----	<2	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons										
Sum of polycyclic aromatic hydrocarbons	EP075(SIM)	0.5	mg/kg	----	4000	----	<0.5	----	<0.5	----
Benzo(a)pyrene TEQ (zero)	EP075(SIM)	0.5	mg/kg	----	40	----	<0.5	----	<0.5	----
Benzo(a)pyrene TEQ (half LOR)	EP075(SIM)	0.5	mg/kg	----	40	----	**0.6**	----	**0.6**	----
Benzo(a)pyrene TEQ (LOR)	EP075(SIM)	0.5	mg/kg	----	40	----	**1.2**	----	**1.2**	----

NEPM (2013) Table 1A - Schedule B1 Guideline on Investigation Levels for Soil and Groundwater - Health investigation levels
Health investigation levels for soil contaminants - Recreational C: HIL C

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	TP26_0.3-1.0_241127	TP06_0.0-0.15_241127	TP06_0.4-0.5_241127	TP06_1.0-1.1_241127	TP06_1.0-1.6_241127
Sample ID										
Sampling date/time						27-Nov-2024 22:00	27-Nov-2024 15:30	27-Nov-2024 15:35	27-Nov-2024 15:40	27-Nov-2024 15:43
						EM2421131-016 MU	EM2421131-017 MU	EM2421131-018 MU	EM2421131-019 MU	EM2421131-021 MU
EG005(ED093)T: Total Metals by ICP-AES										
Beryllium	EG005T	1	mg/kg	----	90	----	----	----	**1** ± 0.2	----
Boron	EG005T	50	mg/kg	----	20000	----	----	----	<50 --	----
Cobalt	EG005T	2	mg/kg	----	300	----	----	----	**10** ± 1	----
Manganese	EG005T	5	mg/kg	----	19000	----	----	----	**300** ± 30	----
Selenium	EG005T	5	mg/kg	----	700	----	----	----	<5 --	----
Arsenic	EG005T	5	mg/kg	----	300	----	<5 --	----	**13** ± 2	----
Cadmium	EG005T	1	mg/kg	----	90	----	<1 --	----	<1 --	----
Copper	EG005T	5	mg/kg	----	17000	----	**1020** ± 122	----	**862** ± 104	----
Lead	EG005T	5	mg/kg	----	600	----	**5** ± 1.0	----	**22** ± 2	----
Nickel	EG005T	2	mg/kg	----	1200	----	**5** ± 0.6	----	**5** ± 0.6	----
Zinc	EG005T	5	mg/kg	----	30000	----	**19** ± 3	----	**18** ± 3	----
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	80	----	<0.1 --	----	<0.1 --	----
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	300	----	----	----	<0.5 --	----
EP066: Polychlorinated Biphenyls (PCB)										
Total Polychlorinated biphenyls	EP066	0.1	mg/kg	----	1	----	----	----	<0.1	----
EP068A: Organochlorine Pesticides (OC)										
Hexachlorobenzene (HCB)	EP068	0.05	mg/kg	----	10	----	----	----	<0.05	----
Heptachlor	EP068	0.05	mg/kg	----	10	----	----	----	<0.05	----
Endrin	EP068	0.05	mg/kg	----	20	----	----	----	<0.05	----
Endosulfan (sum)	EP068	0.05	mg/kg	----	340	----	----	----	<0.05	----
Methoxychlor	EP068	0.2	mg/kg	----	400	----	----	----	<0.2	----
Mirex	EP068	0.20	mg/kg	----	20	----	----	----	<0.20	----
Sum of Aldrin + Dieldrin	EP068	0.05	mg/kg	----	10	----	----	----	<0.05	----
Sum of DDD + DDE + DDT	EP068	0.05	mg/kg	----	400	----	----	----	<0.05	----
EP068B: Organophosphorus Pesticides (OP)										
Chlorpyrifos	EP068	0.05	mg/kg	----	250	----	----	----	<0.05	----
EP068C: Triazines										
Atrazine	EP068	0.05	mg/kg	----	400	----	----	----	<0.05	----
EP068D: Pyrethroids										

NEPM (2013) Table 1A - Schedule B1 Guideline on Investigation Levels for Soil and Groundwater - Health investigation levels
Health investigation levels for soil contaminants - Recreational C: HIL C

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	TP26_0.3-1.0_241127	TP06_0.0-0.15_241127	TP06_0.4-0.5_241127	TP06_1.0-1.1_241127	TP06_1.0-1.6_241127
Sample ID										
Sampling date/time						27-Nov-2024 22:00	27-Nov-2024 15:30	27-Nov-2024 15:35	27-Nov-2024 15:40	27-Nov-2024 15:43
						EM2421131-016 MU	EM2421131-017 MU	EM2421131-018 MU	EM2421131-019 MU	EM2421131-021 MU
EP068D: Pyrethroids - Continued										
Bifenthrin	EP068	0.05	mg/kg	----	730	----	----	----	<0.05	----
EP075(SIM)A: Phenolic Compounds										
Phenol	EP075(SIM)	0.5	mg/kg	----	40000	----	----	----	<0.5	----
Pentachlorophenol	EP075(SIM)	2	mg/kg	----	120	----	----	----	<2	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons										
Sum of polycyclic aromatic hydrocarbons	EP075(SIM)	0.5	mg/kg	----	300	----	<0.5	----	<0.5	----
Benzo(a)pyrene TEQ (zero)	EP075(SIM)	0.5	mg/kg	----	3	----	<0.5	----	<0.5	----
Benzo(a)pyrene TEQ (half LOR)	EP075(SIM)	0.5	mg/kg	----	3	----	**0.6**	----	**0.6**	----
Benzo(a)pyrene TEQ (LOR)	EP075(SIM)	0.5	mg/kg	----	3	----	**1.2**	----	**1.2**	----

NEPM (2013) Table 1A - Schedule B1 Guideline on Investigation Levels for Soil and Groundwater - Health investigation levels
Health investigation levels for soil contaminants - Residential A: HIL A

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	TP26_0.3-1.0_241127 (Sample ID)	TP06_0.0-0.15_241127 (Sample ID)	TP06_0.4-0.5_241127 (Sample ID)	TP06_1.0-1.1_241127 (Sample ID)	TP06_1.0-1.6_241127 (Sample ID)
						27-Nov-2024 22:00 (Sampling date/time)	27-Nov-2024 15:30 (Sampling date/time)	27-Nov-2024 15:35 (Sampling date/time)	27-Nov-2024 15:40 (Sampling date/time)	27-Nov-2024 15:43 (Sampling date/time)
						EM2421131-016 MU	EM2421131-017 MU	EM2421131-018 MU	EM2421131-019 MU	EM2421131-021 MU
EG005(ED093)T: Total Metals by ICP-AES										
Beryllium	EG005T	1	mg/kg	----	60	----	----	----	**1** ± 0.2	----
Boron	EG005T	50	mg/kg	----	4500	----	----	----	<50 --	----
Cobalt	EG005T	2	mg/kg	----	100	----	----	----	**10** ± 1	----
Manganese	EG005T	5	mg/kg	----	3800	----	----	----	**300** ± 30	----
Selenium	EG005T	5	mg/kg	----	200	----	----	----	<5 --	----
Arsenic	EG005T	5	mg/kg	----	100	----	<5 --	----	**13** ± 2	----
Cadmium	EG005T	1	mg/kg	----	20	----	<1 --	----	<1 --	----
Copper	EG005T	5	mg/kg	----	6000	----	**1020** ± 122	----	**862** ± 104	----
Lead	EG005T	5	mg/kg	----	300	----	**5** ± 1.0	----	**22** ± 2	----
Nickel	EG005T	2	mg/kg	----	400	----	**5** ± 0.6	----	**5** ± 0.6	----
Zinc	EG005T	5	mg/kg	----	7400	----	**19** ± 3	----	**18** ± 3	----
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	40	----	<0.1 --	----	<0.1 --	----
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	100	----	----	----	<0.5 --	----
EP066: Polychlorinated Biphenyls (PCB)										
Total Polychlorinated biphenyls	EP066	0.1	mg/kg	----	1	----	----	----	<0.1	----
EP068A: Organochlorine Pesticides (OC)										
Hexachlorobenzene (HCB)	EP068	0.05	mg/kg	----	10	----	----	----	<0.05	----
Heptachlor	EP068	0.05	mg/kg	----	6	----	----	----	<0.05	----
Endrin	EP068	0.05	mg/kg	----	10	----	----	----	<0.05	----
Endosulfan (sum)	EP068	0.05	mg/kg	----	270	----	----	----	<0.05	----
Methoxychlor	EP068	0.2	mg/kg	----	300	----	----	----	<0.2	----
Mirex	EP068	0.20	mg/kg	----	10	----	----	----	<0.20	----
Sum of Aldrin + Dieldrin	EP068	0.05	mg/kg	----	6	----	----	----	<0.05	----
Sum of DDD + DDE + DDT	EP068	0.05	mg/kg	----	240	----	----	----	<0.05	----
EP068B: Organophosphorus Pesticides (OP)										
Chlorpyrifos	EP068	0.05	mg/kg	----	160	----	----	----	<0.05	----
EP068C: Triazines										
Atrazine	EP068	0.05	mg/kg	----	320	----	----	----	<0.05	----
EP068D: Pyrethroids										

NEPM (2013) Table 1A - Schedule B1 Guideline on Investigation Levels for Soil and Groundwater - Health investigation levels
Health investigation levels for soil contaminants - Residential A: HIL A

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	*Sample ID* / *Sampling date/time* TP26_0.3-1.0_241127 27-Nov-2024 22:00 EM2421131-016 MU	TP06_0.0-0.15_241127 27-Nov-2024 15:30 EM2421131-017 MU	TP06_0.4-0.5_241127 27-Nov-2024 15:35 EM2421131-018 MU	TP06_1.0-1.1_241127 27-Nov-2024 15:40 EM2421131-019 MU	TP06_1.0-1.6_241127 27-Nov-2024 15:43 EM2421131-021 MU
EP068D: Pyrethroids - Continued										
Bifenthrin	EP068	0.05	mg/kg	----	600	----	----	----	<0.05	----
EP075(SIM)A: Phenolic Compounds										
Phenol	EP075(SIM)	0.5	mg/kg	----	3000	----	----	----	<0.5	----
Pentachlorophenol	EP075(SIM)	2	mg/kg	----	100	----	----	----	<2	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons										
Sum of polycyclic aromatic hydrocarbons	EP075(SIM)	0.5	mg/kg	----	300	----	<0.5	----	<0.5	----
Benzo(a)pyrene TEQ (zero)	EP075(SIM)	0.5	mg/kg	----	3	----	<0.5	----	<0.5	----
Benzo(a)pyrene TEQ (half LOR)	EP075(SIM)	0.5	mg/kg	----	3	----	**0.6**	----	**0.6**	----
Benzo(a)pyrene TEQ (LOR)	EP075(SIM)	0.5	mg/kg	----	3	----	**1.2**	----	**1.2**	----

NEPM (2013) Table 1A - Schedule B1 Guideline on Investigation Levels for Soil and Groundwater - Health investigation levels
Health investigation levels for soil contaminants - Residential B: HIL B

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	TP26_0.3-1.0_241127 (Sample ID) / 27-Nov-2024 22:00 (Sampling date/time) / EM2421131-016	MU	TP06_0.0-0.15_241127 / 27-Nov-2024 15:30 / EM2421131-017	MU	TP06_0.4-0.5_241127 / 27-Nov-2024 15:35 / EM2421131-018	MU	TP06_1.0-1.1_241127 / 27-Nov-2024 15:40 / EM2421131-019	MU	TP06_1.0-1.6_241127 / 27-Nov-2024 15:43 / EM2421131-021	MU
EG005(ED093)T: Total Metals by ICP-AES															
Beryllium	EG005T	1	mg/kg	----	90	----		----		----		**1**	± 0.2	----	
Boron	EG005T	50	mg/kg	----	40000	----		----		----		<50	- -	----	
Cobalt	EG005T	2	mg/kg	----	600	----		----		----		**10**	± 1	----	
Manganese	EG005T	5	mg/kg	----	14000	----		----		----		**300**	± 30	----	
Selenium	EG005T	5	mg/kg	----	1400	----		----		----		<5	- -	----	
Arsenic	EG005T	5	mg/kg	----	500	----		<5	- -	----		**13**	± 2	----	
Cadmium	EG005T	1	mg/kg	----	150	----		<1	- -	----		<1	- -	----	
Copper	EG005T	5	mg/kg	----	30000	----		**1020**	± 122	----		**862**	± 104	----	
Lead	EG005T	5	mg/kg	----	1200	----		**5**	± 1.0	----		**22**	± 2	----	
Nickel	EG005T	2	mg/kg	----	1200	----		**5**	± 0.6	----		**5**	± 0.6	----	
Zinc	EG005T	5	mg/kg	----	60000	----		**19**	± 3	----		**18**	± 3	----	
EG035T: Total Recoverable Mercury by FIMS															
Mercury	EG035T	0.1	mg/kg	----	120	----		<0.1	- -	----		<0.1	- -	----	
EG048: Hexavalent Chromium (Alkaline Digest)															
Hexavalent Chromium	EG048G	0.5	mg/kg	----	500	----		----		----		<0.5	- -	----	
EP066: Polychlorinated Biphenyls (PCB)															
Total Polychlorinated biphenyls	EP066	0.1	mg/kg	----	1	----		----		----		<0.1		----	
EP068A: Organochlorine Pesticides (OC)															
Hexachlorobenzene (HCB)	EP068	0.05	mg/kg	----	15	----		----		----		<0.05		----	
Heptachlor	EP068	0.05	mg/kg	----	10	----		----		----		<0.05		----	
Endrin	EP068	0.05	mg/kg	----	20	----		----		----		<0.05		----	
Endosulfan (sum)	EP068	0.05	mg/kg	----	400	----		----		----		<0.05		----	
Methoxychlor	EP068	0.2	mg/kg	----	500	----		----		----		<0.2		----	
Mirex	EP068	0.20	mg/kg	----	20	----		----		----		<0.20		----	
Sum of Aldrin + Dieldrin	EP068	0.05	mg/kg	----	10	----		----		----		<0.05		----	
Sum of DDD + DDE + DDT	EP068	0.05	mg/kg	----	600	----		----		----		<0.05		----	
EP068B: Organophosphorus Pesticides (OP)															
Chlorpyrifos	EP068	0.05	mg/kg	----	340	----		----		----		<0.05		----	
EP068C: Triazines															
Atrazine	EP068	0.05	mg/kg	----	470	----		----		----		<0.05		----	
EP068D: Pyrethroids															

NEPM (2013) Table 1A - Schedule B1 Guideline on Investigation Levels for Soil and Groundwater - Health investigation levels
Health investigation levels for soil contaminants - Residential B: HIL B

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	*Sample ID* / *Sampling date/time* TP26_0.3-1.0_241127 27-Nov-2024 22:00 EM2421131-016 MU	TP06_0.0-0.15_241127 27-Nov-2024 15:30 EM2421131-017 MU	TP06_0.4-0.5_241127 27-Nov-2024 15:35 EM2421131-018 MU	TP06_1.0-1.1_241127 27-Nov-2024 15:40 EM2421131-019 MU	TP06_1.0-1.6_241127 27-Nov-2024 15:43 EM2421131-021 MU
EP068D: Pyrethroids - Continued										
Bifenthrin	EP068	0.05	mg/kg	----	840	----	----	----	<0.05	----
EP075(SIM)A: Phenolic Compounds										
Phenol	EP075(SIM)	0.5	mg/kg	----	45000	----	----	----	<0.5	----
Pentachlorophenol	EP075(SIM)	2	mg/kg	----	130	----	----	----	<2	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons										
Sum of polycyclic aromatic hydrocarbons	EP075(SIM)	0.5	mg/kg	----	400	----	<0.5	----	<0.5	----
Benzo(a)pyrene TEQ (zero)	EP075(SIM)	0.5	mg/kg	----	4	----	<0.5	----	<0.5	----
Benzo(a)pyrene TEQ (half LOR)	EP075(SIM)	0.5	mg/kg	----	4	----	**0.6**	----	**0.6**	----
Benzo(a)pyrene TEQ (LOR)	EP075(SIM)	0.5	mg/kg	----	4	----	**1.2**	----	**1.2**	----

NEPM (2013) Table 1A - Schedule B1 Guideline on Investigation Levels for Soil and Groundwater - Health investigation levels
Health investigation levels for soil contaminants - Commercial / industrial D: HIL D

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	*Sample ID*	Guideline Lower Limit	Guideline Upper Limit	QC602_241128	QC401_241128	Trip Spike Control	----	----
				Sampling date/time			28-Nov-2024 07:15	28-Nov-2024 07:15	28-Nov-2024 15:00	----	----
							EM2421131-022 MU	EM2421131-023 MU	EM2421131-024 MU		
EG005(ED093)T: Total Metals by ICP-AES											
Arsenic	EG005T	5	mg/kg		----	----	----	----	----	----	----
Beryllium	EG005T	1	mg/kg		----	----	----	----	----	----	----
Boron	EG005T	50	mg/kg		----	----	----	----	----	----	----
Cadmium	EG005T	1	mg/kg		----	----	----	----	----	----	----
Cobalt	EG005T	2	mg/kg		----	----	----	----	----	----	----
Copper	EG005T	5	mg/kg		----	----	----	----	----	----	----
Lead	EG005T	5	mg/kg		----	----	----	----	----	----	----
Manganese	EG005T	5	mg/kg		----	----	----	----	----	----	----
Nickel	EG005T	2	mg/kg		----	----	----	----	----	----	----
Selenium	EG005T	5	mg/kg		----	----	----	----	----	----	----
Zinc	EG005T	5	mg/kg		----	----	----	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS											
Mercury	EG035T	0.1	mg/kg		----	----	----	----	----	----	----
EG048: Hexavalent Chromium (Alkaline Digest)											
Hexavalent Chromium	EG048G	0.5	mg/kg		----	----	----	----	----	----	----
EP066: Polychlorinated Biphenyls (PCB)											
Total Polychlorinated biphenyls	EP066	0.1	mg/kg		----	----	----	----	----	----	----
EP068A: Organochlorine Pesticides (OC)											
Endosulfan (sum)	EP068	0.05	mg/kg		----	----	----	----	----	----	----
Endrin	EP068	0.05	mg/kg		----	----	----	----	----	----	----
Heptachlor	EP068	0.05	mg/kg		----	----	----	----	----	----	----
Hexachlorobenzene (HCB)	EP068	0.05	mg/kg		----	----	----	----	----	----	----
Methoxychlor	EP068	0.2	mg/kg		----	----	----	----	----	----	----
Mirex	EP068	0.20	mg/kg		----	----	----	----	----	----	----
Sum of Aldrin + Dieldrin	EP068	0.05	mg/kg		----	----	----	----	----	----	----
Sum of DDD + DDE + DDT	EP068	0.05	mg/kg		----	----	----	----	----	----	----
EP068B: Organophosphorus Pesticides (OP)											
Chlorpyrifos	EP068	0.05	mg/kg		----	----	----	----	----	----	----
EP068C: Triazines											
Atrazine	EP068	0.05	mg/kg		----	----	----	----	----	----	----
EP068D: Pyrethroids											
Bifenthrin	EP068	0.05	mg/kg		----	----	----	----	----	----	----
EP075(SIM)A: Phenolic Compounds											

NEPM (2013) Table 1A - Schedule B1 Guideline on Investigation Levels for Soil and Groundwater - Health investigation levels
Health investigation levels for soil contaminants - Commercial / industrial D: HIL D

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	*Sample ID* / *Sampling date/time*	Guideline Lower Limit	Guideline Upper Limit	QC602_241128 28-Nov-2024 07:15 EM2421131-022 MU	QC401_241128 28-Nov-2024 07:15 EM2421131-023 MU	Trip Spike Control 28-Nov-2024 15:00 EM2421131-024 MU	---- ----	---- ----
EP075(SIM)A: Phenolic Compounds - Continued											
Pentachlorophenol	EP075(SIM)	2	mg/kg	----	----	----	----	----	----	----	----
Phenol	EP075(SIM)	0.5	mg/kg	----	----	----	----	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons											
Benzo(a)pyrene TEQ (half LOR)	EP075(SIM)	0.5	mg/kg	----	----	----	----	----	----	----	----
Benzo(a)pyrene TEQ (LOR)	EP075(SIM)	0.5	mg/kg	----	----	----	----	----	----	----	----
Benzo(a)pyrene TEQ (zero)	EP075(SIM)	0.5	mg/kg	----	----	----	----	----	----	----	----
Sum of polycyclic aromatic hydrocarbons	EP075(SIM)	0.5	mg/kg	----	----	----	----	----	----	----	----

NEPM (2013) Table 1A - Schedule B1 Guideline on Investigation Levels for Soil and Groundwater - Health investigation levels
Health investigation levels for soil contaminants - Recreational C: HIL C

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	*Sample ID* / *Sampling date/time*	Guideline Lower Limit	Guideline Upper Limit	QC602_241128 28-Nov-2024 07:15 EM2421131-022 MU	QC401_241128 28-Nov-2024 07:15 EM2421131-023 MU	Trip Spike Control 28-Nov-2024 15:00 EM2421131-024 MU	---- ----	---- ----
EG005(ED093)T: Total Metals by ICP-AES											
Arsenic	EG005T	5	mg/kg		----	----	----	----	----	----	----
Beryllium	EG005T	1	mg/kg		----	----	----	----	----	----	----
Boron	EG005T	50	mg/kg		----	----	----	----	----	----	----
Cadmium	EG005T	1	mg/kg		----	----	----	----	----	----	----
Cobalt	EG005T	2	mg/kg		----	----	----	----	----	----	----
Copper	EG005T	5	mg/kg		----	----	----	----	----	----	----
Lead	EG005T	5	mg/kg		----	----	----	----	----	----	----
Manganese	EG005T	5	mg/kg		----	----	----	----	----	----	----
Nickel	EG005T	2	mg/kg		----	----	----	----	----	----	----
Selenium	EG005T	5	mg/kg		----	----	----	----	----	----	----
Zinc	EG005T	5	mg/kg		----	----	----	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS											
Mercury	EG035T	0.1	mg/kg		----	----	----	----	----	----	----
EG048: Hexavalent Chromium (Alkaline Digest)											
Hexavalent Chromium	EG048G	0.5	mg/kg		----	----	----	----	----	----	----
EP066: Polychlorinated Biphenyls (PCB)											
Total Polychlorinated biphenyls	EP066	0.1	mg/kg		----	----	----	----	----	----	----
EP068A: Organochlorine Pesticides (OC)											
Endosulfan (sum)	EP068	0.05	mg/kg		----	----	----	----	----	----	----
Endrin	EP068	0.05	mg/kg		----	----	----	----	----	----	----
Heptachlor	EP068	0.05	mg/kg		----	----	----	----	----	----	----
Hexachlorobenzene (HCB)	EP068	0.05	mg/kg		----	----	----	----	----	----	----
Methoxychlor	EP068	0.2	mg/kg		----	----	----	----	----	----	----
Mirex	EP068	0.20	mg/kg		----	----	----	----	----	----	----
Sum of Aldrin + Dieldrin	EP068	0.05	mg/kg		----	----	----	----	----	----	----
Sum of DDD + DDE + DDT	EP068	0.05	mg/kg		----	----	----	----	----	----	----
EP068B: Organophosphorus Pesticides (OP)											
Chlorpyrifos	EP068	0.05	mg/kg		----	----	----	----	----	----	----
EP068C: Triazines											
Atrazine	EP068	0.05	mg/kg		----	----	----	----	----	----	----
EP068D: Pyrethroids											
Bifenthrin	EP068	0.05	mg/kg		----	----	----	----	----	----	----
EP075(SIM)A: Phenolic Compounds											

NEPM (2013) Table 1A - Schedule B1 Guideline on Investigation Levels for Soil and Groundwater - Health investigation levels
Health investigation levels for soil contaminants - Recreational C: HIL C

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	*Sample ID* / *Sampling date/time*	Guideline Lower Limit	Guideline Upper Limit	QC602_241128 / 28-Nov-2024 07:15 / EM2421131-022 MU	QC401_241128 / 28-Nov-2024 07:15 / EM2421131-023 MU	Trip Spike Control / 28-Nov-2024 15:00 / EM2421131-024 MU	---- / ----	---- / ----
EP075(SIM)A: Phenolic Compounds - Continued											
Pentachlorophenol	EP075(SIM)	2	mg/kg		----	----	----	----	----	----	----
Phenol	EP075(SIM)	0.5	mg/kg		----	----	----	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons											
Benzo(a)pyrene TEQ (half LOR)	EP075(SIM)	0.5	mg/kg		----	----	----	----	----	----	----
Benzo(a)pyrene TEQ (LOR)	EP075(SIM)	0.5	mg/kg		----	----	----	----	----	----	----
Benzo(a)pyrene TEQ (zero)	EP075(SIM)	0.5	mg/kg		----	----	----	----	----	----	----
Sum of polycyclic aromatic hydrocarbons	EP075(SIM)	0.5	mg/kg		----	----	----	----	----	----	----

NEPM (2013) Table 1A - Schedule B1 Guideline on Investigation Levels for Soil and Groundwater - Health investigation levels
Health investigation levels for soil contaminants - Residential A: HIL A

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	*Sample ID*	Guideline Lower Limit	Guideline Upper Limit	QC602_241128	QC401_241128	Trip Spike Control	----	----
				Sampling date/time			28-Nov-2024 07:15	28-Nov-2024 07:15	28-Nov-2024 15:00	----	----
							EM2421131-022 MU	EM2421131-023 MU	EM2421131-024 MU		
EG005(ED093)T: Total Metals by ICP-AES											
Arsenic	EG005T	5	mg/kg		----	----	----	----	----	----	----
Beryllium	EG005T	1	mg/kg		----	----	----	----	----	----	----
Boron	EG005T	50	mg/kg		----	----	----	----	----	----	----
Cadmium	EG005T	1	mg/kg		----	----	----	----	----	----	----
Cobalt	EG005T	2	mg/kg		----	----	----	----	----	----	----
Copper	EG005T	5	mg/kg		----	----	----	----	----	----	----
Lead	EG005T	5	mg/kg		----	----	----	----	----	----	----
Manganese	EG005T	5	mg/kg		----	----	----	----	----	----	----
Nickel	EG005T	2	mg/kg		----	----	----	----	----	----	----
Selenium	EG005T	5	mg/kg		----	----	----	----	----	----	----
Zinc	EG005T	5	mg/kg		----	----	----	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS											
Mercury	EG035T	0.1	mg/kg		----	----	----	----	----	----	----
EG048: Hexavalent Chromium (Alkaline Digest)											
Hexavalent Chromium	EG048G	0.5	mg/kg		----	----	----	----	----	----	----
EP066: Polychlorinated Biphenyls (PCB)											
Total Polychlorinated biphenyls	EP066	0.1	mg/kg		----	----	----	----	----	----	----
EP068A: Organochlorine Pesticides (OC)											
Endosulfan (sum)	EP068	0.05	mg/kg		----	----	----	----	----	----	----
Endrin	EP068	0.05	mg/kg		----	----	----	----	----	----	----
Heptachlor	EP068	0.05	mg/kg		----	----	----	----	----	----	----
Hexachlorobenzene (HCB)	EP068	0.05	mg/kg		----	----	----	----	----	----	----
Methoxychlor	EP068	0.2	mg/kg		----	----	----	----	----	----	----
Mirex	EP068	0.20	mg/kg		----	----	----	----	----	----	----
Sum of Aldrin + Dieldrin	EP068	0.05	mg/kg		----	----	----	----	----	----	----
Sum of DDD + DDE + DDT	EP068	0.05	mg/kg		----	----	----	----	----	----	----
EP068B: Organophosphorus Pesticides (OP)											
Chlorpyrifos	EP068	0.05	mg/kg		----	----	----	----	----	----	----
EP068C: Triazines											
Atrazine	EP068	0.05	mg/kg		----	----	----	----	----	----	----
EP068D: Pyrethroids											
Bifenthrin	EP068	0.05	mg/kg		----	----	----	----	----	----	----
EP075(SIM)A: Phenolic Compounds											

NEPM (2013) Table 1A - Schedule B1 Guideline on Investigation Levels for Soil and Groundwater - Health investigation levels
Health investigation levels for soil contaminants - Residential A: HIL A

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	*Sample ID* / *Sampling date/time*				
						QC602_241128 28-Nov-2024 07:15 **EM2421131-022** MU	**QC401_241128** 28-Nov-2024 07:15 **EM2421131-023** MU	**Trip Spike Control** 28-Nov-2024 15:00 **EM2421131-024** MU	---- ----	---- ----
EP075(SIM)A: Phenolic Compounds - Continued										
Pentachlorophenol	EP075(SIM)	2	mg/kg	----	----	**----**	**----**	**----**	**----**	**----**
Phenol	EP075(SIM)	0.5	mg/kg	----	----	**----**	**----**	**----**	**----**	**----**
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene TEQ (half LOR)	EP075(SIM)	0.5	mg/kg	----	----	**----**	**----**	**----**	**----**	**----**
Benzo(a)pyrene TEQ (LOR)	EP075(SIM)	0.5	mg/kg	----	----	**----**	**----**	**----**	**----**	**----**
Benzo(a)pyrene TEQ (zero)	EP075(SIM)	0.5	mg/kg	----	----	**----**	**----**	**----**	**----**	**----**
Sum of polycyclic aromatic hydrocarbons	EP075(SIM)	0.5	mg/kg	----	----	**----**	**----**	**----**	**----**	**----**

NEPM (2013) Table 1A - Schedule B1 Guideline on Investigation Levels for Soil and Groundwater - Health investigation levels
Health investigation levels for soil contaminants - Residential B: HIL B

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	*Sample ID*	Guideline Lower Limit	Guideline Upper Limit	QC602_241128	QC401_241128	Trip Spike Control	----	----
				Sampling date/time			28-Nov-2024 07:15	28-Nov-2024 07:15	28-Nov-2024 15:00	----	----
							EM2421131-022 MU	EM2421131-023 MU	EM2421131-024 MU		
EG005(ED093)T: Total Metals by ICP-AES											
Arsenic	EG005T	5	mg/kg		----	----	----	----	----	----	----
Beryllium	EG005T	1	mg/kg		----	----	----	----	----	----	----
Boron	EG005T	50	mg/kg		----	----	----	----	----	----	----
Cadmium	EG005T	1	mg/kg		----	----	----	----	----	----	----
Cobalt	EG005T	2	mg/kg		----	----	----	----	----	----	----
Copper	EG005T	5	mg/kg		----	----	----	----	----	----	----
Lead	EG005T	5	mg/kg		----	----	----	----	----	----	----
Manganese	EG005T	5	mg/kg		----	----	----	----	----	----	----
Nickel	EG005T	2	mg/kg		----	----	----	----	----	----	----
Selenium	EG005T	5	mg/kg		----	----	----	----	----	----	----
Zinc	EG005T	5	mg/kg		----	----	----	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS											
Mercury	EG035T	0.1	mg/kg		----	----	----	----	----	----	----
EG048: Hexavalent Chromium (Alkaline Digest)											
Hexavalent Chromium	EG048G	0.5	mg/kg		----	----	----	----	----	----	----
EP066: Polychlorinated Biphenyls (PCB)											
Total Polychlorinated biphenyls	EP066	0.1	mg/kg		----	----	----	----	----	----	----
EP068A: Organochlorine Pesticides (OC)											
Endosulfan (sum)	EP068	0.05	mg/kg		----	----	----	----	----	----	----
Endrin	EP068	0.05	mg/kg		----	----	----	----	----	----	----
Heptachlor	EP068	0.05	mg/kg		----	----	----	----	----	----	----
Hexachlorobenzene (HCB)	EP068	0.05	mg/kg		----	----	----	----	----	----	----
Methoxychlor	EP068	0.2	mg/kg		----	----	----	----	----	----	----
Mirex	EP068	0.20	mg/kg		----	----	----	----	----	----	----
Sum of Aldrin + Dieldrin	EP068	0.05	mg/kg		----	----	----	----	----	----	----
Sum of DDD + DDE + DDT	EP068	0.05	mg/kg		----	----	----	----	----	----	----
EP068B: Organophosphorus Pesticides (OP)											
Chlorpyrifos	EP068	0.05	mg/kg		----	----	----	----	----	----	----
EP068C: Triazines											
Atrazine	EP068	0.05	mg/kg		----	----	----	----	----	----	----
EP068D: Pyrethroids											
Bifenthrin	EP068	0.05	mg/kg		----	----	----	----	----	----	----
EP075(SIM)A: Phenolic Compounds											

NEPM (2013) Table 1A - Schedule B1 Guideline on Investigation Levels for Soil and Groundwater - Health investigation levels
Health investigation levels for soil contaminants - Residential B: HIL B

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	*Sample ID*	**QC602_241128**	**QC401_241128**	**Trip Spike Control**	**----**	**----**
						Sampling date/time	28-Nov-2024 07:15	28-Nov-2024 07:15	28-Nov-2024 15:00	----	----
							EM2421131-022 MU	**EM2421131-023** MU	**EM2421131-024** MU		
EP075(SIM)A: Phenolic Compounds - Continued											
Pentachlorophenol	EP075(SIM)	2	mg/kg	----	----		**----**	**----**	**----**	**----**	**----**
Phenol	EP075(SIM)	0.5	mg/kg	----	----		**----**	**----**	**----**	**----**	**----**
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons											
Benzo(a)pyrene TEQ (half LOR)	EP075(SIM)	0.5	mg/kg	----	----		**----**	**----**	**----**	**----**	**----**
Benzo(a)pyrene TEQ (LOR)	EP075(SIM)	0.5	mg/kg	----	----		**----**	**----**	**----**	**----**	**----**
Benzo(a)pyrene TEQ (zero)	EP075(SIM)	0.5	mg/kg	----	----		**----**	**----**	**----**	**----**	**----**
Sum of polycyclic aromatic hydrocarbons	EP075(SIM)	0.5	mg/kg	----	----		**----**	**----**	**----**	**----**	**----**

QUALITY CONTROL REPORT

Work Order	: **EM2421131**	Page	: 1 of 18
Client	: **EMM CONSULTING PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: Simony Sakamoto	Contact	: Customer Services EM
Address	: Level 1, 70 Pirie Street Adelaide 5000	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +61 3 8549 9600
Project	: Olympic Dam	Date Samples Received	: 03-Nov-2024
Order number	: E240975	Date Analysis Commenced	: 04-Dec-2024
C-O-C number	: 75723	Issue Date	: 21-Jan-2025
Sampler	: Simony Sakamoto		
Site	: Olympic Dam		
Quote number	: EM24EMGAMM0004_V2		
No. of samples received	: 23		
No. of samples analysed	: 18		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Aleksandar Vujkovic	Laboratory Technician	Newcastle - Inorganics, Mayfield West, NSW
Beatriz Llarinas	Senior Chemist - Inorganics	Brisbane Inorganics, Stafford, QLD
Ben Felgendrejeris	Senior Acid Sulfate Soil Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
Dilani Fernando	Laboratory Coordinator	Melbourne Inorganics, Springvale, VIC
Eric Chau	Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Jarwis Nheu	Non-Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Kim McCabe	Senior Inorganic Chemist	Brisbane External Subcontracting, Stafford, QLD
Nancy Wang	2IC Organic Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	2IC Organic Chemist	Melbourne Organics, Springvale, VIC
Nikki Stepniewski	Senior Inorganic Instrument Chemist	Melbourne Inorganics, Springvale, VIC
Satishkumar Trivedi	Senior Acid Sulfate Soil Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC
* = The final LOR has been raised due to dilution or other sample specific cause; adjusted LOR is shown in brackets. The duplicate ranges for Acceptable RPD% are applied to the final LOR where applicable.

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 6244304)									
EM2421130-020	Anonymous	EG005T: Copper	7440-50-8	5	mg/kg	178	165	7.9	0% - 20%
		EG005T: Calcium	7440-70-2	50	mg/kg	3570	# 7840	74.8	0% - 20%
		EG005T: Magnesium	7439-95-4	50	mg/kg	1830	1830	0.0	0% - 20%
EM2421130-020	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	40	70	49.9	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	6	7	0.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	3	44.4	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	2	3	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	53	57	8.2	0% - 50%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	16	18	11.7	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	9	12	26.2	No Limit
		EG005T: Aluminium	7429-90-5	50	mg/kg	3490	3920	11.6	0% - 20%
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
		EG005T: Iron	7439-89-6	50	mg/kg	6370	7390	14.9	0% - 20%
		EG005T: Sodium	7440-23-5	50	mg/kg	370	390	5.5	No Limit
		EG005T: Potassium	7440-09-7	50	mg/kg	870	950	9.2	0% - 50%
EM2421131-010	TP11_0.4-0.5_241127	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 6244304) - continued									
EM2421131-010	TP11_0.4-0.5_241127	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	<10	10	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	5	6	28.4	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	6	5	18.5	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	20	23	12.9	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	12	21	52.3	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Aluminium	7429-90-5	50	mg/kg	1790	1720	4.2	0% - 20%
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
		EG005T: Iron	7439-89-6	50	mg/kg	4510	5300	16.2	0% - 20%
		EG005T: Calcium	7440-70-2	50	mg/kg	480	370	26.3	No Limit
		EG005T: Magnesium	7439-95-4	50	mg/kg	300	280	6.5	No Limit
		EG005T: Sodium	7440-23-5	50	mg/kg	<50	<50	0.0	No Limit
		EG005T: Potassium	7440-09-7	50	mg/kg	440	430	3.7	No Limit
EA001: pH in soil using 0.01M CaCl extract (QC Lot: 6232200)									
EM2421130-017	Anonymous	EA001: pH (CaCl2)	----	0.1	pH Unit	8.3	8.3	0.0	0% - 20%
EA002: pH 1:5 (Soils) (QC Lot: 6232191)									
EM2421084-001	Anonymous	EA002: pH Value	----	0.1	pH Unit	8.3	8.3	0.0	0% - 20%
EM2421131-010	TP11_0.4-0.5_241127	EA002: pH Value	----	0.1	pH Unit	9.2	9.1	1.6	0% - 20%
EA002-AD: pH (Soils) dried at 40°C (QC Lot: 6234520)									
EM2421130-002	Anonymous	EA002-AD: pH Value	----	0.1	pH Unit	8.8	8.8	0.0	0% - 20%
EM2421130-017	Anonymous	EA002-AD: pH Value	----	0.1	pH Unit	8.8	8.8	0.0	0% - 20%
EA003 :pH (field/fox) (QC Lot: 6245251)									
EM2421130-017	Anonymous	EA003: pH (F)	----	0.1	pH Unit	8.9	8.9	0.0	0% - 20%
		EA003: pH (Fox)	----	0.1	pH Unit	7.1	7.0	0.0	0% - 20%
EM2421131-021	TP06_1.0-1.6_241127	EA003: pH (F)	----	0.1	pH Unit	8.3	8.3	0.0	0% - 20%
		EA003: pH (Fox)	----	0.1	pH Unit	10.3	10.5	1.2	0% - 20%
EA010: Conductivity (1:5) (QC Lot: 6232188)									
EM2421084-001	Anonymous	EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	770	816	5.8	0% - 20%
EM2421131-010	TP11_0.4-0.5_241127	EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	68	65	5.5	0% - 20%
EA010-AD: Conductivity (Soils) dried at 40°C (QC Lot: 6234521)									
EM2421130-002	Anonymous	EA010-AD: Electrical Conductivity @ 25°C	----	1	µS/cm	1930	1930	0.0	0% - 20%

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EA010-AD: Conductivity (Soils) dried at 40°C (QC Lot: 6234521) - continued									
EM2421130-017	Anonymous	EA010-AD: Electrical Conductivity @ 25°C	----	1	µS/cm	387	387	0.0	0% - 20%
EA033-A: Actual Acidity (QC Lot: 6248281)									
EM2421130-002	Anonymous	EA033: sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	<0.02	<0.02	0.0	No Limit
		EA033: Titratable Actual Acidity (23F)	----	2	mole H+ / t	<2	<2	0.0	No Limit
		EA033: pH KCl (23A)	----	0.1	pH Unit	9.1	9.1	0.0	0% - 20%
EM2421130-017	Anonymous	EA033: sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	<0.02	<0.02	0.0	No Limit
		EA033: Titratable Actual Acidity (23F)	----	2	mole H+ / t	<2	<2	0.0	No Limit
		EA033: pH KCl (23A)	----	0.1	pH Unit	9.0	9.0	0.0	0% - 20%
EA033-A: Actual Acidity (QC Lot: 6248283)									
ES2438390-010	Anonymous	EA033: sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	0.02	0.02	0.0	No Limit
		EA033: Titratable Actual Acidity (23F)	----	2	mole H+ / t	13	14	0.0	No Limit
		EA033: pH KCl (23A)	----	0.1	pH Unit	4.6	4.6	0.0	0% - 20%
EM2421131-021	TP06_1.0-1.6_241127	EA033: sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	<0.02	<0.02	0.0	No Limit
		EA033: Titratable Actual Acidity (23F)	----	2	mole H+ / t	<2	<2	0.0	No Limit
		EA033: pH KCl (23A)	----	0.1	pH Unit	8.7	8.8	0.0	0% - 20%
EA033-B: Potential Acidity (QC Lot: 6248281)									
EM2421130-002	Anonymous	EA033: Chromium Reducible Sulfur (22B)	----	0.005	% S	0.012	0.012	0.0	No Limit
		EA033: acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	<10	<10	0.0	No Limit
EM2421130-017	Anonymous	EA033: Chromium Reducible Sulfur (22B)	----	0.005	% S	0.012	0.011	8.9	No Limit
		EA033: acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	<10	<10	0.0	No Limit
EA033-B: Potential Acidity (QC Lot: 6248283)									
ES2438390-010	Anonymous	EA033: Chromium Reducible Sulfur (22B)	----	0.005	% S	0.012	0.011	12.9	No Limit
		EA033: acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	<10	<10	0.0	No Limit
EM2421131-021	TP06_1.0-1.6_241127	EA033: Chromium Reducible Sulfur (22B)	----	0.005	% S	0.013	0.011	19.5	No Limit
		EA033: acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	<10	<10	0.0	No Limit
EA033-C: Acid Neutralising Capacity (QC Lot: 6248281)									
EM2421130-002	Anonymous	EA033: Acid Neutralising Capacity (19A2)	----	0.01	% CaCO3	30.3	30.6	0.9	0% - 20%
		EA033: sulfidic - Acid Neutralising Capacity (s-19A2)	----	0.01	% pyrite S	9.70	9.78	0.9	0% - 20%
		EA033: acidity - Acid Neutralising Capacity (a-19A2)	----	10	mole H+ / t	6050	6100	0.9	0% - 20%
EM2421130-017	Anonymous	EA033: Acid Neutralising Capacity (19A2)	----	0.01	% CaCO3	11.4	11.4	0.4	0% - 20%
		EA033: sulfidic - Acid Neutralising Capacity (s-19A2)	----	0.01	% pyrite S	3.64	3.66	0.4	0% - 20%

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EA033-C: Acid Neutralising Capacity (QC Lot: 6248281) - continued									
EM2421130-017	Anonymous	EA033: acidity - Acid Neutralising Capacity (a-19A2)	----	10	mole H+ / t	2270	2280	0.4	0% - 20%
EA033-C: Acid Neutralising Capacity (QC Lot: 6248283)									
EM2421131-021	TP06_1.0-1.6_241127	EA033: Acid Neutralising Capacity (19A2)	----	0.01	% CaCO3	71.5	71.5	0.0	0% - 20%
		EA033: sulfidic - Acid Neutralising Capacity (s-19A2)	----	0.01	% pyrite S	22.9	22.9	0.0	0% - 20%
		EA033: acidity - Acid Neutralising Capacity (a-19A2)	----	10	mole H+ / t	14300	14300	0.0	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 6248505)									
EM2421130-003	Anonymous	EA055: Moisture Content	----	0.1	%	9.5	9.4	0.0	0% - 20%
EM2421131-013	QC101_241127	EA055: Moisture Content	----	0.1 (1.0)*	%	7.4	7.5	1.4	No Limit
ED006: Exchangeable Cations on Alkaline Soils (QC Lot: 6234524)									
EM2421130-002	Anonymous	ED006: Calcium/Magnesium Ratio	----	0.1 (0.2)*	-	3.4	3.2	5.2	0% - 50%
		ED006: Magnesium/Potassium Ratio	----	0.1 (0.2)*	-	<0.2	<0.2	0.0	No Limit
		ED006: Exchangeable Calcium Percent	----	0.2	%	58.6	55.9	4.7	0% - 20%
		ED006: Exchangeable Magnesium Percent	----	0.2	%	17.2	17.3	0.0	0% - 20%
		ED006: Exchangeable Potassium Percent	----	0.2	%	1.6	<0.2	155	No Limit
		ED006: Exchangeable Sodium Percent	----	0.2	%	22.6	26.8	17.2	0% - 20%
		ED006: Exchangeable Calcium	----	0.2	meq/100g	4.9	4.4	10.3	0% - 20%
		ED006: Exchangeable Magnesium	----	0.2	meq/100g	1.4	1.4	0.0	No Limit
		ED006: Exchangeable Potassium	----	0.2	meq/100g	<0.2	<0.2	0.0	No Limit
		ED006: Exchangeable Sodium	----	0.2	meq/100g	1.9	2.1	11.7	0% - 50%
		ED006: Cation Exchange Capacity	----	0.2	meq/100g	8.4	7.9	5.5	0% - 20%
EM2421130-017	Anonymous	ED006: Calcium/Magnesium Ratio	----	0.1 (0.2)*	-	3.7	3.6	0.0	0% - 50%
		ED006: Magnesium/Potassium Ratio	----	0.1 (0.2)*	-	2.3	2.4	0.0	0% - 50%
		ED006: Exchangeable Calcium Percent	----	0.2	%	67.7	67.5	0.3	0% - 20%
		ED006: Exchangeable Magnesium Percent	----	0.2	%	18.3	18.5	1.3	0% - 20%
		ED006: Exchangeable Potassium Percent	----	0.2	%	7.8	7.8	0.0	0% - 20%
		ED006: Exchangeable Sodium Percent	----	0.2	%	6.2	6.2	0.0	0% - 20%
		ED006: Exchangeable Calcium	----	0.2	meq/100g	5.7	5.9	3.6	0% - 20%
		ED006: Exchangeable Magnesium	----	0.2	meq/100g	1.5	1.6	0.0	No Limit
		ED006: Exchangeable Potassium	----	0.2	meq/100g	0.7	0.7	0.0	No Limit
		ED006: Exchangeable Sodium	----	0.2	meq/100g	0.5	0.5	0.0	No Limit
		ED006: Cation Exchange Capacity	----	0.2	meq/100g	8.4	8.8	3.9	0% - 20%
ED040N: Sulfate - Calcium Phosphate Soluble (NEPM) (QC Lot: 6245413)									
EM2421130-002	Anonymous	ED040N: Sulfate as SO4 2-	14808-79-8	50	mg/kg	360	360	0.0	No Limit
EM2421406-005	Anonymous	ED040N: Sulfate as SO4 2-	14808-79-8	50	mg/kg	<50	<50	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
ED045G: Chloride by Discrete Analyser (QC Lot: 6232190)									
EM2421084-001	Anonymous	ED045G: Chloride	16887-00-6	10	mg/kg	1100	1160	4.8	0% - 20%
EM2421131-010	TP11_0.4-0.5_241127	ED045G: Chloride	16887-00-6	10	mg/kg	70	20	89.5	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 6244305)									
EM2421130-020	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EM2421131-010	TP11_0.4-0.5_241127	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EG048: Hexavalent Chromium (Alkaline Digest) (QC Lot: 6245381)									
EM2421130-002	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EM2421131-003	TP05_1.0-1.1_241127	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EK028SF: Weak Acid Dissociable CN by Segmented Flow Analyser (QC Lot: 6248394)									
EM2421130-002	Anonymous	EK028SF: Weak Acid Dissociable Cyanide	----	1	mg/kg	<1	<1	0.0	No Limit
EM2421131-013	QC101_241127	EK028SF: Weak Acid Dissociable Cyanide	----	1	mg/kg	<1	<1	0.0	No Limit
EK055: Ammonia as N (QC Lot: 6235807)									
EM2421130-002	Anonymous	EK055: Ammonia as N	7664-41-7	20	mg/kg	<20	<20	0.0	No Limit
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 6232193)									
EM2421131-010	TP11_0.4-0.5_241127	EK057G: Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 6232192)									
EM2421131-010	TP11_0.4-0.5_241127	EK059G: Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	0.9	0.7	19.7	No Limit
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 6235806)									
EM2421262-002	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	20	mg/kg	40	40	0.0	No Limit
EM2421130-002	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	20	mg/kg	250	240	4.3	0% - 50%
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 6235805)									
EM2421130-002	Anonymous	EK067G: Total Phosphorus as P	----	2	mg/kg	130	132	1.6	0% - 20%
EK080: Bicarbonate Extractable Phosphorus (Colwell) (QC Lot: 6248837)									
EB2442438-001	Anonymous	EK080: Bicarbonate Ext. P (Colwell)	----	5 (250)*	mg/kg	6920	6820	1.5	0% - 20%
EP2417978-001	Anonymous	EK080: Bicarbonate Ext. P (Colwell)	----	5	mg/kg	9	10	0.0	No Limit
EP004: Organic Matter (QC Lot: 6246766)									
EM2420919-005	Anonymous	EP004: Organic Matter	----	0.5	%	<0.5	<0.5	0.0	No Limit
		EP004: Total Organic Carbon	----	0.5	%	<0.5	<0.5	0.0	No Limit
EM2421130-024	Anonymous	EP004: Organic Matter	----	0.5	%	<0.5	<0.5	0.0	No Limit
		EP004: Total Organic Carbon	----	0.5	%	<0.5	<0.5	0.0	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 6239529)									
EM2421131-003	TP05_1.0-1.1_241127	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 6239528)									
EM2421131-003	TP05_1.0-1.1_241127	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP068A: Organochlorine Pesticides (OC) (QC Lot: 6239528) - continued									
EM2421131-003	TP05_1.0-1.1_241127	EP068: gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Mirex	2385-85-5	0.05 (0.20)*	mg/kg	<0.20	<0.20	0.0	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 6239528)									
EM2421131-003	TP05_1.0-1.1_241127	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 6239528) - continued									
EM2421131-003	TP05_1.0-1.1_241127	EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP068C: Triazines (QC Lot: 6239528)									
EM2421131-003	TP05_1.0-1.1_241127	EP068: Atrazine	1912-24-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
EP068D: Pyrethroids (QC Lot: 6239528)									
EM2421131-003	TP05_1.0-1.1_241127	EP068: Bifenthrin	82657-04-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 6239526)									
EM2421131-003	TP05_1.0-1.1_241127	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 6239526)									
EM2421131-003	TP05_1.0-1.1_241127	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 6232314)									

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 6232314) - continued									
EM2421130-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EM2421131-005	TP26_0.0-0.15_241127	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 6239527)									
EM2421131-003	TP05_1.0-1.1_241127	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 6232314)									
EM2421130-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EM2421131-005	TP26_0.0-0.15_241127	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 6239527)									
EM2421131-003	TP05_1.0-1.1_241127	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080: BTEXN (QC Lot: 6232314)									
EM2421130-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
EM2421131-005	TP26_0.0-0.15_241127	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 6244304)								
EG005T: Aluminium	7429-90-5	50	mg/kg	<50	15910 mg/kg	113	70.0	130
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	123 mg/kg	105	70.0	130
EG005T: Barium	7440-39-3	10	mg/kg	<10	99.3 mg/kg	109	70.0	130
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	0.67 mg/kg	95.8	70.0	130
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	1.23 mg/kg	70.6	50.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	20.2 mg/kg	112	70.0	130
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	11.2 mg/kg	99.0	70.0	130
EG005T: Copper	7440-50-8	5	mg/kg	<5	55.9 mg/kg	104	70.0	130
EG005T: Iron	7439-89-6	50	mg/kg	<50	33227 mg/kg	115	70.0	130
EG005T: Lead	7439-92-1	5	mg/kg	<5	62.4 mg/kg	103	70.0	130
EG005T: Manganese	7439-96-5	5	mg/kg	<5	590 mg/kg	99.4	70.0	130
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.4 mg/kg	102	70.0	130
EG005T: Selenium	7782-49-2	5	mg/kg	<5	----	----	----	----
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	61.3 mg/kg	101	70.0	130
EG005T: Zinc	7440-66-6	5	mg/kg	<5	162 mg/kg	82.2	70.0	130
EG005T: Calcium	7440-70-2	50	mg/kg	<50	20010 mg/kg	96.2	70.0	130
EG005T: Magnesium	7439-95-4	50	mg/kg	<50	8484 mg/kg	99.3	70.0	130
EG005T: Sodium	7440-23-5	50	mg/kg	<50	901 mg/kg	121	70.0	130
EG005T: Potassium	7440-09-7	50	mg/kg	<50	2148 mg/kg	118	70.0	130
EA001: pH in soil using 0.01M CaCl extract (QCLot: 6232200)								
EA001: pH (CaCl2)	----	----	pH Unit	----	4 pH Unit	100	98.8	101
				----	7 pH Unit	100	99.3	101
EA002: pH 1:5 (Soils) (QCLot: 6232191)								
EA002: pH Value	----	----	pH Unit	----	4 pH Unit	100	98.8	101
				----	7 pH Unit	100	99.3	101
EA002-AD: pH (Soils) dried at 40°C (QCLot: 6234520)								
EA002-AD: pH Value	----	----	pH Unit	----	4 pH Unit	101	98.8	101
				----	7 pH Unit	100	99.3	101
EA010: Conductivity (1:5) (QCLot: 6232188)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EA010: Conductivity (1:5) (QCLot: 6232188) - continued								
EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	1413 µS/cm	99.9	94.5	105
EA010-AD: Conductivity (Soils) dried at 40°C (QCLot: 6234521)								
EA010-AD: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	1413 µS/cm	100	90.0	110
EA033-A: Actual Acidity (QCLot: 6248281)								
EA033: pH KCl (23A)	----	----	pH Unit	----	4.7 pH Unit	96.8	80.0	120
EA033: Titratable Actual Acidity (23F)	----	2	mole H+ / t	<2	23.5 mole H+ / t	101	80.0	120
EA033: sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	<0.02	----	----	----	----
EA033-A: Actual Acidity (QCLot: 6248283)								
EA033: pH KCl (23A)	----	----	pH Unit	----	4.7 pH Unit	98.6	80.0	120
EA033: Titratable Actual Acidity (23F)	----	2	mole H+ / t	<2	23.5 mole H+ / t	97.6	80.0	120
EA033: sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	<0.02	----	----	----	----
EA033-B: Potential Acidity (QCLot: 6248281)								
EA033: Chromium Reducible Sulfur (22B)	----	0.005	% S	<0.005	0.283 % S	101	77.0	121
EA033: acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	<10	----	----	----	----
EA033-B: Potential Acidity (QCLot: 6248283)								
EA033: Chromium Reducible Sulfur (22B)	----	0.005	% S	<0.005	0.283 % S	101	77.0	121
EA033: acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	<10	----	----	----	----
EA033-C: Acid Neutralising Capacity (QCLot: 6248281)								
EA033: Acid Neutralising Capacity (19A2)	----	0.01	% CaCO3	<0.01	10 % CaCO3	98.8	91.0	112
EA033: acidity - Acid Neutralising Capacity (a-19A2)	----	10	mole H+ / t	<10	----	----	----	----
EA033: sulfidic - Acid Neutralising Capacity (s-19A2)	----	0.01	% pyrite S	<0.01	----	----	----	----
EA033-C: Acid Neutralising Capacity (QCLot: 6248283)								
EA033: Acid Neutralising Capacity (19A2)	----	0.01	% CaCO3	<0.01	10 % CaCO3	104	91.0	112
EA033: acidity - Acid Neutralising Capacity (a-19A2)	----	10	mole H+ / t	<10	----	----	----	----
EA033: sulfidic - Acid Neutralising Capacity (s-19A2)	----	0.01	% pyrite S	<0.01	----	----	----	----
ED006: Exchangeable Cations on Alkaline Soils (QCLot: 6234524)								
ED006: Exchangeable Calcium	----	0.2	meq/100g	<0.2	33 meq/100g	76.6	66.6	101
ED006: Exchangeable Magnesium	----	0.2	meq/100g	<0.2	32 meq/100g	73.9	66.9	120
ED006: Exchangeable Potassium	----	0.2	meq/100g	<0.2	2.2 meq/100g	101	72.8	119
ED006: Exchangeable Sodium	----	0.2	meq/100g	<0.2	5.6 meq/100g	85.9	67.5	112
ED006: Cation Exchange Capacity	----	0.2	meq/100g	<0.2	----	----	----	----
ED006: Exchangeable Calcium Percent	----	0.2	%	<0.2	----	----	----	----
ED006: Exchangeable Magnesium Percent	----	0.2	%	<0.2	----	----	----	----
ED006: Exchangeable Potassium Percent	----	0.2	%	<0.2	----	----	----	----

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
ED006: Exchangeable Cations on Alkaline Soils (QCLot: 6234524) - continued								
ED006: Exchangeable Sodium Percent	----	0.2	%	<0.2	----	----	----	----
ED006: Calcium/Magnesium Ratio	----	0.1	-	<0.1	----	----	----	----
ED006: Magnesium/Potassium Ratio	----	0.1	-	<0.1	----	----	----	----
ED040N: Sulfate - Calcium Phosphate Soluble (NEPM) (QCLot: 6245413)								
ED040N: Sulfate as SO4 2-	14808-79-8	50	mg/kg	<50	3000 mg/kg	102	86.1	116
ED045G: Chloride by Discrete Analyser (QCLot: 6232190)								
ED045G: Chloride	16887-00-6	10	mg/kg	<10	50 mg/kg	98.8	85.5	120
				<10	5000 mg/kg	110	85.5	120
EG035T: Total Recoverable Mercury by FIMS (QCLot: 6244305)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.64 mg/kg	100	69.0	128
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 6245381)								
EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	20 mg/kg	104	70.0	130
EK028SF: Weak Acid Dissociable CN by Segmented Flow Analyser (QCLot: 6248394)								
EK028SF: Weak Acid Dissociable Cyanide	----	1	mg/kg	<1	20 mg/kg	127	70.0	130
EK055: Ammonia as N (QCLot: 6235807)								
EK055: Ammonia as N	7664-41-7	20	mg/kg	<20	25 mg/kg	99.4	83.0	109
EK057G: Nitrite as N by Discrete Analyser (QCLot: 6232193)								
EK057G: Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg	<0.1	2.5 mg/kg	108	88.9	113
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6232192)								
EK059G: Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	<0.1	2.5 mg/kg	102	89.5	119
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 6235806)								
EK061G: Total Kjeldahl Nitrogen as N	----	20	mg/kg	<20	500 mg/kg	92.0	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 6235805)								
EK067G: Total Phosphorus as P	----	2	mg/kg	<2	221 mg/kg	91.2	78.3	127
EK080: Bicarbonate Extractable Phosphorus (Colwell) (QCLot: 6248837)								
EK080: Bicarbonate Ext. P (Colwell)	----	5	mg/kg	<5	100 mg/kg	105	90.0	110
				<5	20.7 mg/kg	91.3	70.0	130
				<5	168 mg/kg	110	81.0	119
EP004: Organic Matter (QCLot: 6246766)								
EP004: Organic Matter	----	0.5	%	<0.5	77 %	110	70.0	130
EP004: Total Organic Carbon	----	0.5	%	<0.5	43.5 %	112	70.0	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 6239529)								
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	120	68.0	133
EP068A: Organochlorine Pesticides (OC) (QCLot: 6239528)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP068A: Organochlorine Pesticides (OC) (QCLot: 6239528) - continued								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	98.1	71.8	126
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	90.6	72.2	125
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	109	70.0	124
EP068: gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	103	69.1	124
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	109	69.2	125
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	99.4	66.6	122
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	101	68.8	123
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	103	67.2	124
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	105	66.0	126
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	114	70.2	126
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	105	72.1	124
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	120	68.0	122
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	121	68.9	124
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	110	55.8	130
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	124	67.9	124
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	126	72.0	127
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	91.1	66.3	131
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	95.8	62.4	131
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	95.4	55.4	130
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	97.2	68.8	128
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	98.6	55.5	132
EP068: Mirex	2385-85-5	0.05	mg/kg	<0.05	0.5 mg/kg	# 105	92.4	102
EP068B: Organophosphorus Pesticides (OP) (QCLot: 6239528)								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	101	65.6	127
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	119	63.0	129
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	# 157	10.0	136
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	110	58.3	128
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	113	69.0	122
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	101	68.0	122
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	96.5	59.6	124
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	112	63.8	128
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	112	71.1	124
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	115	67.4	126
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	93.6	57.9	122

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP068B: Organophosphorus Pesticides (OP) (QCLot: 6239528) - continued								
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	113	66.2	123
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	101	59.8	123
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	96.0	65.4	127
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	116	52.1	128
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	118	65.2	122
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	107	63.2	124
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	99.9	65.9	127
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	55.2	43.1	131
EP068C: Triazines (QCLot: 6239528)								
EP068: Atrazine	1912-24-9	0.05	mg/kg	<0.05	0.5 mg/kg	109	72.5	126
EP068D: Pyrethroids (QCLot: 6239528)								
EP068: Bifenthrin	82657-04-3	0.05	mg/kg	<0.05	0.5 mg/kg	110	67.9	128
EP075(SIM)A: Phenolic Compounds (QCLot: 6239526)								
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	3 mg/kg	97.2	81.2	121
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	3 mg/kg	98.6	83.2	120
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	3 mg/kg	99.0	81.6	123
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	6 mg/kg	97.9	79.7	129
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	3 mg/kg	76.1	49.8	129
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	3 mg/kg	98.6	81.5	127
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	3 mg/kg	96.3	74.2	125
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	3 mg/kg	94.9	79.8	121
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	3 mg/kg	92.1	71.5	121
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	3 mg/kg	84.0	67.8	119
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	3 mg/kg	88.2	64.5	126
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	6 mg/kg	41.7	10.0	118
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 6239526)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	3 mg/kg	102	85.7	123
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	3 mg/kg	102	81.0	123
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	3 mg/kg	102	83.6	120
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	3 mg/kg	101	81.3	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	3 mg/kg	104	79.4	123
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	3 mg/kg	106	81.7	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	3 mg/kg	105	78.3	124
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	3 mg/kg	106	79.9	128

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 6239526) - continued								
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	3 mg/kg	106	76.9	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	3 mg/kg	109	80.9	130
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	3 mg/kg	96.1	70.0	121
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	3 mg/kg	107	80.4	130
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	3 mg/kg	98.7	70.2	123
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	3 mg/kg	90.5	67.9	122
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	3 mg/kg	91.5	65.8	123
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	3 mg/kg	89.9	65.8	127
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6232314)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	36 mg/kg	91.0	58.6	131
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6239527)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	790 mg/kg	100.0	75.0	128
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	2730 mg/kg	100	82.0	123
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	1410 mg/kg	95.4	82.4	121
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6232314)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	45 mg/kg	89.1	59.3	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6239527)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	1080 mg/kg	101	77.0	130
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	3640 mg/kg	97.4	81.5	120
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	270 mg/kg	93.0	73.3	137
EP080: BTEXN (QCLot: 6232314)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	2 mg/kg	93.5	61.6	117
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	2 mg/kg	91.3	65.8	125
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2 mg/kg	90.7	65.8	124
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4 mg/kg	92.8	64.8	134
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2 mg/kg	95.2	68.7	132
EP080: Naphthalene	91-20-3	1	mg/kg	<1	0.5 mg/kg	88.9	61.8	123

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Matrix Spike (MS) Report			
Spike	SpikeRecovery(%)	Acceptable Limits (%)	

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 6244304)							
EM2421130-021	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	107	78.0	124
		EG005T: Cadmium	7440-43-9	50 mg/kg	97.3	79.7	116
		EG005T: Chromium	7440-47-3	50 mg/kg	97.7	79.0	121
		EG005T: Copper	7440-50-8	250 mg/kg	107	80.0	120
		EG005T: Lead	7439-92-1	250 mg/kg	102	80.0	120
		EG005T: Nickel	7440-02-0	50 mg/kg	95.9	78.0	120
		EG005T: Zinc	7440-66-6	250 mg/kg	94.8	80.0	120
ED040N: Sulfate - Calcium Phosphate Soluble (NEPM) (QCLot: 6245413)							
EM2421130-005	Anonymous	ED040N: Sulfate as SO4 2-	14808-79-8	3000 mg/kg	# 80.6	84.0	116
ED045G: Chloride by Discrete Analyser (QCLot: 6232190)							
EM2421084-002	Anonymous	ED045G: Chloride	16887-00-6	4000 mg/kg	125	93.0	125
EG035T: Total Recoverable Mercury by FIMS (QCLot: 6244305)							
EM2421130-021	Anonymous	EG035T: Mercury	7439-97-6	0.5 mg/kg	105	70.0	130
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 6245381)							
EM2421130-006	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	20 mg/kg	79.0	58.0	114
EM2421130-006	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	20 mg/kg	79.9	58.0	114
EK028SF: Weak Acid Dissociable CN by Segmented Flow Analyser (QCLot: 6248394)							
EM2421130-006	Anonymous	EK028SF: Weak Acid Dissociable Cyanide	----	20 mg/kg	96.6	70.0	130
EK055: Ammonia as N (QCLot: 6235807)							
EM2421130-005	Anonymous	EK055: Ammonia as N	7664-41-7	100 mg/kg	93.6	80.0	110
EK057G: Nitrite as N by Discrete Analyser (QCLot: 6232193)							
EM2421131-003	TP05_1.0-1.1_241127	EK057G: Nitrite as N (Sol.)	14797-65-0	2.5 mg/kg	107	84.0	128
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6232192)							
EM2421131-003	TP05_1.0-1.1_241127	EK059G: Nitrite + Nitrate as N (Sol.)	----	12.5 mg/kg	110	70.0	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 6235806)							
EM2421130-005	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	500 mg/kg	90.6	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 6235805)							
EM2421130-005	Anonymous	EK067G: Total Phosphorus as P	----	100 mg/kg	77.9	70.0	130
EK080: Bicarbonate Extractable Phosphorus (Colwell) (QCLot: 6248837)							
EM2421130-002	Anonymous	EK080: Bicarbonate Ext. P (Colwell)	----	40 mg/kg	98.0	70.0	130
EP004: Organic Matter (QCLot: 6246766)							
EM2420919-020	Anonymous	EP004: Organic Matter	----	4.28 %	81.2	70.0	120
		EP004: Total Organic Carbon	----	2.48 %	81.3	70.0	120
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 6239529)							

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 6239529) - continued							
EM2421131-005	TP26_0.0-0.15_241127	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	116	63.2	144
EP068A: Organochlorine Pesticides (OC) (QCLot: 6239528)							
EM2421131-005	TP26_0.0-0.15_241127	EP068: gamma-BHC - (Lindane)	58-89-9	0.5 mg/kg	104	51.4	139
		EP068: Heptachlor	76-44-8	0.5 mg/kg	93.6	49.1	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	94.7	38.4	135
		EP068: Dieldrin	60-57-1	0.5 mg/kg	117	58.4	136
		EP068: Endrin	72-20-8	0.5 mg/kg	96.5	33.0	146
		EP068: 4.4`-DDT	50-29-3	0.5 mg/kg	87.9	20.0	133
EP068B: Organophosphorus Pesticides (OP) (QCLot: 6239528)							
EM2421131-005	TP26_0.0-0.15_241127	EP068: Diazinon	333-41-5	0.5 mg/kg	106	65.1	135
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	95.2	56.3	127
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	103	55.0	133
		EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	91.5	55.1	133
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	86.0	43.8	128
EP075(SIM)A: Phenolic Compounds (QCLot: 6239526)							
EM2421131-003	TP05_1.0-1.1_241127	EP075(SIM): Phenol	108-95-2	3 mg/kg	93.4	77.1	119
		EP075(SIM): 2-Chlorophenol	95-57-8	3 mg/kg	96.4	78.9	123
		EP075(SIM): 2-Nitrophenol	88-75-5	3 mg/kg	70.1	43.8	136
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	3 mg/kg	81.0	61.5	120
		EP075(SIM): Pentachlorophenol	87-86-5	3 mg/kg	57.1	15.3	139
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 6239526)							
EM2421131-003	TP05_1.0-1.1_241127	EP075(SIM): Acenaphthene	83-32-9	3 mg/kg	98.3	77.2	116
		EP075(SIM): Pyrene	129-00-0	3 mg/kg	99.9	65.5	136
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6232314)							
EM2421130-004	Anonymous	EP080: C6 - C9 Fraction	----	28 mg/kg	79.9	33.4	124
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6239527)							
EM2421131-001	TP05_0.0-0.15_241127	EP071: C10 - C14 Fraction	----	790 mg/kg	101	71.2	125
		EP071: C15 - C28 Fraction	----	2730 mg/kg	101	75.6	122
		EP071: C29 - C36 Fraction	----	1410 mg/kg	96.4	78.0	120
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6232314)							
EM2421130-004	Anonymous	EP080: C6 - C10 Fraction	C6_C10	33 mg/kg	78.2	30.8	120
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6239527)							
EM2421131-001	TP05_0.0-0.15_241127	EP071: >C10 - C16 Fraction	----	1080 mg/kg	102	72.2	128
		EP071: >C16 - C34 Fraction	----	3640 mg/kg	98.1	76.5	119
		EP071: >C34 - C40 Fraction	----	270 mg/kg	94.4	66.8	138
EP080: BTEXN (QCLot: 6232314)							

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP080: BTEXN (QCLot: 6232314) - continued							
EM2421130-004	Anonymous	EP080: Benzene	71-43-2	2 mg/kg	91.3	54.4	127
		EP080: Toluene	108-88-3	2 mg/kg	92.9	57.1	131

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM2421131**	Page	: 1 of 15
Client	: **EMM CONSULTING PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: Simony Sakamoto	Telephone	: +61 3 8549 9600
Project	: Olympic Dam	Date Samples Received	: 03-Nov-2024
Site	: Olympic Dam	Issue Date	: 21-Jan-2025
Sampler	: Simony Sakamoto	No. of samples received	: 23
Order number	: E240975	No. of samples analysed	: 18

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **Duplicate outliers exist - please see following pages for full details.**
- **Laboratory Control outliers exist - please see following pages for full details.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, where applicable to the methodology, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **Analysis Holding Time Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Duplicate (DUP) RPDs							
EG005(ED093)T: Total Metals by ICP-AES	EM2421130--020	Anonymous	**Calcium**	7440-70-2	74.8 %	0% - 20%	**RPD exceeds LOR based limits**
Laboratory Control Spike (LCS) Recoveries							
EP068A: Organochlorine Pesticides (OC)	QC-6239528-001	----	**Mirex**	2385-85-5	105 %	92.4-102%	**Recovery greater than upper control limit**
EP068B: Organophosphorus Pesticides (OP)	QC-6239528-001	----	**Monocrotophos**	6923-22-4	157 %	10.0-136%	**Recovery greater than upper control limit**
Matrix Spike (MS) Recoveries							
ED040N: Sulfate - Calcium Phosphate Soluble (NEPM)	EM2421130--005	Anonymous	**Sulfate as SO4 2-**	14808-79-8	80.6 %	84.0-116%	**Recovery less than lower data quality objective**

Outliers : Analysis Holding Time Compliance

Matrix: **SOIL**

Method / Container / Client Sample ID(s)		Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Days overdue	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Days overdue
EA002-AD: pH (Soils) dried at 40°C							
Soil Glass Jar - Unpreserved							
TP05_1.0-1.1_241127,	TP05_2.0-2.1_241127,	05-Dec-2024	04-Dec-2024	**1**	----	----	----
TP11_0.4-0.5_241127,	TP11_2.0-2.1_241127						
EA010-AD: Conductivity (Soils) dried at 40°C							
Soil Glass Jar - Unpreserved							
TP05_1.0-1.1_241127,	TP05_2.0-2.1_241127,	05-Dec-2024	04-Dec-2024	**1**	----	----	----
TP11_0.4-0.5_241127,	TP11_2.0-2.1_241127						

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Evaluation	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Evaluation
EA001: pH in soil using 0.01M CaCl extract								
Soil Glass Jar - Unpreserved (EA001)								
TP05_1.0-1.1_241127,	TP05_2.0-2.1_241127,	**27-Nov-2024**	**04-Dec-2024**	04-Dec-2024	✓	**04-Dec-2024**	04-Dec-2024	✓
TP11_0.4-0.5_241127,	TP11_2.0-2.1_241127							

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA002: pH 1:5 (Soils)							
Soil Glass Jar - Unpreserved (EA002)							
TP05_1.0-1.1_241127, TP05_2.0-2.1_241127, TP11_0.4-0.5_241127, TP11_2.0-2.1_241127	**27-Nov-2024**	**04-Dec-2024**	04-Dec-2024	✓	**04-Dec-2024**	04-Dec-2024	✓
EA002-AD: pH (Soils) dried at 40°C							
Soil Glass Jar - Unpreserved (EA002-AD)							
TP05_1.0-1.1_241127, TP05_2.0-2.1_241127, TP11_0.4-0.5_241127, TP11_2.0-2.1_241127	**27-Nov-2024**	**05-Dec-2024**	04-Dec-2024	×	**05-Dec-2024**	05-Dec-2024	✓
EA003 :pH (field/fox)							
Snap Lock Bag - frozen (EA003)							
TP05_1.0-1.1_241127, TP05_2.0-2.1_241127, TP11_0.4-0.5_241127, TP11_2.0-2.1_241127, TP26_1.0-2.0_241127, TP26_0.3-1.0_241127, TP06_0.4-0.5_241127, TP06_1.0-1.6_241127	**27-Nov-2024**	**10-Dec-2024**	23-Aug-2027	✓	**11-Dec-2024**	10-Mar-2025	✓
EA010: Conductivity (1:5)							
Soil Glass Jar - Unpreserved (EA010)							
TP05_1.0-1.1_241127, TP05_2.0-2.1_241127, TP11_0.4-0.5_241127, TP11_2.0-2.1_241127	**27-Nov-2024**	**04-Dec-2024**	04-Dec-2024	✓	**04-Dec-2024**	01-Jan-2025	✓
EA010-AD: Conductivity (Soils) dried at 40°C							
Soil Glass Jar - Unpreserved (EA010-AD)							
TP05_1.0-1.1_241127, TP05_2.0-2.1_241127, TP11_0.4-0.5_241127, TP11_2.0-2.1_241127	**27-Nov-2024**	**05-Dec-2024**	04-Dec-2024	×	**05-Dec-2024**	02-Jan-2025	✓
EA033-A: Actual Acidity							
Snap Lock Bag - frozen (EA033)							
TP05_1.0-1.1_241127, TP05_2.0-2.1_241127, TP11_0.4-0.5_241127, TP11_2.0-2.1_241127, TP26_1.0-2.0_241127, TP26_0.3-1.0_241127, TP06_0.4-0.5_241127, TP06_1.0-1.6_241127	**27-Nov-2024**	**11-Dec-2024**	27-Nov-2025	✓	**11-Dec-2024**	11-Mar-2025	✓
EA033-B: Potential Acidity							
Snap Lock Bag - frozen (EA033)							
TP05_1.0-1.1_241127, TP05_2.0-2.1_241127, TP11_0.4-0.5_241127, TP11_2.0-2.1_241127, TP26_1.0-2.0_241127, TP26_0.3-1.0_241127, TP06_0.4-0.5_241127, TP06_1.0-1.6_241127	**27-Nov-2024**	**11-Dec-2024**	27-Nov-2025	✓	**11-Dec-2024**	11-Mar-2025	✓
EA033-C: Acid Neutralising Capacity							
Snap Lock Bag - frozen (EA033)							
TP05_1.0-1.1_241127, TP05_2.0-2.1_241127, TP11_0.4-0.5_241127, TP11_2.0-2.1_241127, TP26_1.0-2.0_241127, TP26_0.3-1.0_241127, TP06_0.4-0.5_241127, TP06_1.0-1.6_241127	**27-Nov-2024**	**11-Dec-2024**	27-Nov-2025	✓	**11-Dec-2024**	11-Mar-2025	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA033-D: Retained Acidity							
Snap Lock Bag - frozen (EA033)							
TP05_1.0-1.1_241127, TP05_2.0-2.1_241127, TP11_0.4-0.5_241127, TP11_2.0-2.1_241127, TP26_1.0-2.0_241127, TP26_0.3-1.0_241127, TP06_0.4-0.5_241127, TP06_1.0-1.6_241127	**27-Nov-2024**	**11-Dec-2024**	27-Nov-2025	✓	**11-Dec-2024**	11-Mar-2025	✓
EA033-E: Acid Base Accounting							
Snap Lock Bag - frozen (EA033)							
TP05_1.0-1.1_241127, TP05_2.0-2.1_241127, TP11_0.4-0.5_241127, TP11_2.0-2.1_241127, TP26_1.0-2.0_241127, TP26_0.3-1.0_241127, TP06_0.4-0.5_241127, TP06_1.0-1.6_241127	**27-Nov-2024**	**11-Dec-2024**	27-Nov-2025	✓	**11-Dec-2024**	11-Mar-2025	✓
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055)							
TP05_0.0-0.15_241127, TP05_1.0-1.1_241127, TP05_2.0-2.1_241127, TP26_0.0-0.15_241127, TP26_1.0-1.1_241127, TP11_0.4-0.5_241127, TP11_1.0-1.1_241127, TP11_2.0-2.1_241127, QC101_241127, TP06_0.0-0.15_241127, TP06_1.0-1.1_241127	**27-Nov-2024**	**----**	----	----	**10-Dec-2024**	11-Dec-2024	✓
Soil Glass Jar - Unpreserved (EA055)							
QC602_241128, QC401_241128, Trip Spike Control	**28-Nov-2024**	**----**	----	----	**10-Dec-2024**	12-Dec-2024	✓
EA058: Emerson Aggregate Test							
Soil Glass Jar - Unpreserved (EA058)							
TP05_1.0-1.1_241127, TP11_0.4-0.5_241127	**27-Nov-2024**	**----**	----	----	**10-Dec-2024**	26-May-2025	✓
EA150: Particle Sizing							
Snap Lock Bag (EA150H)							
TP05_1.0-1.1_241127, TP11_0.4-0.5_241127, TP06_1.0-1.6_241127	**27-Nov-2024**	**----**	----	----	**11-Dec-2024**	26-May-2025	✓
EA150: Soil Classification based on Particle Size							
Snap Lock Bag (EA150H)							
TP05_1.0-1.1_241127, TP11_0.4-0.5_241127, TP06_1.0-1.6_241127	**27-Nov-2024**	**----**	----	----	**11-Dec-2024**	26-May-2025	✓
ED006: Exchangeable Cations on Alkaline Soils							
Soil Glass Jar - Unpreserved (ED006)							
TP05_1.0-1.1_241127, TP05_2.0-2.1_241127, TP11_0.4-0.5_241127, TP11_2.0-2.1_241127	**27-Nov-2024**	**04-Dec-2024**	25-Dec-2024	✓	**11-Dec-2024**	25-Dec-2024	✓
ED007: Exchangeable Cations							
Soil Glass Jar - Unpreserved (ED007)							
TP05_1.0-1.1_241127, TP05_2.0-2.1_241127, TP11_0.4-0.5_241127, TP11_2.0-2.1_241127	**27-Nov-2024**	**04-Dec-2024**	25-Dec-2024	✓	**11-Dec-2024**	25-Dec-2024	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
ED008: Exchangeable Cations							
Soil Glass Jar - Unpreserved (ED008)							
TP05_1.0-1.1_241127, TP05_2.0-2.1_241127, TP11_0.4-0.5_241127, TP11_2.0-2.1_241127	**27-Nov-2024**	**04-Dec-2024**	25-Dec-2024	✓	**11-Dec-2024**	25-Dec-2024	✓
ED040N: Sulfate - Calcium Phosphate Soluble (NEPM)							
Soil Glass Jar - Unpreserved (ED040N)							
TP05_1.0-1.1_241127, TP11_0.4-0.5_241127	**27-Nov-2024**	**10-Dec-2024**	26-May-2025	✓	**10-Dec-2024**	26-May-2025	✓
ED040T: Total Sulfur by ICPAES							
Soil Glass Jar - Unpreserved (ED040T)							
TP05_1.0-1.1_241127, TP11_0.4-0.5_241127	**27-Nov-2024**	**04-Dec-2024**	04-Dec-2024	✓	**04-Dec-2024**	01-Jan-2025	✓
ED045G: Chloride by Discrete Analyser							
Soil Glass Jar - Unpreserved (ED045G)							
TP05_1.0-1.1_241127, TP05_2.0-2.1_241127, TP11_0.4-0.5_241127, TP11_2.0-2.1_241127	**27-Nov-2024**	**04-Dec-2024**	25-Dec-2024	✓	**07-Dec-2024**	01-Jan-2025	✓
EG005(ED093)T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
TP05_0.0-0.15_241127, TP05_1.0-1.1_241127, TP26_0.0-0.15_241127, TP26_1.0-1.1_241127, TP11_0.4-0.5_241127, TP11_1.0-1.1_241127, QC101_241127, TP06_0.0-0.15_241127, TP06_1.0-1.1_241127	**27-Nov-2024**	**10-Dec-2024**	26-May-2025	✓	**10-Dec-2024**	26-May-2025	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
TP05_0.0-0.15_241127, TP05_1.0-1.1_241127, TP26_0.0-0.15_241127, TP26_1.0-1.1_241127, TP11_0.4-0.5_241127, TP11_1.0-1.1_241127, QC101_241127, TP06_0.0-0.15_241127, TP06_1.0-1.1_241127	**27-Nov-2024**	**10-Dec-2024**	25-Dec-2024	✓	**10-Dec-2024**	25-Dec-2024	✓
EG048: Hexavalent Chromium (Alkaline Digest)							
Soil Glass Jar - Unpreserved (EG048G)							
TP05_1.0-1.1_241127, TP26_0.0-0.15_241127, TP26_1.0-1.1_241127, TP11_0.4-0.5_241127, QC101_241127, TP06_1.0-1.1_241127	**27-Nov-2024**	**11-Dec-2024**	25-Dec-2024	✓	**12-Dec-2024**	18-Dec-2024	✓
EK028SF: Weak Acid Dissociable CN by Segmented Flow Analyser							
Soil Glass Jar - Unpreserved (EK028SF)							
TP05_1.0-1.1_241127, TP26_0.0-0.15_241127, TP26_1.0-1.1_241127, TP11_0.4-0.5_241127, QC101_241127, TP06_1.0-1.1_241127	**27-Nov-2024**	**10-Dec-2024**	11-Dec-2024	✓	**12-Dec-2024**	24-Dec-2024	✓
EK055: Ammonia as N							
Soil Glass Jar - Unpreserved (EK055)							
TP05_1.0-1.1_241127, TP11_0.4-0.5_241127	**27-Nov-2024**	**----**	----	----	**05-Dec-2024**	25-Dec-2024	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EK057G: Nitrite as N by Discrete Analyser								
Soil Glass Jar - Unpreserved (EK057G)								
TP05_1.0-1.1_241127,	TP11_0.4-0.5_241127	**27-Nov-2024**	**04-Dec-2024**	04-Dec-2024	✓	**06-Dec-2024**	06-Dec-2024	✓
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Soil Glass Jar - Unpreserved (EK059G)								
TP05_1.0-1.1_241127,	TP11_0.4-0.5_241127	**27-Nov-2024**	**04-Dec-2024**	25-Dec-2024	✓	**06-Dec-2024**	06-Dec-2024	✓
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Soil Glass Jar - Unpreserved (EK061G)								
TP05_1.0-1.1_241127,	TP11_0.4-0.5_241127	**27-Nov-2024**	**05-Dec-2024**	25-Dec-2024	✓	**10-Dec-2024**	02-Jan-2025	✓
EK067G: Total Phosphorus as P by Discrete Analyser								
Soil Glass Jar - Unpreserved (EK067G)								
TP05_1.0-1.1_241127,	TP11_0.4-0.5_241127	**27-Nov-2024**	**05-Dec-2024**	25-Dec-2024	✓	**10-Dec-2024**	02-Jan-2025	✓
EK080: Bicarbonate Extractable Phosphorus (Colwell)								
Soil Glass Jar - Unpreserved (EK080)								
TP05_1.0-1.1_241127,	TP11_0.4-0.5_241127	**27-Nov-2024**	**10-Dec-2024**	26-May-2025	✓	**12-Dec-2024**	26-May-2025	✓
EP004: Organic Matter								
Soil Glass Jar - Unpreserved (EP004)								
TP05_1.0-1.1_241127,	TP11_0.4-0.5_241127	**27-Nov-2024**	**10-Dec-2024**	25-Dec-2024	✓	**12-Dec-2024**	25-Dec-2024	✓
EP066: Polychlorinated Biphenyls (PCB)								
Soil Glass Jar - Unpreserved (EP066)								
TP05_1.0-1.1_241127,	TP26_0.0-0.15_241127,	**27-Nov-2024**	**09-Dec-2024**	11-Dec-2024	✓	**11-Dec-2024**	18-Jan-2025	✓
TP26_1.0-1.1_241127,	TP11_0.4-0.5_241127,							
QC101_241127,	TP06_1.0-1.1_241127							
EP068A: Organochlorine Pesticides (OC)								
Soil Glass Jar - Unpreserved (EP068)								
TP05_1.0-1.1_241127,	TP26_0.0-0.15_241127,	**27-Nov-2024**	**09-Dec-2024**	11-Dec-2024	✓	**10-Dec-2024**	18-Jan-2025	✓
TP26_1.0-1.1_241127,	TP11_0.4-0.5_241127,							
QC101_241127,	TP06_1.0-1.1_241127							
EP068B: Organophosphorus Pesticides (OP)								
Soil Glass Jar - Unpreserved (EP068)								
TP05_1.0-1.1_241127,	TP26_0.0-0.15_241127,	**27-Nov-2024**	**09-Dec-2024**	11-Dec-2024	✓	**10-Dec-2024**	18-Jan-2025	✓
TP26_1.0-1.1_241127,	TP11_0.4-0.5_241127,							
QC101_241127,	TP06_1.0-1.1_241127							
EP068C: Triazines								
Soil Glass Jar - Unpreserved (EP068)								
TP05_1.0-1.1_241127,	TP26_0.0-0.15_241127,	**27-Nov-2024**	**09-Dec-2024**	11-Dec-2024	✓	**10-Dec-2024**	18-Jan-2025	✓
TP26_1.0-1.1_241127,	TP11_0.4-0.5_241127,							
QC101_241127,	TP06_1.0-1.1_241127							

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP068D: Pyrethroids							
Soil Glass Jar - Unpreserved (EP068)							
TP05_1.0-1.1_241127, TP26_0.0-0.15_241127, TP26_1.0-1.1_241127, TP11_0.4-0.5_241127, QC101_241127, TP06_1.0-1.1_241127	**27-Nov-2024**	**09-Dec-2024**	11-Dec-2024	✓	**10-Dec-2024**	18-Jan-2025	✓
EP075(SIM)A: Phenolic Compounds							
Soil Glass Jar - Unpreserved (EP075(SIM))							
TP05_1.0-1.1_241127, TP26_0.0-0.15_241127, TP26_1.0-1.1_241127, TP11_0.4-0.5_241127, QC101_241127, TP06_1.0-1.1_241127	**27-Nov-2024**	**09-Dec-2024**	11-Dec-2024	✓	**12-Dec-2024**	18-Jan-2025	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM))							
TP05_0.0-0.15_241127, TP05_1.0-1.1_241127, TP26_0.0-0.15_241127, TP26_1.0-1.1_241127, TP11_0.4-0.5_241127, TP11_1.0-1.1_241127, QC101_241127, TP06_0.0-0.15_241127, TP06_1.0-1.1_241127	**27-Nov-2024**	**09-Dec-2024**	11-Dec-2024	✓	**12-Dec-2024**	18-Jan-2025	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP080)							
TP05_0.0-0.15_241127, TP05_1.0-1.1_241127, TP26_0.0-0.15_241127, TP26_1.0-1.1_241127, TP11_0.4-0.5_241127, TP11_1.0-1.1_241127, QC101_241127, TP06_0.0-0.15_241127, TP06_1.0-1.1_241127	**27-Nov-2024**	**04-Dec-2024**	11-Dec-2024	✓	**09-Dec-2024**	11-Dec-2024	✓
Soil Glass Jar - Unpreserved (EP071)							
TP05_0.0-0.15_241127, TP05_1.0-1.1_241127, TP26_0.0-0.15_241127, TP26_1.0-1.1_241127, TP11_0.4-0.5_241127, TP11_1.0-1.1_241127, QC101_241127, TP06_0.0-0.15_241127, TP06_1.0-1.1_241127	**27-Nov-2024**	**09-Dec-2024**	11-Dec-2024	✓	**10-Dec-2024**	18-Jan-2025	✓
Soil Glass Jar - Unpreserved (EP080)							
QC602_241128, QC401_241128, Trip Spike Control	**28-Nov-2024**	**04-Dec-2024**	12-Dec-2024	✓	**09-Dec-2024**	12-Dec-2024	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP080)							
TP05_0.0-0.15_241127, TP05_1.0-1.1_241127, TP26_0.0-0.15_241127, TP26_1.0-1.1_241127, TP11_0.4-0.5_241127, TP11_1.0-1.1_241127, QC101_241127, TP06_0.0-0.15_241127, TP06_1.0-1.1_241127	**27-Nov-2024**	**04-Dec-2024**	11-Dec-2024	✓	**09-Dec-2024**	11-Dec-2024	✓
Soil Glass Jar - Unpreserved (EP071)							
TP05_0.0-0.15_241127, TP05_1.0-1.1_241127, TP26_0.0-0.15_241127, TP26_1.0-1.1_241127, TP11_0.4-0.5_241127, TP11_1.0-1.1_241127, QC101_241127, TP06_0.0-0.15_241127, TP06_1.0-1.1_241127	**27-Nov-2024**	**09-Dec-2024**	11-Dec-2024	✓	**10-Dec-2024**	18-Jan-2025	✓
Soil Glass Jar - Unpreserved (EP080)							
QC602_241128, QC401_241128, Trip Spike Control	**28-Nov-2024**	**04-Dec-2024**	12-Dec-2024	✓	**09-Dec-2024**	12-Dec-2024	✓
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080)							
TP05_0.0-0.15_241127, TP05_1.0-1.1_241127, TP26_0.0-0.15_241127, TP26_1.0-1.1_241127, TP11_0.4-0.5_241127, TP11_1.0-1.1_241127, QC101_241127, TP06_0.0-0.15_241127, TP06_1.0-1.1_241127	**27-Nov-2024**	**04-Dec-2024**	11-Dec-2024	✓	**09-Dec-2024**	11-Dec-2024	✓
Soil Glass Jar - Unpreserved (EP080)							
QC602_241128, QC401_241128, Trip Spike Control	**28-Nov-2024**	**04-Dec-2024**	12-Dec-2024	✓	**09-Dec-2024**	12-Dec-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Bicarbonate Extractable P (Colwell)	EK080	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Buchi Ammonia	EK055	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride Soluble By Discrete Analyser	ED045G	2	12	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chromium Suite for Acid Sulphate Soils	EA033	4	34	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Electrical Conductivity (1:5)	EA010	2	13	**15.38**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Electrical Conductivity (1:5) on 40°C dried soil	EA010-AD	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Exchangeable Cations on Alkaline Soils	ED006	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055	2	16	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser	EK059G	1	3	**33.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N - Soluble by Discrete Analyser	EK057G	1	3	**33.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Organic Matter	EP004	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	9	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	6	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH (1:5)	EA002	2	12	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH (1:5) on 40°C dried soil	EA002-AD	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH field/fox	EA003	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH in soil using a 0.01M CaCl2 extract	EA001	1	7	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	6	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate - Calcium Phosphate Soluble	ED040N	2	13	**15.38**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TKN as N By Discrete Analyser	EK061G	2	12	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	3	20	**15.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus By Discrete Analyser	EK067G	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	9	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
WAD Cyanide by Segmented Flow Analyser	EK028SF	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Bicarbonate Extractable P (Colwell)	EK080	3	15	**20.00**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
Buchi Ammonia	EK055	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride Soluble By Discrete Analyser	ED045G	2	12	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chromium Suite for Acid Sulphate Soils	EA033	2	34	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Electrical Conductivity (1:5)	EA010	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Electrical Conductivity (1:5) on 40°C dried soil	EA010-AD	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Exchangeable Cations on Alkaline Soils	ED006	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Control Samples (LCS) - Continued							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser	EK059G	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N - Soluble by Discrete Analyser	EK057G	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Organic Matter	EP004	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH (1:5)	EA002	2	12	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH (1:5) on 40°C dried soil	EA002-AD	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH in soil using a 0.01M CaCl2 extract	EA001	2	7	**28.57**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate - Calcium Phosphate Soluble	ED040N	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TKN as N By Discrete Analyser	EK061G	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus By Discrete Analyser	EK067G	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
WAD Cyanide by Segmented Flow Analyser	EK028SF	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Bicarbonate Extractable P (Colwell)	EK080	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Buchi Ammonia	EK055	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride Soluble By Discrete Analyser	ED045G	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chromium Suite for Acid Sulphate Soils	EA033	2	34	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Electrical Conductivity (1:5)	EA010	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Electrical Conductivity (1:5) on 40°C dried soil	EA010-AD	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Exchangeable Cations on Alkaline Soils	ED006	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser	EK059G	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N - Soluble by Discrete Analyser	EK057G	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Organic Matter	EP004	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate - Calcium Phosphate Soluble	ED040N	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TKN as N By Discrete Analyser	EK061G	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus By Discrete Analyser	EK067G	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Method Blanks (MB) - Continued							
TRH - Semivolatile Fraction	EP071	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
WAD Cyanide by Segmented Flow Analyser	EK028SF	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Bicarbonate Extractable P (Colwell)	EK080	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Buchi Ammonia	EK055	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride Soluble By Discrete Analyser	ED045G	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser	EK059G	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N - Soluble by Discrete Analyser	EK057G	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Organic Matter	EP004	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate - Calcium Phosphate Soluble	ED040N	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TKN as N By Discrete Analyser	EK061G	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus By Discrete Analyser	EK067G	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
WAD Cyanide by Segmented Flow Analyser	EK028SF	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH in soil using a 0.01M CaCl2 extract	EA001	SOIL	In house: Referenced to Rayment and Lyons 4B3 (mod.) or 4B4 (mod.) 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM Schedule B(3).
pH (1:5)	EA002	SOIL	In house: Referenced to Rayment and Lyons 4A1 and APHA 4500H+. pH is determined on soil samples after a 1:5 soil/water leach. This method is compliant with NEPM Schedule B(3).
pH (1:5) on 40°C dried soil	EA002-AD	SOIL	In house: Referenced to Rayment and Lyons 4A1 and APHA 4500H+. pH is determined on 40°C dried soil after a 1:5 soil/water leach. This method is compliant with NEPM Schedule B(3)
pH field/fox	EA003	SOIL	In house: Referenced to Ahern et al 1998 - determined on a 1:5 soil/water extract designed to simulate field measured pH and pH after the extract has been oxidised with peroxide.
Net Acid Production Potential	EA009	SOIL	In house: Referenced to Coastech Research (Canada)(Mod.). NAPP = Acid Production Potential (APP or MAP-Maximum Acid Potential) minus Neutralising Capacity (ANC). NAPP may be +ve, zero or -ve.
Electrical Conductivity (1:5)	EA010	SOIL	In house: Referenced to Rayment and Lyons 3A1 and APHA 2510. Conductivity is determined on soil samples using a 1:5 soil/water leach. This method is compliant with NEPM Schedule B(3).
Electrical Conductivity (1:5) on 40°C dried soil	EA010-AD	SOIL	In house: Referenced to Rayment and Lyons 3A1 and APHA 2510. Conductivity is determined on soil samples dried at 40°C using a 1:5 soil/water leach. This method is compliant with NEPM Schedule B(3).
Chromium Suite for Acid Sulphate Soils	EA033	SOIL	In house: Referenced to Ahern et al 2004. This method covers the determination of Chromium Reducible Sulfur (SCR); pHKCl; titratable actual acidity (TAA); acid neutralising capacity by back titration (ANC); and net acid soluble sulfur (SNAS) which incorporates peroxide sulfur. It applies to soils and sediments (including sands) derived from coastal regions. Liming Rate is based on results for samples as submitted and incorporates a minimum safety factor of 1.5.
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Emerson Aggregate Test	EA058	SOIL	In house: Referenced to AS1289.3.8.1. Testing is performed only on soils with suitable aggregates; sands and gravels are usually unsuitable for this test. The test classifies the behaviour of soil aggregates, when immersed, on their coherence in water.
Particle Size Analysis by Hydrometer	EA150H	SOIL	Particle Size Analysis by Hydrometer according to AS1289.3.6.3
Gross Alpha and Beta activity in solids	EA250	SOIL	In house: Referenced to ISO 9697 / CSN 757611. Determination of Gross Alpha and Beta activity in soil and sediment by Thick Source method. An appropriate mass of sample is dried and pulverised prior to direct activity counting. (If required, Potassium may be determined separately and results corrected accordingly for 40K.) Analysis is performed by ALS (Czech Republic) who hold technical accreditation #1163 for Gross alpha and beta activity under CAI. CAI are a European accreditation body, equivalent to NATA in Australila and recognised internationally by NATA under ILAC.
Radionuclides (Natural) in Soil / Sediment	EA252	SOIL	Individual Natural Radionuclides in soil / sediment by High Resolution Gamma Spectrometry. Analysis is performed by ALS (Czech Republic) who hold technical accreditation #1163 for Gamma Spectrometry under CAI. CAI are a European accreditation body, equivalent to NATA in Australila and recognised internationally by NATA under ILAC.

Analytical Methods	Method	Matrix	Method Descriptions
Exchangeable Cations on Alkaline Soils	* ED006	SOIL	In house: Referenced to Soil Survey Test Method C5. Soluble salts are removed from the sample prior to analysis. Cations are exchanged from the sample by contact with alcoholic ammonium chloride at pH 8.5. They are then quantitated in the final solution by ICPAES and reported as meq/100g of original soil.
Exchangeable Cations	ED007	SOIL	In house: Referenced to Rayment & Lyons Method 15A1. Cations are exchanged from the sample by contact with Ammonium Chloride. They are then quantitated in the final solution by ICPAES and reported as meq/100g of original soil. This method is compliant with NEPM Schedule B(3).
Exchangeable Cations with pre-treatment	ED008	SOIL	In house: Referenced to Rayment & Lyons Method 15A2. Soluble salts are removed from the sample prior to analysis. Cations are exchanged from the sample by contact with Ammonium Chloride. They are then quantitated in the final solution by ICPAES and reported as meq/100g of original soil. This method is compliant with NEPM Schedule B(3).
Sulfate - Calcium Phosphate Soluble	ED040N	SOIL	In house: The sample is extracted with a calcium phosphate solution. The phosphate ion displaces the adsorbed sulfate while calcium ions depress the extraction of interfering S from soil organic matter. SO4 in the extract is determined by ICPAES and reported as dry weight in the original soil. This method is compliant with NEPM Schedule B(3).
Sulfate as SO4 2- Total	ED040T	SOIL	In house: Total Sulfate is determined off a HCl digestion by ICPAES as S , and reported as SO4
Chloride Soluble By Discrete Analyser	ED045G	SOIL	In house: Referenced to APHA 4500 Cl - G. The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride.in the presence of ferric ions the librated thiocynate forms highly-coloured ferric thiocynate which is measured at 480 nm. Analysis is performed on a 1:5 soil / water leachate.
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3)
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	SOIL	In house: Referenced to USEPA SW846, Method 3060. Hexavalent chromium is extracted by alkaline digestion. The digest is determined by photometrically by automatic discrete analyser, following pH adjustment. The instrument uses colour development using dephenylcarbazide. Each run of samples is measured against a five-point calibration curve. This method is compliant with NEPM Schedule B(3)
WAD Cyanide by Segmented Flow Analyser	EK028SF	SOIL	In house: Referenced to APHA 4500-CN C&O / ISO 14403. Caustic leachates of soil samples are introduced into an automated segmented flow analyser. Hydrogen cyanide is liberated from a slightly acidified (pH 4.5) and is dialysed. Tight cyanide complexes that would not be amenable to oxidation by chlorine are not converted. Iron cyanide complexes are precipitated with zinc acetate. Liberated HCN diffuses through a membrane into a stream of sodium hydroxide where it is carried as CN- The cyanide in caustic solution is buffered to pH 5.2 and further converted to cyanogen chloride by reaction with chloramine-T. Cyanogen chloride subsequently reacts with 4-pyridine carboxylic and 1,3-dimethylbarbituric acids to give a red colour complex. This colour is measured at 600 nm. This method is compliant with NEPM Schedule B(3).

Analytical Methods	Method	Matrix	Method Descriptions
Buchi Ammonia	EK055	SOIL	In house: Referenced to APHA 4500-NH3 B&G, H Samples are steam distilled (Buchi) prior to analysis and quantified using titration, FIA or Discrete Analyser.
Nitrite as N - Soluble by Discrete Analyser	EK057G	SOIL	In house: Referenced to APHA 4500-NO3- B. Nitrite in a water extract is determined by direct colourimetry by Discrete Analyser.
Nitrate as N - Soluble by Discrete Analyser	EK058G	SOIL	In house: Referenced to APHA 4500-NO3- F. Nitrate in the 1:5 soil:water extract is reduced to nitrite by way of a chemical reduction followed by quantification by Discrete Analyser. Nitrite is determined seperately by direct colourimetry and result for Nitrate calculated as the difference between the two results.
Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser	EK059G	SOIL	In house: Thermo Scientific Method D08727 and NEMI (National Environmental Method Index) Method ID: 9171. This method covers the determination of total oxidised nitrogen (NOx-N) and nitrate (NO3-N) by calculation, Combined oxidised Nitrogen (NO2+NO3) in a water extract is determined by direct colourimetry by Discrete Analyser.
TKN as N By Discrete Analyser	EK061G	SOIL	In house: Referenced to APHA 4500-Norg-D Soil samples are digested using Kjeldahl digestion followed by determination by Discrete Analyser.
Total Nitrogen as N (TKN + NOx) By Discrete Analyser	EK062G	SOIL	In house: Referenced to APHA 4500 Norg/NO3- Total Nitrogen is determined as the sum of TKN and Oxidised Nitrrogen, each determined seperately as N.
Total Phosphorus By Discrete Analyser	EK067G	SOIL	In house: Referenced to APHA 4500 P-B&F This procedure involves sulfuric acid digestion and quantification using Discrete Analyser.
Bicarbonate Extractable P (Colwell)	EK080	SOIL	In house: Referenced to Rayment & Lyons Method 9B1 Phosphorus is extracted from the soil using 0.5M NaHCO3 at a 1:100 soil:solution ratio and determined by FIA.
Organic Matter	EP004	SOIL	In house: Referenced to AS1289.4.1.1. Dichromate oxidation method after Walkley and Black. This method is compliant with NEPM Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3).
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM Schedule B(3).
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015 Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM Schedule B(3).
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM Schedule B(3) amended.

Preparation Methods	Method	Matrix	Method Descriptions
NaOH leach for CN in Soils	CN-PR	SOIL	In house: APHA 4500 CN. Samples are extracted by end-over-end tumbling with NaOH.
pH in soil using a 0.01M CaCl2 extract	EA001-PR	SOIL	In house: Referenced to Rayment and Lyons 4B1, 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM Schedule B(3).

Preparation Methods	Method	Matrix	Method Descriptions
Exchangeable Cations Preparation Method (Alkaline Soils)	* ED006PR	SOIL	In house: Referenced to Rayment and Lyons method 15C1.
Exchangeable Cations Preparation Method	ED007PR	SOIL	In house: Referenced to Rayment & Lyons method 15A1. A 1M NH4Cl extraction by end over end tumbling at a ratio of 1:20. There is no pretreatment for soluble salts. Extracts can be run by ICP for cations.
Calcium Phosphate Extraction for Sulphate as SO4 2-	ED040NPR	SOIL	The sample is extracted with a calcium phosphate solution. The phosphate ion displaces the adsorbed sulphate while calcium ions depress the extraction of interfering S from soil organic matter. SO4 in the extract is determined by ICPAES and reported as dry weight in the original soil. This method is compliant with NEPM Schedule B(3).
Alkaline digestion for Hexavalent Chromium	EG048PR	SOIL	In house: Referenced to USEPA SW846, Method 3060A.
TKN/TP Digestion	EK061/EK067	SOIL	In house: Referenced to APHA 4500 Norg- D; APHA 4500 P - H. Macro Kjeldahl digestion.
Sample Preparation for Bicarbonate Extractable P (Colwell)	EK080-PR	SOIL	In house: Referenced to Rayment & Lyons Method 9B1 Phosphorus is extracted from the soil using 0.5M NaHCO3 at a 1:100 soil:solution ratio.
Drying only	EN020D	SOIL	In house
Drying at 85 degrees, bagging and labelling (ASS)	EN020PR	SOIL	In house
HCl Digest	EN24	SOIL	1g of soil is digested in 30 ml of 30% HCl and the resultant digest bulked and filtered for analysis by ICP.
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of reagent grade water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
1:5 solid / water leach following drying at 40°C	EN34-AD	SOIL	10 g of 40°C dried soil is mixed with 50 mL of reagent grade water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).
Organic Matter	EP004-PR	SOIL	In house: Referenced to AS1289.4.1.1. Dichromate oxidation method after Walkley and Black. This method is compliant with NEPM Schedule B(3).
Dry and Pulverise (up to 100g)	GEO30	SOIL	#
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.

Certificate of Analysis

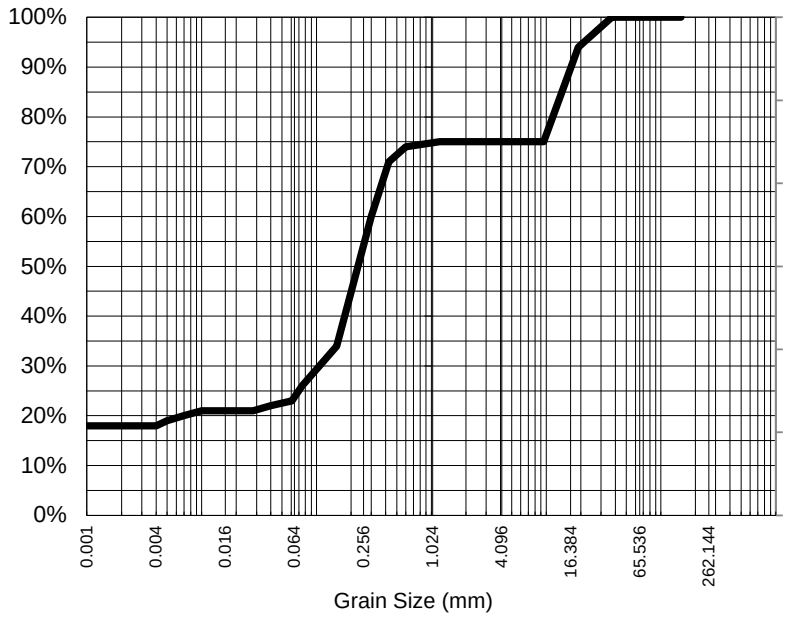
ALS Laboratory Group Pty Ltd
5/585 Maitland Road
Mayfield West, NSW 2304
pH 02 4014 2500
fax 02 4968 0349
samples.newcastle@alsenviro.com

ALS Environmental

Newcastle, NSW

CLIENT:	Simony Sakamoto	**DATE REPORTED:**	11-Dec-2024
COMPANY:	EMM CONSULTING PTY LTD	**DATE RECEIVED:**	3-Nov-2024
ADDRESS:	Level 1, 70 Pirie Street Adelaide	**REPORT NO:**	EM2421131-003 / PSD
PROJECT:	Olympic Dam	**SAMPLE ID:**	TP05_1.0-1.1_241127

Particle Size Distribution



Particle Size (mm)	% Passing
37.5	100%
19.0	94%
9.50	75%
4.75	75%
2.36	75%
1.18	75%
0.600	74%
0.425	71%
0.300	60%
0.150	34%
0.075	26%
Particle Size (microns)	
40	22%
28	21%
20	21%
14	21%
10	21%
7	20%
5	19%
4	18%
1	18%

Median Particle Size (mm)*	0.242

Analysis Notes

Samples analysed as received.

**** Soil Particle Density required for Hydrometer analysis according to AS 1289.3.5.1—2006 was not requested by the client . Typical sediment SPD values used for calculations and consequently, NATA endorsement does not apply to hydrometer results.***

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Sample Comments:

Analysed: 7-Dec-24

Loss on Pretreatment NA

Limit of Reporting: 1%

Sample Description: SAND, GRAVEL, FINES

Dispersion Method Shaker

Test Method: AS1289.3.6.1/AS1289.3.6.3

Soil Particle Density (<2.36mm) NR

NATA Accreditation: 825 Site: Newcastle
This document is issued in accordance with NATA's accreditation requirements. Accredited for compliance with ISO/IEC 17025. This document shall not be reproduced, except in full.

Aleksandar Vujkovic
Laboratory Supervisor
Authorised Signatory

Certificate of Analysis

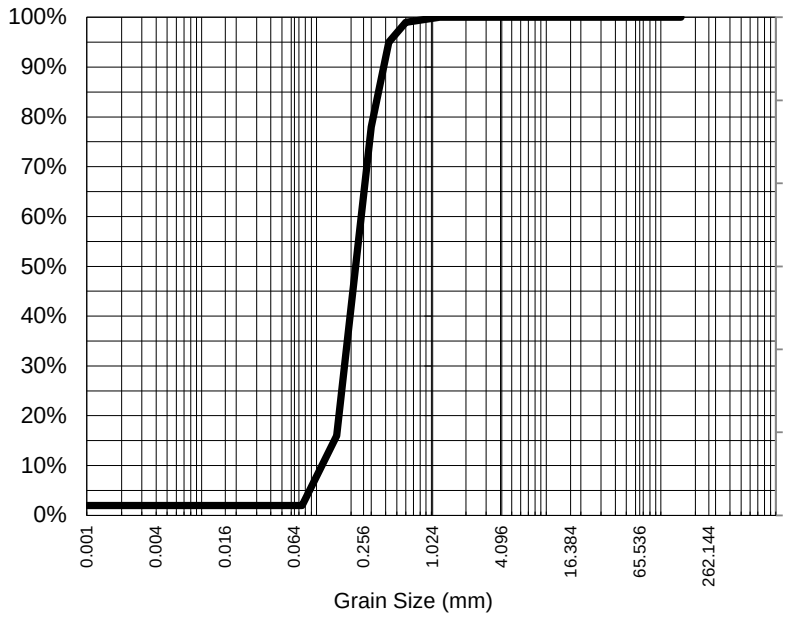
ALS Laboratory Group Pty Ltd
5/585 Maitland Road
Mayfield West, NSW 2304
pH 02 4014 2500
fax 02 4968 0349
samples.newcastle@alsenviro.com

ALS Environmental

Newcastle, NSW

CLIENT:	Simony Sakamoto	**DATE REPORTED:**	11-Dec-2024
COMPANY:	EMM CONSULTING PTY LTD	**DATE RECEIVED:**	3-Nov-2024
ADDRESS:	Level 1, 70 Pirie Street Adelaide	**REPORT NO:**	EM2421131-010 / PSD
PROJECT:	Olympic Dam	**SAMPLE ID:**	TP11_0.4-0.5_241127

Particle Size Distribution



Particle Size (mm)	% Passing
1.18	100%
0.600	99%
0.425	95%
0.300	78%
0.150	16%
0.075	2%
Particle Size (microns)	
37	2%
26	2%
18	2%
13	2%
9	2%
7	2%
5	2%
3	2%
1	2%

Median Particle Size (mm)*	0.232

Analysis Notes

Samples analysed as received.

**** Soil Particle Density required for Hydrometer analysis according to AS 1289.3.5.1—2006 was not requested by the client . Typical sediment SPD values used for calculations and consequently, NATA endorsement does not apply to hydrometer results.***

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Sample Comments:	AS1289.3.6.3 states that hydrometer analysis is not applicable for samples containing <10% fines (<75um). Results should be assessed accordingly	**Analysed:**	7-Dec-24
Loss on Pretreatment	NA	**Limit of Reporting:**	1%
Sample Description:	SAND, GRAVEL, FINES	**Dispersion Method**	Shaker
Test Method:	AS1289.3.6.1/AS1289.3.6.3		
Soil Particle Density (<2.36mm)	NR		

NATA Accreditation: 825 Site: Newcastle
This document is issued in accordance with NATA's accreditation requirements. Accredited for compliance with ISO/IEC 17025. This document shall not be reproduced, except in full.

NATA
WORLD RECOGNISED ACCREDITATION

Aleksandar Vujkovic
Laboratory Supervisor
Authorised Signatory

Certificate of Analysis

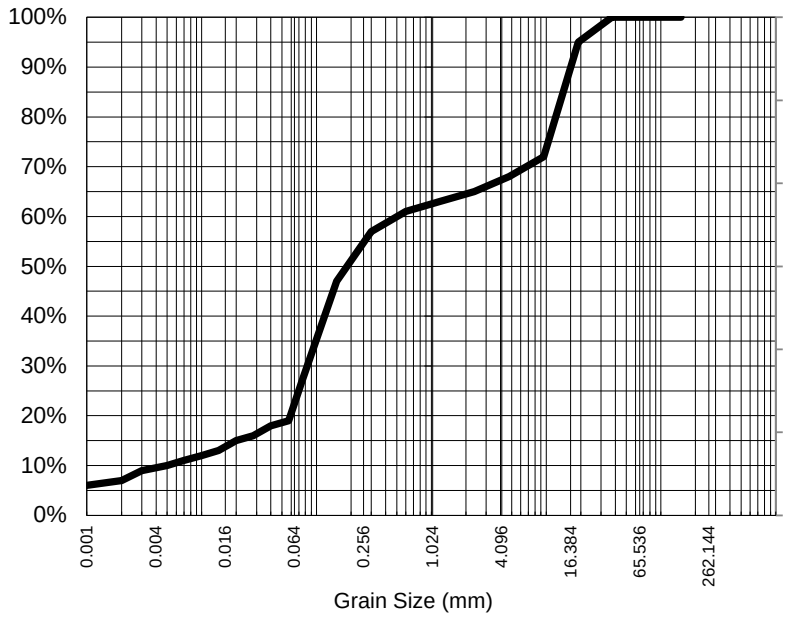
ALS Laboratory Group Pty Ltd
5/585 Maitland Road
Mayfield West, NSW 2304
pH 02 4014 2500
fax 02 4968 0349
samples.newcastle@alsenviro.com

ALS Environmental

Newcastle, NSW

CLIENT:	Simony Sakamoto	**DATE REPORTED:**	11-Dec-2024
COMPANY:	EMM CONSULTING PTY LTD	**DATE RECEIVED:**	3-Nov-2024
ADDRESS:	Level 1, 70 Pirie Street Adelaide	**REPORT NO:**	EM2421131-021 / PSD
PROJECT:	Olympic Dam	**SAMPLE ID:**	TP06_1.0-1.6_241127

Particle Size Distribution



Particle Size (mm)	% Passing
37.5	100%
19.0	95%
9.50	72%
4.75	68%
2.36	65%
1.18	63%
0.600	61%
0.425	59%
0.300	57%
0.150	47%
0.075	27%
Particle Size (microns)	
40	18%
28	16%
20	15%
14	13%
10	12%
7	11%
5	10%
3	9%
1	6%

Median Particle Size (mm)*	0.195

Analysis Notes

Samples analysed as received.

**** Soil Particle Density required for Hydrometer analysis according to AS 1289.3.5.1—2006 was not requested by the client . Typical sediment SPD values used for calculations and consequently, NATA endorsement does not apply to hydrometer results.***

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Sample Comments:

Analysed: 7-Dec-24

Loss on Pretreatment NA

Limit of Reporting: 1%

Sample Description: SAND, GRAVEL, FINES

Dispersion Method Shaker

Test Method: AS1289.3.6.1/AS1289.3.6.3

Soil Particle Density (<2.36mm) NR

NATA Accreditation: 825 Site: Newcastle
This document is issued in accordance with NATA's accreditation requirements. Accredited for compliance with ISO/IEC 17025. This document shall not be reproduced, except in full.

Aleksandar Vujkovic
Laboratory Supervisor
Authorised Signatory

CERTIFICATE OF ANALYSIS

Work Order	: **PR24F4131**	Issue Date	: 20-Jan-2025
Customer	: **Australian Laboratory Services Pty Ltd.**	Laboratory	: ALS Czech Republic, s.r.o.
Contact	: results address	Contact	: Client Service
Address	: 2 Byth Street 4051 Stafford QLD Australia	Address	: Na Harfe 336/9 Prague 9 - Vysocany 190 00 Czech Republic
E-mail	: subresults.bri@alsglobal.com	E-mail	: customer.support@alsglobal.com
Telephone	: ----	Telephone	: +420 226 226 228
Project	: EM2421130	Page	: 1 of 2
Order number	: 510984	Date Samples Received	: 27-Dec-2024
		Quote number	: PR2015ALSEN-AU0002 (CZ-251-15-0965)
Site	: ----	Date of test	: 27-Dec-2024 - 20-Jan-2025
Sampled by	: customer	QC Level	: ALS CR Standard Quality Control Schedule

General Comments

This report shall not be reproduced except in full, without prior written approval from the laboratory. The laboratory is not responsible for the sample data supplied by the customer and their impact on the validity of the result.
The laboratory declares that the test results relate only to the listed samples. If "ALS" is not included in the test report in the "Sampled by" section, then the results refer to the sample as received.
Sample(s) PR24F4131/001, method S-RAD-NAT: The reference date for activity concentrations of radionuclides is 26.11.2024.
Sample(s) PR24F4131/001, method S-RAD-NAT: The LoR values in radiology are valid only for background samples with very low activity (background samples) and
depend on many factors, on the analyzed mass of the sample, but mainly on the activity of other radionuclides. If the activity of
some radionuclide is higher the spectrum background is increased and this influences the evaluation of LoD of other radionuclides.
LoD values are evaluated for each radionuclide. The LoR values are only informative and are valid
for samples with low content of radionuclides and with sufficient mass.

Responsible for accuracy

Testing Laboratory No. 1163
Accredited by CAI according to
CSN EN ISO/IEC 17025:2018

Signatories	*Position*
Lubomír Pokorný	Country Manager



The company is certified according to ČSN EN ISO 14001 (Environmental management systems) and ČSN ISO 45001 (Occupational health and safety management systems)

Analytical Results

Sub-Matrix: **SOIL**	*Client sample ID*	**TP08_1.0-1.2_241126**		**----**		**----**	
	Laboratory sample ID	*PR24F4131001*		----		----	
	Client sampling date / time	26-Nov-2024 09:35		----		----	

Parameter	*Method*	*LOR*	*Unit*	**Result**	**MU**	**Result**	**MU**	**Result**	**MU**
Physical Parameters									
Dry matter @ 105°C	S-DRY-GRCI	0.10	%	**93.0**	± 5.0%	**----**	----	**----**	----
Radiological Parameters									
Gross alpha activity	S-GAA-PRO	500	Bq/kg DW	<500	----	**----**	----	**----**	----
Gross beta activity	S-GBA-PRO	500	Bq/kg DW	<500	----	**----**	----	**----**	----
Uranium 238	S-RAD-NAT	10	Bq/kg DW	**13**	± 45.0%	**----**	----	**----**	----
Thorium 234	S-RAD-NAT	10	Bq/kg DW	**13**	± 45.0%	**----**	----	**----**	----
Thorium 230	S-RAD-NAT	50	Bq/kg DW	<55	----	**----**	----	**----**	----
Radium 226	S-RAD-NAT	1.0	Bq/kg DW	**12.4**	± 20.0%	**----**	----	**----**	----
Lead 210	S-RAD-NAT	50	Bq/kg DW	<50	----	**----**	----	**----**	----
Uranium 235	S-RAD-NAT	1.0	Bq/kg DW	<1.0	----	**----**	----	**----**	----
Protactinium 231	S-RAD-NAT	5.0	Bq/kg DW	<11.0	----	**----**	----	**----**	----
Actinium 227	S-RAD-NAT	1.0	Bq/kg DW	<1.9	----	**----**	----	**----**	----
Thorium 227	S-RAD-NAT	1.0	Bq/kg DW	<1.9	----	**----**	----	**----**	----
Radium 223	S-RAD-NAT	1.0	Bq/kg DW	<2.1	----	**----**	----	**----**	----
Radium 228	S-RAD-NAT	1.0	Bq/kg DW	**10.8**	± 20.0%	**----**	----	**----**	----
Thorium 228	S-RAD-NAT	1.0	Bq/kg DW	**13.5**	± 15.1%	**----**	----	**----**	----
Potassium 40	S-RAD-NAT	10	Bq/kg DW	**92**	± 20.1%	**----**	----	**----**	----

When sampling date is not provided by the client, the laboratory determines it for procedural reasons, then it is equal to the date of receipt of the sample to the laboratory and is displayed in brackets. Measurement uncertainty is expressed as expanded measurement uncertainty with coverage factor k = 2, representing 95% confidence level.

Key: LOR = Limit of reporting; MU = Measurement Uncertainty. The MU does not include sampling uncertainty.

Brief Method Summaries

Analytical Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
S-DRY-GRCI	CZ_SOP_D06_01_045 (CSN ISO 11465, CSN EN 12880, CSN EN 14346:2007), CZ_SOP_D06_07_046 (CSN ISO 11465, CSN EN 12880, CSN EN 14346:2007, CSN 46 5735) Determination of dry matter by gravimetry and determination of moisture by calculation from measured values.
S-GAA-PRO	CZ_SOP_D06_07_368 (CSN 75 7611; CSN EN ISO 18589-6; ISO 9696) Determination of gross alpha mass activity by direct measurement of the sample by means of alpha radiation analyser.
S-GBA-PRO	CZ_SOP_D06_07_369 (CSN 75 7612; CSN EN ISO 9697; CSN EN ISO 18589-6) Determination of gross beta mass activity by direct measurement of the sample by means of beta radiation analyser.
S-RAD-NAT	CZ_SOP_D06_07_367 (CSN EN ISO 10703; CSN EN ISO 18589-3; SUJB Recommendation “Measurement and evaluation of natural radionuclides in building materials”, DR-RO-5.2 (Rev. 0.0), Prague 2017) Non-destructive determination of radionuclides by high resolution gamma-spectrometry and calculation of the mass activity index I (ACI) from the measured volumetric activities of individual radionuclides.

Preparation Methods	*Method Descriptions*
Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01	
S-PPHOM.07	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
S-PPHOM0.3	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
S-PPHOM4	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).

The symbol "*" for the method indicates a test outside the scope of accreditation of the laboratory or subcontractor. If the UNICO-SUB code is stated in the method table, this only informs that the tests have been performed by a subcontractor and the results are given in an annex to the test report, including information on test accreditation. If the lab used for matrix outside the scope of accreditation or non-standard sample matrix procedure specified in the accredited method and issues non-accredited results, this fact is stated on the title page of this protocol in the section "Notes". If the test report shows the results of subcontracting, the place of performance of the test is outside the laboratories of ALS Czech Republic, s.r.o.

The method for calculating of the summation parameters is available on request in the customer service.

The end of the certificate of analysis

REBATCH REQUEST

Workorder / Client code / Project:	ALS Workorder EM2421125, Client EMGAMM, Project Olympic Dam + ALS Workorder EM2421131, Client EMGAMM, Project Olympic Dam		**CS Contact: Katie Davis**
Project Manager:	SIMONY SAKAMOTO ***Please include this rebatch PM plus all report recipients as per original workorder***		Additional Information:
Date samples rec'd:	3/11/2024 11:55		
Date Instructions rec'd:	Thu 30/01/2025 11:09 AM		
Rebatch due date:	Monday, 3 February 2025	FTAT approved? YES	
Due date surcharge:	**2 DAY**		

Sample information								Analysis									
								Standard					Leach				
New Lab ID	Client ID	Sampling Date / Time	Previous Work Order Reference	Previous ALS ID	Tray Number(s)	Container	Managed Moisture						ASLP - 8 metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg) EG005C/EG035C					Shortest Holding time expiry
	TP02_2.0-2.1_241128	28/11/2024 11:55	EM2421125	11	MS:8272-82	Soil glass	NO						X					26-Dec-24
	TP28_0.4-0.5_241128	28/11/2024 9:25	EM2421125	2	MS:8272-82	Soil glass	NO						X					26-Dec-24
	TP06_1.0-1.1_241127	27/11/2024 15:40	EM2421131	19	MS:8184-86	Soil glass	NO						X					25-Dec-24
	TP27_0.40-0.50_241129	28/11/2024 8:40	EM2421125	13	MS:8272-82	Soil glass	NO						X					26-Dec-24
	TP04_1.4_241129	28/11/2024 10:00	EM2421125	18	MS:8272-82	Soil glass	NO						X					26-Dec-24
	TP28_0.0-0.1_241128	28/11/2024 9:15	EM2421125	1	MS:8272-82	Soil glass	NO						X					26-Dec-24
							TOTAL											

Environmental Division
Melbourne
Work Order Reference
EM2501344

Telephone : + 61-3-8549 9600

Ciara Barr

From: Simony Sakamoto <ssakamoto@emmconsulting.com.au>
Sent: Thursday, 30 January 2025 11:09 AM
To: ALS Enviro Melbourne
Cc: Jude Lewis
Subject: RE: [EXTERNAL] - RE: SRN for ALS Workorder : EM2421125 | Your Reference: Olympic Dam

Hi Katie,

Great! Thanks for this.

The cost is OK, we can go ahead with the leachate analysis.

Kind regards,

Simony Y.Y. Sakamoto
Senior Environmental Scientist - Contamination Land Assessment

T 08 8232 2253
M 0412 799 277
www.emmconsulting.com.au

From: ALS Enviro Melbourne <ALSEnviroMelbourne@ALSGlobal.com>
Sent: Thursday, 30 January 2025 10:36 AM
To: ALS Enviro Melbourne <ALSEnviroMelbourne@ALSGlobal.com>; Simony Sakamoto <ssakamoto@emmconsulting.com.au>
Cc: Jude Lewis <jlewis@emmconsulting.com.au>
Subject: RE: [EXTERNAL] - RE: SRN for ALS Workorder : EM2421125 | Your Reference: Olympic Dam

CAUTION: This email originated outside of the Organisation.

Hi Simony,

Thanks for your time on the phone, cost to report ASLP 8 metals is below, so essentially it's $59.26 total per sample including the leach cost and all metals.

Tailored Analytical Services & Charges: ASLP - 8 METALS

Parameter	ALS Code	Technique/ Method Reference	Limit Of Reporting (LOR)	No.	Price per Sample ($)	Total ($)
1st Leachable Metal by ICPAES - As, Cd, Cr, Cu, Ni, Pb, Zn	EG005C	USEPA 6010	0.05 - 0.1 mg/L	1	10.40	22.87
Per additional Leachable Metal by ICPAES					2.08	
Leachable Mercury	EG035C	APHA 3112- Hg B	0.001 mg/L	1	10.40	10.40
ASLP Leachate Procedure - Plastic Leaching Vessel	EN60a-P	AS4439.3	0.1 pH Unit	1	25.99	25.99
Total cost per sample (Excluding GST)					**59.26**	-
Total cost for this table based on sample numbers provided (Excluding GST)						**59.26**

CERTIFICATE OF ANALYSIS

Work Order	: **EM2501344**	Page	: 1 of 6
Client	: **EMM CONSULTING PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: Simony Sakamoto	Contact	: Customer Services EM
Address	: Level 1, 70 Pirie Street Adelaide 5000	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +61 3 8549 9600
Project	: Olympic Dam	Date Samples Received	: 04-Dec-2024 11:45
Order number	: E240975	Date Analysis Commenced	: 31-Jan-2025
C-O-C number	: ----	Issue Date	: 03-Feb-2025 18:56
Sampler	: Simony Sakamoto		
Site	: Olympic Dam		
Quote number	: EM24EMGAMM0004_V2		
No. of samples received	: 6		
No. of samples analysed	: 6		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Eric Chau	Metals Team Leader	Melbourne Inorganics, Springvale, VIC

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- This is a rebatch of EM2421125.
- EN60: Where leachable PFAS analysis is requested, centrifugation rather than pressure filtration is used as the default approach for removal of particulates, in line with AS 4439.3.

Analytical Results

Sub-Matrix: **ASLP LEACHATE** (Matrix: **WATER**)

Compound	CAS Number	LOR	Unit	Sample ID	TP02_2.0-2.1_241128	TP28_0.4-0.5_241128	TP06_1.0-1.1_241127	TP27_0.40-0.50_241129	TP04_1.4_241129
				Sampling date / time	28-Nov-2024 00:00	28-Nov-2024 00:00	28-Nov-2024 00:00	28-Nov-2024 00:00	28-Nov-2024 00:00
					EM2501344-001	EM2501344-002	EM2501344-003	EM2501344-004	EM2501344-005
					Result	Result	Result	Result	Result
EG005(ED093)C: Leachable Metals by ICPAES									
Arsenic	7440-38-2	0.1	mg/L		<0.1	<0.1	<0.1	<0.1	<0.1
Cadmium	7440-43-9	0.05	mg/L		<0.05	<0.05	<0.05	<0.05	<0.05
Chromium	7440-47-3	0.1	mg/L		<0.1	<0.1	<0.1	<0.1	<0.1
Copper	7440-50-8	0.1	mg/L		**0.2**	**6.6**	**2.0**	**12.0**	**15.0**
Lead	7439-92-1	0.1	mg/L		<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	7440-02-0	0.1	mg/L		<0.1	<0.1	<0.1	<0.1	<0.1
Zinc	7440-66-6	0.1	mg/L		<0.1	<0.1	<0.1	<0.1	**0.2**
EG035C: Leachable Mercury by FIMS									
Mercury	7439-97-6	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010

Analytical Results

Sub-Matrix: ASLP LEACHATE (Matrix: WATER)				Sample ID	TP28_0.0-0.1_241128	----	----	----	----
				Sampling date / time	28-Nov-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EM2501344-006	--------	--------	--------	--------
					Result	----	----	----	----
EG005(ED093)C: Leachable Metals by ICPAES									
Arsenic	7440-38-2	0.1	mg/L		<0.1	----	----	----	----
Cadmium	7440-43-9	0.05	mg/L		<0.05	----	----	----	----
Chromium	7440-47-3	0.1	mg/L		<0.1	----	----	----	----
Copper	7440-50-8	0.1	mg/L		**122**	----	----	----	----
Lead	7439-92-1	0.1	mg/L		<0.1	----	----	----	----
Nickel	7440-02-0	0.1	mg/L		<0.1	----	----	----	----
Zinc	7440-66-6	0.1	mg/L		**0.2**	----	----	----	----
EG035C: Leachable Mercury by FIMS									
Mercury	7439-97-6	0.0010	mg/L		<0.0010	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	TP02_2.0-2.1_241128	TP28_0.4-0.5_241128	TP06_1.0-1.1_241127	TP27_0.40-0.50_241129	TP04_1.4_241129
			Sampling date / time	28-Nov-2024 00:00	28-Nov-2024 00:00	28-Nov-2024 00:00	28-Nov-2024 00:00	28-Nov-2024 00:00
Compound	CAS Number	LOR	Unit	EM2501344-001	EM2501344-002	EM2501344-003	EM2501344-004	EM2501344-005
				Result	Result	Result	Result	Result
EN60: ASLP Leaching Procedure - Inorganics/PFAS (Plastic Vessel)								
Initial pH	----	0.1	pH Unit	**8.6**	**8.8**	**8.9**	**8.4**	**9.2**
After HCl pH	----	0.1	pH Unit	**1.1**	**1.1**	**1.1**	**1.1**	**1.1**
Extraction Fluid pH	----	0.1	pH Unit	**5.0**	**5.0**	**5.0**	**5.0**	**5.0**
Final pH	----	0.1	pH Unit	**6.3**	**6.2**	**6.4**	**6.4**	**6.6**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP28_0.0-0.1_241128	----	----	----	----
				Sampling date / time	28-Nov-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EM2501344-006	--------	--------	--------	--------
					Result	----	----	----	----
EN60: ASLP Leaching Procedure - Inorganics/PFAS (Plastic Vessel)									
Initial pH	----	0.1	pH Unit		**8.8**	**----**	**----**	**----**	**----**
After HCl pH	----	0.1	pH Unit		**1.1**	**----**	**----**	**----**	**----**
Extraction Fluid pH	----	0.1	pH Unit		**5.0**	**----**	**----**	**----**	**----**
Final pH	----	0.1	pH Unit		**5.9**	**----**	**----**	**----**	**----**

QUALITY CONTROL REPORT

Work Order	: **EM2501344**	Page	: 1 of 3
Client	: **EMM CONSULTING PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: Simony Sakamoto	Contact	: Customer Services EM
Address	: Level 1, 70 Pirie Street Adelaide 5000	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +61 3 8549 9600
Project	: Olympic Dam	Date Samples Received	: 04-Dec-2024
Order number	: E240975	Date Analysis Commenced	: 31-Jan-2025
C-O-C number	: ----	Issue Date	: 03-Feb-2025
Sampler	: Simony Sakamoto		
Site	: Olympic Dam		
Quote number	: EM24EMGAMM0004_V2		
No. of samples received	: 6		
No. of samples analysed	: 6		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Eric Chau	Metals Team Leader	Melbourne Inorganics, Springvale, VIC

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC
* = The final LOR has been raised due to dilution or other sample specific cause; adjusted LOR is shown in brackets. The duplicate ranges for Acceptable RPD% are applied to the final LOR where applicable.

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG005(ED093)C: Leachable Metals by ICPAES (QC Lot: 6347919)									
EM2501344-001	TP02_2.0-2.1_241128	EG005C: Cadmium	7440-43-9	0.05	mg/L	<0.05	<0.05	0.0	No Limit
		EG005C: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.0	No Limit
		EG005C: Chromium	7440-47-3	0.1	mg/L	<0.1	<0.1	0.0	No Limit
		EG005C: Copper	7440-50-8	0.1	mg/L	0.2	0.2	0.0	No Limit
		EG005C: Lead	7439-92-1	0.1	mg/L	<0.1	<0.1	0.0	No Limit
		EG005C: Nickel	7440-02-0	0.1	mg/L	<0.1	<0.1	0.0	No Limit
		EG005C: Zinc	7440-66-6	0.1	mg/L	<0.1	<0.1	0.0	No Limit
EG035C: Leachable Mercury by FIMS (QC Lot: 6347845)									
EM2501344-001	TP02_2.0-2.1_241128	EG035C: Mercury	7439-97-6	0.0001 (0.0010)*	mg/L	<0.0010	<0.0010	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)C: Leachable Metals by ICPAES (QCLot: 6347919)								
EG005C: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	106	80.0	120
EG005C: Cadmium	7440-43-9	0.05	mg/L	<0.05	1 mg/L	86.7	80.0	120
EG005C: Chromium	7440-47-3	0.1	mg/L	<0.1	1 mg/L	90.5	80.0	120
EG005C: Copper	7440-50-8	0.1	mg/L	<0.1	1 mg/L	104	80.0	120
EG005C: Lead	7439-92-1	0.1	mg/L	<0.1	1 mg/L	89.5	80.0	120
EG005C: Nickel	7440-02-0	0.1	mg/L	<0.1	1 mg/L	87.1	80.0	120
EG005C: Zinc	7440-66-6	0.1	mg/L	<0.1	1 mg/L	81.7	80.0	120
EG035C: Leachable Mercury by FIMS (QCLot: 6347845)								
EG035C: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	94.6	72.0	115

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005(ED093)C: Leachable Metals by ICPAES (QCLot: 6347919)							
EM2501344-002	TP28_0.4-0.5_241128	EG005C: Arsenic	7440-38-2	1 mg/L	108	80.0	120
		EG005C: Cadmium	7440-43-9	0.25 mg/L	90.3	80.0	120
		EG005C: Chromium	7440-47-3	1 mg/L	90.6	80.0	120
		EG005C: Copper	7440-50-8	1 mg/L	# Not Determined	80.0	120
		EG005C: Lead	7439-92-1	1 mg/L	95.3	80.0	120
		EG005C: Nickel	7440-02-0	1 mg/L	89.2	80.0	120
		EG005C: Zinc	7440-66-6	1 mg/L	87.6	80.0	120
EG035C: Leachable Mercury by FIMS (QCLot: 6347845)							
EM2501344-002	TP28_0.4-0.5_241128	EG035C: Mercury	7439-97-6	0.01 mg/L	89.0	84.0	118

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM2501344**	Page	: 1 of 5
Client	: **EMM CONSULTING PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: Simony Sakamoto	Telephone	: +61 3 8549 9600
Project	: Olympic Dam	Date Samples Received	: 04-Dec-2024
Site	: Olympic Dam	Issue Date	: 03-Feb-2025
Sampler	: Simony Sakamoto	No. of samples received	: 6
Order number	: E240975	No. of samples analysed	: 6

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, where applicable to the methodology, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **Analysis Holding Time Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EG005(ED093)C: Leachable Metals by ICPAES	EM2501344--002	TP28_0.4-0.5_241128	**Copper**	7440-50-8	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Outliers : Analysis Holding Time Compliance

Matrix: **SOIL**

Method / Container / Client Sample ID(s)		Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Days overdue	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Days overdue
EN60: ASLP Leaching Procedure - Inorganics/PFAS (Plastic Vessel)							
Non-Volatile Leach: 28 day HT(e.g. Hg, CrVI)							
TP02_2.0-2.1_241128,	TP28_0.4-0.5_241128,	31-Jan-2025	26-Dec-2024	**36**	----	----	----
TP06_1.0-1.1_241127,	TP27_0.40-0.50_241129,						
TP04_1.4_241129,	TP28_0.0-0.1_241128						

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Evaluation	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Evaluation
EN60: ASLP Leaching Procedure - Inorganics/PFAS (Plastic Vessel)								
Non-Volatile Leach: 28 day HT(e.g. Hg, CrVI) (EN60a-P)								
TP02_2.0-2.1_241128,	TP28_0.4-0.5_241128,	**28-Nov-2024**	**31-Jan-2025**	26-Dec-2024	×	**----**	----	----
TP06_1.0-1.1_241127,	TP27_0.40-0.50_241129,							
TP04_1.4_241129,	TP28_0.0-0.1_241128							

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Evaluation	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Evaluation
EG005(ED093)C: Leachable Metals by ICPAES								
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG005C)								
TP02_2.0-2.1_241128,	TP28_0.4-0.5_241128,	**31-Jan-2025**	**03-Feb-2025**	30-Jul-2025	✓	**03-Feb-2025**	30-Jul-2025	✓
TP06_1.0-1.1_241127,	TP27_0.40-0.50_241129,							
TP04_1.4_241129,	TP28_0.0-0.1_241128							

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG035C: Leachable Mercury by FIMS								
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035C)								
TP02_2.0-2.1_241128,	TP28_0.4-0.5_241128,	**31-Jan-2025**	**----**	----	**----**	**03-Feb-2025**	28-Feb-2025	✓
TP06_1.0-1.1_241127,	TP27_0.40-0.50_241129,							
TP04_1.4_241129,	TP28_0.0-0.1_241128							

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Leachable Mercury by FIMS	EG035C	1	6	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Leachable Metals by ICPAES	EG005C	1	6	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Leachable Mercury by FIMS	EG035C	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Leachable Metals by ICPAES	EG005C	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Leachable Mercury by FIMS	EG035C	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Leachable Metals by ICPAES	EG005C	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Leachable Mercury by FIMS	EG035C	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Leachable Metals by ICPAES	EG005C	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	*Method*	*Matrix*	*Method Descriptions*
Leachable Metals by ICPAES	EG005C	SOIL	In house: referenced to APHA 3120; USEPA SW 846 - 6010: The ICPAES technique ionises leachate sample atoms emitting a characteristic spectrum. This spectrum is then compared against matrix matched standards for quantification. This method is compliant with NEPM Schedule B(3).
Leachable Mercury by FIMS	EG035C	SOIL	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the TCLP solution. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3).

Preparation Methods	*Method*	*Matrix*	*Method Descriptions*
Digestion for Total Recoverable Metals in TCLP Leachate	EN25C	SOIL	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM Schedule B(3)
ASLP for Non & Semivolatile Analytes - Plastic Leaching Vessel	EN60a-P	SOIL	In house QWI-EN/60 referenced to AS4439.3 Preparation of Leachates.

CHAIN OF CUSTODY

COC#: 75723 *ALS Laboratory:* EB Brisbane Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME: 3/12 0221

CLIENT: EMGAMM - EMM CONSULTING PTY LTD

PROJECT: Olympic Dam

SITE: Olympic Dam

ORDER NO: E240975

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

ENVIROLAB

Relinquished by: CAITLIN (ALS) 3/12/24 21:03

PROJECT MANAGER: Simony Sakamoto CONTACT PH: 0412799277 SAMPLER MOBILE: 0412799277

PRIMARY SAMPLER: Simony Sakamoto QUOTE NO: EM24EMGAMM0004_V2 / EM2024EMGAMM0004

EMAIL REPORTS TO: ssakamoto@emmconsulting.com.au, ESdat_AU+emmconsulting@ESdatLabSync.net, dcondon@emmconsulting.com.au

SAMPLE DETAILS							ANALYSIS REQUIRED											
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Acid-Base Accounting SOIL	Analysis NOT REQUIRED	Basic Suite SOIL	Contam 1 SOIL	Contam 2 - NEPM 2013 B1 Table 1A HIL - Basic Suite SOIL	Particle size analysis SOIL	QC/QC Trip Blank SOIL	QC/QC Trip Spike SOIL	Radiation Suite SOIL	Topsoil Suite SOIL	ALTERNATIVE ANALYSIS
008	TP26_2.0-2.1_241127_2.00-2.10		27/11/2024 09:07 AM	SOIL	ALS: 1 Non ALS: 0	Yes		-									
009	TP11_0.0-0.15_241127_0.00-0.15		27/11/2024 10:00 AM	SOIL	ALS: 1 Non ALS: 0	Yes		-									
010	TP11_0.4-0.5_241127_0.40-0.50		27/11/2024 10:05 AM	SOIL	ALS: 5 Non ALS: 0	No	X				X	X				X	
011	TP11_1.0-1.1_241127_1.00-1.10		27/11/2024 10:10 AM	SOIL	ALS: 1 Non ALS: 0	No				X							
012	TP11_2.0-2.1_241127_3.00-2.10		27/11/2024 10:15 AM	SOIL	ALS: 5 Non ALS: 0	No	X		X						X		
013	QC101_241127_1.00-1.10		27/11/2024 11:10 AM	SOIL	ALS: 1 Non ALS: 0	No					X						
014	QC201_241127_1.00-1.10		27/11/2024 11:10 AM	SOIL	ALS: 1 Non ALS: 0	No					X						

Envirolab Services
25 Research Drive
Croydon South VIC 3136
Ph: (03) 9763 2500

Job No: MAL0079

Date Received: 4/12/24

Time Received: 5:10

Temp: Ambient 13.2

Cooling: Icepack

Security: Intact/Broken/None

47
2
2

Tailored Analytical Services & Charges: Contam 2 - NEPM 2013 B1 Tabl

Parameter	ALS Code	Technique/ Method Reference	Limit Of Reporting (LOR)	No.
NEPM (2013) HIL Table 1A(1) Screen	P-21/1 (Melb)	USEPA 8015, USEPA 8270, USEPA 6010, USEPA 8260, USEPA 3060, APHA 3112 Hg - B, In house, APHA 4500-CN C&O / ISO 14403.	0.05 - 100 mg/kg, 1 %	22
Total cost per sample (Excluding GST)				
Total cost for this table based on sample numbers provided (Excluding GST)				

Sample Containers for: Contam 2 - NEPM 2013 B1 Table 1A HIL - Basic S

No.	Label Colour	Container Type (Preservation noted if required)	T
	Orange	1 x 250mL Soil Glass Jar - Unpreserved	NEPM (20

Relinquished by: CAITLIN (CAT)
3/12/24 21:03

Envirolab Services Pty Ltd
ABN 37 112 535 645 - 002
25 Research Drive Croydon South VIC 3136
ph +61 3 9763 2500
melbourne@envirolab.com.au
www.envirolab.com.au

Sample Receipt Advice MFL0079

Client Details

Client	EMM Consulting Pty Ltd (VIC)
Attention	Daniel Condon

Sample Login Details

Your Reference	Olympic Dam
Envirolab Reference	MFL0079
Date Sample Received	04/12/2024
Date Instructions Received	04/12/2024
Date Final Results Expected	11/12/2024

Sample Condition

Samples received in appropriate condition for analysis	Yes
Number of Samples	1 Soil
Turnaround Time	5 Days
Temperatures / Cooling Methods	13.2°C On Ice

Additional Info

Sample storage - waters are routinely disposed at approximately 1 month and soils approximately 2 months from receipt.

Requests for longer term sample storage must be received in writing.

Where no sampling date has been supplied for some or all samples, the date of sample receipt has been used as the associated sampling date. The sampling dates are used to assess compliance to recommended Technical Holding Times.

Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default).

Please direct any queries to:

Pamela Adams

Phone	03 9763 2500
Email	padams@envirolab.com.au

Chris De Luca

Phone	03 9763 2500
Email	cdeluca@envirolab.com.au

Analysis underway, details on the following page

Sample Receipt Advice MFL0079

Analysis Grid

The • indicates the testing you have requested. ***THIS IS NOT A REPORT OF THE RESULTS.***

	NEPM2013 HIL Suite 1+TRH	Moisture
MFL0079-01 Soil | 27/11/2024 QC201_241127_1.00-1.10	•	•

Suite Details

Suite Name	Suite Analyses
NEPM2013 HIL Suite 1+TRH |Soil	vTRH&MBTEXN, sTRH, PAH, OCP, Chlorpyrifos, PCB, Speciated Phenols, Bifenthrin, Atrazine, As, B, Be, Cd, Co, Cr, Cu, Hg, Mn, Ni, Pb, Se, Zn, Cr6+, Cyanide - Free

Envirolab Services Pty Ltd
ABN 37 112 535 645 - 002
25 Research Drive Croydon South VIC 3136
ph +61 3 9763 2500
melbourne@envirolab.com.au
www.envirolab.com.au

Certificate of Analysis MFL0079

Client Details

Client	EMM Consulting Pty Ltd (VIC)
Contact	Daniel Condon
Address	Suite 8.03, Level 8, 454 Collins Street, Melbourne, VIC, 3000

Sample Details

Your Reference	Olympic Dam
Number of Samples	1 Soil
Date Samples Received	04/12/2024
Date Instructions Received	04/12/2024

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for soils and on an as received basis for other matrices.

Report Details

Date Results Requested by	11/12/2024
Date of Issue	10/12/2024

NATA Accreditation Number 2901. This document shall not be reproduced except in full.
Accredited for compliance with ISO/IEC 17025. Tests not covered by NATA are denoted with *.

Authorisation Details

Results Approved By	Chaminda Gunasekara, Inorganics Supervisor Chris De Luca, Lab Manager Tianna Milburn, Senior Chemist
Laboratory Manager	Chris De Luca

Samples in this Report

Envirolab ID	Sample ID	Matrix	Date Sampled	Date Received
MFL0079-01	QC201_241127_1.00-1.10	Soil	27/11/2024	04/12/2024

Volatile TRH and BTEX (Soil)

Envirolab ID	Units	PQL	MFL0079-01
Your Reference			QC201_241127 _1.00-1.10
Date Sampled			27/11/2024
TRH C6-C9	mg/kg	25	<25
TRH C6-C10	mg/kg	25	<25
TRH C6-C10 less BTEX (F1)	mg/kg	25	<25
Methyl tert butyl ether (MTBE)	mg/kg	0.50	<0.50
Benzene	mg/kg	0.20	<0.20
Toluene	mg/kg	0.50	<0.50
Ethylbenzene	mg/kg	1.0	<1.0
meta+para Xylene	mg/kg	2.0	<2.0
ortho-Xylene	mg/kg	1.0	<1.0
Total Xylene	mg/kg	3.0	<3.0
Naphthalene (value used in F2 calc)	mg/kg	1.0	<1.0
Surrogate aaa-Trifluorotoluene	%		*62.2*

Semi-volatile TRH (Soil)

Envirolab ID	Units	PQL	MFL0079-01
Your Reference			QC201_241127 _1.00-1.10
Date Sampled			27/11/2024
TRH C10-C14	mg/kg	50	<50
TRH C15-C28	mg/kg	100	<100
TRH C29-C36	mg/kg	100	<100
Total +ve TRH C10-C36	mg/kg	50	<50
TRH >C10-C16	mg/kg	50	<50
TRH >C10-C16 less Naphthalene F2	mg/kg	50	<50
TRH >C16-C34 (F3)	mg/kg	100	<100
TRH >C34-C40 (F4)	mg/kg	100	<100
Total +ve TRH >C10-C40	mg/kg	50	<50
Surrogate o-Terphenyl	%		*72.4*

Polycyclic Aromatic Hydrocarbons (Soil)

Envirolab ID	Units	PQL	MFL0079-01
Your Reference			QC201_241127 _1.00-1.10
Date Sampled			27/11/2024
Naphthalene	mg/kg	0.10	<0.10
Acenaphthylene	mg/kg	0.10	<0.10
Acenaphthene	mg/kg	0.10	<0.10
Fluorene	mg/kg	0.10	<0.10
Phenanthrene	mg/kg	0.10	<0.10
Anthracene	mg/kg	0.10	<0.10
Fluoranthene	mg/kg	0.10	<0.10
Pyrene	mg/kg	0.10	<0.10
Benzo(a)anthracene	mg/kg	0.10	<0.10
Chrysene	mg/kg	0.10	<0.10
Benzo(b,j,k)fluoranthene	mg/kg	0.20	<0.20
Benzo(a)pyrene	mg/kg	0.050	<0.050
Indeno(1,2,3-c,d)pyrene	mg/kg	0.10	<0.10
Dibenzo(a,h)anthracene	mg/kg	0.10	<0.10
Benzo(g,h,i)perylene	mg/kg	0.10	<0.10
Total +ve PAH	mg/kg	0.050	<0.050
Benzo(a)pyrene TEQ calc zero	mg/kg	0.50	<0.50
Benzo(a)pyrene TEQ calc Half	mg/kg	0.50	<0.50
Benzo(a)pyrene TEQ calc PQL	mg/kg	0.50	<0.50
Surrogate p-Terphenyl-D14	%		*85.7*

Organochlorine Pesticides (Soil)

Envirolab ID	Units	PQL	MFL0079-01
Your Reference			QC201_241127 _1.00-1.10
Date Sampled			27/11/2024
alpha-BHC	mg/kg	0.10	<0.10
Hexachlorobenzene	mg/kg	0.10	<0.10
beta-BHC	mg/kg	0.10	<0.10
gamma-BHC	mg/kg	0.10	<0.10
delta-BHC	mg/kg	0.10	<0.10
Heptachlor	mg/kg	0.10	<0.10
Aldrin	mg/kg	0.10	<0.10
Heptachlor epoxide	mg/kg	0.10	<0.10
trans-Chlordane	mg/kg	0.10	<0.10
cis-Chlordane	mg/kg	0.10	<0.10
Endosulfan I	mg/kg	0.10	<0.10
4,4'-DDE	mg/kg	0.10	<0.10
Dieldrin	mg/kg	0.10	<0.10
Endrin	mg/kg	0.10	<0.10
4,4'-DDD	mg/kg	0.10	<0.10
Endosulfan II	mg/kg	0.10	<0.10
Endrin aldehyde	mg/kg	0.10	<0.10
4,4'-DDT	mg/kg	0.10	<0.10
Endosulfan sulfate	mg/kg	0.10	<0.10
Endrin ketone	mg/kg	0.10	<0.10
Methoxychlor	mg/kg	0.10	<0.10
Mirex	mg/kg	0.10	<0.10
Total +ve DDT+DDD+DDE	mg/kg	0.10	<0.10
Total +ve Aldrin + Dieldrin	mg/kg	0.10	<0.10
Total +ve OCP	mg/kg	0.10	<0.10
Surrogate 4-chloro-3-nitrobenzotrifluoride	%		*79.5*

Organophosphorus Pesticides (Soil)

Envirolab ID	Units	PQL	MFL0079-01
Your Reference			QC201_241127 _1.00-1.10
Date Sampled			27/11/2024
Chlorpyrifos	mg/kg	0.10	<0.10
Surrogate 4-chloro-3-nitrobenzotrifluoride	%		*79.5*

Polychlorinated Biphenyls (Soil)

Envirolab ID	Units	PQL	MFL0079-01
Your Reference			QC201_241127 _1.00-1.10
Date Sampled			27/11/2024
Aroclor 1016	mg/kg	0.10	<0.10
Aroclor 1221	mg/kg	0.10	<0.10
Aroclor 1232	mg/kg	0.10	<0.10
Aroclor 1242	mg/kg	0.10	<0.10
Aroclor 1248	mg/kg	0.10	<0.10
Aroclor 1254	mg/kg	0.10	<0.10
Aroclor 1260	mg/kg	0.10	<0.10
Total +ve PCB (1016-1260)	mg/kg	0.10	<0.10
Surrogate 2-Fluorobiphenyl	%		*74.2*

Speciated Phenols (Soil)

Envirolab ID	Units	PQL	MFL0079-01
Your Reference			QC201_241127 _1.00-1.10
Date Sampled			27/11/2024
Phenol	mg/kg	0.20	<0.20
2-Chlorophenol	mg/kg	0.20	<0.20
2-Methylphenol	mg/kg	0.20	<0.20
3/4-Methylphenol	mg/kg	0.40	<0.40
2-Nitrophenol	mg/kg	0.20	<0.20
2,4-Dimethylphenol	mg/kg	0.20	<0.20
2,4-Dichlorophenol	mg/kg	0.20	<0.20
2,6-Dichlorophenol	mg/kg	0.20	<0.20
4-Chloro-3-methylphenol	mg/kg	1.0	<1.0
2,4,6-Trichlorophenol	mg/kg	0.20	<0.20
2,4,5-Trichlorophenol	mg/kg	0.20	<0.20
2,4-Dinitrophenol	mg/kg	4.0	<4.0
4-Nitrophenol	mg/kg	4.0	<4.0
2,3,4,5 & 2,3,4,6-Tetrachlorophenol	mg/kg	0.40	<0.40
2,3,5,6-Tetrachlorophenol	mg/kg	0.20	<0.20
4,6-Dinitro-2-methylphenol	mg/kg	10	<10
Pentachlorophenol	mg/kg	2.0	<2.0
Dinoseb	mg/kg	10	<10
2-Cyclohexyl-4,6-Dinitrophenol	mg/kg	20	<20
Surrogate 2-Fluorophenol	%		*78.9*
Surrogate Phenol-D6	%		*65.6*

Synthetic Pyrethroids (Soil)

Envirolab ID	Units	PQL	MFL0079-01
Your Reference			QC201_241127 _1.00-1.10
Date Sampled			27/11/2024
Bifenthrin	mg/kg	0.50	<0.50
Surrogate p-Terphenyl-D14	%		*85.7*

Triazine Herbicides (Soil)

Envirolab ID	Units	PQL	MFL0079-01
Your Reference			QC201_241127 _1.00-1.10
Date Sampled			27/11/2024
Atrazine	mg/kg	0.50	<0.50
Surrogate p-Terphenyl-D14	%		*85.7*

Acid Extractable Metals (Soil)

Envirolab ID	Units	PQL	MFL0079-01
Your Reference			QC201_241127 _1.00-1.10
Date Sampled			27/11/2024
Arsenic	mg/kg	4.0	6.4
Boron	mg/kg	10	25
Beryllium	mg/kg	1.0	<1.0
Cadmium	mg/kg	0.40	<0.40
Cobalt	mg/kg	1.0	4.2
Chromium	mg/kg	1.0	16
Copper	mg/kg	1.0	15
Mercury	mg/kg	0.10	<0.10
Manganese	mg/kg	1.0	130
Nickel	mg/kg	1.0	8.4
Lead	mg/kg	1.0	5.8
Selenium	mg/kg	2.0	<2.0
Zinc	mg/kg	1.0	23

Inorganics - General Chemical Parameters (Soil)

Envirolab ID	Units	PQL	MFL0079-01
Your Reference			QC201_241127 _1.00-1.10
Date Sampled			27/11/2024
Hexavalent Chromium	mg/kg	1.0	<1.0

Inorganics - Moisture (Soil)

Envirolab ID	Units	PQL	MFL0079-01
Your Reference			QC201_241127 _1.00-1.10
Date Sampled			27/11/2024
Moisture	%	0.10	8.7

Inorganics - Cyanide Species and Similar (Soil)

Envirolab ID	Units	PQL	MFL0079-01
Your Reference			QC201_241127 _1.00-1.10
Date Sampled			27/11/2024
Free Cyanide	mg/kg	0.50	<0.50

Method Summary

Method ID	Methodology Summary
INORG-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
INORG-014	Cyanide - free, total, weak acid dissociable by segmented flow analyser (in line dialysis with colourimetric finish). Solids/Filters and sorbents are extracted in a caustic media prior to analysis. Impingers are pH adjusted as required prior to analysis. Cyanides amenable to Chlorination - samples are analysed untreated and treated with hypochlorite to assess the potential for chlorination of cyanide forms.
INORG-118	Hexavalent Chromium by Ion Chromatographic separation and colourimetric determination. Waters samples are filtered prior to analysis. Solids are extracted with an alkaline buffered solution, for air sampling media the same alkali extraction can be used or alternatives from NIOSH/OSHA. For aqueous samples, Total Hexavalent Chromium includes the dissolved Hexavalent Chromium and any Hexavalent Chromium solubilised by the preservative i.e. Sodium Hydroxide from any particulate that may be present.
METALS-020	Determination of various metals by ICP-OES.
METALS-021	Determination of Mercury by Cold Vapour AAS.
ORG-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
ORG-021/022/025_PCB	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD and/or GC-MS/GC-MSMS.
ORG-022	Determination of semi-volatile organic compounds (SVOCs) by GC-MS. Water samples are extracted by LLE and soils using DCM/Acetone/Methanol.
ORG-022_OC	Determination of semi-volatile organic compounds (SVOCs) by GC-MS. Water samples are extracted by LLE and soils using DCM/Acetone/Methanol.
ORG-022_PAH	Determination of semi-volatile organic compounds (SVOCs) by GC-MS. Water samples are extracted by LLE and solids using DCM/Acetone/Methanol. For PAHs:- Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. 1. 'TEQ PQL' values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'TEQ zero' values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'TEQ half PQL' values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, for Total +ve calculations, the PQL is reflective of the lowest individual PQL and therefore, for example, "Total +ve PAHs" is simply a sum of the positive individual PAHs.
ORG-023_F1_TOT	Determination of volatile organic compounds (VOCs) by P&T-GC-MS. Water samples are analysed directly by purge and trap GC-MS. Solids are extracted with Methanol, diluted and analysed by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

Result Definitions

Identifier	Description
NR	Not reported
NEPM	National Environment Protection Measure
NS	Not specified
LCS	Laboratory Control Sample
RPD	Relative Percent Difference
>	Greater than
<	Less than
PQL	Practical Quantitation Limit
INS	Insufficient sample for this test
NA	Test not required
NT	Not tested
DOL	Samples rejected due to particulate overload (air filters only)
RFD	Samples rejected due to filter damage (air filters only)
RUD	Samples rejected due to uneven deposition (air filters only)
##	Indicates a laboratory acceptance criteria outlier, for further details, see Result Comments and/or QC Comments

Quality Control Definitions

Blank

This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, and is determined by processing solvents and reagents in exactly the same manner as for samples.

Surrogate Spike

Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

LCS (Laboratory Control Sample)

This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

Matrix Spike

A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

Duplicate

This is the complete duplicate analysis of a sample from the process batch. The sample selected should be one where the analyte concentration is easily measurable.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria. Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction. Spikes for Physical and Aggregate Tests are not applicable. For VOCs in water samples, three vials are required for duplicate or spike analysis.

General Acceptance Criteria (GAC) - Analyte specific criteria applies for some analytes and is reflected in QC recovery tables.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% - see ELN-P05 QAQC tables for details (available on request); <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase. Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was typically insufficient in order to satisfy laboratory QA/QC protocols.

Miscellaneous Information

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached. We have taken the sampling date as being the date received at the laboratory.

Two significant figures are reported for the majority of tests and with a high degree of confidence, for results <10*PQL, the second significant figure may be in doubt i.e. has a relatively high degree of uncertainty and is provided for information only.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS where sediment/solids are included by default.

Urine Analysis - The BEI values listed are taken from the 2022 edition of *TLVs and BEIs Threshold Limits by ACGIH*.

Air volume measurements are not covered by Envirolab's NATA accreditation.

Client Supplied Rec Max - these Recommended Max Limits have been client supplied and may or may not relate to current published Guidelines or set Licence Requirements. It is the responsibility of the client to determine if the samples meet the current required Limits and are therefore fit for purpose. If the required limits change, it is the responsibility of the client to advise Envirolab in writing.

Data Quality Assessment Summary MFL0079

Client Details

Client	EMM Consulting Pty Ltd (VIC)
Your Reference	Olympic Dam
Date Issued	10/12/2024

Recommended Holding Time Compliance

No recommended holding time exceedances

Quality Control and QC Frequency

QC Type	Compliant	Details
Blank	Yes	No Outliers
LCS	Yes	No Outliers
Duplicates	Yes	No Outliers
Matrix Spike	No	Matrix Spike Outliers Exist - See detailed list below
Surrogates / Extracted Internal Standards	Yes	No Outliers
QC Frequency	Yes	No Outliers

Surrogates/Extracted Internal Standards, Duplicates and/or Matrix Spikes are not always relevant/applicable to certain analyses and matrices. Therefore, said QC measures are deemed compliant in these situations by default. See Laboratory Acceptance Criteria for more information

Data Quality Assessment Summary MFL0079

Recommended Holding Time Compliance

Analysis	Sample Number(s)	Date Sampled	Date Extracted	Date Analysed	Compliant
vTRH&MBTEXN | Soil	1	27/11/2024	05/12/2024	07/12/2024	Yes
sTRH | Soil	1	27/11/2024	05/12/2024	06/12/2024	Yes
PAH | Soil	1	27/11/2024	05/12/2024	06/12/2024	Yes
OCP | Soil	1	27/11/2024	05/12/2024	06/12/2024	Yes
Chlorpyrifos | Soil	1	27/11/2024	05/12/2024	06/12/2024	Yes
PCB | Soil	1	27/11/2024	05/12/2024	06/12/2024	Yes
Speciated Phenols | Soil	1	27/11/2024	05/12/2024	06/12/2024	Yes
Bifenthrin | Soil	1	27/11/2024	05/12/2024	06/12/2024	Yes
Atrazine | Soil	1	27/11/2024	05/12/2024	06/12/2024	Yes
Metals | Soil	1	27/11/2024	05/12/2024	06/12/2024	Yes
Metals-Hg | Soil	1	27/11/2024	05/12/2024	06/12/2024	Yes
Cr6+ | Soil	1	27/11/2024	05/12/2024	10/12/2024	Yes
Moisture | Soil	1	27/11/2024	05/12/2024	06/12/2024	Yes
Cyanide - Free | Soil	1	27/11/2024	05/12/2024	09/12/2024	Yes

Outliers: Matrix Spike

INORG-118|Inorganics - General Chemical Parameters (Soil)| Batch BFL0895

Sample ID	Analyte	% Limits	% Recovery
BFL0895-MS1#	Hexavalent Chromium	70 - 130	##[1]

METALS-020|Acid Extractable Metals (Soil)| Batch BFL0704

Sample ID	Analyte	% Limits	% Recovery
BFL0704-MS1#	Lead	70 - 130	##[1]
BFL0704-MS1#	Manganese	70 - 130	##[1]

ORG-022|Speciated Phenols (Soil)| Batch BFL0706

Sample ID	Analyte	% Limits	% Recovery
BFL0706-MS2#	2,6-Dichlorophenol	60 - 140	##[2]
BFL0706-MS2#	2-Chlorophenol	60 - 140	##[2]
BFL0706-MS2#	2-Fluorophenol	60 - 140	##[3]
BFL0706-MS2#	2-Methylphenol	60 - 140	47.9[2]
BFL0706-MS2#	Phenol	50 - 140	##[2]
BFL0706-MS2#	Phenol-D6	50 - 140	##[3]

ORG-023_F1_TOT|Volatile TRH and BTEX (Soil)| Batch BFL0705

Sample ID	Analyte	% Limits	% Recovery
BFL0705-MS2#	aaa-Trifluorotoluene	60 - 140	52.1[3]
BFL0705-MS2#	TRH C6-C10	60 - 140	57.7[2]
BFL0705-MS2#	TRH C6-C9	60 - 140	55.3[2]

Quality Control MFL0079

ORG-023_F1_TOT|Volatile TRH and BTEX (Soil) | Batch BFL0705

Analyte	Units	PQL	Blank	DUP1 BFL0705-DUP1# Samp | QC | RPD %	LCS %	Spike % BFL0705-MS2#
TRH C6-C9	mg/kg	25	<25	<25 | <25 | [NA]	65.1	55.3[2]
TRH C6-C10	mg/kg	25	<25	<25 | <25 | [NA]	65.0	57.7[2]
TRH C6-C10 less BTEX (F1)	mg/kg	25	<25	<25 | <25 | [NA]	[NA]	[NA]
Methyl tert butyl ether (MTBE)	mg/kg	0.50	<0.50	<0.50 | <0.50 | [NA]	[NA]	[NA]
Benzene	mg/kg	0.20	<0.20	<0.20 | <0.20 | [NA]	67.9	62.3
Toluene	mg/kg	0.50	<0.50	<0.50 | <0.50 | [NA]	73.5	64.9
Ethylbenzene	mg/kg	1.0	<1.0	<1.0 | <1.0 | [NA]	71.8	63.6
meta+para Xylene	mg/kg	2.0	<2.0	<2.0 | <2.0 | [NA]	79.5	70.9
ortho-Xylene	mg/kg	1.0	<1.0	<1.0 | <1.0 | [NA]	77.6	69.3
Total Xylene	mg/kg	3.0	<3.0	<3.0 | <3.0 | [NA]	[NA]	[NA]
Naphthalene (value used in F2 calc)	mg/kg	1.0	<1.0	<1.0 | <1.0 | [NA]	[NA]	[NA]
Surrogate aaa-Trifluorotoluene	*%*		*63.3*	*53.0 | 55.4 [3]*	*63.3*	*52.1[3]*

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

ORG-020|Semi-volatile TRH (Soil) | Batch BFL0706

Analyte	Units	PQL	Blank	DUP1 BFL0706-DUP1# Samp | QC | RPD %	DUP2 BFL0706-DUP2# Samp | QC | RPD %	LCS %	Spike % BFL0706-MS1#
TRH C10-C14	mg/kg	50	<50	<50 | <50 | [NA]		123	105
TRH C15-C28	mg/kg	100	<100	<100 | <100 | [NA]		102	80.7
TRH C29-C36	mg/kg	100	<100	<100 | <100 | [NA]		111	80.0
TRH >C10-C16	mg/kg	50	<50	<50 | <50 | [NA]		96.9	82.4
TRH >C16-C34 (F3)	mg/kg	100	<100	<100 | <100 | [NA]		105	82.0
TRH >C34-C40 (F4)	mg/kg	100	<100	<100 | <100 | [NA]		101	73.2
Surrogate o-Terphenyl	*%*		*91.7*	*95.0 | 94.9*		*103*	*84.7*

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

ORG-022_PAH|Polycyclic Aromatic Hydrocarbons (Soil) | Batch BFL0706

Analyte	Units	PQL	Blank	DUP1 BFL0706-DUP1# Samp | QC | RPD %	DUP2 BFL0706-DUP2# Samp | QC | RPD %	LCS %	Spike % BFL0706-MS2#
Naphthalene	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		73.8	74.1
Acenaphthylene	mg/kg	0.10	<0.10	0.429 | 0.261 | [NA]		[NA]	[NA]
Acenaphthene	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		77.1	78.2
Fluorene	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		77.4	83.9
Phenanthrene	mg/kg	0.10	<0.10	0.538 | 0.408 | [NA]		70.1	72.3
Anthracene	mg/kg	0.10	<0.10	0.391 | 0.257 | [NA]		[NA]	[NA]
Fluoranthene	mg/kg	0.10	<0.10	3.00 | 2.13 | 34.0		80.6	81.4
Pyrene	mg/kg	0.10	<0.10	3.39 | 2.39 | 34.7		83.9	84.8
Benzo(a)anthracene	mg/kg	0.10	<0.10	1.46 | 0.976 | 39.4		[NA]	[NA]
Chrysene	mg/kg	0.10	<0.10	1.92 | 1.32 | 37.2		80.5	77.9
Benzo(b,j,k)fluoranthene	mg/kg	0.20	<0.20	4.27 | 2.80 | 41.7		[NA]	[NA]
Benzo(a)pyrene	mg/kg	0.050	<0.050	2.72 | 1.79 | 41.1		73.1	77.2
Indeno(1,2,3-c,d)pyrene	mg/kg	0.10	<0.10	2.15 | 1.35 | 45.8		[NA]	[NA]
Dibenzo(a,h)anthracene	mg/kg	0.10	<0.10	0.438 | 0.265 | [NA]		[NA]	[NA]
Benzo(g,h,i)perylene	mg/kg	0.10	<0.10	2.33 | 1.46 | 46.0		[NA]	[NA]
Surrogate p-Terphenyl-D14	*%*		*91.6*	*99.4 | 97.4*		*89.2*	*89.9*

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

Quality Control MFL0079

ORG-022_OC|Organochlorine Pesticides (Soil) | Batch BFL0706

Analyte	Units	PQL	Blank	DUP1 BFL0706-DUP1# Samp | QC | RPD %	DUP2 BFL0706-DUP2# Samp | QC | RPD %	LCS %	Spike % BFL0706-MS2#
alpha-BHC	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		88.6	80.0
Hexachlorobenzene	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
beta-BHC	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		72.8	79.7
gamma-BHC	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
delta-BHC	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Heptachlor	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		61.4	61.8
Aldrin	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		61.9	62.2
Heptachlor epoxide	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		84.6	82.5
trans-Chlordane	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
cis-Chlordane	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Endosulfan I	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
4,4'-DDE	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		87.0	88.7
Dieldrin	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		79.6	82.0
Endrin	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		60.8	65.3
4,4'-DDD	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		128	126
Endosulfan II	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Endrin aldehyde	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
4,4'-DDT	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Endosulfan sulfate	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		61.6	63.5
Endrin ketone	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Methoxychlor	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Mirex	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Surrogate 4-chloro-3-nitrobenzotrifluoride	*%*		*78.3*	*84.0 | 83.3*		*80.9*	*73.2*

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

ORG-022|Organophosphorus Pesticides (Soil) | Batch BFL0706

Analyte	Units	PQL	Blank	DUP1 BFL0706-DUP1# Samp | QC | RPD %	DUP2 BFL0706-DUP2# Samp | QC | RPD %	LCS %	Spike % BFL0706-MS2#
Chlorpyrifos	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		103	101
Surrogate 4-chloro-3-nitrobenzotrifluoride	*%*		*78.3*	*84.0 | 83.3*		*80.9*	*73.2*

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

ORG-021/022/025_PCB|Polychlorinated Biphenyls (Soil) | Batch BFL0706

Analyte	Units	PQL	Blank	DUP1 BFL0706-DUP1# Samp | QC | RPD %	DUP2 BFL0706-DUP2# Samp | QC | RPD %	LCS %	Spike % BFL0706-MS2#
Aroclor 1016	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Aroclor 1221	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Aroclor 1232	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Aroclor 1242	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Aroclor 1248	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Aroclor 1254	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Aroclor 1260	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
PCB C103	mg/kg			0.00 | 0.00 | [NA]		124	128
Surrogate 2-Fluorobiphenyl	*%*		*76.5*	*78.5 | 77.9*		*79.9*	*78.3*

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

Quality Control MFL0079

ORG-022|Speciated Phenols (Soil) | Batch BFL0706

Analyte	Units	PQL	Blank	DUP1 BFL0706-DUP1# Samp | QC | RPD %	DUP2 BFL0706-DUP2# Samp | QC | RPD %	LCS %	Spike % BFL0706-MS2#
Phenol	mg/kg	0.20	<0.20	<0.20 | <0.20 | [NA]		73.4	##[2]
2-Chlorophenol	mg/kg	0.20	<0.20	<0.20 | <0.20 | [NA]		79.9	##[2]
2-Methylphenol	mg/kg	0.20	<0.20	<0.20 | <0.20 | [NA]		76.2	47.9[2]
3/4-Methylphenol	mg/kg	0.40	<0.40	<0.40 | <0.40 | [NA]		[NA]	[NA]
2-Nitrophenol	mg/kg	0.20	<0.20	<0.20 | <0.20 | [NA]		[NA]	[NA]
2,4-Dimethylphenol	mg/kg	0.20	<0.20	<0.20 | <0.20 | [NA]		[NA]	[NA]
2,4-Dichlorophenol	mg/kg	0.20	<0.20	<0.20 | <0.20 | [NA]		[NA]	[NA]
2,6-Dichlorophenol	mg/kg	0.20	<0.20	<0.20 | <0.20 | [NA]		85.6	##[2]
4-Chloro-3-methylphenol	mg/kg	1.0	<1.0	<1.0 | <1.0 | [NA]		[NA]	[NA]
2,4,6-Trichlorophenol	mg/kg	0.20	<0.20	<0.20 | <0.20 | [NA]		[NA]	[NA]
2,4,5-Trichlorophenol	mg/kg	0.20	<0.20	<0.20 | <0.20 | [NA]		[NA]	[NA]
2,4-Dinitrophenol	mg/kg	4.0	<4.0	<4.0 | <4.0 | [NA]		[NA]	[NA]
4-Nitrophenol	mg/kg	4.0	<4.0	<4.0 | <4.0 | [NA]		[NA]	[NA]
2,3,4,5 & 2,3,4,6-Tetrachlorophenol	mg/kg	0.40	<0.40	<0.40 | <0.40 | [NA]		[NA]	[NA]
2,3,5,6-Tetrachlorophenol	mg/kg	0.20	<0.20	<0.20 | <0.20 | [NA]		[NA]	[NA]
4,6-Dinitro-2-methylphenol	mg/kg	10	<10	<10 | <10 | [NA]		[NA]	[NA]
Pentachlorophenol	mg/kg	2.0	<2.0	<2.0 | <2.0 | [NA]		[NA]	[NA]
Dinoseb	mg/kg	10	<10	<10 | <10 | [NA]		[NA]	[NA]
2-Cyclohexyl-4,6-Dinitrophenol	mg/kg	20	<20	<20 | <20 | [NA]		[NA]	[NA]
Surrogate 2-Fluorophenol	*%*		*69.4*	*75.4 | 76.3*		*78.9*	*##[3]*
Surrogate Phenol-D6	*%*		*65.3*	*67.2 | 67.6*		*66.0*	*##[3]*

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

ORG-022|Synthetic Pyrethroids (Soil) | Batch BFL0706

Analyte	Units	PQL	Blank	DUP1 BFL0706-DUP1# Samp | QC | RPD %	DUP2 BFL0706-DUP2# Samp | QC | RPD %	LCS %	Spike % BFL0706-MS2#
Bifenthrin	mg/kg	0.50	<0.50	<0.50 | <0.50 | [NA]		82.0	83.5
Surrogate p-Terphenyl-D14	*%*		*91.6*	*99.4 | 97.4*		*89.2*	*89.9*

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

ORG-022|Triazine Herbicides (Soil) | Batch BFL0706

Analyte	Units	PQL	Blank	DUP1 BFL0706-DUP1# Samp | QC | RPD %	DUP2 BFL0706-DUP2# Samp | QC | RPD %	LCS %	Spike % BFL0706-MS2#
Atrazine	mg/kg	0.50	<0.50	<0.50 | <0.50 | [NA]		74.6	84.7
Surrogate p-Terphenyl-D14	*%*		*91.6*	*99.4 | 97.4*		*89.2*	*89.9*

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

Quality Control MFL0079

METALS-020|Acid Extractable Metals (Soil) | Batch BFL0704

Analyte	Units	PQL	Blank	DUP1 BFL0704-DUP1# Samp | QC | RPD %	DUP2 BFL0704-DUP2# Samp | QC | RPD %	LCS %	Spike % BFL0704-MS1#
Arsenic	mg/kg	4.0	<4.0	7.14 | 6.12 | [NA]	7.14 | 8.10 | [NA]	115	117
Beryllium	mg/kg	1.0	<1.0	<1.0 | <1.0 | [NA]	<1.0 | <1.0 | [NA]	112	105
Boron	mg/kg	10	<10	31.7 | 27.7 | [NA]	31.7 | 36.1 | [NA]	107	115
Cadmium	mg/kg	0.40	<0.40	0.452 | 0.891 | [NA]	0.452 | 0.522 | [NA]	116	92.3
Chromium	mg/kg	1.0	<1.0	26.8 | 23.5 | 13.2	26.8 | 31.0 | 14.5	109	103
Cobalt	mg/kg	1.0	<1.0	8.07 | 7.10 | 12.8	8.07 | 9.40 | 15.3	110	99.2
Copper	mg/kg	1.0	<1.0	25.6 | 22.1 | 14.4	25.6 | 29.8 | 15.2	106	112
Lead	mg/kg	1.0	<1.0	59.5 | 52.0 | 13.4	59.5 | 68.7 | 14.4	113	##[1]
Manganese	mg/kg	1.0	<1.0	265 | 232 | 13.2	265 | 306 | 14.2	112	##[1]
Mercury	mg/kg	0.10	<0.10	0.168 | 0.145 | [NA]	0.168 | 0.214 | [NA]	96.4	[NA]
Nickel	mg/kg	1.0	<1.0	13.8 | 12.2 | 12.3	13.8 | 16.1 | 15.9	109	96.5
Selenium	mg/kg	2.0	<2.0	<2.0 | <2.0 | [NA]	<2.0 | <2.0 | [NA]	109	110
Zinc	mg/kg	1.0	<1.0	136 | 117 | 14.3	136 | 153 | 12.4	109	70.4

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-118|Inorganics - General Chemical Parameters (Soil) | Batch BFL0895

Analyte	Units	PQL	Blank	DUP1 BFL0895-DUP1# Samp | QC | RPD %	LCS %	Spike % BFL0895-MS1#
Hexavalent Chromium	mg/kg	1.0	<1.0	<1.0 | <1.0 | [NA]	93.5	##[1]

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-008|Inorganics - Moisture (Soil) | Batch BFL0697

Analyte	Units	PQL	Blank	DUP1 BFL0697-DUP1# Samp | QC | RPD %	LCS %
Moisture	%	0.1		42.0 | 40.8 | 2.83	[NA]

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-014|Inorganics - Cyanide Species and Similar (Soil) | Batch BFL0896

Analyte	Units	PQL	Blank	DUP1 BFL0896-DUP1# Samp | QC | RPD %	LCS %	Spike % BFL0896-MS1#
Free Cyanide	mg/kg	0.50	<0.50	<0.50 | <0.50 | [NA]	93.4	##[1]

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

QC Comments

Identifier	Description
[1]	Spike recovery is outside routine acceptance criteria (70-130%), this may be due to suspected non-homogeneity and/or matrix interference effects. However, an acceptable recovery was achieved for the LCS.
[2]	Spike recovery is outside routine acceptance criteria (60-140%), this may be due to suspected non-homogeneity and/or matrix interference effects. However, an acceptable recovery was achieved for the LCS.
[3]	Surrogate recovery was outside routine acceptance criteria (60-140%) due to sample matrix effects. This may be due to the presence of carbon and/or other artefacts. An acceptable recovery was achieved for the LCS surrogates.

CHAIN OF CUSTODY

COC#: 76176 ALS Laboratory: EB Brisbane Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME: 6/12 11:45

95

CLIENT: EMGAMM - EMM CONSULTING PTY LTD

PROJECT: Olympic Dam

SITE: Olympic Dam

ORDER NO: E240975

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

PROJECT MANAGER: Simony Sakamoto CONTACT PH: 0412799277 SAMPLER MOBILE: 0412799277

PRIMARY SAMPLER: Simony Sakamoto QUOTE NO: EM24EMGAMM0004_V2 / EM2024EMGAMM0004

EMAIL REPORTS TO: ssakamoto@emmconsulting.com.au, ESdat_AU+emmconsulting@ESdatLabSync.net, dcondon@emmconsulting.com.au

SAMPLE DETAILS							ANALYSIS REQUIRED											
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Acid-Base Accounting SOIL	Analysis NOT REQUIRED	Basic Suite SOIL	Contam 1 SOIL	Contam 2 - NEPM 2013 B1 Table 1A HIL - Basic Suite SOIL	Particle size analysis SOIL	QC/QC Trip Blank SOIL	QC/QC Trip Spike SOIL	Radiation Suite SOIL	Topsoil Suite SOIL	ALTERNATIVE ANALYSIS
015	TP04_0.0-0.1_241129_0.00-0.40		29/11/2024 08:40 AM	SOIL	ALS: 1 Non ALS: 0	Yes		-									
016	TP04_0.4-0.5_241129_0.40-0.50		29/11/2024 08:45 AM	SOIL	ALS: 3 Non ALS: 0	No	X		X								
017	TP04_1.0-1.1_241129_1.00-1.10		29/11/2024 08:55 AM	SOIL	ALS: 3 Non ALS: 1	No	X					X					
018	TP04_1.4_241129_1.30-1.40		29/11/2024 09:00 AM	SOIL	ALS: 1 Non ALS: 0	No					X						
019	QC103_241129_1.30-1.40		29/11/2024 09:00 AM	SOIL	ALS: 1 Non ALS: 0	No					X						
020	QC203_241129_1.30-1.40		29/11/2024 09:00 AM	SOIL	ALS: 1 Non ALS: 0	No					X						
021	TP15_0.0-0.15_241129_0.00-0.15		29/11/2024 10:10 PM	SOIL	ALS: 1 Non ALS: 0	No				X							

ENVIROLAB

Envirolab Services
25 Research Drive
Croydon South VIC 3136
Ph: (03) 9763 2500

Job No: MELO167

Date Received: 6/12/24

Time Received: 5:15

Received By: SR

Temp: Cool/Ambient

Cooling: Ice/Icepack

Security: Intact/Broken/None

9.9

RELINQUISHED BY SR (ALS), 6/12/24

CHAIN OF CUSTODY

COC#: 76176 *ALS Laboratory:* EB Brisbane Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: EMGAMM - EMM CONSULTING PTY LTD

PROJECT: Olympic Dam

SITE: Olympic Dam

ORDER NO: E240975

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

PROJECT MANAGER: Simony Sakamoto CONTACT PH: 0412799277 SAMPLER MOBILE: 0412799277

PRIMARY SAMPLER: Simony Sakamoto QUOTE NO: EM24EMGAMM0004_V2 / EM2024EMGAMM0004

EMAIL REPORTS TO: ssakamoto@emmconsulting.com.au, ESdat_AU+emmconsulting@ESdatLabSync.net, dcondon@emmconsulting.com.au

ANALYSIS REQUIRED
ADDITIONAL INFORMATION
Send to Envirolab

CHAIN OF CUSTODY

COC#: 76176 ALS Laboratory: EB Brisbane Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: EMGAMM - EMM CONSULTING PTY LTD

PROJECT: Olympic Dam

SITE: Olympic Dam

ORDER NO: E240975

PROJECT MANAGER: Simony Sakamoto CONTACT PH: 0412799277 SAMPLER MOBILE: 0412799277

PRIMARY SAMPLER: Simony Sakamoto QUOTE NO: EM24EMGAMM0004_V2 / EM2024EMGAMM0004

EMAIL REPORTS TO: ssakamoto@emmconsulting.com.au, ESdat_AU+emmconsulting@ESdatLabSync.net, dcondon@emmconsulting.com.au

TURNAROUND REQUIREMENTS: 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED											
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Acid-Base Accounting SOIL	Analysis NOT REQUIRED	Basic Suite SOIL	Contam 1 SOIL	Contam 2 - NEPM 2013 B1 Table 1A HIL - Basic Suite SOIL	Particle size analysis SOIL	QC/QC Trip Blank SOIL	QC/QC Trip Spike SOIL	Radiation Suite SOIL	Topsoil Suite SOIL	ALTERNATIVE ANALYSIS
022	TP15_0.4-0.5_241129_0.40-0.50		29/11/2024 10:15 PM	SOIL	ALS: 5 Non ALS: 1	No	X									X	
023	TP15_1.0-1.1_241129_1.00-1.10		29/11/2024 10:20 AM	SOIL	ALS: 4 Non ALS: 0	No	X		X			X					
024	TP15_2.0-2.1_241129_2.00-2.10		29/11/2024 10:30 AM	SOIL	ALS: 1 Non ALS: 0	No					X						
025	QC102_241129_0.00-0.15		29/11/2024 10:10 AM	SOIL	ALS: 1 Non ALS: 0	No				X							
026	QC202_241129_0.00-0.15		29/11/2024 10:10 AM	SOIL	ALS: 1 Non ALS: 0	No				X							
027	QC104_241129_1.00-1.10		29/11/2024 07:45 AM	SOIL	ALS: 1 Non ALS: 0	No					X						
028	QC204_241129_1.00-1.10		29/11/2024 07:45 AM	SOIL	ALS: 1 Non ALS: 0	No					X						

CHAIN OF CUSTODY

COC#: 76176 *ALS Laboratory:* EB Brisbane Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: EMGAMM - EMM CONSULTING PTY LTD

PROJECT: Olympic Dam

SITE: Olympic Dam

ORDER NO: E240975

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal Intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

PROJECT MANAGER: Simony Sakamoto CONTACT PH: 0412799277 SAMPLER MOBILE: 0412799277

PRIMARY SAMPLER: Simony Sakamoto QUOTE NO: EM24EMGAMM0004_V2 / EM2024EMGAMM0004

EMAIL REPORTS TO: ssakamoto@emmconsulting.com.au, ESdat_AU+emmconsulting@ESdatLabSync.net, dcondon@emmconsulting.com.au

ANALYSIS REQUIRED	
ADDITIONAL INFORMATION	
Send to Envirolab	
Send to Envirolab	

95

5/5

Filter by Submatrix Schedule code / description

Analysis Group
Acid-Base Accounting
ASLP
Basic Suite
Contam 1
Contam 2 - NEPM 2013 B1 Table 1A HIL - Basic Suite
Particle size analysis
QC/QC Trip Blank
QC/QC Trip Spike
Radiation Suite
Topsoil Suite

Analysis Group	Sale Item Type	Description
P-21/1 (Melb)	Package	NEPM (2013) HIL Table 1A(1) Screen

Filter by Submatrix Schedule code / description

Analysis Group
Acid-Base Accounting
ASLP
Basic Suite
Contam 1
Contam 2 - NEPM 2013 B1 Table 1A HIL - Basic Suite
Particle size analysis
QC/QC Trip Blank
QC/QC Trip Spike
Radiation Suite
Topsoil Suite

Analysis Group	Sale Item Type	Description
S-26	Package	8 metals/TRH/BTEXN/PAH

Envirolab Services Pty Ltd
ABN 37 112 535 645 - 002
25 Research Drive Croydon South VIC 3136
ph +61 3 9763 2500
melbourne@envirolab.com.au
www.envirolab.com.au

Sample Receipt Advice MFL0167

Client Details

Client	EMM Consulting Pty Ltd (VIC)
Attention	Simony Sakamoto

Sample Login Details

Your Reference	Olympic Dam
Envirolab Reference	MFL0167
Date Sample Received	06/12/2024
Date Instructions Received	06/12/2024
Date Final Results Expected	13/12/2024

Sample Condition

Samples received in appropriate condition for analysis	Yes
Number of Samples	3 Soil
Turnaround Time	5 Days
Temperatures / Cooling Methods	9.9°C On Ice

Additional Info

Sample storage - waters are routinely disposed at approximately 1 month and soils approximately 2 months from receipt.

Requests for longer term sample storage must be received in writing.

Where no sampling date has been supplied for some or all samples, the date of sample receipt has been used as the associated sampling date. The sampling dates are used to assess compliance to recommended Technical Holding Times.

Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default).

Please direct any queries to:

Pamela Adams

Phone	03 9763 2500
Email	padams@envirolab.com.au

Chris De Luca

Phone	03 9763 2500
Email	cdeluca@envirolab.com.au

Analysis underway, details on the following page

Sample Receipt Advice MFL0167

Analysis Grid

The • indicates the testing you have requested. ***THIS IS NOT A REPORT OF THE RESULTS.***

	Combination 3	NEPM2013 HIL Suite 1+TRH	Moisture	Cyanide - WAD
MFL0167-01 Soil | 29/11/2024 QC203_241129_1.30_1.40		•	•	•
MFL0167-02 Soil | 29/11/2024 QC202_241129_0.00-0.15	•		•	
MFL0167-03 Soil | 29/11/2024 QC204_241129_1.00-1.10		•	•	•

Suite Details

Suite Name	Suite Analyses
Combination 3 |Soil	vTRH&MBTEXN, sTRH, PAH, As, Cd, Cr, Cu, Hg, Ni, Pb, Zn
NEPM2013 HIL Suite 1+TRH |Soil	vTRH&MBTEXN, sTRH, PAH, OCP, Chlorpyrifos, PCB, Speciated Phenols, Bifenthrin, Atrazine, As, B, Be, Cd, Co, Cr, Cu, Hg, Mn, Ni, Pb, Se, Zn, Cr6+

Envirolab Services Pty Ltd
ABN 37 112 535 645 - 002
25 Research Drive Croydon South VIC 3136
ph +61 3 9763 2500
melbourne@envirolab.com.au
www.envirolab.com.au

Certificate of Analysis MFL0167

Client Details

Client	EMM Consulting Pty Ltd (VIC)
Contact	Simony Sakamoto
Address	Suite 8.03, Level 8, 454 Collins Street, Melbourne, VIC, 3000

Sample Details

Your Reference	Olympic Dam
Number of Samples	3 Soil
Date Samples Received	06/12/2024
Date Instructions Received	06/12/2024

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for soils and on an as received basis for other matrices.

Report Details

Date Results Requested by	13/12/2024
Date of Issue	10/12/2024

NATA Accreditation Number 2901. This document shall not be reproduced except in full.
Accredited for compliance with ISO/IEC 17025. Tests not covered by NATA are denoted with *.

Authorisation Details

Results Approved By	Chaminda Gunasekara, Inorganics Supervisor Tara White, Metals Supervisor Tianna Milburn, Senior Chemist
Laboratory Manager	Chris De Luca

Certificate of Analysis MFL0167

Samples in this Report

Envirolab ID	Sample ID	Matrix	Date Sampled	Date Received
MFL0167-01	QC203_241129_1.30_1.40	Soil	29/11/2024	06/12/2024
MFL0167-02	QC202_241129_0.00-0.15	Soil	29/11/2024	06/12/2024
MFL0167-03	QC204_241129_1.00-1.10	Soil	29/11/2024	06/12/2024

Volatile TRH and BTEX (Soil)

Envirolab ID	Units	PQL	MFL0167-01	MFL0167-02	MFL0167-03
Your Reference			QC203_241129 _1.30_1.40	QC202_241129 _0.00-0.15	QC204_241129 _1.00-1.10
Date Sampled			29/11/2024	29/11/2024	29/11/2024
TRH C6-C9	mg/kg	25	<25	<25	<25
TRH C6-C10	mg/kg	25	<25	<25	<25
TRH C6-C10 less BTEX (F1)	mg/kg	25	<25	<25	<25
Methyl tert butyl ether (MTBE)	mg/kg	0.50	<0.50	<0.50	<0.50
Benzene	mg/kg	0.20	<0.20	<0.20	<0.20
Toluene	mg/kg	0.50	<0.50	<0.50	<0.50
Ethylbenzene	mg/kg	1.0	<1.0	<1.0	<1.0
meta+para Xylene	mg/kg	2.0	<2.0	<2.0	<2.0
ortho-Xylene	mg/kg	1.0	<1.0	<1.0	<1.0
Total Xylene	mg/kg	3.0	<3.0	<3.0	<3.0
Naphthalene (value used in F2 calc)	mg/kg	1.0	<1.0	<1.0	<1.0
Surrogate aaa-Trifluorotoluene	%		*74.0*	*73.3*	*74.6*

Semi-volatile TRH (Soil)

Envirolab ID	Units	PQL	MFL0167-01	MFL0167-02	MFL0167-03
Your Reference			QC203_241129 _1.30_1.40	QC202_241129 _0.00-0.15	QC204_241129 _1.00-1.10
Date Sampled			29/11/2024	29/11/2024	29/11/2024
TRH C10-C14	mg/kg	50	<50	<50	<50
TRH C15-C28	mg/kg	100	<100	<100	<100
TRH C29-C36	mg/kg	100	<100	<100	<100
Total +ve TRH C10-C36	mg/kg	50	<50	<50	<50
TRH >C10-C16	mg/kg	50	<50	<50	<50
TRH >C10-C16 less Naphthalene F2	mg/kg	50	<50	<50	<50
TRH >C16-C34 (F3)	mg/kg	100	<100	<100	<100
TRH >C34-C40 (F4)	mg/kg	100	<100	<100	<100
Total +ve TRH >C10-C40	mg/kg	50	<50	<50	<50
Surrogate o-Terphenyl	%		*93.9*	*94.4*	*94.0*

Polycyclic Aromatic Hydrocarbons (Soil)

Envirolab ID	Units	PQL	MFL0167-01	MFL0167-02	MFL0167-03
Your Reference			QC203_241129 _1.30_1.40	QC202_241129 _0.00-0.15	QC204_241129 _1.00-1.10
Date Sampled			29/11/2024	29/11/2024	29/11/2024
Naphthalene	mg/kg	0.10	<0.10	<0.10	<0.10
Acenaphthylene	mg/kg	0.10	<0.10	<0.10	<0.10
Acenaphthene	mg/kg	0.10	<0.10	<0.10	<0.10
Fluorene	mg/kg	0.10	<0.10	<0.10	<0.10
Phenanthrene	mg/kg	0.10	<0.10	<0.10	<0.10
Anthracene	mg/kg	0.10	<0.10	<0.10	<0.10
Fluoranthene	mg/kg	0.10	<0.10	<0.10	<0.10
Pyrene	mg/kg	0.10	<0.10	<0.10	<0.10
Benzo(a)anthracene	mg/kg	0.10	<0.10	<0.10	<0.10
Chrysene	mg/kg	0.10	<0.10	<0.10	<0.10
Benzo(b,j,k)fluoranthene	mg/kg	0.20	<0.20	<0.20	<0.20
Benzo(a)pyrene	mg/kg	0.050	<0.050	<0.050	<0.050
Indeno(1,2,3-c,d)pyrene	mg/kg	0.10	<0.10	<0.10	<0.10
Dibenzo(a,h)anthracene	mg/kg	0.10	<0.10	<0.10	<0.10
Benzo(g,h,i)perylene	mg/kg	0.10	<0.10	<0.10	<0.10
Total +ve PAH	mg/kg	0.050	<0.050	<0.050	<0.050
Benzo(a)pyrene TEQ calc zero	mg/kg	0.50	<0.50	<0.50	<0.50
Benzo(a)pyrene TEQ calc Half	mg/kg	0.50	<0.50	<0.50	<0.50
Benzo(a)pyrene TEQ calc PQL	mg/kg	0.50	<0.50	<0.50	<0.50
Surrogate p-Terphenyl-D14	%		*124*	*122*	*125*

Organochlorine Pesticides (Soil)

Envirolab ID	Units	PQL	MFL0167-01	MFL0167-03
Your Reference			QC203_241129 _1.30_1.40	QC204_241129 _1.00-1.10
Date Sampled			29/11/2024	29/11/2024
alpha-BHC	mg/kg	0.10	<0.10	<0.10
Hexachlorobenzene	mg/kg	0.10	<0.10	<0.10
beta-BHC	mg/kg	0.10	<0.10	<0.10
gamma-BHC	mg/kg	0.10	<0.10	<0.10
delta-BHC	mg/kg	0.10	<0.10	<0.10
Heptachlor	mg/kg	0.10	<0.10	<0.10
Aldrin	mg/kg	0.10	<0.10	<0.10
Heptachlor epoxide	mg/kg	0.10	<0.10	<0.10
trans-Chlordane	mg/kg	0.10	<0.10	<0.10
cis-Chlordane	mg/kg	0.10	<0.10	<0.10
Endosulfan I	mg/kg	0.10	<0.10	<0.10
4,4'-DDE	mg/kg	0.10	<0.10	<0.10
Dieldrin	mg/kg	0.10	<0.10	<0.10
Endrin	mg/kg	0.10	<0.10	<0.10
4,4'-DDD	mg/kg	0.10	<0.10	<0.10
Endosulfan II	mg/kg	0.10	<0.10	<0.10
Endrin aldehyde	mg/kg	0.10	<0.10	<0.10
4,4'-DDT	mg/kg	0.10	<0.10	<0.10
Endosulfan sulfate	mg/kg	0.10	<0.10	<0.10
Endrin ketone	mg/kg	0.10	<0.10	<0.10
Methoxychlor	mg/kg	0.10	<0.10	<0.10
Mirex	mg/kg	0.10	<0.10	<0.10
Total +ve DDT+DDD+DDE	mg/kg	0.10	<0.10	<0.10
Total +ve Aldrin + Dieldrin	mg/kg	0.10	<0.10	<0.10
Total +ve OCP	mg/kg	0.10	<0.10	<0.10
Surrogate 4-chloro-3-nitrobenzotrifluoride	%		*85.8*	*82.3*

Organophosphorus Pesticides (Soil)

Envirolab ID	Units	PQL	MFL0167-01	MFL0167-03
Your Reference			QC203_241129 _1.30_1.40	QC204_241129 _1.00-1.10
Date Sampled			29/11/2024	29/11/2024
Chlorpyrifos	mg/kg	0.10	<0.10	<0.10
Surrogate 4-chloro-3-nitrobenzotrifluoride	%		*85.8*	*82.3*

Polychlorinated Biphenyls (Soil)

Envirolab ID	Units	PQL	MFL0167-01	MFL0167-03
Your Reference			QC203_241129 _1.30_1.40	QC204_241129 _1.00-1.10
Date Sampled			29/11/2024	29/11/2024
Aroclor 1016	mg/kg	0.10	<0.10	<0.10
Aroclor 1221	mg/kg	0.10	<0.10	<0.10
Aroclor 1232	mg/kg	0.10	<0.10	<0.10
Aroclor 1242	mg/kg	0.10	<0.10	<0.10
Aroclor 1248	mg/kg	0.10	<0.10	<0.10
Aroclor 1254	mg/kg	0.10	<0.10	<0.10
Aroclor 1260	mg/kg	0.10	<0.10	<0.10
Total +ve PCB (1016-1260)	mg/kg	0.10	<0.10	<0.10
Surrogate 2-Fluorobiphenyl	%		*95.6*	*91.7*

Speciated Phenols (Soil)

Envirolab ID	Units	PQL	MFL0167-01	MFL0167-03
Your Reference			QC203_241129 _1.30_1.40	QC204_241129 _1.00-1.10
Date Sampled			29/11/2024	29/11/2024
Phenol	mg/kg	0.20	<0.20	<0.20
2-Chlorophenol	mg/kg	0.20	<0.20	<0.20
2-Methylphenol	mg/kg	0.20	<0.20	<0.20
3/4-Methylphenol	mg/kg	0.40	<0.40	<0.40
2-Nitrophenol	mg/kg	0.20	<0.20	<0.20
2,4-Dimethylphenol	mg/kg	0.20	<0.20	<0.20
2,4-Dichlorophenol	mg/kg	0.20	<0.20	<0.20
2,6-Dichlorophenol	mg/kg	0.20	<0.20	<0.20
4-Chloro-3-methylphenol	mg/kg	1.0	<1.0	<1.0
2,4,6-Trichlorophenol	mg/kg	0.20	<0.20	<0.20
2,4,5-Trichlorophenol	mg/kg	0.20	<0.20	<0.20
2,4-Dinitrophenol	mg/kg	4.0	<4.0	<4.0
4-Nitrophenol	mg/kg	4.0	<4.0	<4.0
2,3,4,5 & 2,3,4,6-Tetrachlorophenol	mg/kg	0.40	<0.40	<0.40
2,3,5,6-Tetrachlorophenol	mg/kg	0.20	<0.20	<0.20
4,6-Dinitro-2-methylphenol	mg/kg	10	<10	<10
Pentachlorophenol	mg/kg	2.0	<2.0	<2.0
Dinoseb	mg/kg	10	<10	<10
2-Cyclohexyl-4,6-Dinitrophenol	mg/kg	20	<20	<20
Surrogate 2-Fluorophenol	%		*82.9*	*81.3*
Surrogate Phenol-D6	%		*62.8*	*60.1*

Synthetic Pyrethroids (Soil)

Envirolab ID	Units	PQL	MFL0167-01	MFL0167-03
Your Reference			QC203_241129 _1.30_1.40	QC204_241129 _1.00-1.10
Date Sampled			29/11/2024	29/11/2024
Bifenthrin	mg/kg	0.50	<0.50	<0.50
Surrogate p-Terphenyl-D14	%		*124*	*125*

Triazine Herbicides (Soil)

Envirolab ID	Units	PQL	MFL0167-01	MFL0167-03
Your Reference			QC203_241129 _1.30_1.40	QC204_241129 _1.00-1.10
Date Sampled			29/11/2024	29/11/2024
Atrazine	mg/kg	0.50	<0.50	<0.50
Surrogate p-Terphenyl-D14	%		*124*	*125*

Acid Extractable Metals (Soil)

Envirolab ID	Units	PQL	MFL0167-01	MFL0167-02	MFL0167-03
Your Reference			QC203_241129 _1.30_1.40	QC202_241129 _0.00-0.15	QC204_241129 _1.00-1.10
Date Sampled			29/11/2024	29/11/2024	29/11/2024
Arsenic	mg/kg	4.0	54	<4.0	<4.0
Boron	mg/kg	10	22	[NA]	<10
Beryllium	mg/kg	1.0	<1.0	[NA]	<1.0
Cadmium	mg/kg	0.40	<0.40	<0.40	<0.40
Cobalt	mg/kg	1.0	25	[NA]	15
Chromium	mg/kg	1.0	28	5.2	4.4
Copper	mg/kg	1.0	13000	2.5	590
Mercury	mg/kg	0.10	<0.10	<0.10	<0.10
Manganese	mg/kg	1.0	230	[NA]	210
Nickel	mg/kg	1.0	17	1.4	4.6
Lead	mg/kg	1.0	35	2.0	3.5
Selenium	mg/kg	2.0	4.6	[NA]	<2.0
Zinc	mg/kg	1.0	24	3.3	12

Inorganics - General Chemical Parameters (Soil)

Envirolab ID	Units	PQL	MFL0167-01	MFL0167-03
Your Reference			QC203_241129 _1.30_1.40	QC204_241129 _1.00-1.10
Date Sampled			29/11/2024	29/11/2024
Hexavalent Chromium	mg/kg	1.0	<1.0	<1.0

Certificate of Analysis MFL0167

Inorganics - Moisture (Soil)

Envirolab ID	Units	PQL	MFL0167-01	MFL0167-02	MFL0167-03
Your Reference			QC203_241129 _1.30_1.40	QC202_241129 _0.00-0.15	QC204_241129 _1.00-1.10
Date Sampled			29/11/2024	29/11/2024	29/11/2024
Moisture	%	0.10	11	2.9	3.0

Inorganics - Cyanide Species and Similar (Soil)

Envirolab ID	Units	PQL	MFL0167-01	MFL0167-03
Your Reference			QC203_241129 _1.30_1.40	QC204_241129 _1.00-1.10
Date Sampled			29/11/2024	29/11/2024
Weak Acid Dissociable Cyanide	mg/kg	0.50	<0.50	<0.50

Method Summary

Method ID	Methodology Summary
INORG-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
INORG-014	Cyanide - free, total, weak acid dissociable by segmented flow analyser (in line dialysis with colourimetric finish). Solids/Filters and sorbents are extracted in a caustic media prior to analysis. Impingers are pH adjusted as required prior to analysis. Cyanides amenable to Chlorination - samples are analysed untreated and treated with hypochlorite to assess the potential for chlorination of cyanide forms.
INORG-118	Hexavalent Chromium by Ion Chromatographic separation and colourimetric determination. Waters samples are filtered prior to analysis. Solids are extracted with an alkaline buffered solution, for air sampling media the same alkali extraction can be used or alternatives from NIOSH/OSHA. For aqueous samples, Total Hexavalent Chromium includes the dissolved Hexavalent Chromium and any Hexavalent Chromium solubilised by the preservative i.e. Sodium Hydroxide from any particulate that may be present.
METALS-020	Determination of various metals by ICP-OES.
METALS-021	Determination of Mercury by Cold Vapour AAS.
ORG-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
ORG-021/022/025_PCB	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD and/or GC-MS/GC-MSMS.
ORG-022	Determination of semi-volatile organic compounds (SVOCs) by GC-MS. Water samples are extracted by LLE and soils using DCM/Acetone/Methanol.
ORG-022_OC	Determination of semi-volatile organic compounds (SVOCs) by GC-MS. Water samples are extracted by LLE and soils using DCM/Acetone/Methanol.
ORG-022_PAH	Determination of semi-volatile organic compounds (SVOCs) by GC-MS. Water samples are extracted by LLE and solids using DCM/Acetone/Methanol. For PAHs:- Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. 1. 'TEQ PQL' values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'TEQ zero' values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'TEQ half PQL' values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, for Total +ve calculations, the PQL is reflective of the lowest individual PQL and therefore, for example, "Total +ve PAHs" is simply a sum of the positive individual PAHs.
ORG-023_F1_TOT	Determination of volatile organic compounds (VOCs) by P&T-GC-MS. Water samples are analysed directly by purge and trap GC-MS. Solids are extracted with Methanol, diluted and analysed by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

Result Definitions

Identifier	Description
NR	Not reported
NEPM	National Environment Protection Measure
NS	Not specified
LCS	Laboratory Control Sample
RPD	Relative Percent Difference
>	Greater than
<	Less than
PQL	Practical Quantitation Limit
INS	Insufficient sample for this test
NA	Test not required
NT	Not tested
DOL	Samples rejected due to particulate overload (air filters only)
RFD	Samples rejected due to filter damage (air filters only)
RUD	Samples rejected due to uneven deposition (air filters only)
##	Indicates a laboratory acceptance criteria outlier, for further details, see Result Comments and/or QC Comments

Quality Control Definitions

Blank

This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, and is determined by processing solvents and reagents in exactly the same manner as for samples.

Surrogate Spike

Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

LCS (Laboratory Control Sample)

This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

Matrix Spike

A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

Duplicate

This is the complete duplicate analysis of a sample from the process batch. The sample selected should be one where the analyte concentration is easily measurable.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria. Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction. Spikes for Physical and Aggregate Tests are not applicable. For VOCs in water samples, three vials are required for duplicate or spike analysis.

General Acceptance Criteria (GAC) - Analyte specific criteria applies for some analytes and is reflected in QC recovery tables.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% - see ELN-P05 QAQC tables for details (available on request); <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase. Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was typically insufficient in order to satisfy laboratory QA/QC protocols.

Miscellaneous Information

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached. We have taken the sampling date as being the date received at the laboratory.

Two significant figures are reported for the majority of tests and with a high degree of confidence, for results <10*PQL, the second significant figure may be in doubt i.e. has a relatively high degree of uncertainty and is provided for information only.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS where sediment/solids are included by default.

Urine Analysis - The BEI values listed are taken from the 2022 edition of *TLVs and BEIs Threshold Limits by ACGIH*.

Air volume measurements are not covered by Envirolab's NATA accreditation.

Client Supplied Rec Max - these Recommended Max Limits have been client supplied and may or may not relate to current published Guidelines or set Licence Requirements. It is the responsibility of the client to determine if the samples meet the current required Limits and are therefore fit for purpose. If the required limits change, it is the responsibility of the client to advise Envirolab in writing.

Data Quality Assessment Summary MFL0167

Client Details

Client	EMM Consulting Pty Ltd (VIC)
Your Reference	Olympic Dam
Date Issued	10/12/2024

Recommended Holding Time Compliance

No recommended holding time exceedances

Quality Control and QC Frequency

QC Type	Compliant	Details
Blank	Yes	No Outliers
LCS	Yes	No Outliers
Duplicates	Yes	No Outliers
Matrix Spike	Yes	No Outliers
Surrogates / Extracted Internal Standards	Yes	No Outliers
QC Frequency	Yes	No Outliers

Surrogates/Extracted Internal Standards, Duplicates and/or Matrix Spikes are not always relevant/applicable to certain analyses and matrices. Therefore, said QC measures are deemed compliant in these situations by default. See Laboratory Acceptance Criteria for more information

Data Quality Assessment Summary MFL0167

Recommended Holding Time Compliance

Analysis	Sample Number(s)	Date Sampled	Date Extracted	Date Analysed	Compliant
vTRH&MBTEXN | Soil	1-3	29/11/2024	09/12/2024	09/12/2024	Yes
sTRH | Soil	1-3	29/11/2024	09/12/2024	09/12/2024	Yes
PAH | Soil	1-3	29/11/2024	09/12/2024	09/12/2024	Yes
OCP | Soil	1, 3	29/11/2024	09/12/2024	09/12/2024	Yes
Chlorpyrifos | Soil	1, 3	29/11/2024	09/12/2024	09/12/2024	Yes
PCB | Soil	1, 3	29/11/2024	09/12/2024	09/12/2024	Yes
Speciated Phenols | Soil	1, 3	29/11/2024	09/12/2024	09/12/2024	Yes
Bifenthrin | Soil	1, 3	29/11/2024	09/12/2024	09/12/2024	Yes
Atrazine | Soil	1, 3	29/11/2024	09/12/2024	09/12/2024	Yes
Metals | Soil	1-3	29/11/2024	09/12/2024	10/12/2024	Yes
Metals-Hg | Soil	1-3	29/11/2024	09/12/2024	10/12/2024	Yes
Cr6+ | Soil	1, 3	29/11/2024	09/12/2024	09/12/2024	Yes
Moisture | Soil	1-3	29/11/2024	09/12/2024	10/12/2024	Yes
Cyanide - WAD | Soil	1, 3	29/11/2024	09/12/2024	10/12/2024	Yes

Quality Control MFL0167

ORG-023_F1_TOT|Volatile TRH and BTEX (Soil) | Batch BFL1236

Analyte	Units	PQL	Blank	DUP1 BFL1236-DUP1# Samp | QC | RPD %	LCS %	Spike % BFL1236-MS2#
TRH C6-C9	mg/kg	25	<25	<25 | <25 | [NA]	105	80.8
TRH C6-C10	mg/kg	25	<25	<25 | <25 | [NA]	101	83.6
TRH C6-C10 less BTEX (F1)	mg/kg	25	<25	<25 | <25 | [NA]	[NA]	[NA]
Methyl tert butyl ether (MTBE)	mg/kg	0.50	<0.50	<0.50 | <0.50 | [NA]	[NA]	[NA]
Benzene	mg/kg	0.20	<0.20	<0.20 | <0.20 | [NA]	99.3	81.4
Toluene	mg/kg	0.50	<0.50	<0.50 | <0.50 | [NA]	97.1	79.2
Ethylbenzene	mg/kg	1.0	<1.0	<1.0 | <1.0 | [NA]	91.9	75.0
meta+para Xylene	mg/kg	2.0	<2.0	<2.0 | <2.0 | [NA]	88.9	72.3
ortho-Xylene	mg/kg	1.0	<1.0	<1.0 | <1.0 | [NA]	86.6	70.5
Total Xylene	mg/kg	3.0	<3.0	<3.0 | <3.0 | [NA]	[NA]	[NA]
Naphthalene (value used in F2 calc)	mg/kg	1.0	<1.0	<1.0 | <1.0 | [NA]	[NA]	[NA]
Surrogate aaa-Trifluorotoluene	*%*		*80.0*	*73.1 | 74.4*	*74.0*	*66.4*

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

ORG-020|Semi-volatile TRH (Soil) | Batch BFL1237

Analyte	Units	PQL	Blank	DUP1 BFL1237-DUP1# Samp | QC | RPD %	DUP2 BFL1237-DUP2# Samp | QC | RPD %	LCS %	Spike % BFL1237-MS1#
TRH C10-C14	mg/kg	50	<50	<50 | <50 | [NA]	<50 | <50 | [NA]	132	126
TRH C15-C28	mg/kg	100	<100	<100 | <100 | [NA]		105	105
TRH C29-C36	mg/kg	100	<100	<100 | <100 | [NA]		112	86.9
TRH >C10-C16	mg/kg	50	<50	<50 | <50 | [NA]		103	99.5
TRH >C16-C34 (F3)	mg/kg	100	<100	<100 | <100 | [NA]		108	107
TRH >C34-C40 (F4)	mg/kg	100	<100	<100 | <100 | [NA]		100	61.8
Surrogate o-Terphenyl	*%*		*101*	*96.2 | 97.4*		*107*	*98.5*

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

ORG-022_PAH|Polycyclic Aromatic Hydrocarbons (Soil) | Batch BFL1237

Analyte	Units	PQL	Blank	DUP1 BFL1237-DUP1# Samp | QC | RPD %	DUP2 BFL1237-DUP2# Samp | QC | RPD %	LCS %	Spike % BFL1237-MS2#
Naphthalene	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		88.6	91.4
Acenaphthylene	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Acenaphthene	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		92.0	96.5
Fluorene	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		88.2	97.3
Phenanthrene	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		95.2	95.9
Anthracene	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Fluoranthene	mg/kg	0.10	<0.10	0.168 | <0.10 | [NA]		107	111
Pyrene	mg/kg	0.10	<0.10	0.216 | 0.108 | [NA]		111	113
Benzo(a)anthracene	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Chrysene	mg/kg	0.10	<0.10	0.111 | <0.10 | [NA]		99.7	105
Benzo(b,j,k)fluoranthene	mg/kg	0.20	<0.20	0.294 | <0.20 | [NA]		[NA]	[NA]
Benzo(a)pyrene	mg/kg	0.050	<0.050	0.195 | 0.0971 | [NA]		100	103
Indeno(1,2,3-c,d)pyrene	mg/kg	0.10	<0.10	0.124 | <0.10 | [NA]		[NA]	[NA]
Dibenzo(a,h)anthracene	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Benzo(g,h,i)perylene	mg/kg	0.10	<0.10	0.168 | <0.10 | [NA]		[NA]	[NA]
Surrogate p-Terphenyl-D14	*%*		*127*	*134 | 128*		*129*	*126*

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

Quality Control MFL0167

ORG-022_OC|Organochlorine Pesticides (Soil) | Batch BFL1237

Analyte	Units	PQL	Blank	DUP1 BFL1237-DUP1# Samp | QC | RPD %	DUP2 BFL1237-DUP2# Samp | QC | RPD %	LCS %	Spike % BFL1237-MS2#
alpha-BHC	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		102	107
Hexachlorobenzene	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
beta-BHC	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		103	109
gamma-BHC	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
delta-BHC	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Heptachlor	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		64.7	61.8
Aldrin	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		67.0	67.5
Heptachlor epoxide	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		113	117
trans-Chlordane	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
cis-Chlordane	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Endosulfan I	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
4,4'-DDE	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		112	116
Dieldrin	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		120	120
Endrin	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		69.8	81.7
4,4'-DDD	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		128	134
Endosulfan II	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Endrin aldehyde	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
4,4'-DDT	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Endosulfan sulfate	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		64.4	75.0
Endrin ketone	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Methoxychlor	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Mirex	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Surrogate 4-chloro-3-nitrobenzotrifluoride	*%*		*82.3*	*90.4 | 84.6*		*97.1*	*99.5*

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

ORG-022|Organophosphorus Pesticides (Soil) | Batch BFL1237

Analyte	Units	PQL	Blank	DUP1 BFL1237-DUP1# Samp | QC | RPD %	DUP2 BFL1237-DUP2# Samp | QC | RPD %	LCS %	Spike % BFL1237-MS2#
Chlorpyrifos	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		118	121
Surrogate 4-chloro-3-nitrobenzotrifluoride	*%*		*82.3*	*90.4 | 84.6*		*97.1*	*99.5*

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

ORG-021/022/025_PCB|Polychlorinated Biphenyls (Soil) | Batch BFL1237

Analyte	Units	PQL	Blank	DUP1 BFL1237-DUP1# Samp | QC | RPD %	DUP2 BFL1237-DUP2# Samp | QC | RPD %	LCS %	Spike % BFL1237-MS2#
Aroclor 1016	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Aroclor 1221	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Aroclor 1232	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Aroclor 1242	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Aroclor 1248	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Aroclor 1254	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Aroclor 1260	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
PCB C103	mg/kg			0.00 | 0.00 | [NA]		99.0	103
Surrogate 2-Fluorobiphenyl	*%*		*102*	*93.4 | 94.6*		*100*	*102*

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

Quality Control MFL0167

ORG-022|Speciated Phenols (Soil) | Batch BFL1237

Analyte	Units	PQL	Blank	DUP1 BFL1237-DUP1# Samp | QC | RPD %	DUP2 BFL1237-DUP2# Samp | QC | RPD %	LCS %	Spike % BFL1237-MS2#
Phenol	mg/kg	0.20	<0.20	<0.20 | <0.20 | [NA]		66.5	68.4
2-Chlorophenol	mg/kg	0.20	<0.20	<0.20 | <0.20 | [NA]		74.1	78.5
2-Methylphenol	mg/kg	0.20	<0.20	<0.20 | <0.20 | [NA]		62.1	65.1
3/4-Methylphenol	mg/kg	0.40	<0.40	<0.40 | <0.40 | [NA]		[NA]	[NA]
2-Nitrophenol	mg/kg	0.20	<0.20	<0.20 | <0.20 | [NA]		[NA]	[NA]
2,4-Dimethylphenol	mg/kg	0.20	<0.20	<0.20 | <0.20 | [NA]		[NA]	[NA]
2,4-Dichlorophenol	mg/kg	0.20	<0.20	<0.20 | <0.20 | [NA]		[NA]	[NA]
2,6-Dichlorophenol	mg/kg	0.20	<0.20	<0.20 | <0.20 | [NA]		82.4	82.5
4-Chloro-3-methylphenol	mg/kg	1.0	<1.0	<1.0 | <1.0 | [NA]		[NA]	[NA]
2,4,6-Trichlorophenol	mg/kg	0.20	<0.20	<0.20 | <0.20 | [NA]		[NA]	[NA]
2,4,5-Trichlorophenol	mg/kg	0.20	<0.20	<0.20 | <0.20 | [NA]		[NA]	[NA]
2,4-Dinitrophenol	mg/kg	4.0	<4.0	<4.0 | <4.0 | [NA]		[NA]	[NA]
4-Nitrophenol	mg/kg	4.0	<4.0	<4.0 | <4.0 | [NA]		[NA]	[NA]
2,3,4,5 & 2,3,4,6-Tetrachlorophenol	mg/kg	0.40	<0.40	<0.40 | <0.40 | [NA]		[NA]	[NA]
2,3,5,6-Tetrachlorophenol	mg/kg	0.20	<0.20	<0.20 | <0.20 | [NA]		[NA]	[NA]
4,6-Dinitro-2-methylphenol	mg/kg	10	<10	<10 | <10 | [NA]		[NA]	[NA]
Pentachlorophenol	mg/kg	2.0	<2.0	<2.0 | <2.0 | [NA]		[NA]	[NA]
Dinoseb	mg/kg	10	<10	<10 | <10 | [NA]		[NA]	[NA]
2-Cyclohexyl-4,6-Dinitrophenol	mg/kg	20	<20	<20 | <20 | [NA]		[NA]	[NA]
Surrogate 2-Fluorophenol	*%*		*80.7*	*85.0 | 80.9*		*85.1*	*84.3*
Surrogate Phenol-D6	*%*		*60.5*	*61.0 | 64.5*		*65.0*	*66.7*

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

ORG-022|Synthetic Pyrethroids (Soil) | Batch BFL1237

Analyte	Units	PQL	Blank	DUP1 BFL1237-DUP1# Samp | QC | RPD %	DUP2 BFL1237-DUP2# Samp | QC | RPD %	LCS %	Spike % BFL1237-MS2#
Bifenthrin	mg/kg	0.50	<0.50	<0.50 | <0.50 | [NA]		93.0	96.7
Surrogate p-Terphenyl-D14	*%*		*127*	*134 | 128*		*129*	*126*

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

ORG-022|Triazine Herbicides (Soil) | Batch BFL1237

Analyte	Units	PQL	Blank	DUP1 BFL1237-DUP1# Samp | QC | RPD %	DUP2 BFL1237-DUP2# Samp | QC | RPD %	LCS %	Spike % BFL1237-MS2#
Atrazine	mg/kg	0.50	<0.50	<0.50 | <0.50 | [NA]		97.6	103
Surrogate p-Terphenyl-D14	*%*		*127*	*134 | 128*		*129*	*126*

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

Quality Control MFL0167

METALS-020|Acid Extractable Metals (Soil) | Batch BFL1235

Analyte	Units	PQL	Blank	DUP1 BFL1235-DUP1# Samp | QC | RPD %	DUP2 BFL1235-DUP2# Samp | QC | RPD %	LCS %	Spike % BFL1235-MS1#
Arsenic	mg/kg	4.0	<4.0	<4.0 | <4.0 | [NA]		101	104
Beryllium	mg/kg	1.0	<1.0	<1.0 | <1.0 | [NA]		100	98.3
Boron	mg/kg	10	<10	<10 | <10 | [NA]		98.4	99.7
Cadmium	mg/kg	0.40	<0.40	<0.40 | <0.40 | [NA]		100	90.2
Chromium	mg/kg	1.0	<1.0	26.7 | 29.5 | 9.93		99.7	103
Cobalt	mg/kg	1.0	<1.0	15.7 | 16.5 | 4.81		99.4	95.9
Copper	mg/kg	1.0	<1.0	35.5 | 38.6 | 8.28		99.7	105
Lead	mg/kg	1.0	<1.0	24.3 | 28.8 | 17.0		99.7	93.4
Manganese	mg/kg	1.0	<1.0	293 | 296 | 1.25		101	98.6
Mercury	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		112	111
Nickel	mg/kg	1.0	<1.0	52.1 | 55.6 | 6.64		100	96.6
Selenium	mg/kg	2.0	<2.0	<2.0 | <2.0 | [NA]		89.9	94.4
Zinc	mg/kg	1.0	<1.0	74.2 | 86.2 | 15.0		98.7	92.0

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-118|Inorganics - General Chemical Parameters (Soil) | Batch BFL1232

Analyte	Units	PQL	Blank	DUP1 BFL1232-DUP1# Samp | QC | RPD %	DUP2 BFL1232-DUP2# Samp | QC | RPD %	LCS %	Spike % BFL1232-MS1#
Hexavalent Chromium	mg/kg	1		<1.0 | <1.0 | [NA]	<1.0 | <1.0 | [NA]	93.6	91.5

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-008|Inorganics - Moisture (Soil) | Batch BFL1229

Analyte	Units	PQL	Blank	DUP1 BFL1229-DUP1# Samp | QC | RPD %	LCS %
Moisture	%	0.1		17.0 | 23.3 | 31.2	[NA]

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-014|Inorganics - Cyanide Species and Similar (Soil) | Batch BFL1233

Analyte	Units	PQL	Blank	DUP1 BFL1233-DUP1# Samp | QC | RPD %	LCS %	Spike % BFL1233-MS1#
Weak Acid Dissociable Cyanide	mg/kg	0.50	<0.50	<0.50 | <0.50 | [NA]	102	##[1]

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

QC Comments

Identifier	Description
[1]	Spike recovery is outside routine acceptance criteria (70-130%), this may be due to suspected non-homogeneity and/or matrix interference effects. However, an acceptable recovery was achieved for the LCS.

Bureau Veritas Minerals Pty Ltd
MINERAL TESTING & LABORATORY SERVICES

ABN: 30 008 127 802

35 Cormack Road
Wingfield SA 5013

Telephone (08) 8416 5200
Facsimile (08) 8234 0355

Reference: **aa077280**
Date Finished: 12/03/2026
Order: AMP260183
Project: AN1943-1
Date Received: 11/02/2026
Type of Sample: Pulps
Samples Analysed: **1**

FINAL ANALYSIS REPORT

Analysis of Mineral Samples

for

BV Minerals Pty Ltd - Adl Min Proc

Unit 2, 35 Cormack Road Wingfield SA 5013

Attention: Mr Matthew Wall

Bureau Veritas Minerals Pty Ltd has carried out the preparation and analysis of samples to the best of its ability and with due regard to the importance of all samples submitted. However, in the event of default by Bureau Veritas Minerals Pty Ltd in providing services as defined by contracts, Bureau Veritas Minerals Pty Ltd shall have no other liability for any negligent act, default, omission or breach of such contract. The liability of our company is limited by our General Terms and Conditions of Service. At all times, the results of analysis must be interpreted as pertaining to the samples as they were received at the laboratory. Where applicable, information describing the submitted sample/s has been supplied by the client or associated third party.

Authorised By:



Vaughn Noble
Senior Chemist



Fabian Gregus
Chemist



Michael Grieger
Chemist



Chris Faulkner
Laboratory Manager

Bureau Veritas Minerals Pty Ltd
MINERAL TESTING & LABORATORY SERVICES
ABN: 30 008 127 802
35 Cormack Road
Wingfield SA 5013
Telephone (08) 8416 5200
Facsimile (08) 8234 0355

Reference: aa077280 **Order Number:** AMP260183

METHOD CODE	SIE5	SIE5	SIE5	SIE5	SIE5	SIE4	SIE4	IND7
Determinants	**ANC***	**NAG***	**NAG 4.5***	**NAG 7.0***	**NAPP***	**pH**	**EC**	**Ag**
Units	**KgH2SO4 /tonne**	**KgH2SO4 /tonne**	**KgH2SO4 /tonne**	**KgH2SO4 /tonne**	**KgH2SO4 /tonne**	**pH_unit**	**uS/cm**	**mg/L**
Detection Limit	1	0.5	0.5	0.5	1	0.01	1	0.1
BLANK 1	0	<0.5	<0.5	<0.5	0	NR	NR	<0.1
Flash Furnace Slag	29	<0.5	<0.5	<0.5	-28	9.77	393	<0.1
Flash Furnace Slag Rpt	29	<0.5	<0.5	<0.5	-28	9.77	376	<0.1
Std Nominal	67							0.5
Determined	68	NR	NR	NR	NR	NR	NR	0.6
Std Nominal	67							5.0
Determined	NR	NR	NR	NR	NR	NR	NR	5.0
Std Nominal	67							
Determined	NR	NR	NR	NR	NR	NR	NR	<0.1
Std Nominal	67							
Determined	NR	NR	NR	NR	NR	NR	NR	<0.1
Std Nominal	67							
Determined	NR	NR	NR	NR	NR	NR	NR	<0.1

****

Bureau Veritas Minerals Pty Ltd
MINERAL TESTING & LABORATORY SERVICES
ABN: 30 008 127 802
35 Cormack Road
Wingfield SA 5013
Telephone (08) 8416 5200
Facsimile (08) 8234 0355

METHOD CODE	IND7	IND7	IND7	IND7	IND7	IND7	IND7	IND7
Determinants	**Al**	**As**	**Ba**	**Be**	**Bi**	**Cd**	**Co**	**Cr**
Units	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**
Detection Limit	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1
BLANK 1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Flash Furnace Slag	<0.5	<0.1	1.8	<0.1	<0.1	<0.1	0.3	<0.1
Flash Furnace Slag Rpt	<0.5	<0.1	1.8	<0.1	<0.1	<0.1	0.3	<0.1
Std Nominal		5.0	5.0	5.0	5.0	5.0	5.0	5.0
Determined	1.0	5.0	5.1	5.0	5.0	4.9	4.9	5.0
Std Nominal								
Determined	<0.5	<0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1
Std Nominal								
Determined	45.0	48.9	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Std Nominal			50.0		50.0	50.0	50.0	50.0
Determined	<0.5	0.5	49.3	<0.1	49.8	51.4	50.8	50.0
Std Nominal								
Determined	<0.5	<0.1	0.3	<0.1	0.2	<0.1	<0.1	<0.1

****

Bureau Veritas Minerals Pty Ltd
MINERAL TESTING & LABORATORY SERVICES
ABN: 30 008 127 802
35 Cormack Road
Wingfield SA 5013
Telephone (08) 8416 5200
Facsimile (08) 8234 0355

METHOD CODE	IND7	IND7	IND7	IND7	IND7	IND7	IND7	IND7
Determinants	**Cs**	**Cu**	**Fe**	**Li**	**Mn**	**Mo**	**Ni**	**Pb**
Units	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**
Detection Limit	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
BLANK 1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Flash Furnace Slag	<0.1	655	<0.1	<0.1	0.5	0.2	<0.1	<0.1
Flash Furnace Slag Rpt	<0.1	655	<0.1	<0.1	0.5	0.2	<0.1	<0.1
Std Nominal	5.0	5.0	5.0				5.0	
Determined	5.0	5.0	5.0	<0.1	<0.1	<0.1	5.0	<0.1
Std Nominal				5.0		5.0		5.0
Determined	<0.1	<0.1	<0.1	4.8	<0.1	5.0	<0.1	5.0
Std Nominal								
Determined	<0.1	48.0	49.0	<0.1	49.7	0.2	<0.1	<0.1
Std Nominal							50.0	
Determined	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	50.4	<0.1
Std Nominal								
Determined	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	<0.1

****

Bureau Veritas Minerals Pty Ltd
MINERAL TESTING & LABORATORY SERVICES
ABN: 30 008 127 802
35 Cormack Road
Wingfield SA 5013
Telephone (08) 8416 5200
Facsimile (08) 8234 0355

METHOD CODE	IND7	IND7	IND7	IND7	IND7	IND7	IND7	IND7
Determinants	**Sb**	**Se**	**Sn**	**Sr**	**Th**	**Ti**	**Tl**	**U**
Units	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**
Detection Limit	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
BLANK 1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Flash Furnace Slag	<0.1	<0.1	<0.1	0.8	<0.1	<0.1	<0.1	0.2
Flash Furnace Slag Rpt	<0.1	<0.1	<0.1	0.9	<0.1	<0.1	<0.1	0.2
Std Nominal		5.0			5.0		5.0	5.0
Determined	<0.1	5.0	<0.1	5.0	4.9	<0.1	5.0	5.0
Std Nominal	5.0		5.0	5.0	5.0			5.0
Determined	5.0	0.2	5.0	5.0	5.0	<0.1	<0.1	5.0
Std Nominal								
Determined	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Std Nominal		50.0				50.0		
Determined	<0.1	50.0	<0.1	<0.1	<0.1	48.2	<0.1	<0.1
Std Nominal								
Determined	<0.1	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

****

Bureau Veritas Minerals Pty Ltd
MINERAL TESTING & LABORATORY SERVICES
ABN: 30 008 127 802
35 Cormack Road
Wingfield SA 5013
Telephone (08) 8416 5200
Facsimile (08) 8234 0355

METHOD CODE	IND7	IND7	IND7	IND7	MA102	MA101	MA102	MA101
Determinants	**V**	**W**	**Zn**	**Hg**	**Ag**	**Al**	**As**	**Ba**
Units	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**ppm**	**ppm**	**ppm**	**ppm**
Detection Limit	0.1	0.1	0.1	0.1	0.2	100	1	2
BLANK 1	<0.1	<0.1	<0.1	<0.1	<0.2	<100	<1	<2
Flash Furnace Slag	<0.1	<0.1	0.2	<0.1	14.6	1.19%	85	3150
Flash Furnace Slag Rpt	<0.1	<0.1	0.1	<0.1	14.2	1.19%	83	3140
Std Nominal			5.0	0.5	6.2	7.18%	180	2630
Determined	<0.1	<0.1	5.0	0.6	6.2	7.13%	181	NR
Std Nominal						4.63%	3	984
Determined	<0.1	<0.1	<0.1	<0.1	<0.2	4.62%	4	1020
Std Nominal					2.0	5.25%	331	
Determined	<0.1	<0.1	48.6	0.8	2.0	5.21%	330	476
Std Nominal	50.0				0.6	7.69%	15	1030
Determined	51.2	<0.1	0.1	<0.1	0.6	7.82%	16	1050
Std Nominal								
Determined	<0.1	4.7	<0.1	<0.1	<0.2	6.54%	13	366

****

Bureau Veritas Minerals Pty Ltd
MINERAL TESTING & LABORATORY SERVICES
ABN: 30 008 127 802
35 Cormack Road
Wingfield SA 5013
Telephone (08) 8416 5200
Facsimile (08) 8234 0355

METHOD CODE	MA102	MA102	MA102	MA102	MA101	MA102	MA101	MA101
Determinants	**Be**	**Bi**	**Cd**	**Co**	**Cr**	**Cs**	**Cu**	**Fe**
Units	**ppm**	**ppm**	**ppm**	**ppm**	**ppm**	**ppm**	**ppm**	**ppm**
Detection Limit	0.5	0.1	0.5	1	10	0.1	2	100
BLANK 1	<0.5	<0.1	<0.5	<1	<10	<0.1	4	<100
Flash Furnace Slag	1.0	50.8	<0.5	1610	220	0.4	18.9%	36.4%
Flash Furnace Slag Rpt	1.0	50.9	<0.5	1620	220	0.4	18.9%	36.5%
Std Nominal	3.0	12.5	3.5	3	20	5.9	554	2.22%
Determined	3.0	13.0	3.5	4	20	5.9	562	2.22%
Std Nominal	1.5	<0.1	<0.5	4	30	0.7	2	1.57%
Determined	1.5	<0.1	<0.5	5	30	0.7	4	1.57%
Std Nominal	1.5	8.4	<0.5	379	20	2.4	1.35%	16.8 %
Determined	1.5	8.1	<0.5	379	30	2.4	1.33%	17.4%
Std Nominal	2.5	1.3	<0.5	10	50	10.7	2720	3.37%
Determined	2.5	1.1	<0.5	10	50	10.7	2760	3.44%
Std Nominal				39			290	5.65%
Determined	3.5	0.2	<0.5	40	30	3.3	298	5.87%

****

Bureau Veritas Minerals Pty Ltd
MINERAL TESTING & LABORATORY SERVICES
ABN: 30 008 127 802
35 Cormack Road
Wingfield SA 5013
Telephone (08) 8416 5200
Facsimile (08) 8234 0355

METHOD CODE	MA101	MA101	MA102	MA102	MA102	MA102	MA102	MA101
Determinants	**Li**	**Mn**	**Mo**	**Ni**	**Pb**	**Sn**	**Th**	**Ti**
Units	**ppm**	**ppm**	**ppm**	**ppm**	**ppm**	**ppm**	**ppm**	**ppm**
Detection Limit	10	2	0.5	5	1	0.1	0.1	50
BLANK 1	<10	<2	<0.5	<5	<1	0.2	<0.1	<50
Flash Furnace Slag	<10	50	550	55	664	18.0	17.6	750
Flash Furnace Slag Rpt	<10	54	566	55	669	17.8	17.7	800
Std Nominal	30	260	3.5	5	1730	4.0	13.7	1250
Determined	30	260	4.5	5	1690	4.0	14.2	1250
Std Nominal	<10	780	7.0	10	18	0.7	5.6	2400
Determined	<10	774	6.5	10	18	0.8	5.5	2400
Std Nominal	20	3230	190	55	18	7.0	12.2	3200
Determined	20	3300	187	60	19	7.1	11.6	3500
Std Nominal	50	370	95.0	20	25	4.9	14.0	3600
Determined	50	376	95.5	25	26	4.8	14.6	3600
Std Nominal		448	13.5	15	14		38.5	
Determined	20	458	13.5	20	14	6.9	39.0	1700

****

Bureau Veritas Minerals Pty Ltd
MINERAL TESTING & LABORATORY SERVICES
ABN: 30 008 127 802
35 Cormack Road
Wingfield SA 5013
Telephone (08) 8416 5200
Facsimile (08) 8234 0355

METHOD CODE	MA102	MA102	MA101	MA102	MA102
Determinants	**Tl**	**U**	**V**	**W**	**Zn**
Units	**ppm**	**ppm**	**ppm**	**ppm**	**ppm**
Detection Limit	0.1	0.1	5	0.5	2
BLANK 1	<0.1	<0.1	<5	<0.5	<2
Flash Furnace Slag	0.6	308	15	47.5	204
Flash Furnace Slag Rpt	0.6	310	20	48.5	196
Std Nominal	1.1	4.8	10	2.5	694
Determined	1.1	5.0	10	3.0	682
Std Nominal	0.4	39.6	20		14
Determined	0.4	38.5	20	1.0	14
Std Nominal	0.4	30.8	105	85.0	68
Determined	0.5	30.7	105	85.0	70
Std Nominal	0.9	3.9	70	8.5	90
Determined	0.9	4.2	70	9.0	88
Std Nominal		638	30		
Determined	1.0	629	30	9.0	20

****

Bureau Veritas Minerals Pty Ltd
MINERAL TESTING & LABORATORY SERVICES
ABN: 30 008 127 802
35 Cormack Road
Wingfield SA 5013
Telephone (08) 8416 5200
Facsimile (08) 8234 0355

****

These results pertain to the samples as received at this laboratory.
Where standards are reported, the nominal value for the element is reported above the result found.

"NR" Implies result is not required for this determination

"%" Implies this result reported in %

Sample Storage
****

The excess material (Residue) will be returned after 30 days

The pulp samples (Pulp) will be returned after 30 days as per instructions.

Sample Preparation
****

No sample preparation was required on these samples.

Digest and Analysis:
****

The sample(s) have been digested and refluxed with a mixture of Acids, including: Hydrofluoric, Nitric, Hydrochloric and Perchloric Acids. This extended digest approaches a total digest for many elements however, some refractory minerals are not completely attacked.

Al,Ba,Cr,Cu,Fe,Li,Mn,Ti,V
have been determined by Inductively Coupled Plasma (ICP) Optical Emission Spectrometry.
Ag,As,Be,Bi,Cd,Co,Cs,Mo,Ni,Pb,Sn,Th,Tl,U,W,Zn
have been determined by Inductively Coupled Plasma (ICP) Mass Spectrometry.

pH has been determined by direct measurement with a pH meter.

EC,pH
have been determined using a pH meter.

A test portion is extracted in a buffer then leached by a rotating extraction for at least 16 hours. The TCLP extract is then filtered, concentrated by evaporation, acidified with nitric acid for the determination of the elements of interest. (AS4439)

Al,Cr,Fe,Li,Mn,Ti,V
have been determined by Inductively Coupled Plasma (ICP) Optical Emission Spectrometry.
Ag,As,Ba,Be,Bi,Cd,Co,Cs,Cu,Hg,Mo,Ni,Pb,Sb,Se,Sn,Sr,Th,Tl,U,W,Zn
have been determined by Inductively Coupled Plasma (ICP) Mass Spectrometry.

Acid Neutralizing Capacity (ANC), Net Acid Generation (NAG) and Net Acid Production Potential (NAPP). (Test Method MC-GEN-68, MC GEN-71).

NAG,NAG,4.5,NAG,7.0,NAPP
have been NAG Titration

ANC
have been determined volumetrically.

(*) Assays on this report are covered under the NATA scope of accreditation.

Annexure G

Photographic record of activities

EMM
creating opportunities







Photo description	Soil Sampling Photolog		
Client	BHP		
Location	Olympic Dam SA		
Project name	Soil Sampling Program - Olympic Dam		
Project No	E240975	**Scale**	Not to Scale
TP No	TP-02	**TP Depth**	







Photo description	Soil Sampling Photolog		
Client	BHP		
Location	Olympic Dam SA		
Project name	Soil Sampling Program - Olympic Dam		
Project No	E240975	**Scale**	Not to Scale
TP No	TP-03	**TP Depth**	







Photo description	Soil Sampling Photolog		
Client	BHP		
Location	Olympic Dam SA		
Project name	Soil Sampling Program - Olympic Dam		
Project No	E240975	**Scale**	Not to Scale
TP No	TP-04	**TP Depth**	







creating opportunities

Photo description	Soil Sampling Photolog		
Client	BHP		
Location	Olympic Dam SA		
Project name	Soil Sampling Program - Olympic Dam		
Project No	E240975	**Scale**	Not to Scale
TP No	TP-05	**TP Depth**	









Photo description	Soil Sampling Photolog		
Client	BHP		
Location	Olympic Dam SA		
Project name	Soil Sampling Program - Olympic Dam		
Project No	E240975	**Scale**	Not to Scale
TP No	TP-06	**TP Depth**	





Photo description	Soil Sampling Photolog		
Client	BHP		
Location	Olympic Dam SA		
Project name	Soil Sampling Program - Olympic Dam		
Project No	E240975	**Scale**	Not to Scale
TP No	TP-08	**TP Depth**	









Photo description	Soil Sampling Photolog		
Client	BHP		
Location	Olympic Dam SA		
Project name	Soil Sampling Program - Olympic Dam		
Project No	E240975	**Scale**	Not to Scale
TP No	TP-10	**TP Depth**	







Photo description	Soil Sampling Photolog		
Client	BHP		
Location	Olympic Dam SA		
Project name	Soil Sampling Program - Olympic Dam		
Project No	E240975	**Scale**	Not to Scale
TP No	TP-11	**TP Depth**	





creating opportunities

Photo description	Soil Sampling Photolog		
Client	BHP		
Location	Olympic Dam SA		
Project name	Soil Sampling Program - Olympic Dam		
Project No	E240975	**Scale**	Not to Scale
TP No	TP-14	**TP Depth**	



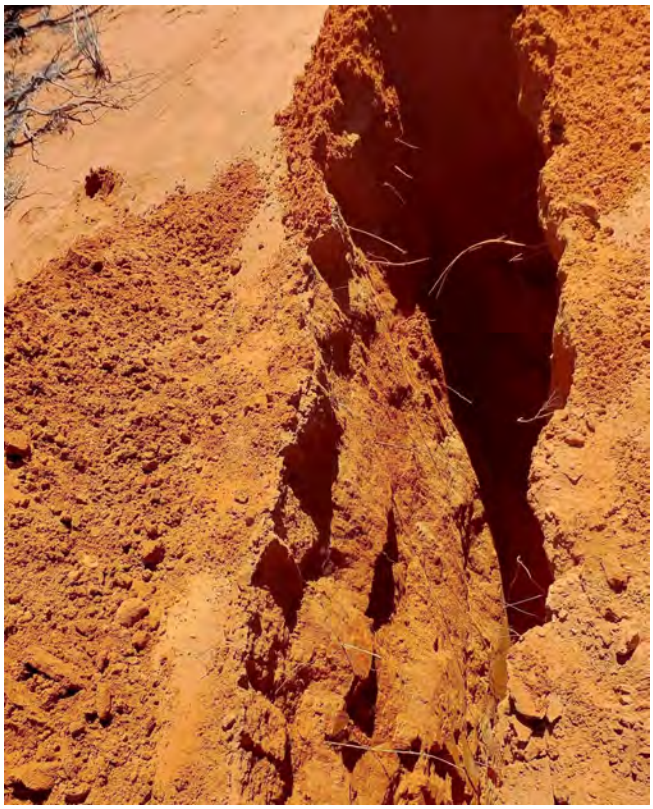




Photo description	Soil Sampling Photolog		
Client	BHP		
Location	Olympic Dam SA		
Project name	Soil Sampling Program - Olympic Dam		
Project No	E240975	**Scale**	Not to Scale
TP No	TP-15	**TP Depth**	









Photo description	Soil Sampling Photolog		
Client	BHP		
Location	Olympic Dam SA		
Project name	Soil Sampling Program - Olympic Dam		
Project No	E240975	**Scale**	Not to Scale
TP No	TP-16	**TP Depth**	









Photo description	Soil Sampling Photolog		
Client	BHP		
Location	Olympic Dam SA		
Project name	Soil Sampling Program - Olympic Dam		
Project No	E240975	**Scale**	Not to Scale
TP No	TP-17	**TP Depth**	









Photo description	Soil Sampling Photolog		
Client	BHP		
Location	Olympic Dam SA		
Project name	Soil Sampling Program - Olympic Dam		
Project No	E240975	**Scale**	Not to Scale
TP No	TP-26	**TP Depth**	







Photo description	Soil Sampling Photolog		
Client	BHP		
Location	Olympic Dam SA		
Project name	Soil Sampling Program - Olympic Dam		
Project No	E240975	**Scale**	Not to Scale
TP No	TP-27	**TP Depth**	





Photo description	Soil Sampling Photolog		
Client	BHP		
Location	Olympic Dam SA		
Project name	Soil Sampling Program - Olympic Dam		
Project No	E240975	**Scale**	Not to Scale
TP No	TP-28	**TP Depth**	







Photo description	Soil Sampling Photolog		
Client	BHP		
Location	Olympic Dam SA		
Project name	Soil Sampling Program - Olympic Dam		
Project No	E240975	**Scale**	Not to Scale
TP No	TP-29	**TP Depth**	

Annexure H

Assessment requirements

EMM
creating opportunities

H.1 Assessment requirements

Soil and groundwater impact assessment requirements and cross references to where these are addressed in this report are outlined in Table H.1.

Table H.1 Assessment requirements

Environmental attributes	Reference	Assessment requirements	Cross reference
Site and Groundwater Contamination	HR3	Describe the historical land use and potential for contamination of soils and sediments within the SRE development footprint and describe any known or suspected soil contamination that could be re-suspended, released or otherwise disturbed as a result of the development. This should include the provision of a Preliminary Site Investigation (PSI) report prepared by a suitably qualified and experienced site contamination consultant in accordance with the National Environment Protection (Assessment of Site Contamination) Measure (1999) and the EPA Guidelines for the Assessment and Remediation of Site Contamination (2019).	Historical land use is presented in Sections 2.2.1 and 2.2.2. Potential pathways and receptors for contamination are presented in Section 2.3.1. Known and suspected soil contamination events are listed in Section 2.1.2vi. Preliminary site investigation requirements and outcomes are referenced in Annexure I.1.
	HR3	If contamination is suspected or identified during the PSI, a Detailed Site Investigation (DSI) must be prepared to verify the presence of contamination on the site (including the consideration of soil, soil vapor, groundwater and sediment sampling). The DSI must also propose any necessary remedial measures or risk mitigation strategies based on the findings of the DSI, ensuring compliance with relevant guidelines.	A DSI for PFAS was undertaken by JBS&G (2026b), which is summarised in Section 2.2.1i.
	HR3	Describe any known or potential sources of contaminated groundwater that could be impacted by the proposed development.	Section 2.1.2vi
	HR3	Detail management measures that will be required during construction and operation to prevent site contamination.	Section 3.4.5iii
	HR3	Describe how site and groundwater contamination assessment will be undertaken in accordance with the National Environment Protection (Assessment of Site Contamination) Measure (1999), the EPA Guidelines for the Assessment and Remediation of Site Contamination (2019) and other relevant guidelines issued or referred to by the EPA.	Sections 3.2 and 3.3
Soils, Landform and Geology	PE2	Provide a detailed description of the soils, landform and geology in the area of the development including the potential for water and wind erosion, soil salinity, acid sulphate soils and soil contamination.	Sections 2.1 and 2.2
	PE2	Describe the development activities with potential to impact on soils and ground stability.	Sections 3.1 and 3.2
	PE2	Identify the risks of contamination of land from spills of fuel (or other toxic substances). Describe measures for the prevention and containment of spills, describe the contingency plans to be implemented in the event of spills, and comment on their expected effectiveness.	Sections 3.1, 3.2, 3.4.4 and 3.4.5

Environmental attributes	Reference	Assessment requirements	Cross reference
Surface Water and Groundwater	PE3	**Groundwater** Describe the known groundwater related environmental conditions including level, quality and significance of groundwater in the area underneath the development and any surrounding area potentially affected by the proposed development's activities. Include the following (where relevant): • describe the nature, type, geology/stratigraphy and depth to and thickness of the aquifers, hydraulic properties and value as water supply sources • any existing site contamination, and any identified potential sources of groundwater pollution • characterise the quality and volume of the groundwater including seasonal variations of groundwater levels • describe existing groundwater supply infrastructure (e.g. bores, wells, or excavations).	The hydrogeology of the area is described in Section 2.1.2iii. Existing contamination is described in Section 2.2.1. The quality and levels of existing groundwater is presented in Section 2.2.2. Existing groundwater supply infrastructure is described in Section 2.2.2i.
		Provide a Groundwater Assessment Report that includes at least the following: • Describe the effect on groundwater levels, flows and quality of any new water sources from the SML (i.e. removal of TSF mound water). • Describe the legislative, regulatory and planning contexts for groundwater that apply to the development. • Describe present and potential users and uses of groundwater in areas potentially affected by the development, including residential, municipal, agricultural, industrial, recreational and environmental uses of water (including groundwater dependent ecosystems). • Describe the indirect environmental benefits to the GAB, GAB Springs and local groundwater sources of proceeding (or not proceeding) with the development. • Describe the potential changes to groundwater (including water quality), as a result of the proposal, and the implications of these changes. Water quality impacts should consider any parameters (e.g. metals, non-metal inorganics) considered important for existing groundwater users/uses in the vicinity of the projected area of impact. • Where groundwater would be taken by the development, quantify the sources and volumes of water that would be taken, the timeframe over which the take would occur and the potential impact on groundwater users. • Describe how the stormwater and wastewater management proposed for the site during construction and operation could potentially impact on groundwater resources, with particular regard to chemicals used on site, wastes and fuel and describe how any risks to groundwater would be identified and mitigated. • To avoid doubt, the above investigations should include radiological components where relevant (as per Section HR1).	The effect on groundwater is discussed in Section 3.3.4. Legislative context is provided in Section 1.2. Groundwater users and receptors, impacts to the GAB, wastewater management and changes to groundwater quality/level are discussed in Section 3.4.4 and Section 3.4.5. Groundwater take is discussed in Section 2.2.2i.

Annexure I

PSI checklist

EMM
creating opportunities

I.1 PSI checklist

Table I.1 PSI checklist (EPA 2019)

Checklist item	PSI applicability	Report reference
Executive Summary		
Background	✓	Executive summary
Objectives of investigation	✓	Executive summary
Scope of work	✓	ES2, ES2.1
Determination of site contamination	✓	ES1, ES2, ES3
Notifications (e.g. S83A)	If applicable	ES1
Risk to human health and/or environment	✓	ES1, ES2, ES3
Summary of conclusions and recommendations	✓	ES3
Site information		
Site identification (include address, allotments and plans, certificate(s) of title, coordinates, maps, etc.)	✓	Section 1.1, Figure 1.1, Figure 1.2
Site owner/site occupier	✓	Section 1
Site plan (layout, scale, north arrow, other site features)	✓	Figure 1.1, Figure 1.2, Figure 1.3
Local government authority and zoning	✓	Section 1.2
Current and proposed site use and identification of site users	✓	Section 1.1, Section 1.3, Table 1.2
General information		
Name of person requesting work	✓	Section 33
Clear statement of the scope of work	✓	Section 1, Section 2.1.1, Section 3.2.1
List of previous reports and brief description of works previously undertaken	If previous works completed	Section 2.1.2iv to Section 2.1.2vi, Section 2.2.1, Section 2.2.2
Site contamination audit details (if site contamination auditor engaged)	If applicable	Not applicable
Site history		
Past and current ownership and occupier details	✓	Section 1, Section 2.1.2
Past and current aerial photography	✓	Existing and established mining operation. BHP maintain an Olympic Dam contaminated site register with notifications to the EPA in accordance with Section 83 of the EP Act. Figure 1.2
Past and current certificate(s) of title back to original deeds	✓	Table 2.1

Checklist item	PSI applicability	Report reference
State and local government records	✓	Section 1.2
Other information sources (local residents, historical societies, etc)	✓	Section 2.2.1
Past and current potentially contaminating activities (PCA) undertaken at or in the vicinity of the site	✓	Section 2.1.2vi, Section 2.2.1, Table 2.3
Chemical substances associated with past and current PCAs	✓	Table 2.3, Section 2.2.2v, Table 2.7
Localised PCAs at the site or in the vicinity of the site (product spills, storage areas, stockpiling or filling, asbestos, etc)	✓	Section 2.1.2vi, Table 2.3
Identification of ecological receptors within 500-m radius (surface waters, wetlands, etc)	✓	Section 2.1.3, Figure 2.2, Section 0
Local geology and hydrogeology		
Surface elevation and topography	Desktop review, or intrusive if required	Section 2.1.2ii
Regional and site-specific soil and geological records	✓	Section 2.1.2iii to Section 2.1.2v, Table 2.2, Figure 2.1, Section 3.4.1, Table 3.5
Geophysical data	If required	Not required
Drilling logs/well logs (including soil strata, construction details, water level and quality)	Desktop review, or intrusive if required	Annexure C
Aquifer types (confined, unconfined, etc)	Desktop review, or intrusive if required	Section 2.1.2iii, Table 2.2, Figure 2.1
Groundwater flow direction, flow rate, quality and current or potential future use	Desktop review, or intrusive if required	Section 2.1.2iii, Figure 2.3, Figure 2.4, Section 2.2.2ii to Section 2.2.2v.
Survey of existing groundwater wells and registration details	✓	Section 2.2.2
Other geological and hydrogeological properties	Desktop review, or intrusive if required	Section 2.1.2iii, Section 0, Table 2.2
Site inspection		
Current site use and surrounding site use	✓	Section 2.1.2i, Section 2.1.2ii
Visual evidence/other observations of site contamination (discoloured soil, bare soil patches, odours, etc.)	✓	Section 0iii, Section 3.4.1, Table 3.5, Table 3.6, Annexure G
Condition of existing groundwater wells (if present)	✓	Section 2.2.2
Presence and condition of site structure and improvements (roads, buildings, storage tanks, etc.)	✓	Section 1.3, Table 1.2, Section 2.1.2vi
Potential for asbestos containing materials (ACM)	✓	Section 3.3, Section 3.4.1, Table 3.5
Any other environmentally significant features	✓	Section 2.1.2ii, Section 2.1.3, Section 0

Checklist item	PSI applicability	Report reference
Background concentrations		
Determine background soil quality	✓	Section 2.1.2iv, Section 3.4.2i, Table 3.7, Section 3.3.3ib
Determine area not affected by activities at or in the vicinity of the site for background groundwater quality	Desktop review, or intrusive is required	Section 2.2.2iii to Section 2.2.2v
Sufficient collection of up-gradient groundwater quality data	Desktop review, or intrusive if required	Section 2.2.2iii
Investigation levels		
Determine appropriate soil criteria taking into account current or proposed land use	✓	Section 3.3, Table 3.2
Environmental value assessment	✓	Section 2.1.3, Section 2.2.2i, Section 0, Table 2.4, Table 2.5
Determine existence of actual or potential harm to water	Based on field sampling or laboratory analysis	Section 2.2.2v, Section 3.4.3v, Section 3.4.5ii
Details of s83A notification	If applicable	Section 2.1.2vi
Conceptual site model		
Known and potential sources of contamination	Preliminary CSM	Section 2.2.1, Table 2.3, Section 0, Figure 2.8, Section 2.1.2vi
Potentially affected media of environment	Preliminary CSM	Section 0, Table 3.19
Human and ecological receptors	Preliminary CSM	Section 2.1.3, Section 2.3.1, Table 3.19
Potential and complete exposure pathways	Preliminary CSM	Section 2.3.1, Table 2.7, Figure 2.8, Table 3.19, Table 3.20
Chemicals of concern / interest	Preliminary CSM	Table 2.3, Table 2.7
Nature of chemical substances (mobility, toxicity, volatility etc)	Preliminary CSM	Section 2.3.1, Section 3.3, Section 3.3.3, Section 3.4.3
Identifying and assessing data gaps for CSM refinement	Preliminary CSM	Section 2.1.2iv, Section 2.4, Section 2.1.1, Section 3.4.5i
Written presentation of CSM (illustration to support if required)	Preliminary CSM	Section 0, Section 2.3.1, Figure 2.8, Table 2.7, Table 3.19
Sampling plan methodology		
Define data quality objectives (DQO)	If intrusive investigations are required	Section 3.2.1
Number, locations, depth, frequency and patterns of sampling points	If intrusive investigations are required	Section 3.2.1, Section 3.2.2, Section 0, Section 3.3.2, Figure 3.1
Sampling and analysis quality plans (SAQP)	If intrusive investigations are required	Section 3.2.1
Elements of environment to be sampled (soil, groundwater, vapour, NAPL, etc.)	If intrusive investigations are required	Section 3.2.1 to Section 3.3.3
Analyte selection and analysis methods	If intrusive investigations are required	Section 3.3.2i, Table 3.3, Section 3.3.2ii, Section 3.3.3i

Checklist item	PSI applicability	Report reference
Sampling methods and procedures	If intrusive investigations are required	Section 0, Section 3.3.2
Assessment and interpretation of field data	If intrusive investigations are required	Section 3.3.2ii, Section 3.4.1, Table 3.5, Table 3.6, Section 3.4.2, Section 3.4.3, Section 3.4.4
Soil assessment and results		
Soil sampling technique	If applicable	Section 0, Section 3.3.2
Field description of soils (with logs)	If applicable	Section 3.4.1, Table 3.5, Annexure C
Field testing	If applicable	Section 3.3.1ii, Section 3.4.1, Table 3.6, Annexure B
Stockpile sampling	If applicable	Section 3.3.2, Section 3.4.3iv
Soil leachability to groundwater and surface water	If applicable	Section 3.3.3ic, Section 3.4.3iii to Section 3.4.3v, Section 3.4.5ii
Comparison of results with appropriate criteria	If applicable (soil block continuation)	Section 3.3, Table 3.2, Section 3.4.2, Table 3.7, Annexure E
Groundwater assessment and results		
Monitoring well establishment (including screen length and depth, bore logs etc)	If applicable	Section 2.2.2
Groundwater sampling methods (consideration of sample methods, field filtration, sample bottles, etc.)	If applicable	Section 2.2.2
Groundwater parameters measured in field	If applicable	Section 2.2.2iv
Aquifer properties (groundwater depth, flow direction, velocity, hydraulic conductivity, etc.)	If applicable	Section 2.1.2iii, Table 2.2, Section 2.2.2ii, Figure 2.3, Figure 2.4, Section 0
Delineation of contamination (lateral and vertical)	If applicable	Lateral delineation is discussed in Section 2.2.2iv and Section 2.2.2v, with further delineation works proposed as part of the Stage 2 PFAS DSI works
Potential for attenuation of contaminants	If applicable	Section 0, Section 3.4.5ii
Comparison of results with appropriate environmental values	If applicable	Table 2.4, Table 2.5, Section 2.2.2v
Field QA/QC		
Field quality assurance and quality control (including sampling methods, storage, preservation, handling of samples, decontamination of equipment, calibration of instruments, etc.) and documentation	If required	Section 0, Section 3.3.2, Section 3.3.4
Completed chain of custody (COC) documentation and information	If required	Section 3.3.2, Annexure F
Comparison of field screening methods with laboratory results	If required	Table 3.6, Section 3.4.2i, Section 3.3.2ii
Appropriate QA/QC samples (blanks, duplicates, etc.)	If required	Section 3.3.4, Annexure E, Annexure F

Checklist item	PSI applicability	Report reference
Laboratory QA/QC		
Comparison of QA/QC information with DQO's	If required	Section 3.2.1, Section 3.3.4
Copies of completed COC documentation from laboratory	If required	Section 3.3.2, Annexure F
Laboratory method accreditation and holding times for analyses	If required	Annexure E, Annexure F
Summary of QA/QC	If required	Section 3.3.4
Appropriate limits of reporting (LOR) for analytes	If required	Annexure E, Annexure F
Laboratory QC (relative percentage difference, recoveries, spikes)	If required	Annexure F
Data presentation		
Results table of all chemicals of interest (include sample numbers, assessment criteria and highlighted results above criteria)	If required	Table 3.7, Table 3.12 to Table 3.17, Table 2.4, Table 2.5, Table 2.6, Annexure E
Summary of all previous results	If required	Section 2.1.2iv, Section 2.1.2v, Section 2.2.2
Site plan with sample locations and results (include highlighting results above criteria)	If required	Figure 3.1
Concentration contours, cross sections, statistical diagrams	If required	Figure 2.1, Figure 2.5, Figure 2.6, Annexure A, Figure 3.2 to Figure 3.5
Ecological risk assessment (ERA)		
Problem identification	✓	Section 2.2, Section 0, Table 3.1
Receptor identification	✓	Section 2.1.3, Figure 2.2, Section 0, Section 2.3.1
Exposure assessment	✓	Section 2.3.1, Table 2.7, Table 3.19, Section 3.4.5
Toxicity assessment	✓	Section 3.3, Table 3.2, Section 3.4.2
Risk characterisation	✓	Section 3.4.4, Table 3.19, Section 3.4.5, Table 3.20
Uncertainty analysis	✓	Section 2.1.2iv, Section 2.2.2iv, Section 2.1.1, Section 3.4.5i
Risk management decision and ERA outcomes	✓	Section 3.4.5, Table 3.20, Section 3.4.5iii
Community engagement and risk communication		
Details of stakeholders consulted/ engaged	✓	Section 1.2
Summary of information provided to stakeholders (correspondence, informed consent, etc.)	✓	Section 2.1.2vi, Section 2.1.4
Reporting		
Signed copy of reports	✓	✓

Checklist item	PSI applicability	Report reference
Appendices may be provided in electronic format	✓	✓
Searchable PDF file of report (must be an accurate copy of the original)	✓	✓
Electronic files unlocked	✓	✓
Related documents may be included as an electronic appendix	✓	✓
Where available, laboratory analytical data to be provided in an electronic format acceptable by the EPA	✓	Available upon request

Australia

SYDNEY
Level 10 201 Pacific Highway
St Leonards NSW 2065
T 02 9493 9500

NEWCASTLE
Level 3 175 Scott Street
Newcastle NSW 2300
T 02 4907 4800

BRISBANE
Level 2 95 North Quay
Brisbane QLD 4000
T 07 3648 1200

CANBERRA
Suite 2.04 Level 2
15 London Circuit
Canberra City ACT 2601

ADELAIDE
Level 4 74 Pirie Street
Adelaide SA 5000
T 08 8232 2253

MELBOURNE
Suite 9.01 Level 9
454 Collins Street
Melbourne VIC 3000
T 03 9993 1900

PERTH
Suite 3.03
111 St Georges Terrace
Perth WA 6000
T 08 6430 4800

Canada

TORONTO
2345 Yonge Street Suite 300
Toronto ON M4P 2E5
T 647 467 1605

VANCOUVER
2015 Main Street
Vancouver BC V5T 3C2
T 604 999 8297

CALGARY
700 2nd Street SW Floor 19
Calgary AB T2P 2W2

linkedin.com/company/emm-consulting-pty-limited

emmconsulting.com.au

BHP

Appendix C2.
Noise and vibration

Noise and Vibration Impact Assessment

Olympic Dam Smelter and Refinery Expansion Project

Prepared for BHP Olympic Dam Corporation Pty Ltd

May 2026

Noise and Vibration Impact Assessment

Olympic Dam Smelter and Refinery Expansion Project

BHP Olympic Dam Corporation Pty Ltd

May 2026

Approved by

Ryan Bruniges
Associate Acoustics Engineer
22 May 2026

Level 4 74 Pirie Street
Adelaide SA 5000
ABN: 28 141 736 558

This report has been prepared in accordance with the brief provided by BHP Olympic Dam Corporation Pty Ltd and, in its preparation, EMM has relied upon the information collected at the times and under the conditions specified in this report. All findings, conclusions or recommendations contained in this report are based on those aforementioned circumstances. This report is to only be used for the purposed for which it has been provided. Except as permitted by the *Copyright Act 1968* (Cth) and only to the extent incapable of exclusion, any other use (including use or reproduction of this report for resale or other commercial purposes) is prohibited without EMM's prior written consent. Except where expressly agreed to by EMM in writing, and to the extent permitted by law, EMM will have no liability (and assumes no duty of care) to any person in relation to this document, other than to BHP Olympic Dam Corporation Pty Ltd (and subject to the terms of EMM's agreement with BHP Olympic Dam Corporation Pty Ltd).

© EMM Consulting Pty Ltd, Level 10, 201 Pacific Highway, St Leonards NSW 2065. 2026.
ABN: 28 141 736 558

Executive summary

BHP Olympic Dam Corporation Pty Ltd (BHP) is proposing to develop the Smelter and Refinery Expansion Project (SRE Project) at the Olympic Dam mining operations, in the far north of South Australia (SA) (Figure 1.1).

EMM Consulting Pty Ltd (EMM) and Lathwida Environmental Pty Ltd (Lathwida) are preparing an Environmental Impact Statement (EIS) for the SRE Project in accordance with EIS assessment requirements and Practice Direction 17 Impact Assessed Development under the *Planning, Development and Infrastructure Act 2016* (PDI Act) (SA).

EMM was commissioned by BHP to undertake an environmental assessment of the proposed noise and vibration (NVIA) related SRE Project activities to:

- determine if the activities have the potential to result in changes to the baseline noise and vibration environment (baseline condition assessment in Chapter 2 of this report)
- determine the likely magnitude of the change to baseline noise and vibration values as a result of the SRE Project (assessment of effects in Chapter 3 of this report)
- quantify the likely impacts resulting from the predicted change to baseline noise and vibration values on identified receptors (impact assessment in Chapter 4 of this report).

The SRE Project is located at the Olympic Dam mining operations, approximately, 580 kilometres (km) north of Adelaide in the far north of South Australia. The existing BHP Olympic Dam includes a mining concentrator, smelter and refinery, with the smelter treating high grade copper concentrates through a single-stage Direct-to-Blister Flash Furnace (DBF) smelter, with an average output of approximately 200,000 tonnes per annum (tpa) of total copper (and associated products). The closest township is Roxby Downs which is approximately 15 km south of the mine site.

Baseline noise monitoring was undertaken at sensitive receivers in Olympic Dam Village and Roxby Downs Village, with results indicating that the baseline noise environment is controlled by human movements, including road traffic and aircraft noise related to flights into and out of Olympic Dam airport. Results from previous studies indicate that there are little vibration sources at sensitive receivers.

A preliminary identification of potential impact events was undertaken, identifying 15 noise and vibration-related potential impact events associated with emissions during construction (e.g. from infrastructure or access road construction, including vehicle movement noise) and operation that may impact the local community and sensitive receivers. An assessment of effects was undertaken, focussing on:

- surface infrastructure noise from proposed SRE Project activities
- road traffic noise
- vibration from construction and operational activities.

Following the assessment of effects, seven potential impact events were assessed separately as part of the Ecological Impact Assessment for the SRE Project and as such have not been included in this NVIA. Six of the remaining eight potential impact events were found to have no linkage between the source and the pathway and/or the pathway and the receptor. Two confirmed impact events were identified as follows:

- The SRE Project will result in an increase in surface infrastructure and road traffic noise generating activities during construction, increasing predicted noise levels for the local community and sensitive receivers.
- The SRE Project will result in an increase in surface infrastructure and road traffic noise generating activities during operation, increasing predicted noise levels for the local community and sensitive receivers.

These impact events were assessed to quantify the likely significance of the impact against the SRE Project's Environmental Impact Assessment Framework (EIAF) impact significance criteria. The outcomes of the NVIA concluded the impact events to be not significant.

TABLE OF CONTENTS

Executive summary ES.1

1 Introduction 1

1.1 Project area definitions 1

1.2 Regulatory context 2

1.3 Project description 4

2 Baseline condition assessment 12

2.1 Environmental context 12

2.2 Baseline noise environment 15

2.3 Baseline vibration environment 16

2.4 Conclusion 16

3 Assessment of effects 17

3.1 Potential impact events 17

3.2 Assessment of effects 20

3.3 Conclusion 28

4 Impact assessment 30

4.1 Confirmed impact events 30

4.2 Impact significance criteria 30

4.3 Impact assessment 31

4.4 Mitigation and management 33

4.5 Conclusion 33

References 34

Abbreviations and acronyms 35

Annexures

Appendix A	Baseline noise monitoring survey report	A.1
Appendix B	Calculation of indicative noise factors	B.1
Appendix C	Surface infrastructure sound power levels	C.1
Appendix D	Surface infrastructure noise locations	D.1
Appendix E	Surface infrastructure noise modelling contours	E.1
Appendix F	Assessment Requirements	F.1

Tables

Table 1.1	Project stages and timing	5
Table 1.2	Key characteristics of the SRE Project	6
Table 2.1	Identified sensitive receptors	13
Table 2.2	Summary of unattended noise monitoring results	15
Table 2.3	Median L_{AFmax} aircraft movements identified from 18 November to 22 November 2024	16
Table 3.1	Preliminary SPR assessment – potential impact events	18
Table 3.2	Indicative noise factors for different land use categories under the Noise EPP	21
Table 3.3	Surface infrastructure development noise limits	23
Table 3.4	Summary of modelled surface infrastructure noise sources	24
Table 3.5	Traffic volumes	25
Table 3.6	Predicted surface infrastructure noise levels	26
Table 3.8	Final SPR assessment – confirmed impact events	28
Table 4.1	Confirmed impact events	30
Table 4.2	Consequence definitions and significance determination	30
Table 4.3	Noise and vibration impact assessment	32
Table A.1	Noise monitoring equipment	A.2
Table A.2	Maximum noise levels identified as aircraft movements	A.9
Table C.1	Baseline processing plant scenario noise sources	C.2
Table C.2	Baseline moving plant noise sources	C.4
Table C.3	Construction noise sources	C.6
Table C.4	SRE Project (Stage 2, 2000 ktpa) processing plant scenario noise sources	C.7
Table C.5	SRE Project moving plant noise sources	C.9
Table F.1	Assessment requirements	F.2

Figures

Figure 1.1	SRE Project Area - regional locality	9
Figure 1.2	SRE Project Area - SML Area	10
Figure 1.3	SRE Project Area - EIGR Areas	11
Figure 2.1	Identified sensitive receptors	14
Figure A.1	Graphical results for R2 - Lavricks (1 of 2)	A.4
Figure A.2	Graphical results for R2 - Lavricks (2 of 2)	A.5
Figure A.3	Graphical results for R6 – Olympic Dam Village (1 of 2)	A.7
Figure A.4	Graphical results for R6 – Olympic Dam Village (2 of 2)	A.8
Figure A.5	Graphical results at R10 – Roxby Downs Village (1 of 3)	A.11
Figure A.6	Graphical results at R10 – Roxby Downs Village (2 of 3)	A.12
Figure A.7	Graphical results at R10 – Roxby Downs Village (3 of 3)	A.13

Figure D.1	Baseline scenario noise sources – Processing Plant	D.2
Figure D.2	Baseline scenario noise sources – Moving plant and raise bores	D.3
Figure D.3	SRE Project construction scenario noise sources	D.4
Figure D.4	SRE Project (Stage 2, 2000 ktpa) operational noise sources	D.5
Figure E.1	Baseline scenario noise contours	E.2
Figure E.2	SRE Project construction scenario noise contours	E.3
Figure E.3	SRE Project (Stage 2, 2000 ktpa) operational scenario noise contours	E.4

1 Introduction

BHP Olympic Dam Corporation Pty Ltd (BHP) is proposing to develop the Smelter and Refinery Expansion Project (SRE Project) at the Olympic Dam mining operations, in the far north of South Australia (SA) (Figure 1.1).

EMM Consulting Pty Ltd (EMM) and Lathwida Environmental Pty Ltd (Lathwida) are preparing an Environmental Impact Statement (EIS) for the SRE Project in accordance with EIS assessment requirements and Practice Direction 17 Impact Assessed Development under the *Planning, Development and Infrastructure Act 2016* (PDI Act) (SA).

EMM was commissioned by BHP to undertake an environmental assessment of the proposed noise and vibration related SRE Project activities to:

- determine if the activities have the potential to result in changes to the baseline noise environment; baseline assessment (baseline condition assessment in Chapter 2 of this report)
- determine the likely magnitude of the change to baseline noise values as a result of the SRE Project (effects assessment in Chapter 3 of this report)
- quantify the likely impacts resulting from the predicted change to baseline noise environment on identified receptors (impact assessment in Chapter 4 of this report).

This report supports the EIS, which will be submitted to the Government of South Australia's Minister for Energy and Mining as the relevant Minister for the SRE Project under the *Roxby Downs (Indenture Ratification) Act 1982* (SA).

1.1 Project area definitions

To maintain consistency throughout the EIS and supporting technical assessments, the following terminology related to project infrastructure have been defined for the SRE Project where the **SRE Project Area** is defined at the boundary around the SRE Project for which BHP is seeking approval, including:

- **Special Mining Lease (SML) Area**, located within the SML (Figure 1.2), which is further delineated by the following areas:
  - **SRE Area**: the extent of the proposed SRE Project infrastructure required for construction and operation of the SRE Project within the SML. Includes the existing brownfield plant area, proposed facility relocation(s), proposed plant and laydown areas.
  - **General Infrastructure Area**: the extent of the proposed ancillary infrastructure and ancillary activities required for construction and operation within the SML. Includes the proposed infrastructure laydown areas, proposed stormwater dam location, proposed topsoil and subsoil storage areas.
  - **Water Infrastructure Area**: the extent of the proposed water infrastructure and ancillary activities required for construction and operation within the SML. Includes the proposed water pipeline and water storage dam locations.
- **Electricity Infrastructure Ground Re-Profiling Area (EIGR Area)**: the extent of the isolated proposed vegetation disturbance required to maintain regulatory clearance distances between the 275 kilovolt (kV) transmission line and the ground surface within Clause 28 land. It is noted that the transmission line and infrastructure are already in place, but additional electricity loads required for the SRE Project will result in increased transmission line temperature and more pronounced line sagging, and therefore changes to existing clearance distances to enable safe operation (Figure 1.3).

1.2 Regulatory context

The SRE Project was declared an Impact Assessed development pursuant to Section 108(1)(c) and 108(7) of the PDI Act on 29 August 2024. The declaration reflects the nature, scale and significance of the SRE Project to SA.

Impact Assessed Development is the most rigorous level of development assessment prescribed under the PDI Act.

Specifically, the Minister made the following declaration:

> Pursuant to Section 108(1)(c) and Section 108(7) of the Planning Development and Infrastructure Act 2016, having taken into account those principles prescribed under Regulation 27(2) of the Planning, Development and Infrastructure (General) Regulations 2017 (the Regulations) and having given consideration to the matters under Regulation 27(3) of the Regulations, I declare that all development of a kind specified in the Schedule to this Notice, to the extent that it is undertaken on land identified in Clause 28(1) of the Indenture as impact assessed development and that references to "development" include a project.

The majority of the SRE Project activities, with the exception of ground re-profiling within the Electricity Infrastructure Area, would be located wholly within the existing SML but does not include business-as-usual (BAU) operations (operations which enable existing approved production of up to approximately 200,000 tonnes per annum (tpa) total copper production) or activities associated with scheduled campaign maintenance 2027 (SCM27) works. These activities are subject to separate regulation (e.g. Environment Protection Authority (EPA) licensing) and approval. The SRE Project may also be supported by low impact development outside the SML, which could include, for example, minor road works and upgrades to accommodation infrastructure. It is proposed that any approvals required for these activities would be sought on an as-needs basis under applicable legislation and guidelines.

1.2.1 Planning Development and Infrastructure Act 2016 (SA)

Development approval is required for the SRE Project under the PDI Act. The PDI Act established a new development assessment system in SA to streamline the assessment process. The PDI Act is supported by subordinate regulations, as well as practice directions and guidelines which are issued by the State Planning Commission, the state's independent principal planning body.

A key feature of the new planning system is the Planning and Design Code (the Code) which contains a single set of planning policy, rules and classifications for SA, which is applied spatially via mapping. The Code establishes a performance-based approach to planning and development assessment by including policies that address the scale, form and design of built structures and the contextual setting of the development.

The planning system established by the PDI Act includes five assessment pathways; accepted development, code assessed development (deemed-to-satisfy or performance assessed) and impact assessed development (restricted and impact assessed). As previously stated, impact assessed development is the most rigorous level of development assessment prescribed under the PDI Act.

i Ministerial declaration – impact assessed development

The declaration subjects the SRE Project to an EIS process requiring detailed environmental, social and economic assessment.

A Scoping Application was prepared by BHP to inform the development of EIS Assessment Requirements by the State Planning Commission (SPC). The EIS Assessment Requirements issued by the SPC summarise all potential issues needing to be addressed by BHP and highlight any further information required by the Minister to enable a proper assessment of the proposed SRE Project.

Due to the operation of the *Roxby Downs (Indenture Ratification) Act 1982*, the Minister for Energy and Mining is the relevant Minister for the SRE Project.

Specific Assessment Requirements for noise and vibration (Appendix F) are as follows:

- Describe and illustrate the locations of any noise and vibration sensitive receivers both proposed or existing (including terrestrial fauna). Also describe any other environmental values that could be impacted by noise emitted from or to the development.
- Describe sources and characteristics of noise and vibration that would be emitted during the construction, commissioning, operation, upset conditions, and closure of the development.
- Model noise and vibration impacts from the proposed development and provide an assessment report of the anticipated noise and vibration emissions. Where applicable, the assessment must contain strategies to mitigate noise and vibration impacts.
- The noise assessment must demonstrate how the Environment Protection (Commercial & Industrial Noise) Policy 2023 (Noise EPP) and Section 25 of the *Environment Protection Act 1993* (General Environmental Duty) would be met. For vibration, the report must compare vibration outputs to the German (DIN 4150) or British (BS 7385) standards and/or the *NSW vibration standard Assessing Vibration – A Technical Guideline*, Department of Environment and Conservation NSW (2006)

Regulation relevant to the assessment of noise and the planning and delivery of the SRE Project are summarised below:

- *Australian Standard AS/NZS 2107:2016* Acoustics – Recommended design sound levels and reverberation times for building interiors
- *Australian Standard AS 2436:2010* Guide to noise and vibration control on construction, demolition and maintenance sites
- *British Standard BS 5228:1* Code of practice for noise and vibration on construction and open sites
- *Environment Protection Act 1993* (EP Act), Environment Protection Authority South Australia
- *Environment Protection (Commercial and Industrial Noise) Policy 2023*, Environment Protection Authority South Australia
- Guidelines for Community Noise, World Health Organisation 1999
- Guidelines for the use of the *Environment Protection (Commercial and Industrial Noise) Policy 2023*, Environment Protection Authority South Australia
- Indicative noise factor guidelines for the *Environment Protection (Commercial and Industrial Noise) Policy 2023*, Environment Protection Authority South Australia
- Road Traffic Noise Guidelines, Department for Infrastructure and Transport (DIT), Government of South Australia.

1.3 Project description

The objective of the SRE Project is to expand BHP's smelter and refinery capacity, enabling the Copper SA growth plan by:

- increasing copper production capacity up to 650,000 tpa of total copper plus associated products from the current average production of approximately 200,000 tpa
- delivering a sustainable, highly productive, and more resilient smelting and refining flowsheet
- ensuring the Cu:S ratio is resolved at Olympic Dam for copper concentrate production
- delivering reliable and predictable production outcomes following the 2023 acquisition of OZ Minerals' Carrapateena and Prominent Hill mining operations to realise Copper SA province opportunities.

Key elements of the SRE Project are:

- expansion of, and additions to, the existing smelter and refinery to enable total production of up to 650,000 tpa copper plus associated products
- introduction of a two-stage smelting involving the installation of a new primary flash smelting furnace (FSF) to produce copper matte, adding material smelting capacity
- conversion of the existing direct-to-blister flash furnace (DBF) to a flash-converting furnace (FCF), which would process the matte into blister
- addition of an acid plant of similar nature and scale to the existing acid plant and subsequent upgrade of the existing acid plant
- expansion of the electrorefinery and precious metals recovery facilities to produce cathode copper, gold, and silver.

Associated with these key elements, the SRE Project would require new supporting facilities, infrastructure and services and the upgrade, removal and/or relocation of existing facilities and services within the existing SML Area (Figure 1.2).

External to the SML Area, electricity would be supplied to the SRE Project through the existing 275 kV line from Davenport substation (near Port Augusta) to Olympic Dam mine, located within Clause 28 land[1] (EIGR Areas). Whilst the transmission line and infrastructure are already in place, additional electricity loads required for the SRE Project will result in increased transmission line temperature and more pronounced line sagging, reducing the existing electrical clearances that are required to enable safe operation. The maintenance of the required electrical clearances between the 275 kV line and the ground surface would necessitate isolated areas of land disturbance and associated vegetation clearance (Figure 1.3).

The SRE Project would be constructed and operated in a staged manner to enable production capacity up to 650,000 tpa of total copper and associated products, with stages detailed in Table 1.1.

This technical assessment has been prepared based upon the maximum potential impacts associated with Stage 2 (i.e. the greatest impact scenario) to ensure that the full extent of all potential impacts is identified and assessed.

1 Clause 28 land as defined under the *Roxby Downs (Indenture Ratification) Act 1982* (SA)

The indicative location of key infrastructure is shown in Figure 1.2 and Figure 1.3, while the key project characteristics are outlined in Table 1.2.

Table 1.1 Project stages and timing

Stage	Smelter concentrate throughput (tpa)	Description	Anticipated timing
Stage 1a	1,100,000	Stage 1a includes: • an increase of smelter throughput to approximately 1,100,000 tpa of concentrate producing an output of approximately 390,000 tpa of total copper • a new regional concentrate receiving, handling and blending facility • upgrade and expansion of the existing smelter feed preparation, including additional concentrate storage, blending and a new steam dryer • installation of a new primary FSF to produce copper matte and conversion of the existing DBF to an FCF to convert matte to blister, including additional anode furnace and anode casting infrastructure and decommissioning of the existing electric slag reduction furnace (EF) if required • expansion of the brownfield slag concentrator supported by FSF slag cooling pits, a new interim slag stockpile and associated environmental management infrastructure • new off-gas management infrastructure, including additional gas and dust handling equipment • a new acid plant, additional acid storage and an associated acid loading station to allow the export of acid • a new electrorefinery and associated anode preparation infrastructure • a new slimes treatment plant • expansion of the precious-metals refinery (PMR) facility.	2028 to 2032
Stage 1b	1,400,000	Stage 1b includes: • n increase in smelter throughput to approximately 1,400,000 tpa of concentrate producing an output of approximately 500,000 tpa of total copper • Installation of additional concentrate leach thickening and filtration infrastructure • Development of greenfield slag concentrator and associated stockpile and decommissioning of brownfield slag concentrator • Incremental expansion of Stage 1a infrastructure and services, including: – The installation of additional electrorefinery modules – Expansion of feed preparation, FCF feed system (including lime addition), off-gas management, acid plant, slimes treatment and PMR capacities.	2032 to 2036

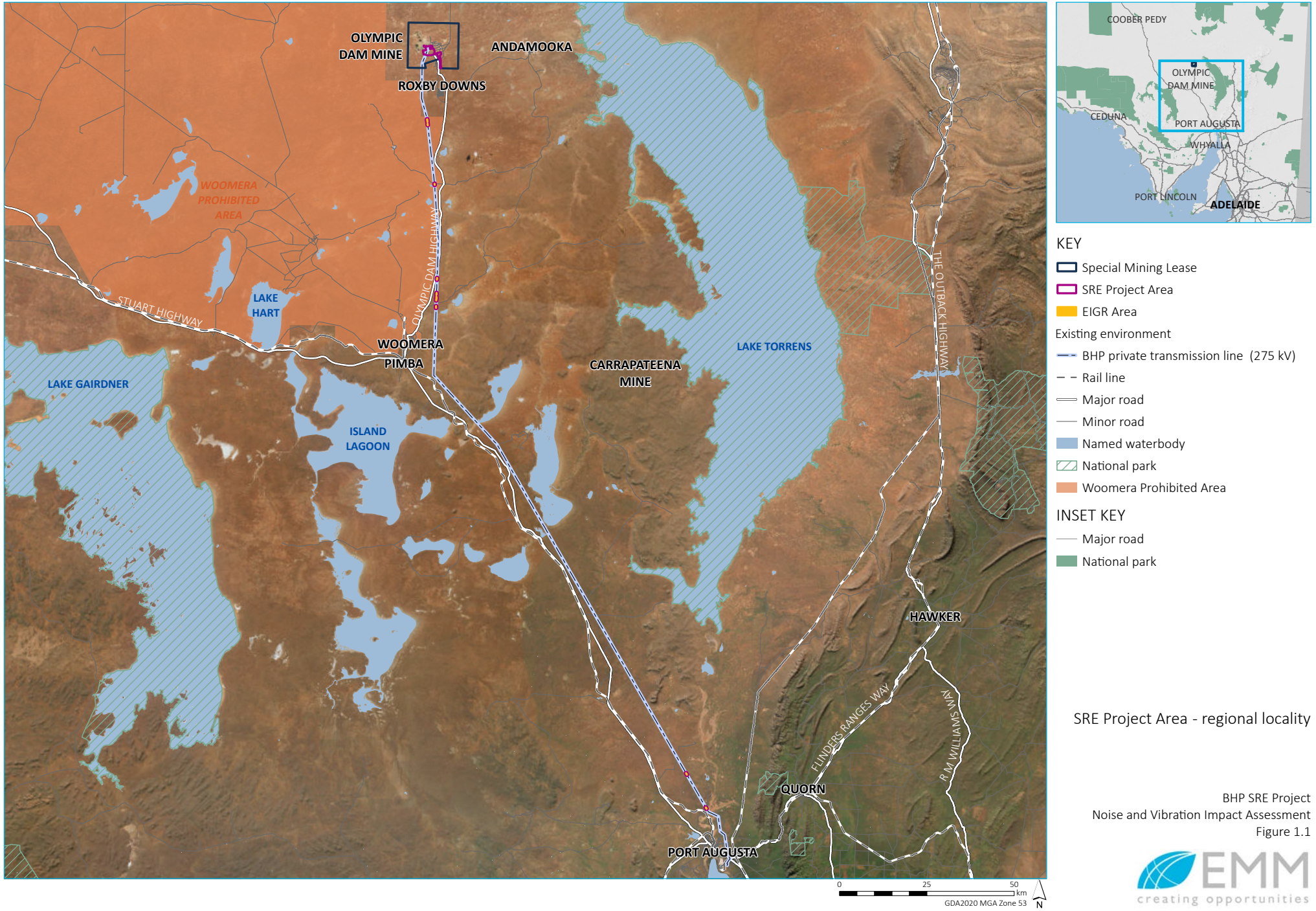
Stage	Smelter concentrate throughput (tpa)	Description	Anticipated timing
Stage 2	2,000,000	Stage 2 includes: • an increase in smelter throughput to approximately 2,000,000 tpa of concentrate producing an output of approximately 650,000 tpa of total copper • installation of new concentrate leach circuit for treatment of imported concentrate • incremental expansion of Stage 1b infrastructure and services, including: – the installation of additional electrorefinery modules – the installation of an additional anode furnace and associated off-gas management infrastructure – expansion of feed preparation, FSF and FCF feed systems, off-gas and slag management, acid plant, slimes treatment and PMR capacities.	2038 to closure

Table 1.2 Key characteristics of the SRE Project

Project element	Summary
Smelter and refinery expansion and additions	Expansion of, and additions to, the existing smelter and refinery to enable production of up to 650,000 tpa copper plus associated products (gold, silver, and acid). This would include: • a new concentrate handling and blending facility • additional concentrate leach capacity • upgrade and expansion of the existing smelter feed preparation • installation of a new primary FSF to produce copper matte and conversion of the existing DBF to a FCF to convert matte to blister, including additional anode furnace and anode casting infrastructure • upgrade of the existing slag concentrator circuit and subsequent development of a new slag concentrator circuit • new off-gas management infrastructure, including additional gas and dust handling equipment • a new acid plant and upgrade of the existing acid plants • a new electrorefinery and associated infrastructure • a new slimes treatment plant • expansion of PMR facility • slag stockpile and treatment.
Electricity demand, supply and distribution	An electricity demand of up to 68 mega volt-amperes (MVA) net load increase would be required for the SRE Project. The additional electrical demand due to the SRE Project would be met by capacity from the national grid via the existing 275 kV transmission line (noting potential for below line land disturbance and associated vegetation clearance outside of the SML). Minor augmentation of existing onsite electricity supply infrastructure at Olympic Dam within the SML would be to ensure the additional capacity could be achieved and maintained. New high voltage and low voltage power supply and reticulation infrastructure would be required to all smelter infrastructure.
Water demand	Water demand of between 2 and 16 megalitres per day (ML/day) required for the SRE Project in addition to the existing supply for current operations.
Water supply and distribution	The SRE Project proposes no additional water abstraction from the Great Artesian Basin (GAB) above daily average BAU volumes. Water supply for the SRE Project would nominally be provided from the DIT Northern Water Project (NWP) infrastructure, following commissioning of the initial 90 ML/d capacity of

<table>
<tr><th>Project element</th><th>Summary</th></tr>
<tr><td></td><td>the NWP. This would require new water storage and distribution infrastructure to connect the SRE Project to the NWP connection point at the SML boundary.
The NWP water supply may be supplemented or offset by the provision of local groundwater supply (subject to further approvals). This water supply would occur via existing process storage dams, the desalination plant at the Olympic Dam site, and/or through the distribution of the existing water supply within daily average BAU volumes.
The additional water supplies are likely to require augmentation of the existing desalination water treatment plant and water distribution network, and a demineralised water plant will be required to support the SRE Project operations.</td></tr>
<tr><td>Supporting infrastructure</td><td>Supporting infrastructure includes:
• civil infrastructure works, such as roads and stormwater infrastructure
• new offices and crib rooms
• new workshops
• new laydown areas
• process control system upgrades
• concrete batching
• other supporting infrastructure as required to facilitate the implementation and operation of the SRE Project.</td></tr>
<tr><td>Waste management</td><td>Development of the SRE Project may require decommissioning of the existing processing plant components including dryers, the electric furnace and the existing concentrate storage and transfer system. Some of the decommissioned infrastructure would be retained in-situ to preserve operational flexibility or for future management under the site Closure Management and Rehabilitation Plan, however some elements may require disposal as a component of the SRE Project.
Waste generated during construction would be managed as follows:
• where practicable, demolition materials would be removed from site and recycled
• materials not suitable for removal from site would be managed on the SML via existing waste management facilities.
All waste generated from construction of the SRE Project would be managed in accordance with existing site procedures and approved management plans.
Operational wastes associated with the SRE Project consist of processing and non-processing wastes where:
• processing wastes are limited to low-copper slags generated from the smelting and slag concentrator operations that are not suitable for reprocessing and effluent streams from various process operations that are directed to tailings, including from the PMR and smelter off-gas systems
• non-processing wastes including reagent packaging wastes and operational consumables.</td></tr>
<tr><td>Workforce</td><td>100% fly-in/fly-out (FIFO) workforce is assumed for construction and the SRE Project operational workforce. Estimated peak construction workforce numbers (in full time equivalents (FTE)) are summarised below.
<table><tr><th>Construction stage</th><th>Average FTE</th><th>Peak FTE</th></tr><tr><td>Stage 1a</td><td>~708</td><td>~1,313</td></tr><tr><td>Stage 1b</td><td>~260</td><td>~515</td></tr><tr><td>Stage 2</td><td>~519</td><td>~978</td></tr></table>Following construction, the SRE Project would require the permanent operational workforce summarised below.</td></tr>
</table>

<table>
<tr><th>Project element</th><th>Summary</th></tr>
<tr><td></td><td>
<table>
<tr><th>Operational stage</th><th>Additional SRE Project operational workforce</th><th>Total Olympic Dam Smelter and Refinery workforce</th></tr>
<tr><td>Stage 1a</td><td>~207</td><td>766</td></tr>
<tr><td>Stage 1b</td><td>~57 (additional to Stage 1a)</td><td>823</td></tr>
<tr><td>Stage 2</td><td>~244 (additional to Stage 1b)</td><td>1,067</td></tr>
</table>
SRE Project construction and operational workforce is proposed to utilise existing and new accommodation to be established by BHP for the SCM27 shutdown, Olympic Dam future campaign maintenance accommodation, and/or greenfield accommodation (subject to separate approvals).
</td></tr>
<tr><td>Concentrate import</td><td>Import of copper concentrate from Prominent Hill and Carrapateena mining operations, as well as possible future mining operations (e.g. Oak Dam), and maintain the ability to receive copper concentrate from other third-party suppliers.
Prominent Hill concentrate may be passed through concentrate leach to remove fluorides prior to smelter feed preparation. Carrapateena concentrate to pass directly to smelter feed preparation. Other, third-party concentrates may be passed through concentrate leach to remove deleterious elements (e.g. fluorides) prior to smelter feed preparation as required.</td></tr>
<tr><td>Production and export</td><td>Total production volumes of up to:
• ~650,000 tpa of cathode copper
• ~893,000 ounces per annum of gold
• ~3,950,000 ounces per annum of silver
• ~4,900 tpa of uranium oxide concentrate (note that the SRE Project does not materially change existing uranium production, with an increase of approximately 1% expected as a result of the leaching of Prominent Hill concentrate to remove fluoride. No upgrade or modification of uranium production facilities is proposed as a part of the SRE Project
• ~1,700,000–1,900,000 tpa of 98% sulphuric acid (H_2SO_4), of which up to approximately 810,000 tpa may be exported from Olympic Dam (i.e. operations become ‘net’ sulphuric acid producer).</td></tr>
</table>



KEY

- Special Mining Lease
- SRE Project Area
- EIGR Area

Existing environment

- BHP private transmission line (275 kV)
- Rail line
- Major road
- Minor road
- Named waterbody
- National park
- Woomera Prohibited Area

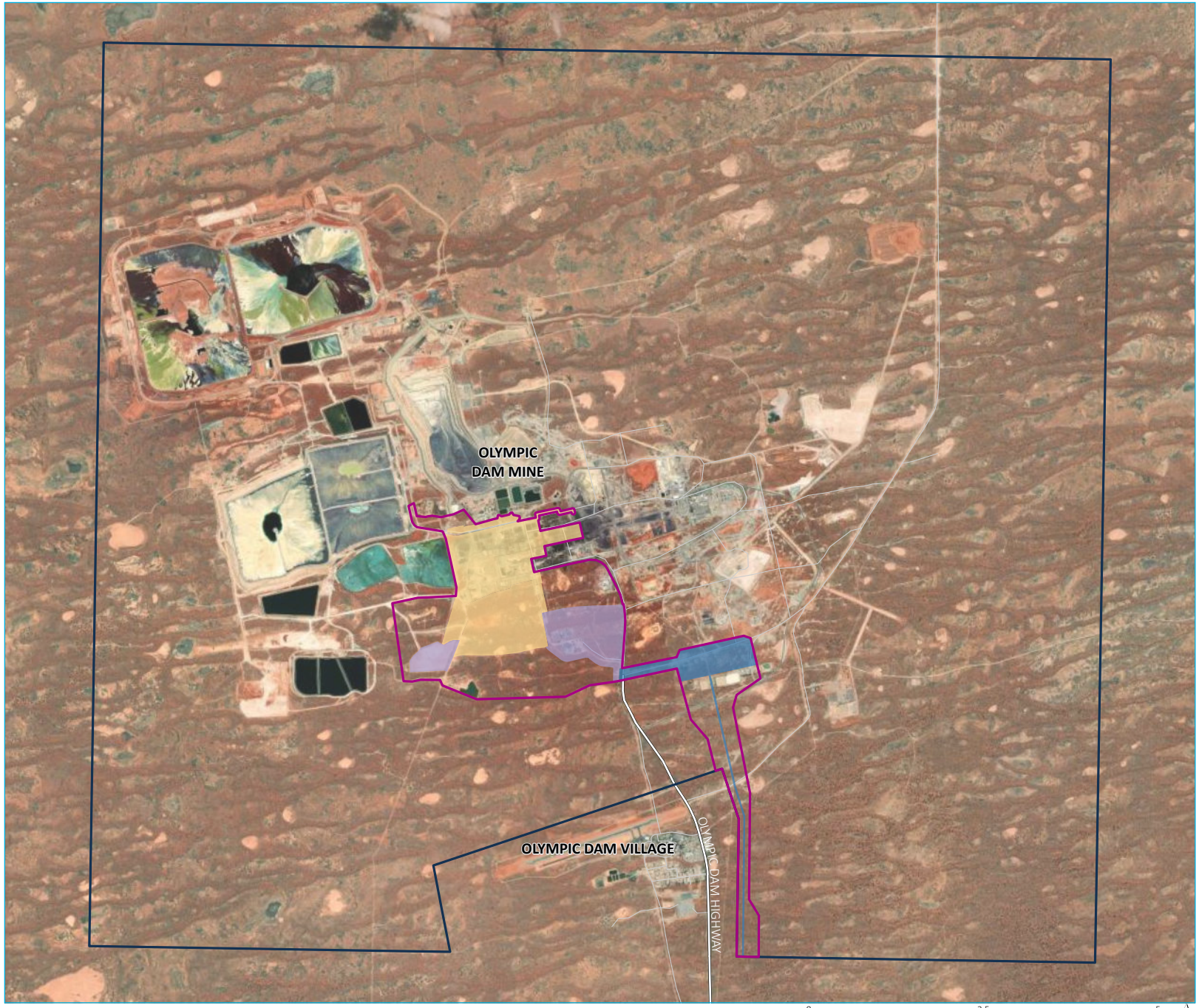
INSET KEY

- Major road
- National park

SRE Project Area - regional locality

BHP SRE Project
Noise and Vibration Impact Assessment
Figure 1.1

EMM
creating opportunities



KEY

- Special Mining Lease
- SRE Project Area- SML Area
- SRE Area
- General Infrastructure Area
- Water Infrastructure Area

Existing environment

- Major road
- Minor road

0 2.5 5 km

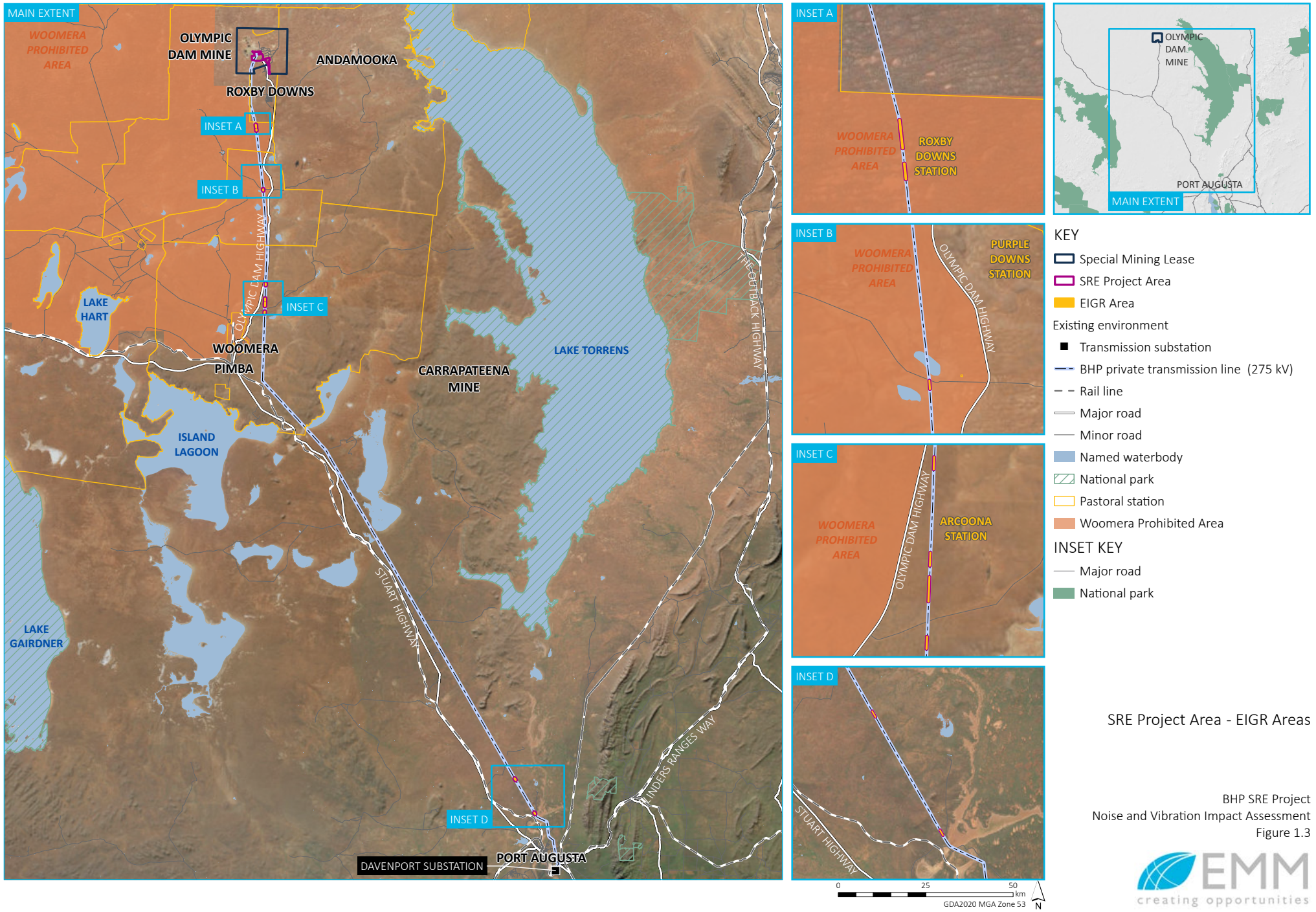
GDA2020 MGA Zone 53

N

SRE Project Area - SML Area

BHP SRE Project
Noise and Vibration Impact Assessment
Figure 1.2

EMM
creating opportunities



SRE Project Area - EIGR Areas

BHP SRE Project
Noise and Vibration Impact Assessment
Figure 1.3

EMM
creating opportunities

2 Baseline condition assessment

In order to quantify the potential effects of the SRE Project on the noise environment and the subsequent impacts to receptors, it is necessary to understand the existing baseline environment, and specifically:

- to classify and describe the existing noise and vibration environment prior to the development of the SRE Project
- to provide a basis for project activities aimed at describing the likely change in the baseline environment as a result of the development of the SRE Project and quantifying the significance of resultant impacts to receptors.

2.1 Environmental context

2.1.1 Site location

The SRE Project is located at the Olympic Dam mining operations, approximately, 580 km north of Adelaide in the far north of South Australia (Figure 1.1).

The existing BHP Olympic Dam includes a mining concentrator, smelter and refinery, with the smelter treating high grade copper concentrates through a single-stage DBF smelter, with an average output of approximately 200,000 tpa of total copper (and associated products).

Site access is via Olympic Dam Highway to the existing Olympic Dam mine site. The SRE Project is serviced by an internal (and proposed new) access road, with public access restricted at the main entrance to the mine site.

Olympic Dam airport is located approximately 6 km south of the existing Olympic Dam mine. The closest township is Roxby Downs which is approximately 15 km south of the mine site.

2.1.2 Study area

The study area for the baseline noise and vibration assessment is illustrated in Figure 1.2. The study area covers the SRE Area, General Infrastructure Area and Water Infrastructure Area within the SML, as well as Olympic Dam Village (ODV) and Roxby Downs Village (RDV) to include all potential noise sources and nearby sensitive receivers.

2.1.3 Environmental aspects

i Topography

The SRE Project Area is located within the Gawler Interim Biogeographic Regionalisation of Australia (IBRA) Bioregion which spans approximately 123,605 km^2.

The Gawler Bioregion is characterised by semi-arid to arid flat to rounded landscapes, rocky hills, plains and salt-encrusted lake beds. The native vegetation across the area is generally relatively intact, but highly disturbed in some areas particularly near stock watering points or infrastructure.

The surrounding landscape of the SRE Project includes the Olympic Dam operations, Airport, and ODV and the nearby township of Roxby Downs, which is connected by a network of established roads. Beyond this, there are large areas of native vegetation to which are subject to pastoral leasing.

The study area sits within the Olympic Dam area where the landscape consists of small undulating plains covered with intermittent native vegetation, sand dunes and claypans. The topography is generally flat with slight undulations.

ii Meteorology

Meteorological conditions at Olympic Dam have not been analysed as part of this NVIA, as all noise predictions have been conducted considering worst-case meteorological conditions which are most favourable for noise propagation.

2.1.4 Sensitive receptors

i Residences

Table 2.1 and Figure 2.1 display sensitive receptors which have been identified in the areas surrounding the study area, including at ODV and RDV. The identified receptors are consistent with those assessed against in the *Olympic Dam Resource Development Strategy Environmental Impact Statement* by Resonate (2020).

Table 2.1 Identified sensitive receptors

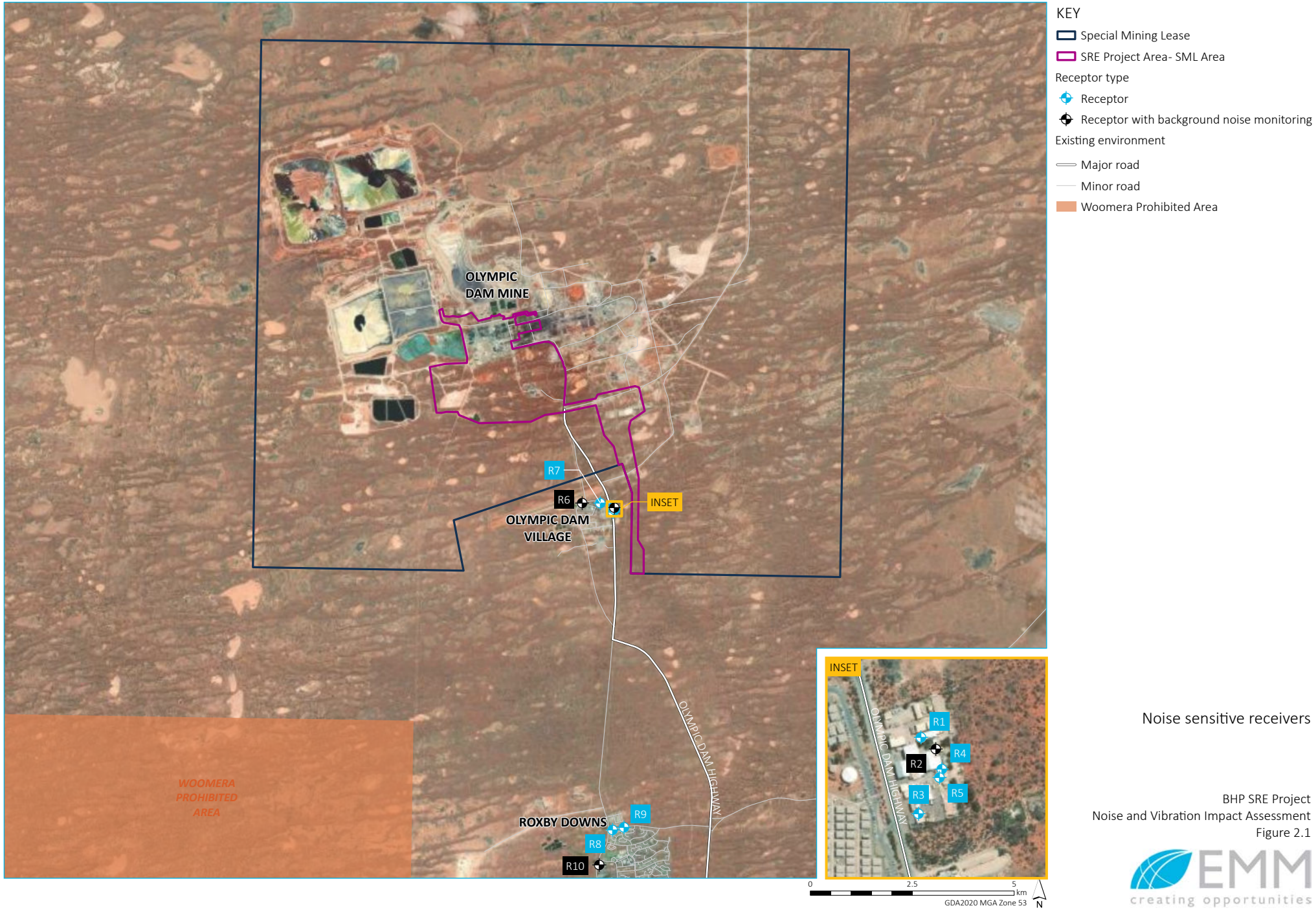
Receptor ID	Type	Land use	Easting	Northing
R1	Private	Residential	681714	6626075
R2[1]	Private	Residential	681738	6626056
R3	Private	Residential	681710	6625950
R4	Private	Residential	681748	6626024
R5	Private	Residential	681744	6626010
R6[1]	BHP owned	Mine accommodation	680950	6626159
R7	BHP owned	Mine accommodation	681393	6626168
R8	Private	Residential	681695	6618146
R9	Private	Residential	681975	6618210
R10[1]	BHP owned	Mine accommodation	681367	6617302

Notes: 1. Location at which background noise monitoring was undertaken.

ii Non-Human Biota

As the proposed SRE Project is a predominantly a brownfield development within an approved SML, the impact of noise and vibration on non-human biota is not required.

Notwithstanding this, potential impacts to fauna are considered to be negligible given a significant change in existing noise and vibration levels is not predicted (i.e. > 10 decibels (dB)) – refer Section 3.2.4.



Noise sensitive receivers

BHP SRE Project
Noise and Vibration Impact Assessment
Figure 2.1

EMM
creating opportunities

2.2 Baseline noise environment

The existing noise environment primarily consists of activities associated with BHP's operation at Olympic Dam. This includes operation of the mine and associated plant (i.e. mining concentrator, smelter and refinery) in the study area, intermittent aircraft noise at Olympic Dam Airport and road traffic noise from the movement of workers and freight to and from Olympic Dam, ODV and RDV.

2.2.1 Baseline noise levels

BHP engaged EMM to undertake a baseline environmental noise monitoring survey at noise sensitive receptors in ODV and RDV. Unattended monitoring was undertaken from 12 November 2024 to 25 November 2024. Results of the baseline noise monitoring program are presented in detail in Appendix A and are summarised in Table 2.2.

Table 2.2 Summary of unattended noise monitoring results

Monitoring location	Measured noise level, dB					
	Period L_{Aeq}			Period L_{A90}		
	Day	Evening	Night	Day	Evening	Night
R2 (Lavricks Roadhouse)	58	55	52	43	42	36
R6 (Olympic Dam Village)	52	51	42	32	32	32
R10 (Roxby Downs Village)	54	54	52	41	43	42

Note: Day: 7:00 am – 6:00 pm, evening: 6:00 pm – 10:00 pm, night: 10:00 pm – 7:00 am

i Baseline surface infrastructure noise

Analysis of historical attended noise measurements at receptor location R2 and R6 conducted by Arup as part of the *Olympic Dam Expansion: Environmental Impact Assessment – Noise and Vibration* report (Arup 2008) indicated that noise levels attributed to surface infrastructure operations were inaudible.

Attended noise monitoring was not undertaken in conjunction with unattended noise monitoring in November 2024, however during deployment of noise logging equipment at all locations, it was noted that noise from the surface infrastructure was inaudible. Audio recordings from unattended noise monitoring were analysed and noise from surface infrastructure was not identified.

ii Baseline road traffic noise

Analysis of unattended noise measurements and associated audio at all three monitoring locations indicate that noise levels are elevated during shift change over periods near 6:00 am and 6:00 pm due to increased road traffic along Olympic Way. This was supported with site observations during noise logger deployment.

iii Baseline aircraft noise

Analysis of aircraft flight schedules and unattended noise measurements at R6 from 18 November to 22 November 2024 was completed to identify the maximum noise levels associated with aircraft movements. R6 is the most exposed noise sensitive receptor to the airport and so it is expected that aircraft noise levels will be lower at all other receivers. The median L_{AFmax} level associated with Embraer E190 aircraft movements are displayed in Table 2.3. The maximum sound levels associated with the aircraft movements were identified using 5 minute measurements and analysis of the associated audio.

A more comprehensive analysis of individual aircraft movements is displayed in Appendix A.

Table 2.3 Median L_{AFmax} aircraft movements identified from 18 November to 22 November 2024

Movement type	Median $L_{AFmax\ dB}$
Take off	89
Arrival	73

2.3 Baseline vibration environment

The *Olympic Dam Expansion: Environmental Impact Assessment – Noise and Vibration*, prepared by Arup, November 2008 states the following in relation to the baseline vibration environment:

> Vibration measurements were conducted at a location south of the SML, but north of the most exposed sensitive receiver. The measurements were conducted on 28 February 2006 from 7.00am to 8.00am. During this time, it was advised that underground development blasting was being carried out.
>
> No vibration was detected underfoot and the measurements conducted do not display any readings above the ambient measurements conducted at the same location.
>
> Continuous vibration from industrial sources such as the grinding mills was not detected in this measurement.

The *Olympic Dam Resource Development Strategy Environmental Impact Statement – Noise and Vibration Assessment* by Resonate (2020) concluded that based on the subjective description of measurements undertaken by Arup in November 2008, existing vibration levels were below that of human perception threshold of approximately 0.14 mm/s for the peak particle velocity.

2.4 Conclusion

EMM conducted a baseline noise survey in November 2024 to obtain ambient noise levels and characterise the baseline noise environment. Through analysis of the results of the survey, it is verified that the existing noise environment at sensitive receptors is generally controlled by existing activities associated with Olympic Dam operations, particularly road traffic and aircraft movements.

Measurements previously conducted by Arup in 2008 indicate existing industrial noise from mining, smelting and refining is noted as inaudible at all receptors and that baseline vibration is negligible at all sensitive receptors. Surface infrastructure was also noted as inaudible during deployment of unattended noise loggers and was not identified during analysis of audio from unattended noise monitoring.

Noise modelling of baseline surface infrastructure and road traffic associated with the SRE Project has been included in Section 3.2.4.

3 Assessment of effects

3.1 Potential impact events

BHP has identified 15 potential impact events associated with likely changes to the baseline noise environment as a result of the implementation of the SRE Project. These events represent scenarios for which there is, or is likely to be, a linkage between SRE Project activities (sources), air or land (pathways) and the identified receptors.

To ensure a consistent approach to impact assessment for the SRE Project, sources, pathways, and receptors (SPR) are defined and applied in this assessment as follows:

- Source – the SRE Project activities emission of noise and vibration (i.e. potential impact event) which, alone or in combination, has the potential to impact a receptor.
- Pathway – the pathway (i.e. air or land), means or route (with consideration of any natural barriers) by which the receptor can be exposed to, or may reasonably be expected to be impacted by, the source.
- Receptor – the receptor that may be impacted by the source via the pathway.

The detailed list of potential impact events is provided in the Environmental Impact Assessment Tables Appendix to the EIS and are summarised for the noise related air and ground pathways in Table 3.1. The scope of this assessment of effects presented herein has considered these identified potential impact events, noting seven potential impact events associated with state and Commonwealth fauna, habitat and threatened species have been assessed separately as part of the Ecological Impact Assessment for the SRE Project and as such have not been included further in this NVIA.

Table 3.1 Preliminary SPR assessment – potential impact events

SPR ID No.	Potential impact event	Source	Pathway	Receptor	Linkage
A32	Project-related construction activities result in the generation of noise (e.g. from infrastructure or access road construction, including vehicle movement noise) that is audible above baseline noise levels and impacts the health and safety of the local community.	Noise and vibration	Air (noise)	Local community (health and safety)	Unconfirmed
A33	Project-related construction activities result in the generation of noise (e.g. from infrastructure or access road construction, including vehicle movement noise) that is audible above baseline noise levels and impacts the amenity of the local community.	Noise and vibration	Air (noise)	Local community (amenity)	Unconfirmed
A34	Project-related construction activities result in the generation of noise that is audible above baseline noise levels and impacts fauna and habitat.	Noise and vibration	Air (noise)	Fauna and habitat	Refer Ecological Impact Assessment
A35	Project-related construction activities result in the generation of noise that is audible above baseline noise levels and impacts State and Commonwealth listed threatened species.	Noise and vibration	Air (noise)	State and Commonwealth threatened species	Refer Ecological Impact Assessment
A36	Project-related operational activities (e.g. pumps, fans, mobile fleet and including vehicle movement noise) result in the generation of noise that is audible above baseline noise levels and impacts the health and safety of the local community.	Noise and vibration	Air (noise)	Local community (health and safety)	Unconfirmed
A37	Project-related operational activities (e.g. pumps, fans, mobile fleet and including vehicle movement noise) result in the generation of noise that is audible above baseline noise levels and impacts the amenity of the local community.	Noise and vibration	Air (noise)	Local community (amenity)	Unconfirmed
A38	Project-related operational activities result in the generation of noise that is audible above baseline noise levels and impacts fauna and habitat.	Noise and vibration	Air (noise)	Fauna and habitat	Refer Ecological Impact Assessment
A39	Project-related operational activities result in the generation of noise and vibration that is audible above baseline noise levels and impacts State and Commonwealth listed threatened species.	Noise and vibration	Air (noise)	State and Commonwealth threatened species	Refer Ecological Impact Assessment
A40	Project-related construction activities result in vibration (e.g. from infrastructure or access road construction, including vehicle movement) that is at levels which impacts the health and safety of the local community.	Noise and vibration	Air (vibration)	Local community (health and safety)	Unconfirmed

SPR ID No.	Potential impact event	Source	Pathway	Receptor	Linkage
A41	Project-related construction activities result in vibration (e.g. from infrastructure or access road construction, including vehicle movement) that is at levels which impacts the amenity of the local community.	Noise and vibration	Air (vibration)	Local community (amenity)	Unconfirmed
A42	Project-related construction activities result in vibration at levels which impacts fauna and habitat.	Noise and vibration	Air (vibration)	Fauna and habitat	Refer Ecological Impact Assessment
A43	Project-related construction activities result in vibration that is at levels which impacts State and Commonwealth listed threatened species.	Noise and vibration	Air (vibration)	State and Commonwealth threatened species	Refer Ecological Impact Assessment
A44	Project-related operational activities (e.g. pumps, fans, mobile fleet and including vehicle movement) result in vibration that at levels which impacts the health and safety of the local community.	Noise and vibration	Air (vibration)	Local community (health and safety)	Unconfirmed
A45	Project-related operational activities (e.g. pumps, fans, mobile fleet and including vehicle movement) result in vibration that is at levels which impacts the amenity of the local community.	Noise and vibration	Air (vibration)	Local community (amenity)	Unconfirmed
A46	Project-related operational activities result in vibration that is at levels which impacts fauna and habitat.	Noise and vibration	Air (vibration)	Fauna and habitat	Refer Ecological Impact Assessment
A47	Project-related operational activities result in vibration that is at levels which impacts State and Commonwealth listed threatened species.	Noise and vibration	Air (vibration)	State and Commonwealth threatened species	Refer Ecological Impact Assessment

3.2 Assessment of effects

An assessment of effects was undertaken to determine the change in the existing noise environment as a result of the proposed SRE Project activities. The assessment of effects included:

- obtaining input data (i.e. baseline environment) for the development of predictive noise model and vibration assessment
- review of the SRE Project activities and identified potential impact events to determine representative scenarios for modelling and effects assessments
- completion of effects modelling and assessment to determine the likely magnitude of the change to the noise environment as a result of the SRE Project.

3.2.1 Methodology

i Surface infrastructure noise

Surface infrastructure noise has been modelled using 3D noise modelling software *SoundPLAN version* 9.1. Predictions have been carried out using the Conservation of Clean Air and Water Europe (CONCAWE 1981) prediction algorithm. The *Guidelines for the use of the Environment Protection (Commercial and Industrial Noise) Policy 2023* state that predictions with a source to receptor distance greater than 100 metres (m) should be made using default weather conditions that are equivalent to CONCAWE meteorological category 6 at night, and CONCAWE meteorological category 5 during the day period.

Additionally, the surface infrastructure noise modelling takes into consideration:

- attenuation of the noise source due to distance
- barrier effects due to topography and buildings
- air absorption
- ground absorption of 0.5.

ii Road traffic noise

Road traffic noise levels have been predicted using the *UK Calculation of Road Traffic Noise (CoRTN)* method, with adaptations for South Australian conditions, at a reference distance representing the most affected receptor along each road segment which have been identified as being impacted by the SRE Project. This is intended to quantify the change in traffic noise levels as well as the absolute levels at noise sensitive receptors.

The following assumptions have been made in road traffic noise predictions:

- The speed limit is 100 km/h, except on Olympic Dam Way and Olympic Dam Highway north of Roxy Downs (assumed 60 km/h).
- The road surface is dense graded asphalt.
- The distribution of traffic is 90% during day time period (7:00 am to 10:00 pm) and 10% night time period (10:00 pm to 7:00 am).
- The ground is 50% absorptive, 50% reflective.
- The receptor height is 1.5 m with full line of sight to the road.

iii Aircraft noise

Aircraft volumes or types at Olympic Dam Airport are not proposed to change from BAU as a result of the SRE Project. As such, an assessment of aircraft noise has not been included in this NVIA.

iv Vibration

Operational and construction vibration sources are not expected to generate perceptible levels of vibration at distances greater than a few hundred metres from the source. As the nearest sensitive receptor is approximately 3 km from any potential vibration sources, vibration levels from activities will be negligible, and a quantitative assessment is unnecessary.

There is no blasting proposed as part of the SRE Project, and as such has not been assessed.

3.2.2 Assessment criteria

The EP Act provides regulatory framework to protect South Australia's environment, including land, air and water. The EP Act defines noise emissions as a pollutant. Part 4 of the EP Act states that a person must not undertake an activity that pollutes, or might pollute, the environment unless the person takes all reasonable and practicable measures to prevent or minimise any resulting environmental harm. This is defined as the general environmental duty.

i Surface infrastructure noise

a Environment Protection (Commercial and Industrial Noise) Policy 2023

The *Environment Protection (Commercial and Industrial Noise) Policy 2023* (Noise EPP) is a policy implemented by the EPA to assist in determining whether a facility meets its obligations under the general environmental duty within the EP Act.

The Noise EPP provides objective noise criteria, referred to as indicative noise factors (INFs) in the Noise EPP, for sources based on the land use categories of the source and nearby receptors. The land use categories can be determined using the Guidelines for the use of the *Environment Protection (Commercial and Industrial Noise) Policy 2023* for zonings in the Planning and Design Code under the *Planning, Development and Infrastructure Act 2016* (PDI Act). The indicative noise factors for different land use categories are displayed in Table 3.2.

Table 3.2 Indicative noise factors for different land use categories under the Noise EPP

Land use category	Indicative noise factor, dB(A)	
	Day (7:00 am – 10:00 pm)	Night (10:00 pm – 7:00 am)
Rural Living	47	40
Residential	52	45
Rural Industry	57	50
Light Industry	57	50
Commercial	62	55
General Industry	65	55
Special Industry	70	60

There are subclauses within Schedule 5 of the Noise EPP which determine how to apply the indicative noise factors in different scenarios:

- Under subclause 4, where a source and receptor are located in the same zone, the indicative noise factor for a development is the indicative noise factor for that land use category.

- Under subclause 5, where a source and receptor are located in different zones and there are no intervening zones, the indicative noise factor for a development is based on the average of the indicative noise factors for the two zones.

- Under subclause 6, subclause 5 does not apply if another noise designated area (at least 100 m wide) is situated between the source zone and receptor zone. Instead, the indicative noise factor for the receptor land use category is used.

Where noise contains annoying characteristics that are fundamental to the nature and impact of the noise (i.e. tonality, impulsiveness, low frequency, intermittency or is amplitude modulating), the measured noise level is required to be adjusted in accordance with subclause 3 of Schedule 13 in the Noise EPP. A 5dB(A) penalty is applied for one characteristic, an 8 dB(A) penalty is applied for two characteristics, and a 10 dB(A) penalty is applied for three or more characteristics.

The indicative noise factors are determined in accordance with the Noise EPP. The land zonings (and relevant land use categories) are determined using the Planning and Design Code and South Australian Property and Planning Atlas (SAPPA).

The Noise EPP states that for a noise source to satisfy its general environmental duty, the noise level at the receptor should not exceed the background noise level plus 5 dB(A) or should not exceed the indicative noise factor. Background noise monitoring indicates that background noise levels less 5 dB(A) are lower than the indicative noise factors at all noise sensitive receptors. As such, the noise limit is based on the indicative noise factor. Further, for new developments the Noise EPP states that the noise level should not exceed the indicative noise factor less 5 dB(A).

Additionally, subclause 4 of Schedule 19 of the Noise EPP states that for new developments in quiet noise designated zones, the predicted maximum noise level should not exceed 60 dB(A).

b Exclusions from the Noise EPP

ODV workforce accommodation is part of the BHP Olympic Dam Site and therefore application of the Noise EPP criteria is not appropriate at this location. However, the overarching requirements of the EP Act still apply.

Instead, noise limits for BHP owned accommodation buildings have been determined in accordance with Australian Standard AS/NZS 2107:2016 *Acoustics – Recommended design sound levels and reverberation times for building interiors* and Australian Standard AS 2436:2010 *Guide to Noise and Vibration Control on Construction, Demolition and Maintenance Sites*. Australian Standard AS/NZS 2107:2016 provides recommended design sound levels for sleeping areas in mining camps as L_{Aeq} 35 to 40 dB. All accommodation buildings at ODV and RDV are fitted with air conditioning units which allow for windows to be closed if desired. Based on this, an external to internal noise reduction of 20 dB has been assumed, consistent with a light clad building with standard glazing, as stated in Australian Standard AS 2436:2010, resulting in an external noise criteria at BHP owned accommodation buildings of L_{Aeq} 55 to 60 dB.

c Resultant noise criteria

Table 3.3 displays development noise limits for noise sensitive receptors displayed in Table 2.1 and Figure 2.1. The calculation of indicative noise factors and resultant criteria for private residences at ODV and RDV, where the Noise EPP is the relevant document, are displayed in Appendix B. R8 and R9 are situated within a quiet noise designated zone, and as such a L_{Amax} criteria is applicable under the Noise EPP.

Table 3.3 Surface infrastructure development noise limits

Receptor ID	Type	Relevant document	Noise limit, dB		
			Day, L_{Aeq}	Night, L_{Aeq}	Night, L_{Amax}
R1	Private	Noise EPP	60	50	N/A
R2	Private	Noise EPP	60	50	N/A
R3	Private	Noise EPP	60	50	N/A
R4	Private	Noise EPP	60	50	N/A
R5	Private	Noise EPP	60	50	N/A
R6	BHP owned	Australian Standard AS/NZS 2107:2016	60 (40)[1]	55 (35)[1]	N/A
R7	BHP owned	Australian Standard AS/NZS 2107:2016	60 (40)[1]	55 (35)[1]	N/A
R8	Private	Noise EPP	47	40	60
R9	Private	Noise EPP	47	40	60
R10	BHP owned	Australian Standard AS/NZS 2107:2016	60 (40)[1]	55 (35)[1]	N/A

Note: 1. External noise criteria derived from internal criteria indicated in parentheses.

ii Road traffic noise

Road projects in South Australia are assessed against the Road Traffic Noise Guidelines (RTNG). The RTNG contains criteria for new and redeveloped roads but does not address noise effects from the increase in traffic due to a proposed development. There are no South Australian guidelines or policies specific to noise impacts from developments relating to increased noise levels on public roads.

In the past, projects that have had the potential to cause road traffic noise impacts have taken guidance from the RTNG and NSW Road Noise Policy (RNP), which has had an influence on the development of the RTNG.

The RNP provides criteria for *existing residences affected by additional traffic on existing freeways/arterial/sub-arterial roads generated by land use developments,* which are:

- day (7:00 am – 10:00 pm) – L_{Aeq} 60 dB
- night (10:00 pm – 7:00 am) – L_{Aeq} 55 dB.

The RTNG and RNP also note that, an increase of 2 dB or less represents a small noise increase that is not considered perceptible to the average person.

3.2.3 Noise sources

i Surface infrastructure noise

Three model scenarios have been developed to represent noise from existing operations (baseline), construction activities for the SRE and operation of the SRE project.

A summary of modelled scenarios, included noise sources and where the relevant data was acquired is displayed in Table 3.4. Surface infrastructure includes all plant operating on site including fixed processing plant and moving equipment. A combination of measured and theoretical data has been used as inputs to the noise model. Appendix C and Appendix D display baseline, construction and future surface infrastructure equipment sound power levels and locations respectively.

It has been assumed that all plant is operating concurrently, and operational during the day and night time periods under noise enhancing conditions (i.e. worst case scenario). It should also be noted that the proposed fixed plant has been assumed to have a concentrate throughput of 2,000,000 tpa which represents the maximum production rate required to meet the SRE Project production capacity of 650,000 tpa of total copper.

Table 3.4 Summary of modelled surface infrastructure noise sources

Noise source	Data acquisition location		Included in modelled scenario		
	Location	Sound power levels	Baseline	Construction	SRE Project
Existing fixed plant not included in SRE project	*Olympic Dam Expansion: Environmental Impact Assessment – Noise and Vibration* (2008)	*Olympic Dam Expansion: Environmental Impact Assessment – Noise and Vibration* (2008)	Yes	Yes	Yes
Existing fixed plant included in SRE Project	Worley supplied spatial data	Worley (2024) Technical Memorandum WOR-1197893-VC-0002_B EMM conducted on-site sound power measurements	No	No	Yes
Existing moving plant	*Olympic Dam Resource Development Strategy Environmental Impact Statement – Noise and Vibration Assessment* (2020)	British Standard BS 5228-1:2009 EMM internal database	Yes	Yes	Yes
Existing raise bores	*Olympic Dam Resource Development Strategy Environmental Impact Statement – Noise and Vibration Assessment* (2020)	*Olympic Dam Expansion: Environmental Impact Assessment – Noise and Vibration* (2008)	Yes	Yes	Yes
Proposed SRE Project fixed plant (Stage 2, 2,000 kilotonnes per annum (ktpa)	Worley and HFJV supplied spatial data	Worley (2024) Technical Memorandum WOR-1197893-VC-0002_B edited by HFJV for updated project information	No	No	Yes
Proposed SRE Project moving plant	*Olympic Dam Resource Development Strategy Environmental Impact Statement – Noise and Vibration Assessment* (2020)	British Standard BS 5228-1:2009 EMM internal database	No	No	Yes

Noise source	Data acquisition location		Included in modelled scenario		
	Location	Sound power levels	Baseline	Construction	SRE Project
Proposed SRE Project construction equipment	*Olympic Dam Resource Development Strategy Environmental Impact Statement – Noise and Vibration Assessment* (2020)	British Standard BS 5228-1:2009 EMM internal database	No	Yes	No

ii Road traffic noise

Existing and future traffic volumes have been sourced from the *Traffic Impact Assessment – Olympic Dam Smelter and Refinery Expansion Project*, prepared by EMM (2026). Table 3.5 displays existing traffic volumes and projected traffic volumes for all roads on which the SRE Project will contribute an increase to the overall vehicle movements.

Table 3.5 Traffic volumes

Road section	Baseline (2026)		Stage 1A + B Operation and Stage 2 Construction		Stage 2 Operation	
	Daily traffic	Heavy vehicle %	Daily traffic	Heavy vehicle %	Daily traffic	Heavy vehicle %
Olympic Dam Highway – North of Roxby Downs	4600	9	726	97	1150	97
Olympic Dam Highway – South of Roxby Downs	500	26	538	100	760	100
Olympic Dam Way	430	12	188	90	390	90
Olympic Dam Way – South of Pimba	650	19	194	100	170	100
Stuart Highway – East of Stuart Highway/Olympic Dam Highway intersection	950	34	172	100	140	100
Stuart Highway – West of Stuart Highway/Olympic Dam Highway intersection	440	37	22	100	30	100
Augusta Highway – Port Pirie to Port Augusta[1]	4700	25	172	100	140	100
Augusta Highway – Port Wakefield to Port Pirie[1]	2800	41	172	100	140	100
Port Wakefield Highway – Dublin to Port Wakefield[1]	9200	22	172	100	140	100

Note: 1. Traffic volume based on Location SA Map Viewer.

Based on the information in the *Traffic Impact Assessment* the following adaptations have been made based on the volumes presented in Table 3.5 for the purposes of noise modelling:

- Stage 1A + B construction traffic is assumed to be 24 hours a day, 7 days a week. Therefore, conservatively all construction traffic volumes have been modelled during both the day and night periods.
- 90% of operational workforce travel to site in buses.
- 50% of operational workforce travel to site during the day period, 50% travel during the night period.
- All operational deliveries occur during the day period only.

- There is no projected increase in baseline traffic volumes from 2026 to completion of the SRE Project.

3.2.4 Assessment results

i Surface infrastructure noise

Table 3.6 displays predicted worst case noise enhancing night time noise levels for baseline, construction and SRE Project surface infrastructure scenarios at noise sensitive receptors. Noise contours are displayed in Appendix E.

Table 3.6 Predicted surface infrastructure noise levels

Receptor	Noise limit, L_{Aeq}, dB		Predicted noise levels under worst case noise enhancing conditions, $L_{Aeq,15min}$ dB		
	Day	Night	Baseline	Construction	SRE Project (Stage 2, 2,000 ktpa)
R1	60	50	45	46	49
R2	60	50	45	46	48
R3	60	50	45	45	48
R4	60	50	45	46	48
R5	60	50	45	45	48
R6	60 (40)[1]	55 (35)[1]	46	47	50
R7	60 (40)[1]	55 (35)[1]	46	46	49
R8	47	40	28	28	31
R9	47	40	28	28	31
R10	60 (40)[1]	55 (35)[1]	27	27	30

Note: 1. Internal noise criteria indicated in parenthesis.

Results in Table 3.6 indicate that under worst case noise enhancing conditions, the baseline, construction and SRE Project scenarios comply with the Noise EPP at privately owned noise sensitive receptors and internal noise levels recommended by Australian Standard AS 2107:2016 at BHP owned receptors.

Sleep disturbance assessment is required at only R8 and R9 which are situated within a quiet locality, and so the Noise EPP states that maximum noise levels L_{Amax} should not exceed 60 dBA. Due to the distance between the source and receptor, continuous nature of plant and equipment assessed, it is anticipated that predicted maximum noise levels would be considerably lower than 60 dBA required by the Noise EPP. As all relevant noise criteria are met, the SRE Project is expected to meet its general environmental duty related to surface infrastructure noise under the EP Act.

a Validation of baseline model

Predicted noise levels at R2 and R6 are comparable with the unattended L_{Aeq} noise levels recorded at the same locations. The predicted baseline noise level at R2 is 7 dB lower than the measured L_{Aeq} and 9 dB higher than the measured L_{A90} at the same location during the night period. The predicted baseline noise level at R6 is 4 dB higher than the measured L_{Aeq} and 14 dB higher than the measured L_{A90} at the same location during the night period.

Baseline model predictions would indicate that existing noise from surface infrastructure should be audible at these receivers. However, EMM staff observations, logger audio analysis and attended measurements conducted by Arup as part of the *Olympic Dam Expansion: Environmental Impact Assessment – Noise and Vibration* report (Arup 2008) did not indicate audibility of noise from the site.

A number of highly conservative assumptions have been made in noise modelling. These include assumptions around the methodology for the derivation of equipment noise levels, the utilisation of equipment, and around the lack of attenuation of structures surrounding noise generating equipment. Based on site observations and unattended monitoring, model predictions in Table 3.6 likely overpredict the noise impact of the SRE Project.

ii Road traffic noise

Table 3.7 displays predicted road traffic noise levels based upon construction and operation traffic volumes derived from Worley (2024a) at representative distances from the nearest carriageway for all roads impacted by the SRE Project.

Table 3.7 Predicted road traffic noise levels

Road section	Reference distance, m	RNP Criteria, dB		Predicted noise level, L_{Aeq}, dB						Predicted RNP exceedance, dB
				Baseline		Stage 1A + B Operation and Stage 2 Construction		Stage 2 Operation		
		Day	Night	Day	Night	Day	Night	Day	Night	
Olympic Dam Highway – North of Roxby Downs	25	60	55	57	50	60	55	**61**	55	1
Olympic Dam Highway – South of Roxby Downs	100	60	55	46	39	52	46	53	39	-
Olympic Dam Way	10	60	55	52	44	55	55	57	**58**	3
Olympic Dam Highway – South of Pimba	100	60	55	46	39	49	44	49	39	-
Stuart Highway – East of Stuart Highway/Olympic Dam Highway intersection	100	60	55	50	42	51	45	51	42	-
Stuart Highway – West of Stuart Highway/Olympic Dam Highway intersection	100	60	55	46	39	47	39	47	39	-
Augusta Highway – Port Pirie to Port Augusta	100	60	55	56	48	56	49	56	48	-
Augusta Highway – Port Wakefield to Port Pirie	100	60	55	55	47	55	48	55	47	-
Port Wakefield Highway – Dublin to Port Wakefield	100	60	55	58	51	59	51	58	51	-

Note: Road noise predictions are Day $L_{Aeq,15\ hr}$ / Night $L_{Aeq,15\ hr}$.

Results in Table 3.7 indicate that road traffic noise associated with the construction and operation of the SRE Project is below the guidance noise criteria set out in the *NSW Road Noise Policy*, with the exception of two minor exceedances of the day criteria by 1 dB on Olympic Dam Highway – North of Roxby Downs, and the night criteria by 3 dB on Olympic Dam Way.

As such, it is unlikely that there will be significant impacts on any noise sensitive receptors due to road traffic noise and as such, the SRE Project is expected to meet its general environmental duty related to increased road traffic noise under the EP Act.

3.3 Conclusion

Table 3.8 presents the revised SPR assessment with respect noise and vibration following completion of the assessment of effects.

Table 3.8 Final SPR assessment – confirmed impact events

SPR ID No.	Potential impact event (pathway)	Receptor	Linkage	Linkage justification
A32	Project-related construction activities result in the generation of noise (e.g. from infrastructure or access road construction, including vehicle movement noise) that is audible above baseline noise levels and impacts the health and safety of the local community.	Local community (health and safety)	No	Due to the distance between the noise generating activities and the nearest local community and residences, no impacts to the health and safety of the local community are predicted.
A33	Project-related construction activities result in the generation of noise (e.g. from infrastructure or access road construction, including vehicle movement noise) that is audible above baseline noise levels and impacts the amenity of the local community.	Local community (amenity)	Yes	The SRE Project will result in an increase in surface infrastructure noise generating activities during construction, increasing predicted noise levels for the local community and sensitive receptors. The construction of the SRE Project will result in an increase in road traffic noise for the local community and sensitive receptors due to an increase in workforce and deliveries.
A36	Project-related operational activities (e.g. pumps, fans, mobile fleet and including vehicle movement noise) result in the generation of noise that is audible above baseline noise levels and impacts the health and safety of the local community.	Local community (health and safety)	No	Due to the distance between the noise generating activities and the nearest local community and residences, no impacts to the health and safety of the local community are predicted.
A37	Project-related operational activities (e.g. pumps, fans, mobile fleet and including vehicle movement noise) result in the generation of noise that is audible above baseline noise levels and impacts the amenity of the local community.	Local community (amenity)	Yes	The SRE Project will result in an increase in surface infrastructure noise generating activities during operation, increasing predicted noise levels for the local community and sensitive receptors. The operation of the SRE Project will result in an increase in road traffic noise for the local community and sensitive receptors due to an increase in workforce and deliveries.

SPR ID No.	Potential impact event (pathway)	Receptor	Linkage	Linkage justification
A40	Project-related construction activities result in vibration (e.g. from infrastructure or access road construction, including vehicle movement) that is at levels which impacts the health and safety of the local community.	Local community (health and safety)	No	Due to the distance between the noise generating activities and the nearest local community and residences, no impacts to the health and safety of the local community are predicted.
A41	Project-related construction activities result in vibration (e.g. from infrastructure or access road construction, including vehicle movement) that is at levels which impacts the amenity of the local community.	Local community (amenity)	No	Construction vibration sources are not expected to generate perceptible levels of vibration at distances greater than a few hundred metres from the source. As the nearest sensitive receptor is approximately 3 km from any potential vibration sources, vibration levels from activities will be negligible.
A44	Project-related operational activities (e.g. pumps, fans, mobile fleet and including vehicle movement) result in vibration that at levels which impacts the health and safety of the local community.	Local community (health and safety)	No	Due to the distance between the noise generating activities and the nearest local community and residences, no impacts to the health and safety of the local community are predicted.
A45	Project-related operational activities (e.g. pumps, fans, mobile fleet and including vehicle movement) result in vibration that is at levels which impacts the amenity of the local community.	Local community (amenity)	No	Operational vibration sources are not expected to generate perceptible levels of vibration at distances greater than a few hundred metres from the source. As the nearest sensitive receptor is approximately 3 km from any potential vibration sources, vibration levels from activities will be negligible.

4 Impact assessment

The impact significance of confirmed impact events associated with the proposed SRE Project activities is described in this section.

4.1 Confirmed impact events

Following the assessment of effects, the following impact events have been confirmed.

Table 4.1 Confirmed impact events

Pathway	Impact ID	Impact event
Air (noise)	A33	The SRE Project will result in an increase in surface infrastructure noise generating activities during construction, increasing predicted noise levels for the local community and sensitive receptors. The construction of the SRE Project will result in an increase in road traffic noise for the local community and sensitive receptors due to an increase in workforce and deliveries.
Air (noise)	A37	The SRE Project will result in an increase in surface infrastructure noise generating activities during operation, increasing predicted noise levels for the local community and sensitive receptors. The operation of the SRE Project will result in an increase in road traffic noise for the local community and sensitive receptors due to an increase in workforce and deliveries.

4.2 Impact significance criteria

The impact significance criteria are presented in the Environmental Impact Assessment Framework (EIAF) Appendix to the EIS. Criteria relevant to the assessment of the noise and vibration-related impact significance is repeated in Table 4.2.

Table 4.2 Consequence definitions and significance determination

Severity level	1	2	3	4	5
Environmental value		**Not significant**		**Significant**	
Noise and vibration (human amenity)	No exceedance of South Australian *Environment Protection (Commercial and Industrial Noise) Policy 2023* and relevant vibration standards.	Localised exceedance of South Australian *Environment Protection (Commercial and Industrial Noise) Policy 2023* and relevant vibration standards which generates complaints, resolved within one week.	Ongoing exceedance of South Australian *Environment Protection (Commercial and Industrial Noise) Policy 2023* and relevant vibration standards which generates complaints, resolved within three months.	Major or ongoing exceedance of South Australian *Environment Protection (Commercial and Industrial Noise) Policy 2023* and relevant vibration standards resulting in complaints over an extended period of years with the need to relocate receptors. Repairable damage to buildings due to vibration.	Major ongoing exceedance of South Australian *Environment Protection (Commercial and Industrial Noise) Policy 2023* and relevant vibration standards resulting in the need to relocate multiple receptors. Major damage from vibration to multiple structures or infrastructure requiring demolition and rebuild.

4.3 Impact assessment

The impact significance associated with the proposed SRE Project activities is described below and summarised in Table 4.3.

4.3.1 Impact of surface infrastructure noise on amenity

Community and/or individual perceptions of impacts to amenity do not always correlate to measured levels of pollutants (including noise), and are likely to vary with consideration to the:

- baseline noise environment prior to the addition of noise-generating activities
- receptor's previous exposure to noisy environments
- nature of the receptor's relationship with the generator of the noise
- variability (impulsive, low frequency, modulating or tonal characters) of the noise.

The assessment for surface infrastructure noise (see Section 3.2.4i) predicted noise levels would increase as a result of activities associated with the SRE Project but did not exceed noise limits derived from the *Environment Protection (Commercial and Industrial Noise) Policy 2023.* As such, the impact significance has been rated as Level 1 (not significant).

4.3.2 Impact of road traffic noise on amenity

The increase in noise levels associated with road traffic for the SRE Project is below the guidance noise criteria set out in the *Road Noise Policy*, with the exception of two minor exceedances of the day criteria by 1 dB on Olympic Dam Highway – North of Roxby Downs, and the night criteria by 3 dB on Olympic Dam Way. As such, the impact significance has been rated as Level 1 (not significant).

Table 4.3 Noise and vibration impact assessment

Confirmed impact event	Impact ID	Impact significance*	Significance justification	Uncertainty
Air (noise)				
Project-related construction activities result in the generation of noise (e.g. from infrastructure or access road construction, including vehicle movement noise) that is audible above baseline noise levels and impacts the amenity of the local community.	A33	Level 1 – not significant	The increase in noise levels associated with surface infrastructure is below the noise limits set out in the *Environment Protection (Commercial and Industrial) Noise Policy 2023.* The increase in noise levels associated with road traffic is below the threshold of perception for the human ear or below the guidance noise criteria set out in the *Road Noise Policy.*	Low – Assumptions made in surface infrastructure noise modelling are highly conservative. Measured noise levels are significantly lower than predicted baseline noise levels, confirming that the noise model is conservative.
Project-related operational activities (e.g. pumps, fans, mobile fleet and including vehicle movement noise) result in the generation of noise that is audible above baseline noise levels and impacts the amenity of the local community.	A37	Level 1 – not significant	The increase in noise levels associated with surface infrastructure is below the noise limits set out in the *Environment Protection (Commercial and Industrial) Noise Policy 2023.* The increase in noise levels associated with road traffic is below the threshold of perception for the human ear or is below the guidance noise criteria set out in the *Road Noise Policy*, except for two minor exceedances of 1 dB and 3 dB.	Low - Assumptions made in surface infrastructure noise modelling are highly conservative. Measured noise levels are significantly lower than predicted baseline noise levels, confirming that the noise model is conservative.

4.4 Mitigation and management

There were no confirmed noise impact events assessed as having the potential for a significant impact requiring management and mitigation measures to be applied. Nevertheless, BHP would implement standard operating procedures to minimise the potential impact from noise and vibration to as low as reasonably achievable (ALARA).

4.5 Conclusion

Following completion of the assessment of effects investigation, it was determined that there were two confirmed impact events, specifically:

- the SRE Project will result in an increase in surface infrastructure and road traffic noise generating activities during construction, increasing predicted noise levels for the local community and sensitive receivers
- the SRE Project will result in an increase in surface infrastructure and road traffic noise generating activities during operation, increasing predicted noise levels for the local community and sensitive receivers.

These events were assessed to quantify the likely significance of the impact against the EIAF impact significance criteria, with all impacts determined to be not significant.

References

Arup (2008) *Olympic Dam Expansion: Environmental Impact Assessment – Noise and Vibration.* November 2008. South Australia, Adelaide.

British Standard Institute (2014*) British Standard BS 5228:1 Code of practice for noise and vibration on construction and open sites*. February 2014.

Department of Environment, Climate Change and Water NSW (2011) *NSW Road Noise Policy*. March 2011. New South Wales, Australia.

EMM (2025) *Traffic Impact Assessment – Olympic Dam Smelter and Refinery Expansion Project DRAFT*. February 2025. Adelaide, South Australia

Environment Protection Authority South Australia (1993) *Environment Protection Act 1993*.

Environment Protection Authority South Australia (2023) *Environment Protection (Commercial and Industrial Noise) Policy 2023.* October 2023. South Australia, Australia.

Environmental Protection Authority South Australia (2023) *Guidelines for the use of the Environment Protection (Commercial and Industrial Noise) Policy 2023.* August 2023. South Australia, Australia.

Environment Protection Authority South Australia (2023) *Indicative noise factor guidelines for the Environment Protection (Commercial and Industrial Noise) Policy 2023.* August 2023. South Australia, Australia.

Government of South Australia Department for Infrastructure and Transport (2021) *Environment and Heritage Technical Manual Attachment 7A Road Traffic Noise Guidelines*. November 2021. South Australia, Australia.

Resonate (2020) *Olympic Dam Resource Development Strategy Environmental Impact Statement – Noise and Vibration Assessment.* October 2020. South Australia, Adelaide.

Standards Australia (2010) *Australian Standard AS 2436:2010 Guide to noise and vibration control on construction, demolition and maintenance sites.* May 2010.

Standards Australia, Standards New Zealand (2016) *Australian Standard AS/NZS 2107:2016 Acoustics – Recommended design sound levels and reverberation times for building interiors*. October 2016.

World Health Organisation (1999). *Guidelines for community noise*. April 1999. Geneva, Switzerland.

Worley (2024) *Technical Memorandum – Noise Emissions Calculations.* October 2024. Prepared for BHP. South Australia, Adelaide.

Worley (2024a), *BHP CuSA Smelter & Refinery Expansion Project (SRE) – Traffic Volume EIS Data*, Prepared for BHP. South Australia, Adelaide.

Abbreviations and acronyms

Acronym	Expansion
ALARA	As Low As Reasonably Achievable
BAU	Business-as-usual
BHP	BHP Olympic Dam Corporation Pty Ltd
Copper SA	Copper South Australia
DBF	Direct-to-blister flash furnace
DIT	Department for Infrastructure and Transport
EF	Electric slag reduction furnace
EIAF	Environmental Impact Assessment Framework
EIS	Environment Impact Statement
EPA	Environment Protection Authority
FCF	Flash converting furnace
FIFO	Fly-in/fly-out
FSF	Flash smelting furnace
FTE	Full time equivalents
GAB	Great Artesian Basin
IBRA	Interim Biogeographic Regionalisation for Australia
N/A	Not applicable
NWP	Northern Water Project
OD-RDS	Olympic Dam Resource Development Strategy
ODV	Olympic Dam Village
PDI Act	*Planning, Development and Infrastructure Act 2017* (South Australia)
PMR	Precious metal refinery
RDV	Roxby Downs Village
SA	South Australia
SCM27	Scheduled campaign maintenance 2027
SML	Special Mining Lease
SPC	State Planning Commission
SPR	Source-pathway-receptor
SRE	Smelter and Refinery Expansion

Appendix A

Baseline noise monitoring survey report

EMM
creating opportunities

A.1 Introduction

BHP have engaged EMM Consulting Pty Ltd (EMM) to undertake environmental noise monitoring for Olympic Dam. The purpose of environmental noise monitoring is to capture measurements of the baseline noise environments at locations near Olympic Dam Village and Roxby Down Village. Noise monitoring occurred during November 2024. This report presents noise monitoring methodology and results.

A.2 Noise monitoring

A.2.1 Noise monitoring locations and equipment details

Environmental noise monitoring was carried out at three locations which are displayed in Figure 2.1 in the main body of this report.

Details of the noise monitoring equipment used at each monitoring location are displayed in Table A.1.

Table A.1 Noise monitoring equipment

Location	Equipment	Serial number
All	Bruel and Kjaer 4231 acoustic calibrator	3026661
Measurement Position 1 – R2 – Lavricks Roadhouse	ARL Ngara environmental noise logger	878127
Measurement Position 2 – R6 – Olympic Dam Village	ARL Ngara environmental noise logger	878126
Measurement Position 3 – R10 – Roxby Downs Village	ARL Ngara environmental noise logger	878138

Calibration certificates for the noise monitoring equipment are available upon request.

A.2.2 Meteorological data

Meteorological data has been sourced from the nearest Bureau oof Meteorological weather state to the measurement position, which is at Olympic Dam Airport less than 1 km from R2 and R6 and approximately 2 km from R10.

Analysis of meteorological data at Olympic Dam Airport indicates that there were significant periods of high wind speeds and rain during noise monitoring. Noise monitoring data collect during inclement weather conditions (wind speed greater than 5 m/s, or rainfall) have been excluded from subsequent analysis and reported levels. When noise monitoring data has been excluded, it is identified in the graphed results in Section A.3.

A.3 Results

A summary of each of the monitoring locations is provided in this section.

A.3.1 R2 - Lavricks Roadhouse

The noise logger at R2 was located adjacent to Lavricks Roadhouse located approximately 3 km south of Olympic Dam surface infrastructure, and 500 m east of Olympic Dam Village. The logger was located with few obstructions in the northerly direction. At the time of logger deployment and collection, it was observed that the roadhouse was operating as a petrol station and takeaway with continuous traffic flow in and out of the premise. Weather conditions were clear, sunny (approximately 25 degrees) with light wind. Existing Olympic Dam mine site operations were not audible.

Photograph A.1 displays the logger location at R2.



Photograph A.1 Logger location for R2

Figure A.1 and Figure A.2 display graphical results for the measurement period.

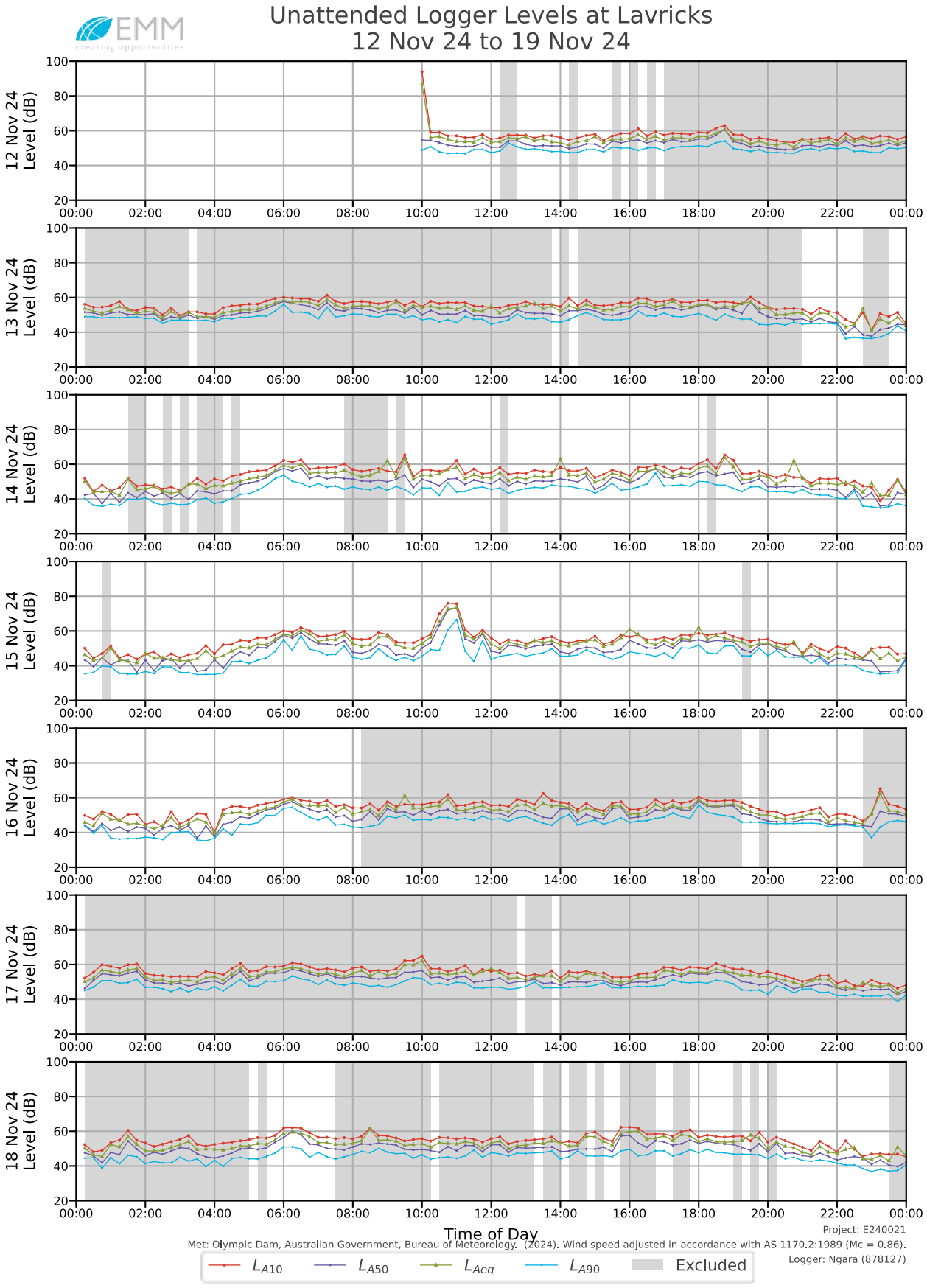


Figure A.1 Graphical results for R2 - Lavricks (1 of 2)

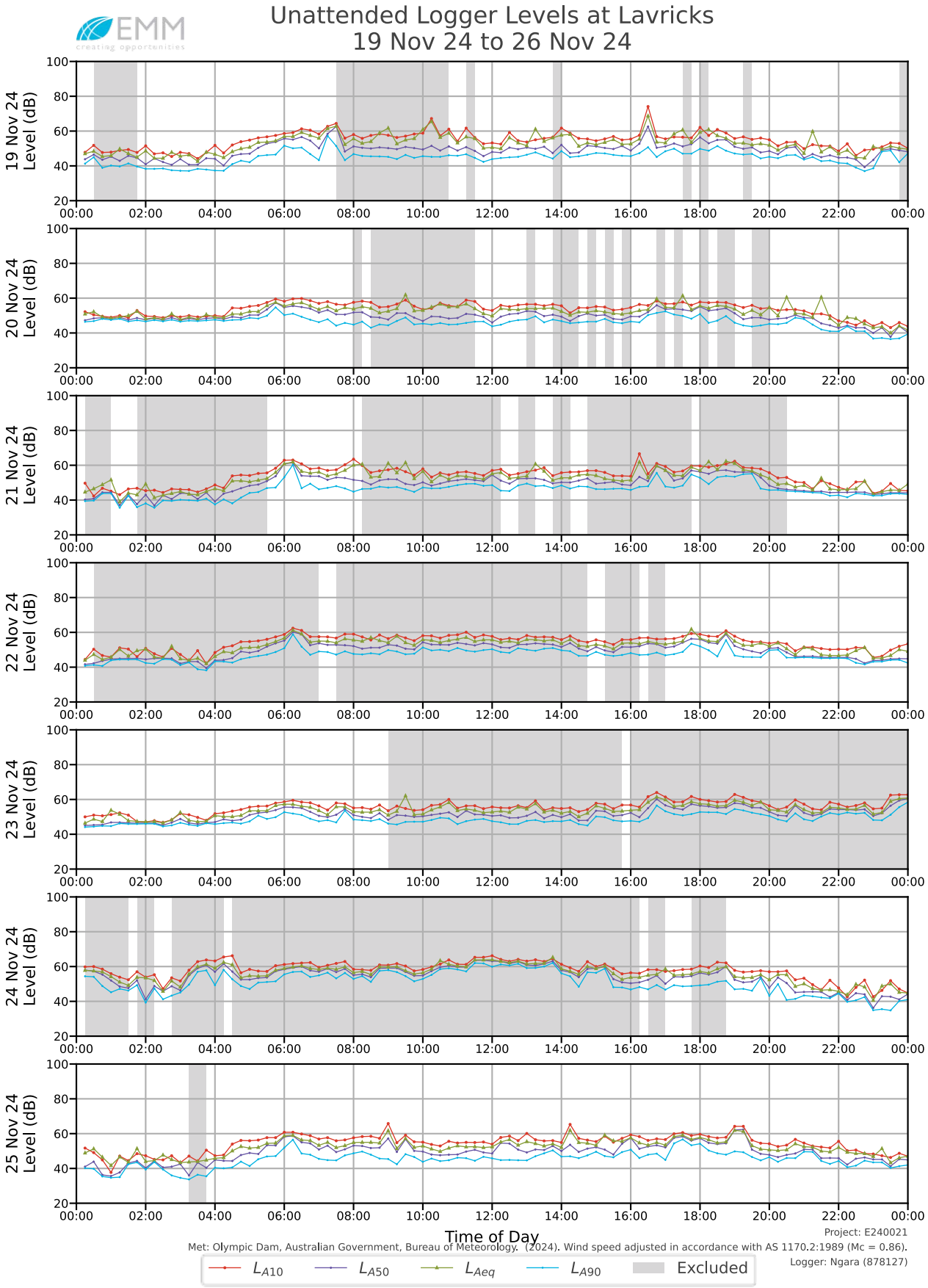


Figure A.2 **Graphical results for R2 - Lavricks (2 of 2)**

A.3.2 R6 – Olympic Dam Village

The noise logger at R6 was located adjacent to Olympic Dam Village located approximately 3 km south of Olympic Dam surface infrastructure. The logger was located with few obstructions in the northerly direction. At the time of logger deployment and collection, it was observed that ODV was operating under daily routine with workers, traffic and maintenance staff moving around the village. Weather conditions were clear, sunny (approximately 28 degrees) with light wind. Existing Olympic Dam mine site operations were not audible. Photograph A.2 displays the logger location at R6. Figure A.3 and Figure A.4 display graphical results for the measurement period.



Photograph A.2 Logger location for R6

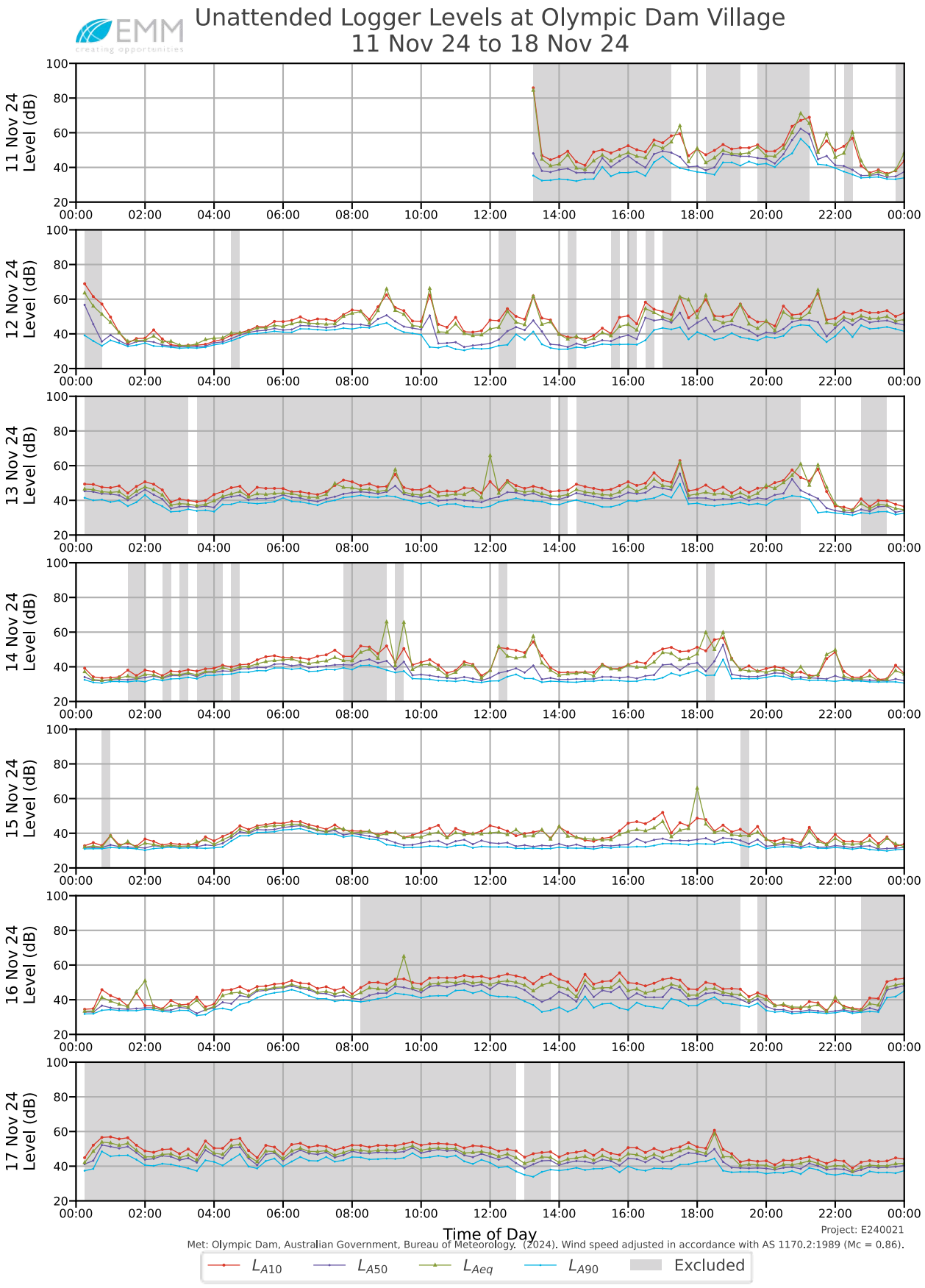


Figure A.3 Graphical results for R6 – Olympic Dam Village (1 of 2)

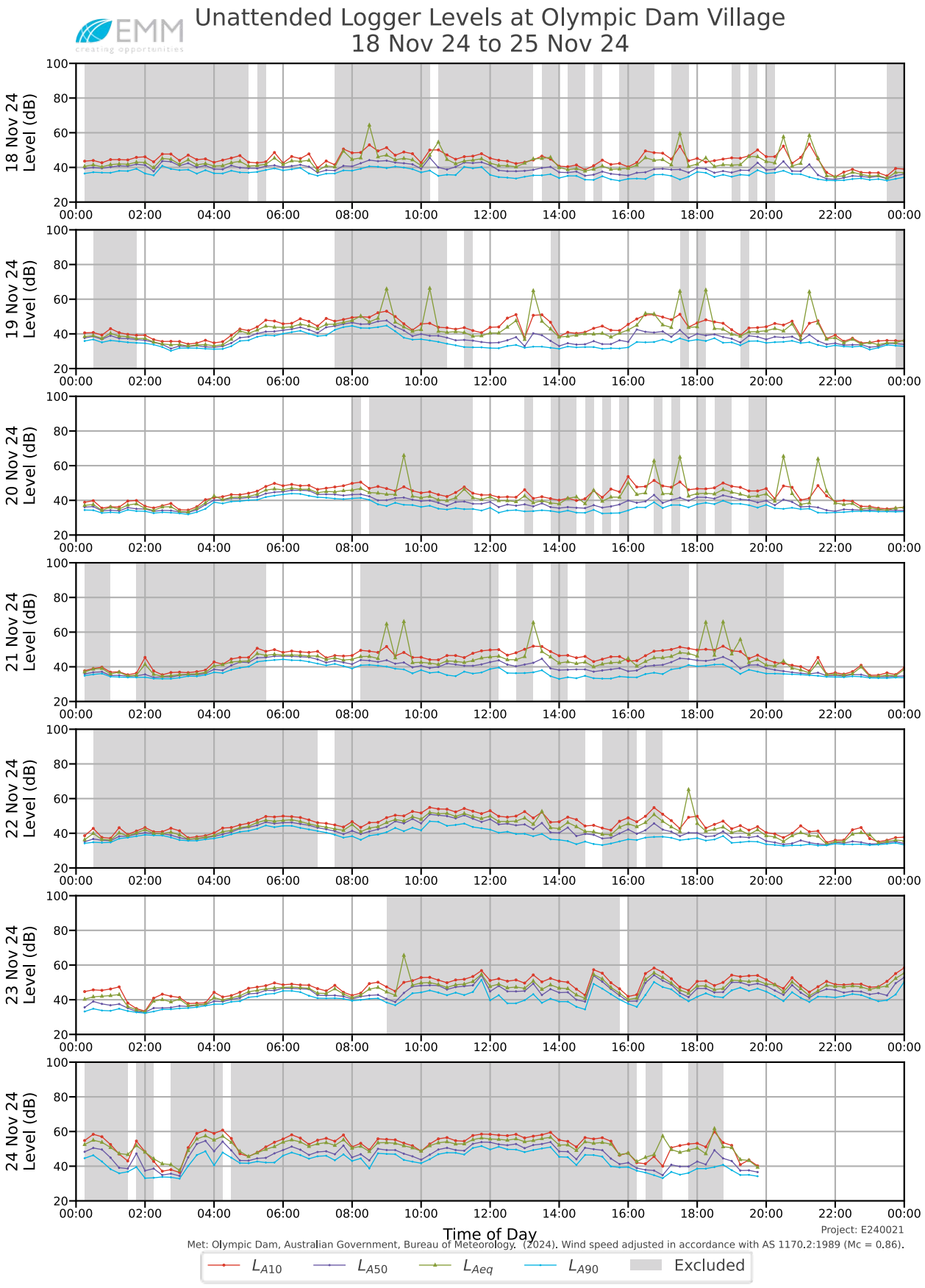


Figure A.4 Graphical results for R6 – Olympic Dam Village (2 of 2)

a Baseline aircraft noise

Analysis of aircraft flight schedules and noise logger data at R6 from 18 November to 22 November 2024 was completed to identify the maximum noise levels associated with aircraft movements. R6 is the most exposed noise sensitive receiver and so it is expected that aircraft noise levels will be lower at all other receivers. Table A.2 displays maximum noise levels of aircraft movements. The maximum sound levels associated with the aircraft movements were identified using 5-minute measurements and analysis of the associated audio. It is noted that all identified aircraft movements are associated with Embraer E190 aircraft.

Table A.2 Maximum noise levels identified as aircraft movements

Date	Movement	Measured L_{AFmax}, dB
18/11/2024 7:05 am – 7:10 am	Arrival	72
18/11/2024 7:55 am – 8:00 am	Take off	89
18/11/2024 9:50 am – 9:55 am	Take off	78
18/11/2024 4:55 pm – 5:00 pm	Take off	85
18/11/2024 7:55 pm – 8:00 pm	Take off	78
18/11/2024 8:40 pm – 8:45 pm	Take off	80
19/11/2024 7:45 am – 7:50 am	Arrival	70
19/11/2024 8:30 am – 8:35 am	Take off	90
19/11/2024 9:35 am – 9:40 am	Take off	89
19/11/2024 12:45 pm – 12:50 pm	Take off	88
19/11/2024 4:05 pm – 4:10 pm	Arrival	73
19/11/2024 5:00 pm – 5:05 pm	Take off	88
19/11/2024 5:40 pm – 5:45 pm	Take off	89
19/11/2024 8:00 pm – 8:45 pm	Take off	87
20/11/2024 8:55 am – 9:00 am	Take off	90
20/11/2024 4:05 pm – 4:10 pm	Arrival	88
20/11/2024 5:00 pm – 5:05 pm	Take off	90
20/11/2024 7:55 pm – 8:00 pm	Take off	89
20/11/2024 8:55 pm – 9:00 pm	Take off	87
21/11/2024 8:20 am – 8:25 am	Take off	89
21/11/2024 9:00 am – 9:05 am	Take off	90
21/11/2024 12:45 pm – 12:50 pm	Take off	90
21/11/2024 5:45 pm – 5:50 pm	Take off	90
21/11/2024 6:10 pm – 6:15 pm	Take off	88
22/11/2024 5:05 pm – 5:10 pm	Take off	89
Median LAmax	**Take off**	**89**
	Arrival	**73**

A.3.3 R10 – Roxby Downs Village

The noise logger at R10 was located adjacent to Roxby Downs Village located approximately 12 km south of Olympic Dam surface infrastructure, and 8 km south of Olympic Dam Village. The logger was located with few obstructions in the northerly direction. At the time of logger deployment and collection, it was observed that RDV was operating under daily routine with workers, traffic and maintenance staff moving around the village. Weather conditions were clear, sunny (approximately 26 degrees) with light wind. General light vehicle traffic on Olympic Dam Way was observed while the existing Olympic Dam mine site operations were not audible. Photograph A.3 displays the logger location. Figure A.5, Figure A.6 and Figure A.7 display graphical results for the measurement period.



Photograph A.3 Logger location for R10

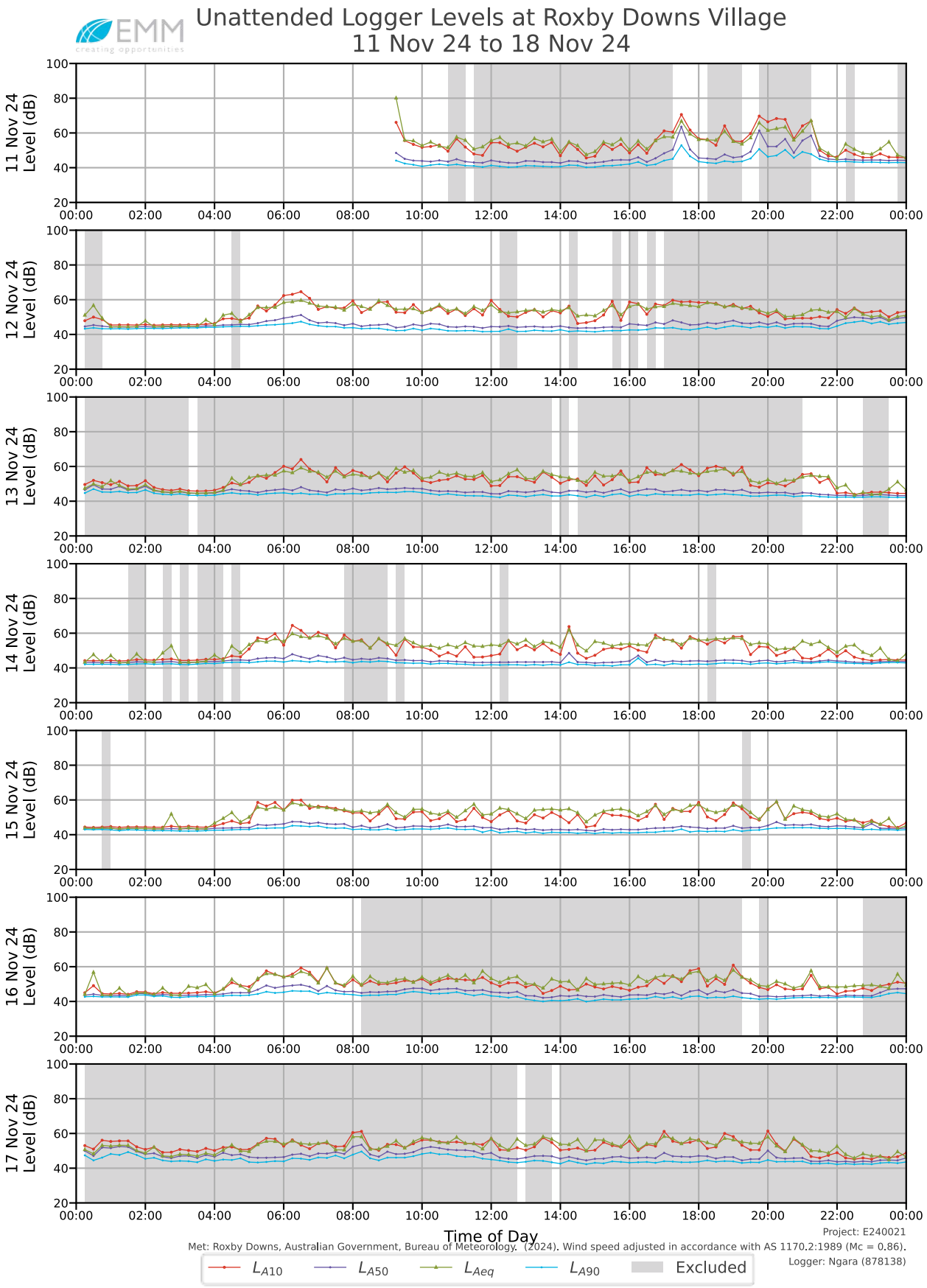


Figure A.5 **Graphical results at R10 – Roxby Downs Village (1 of 3)**

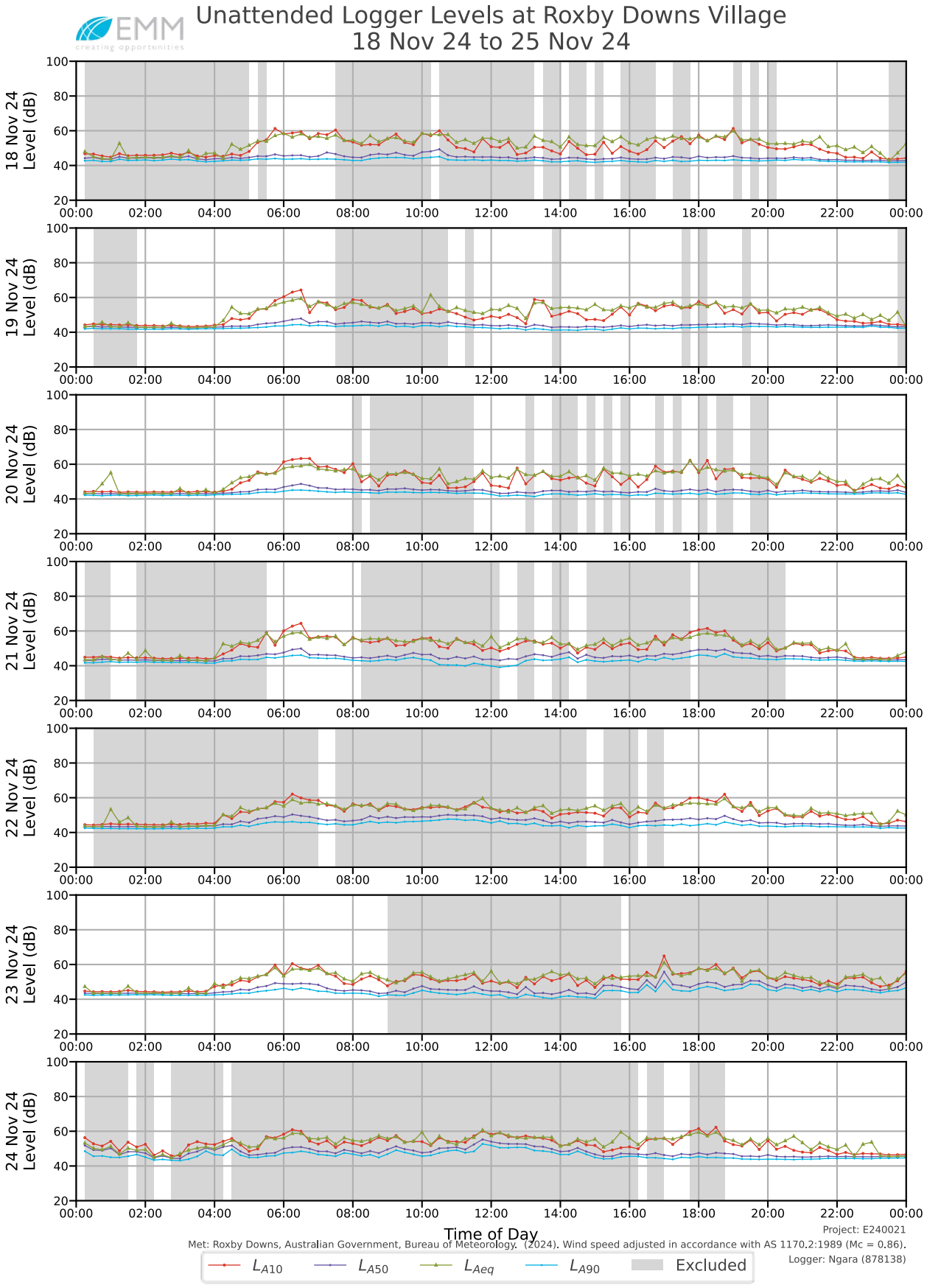


Figure A.6 **Graphical results at R10 – Roxby Downs Village (2 of 3)**

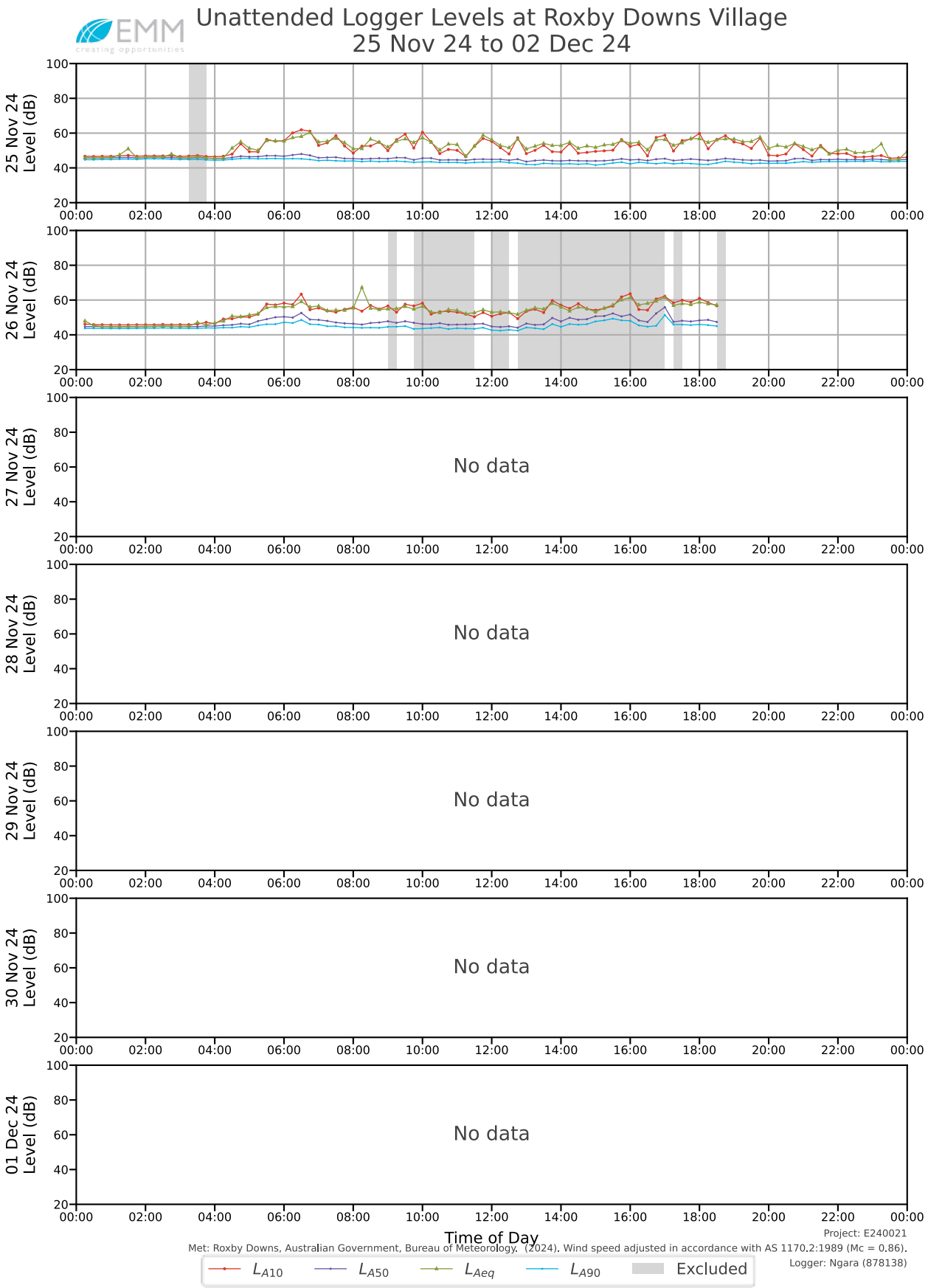


Figure A.7 **Graphical results at R10 – Roxby Downs Village (3 of 3)**

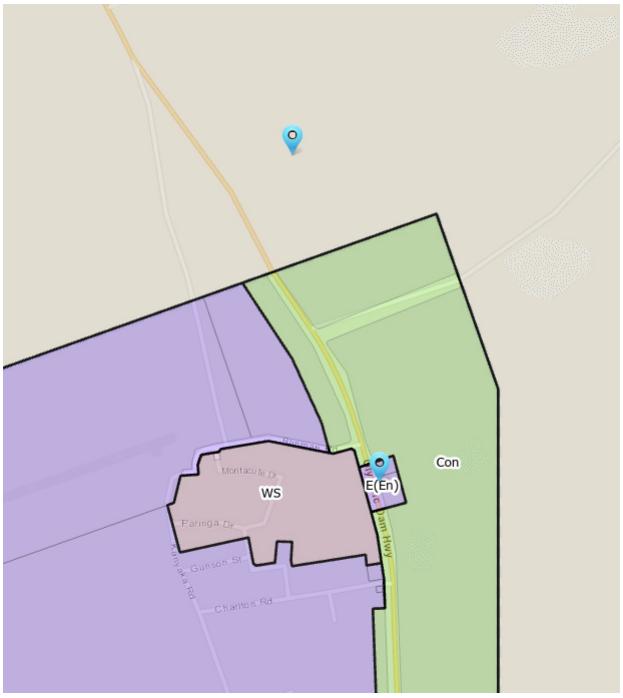
Appendix B

Calculation of indicative noise factors

EMM
creating opportunities

B.1 Calculation of indicative noise factors

R1, R2, R3, R4, R5



Source zone is Remote Areas, considered separately in the Indicative noise factor guidelines for the *Environment Protection (Commercial and Industrial Noise) Policy 2023.* Therefore, the INF is Day 57 dB(A) and Night 49 dB(A).

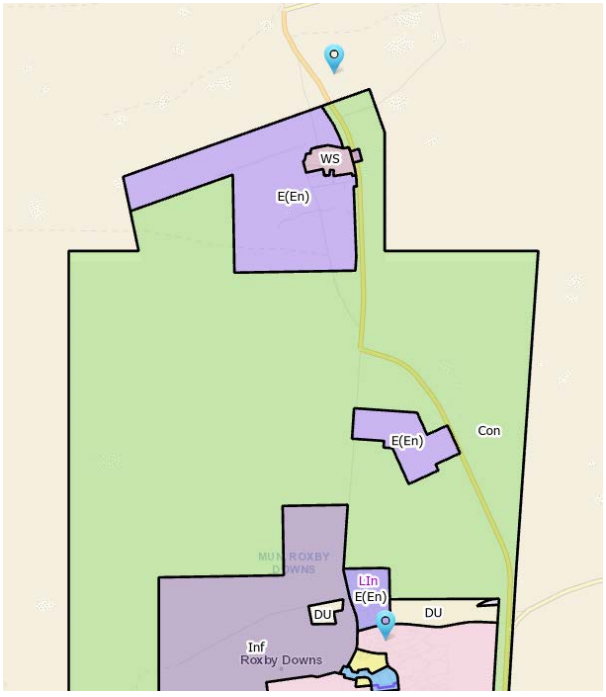
Receiver zone is Employment (Enterprise), considered General Industry. Therefore, the INF is Day 65 dB(A) and Night 55 dB(A).

There is an intervening zone over 100 metres in width between the source and receiver zones and so subclause 6 applies.

Source-Receiver INF is the receiver INF. Therefore, the INF is Day 65 dB(A) and Night 55 dB(A).

For new developments, the *Environment Protection (Commercial and Industrial Noise) Policy 2023* states that noise should not exceed the INF minus 5 dB(A). Therefore the resultant criteria for new developments is Day 60 dB(A) and Night 50 dB(A).

R8, R9



Source zone is Remote Areas, considered separately in the Indicative noise factor guidelines for *the Environment Protection (Commercial and Industrial Noise) Policy 2023*. Therefore, the INF is Day 57 dB(A) and Night 49 dB(A).

Receiver zone is Neighbourhood, within the Roxby Downs subzone, considered Residential. Therefore, the INF is Day 52 dB(A) and Night 45 dB(A).

There is an intervening zone over 100 m in width between the source and receiver zones and so subclause 6 applies.

Source-Receiver INF is the receiver INF. Therefore, the INF is Day 52 dB(A) and Night 45dB(A).

For new developments, the *Environment Protection (Commercial and Industrial Noise) Policy 2023* states that noise should not exceed the INF minus 5 dB(A). Therefore the resultant criteria for new developments is Day 47 dB(A) and Night 40 dB(A).

Appendix C

Surface infrastructure sound power levels

EMM
creating opportunities

C.1 Baseline scenario

Table C.1 and Table C.2 display baseline processing plant and moving plant noise sources included in noise modelling. Moving plant noise sources have been assumed to be consistent with those included in *Olympic Dam Resource Development Strategy Environmental Impact Statement – Noise and Vibration Assessment* by Resonate (2020).

Table C.1 Baseline processing plant scenario noise sources

ID	Noise source	Type of source	Modelled height	Sound power level, dB(A)	Data source
EF01	Furnace (Anode Furnaces, Casting Wheel, Flash Converting Furnace, Flux Trim Bin, Flash Converting Furnace Matte Burner, Flash Smelting Furnace, Flash Smelting Furnace Concentrate Burner, Flash Smelting Furnace Feed System)	Façade	20	133	WOR-1197893-VC-0002_B
EF02	Electrorefinery	Point inside façade	10	122	WOR-1197893-VC-0002_B
EF03	Cooling Towers	Façade	10	129	WOR-1197893-VC-0002_B
EF04	Electrostatic Precipitator	Façade	25	130	WOR-1197893-VC-0002_B
EF05	Anode Furnace Offgas System	Façade	15	126	WOR-1197893-VC-0002_B
EF06	Wet Gas Cleaning	Façade	20	112	WOR-1197893-VC-0002_B
EF07	Concentrate Processing (Concentrate Bedding Plant, Granulated Matte Storage)	Area	2	111	WOR-1197893-VC-0002_B
EF08	Concentrate Receival (Concentrate Receival and Storage, Concentrate Storage Shed)	Area	2	125	WOR-1197893-VC-0002_B
EF09	Acid Plant	Point	5	108	EMM on-site measurements
EF10	Precious Metals Recovery	Area	2	124	WOR-1197893-VC-0002_B
EF11	Concentrate Leach Filtration	Point	2	112	WOR-1197893-VC-0002_B
EF12	Dust Day Bin	Point	2	101	WOR-1197893-VC-0002_B
EF13	Fuel Storage and Distribution	Point	2	104	WOR-1197893-VC-0002_B
EF14	Oxygen Plant	Point	2	108	EMM on-site measurements
EF15	Slimes (Slimes Leaching, Slimes Treatment)	Point	2	111	WOR-1197893-VC-0002_B
EF16	Neutral Concentrate Filtration	Point	2	118	WOR-1197893-VC-0002_B
EF17	Steam Dryer	Point	5	126	WOR-1197893-VC-0002_B
EF18	Dryer Feed Bins	Point	2	116	WOR-1197893-VC-0002_B
EF19	Slag Cooling Area	Point	2	106	WOR-1197893-VC-0002_B
EF20	Regrind Mill	Point	2	114	Olympic Dam Expansion EIS 2008

ID	Noise source	Type of source	Modelled height	Sound power level, dB(A)	Data source
EF21	ANI Mill	Point	2	107	Olympic Dam Expansion EIS 2008
EF22	Mill 2	Point	2	116	Olympic Dam Expansion EIS 2008
EF23	Mill 2 Vibrating Screen	Point	2	100	Olympic Dam Expansion EIS 2008
EF24	Mill 3	Point	2	115	Olympic Dam Expansion EIS 2008
EF25	Mill 3 Vibrating Screen	Point	2	103	Olympic Dam Expansion EIS 2008
EF26	Flotation Air Pumps	Point	2	99	Olympic Dam Expansion EIS 2008
EF27	Steam Trap	Point	10	114	Olympic Dam Expansion EIS 2008
EF28	Shaft Furnace Stack	Point	20	112	Olympic Dam Expansion EIS 2008
EF29	Desalination Plant	Point	2	95	Olympic Dam Expansion EIS 2008
EF30	Fresh air raise bores	Point	4	93	Olympic Dam Expansion EIS 2008
EF31	Exhaust raise bores	Point	2	115	Olympic Dam Expansion EIS 2008

The following noise sources which were not modelled, but were detailed in WOR-1197893-VC-0002_B include:

- Concentrate Leach – no noise sources.
- Lime Silo – not a significant contributor and no indication of present location.
- Demin Water – no data and unlikely to be a significant contributor.
- Flash Converting Furnace Feed Storage – no data and unlikely to be a significant contributor.
- Pneumatic Conveyors – not a significant contributor and no indication of present location.
- Export Acid Tank - not a significant contributor and no indication of present location.

Table C.2 Baseline moving plant noise sources

Noise source	Quantity	Sound power level, dB(A)	Data source
EM01 – SMAD Crushing			
MT65 Truck	1[1]	125	Manufacturer data
Crusher (mobile)	2	113	EMM database
Excavator	2	117	BS 5228
EM02 – Surface including smelter			
Bus	1	84	OD-RDS EIS
Crusher (mobile)	1	113	EMM database
Excavator	2	117	BS 5228
Graders	1	116	EMM database
Light vehicles	153	82	EMM database
Loader	2	110	BS 5228
Loader (backhoe)	1	111	EMM database
Loader (wheeled) (IT)	2	110	BS 5228
Screening plant	1	114	EMM database
Truck	2	108	EMM database
Truck (dump)	1	116	BS 5228
Truck (fuel)	1	108	EMM database
Truck (water)	1	108	EMM database
EM03 – Quarry and Mine End			
Bus	2	84	OD-RDS EIS
Cleaner (pressure)	1	110	EMM database
Compressor	6	103	BS 5228
Crane	1	115	EMM database
Crusher (mobile)	4	113	EMM database
Dozer, track	3	111	BS 5228
Drill	1	121	BS 5228
Excavator	4	117	BS 5228
Forklift	2	92	EMM database
Generator (mobile)	2	93	BS 5228
Loader (wheeled)	6	110	BS 5228
Loader (wheeled) (IT)	1	110	BS 5228
LV	16	82	EMM database
Pump, dust suppression	1	111	OD-RDS EIS

Noise source	Quantity	Sound power level, dB(A)	Data source
Screening plant	1	114	EMM database
Stacker	4	112	EMM database
Telehandler	1	92	EMM database
Lighting tower	14	77	EMM database
Trailer (welder)	1	101	BS 5228
Truck	3	108	EMM database
Truck (dump)	4	116	BS 5228
Truck (explosive)	1	108	EMM database
Truck (prime mover)	10	108	EMM database
Truck (water)	1	108	EMM database
Truck (crane)	1	106	EMM database
Welder (mobile)	1	101	BS 5228
Work platform	2	98	EMM database
EM04 and EM05 – TRS Wall Raise (South and North)			
Backhoe	1	111	EMM database
Compressor	1	103	BS 5228
Excavator	3	117	BS 5228
Grader	1	116	EMM database
Light vehicles	3	82	EMM database
Loader (wheeled) (IT)	1	110	BS 5228
Roller	1	112	BS 5228
Truck (prime mover)	4	108	EMM database
Truck (dump)	1	116	BS 5228
Truck (service)	1	108	EMM database
Truck (water)	1	108	EMM database

Notes: 1. Only one truck assumed at the surface per 15 minute period.

C.2 Construction scenario

Table C.3 displays construction equipment included in noise modelling. Construction noise sources have been assumed to be consistent with those included in *Olympic Dam Resource Development Strategy Environmental Impact Statement – Noise and Vibration Assessment* by Resonate (2020).

Table C.3 Construction noise sources

Noise source	Quantity	Sound power level, dB(A)	Data source
CM01 – Surface – Processing Plant			
Crane	1	115	EMM database
Concrete pump	1	110	BS 5228
Excavator	2	117	BS 5228
Generator (mobile)	2	90	BS 5228
Hand tools	5	94	EMM database
Light vehicles	8	79	EMM database
Lighting tower	4	77	EMM database
Truck (service)	2	108	EMM database
CM01 – Surface – Laydown Areas			
Crane	2	115	EMM database
Excavator	2	117	BS 5228
Generator (mobile)	2	90	BS 5228
Lighting tower	4	77	EMM database
Truck (service)	2	108	EMM database
CM01 – Surface – Demolition			
Excavator	3	117	BS 5228
Generator (mobile)	2	90	BS 5228
Hand tools	5	94	EMM database
Lighting tower	4	77	EMM database
Truck (service)	2	108	EMM database

C.3 SRE Project (Stage 2, 2,000 ktpa) scenario

Table C.1 displays SRE Project processing plant and moving plant noise sources included in noise modelling. Moving plant noise sources have been assumed to be consistent with those included in *Olympic Dam Resource Development Strategy Environmental Impact Statement – Noise and Vibration Assessment* by Resonate (2020).

Table C.4 SRE Project (Stage 2, 2000 ktpa) processing plant scenario noise sources

ID	Noise source	Type of source	Modelled height	Sound power level, dB(A)	Data source
FF01	Furnace (Existing furnace infrastructure + Anode Furnaces, Casting Wheel, Flash Converting Furnace, Flash Converting Furnace Matte Burner)[1]	Façade	20	133	WOR-1197893-VC-0002_B edited by HFJV for updated process flow
FF02	Electrorefinery	Façade	10	122	WOR-1197893-VC-0002_B edited by HFJV for updated process flow
FF03	Flux Trim Bin	Area	2	101	WOR-1197893-VC-0002_B edited by HFJV for updated process flow
FF04	Steam Dryers	Point	5	125	WOR-1197893-VC-0002_B edited by HFJV for updated process flow
FF05	Anode Furnace Offgas System	Façade	10	126	WOR-1197893-VC-0002_B edited by HFJV for updated process flow
FF06	Oxygen Plant Cooling Tower	Façade	10	123	WOR-1197893-VC-0002_B edited by HFJV for updated process flow
FF07	Smelter Cooling Tower	Façade	10	128	WOR-1197893-VC-0002_B edited by HFJV for updated process flow
FF08	Electrostatic Precipitator	Façade	10	131	WOR-1197893-VC-0002_B edited by HFJV for updated process flow
FF09	Flash Smelting Furnace (Flash Smelting Furnace,Flash Smelting Furner Concentrate Burner, Flash Converting Furnace Feed System)	Façade	20	132	WOR-1197893-VC-0002_B edited by HFJV for updated process flow
FF10	Granulated Matte Storage	Area	2	113	WOR-1197893-VC-0002_B edited by HFJV for updated process flow
FF11	Oxygen Plant 1	Area	2	108	EMM on-site measurements
FF12	Oxygen Plant 2	Area	2	108	EMM on-site measurements
FF13	Precious Metals Recovery Upgrade	Area	2	124	WOR-1197893-VC-0002_B edited by HFJV for updated process flow

ID	Noise source	Type of source	Modelled height	Sound power level, dB(A)	Data source
FF14	Concentrate Leach Filtration	Area	2	117	WOR-1197893-VC-0002_B edited by HFJV for updated process flow
FF15	Acid Plant	Area	5	108	EMM on-site measurements
FF16	Wet Gas Cleaning	Façade	10	112	WOR-1197893-VC-0002_B edited by HFJV for updated process flow
FF17	Dryer Feed Bins	Point	2	112	WOR-1197893-VC-0002_B edited by HFJV for updated process flow _B
FF18	Loesche Mill	Façade	10	137	WOR-1197893-VC-0002_B edited by HFJV for updated process flow
FF19	Flash Smelting Furnace Slag Pits	Area	2	116	WOR-1197893-VC-0002_B edited by HFJV for updated process flow
FF20	Slimes Leaching and Treatment	Area	2	111	WOR-1197893-VC-0002_B edited by HFJV for updated process flow
FF21	Neutral Concentrate Filtration	Area	2	110	WOR-1197893-VC-0002_B edited by HFJV for updated process flow
FF22	Concentrate Receival (Concentrate Receival and Storage, Concentrate Storage Shed)	Area	2	125	WOR-1197893-VC-0002_B edited by HFJV for updated process flow
FF23	Concentrate Bedding Plant	Area	2	102	WOR-1197893-VC-0002_B
FF24	Matte Granulation	Area	2	126	WOR-1197893-VC-0002_B edited by HFJV for updated process flow
FF25	Slag Granulation	Area	2	116	WOR-1197893-VC-0002_B edited by HFJV for updated process flow
FF26	Flash Smelting Furnace Slag Concentrator	Area	2	119	HFJV inputs to WOR-1197893-VC-0002_B
FF27	Flash Converting Furnace Slag Crushing	Area	2	122	HFJV inputs to WOR-1197893-VC-0002_B
FF28	Plant air compressors	Area	2	113	HFJV inputs to WOR-1197893-VC-0002_B
FF29	Plant air compressors	Area	2	113	HFJV inputs to WOR-1197893-VC-0002_B

Notes: 1. Furnace building in SRE Project scenario has replaced baseline furnace building.

The following noise sources which were not modelled, but were detailed in WOR-1197893-VC-0002_B include:

- Concentrate Leach – no noise sources.
- Lime Silo – not a significant contributor and no indication of location.
- Demin Water – no data and unlikely to be a significant contributor.
- Flash Converting Furnace Feed Storage – no data and unlikely to be a significant contributor.
- Fuel Storage and Distribution – no indication of location and unlikely to be a significant contributor.
- Pneumatic Conveyors – not a significant contributor and no indication of location.
- Export Acid Tank – not a significant contributor and no indication of present location.

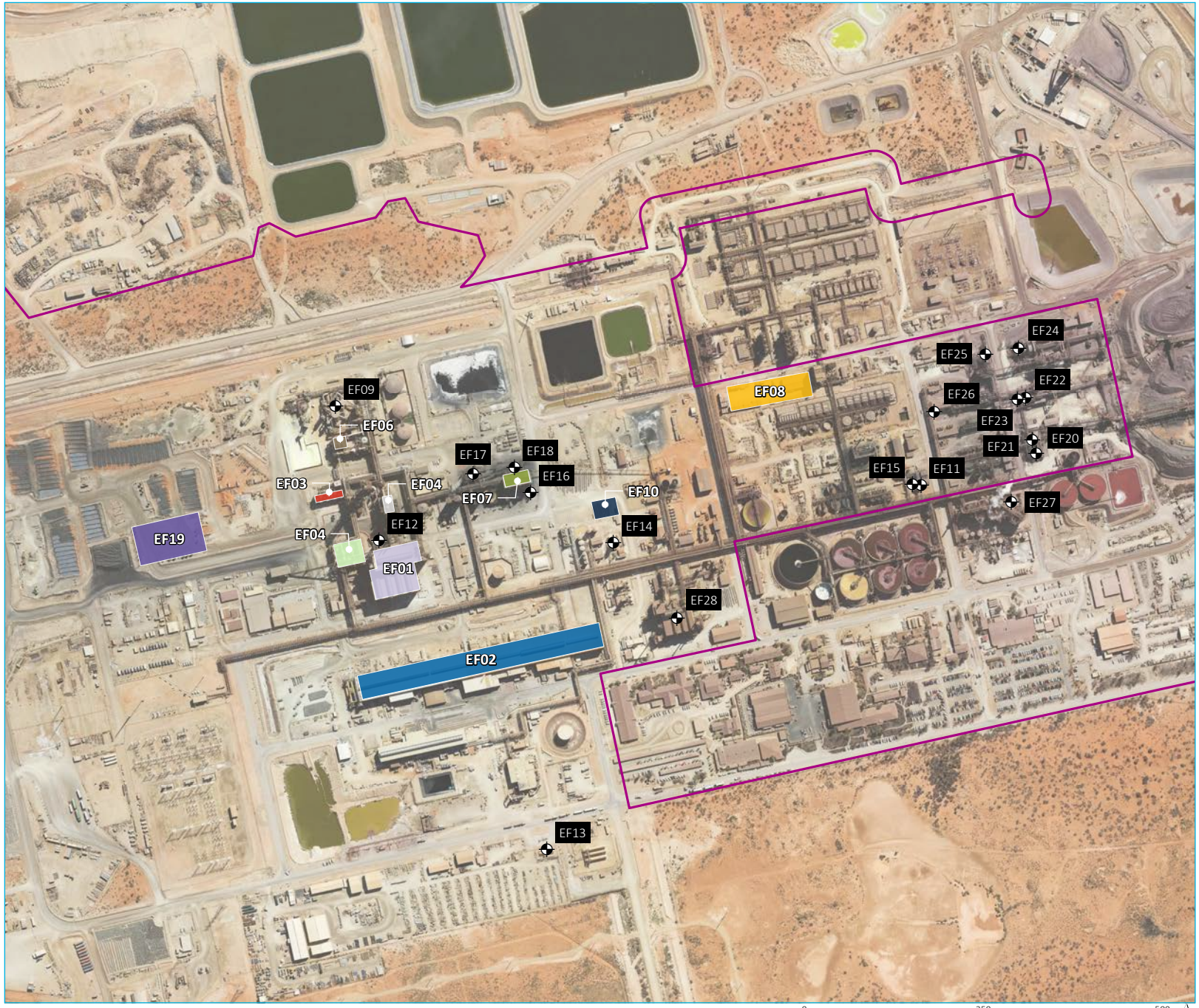
Table C.5 SRE Project moving plant noise sources

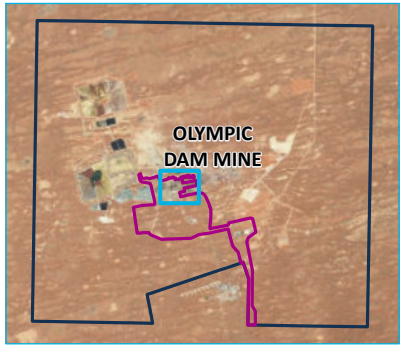
Noise source	Quantity	Sound power level, dB(A)	Data source
FM01 – Surface including smelter			
Bus	2	84	OD-RDS EIS
Crusher (mobile)	1	113	EMM database
Excavator	3	117	BS 5228
Graders	1	116	EMM database
Light vehicles	16	82	EMM database
Loader	3	110	BS 5228
Loader (backhoe)	1	111	EMM database
Loader, Wheel (IT)	4	110	BS 5228
Screening Plant	2	114	EMM database
Truck	2	108	EMM database
Truck (dump)	2	116	BS 5228
Truck (fuel)	1	108	EMM database
Truck (water)	1	108	EMM database

Appendix D

Surface infrastructure noise locations

EMM
creating opportunities





KEY

- Special Mining Lease
- SRE Project Area- SML Area
- Point sources

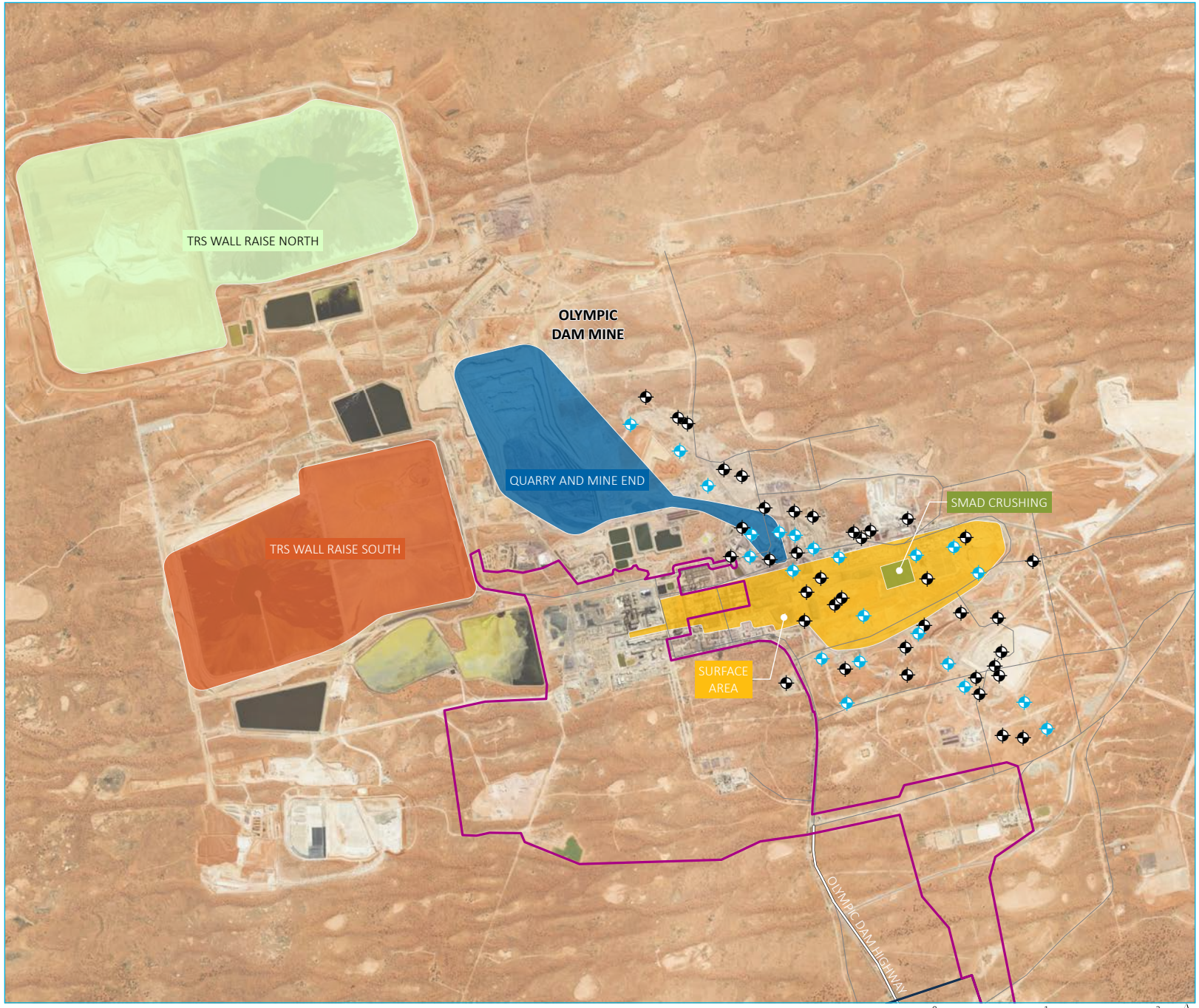
Area/Facade sources

- Concentrate processing
- Concentrate receival
- PMR
- Slag cooling area
- Furnace
- Refinery
- Cooling tower
- EP
- AF offgas
- Wet gas

Baseline scenario noise sources - processing plant

BHP SRE Project
Noise and Vibration Impact Assessment
Figure D.1

EMM
creating opportunities



KEY

- Special Mining Lease
- SRE Project Area- SML Area
- Raise bore - fresh air
- Raise bore - exhaust

Baseline moving plant noise source

- Quarry and mine end
- SMAD crushing
- Surface area
- TRS wall raise north
- TRS wall raise south

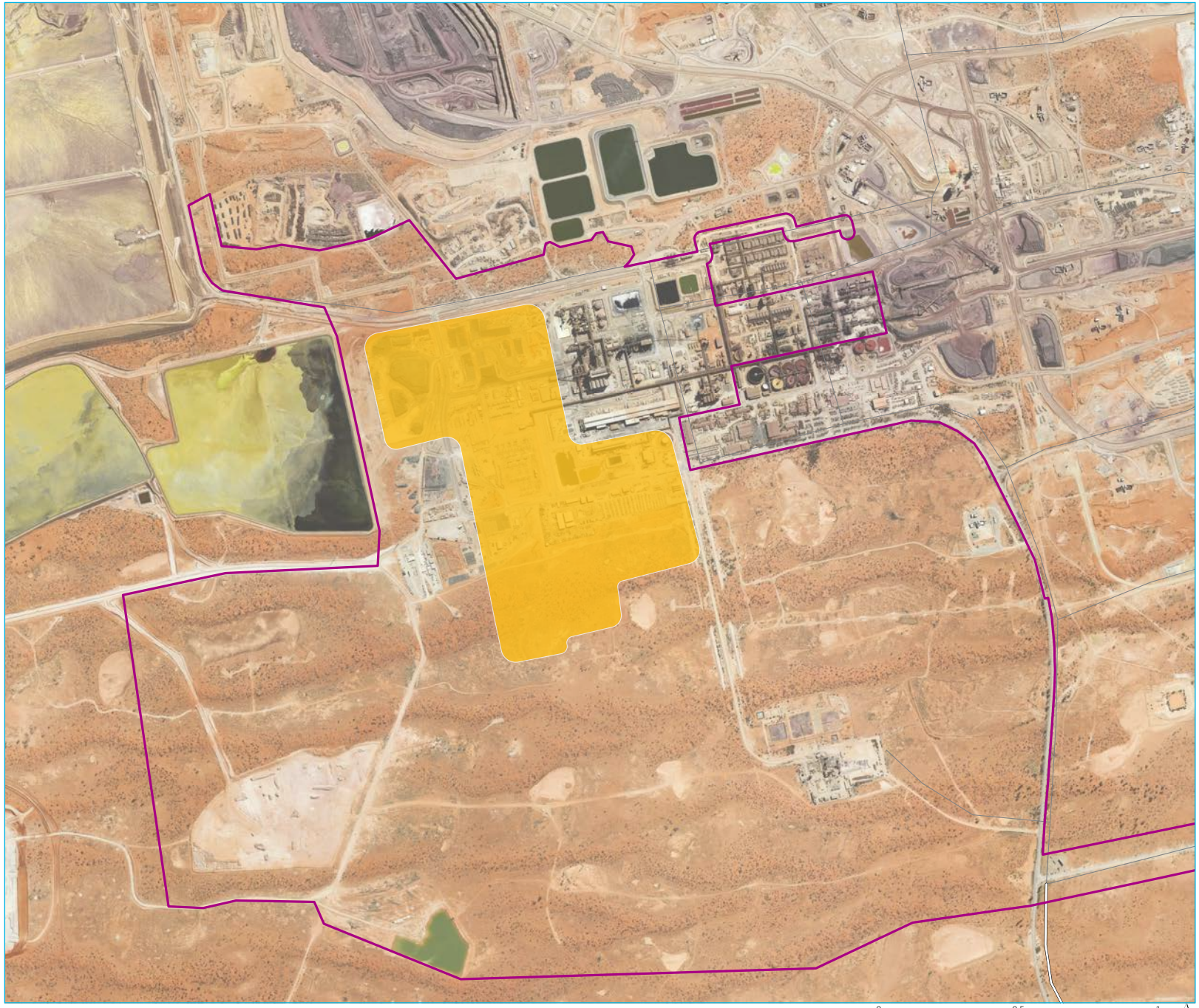
Existing environment

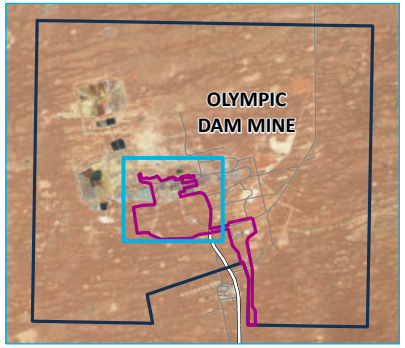
- Major road
- Minor road

Baseline scenario noise sources - moving plant and raise bores

BHP SRE Project
Noise and Vibration Impact Assessment
Figure D.2

EMM
creating opportunities





KEY

- Special Mining Lease
- SRE Project Area- SML Area
- SRE Project construction noise sources

Existing environment

- Major road
- Minor road

0 0.5 1 km

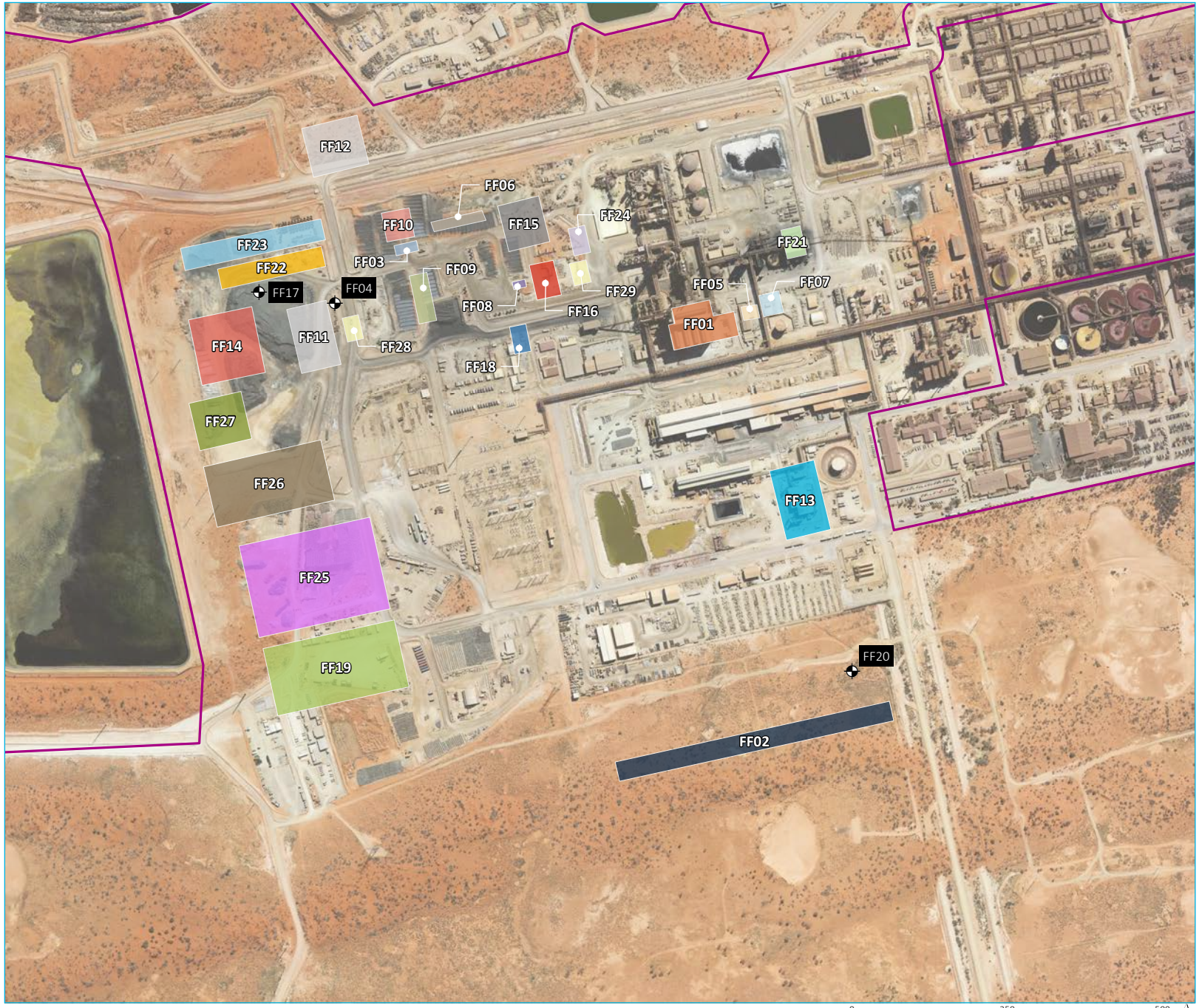
GDA2020 MGA Zone 53

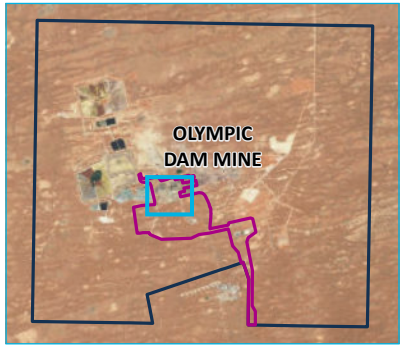
N

SRE Project construction scenario noise sources

BHP SRE Project
Noise and Vibration Impact Assessment
Figure D.3

EMM
creating opportunities





KEY

- Special Mining Lease
- SRE Project Area- SML Area
- Noise source location

Future infrastructure area

- Acid plant
- Concentrate bedding plant
- Concentrate leach filtration
- Concentrate receival and storage
- FCF slag crushing circuit
- FSF slag concentrator
- FSF slag pits
- Flux trim bin
- Granulated matte storage
- Matte granulation
- Neutral concentrate filtration
- Oxygen plant
- Plant air compressors
- Precious metals recovery
- Slag granulation
- AF offgas system
- Electrorefinery
- Electrostatic pPrecipitator
- Flash smelting furnace
- Furnace
- Loesche mill
- Oxygen plant cooling tower
- Smelter cooling tower
- Wet gas cleaning

SRE Project (Stage 2, 2000 ktpa) operational noise sources

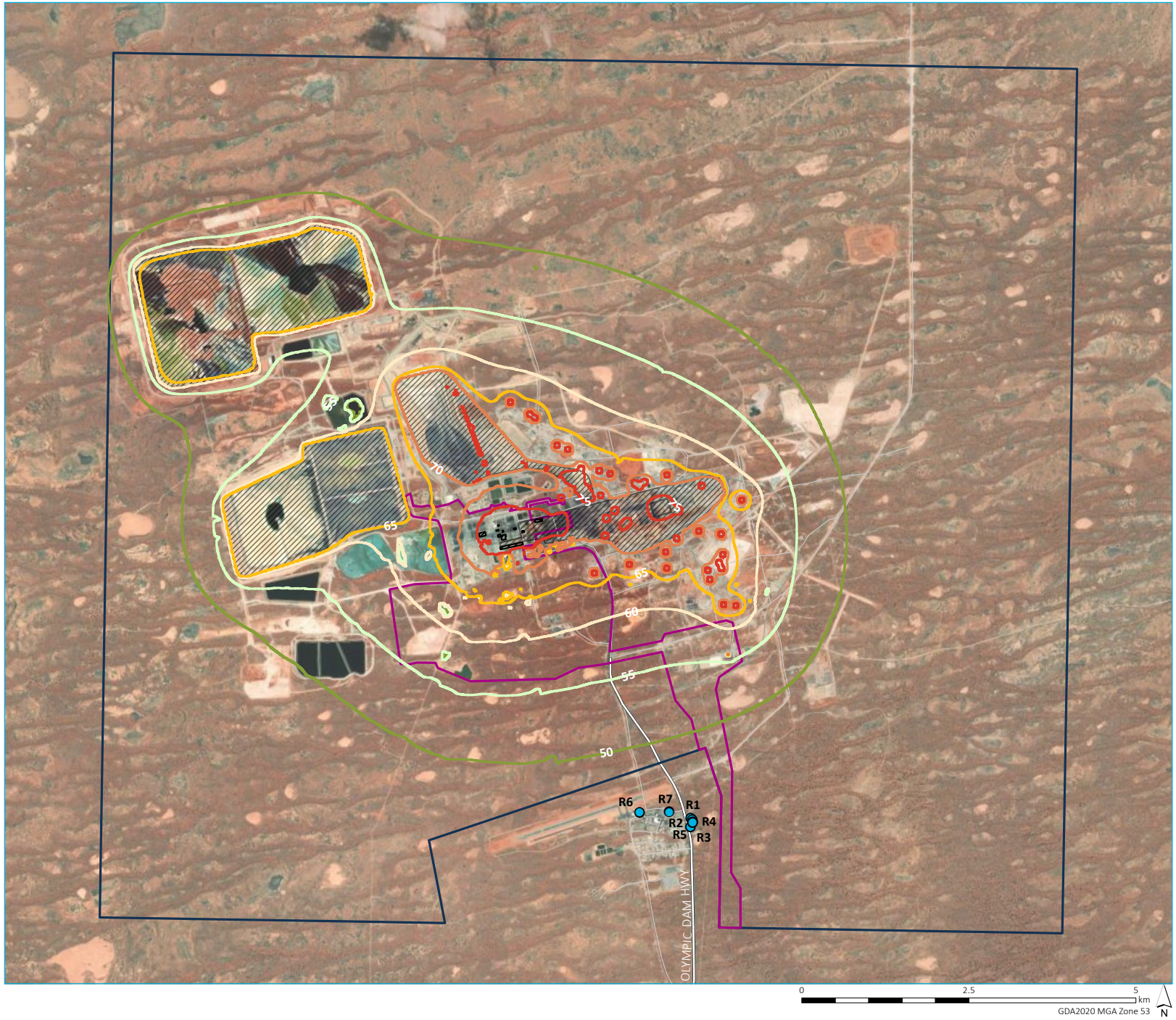
BHP SRE Project
Noise and Vibration Impact Assessment
Figure D.4

EMM
creating opportunities

Appendix E

Surface infrastructure noise modelling contours

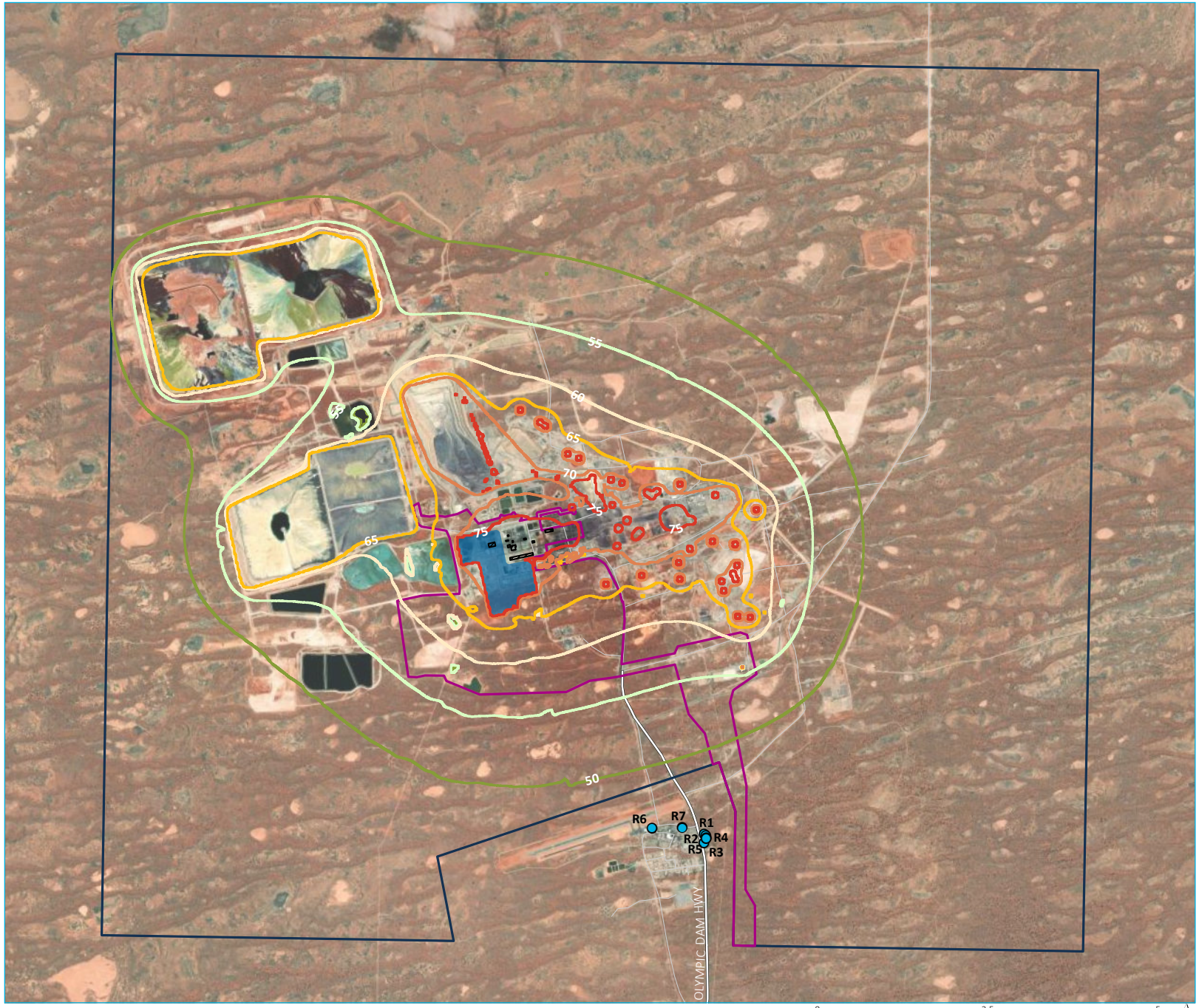
EMM
creating opportunities



Baseline scenario noise contours

BHP SRE Project
Noise and Vibration Impact Assessment
Figure E.1

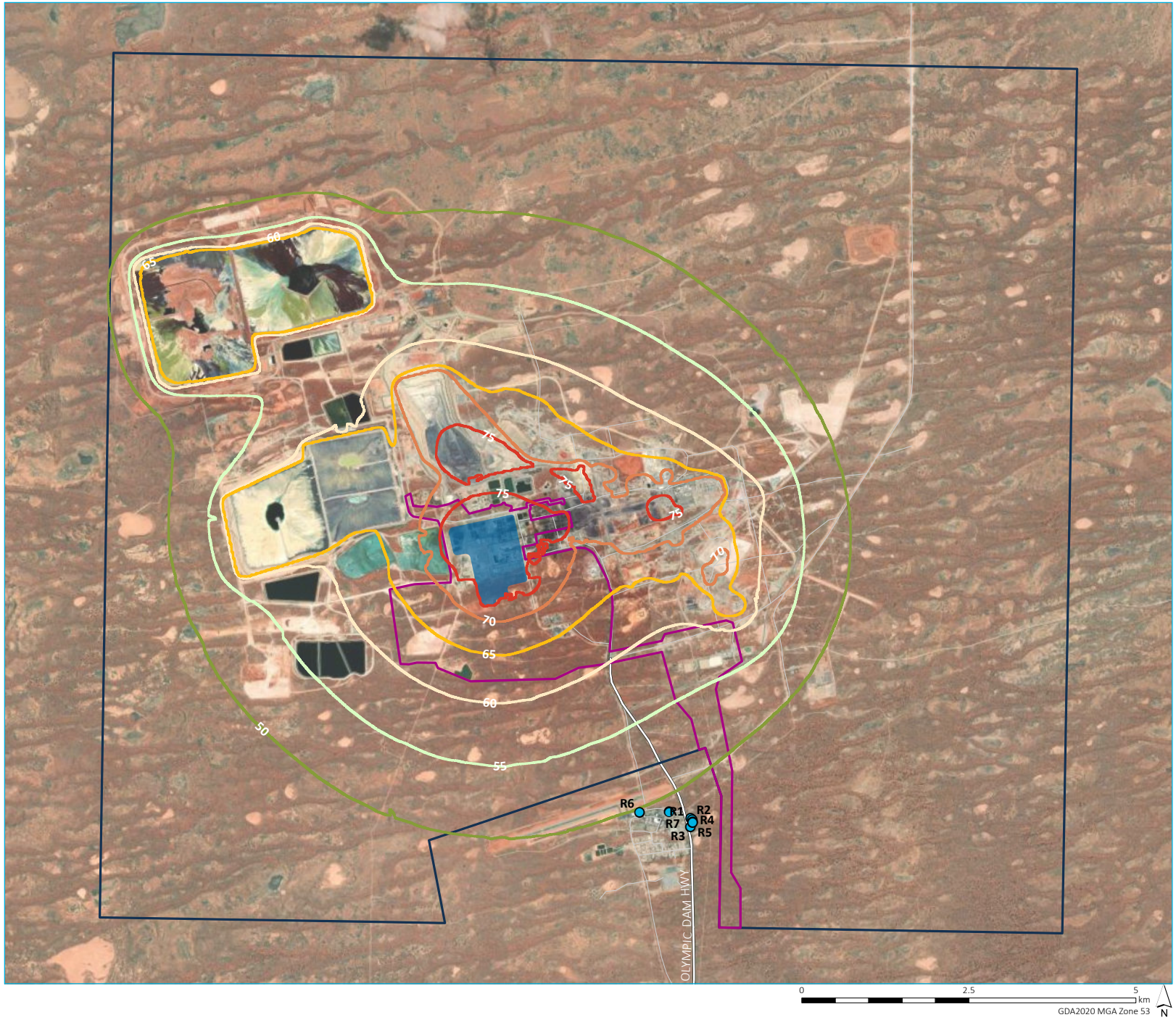
EMM
creating opportunities



SRE Project construction noise contours

BHP SRE Project
Noise and Vibration Impact Assessment
Figure E.2

EMM
creating opportunities



SRE Project (Stage 2, 2000 ktpa) operational noise contours

BHP SRE Project
Noise and Vibration Impact Assessment
Figure E.3

EMM
creating opportunities

Appendix F
Assessment Requirements

EMM
creating opportunities

F.1 Assessment requirements

Noise and vibration assessment requirements and cross reference to where these are addressed in this report are outlined in Table F.1 below.

Table F.1 Assessment requirements

Environmental attributes	Reference	Assessment requirements	Cross reference
Noise/Vibration	AEQ2	Describe and illustrate the locations of any noise and vibration sensitive receivers both proposed or existing (including terrestrial fauna). Also describe any other environmental values that could be impacted by noise emitted from or to the development.	Section 2.1.4
Noise/Vibration	AEQ2	Describe sources and characteristics of noise and vibration that would be emitted during the construction, commissioning, operation, upset conditions, and closure of the development.	Section 3.2.3 and Appendix C
Noise/Vibration	AEQ2	Model noise and vibration impacts from the proposed development and provide an assessment report of the anticipated noise and vibration emissions. Where applicable, the assessment must contain strategies to mitigate noise and vibration impacts.	Section 3.2.4
Noise/Vibration	AEQ2	The noise assessment must demonstrate how the *Environment Protection (Commercial & Industrial Noise) Policy 2023* (Noise EPP) and Section 25 of the *Environment Protection Act 1993* (General Environmental Duty) would be met. For vibration, the report must compare vibration outputs to the German (DIN 4150) or British (BS 7385) standards and/or the NSW vibration standard Assessing Vibration – A Technical Guideline, Department of Environment and Conservation NSW (2006).	Section 3.2.1 and 3.2.4

Australia

SYDNEY
Level 10 201 Pacific Highway
St Leonards NSW 2065
T 02 9493 9500

NEWCASTLE
Level 3 175 Scott Street
Newcastle NSW 2300
T 02 4907 4800

BRISBANE
Level 2 95 North Quay
Brisbane QLD 4000
T 07 3648 1200

CANBERRA
Suite 2.04 Level 2
15 London Circuit
Canberra City ACT 2601

ADELAIDE
Level 4 74 Pirie Street
Adelaide SA 5000
T 08 8232 2253

MELBOURNE
Suite 9.01 Level 9
454 Collins Street
Melbourne VIC 3000
T 03 9993 1900

PERTH
Suite 3.03
111 St Georges Terrace
Perth WA 6000
T 08 6430 4800

Canada

TORONTO
2345 Yonge Street Suite 300
Toronto ON M4P 2E5
T 647 467 1605

VANCOUVER
2015 Main Street
Vancouver BC V5T 3C2
T 604 999 8297

CALGARY
700 2nd Street SW Floor 19
Calgary AB T2P 2W2

linkedin.com/company/emm-consulting-pty-limited

emmconsulting.com.au

BHP