

Central Coast Campus - Detailed Site Investigation

305 Mann Street, Gosford NSW

20232408.001A

15 December 2022



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Central Coast Campus - Detailed Site Investigation

305 Mann Street, Gosford NSW 2250

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EXECUTIVE SUMMARY

Kleinfelder Australia Pty Ltd (Kleinfelder) was commissioned by The University of Newcastle (UoN) to undertake a Detailed Site Investigation (DSI) at the site identified as 305 Mann Street, Gosford (herein referred to as the 'Site'). The Site layout is presented in **Figure 1, Appendix A**.

It is understood that UoN is seeking to acquire the site for redevelopment into the Central Coast Campus of the University of Newcastle, which comprises a four storey educational establishment building on the western portion of the site, retail, on-site parking and publicly accessible open space along the western, southern and eastern parts of the site. Consent is sought for the proposal as State Significant Development (SSD-47749715). The information gained from this assessment will support the UoN's decision-making process including technical, logistical and financial considerations, whilst identifying potential opportunistic remediation options that can be implemented during the redevelopment of the Site (if required).

To achieve this overall objective the following scope of work was completed:

- Complete a desktop study of the Site to establish site and surrounding conditions, history and potential site and surrounding sources of contamination.
- Undertake an intrusive drilling/groundwater monitoring well installation and sampling program to characterise soil and groundwater conditions across the site, combined with grab samples from surface soil at selected and targeted locations. Develop newly installed groundwater monitoring wells ready for subsequent sampling as a second mobilisation event.
- Return to the site under a second mobilisation to sample groundwater from newly installed wells.
- Assess the site information and sample results screened against appropriate screening criteria protective of human health and the ecological environment (noting that risks to terrestrial ecology are a key consideration for commercial/industrial development).
- Present the information and investigation findings in an interpretive report, including the development of a preliminary Conceptual Site Model (CSM) to assess potential contamination risks and confirm the suitability of the site for future commercial/industrial land use (with or without remediation). Recommendations for further detailed investigations and/or management of the site for the proposed use of the site will also be presented.

The key findings of the assessment are as follows:

Historical Development

- The Site has been used for storage and handling of machinery such as lawn mower repair and hardware sales which included a nursery area. The site history indicates potential contaminants of concern include Hydrocarbons, heavy metals & pesticides.

Soil Lithology and Hydrogeology

- The subsurface profile was observed to comprise a shallow fill layer with underlying alluvial soils comprising intermixed silts, sands and clays.
- Groundwater was encountered between 2.2 – 4 mbgl (metres below ground level) during Site intrusive works and was gauged in monitoring wells between 4.4m – 2.4 mbTOC during the groundwater monitoring event. Inferred groundwater flow direction was to the southwest, towards the Brisbane Waters estuary.

Soils Exceedances

Concentrations of COPC exceeding the HIL C Open Space criteria were not recorded in any sample analysed. Heavy metal concentrations of Nickel exceed the NEPM EILs in a total of 4 samples. Concentrations of Zinc exceed the NEPM EILs in a total of 7 samples. Given the sites intended redevelopment consists of a commercial ground floor, the minor exceedances of ecological criteria are not considered to be an impediment to the redevelopment of the site. Potential acid sulfate soils have been identified within the Site. Acid sulfate soils results are discussed in a separate Kleinfelder Geotechnical report prepared for the Site.



Groundwater Exceedances

- Concentrations of heavy metals exceed the ANZG 2018 95% criteria for heavy metals in 5 samples. PFAS exceeding the PFAS NEMP 202 Freshwater 99% limit was detected in one sample. Concentrations of Benzene exceed the NHMRC Recreational Water criteria of 1µg/L.

Tier 1 Qualitative Risk Assessment

Based on the CSM, and Tier 1 conservative screening levels, potentially complete pathways have been identified for the following key receptors which may present a risk of increased harm to human health:

- Off-Site aquatic flora and fauna of the Brisbane Waters Estuary.

Recommendations

No evidence of contamination has been identified within soils at the site which exceeds the adopted land use criteria of HIL C Open Space, however, some contaminants have been identified within groundwater at the site. Given the proximity of the groundwater well locations to the site boundary and the lack of identified contamination within soils or major historical activities with high contamination potential, it is likely the identified hydrocarbons and PFAS detections are from an off-site source. Marginal heavy metal exceedances could be attributed to background heavy metal concentrations.

Based on the minor recorded exceedances of ANZG Freshwater criteria for heavy metals, PFAS Freshwater limit and ANZG Recreational water criteria for Benzene, groundwater extracted during any dewatering activities conducted during construction is not considered suitable for discharge to the stormwater network without pretreatment. Prior approval will need to be sought from the local water authority to discharge to the sewer network, or potentially, water may need to be pumped and treated on-site prior to discharge. Given the recorded concentrations are relatively minor, concentrations should not be a major impediment to gaining approval to discharge to the sewer network if that is determined to be the most appropriate method of water discharge during construction.

Based on the findings of the DSI, The Site is suitable for its intended land use and redevelopment as a new University campus.



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1 INTRODUCTION

Kleinfelder Australia Pty Ltd (Kleinfelder) was commissioned by The University of Newcastle (UoN) to undertake a detailed site investigation (DSI) at 305 Mann Street, Gosford (herein referred to as the 'Site'). The Site layout is presented in **Figure 1, Appendix A**.

It is understood that UoN is seeking to acquire the site for redevelopment into the Central Coast Campus of the University of Newcastle, which comprises a four storey educational establishment building on the western portion of the site, retail, on-site parking and publicly accessible open space along the western, southern and eastern parts of the site. Consent is sought for the proposal as State Significant Development (SSD-47749715). The information gained from this assessment will support the UoN's decision-making process including technical, logistical and financial considerations, whilst identifying potential opportunistic remediation options that can be implemented during the redevelopment of the Site (if required).

1.1 OBJECTIVE Kleinfelder understands that the UoN's overall objective for this assessment is to collect sufficient environmental and geotechnical information to inform liabilities and limitations that may prevent UoN's acquisition of the Site for redevelopment in preparation for the submission of SSD 47749715 and address Secretary Environmental Assessments Requirements (SEAR) Number 17, Contamination and Remediation.

To achieve UoN's objective, Kleinfelder adopted the following methodology:

- To conduct a DSI which included a Site history review, and evaluation of the likely contaminants of potential concern (COPC) of soil and groundwater, as detailed in Kleinfelder DSI SAQP, provided to the client prior to the intrusive investigation of this DSI.
- To characterise the lithology of potential fill material, natural soils and groundwater
- To provide a site suitability statement for ongoing commercial/industrial land use for due diligence purposes prior to UoN's potential Site acquisition.

1.2 SCOPE OF WORK

The following scope was developed based on Kleinfelder's understanding of the project and the information provided by UoN during the preparation of the proposal and information that became available during the works.

1.3 DESKTOP STUDY

Review readily available relevant information/documentation (including any previous investigations and preliminary design information).

Review the Water NSW website to:

- Identify if relevant groundwater wells are present in the search area
- Review the available well data to gain an understanding of local hydrogeology
- Assess for the potential presence of nearby groundwater users/environmental receptors

Review of New South Wales Environmental Protection Agency (NSW EPA) contaminated sites website.

An EnviroScreen Report was requested and reviewed which included:

- Historical aerial photographs
- Historical land titles
- Other data relating to the site and wider search area.

A Site inspection to identify areas of potential environmental concern (AEPC) and provide current information about the site including (but not limited to):



- Surrounding land use
- Photograph and assess the current condition of the site (noting obvious signs of potential contamination).

1.4 INTRUSIVE INVESTIGATION

The intrusive investigation component of this DSI comprised of:

- Undertake a drilling/groundwater monitoring well installation and sampling program to characterise soil and groundwater conditions beneath the Site, combined with grab samples from surface soil at selected and targeted locations.
- Develop newly installed groundwater monitoring wells for subsequent sampling as a second mobilisation event.
- Sample groundwater from newly installed wells.

1.5 REPORTING OF INTRUSIVE INVESTIGATION

Following on from the intrusive investigation of the Site, the following will then be undertaken:

- Compare the Site information and soil and groundwater results to appropriate criteria protective of human health and the environment.
- Present the information and investigation findings in an interpretive report, including the development of a conceptual site model (CSM) to assess potential contamination risks and confirm the Site suitability for future commercial/industrial land use (with or without remediation). Recommendations for further detailed investigations and/or management of the Site for the proposed use of the site will also be presented.

1.6 KEY GUIDANCE

- Cooperative Research Centre for Contamination Assessment and Remediation for the Environment (CRC CARE) 2011. Technical Report No. 10 – Health Screening Levels for Petroleum Hydrocarbons in Soil and Groundwater. Friebel, E. and Nadebaum, P., September 2011 (CRC CARE Tech. Report 10).
- CRC CARE, 2013. Technical Report 23 – Petroleum Hydrocarbon Vapour Intrusion Assessment. Wright, J and Manning, T., July 2013 (CRC CARE Tech Report 23).
- Contaminated Land Management Act 1997 (CLM Act, 1997).
- Environmental Planning and Assessment Act 1979 (EP&A Act, 1997).
- Heads of the Environment Protection Authority (HEPA), 2020. Per- and Poly-fluoroalkyl Substances (PFAS) National Environmental Management Plan, revision 2, as published February 2020 (PFAS NEMP, 2020).
- National Environment Protection Council (NEPC), 1999. National Environment Protection (Assessment of Site Contamination) Measure, 1999 as amended in May 2013 (NEPM).
- National Health and Medical Research Council (NHMRC) 2018. Australian Drinking Water Guidelines 6 2011, as revised August 2018 (ADWG, 2018).
- National Health and Medical Research Council (NHMRC) 2008. Guidelines for Managing Risks in Recreational Water (ADWG, 2008).
- NSW Department of Environment and Conservation (DEC), 2007. Guidelines for the Assessment and Management of Groundwater Contamination published March 2007.
- NSW EPA (1998). Managing Land Contamination, Planning Guidelines, SEPP 55 – Remediation of Land (SEPP 55 has been transferred to Chapter 4 of SEPP (Resilience and Hazards) 2021).
- NSW EPA 2015. Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997.
- NSW EPA, 2020. Consultants Reporting on Contaminated Land, Contaminated Land Guidelines, as revised May 2020.
- NSW EPA, 2017. Contaminated Land Management – Guidelines for the NSW Site Auditor Scheme (3rd Edition), as published October 2017.



- NSW EPA 2020. Sampling Design Part 1 – Application, Contaminated Land Guidelines, August 2022).
- Western Australia Department of Health (WA DoH), 2009. Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Site in Western Australia (WA DoH, 2009).



2 SITE LOCATION AND DESCRIPTION

The Site is located at 305 Mann Street, Gosford 2308, approximately 90 km southwest of Newcastle. A summary of the Site details is outlined in **Table 2-1**.

Table 2-1: Site Details

Site Name	Former Mitre 10 Warehouse
Site Address	305 Mann Street, Gosford, NSW 2308
Current Title Identification	<ul style="list-style-type: none">• Lots 1, 2, 4, 29, 30, 31 & 32.• Section 1 – DP 1591• Lot 1 – DP 911163, DP 911164
Local Council	Central Coast Council
Site Zoning	B4 – Mixed Use
Site Owner	University of Newcastle
Current Site Use	Vacant commercial premises (most recent past operation as a Mitre 10 hardware store).
Proposed Site Use	UoN campus, consistent with current zoning (B4 Mixed Use).

Kleinfelder understands that the Site is proposed to continue with ongoing commercial/industrial use, which forms the basis for this assessment. Should a more sensitive land use be proposed for the Site, at a future point in time, additional assessment will be required against relevant land use criteria.

2.1 SITE FEATURES

The Site covers an area of approximately 4675 m². Structures and features at the Site include a large warehouse (which housed the former Mitre 10) occupying the western portion, a central vegetated garden area and a concreted open car park that occupies the remainder of the Site.

- The large warehouse has historically housed several retail businesses, housing machinery, agricultural chemicals and other products of potential environmental concern such as solvents, petroleum hydrocarbons and lubricating oils.
- A wide variety of materials and equipment remain around the Site including but not limited to steel piping, scrap metal, timber, poly piping and furniture.

The concreted open car park and central garden area slope toward the northwest and are in poor condition with several cracks and vegetation growing throughout.

2.2 SURROUNDING LAND USE

Adjacent, surrounding land use comprises:

- **North** – Numerous commercial businesses are located north along Mann Street, zoned as Mixed Use (B4). Approximately 150 m north-east and 180 m north-west are residential properties, zoned as General Residential (R1). The Gosford Golf Club is located approximately 400 m north-west, within a Public Recreation (RE1) planning zone.
- **East** – Variable zoning including Mixed Use (B4), General Residential (R1) and Public Recreation (RE1) is present directly east. Further east is the Rumbalara Reserve located approximately 170 m from Site.
- **South** – Mixed Use (B4) zoning continues south of the Site for approximately 250 m, with Commercial Core (B3) zoning beyond. Hotel Gosford, Woolworths and Chemist Warehouse are all located along Mann Street within 500 m of the Site.



- **West** – A rail infrastructure facility within an Infrastructure (SP2) planning zone runs north-south approximately 50m west of the Site, adjacent to Showground Road. Central Coast Local Health District and Gosford Hospital are located 100m west of the Site, zoned as Infrastructure (SP2). South of the hospital is residential housing zoned as General Residential (R1), with Gosford High Waterview Park located approximately 500 m south-west under Public Recreation (RE1) zoning.

2.3 CLIMATE, HYDROLOGY AND DRAINAGE

Typical landforms within the regional landscape are made up of undulating to rolling rises and low hills, with local relief of <60 m and slope gradients below 25%. The surface elevation on-Site ranges from 15 m to 22 m Australian Height Datum (AHD).

It is considered that surface water from the Site during periods of rainfall would run off the concrete surfaces (including roof drainage) and enter stormwater drains adjacent to Mann St. Where concrete is not present i.e., in the central vegetated garden, rainfall would infiltrate the soil profile.

The nearest surface water bodies to the Site include:

- Brisbane Water - located approximately 1.1 km to the southwest.
- Narara Creek - located approximately 1 km northwest of the Site, flows in a south-westerly direction into Brisbane Water.

Monthly climate statistics from the Gosford (Narara Research Station) automatic weather station (AWS 061087) located approximately 5 km northwest of the Site, indicate the Site experiences warm summers to cold winters with an average maximum temperature of 23.0°C and an average minimum temperature of 11.1°C. The average annual rainfall is approximately 1,330 mm with the highest rainfall period between January and March and the lowest rainfall period from July to October.

2.4 GEOLOGY AND HYDROGEOLOGY

The Soil Landscape Map of Gosford – Lake Macquarie (Soil Landscape Series Sheet 9131-9231, Scale 1:100,000, 1993), indicates that the Site is located within the Erina Landscape, which is comprised of undulating rolling rises and low hills. Soils within this landscape are generally moderately deep to deep, commonly prone to waterlogging, mass movement and high erosion. The soils are also commonly highly acidic.

The 1:100,000 geological map of NSW indicates that the Site is underlain by interbedded laminite, shale and sandstone of the Terrigal Formation.

Bore logs from previous Site environmental investigations identified four subsurface units:

- Surface cover – Concrete (underlain by gravel), pavers or gravel, ranging in thickness from near surface to approximately 0.35 mbgl (metres below ground level).
- Fill – Generally silty clayey sand, fine to medium-grained with some gravels, ranging in depth from approximately 0.3 to 1.3 mbgl.
- Topsoil (where fill is absent) – Silty clayey sand, fine to medium-grained, dark brown, typically 0.2 m to 0.4 m thick.
- Natural Soil – Clayey sand, fine to medium-grained, or silty clay, medium to high plasticity, encountered beneath the fill and/or topsoil layers at depths ranging from approximately 0.4 m and 1.6 mbgl.

This is consistent with the findings of Kleinfelder during this investigation, with the exception of:

- Clay with trace sand/no sand, reddish brown to yellow, medium to high plasticity, soft to firm, beneath approximately 1.6m. Followed by weathered siltstone/sandstone with trace bands of ironstone occasionally appearing.

Groundwater strikes were encountered as shallow as 2.3m to the south of the Site, but generally encountered around 3.0 – 4.0m.



A registered groundwater bore search was performed by Land Insight. The search identified 48 licensed groundwater bores within a 2 km radius of the Site, with the majority greater than 1 km distance. Most of the bores are located in two main clusters, the largest cluster of 16 bores being approximately 1.1 km north of the Site, and the smaller cluster of six located approximately 1.4 km west (neither of which is down gradient of the Site's groundwater). Most bores were licenced for monitoring purposes (30) or town water supply (4) and installed at depths ranging from approximately 40 to 200 mbgl and are therefore unlikely to extract groundwater from the shallow aquifer that may be impacted by potential contamination from the Site. Groundwater database search results are provided within the Enviro-Screen report in **Appendix F**.

2.5 ACID SULPHATE SOILS

A review of the Acid Sulfate Soils Map (**Map 1.4b Appendix F**) performed by Land Insight (LIR, 2022) identified the Site and land within the 500 m buffer to be Class 5, meaning that "*development consent is required for the carrying out of works within 500 m of adjacent Class 1, 2, 3 or 4 land that is below 5 mAHD and by which the water table is likely to be lowered below 1 mAHD on adjacent Class 1, 2, 3 or 4 land*".



3 SITE HISTORY

3.1 HISTORICAL CERTIFICATES OF TITLE AND SITE LEASE DETAILS

Historical Certificates of Title were obtained through the Land Registry Services, providing details of historical ownership and possible former uses of the Site. The Certificates of Title are presented in **Appendix D**.

The Site is made up of several Lots and Deposited Plans (DP), see **Table 2-1** and has been owned by multiple corporations/individuals since 1890. Currently, all Lots and DP that the Site is situated on are owned by Hunter and Central Coast Development Corporation and have been in effect since November 2020, see **Table 3-1** below.

Copies of the Certificate of Titles are summarised in the table below.

Table 3-1: Historic Title Summary and Potential Contaminants

Date	Owner	Contaminants of Potential Concern (COPC) relating to Former Site Use
<u>Lot 1 DP 911163</u>		
12 Nov 2020 – to date	Hunter and Central Coast Development Corporation (ABN 94 688 782 063)	-
26 Mar 2009	New South Wales Land and Housing Corporation (ABN 24 960 729 253)	BTEXN, TRH, PAH, Heavy Metals
21 Jan 1997	Mangrove Properties Pty Limited (ACN 076 415 659)	-
17 Nov 1988	Gosford Co-Operative Citrus Packing House Limited	Heavy Metals, OCP/OPP
(17 Nov 1988 to date)	(various leases shown on Historical Folio 1/911163 (attached))	Heavy Metals, OCP/OPP, BTEXN, TRH, PAH, Phenols, PCB
	(Lot 1 DP 911163 – CTVol 13192 Fol 235)	Heavy Metals, OCP/OPP, BTEXN, TRH, PAH, Phenols, PCB
23 Nov 1976	Gosford Co-Operative Citrus Packing House Limited	Heavy Metals, OCP/OPP, BTEXN, TRH, PAH, Phenols, PCB
	(Lot 1 DP 911163 – Area 10 ¾ Perches – CTVol 959 Fol 87)	Heavy Metals, OCP/OPP, BTEXN, TRH, PAH, Phenols, PCB
28 Sep 1943	Gosford Co-Operative Citrus Packing House Limited	Heavy Metals, OCP/OPP, BTEXN, TRH, PAH, Phenols, PCB
31 Aug 1915	Candace Sarah Mullard, widow	Asbestos, Heavy Metals
17 Mar 1906	Henry John Bourne, plumber	Heavy Metals
21 Nov 1890	John James Mullard, cordial manufacturer	Heavy Metals
08 Feb 1890	Mary Bourne, widow	Heavy Metals
<u>Lot 1 DP 911164</u>		
12 Nov 2020 – to date	Hunter and Central Coast Development Corporation (ABN 94 688 782 063)	-
26 Mar 2009	New South Wales Land and Housing Corporation (ABN 24 960 729 253)	BTEXN, TRH, PAH, Heavy Metals
21 Jan 1997	Mangrove Properties Pty Limited (ACN 076 415 659)	-
17 Nov 1988	Gosford Co-Operative Citrus Packing House Limited	Heavy Metals, OCP/OPP, BTEXN, TRH, PAH, Phenols, PCB



Date	Owner	Contaminants of Potential Concern (COPC) relating to Former Site Use
(17 Nov 1988 to date)	(various leases shown on Historical Folio 1/911164)	Heavy Metals, OCP/OPP, BTEXN, TRH, PAH, Phenols, PCB
	(Lot 1 DP 911164 – CTVol 13192 Fol 234)	Heavy Metals, OCP/OPP, BTEXN, TRH, PAH, Phenols, PCB
23 Nov 1976	Gosford Co-Operative Citrus Packing House Limited	Heavy Metals, OCP/OPP, BTEXN, TRH, PAH, Phenols, PCB
	(Lot 1 DP 911164 – Area 10 ¾ Perches – CTVol 959 Fol 100)	Heavy Metals, OCP/OPP, BTEXN, TRH, PAH, Phenols, PCB
28 Sep 1943	Gosford Co-Operative Citrus Packing House Limited	Heavy Metals, OCP/OPP, BTEXN, TRH, PAH, Phenols, PCB
31 Aug 1915	Candace Sarah Mullard, widow	Asbestos
17 Mar 1906	Henry John Bourne, plumber	Asbestos
08 Feb 1890	John James Mullard, cordial manufacturer	Asbestos
<u>Lot 1 Section 1 DP 1591</u>		
12 Nov 2020 – to date	Hunter and Central Coast Development Corporation (ABN 94 688 782 063)	-
26 Mar 2009	New South Wales Land and Housing Corporation (ABN 24 960 729 253)	BTEXN, TRH, PAH, Heavy Metals
21 Jan 1997	Mangrove Properties Pty Limited (ACN 076 415 659)	-
17 Nov 1988	Gosford Co-Operative Citrus Packing House Limited	Heavy Metals, OCP/OPP, BTEXN, TRH, PAH, Phenols, PCB
20 Oct 1944	Gosford Co-Operative Citrus Packing House Limited	Heavy Metals, OCP/OPP, BTEXN, TRH, PAH, Phenols, PCB
(08 Jul 1938 to 20 Oct 1944)	(lease to Forrest Douglas Burns, baker, John Hanley, baker & Frank James Payne, baker)	Heavy Metals, BTEXN, TRH, PAH, Phenols
29 Jun 1938	Edward Vincent Whelan, baker	-
	(Lot 1 Section 1 DP 1591 – Area 27 ¼ Perches – CTVol 820 Fol 115)	Heavy Metals, OCP/OPP, BTEXN, TRH, PAH, Phenols, PCB
26 Jun 1928	Edward Vincent Whelan, baker	Heavy Metals, BTEXN, TRH, PAH, Phenols
23 Apr 1926	Robert Henry Burns, baker	Heavy Metals, BTEXN, TRH, PAH, Phenols
07 Apr 1924	William Gosby, poultry farmer	OCC/OPP
10 Sep 1907	Albert Aggett, boarding house proprietor	Heavy Metals
02 Nov 1893	Southerton Aggett, senior constable of police	Heavy Metals
<u>Lot 2 Section 1 DP 1591</u>		
12 Nov 2020 – to date	Hunter and Central Coast Development Corporation (ABN 94 688 782 063)	-



Date	Owner	Contaminants of Potential Concern (COPC) relating to Former Site Use
26 Mar 2009	New South Wales Land and Housing Corporation (ABN 24 960 729 253)	BTEXN, TRH, PAH, Heavy Metals
21 Jan 1997	Mangrove Properties Pty Limited (ACN 076 415 659)	-
14 Sep 1989	Gosford Co-Operative Citrus Packing House Limited	Heavy Metals, OCP/OPP, BTEXN, TRH, PAH, Phenols, PCB
<i>(14 Sep 1989 to date)</i>	<i>(various leases shown on Historical Folio 2/1/1591 (attached))</i>	Heavy Metals, OCP/OPP, BTEXN, TRH, PAH, Phenols, PCB
	<i>(Lot 2 Section 1 DP 1591 – CTVol 13192 Fol 236)</i>	Heavy Metals, OCP/OPP, BTEXN, TRH, PAH, Phenols, PCB
23 Nov 1976	Gosford Co-Operative Citrus Packing House Limited	Heavy Metals, OCP/OPP, BTEXN, TRH, PAH, Phenols, PCB
	<i>(Lot 2 Section 1 DP 1591 – Area 21 ¾ Perches – CTVol 1074 Fol 243)</i>	Heavy Metals, OCP/OPP, BTEXN, TRH, PAH, Phenols, PCB
28 Sep 1943	Gosford Co-Operative Citrus Packing House Limited	Heavy Metals, OCP/OPP, BTEXN, TRH, PAH, Phenols, PCB
31 Aug 1915	Candace Sarah Mullard, widow	Asbestos, Heavy Metals
17 Mar 1906	Henry John Bourne, plumber	Heavy Metals
07 Nov 1892	John James Mullard, lemonade manufacturer	Heavy Metals
<u>Lot 4 Section 1 DP 1591</u>		
12 Nov 2020 – to date	Hunter and Central Coast Development Corporation (ABN 94 688 782 063)	-
26 Mar 2009	New South Wales Land and Housing Corporation (ABN 24 960 729 253)	BTEXN, TRH, PAH, Heavy Metals
21 Jan 1997	Mangrove Properties Pty Limited (ACN 076 415 659)	-
11 Feb 1992	Gosford Co-Operative Citrus Packing House Limited	Heavy Metals, OCP/OPP, BTEXN, TRH, PAH, Phenols, PCB
<i>(11 Feb 1992 to date)</i>	<i>(various leases shown on Historical Folio 2/1/1591 (attached))</i>	Heavy Metals, OCP/OPP, BTEXN, TRH, PAH, Phenols, PCB
	<i>(Lots 4 to 9 & 24 to 28 Section 1 DP 1591 – CTVol 15441 Fol 218)</i>	Heavy Metals, OCP/OPP, BTEXN, TRH, PAH, Phenols, PCB
23 Nov 1986	G. E. Moore Pty Limited	Asbestos
	<i>(Lots 4 to 9 & 24 to 28 Section 1 DP 1591 – Area 1 Acre 1 Rood 38 Perches – CTVol 7310 Fol's 37 to 40)</i>	Heavy Metals, OCP/OPP, BTEXN, TRH, PAH, Phenols, PCB
24 Mar 1986	G. E. Moore Pty Limited	Asbestos



Date	Owner	Contaminants of Potential Concern (COPC) relating to Former Site Use
20 Feb 1986	Burns Phils Trustee Company (Canberra) Limited Ross Terrell Morland Hazel Jean Hunt Sharman, married woman Marjorie Joyce Millar Cockcroft, married woman Florence Mary Thomson, wife of Geoffrey David Thomson, company director	PAH, Heavy Metals, Asbestos
27 May 1976	Mabel Elizabeth Peter, married woman Hazel Jean Hunt Sharman, married woman Marjorie Joyce Millar Cockcroft, married woman Florence Mary Thomson, wife of Geoffrey David Thomson, company director	PAH, Heavy Metals, Asbestos
24 Jun 1957	Mabel Elizabeth Peter, married woman Hazel Jean Hunt Sharman, married woman Marjorie Joyce Millar Cockcroft, married woman Florence Mary Kirkness, spinster	PAH, Heavy Metals, Asbestos
30 May 1957	Florence Mary Kirkness, spinster	PAH, Heavy Metals, Asbestos
13 Nov 1917	William Hastings Kirkness, sawmill proprietor	PAH, Heavy Metals, Asbestos
02 Feb 1907	James Jefferies, congregational minister	Heavy Metals

3.2 HISTORICAL AERIAL PHOTOGRAPH REVIEW

Historical aerial photography from 1966, 1971, 1976, 1980, 1984, 1991, 1994, 2002, 2006, 2010, 2013, 2016, 2019 and 2022 was obtained from Land Insight, and is presented in the Enviro-Screen Report in **Appendix F**. A detailed review describing each photograph is presented in **Table 3-2**.

Table 3-2: Historical Aerial Image Review

Aerial Image Details	Former Site Use	Observations	
		Site	Surrounding Areas
1966	Commercial	Low resolution black and white aerial photograph. A large commercial structure is visible covering the western half of the Site, with what appears to be three residential properties fronting Hills Street	Residential and commercial/industrial buildings surround the Site from all directions. A train line is present to the west and to the east a large area of vegetation is present on the hillside.
1971	Commercial	No signs of change can be seen on the Site since previous photograph.	The surrounding area appears to be the same as the previous image with the exception of a main road being made through the hillside vegetation to the east of the Site.
1976	Commercial	High resolution coloured photograph. A central vegetated area is present on the Site with what appears to be three medium sized structures located on the eastern border of the Site.	Gosford Hospital has had further developments to the far west of the Site, with the remaining surrounding areas showing little change from the previous photograph.



Aerial Image Details	Former Site Use	Observations	
		Site	Surrounding Areas
1980	Commercial	Low resolution photograph. There does not appear to be any change observed on the Site from previous photograph.	Little change can be observed on the surrounding properties compared to previous photograph.
1984	Commercial	There appears to be minimal change on-site compared to the previous aerial photograph.	Minimal change is observed on the surrounding properties compared to the previous aerial photograph.
1991	Commercial	High resolution coloured photograph. Vegetated mass in the central section of the Site has been removed. However, this area still appears to be vegetated in some form. The structures to the east of the Site appear to have been removed and replaced with a carpark.	Surrounding properties to the west appear to have become more urbanised. The remaining surrounding areas have minimal change compared to the previous aerial photograph.
1994	Commercial	High resolution coloured aerial photograph. Structure on the northern edge appears to have been removed and replaced.	Construction is present to the north of Site.
2002	Commercial	The original carpark appears to have been upgraded and now appears to be made of concrete.	Minimal change has occurred on the surrounding properties compared to the previous aerial photograph.
2006	Commercial	There appears to no change on-site compared to the previous aerial photograph.	Gosford Hospital to the west and the western neighbouring property of the site appear to have extensions made on the main structures. Surrounding properties show minimal change.
2010	Commercial	Cars are not present on the Site suggesting it is now vacant. No other changes are observed.	Minimal change has occurred on the surrounding properties compared to the previous aerial photograph.
2013	Commercial	Vegetation appears to have grown throughout the carpark. No other change is observed.	Minimal change has occurred on the surrounding properties compared to the previous aerial photograph.
2016	Commercial	Vegetation has continued to grow on-site. No other changes are observed.	Minimal changes observed compared to previous aerial photograph.
2019	Commercial	No change is observed compared to the previous aerial photograph.	Minimal changes are observed compared to the previous aerial photograph.
2022	Commercial	Central vegetation has continued to grow on-site with further vegetation identified throughout the carpark.	Minimal changes are observed compared to the previous aerial photograph.

Based upon the available aerial photographs, the Site has operated as commercial land since approximately 1991. Prior to 1991, the Site contained a mix of commercial and residential buildings since its creation. The central vegetated area and historical structures on the eastern side have existed on the Site since approximately 1972, with these structures being removed and replaced with a carpark prior to 1991. Furthermore, the large structure on-Site was extended to the north in approximately 1994 with the carpark being upgraded to concrete by 2002. The Site then appears to have become vacant sometime between 2006 and 2010.



3.3 SUMMARY OF PREVIOUS SITE INVESTIGATIONS

Geotechnique undertook a Stage 2 Contamination Assessment in 2004 to supplement the prior Geotechnique preliminary contamination assessment. The scope of works included the following key activities:

- A summary of the preliminary contamination assessment report.
- Soil sampling from 11 boreholes aimed at ascertaining the presence or absence of contaminants with respect to future redevelopment. Samples were collected using a Geoprobe sampling system, as well as a stainless-steel hand auger where access for the Geoprobe was limited.
- Laboratory testing of collected soil samples was conducted for a range of identified COPC including BTEX (benzene, toluene, ethylbenzene, total xylenes), total petroleum hydrocarbons (TPH), polycyclic aromatic hydrocarbons (PAH), metals, polychlorinated biphenyls (PCBs), phenols, cyanide, and organochloride pesticides (OCP).

The findings of the contamination assessment stated that:

- The subsurface lithology generally comprised of gravel and fill beneath the concrete surface, overlying silty clays, clayey sand and silty clayey sand which was encountered between 0.4 m and 2.3 mbgl. Clays were described as medium and high plasticity; sands present at various depths were described as fine to coarse with trace gravel.
- Laboratory results indicated that concentrations of all COPCs were found to satisfy the adopted land use screening criteria and Geotechnique stated that contamination is not likely to be an issue within the soils beneath the Site.
- The relatively low permeability of natural Site soils suggests that leaching of any contaminant into the water table aquifer is unlikely. As there were no areas where elevated COPC concentrations were identified there is negligible opportunity for contaminants to leach into the groundwater or be transported by surface water run-off.
- It was concluded that in accordance with the 2013 NEPM, the Site does not present a risk of harm to human health or the environment and is suitable for residential and/or commercial development.

3.4 NSW HERITAGE SEARCH

A search of the NSW Heritage database identified the Sydney Cultural Crescent Rock Art (ID 106369) located on-site. The Sydney Cultural Crescent Rock Art is of National Heritage List of Indigenous Class with an assessment initiated by AHC status.

3.5 DANGEROUS GOODS RECORDS

A search of records of dangerous goods was not undertaken during this investigation due to previous Site investigations identifying no records of dangerous goods or underground storage tanks. Furthermore, there is no evidence in the historical aerial imagery to suggest the presence of underground storage tanks (such as ground scarring or pit falls).



4 DATA QUALITY OBJECTIVES

Guidance regarding the development of the data quality objectives (DQOs) has been referenced from the following primary documents:

- *National Environment Protection Council, 1999, National Environment Protection (Assessment of Site Contamination) (as amended in May 2013) Measure, Schedule B2: Guideline Site Characterisation*
- *Standards Australia (AS 4482.1-2005) Guide to the sampling and investigation of potentially contaminated soil. Part 1: Non-volatile and semi-volatile compounds.*
- *US EPA, 2006 Guidance on Systematic Planning Using the Data Quality Objectives Process (EPA QA/G- 4).*

The plan, which is designed to meet the objectives for the ESA and to achieve the nominated DQOs, is defined by the seven-step planning approach presented in the ASC NEPM (NEPC, 2013). An overview of adopted DQOs for the DSI is summarised in **Table 4-1**.

Table 4-1: Data Quality Objectives

DQO Step	Details of DQO Process
<p>1. State the Problem</p>	<p>The Site has historically been occupied by a variety of commercial retail businesses including a hardware store, lawn mower repair, fertiliser supplier and outboard motor businesses. The Site is currently a vacant commercial premises and is comprised of a large warehouse occupying the western portion of the Site, a central former nursery area associated with the hardware store and a concreted open car park occupying the remainder of the Site.</p> <p>A previous preliminary contamination assessment was undertaken by Geotechnique in 2003 (reported within a subsequent investigation report, namely Geotechnique, 2004). Based on the commercial nature of the Site history and the observed site features, there is a potential for contamination from nursery activities (pesticides, heavy metals), as well as the storage and possible use of potentially contaminating substances such as PHC solvents, petroleum hydrocarbons and lubricating oils while operating as a hardware store, lawn mower repair and outboard motor store.</p> <p>The DSI is required to assess the current extent of contamination (if present) prior to the potential redevelopment of the Site into a UoN campus.</p>
<p>2. Identify the Goals of the Organisation</p>	<p>It is understood that the overall goal of the organisation (UoN) is to redevelop the Site into a university campus under the current B4 Mixed Use zoning.</p> <p>The specific objective for this DSI is:</p> <ul style="list-style-type: none"> • To provide historical reviews of the Site and additional analytical data to refine the preliminary CSM and assess the Site's suitability for use as the UoN campus, with or without remediation and/or long-term management.
<p>3. Identify the information inputs</p>	<p>The primary inputs to the environmental assessment include:</p> <ul style="list-style-type: none"> • Information on the environmental setting of the Site (surrounding land use, surface water drainage, topography, geology and hydrogeology and ecological setting) informed by the Land Insight Report. • Previous environmental investigations and historical concentrations of COPC at the Site. • Field observations and results were collected during the proposed fieldwork (outlined in Section 7). • Analytical results from samples collected of environmental media during the supplementary fieldwork. • Assessment of the suitability of the data using the data quality indicators (DQIs), namely sensitivity, precision, accuracy, representativeness, completeness, and comparability (SPARCC) parameters. A detailed discussion of the DQIs is presented in Section 6.2.



DQO Step	Details of DQO Process
<p>4. Define the study boundaries</p>	<p>Lateral: The investigation area is defined by the Site boundary as depicted in Figure 1, Appendix A. Consideration of off-Site receptors will be undertaken to a maximum extent of a 500 m radius of the Site boundary for COPC, consistent with the guidelines presented in NEPM.</p> <p>Vertical: The vertical extent of the investigation is approximately 12 mbgl, which is the estimated depth of the deepest soil bore/monitoring well that will be undertaken during the geotechnical and environmental investigation.</p> <p>Temporal: The temporal boundaries of the assessment are limited to the dates of field work completion.</p>
<p>5. Develop a decision rule</p>	<p>The decision on the acceptance of the analytical data will be made on the basis of the DQIs in accordance with the NEPM and other authoritative guidance sourced as part of this assessment.</p> <p>The decision rules for the DSI (consistent with the NEPM) are considered to be:</p> <ul style="list-style-type: none"> • If concentrations of COPC in sampled environmental media are less than the adopted investigation levels (refer to Section 6), then potential risks will be assumed to be low and acceptable. • If concentrations of COPC in sampled environmental media exceed the adopted investigation levels for the identified receptors (refer to Section 6), then further investigation, remediation and/or management will be required (which may include Tier 2 risk assessment).
<p>6. Specify limit on decision errors</p>	<p>The possible outcomes of making an error in the decision are:</p> <ul style="list-style-type: none"> • Basing decisions on unreliable data and consequently making incorrect decisions regarding the acceptability of current Site conditions for continued commercial use. • Basing decisions on unreliable data and inappropriately recommending the need for remediation prior to development. <p>Acceptable limits on decision errors and the manner of addressing possible decision errors have been developed based on the DQIs of SPARCC. A detailed breakdown of the DQIs is presented in Section 6.2.</p>
<p>7. Optimise the design</p>	<p>To optimise the design for obtaining data, this SAQP has been developed based on the following approach:</p> <ul style="list-style-type: none"> • The investigation design has been based on meeting the required objective of the organisation with consideration given to the specific objectives of the investigation in context of the preliminary CSM. • Field screening of soil samples for laboratory analysis using both visual and olfactory observations will be undertaken to select appropriate samples for analysis (See Table 7-1). Additionally, samples of underlying natural materials will be analysed to determine the vertical extent of COPC above adopted criteria. • The investigation will be conducted to a level of accuracy and confidence that is consistent with relevant environmental legislation (as indicated in the NEPM) and relevant technical and industry standards. • A summary of the proposed investigation methodology is presented in Section 5



5 SUMMARY OF FIELD WORKS

The DSI comprised a field investigation undertaken between the 14th of October to the 21st of October, and on 10th of November. Additionally, a follow-up field investigation was undertaken on 21st November and 23rd November for groundwater well development and groundwater sampling. A summary of the field activities completed, and the field methodology employed is provided in **Table 5-1** below. The Site layout including borehole locations and existing groundwater monitoring wells are shown in **Figure 1, Appendix A**.

Table 5-1: Summary of Field Activities

Date	Activity	Contractors	Methodology
14 th October 2022	Borehole clearance	Kleinfelder	Borehole locations were cleared of underground utilities by a DBYD accredited service locator using radio and ground penetrating radar techniques.
17 th October - 21 st October & 10 th November	Borehole drilling	Kleinfelder	All boreholes (BH1 – BH8) were advanced to rock using solid auger drilling. BH1, BH2, BH3 and BH8 were subsequently advanced from the soil-rock interface to approximately 22 mbgl using diamond coring. All hand auger locations (HA01 – HA05) were advanced to 2.0 mbgl.
	Environmental borehole logging and sampling/ Geotechnical borehole logging and sampling	Kleinfelder	A Kleinfelder environmental scientist provided oversight of the drilling works, logged borehole soil profiles, field screened soils for volatile organic compounds (VOCs) using a Photoionization Detector (PID) and collected representative samples for environmental and geotechnical laboratory testing. Soil samples were collected from the solid flight auger by a gloved hand using nitrile gloves and placed in a laboratory supplied containers and chilled immediately following sample collection.
	Waste Disposal	Kleinfelder	Drilling soil cuttings were used to backfill the soil boreholes.
	Groundwater sampling	Kleinfelder	Three groundwater monitoring wells were sampled using HydraSleeves. Each monitoring well was initially purged until a minimum of three well volumes was removed or the well went dry and then left to stabilise for 48 hours prior to a representative sample of groundwater being collected.

5.1 SUBSURFACE INVESTIGATION RATIONALE

The rationale for the location of each assessment location and whether the target depth was achieved is provided in **Table 5-2** below.

Table 5-2: Soil Bore Locations

Borehole ID	Location Rationale	Proposed Depth (mbgl)	Depth Advanced (mbgl)	Comments
BH1, BH2, BH3 & BH8	Environmental and geotechnical characterisation of soils across the Site using a targeted sampling strategy	Until 12 m geotechnically suitable sandstone has been achieved.	20.8 – 21.3	Groundwater monitoring wells were installed in BH1 to a depth of 6.0 mbgl, and BH8 to a depth of 9 mbgl.



Borehole ID	Location Rationale	Proposed Depth (mbgl)	Depth Advanced (mbgl)	Comments
BH4 – BH7	Environmental and geotechnical characterisation of soils across the Site using a targeted sampling strategy	Contact with underlying rock	4.5 – 9.6	Groundwater monitoring well was installed in BH7 to a depth of 7.3 mbgl.
HA01 – HA05	Environmental characterisation of soils across the Site using a targeted sampling strategy	2	2.0 – 2.0	Target depth achieved.

5.2 LABORATORY ANALYSIS

A total of 40 primary soil samples were submitted to the laboratory for heavy metal, BTEXN, TRH and PAH analysis. Selected soil samples were also analysed for PCBs, OCPs, OPPs, PFAS, phenols, asbestos, SPOCAS, electrical conductivity and pH.

Three (3) primary water samples were submitted to the laboratory for heavy metals, BTEXN, TRH and PAH, OCPs, OPPs, PCBs, PFAS, electrical conductivity and pH analysis.



6 ENVIRONMENTAL ASSESSMENT CRITERIA

6.1 BASIS OF ASSESSMENT CRITERIA

In order to assess the significance of COPC concentrations reported in soil and groundwater samples collected from the Site, reference was made to published environmental and/or human health-based guideline values in Australia. The adopted screening criteria consider the future commercial/industrial use of the Site, which is currently unoccupied.

The primary source of guideline values adopted for this assessment is the National Environment Protection (Assessment of Site Contamination) Measure (NEPM (1999, amended 2013)), specifically those provided in Schedule B1: Guideline on Investigation Levels for Soil and Groundwater. The NEPM emphasises consideration of a site using a risk-based approach. The selection of the most appropriate NEPM investigation levels (for use in a range of environmental settings and land use scenarios) should consider factors including the protection of human health and ecosystems, groundwater resources and aesthetics.

As such, the NEPM presents a tiered assessment framework with a number of risk-based and management investigation levels that are endorsed by the NSW government for assessing chemical contaminants and aesthetic properties in soil and groundwater. Contaminated sites may contain multiple contaminants in soil and groundwater, therefore the initial selection of appropriate investigation and screening levels for a site should be determined using a Tier 1 screening assessment process, with reference to the conceptual site model (CSM).

The chosen screening criteria should be relevant to the current and future use of the Site, and:

- Assess the potential Human Health Risk presented by the Site
- Assess the potential Ecological Risk presented by the Site
- Assess if physical and aesthetic management limits apply and require consideration.

It should be noted that the NEPM states that:

“Investigation and screening levels are not clean-up or response levels, nor are they desirable soil quality criteria. Investigation and screening levels are intended for assessing existing contamination and to trigger consideration of an appropriate site-specific risk-based approach or appropriate risk management options when they are exceeded”.

Therefore, if the Tier 1 screening assessment process indicates that the Site conditions may pose a potential risk to human health or the environment, then refinement and closure of data gaps in the CSM are required to allow informed management decisions to be made. This may be followed by a combination of either a Tier 2 Site-specific risk assessment process, remediation works or the adoption of a long-term environmental management plan to mitigate uncontrolled exposure to residual contamination e.g. occupational hygiene protocols for trench workers.

To apply conservative screening criteria to the site, the NEPM states that the preferred approach is to examine a range of summary statistics. The results should meet the following criteria:

- If applying statistical analysis, the standard deviation of the results should be less than 50% of the relevant investigation or screening level, and
- No single value should exceed 250% of the relevant investigation or screening level.

6.2 SOIL ASSESSMENT CRITERIA

To frame the site-specific environmental setting, the following context is relevant for the Site:

- The land use will continue to be commercial/industrial, consistent with the current planning zone.
- The geology below the Site is primarily a mix of sandy and silty clays and clays. The coarse nature of the sand constituents in the soil beneath the Site put the soil classification into the “coarse” category, with the soil category of SAND adopted for a precautionary approach;



- Soils were compared to assessment criteria of the relevant depth where required
- Intrusive maintenance workers are considered to conduct works in a shallow trench environment (<1 mbgl).

The following guidelines were used for the assessment of soils at the Site, with the following sections providing justification for the assessment criteria that were adopted from each:

- NEMP, 2013. National Environment Protection (Assessment of Site Contamination) Measure 1999 as amended in 2013
- CRC CARE, 2011. *Health Screening Levels for Petroleum Hydrocarbons in Soil and Groundwater*. CRC CARE, Technical report series No. 10. Friebel, E and Nadebaum, P., 2011.

6.2.1 Human Health

6.2.1.1 ASC NEMP (2013) – Human Health Investigation Levels (HILs)

Schedule B1 of the NEPM provides a range of investigation levels for the protection of human health, referred to as health investigation levels (HILs). HILs have been developed for a broad range of metals and organic substances. Application of HILs is typically for the upper 3 m of soils for residential use (less sensitive land use may adopt alternative depths).

Values for HILs are provided for the following exposure settings based on land-use:

- HIL A - Residential with garden/accessible soil (home grown produce <10% fruit and vegetable intake, (no poultry), also includes children's day care centres, preschools and primary schools.
- HIL B - Residential with minimal opportunities for soil access includes dwellings with fully and permanently paved yard space such as high-rise buildings and flats (considers residential occupation of the ground floor).
- HIL C - Public open space such as parks, playgrounds, playing fields (e.g.: ovals), secondary schools and footpaths. It does not include undeveloped public open space (such as urban bushland and reserves) which should be subject to a site-specific assessment where appropriate.
- HIL D - Commercial/industrial such as shops, offices, factories and industrial sites.

Site-specific details provided earlier indicate that the most appropriate land use setting is HIL C – public open space and this is the primary assessment criteria that are to be applied to assess the suitability of soils at the Site.

6.2.1.2 ASC NEPM (2013) and CRC CARE (2011) – Health Screening Levels (HSLs) for Petroleum Hydrocarbons

The NEPM presents health screening levels (HSLs) for petroleum hydrocarbon compounds, with criteria specific to intrusive maintenance workers and direct contact derived from CRC CARE (2011). The application of HSLs selects petroleum compounds and fractions for soils from near surface to beyond 4 mbgl and are considered relevant as the identified COPCs are consistent with those in the development of HSLs (petrol and diesel).

The following should be noted:

- HSLs have been developed for selected petroleum compounds and fractions and are applicable to assessing human health risks via the vapour inhalation and direct contact pathways.
- The HSLs depend on specific soil physicochemical properties, land-use scenarios and the characteristics of building structures. They apply to different soil types, and depths below surface to >4 mbgl.

Based on the Site setting and potential receptors present at the Site under the current and future land use settings, the assessment has adopted HSL C – public open space and intrusive maintenance workers for vapour intrusion and direct contact. Although the Site is not operational, it is assumed that maintenance works may still be required prior to decommissioning of the Site.

6.2.1.3 ASC NEPM (2013) – Health Screening Levels (HSLs) for Asbestos

The ASC NEMP (2013) includes three groups of asbestos:

- Bonded asbestos containing material (ACM): asbestos bound in a matrix, in sound condition, although possibly broken or fragmented and is restricted to material that cannot pass through a 7 mm x 7 mm sieve.
- Fibrous Asbestos (FA): friable asbestos material, such as severely weathered ACM that can be broken or crumbled by hand pressure) and loose fibrous material.



- Asbestos Fines (AF): includes free fibres of asbestos or small fibre bundles and ACM fragments that pass through a 7 mm x 7 mm sieve.

Based on the Site-specific setting, HSL C – public open space has been adopted for bonded ACM, noting that the adopted investigation level for FA and AF are the same for all land use settings (0.001% w/w).

6.2.2 Ecological

Schedule B1 of the NEPM provides a range of investigation levels for the protection of ecosystems, referred to as ecological investigation levels (EILs) and ecological screening levels (ESLs) and are applicable for assessment of potential risks to terrestrial ecosystems. The following should be noted:

- A limited range of EILs are provided for metals, arsenic, DDT and naphthalene and depend on specific soil physicochemical properties and land use scenarios, and in the absence of specific soil physio-chemical data, a generic added contaminant limit (ACL).
- ESLs have been developed for selected petroleum hydrocarbon compounds and TRH fractions. ESLs apply to coarse- and fine-grained soils and various land uses.
- The EILs/ESLs generally apply to the upper 2 m of soil, which corresponds to the root zone and habitation zone of many species.

EILs/ESLs are provided for three exposure settings based on land use. These are:

- Areas of ecological significance
- Urban residential and public open space
- Commercial and industrial.

For indicative purposes, EILs/ESLs have been used to conservatively assess potential ecological risks, by direct comparison with soil concentrations found at each sampling location. Given logging of soil indicated a high proportion of sandy soils, ESLs relating to fine grained soil in an urban and public open space land-use setting are considered appropriate.

6.2.3 Management Limits

The ASC NEPM (2013) Management Limits for TRH are applied after the consideration of the relevant HSLs and Ecological Screening Criteria. The aim of the Management Limits is to avoid or minimise the potential detects of the following and require consideration of Site-specific factors to determine the maximum depth to which the limits apply (2m BGL):

- Formation of observable light non-aqueous phase liquids (LNAPLs);
- Fire and explosive hazards; and
- Effects on buried infrastructure e.g. penetration of, or damage to, inground services by hydrocarbons.

Based on the environmental setting of the Site, the analytical results will be compared to the residential open space criteria for fine lithologies.

6.3 GROUNDWATER INVESTIGATION LEVELS

To frame the environmental setting the following is relevant to the Site:

- Groundwater strikes were encountered between 2.3 – 5.9 mbgl Stabilised groundwater levels were identified to range between 2.239 mBTOC in the north-west and 4.442 mBTOC in the south-east of the Site.

6.3.1 Human Health

6.3.1.1 NHMRC (2021) – Australian Drinking Water Guidelines (recreational)

The Australian Drinking Water Guidelines (ADWG) are intended to provide a framework for good management of drinking water supplies that assure safety at point of use. The provided guidance values are based on health-based and aesthetic quality of water. In accordance with the approach recommended by NHMRC (2008) *Guidelines for Managing Risks in Recreational Water*, the ADWG will be adopted for volatile compounds, to assess the risk of incidental ingestion for intrusive maintenance workers. For non-volatile compounds, the ADWG



will be adopted and adjusted by a factor of 10 to be applicable for incidental ingestion, as outlined in NHMRC 2008.

6.3.1.2 ASC NEPM (2013) and CRC Care (2011) – Health Screening Levels (HSLs) for Petroleum Hydrocarbons

HSLs derived by CRC CARE (2011) and adopted by the NEPM present petroleum hydrocarbon compound (petrol and diesel) concentrations to assess potential vapour intrusion risks from groundwater. Similar to soil HSLs, the groundwater HSLs have been developed for selected petroleum compounds and fractions, dependent on specific soil physicochemical properties, land-use scenarios and depths.

With this in mind, Kleinfelder has adopted the HSL C – public open space and intrusive maintenance worker guidelines for sand, 2 to >4 m and >4 m for comparative purposes, noting that this assessment will adopt multiple lines of evidence approach consistent with the advice provided in the NEPM and CRC CARE to make a determination on the level of potential risk and whether further assessment is required.

6.3.2 Ecological

To assess the potential risk to ecological receptors at the point of groundwater discharge, laboratory results from this assessment will be compared to the *Australian and New Zealand and Australian States and Territories (ANZAST) 2018*, *Australian and New Zealand Guidelines for Fresh and Marine Water Quality Guidelines (ANZG)*. The ANZG states reference to the *Australian and New Zealand Environment and Conservation Council (ANZECC) 2000* guidelines and presents default guideline values (DGV's) for assessing water quality to ecological receptors. Different levels of species protection are applied according to the current or desired ecosystem condition and associated level of protection.

Based on the environmental setting of the Site determined in **Section 2** of the Kleinfelder DSI SAQP, the ANZG DGVs for slight to moderately disturbed ecosystems have been adopted, considered to be protective of the Macquarie River (*ANZECC 2000*).

6.4 ADOPTED GUIDELINES

A summary of the adopted soil and groundwater guideline values is presented in **Tables 26-34, Appendix C**.



7 FIELD OBSERVATIONS AND RESULTS

7.1 SOIL

7.1.1 Subsurface Soil Profile

The subsurface profile encountered was generally consistent across the investigation locations. Surface cover consisted of a shallow layer of concrete/asphalt, underlain by sandy clay/gravelly sand fill material ranging from 0.4 mbgl to 1.3 mbgl. This was generally followed by natural sandy clay/clayey sand material (dark brown to yellowish orange, low to medium plasticity, soft to firm) to a maximum depth of approximately 2.5 m. The clay content then increases with depth (medium to high plasticity, firm, red/white) to approximately 3.0 m. The clays are underlain by weathered sandstone/siltstone (white to red) with thin occasional ironstone pockets. Sandstone/siltstone was intersected beneath the Site between 4.5 mbgl and 9.6mbgl.

Bore logs detailing the geological profile encountered are presented in **Appendix B**.

7.1.2 Observations of Hydrocarbon Impacts to Soils

Observations of petroleum hydrocarbon impact in soils during drilling and logging of the soil profiles are presented on the soil bore logs in **Appendix B**. Photos of the investigations are presented in **Appendix E**. Sample soil descriptions impacted by hydrocarbons are listed below in **Table 7-1**.

Table 7-1: Hydrocarbon-impacted Sample Descriptions

Surface Sample Location	Depth (mbgl)	Soil Description
BH7	6.0	Weathered siltstone, white, low to medium plasticity, soft to firm.

Olfactory observations of contaminated soil (petroleum hydrocarbon odour) soil was observed during drilling near the western border of the Site (BH7). This observation was observed near the water strike and therefore may potentially be due to groundwater contamination. There were no olfactory or PID indications of contamination prior to this depth. No other evidence of hydrocarbon contamination was detected in the remaining boreholes.

7.1.3 Laboratory Results

40 primary soil samples were submitted to ALS Laboratories Sydney (ALS) for COPC analysis associated with the current and historical Site use as outlined in **Table 3-1**. Soil laboratory results are presented in **Tables T1 – Table T25, Appendix C**. Chain of custody documentation and laboratory certificates of analysis are included in **Appendix G**.

A summary of the exceedances of the adopted assessment criteria is presented in Error! Reference source not found.**2**.

Table 7-2: Summary of Soil Exceedances

Analyte	Assessment Criteria	No. of Exceedances	Sample Distribution
Nickel	NEPM EIL Urban & Public Open Space (OP) - AGED	4	BH3_2.5 (32 mg/kg), HA02_0.3(34 mg/kg), HA04_0.3 (54 mg/kg), HA05_0.3 (39 mg/kg)
Zinc	NEPM EIL Urban & Public OP - AGED	7	BH2_0.5 (77 mg/kg), BH3_0.5 (219 mg/kg), BH4_0.5 (154 mg/kg), BH4_1.0 (157 mg/kg), BH5_0.5 (320 mg/kg), BH6_0.5 (203 mg/kg), HA03_0.2 (128 mg/kg)



7.2 GROUNDWATER

7.2.1 Groundwater Gauging and Hydrocarbon Observations

Three groundwater monitoring wells were installed during the time of investigation. Stabilised groundwater levels were measured for wells BH1, BH7 and BH8 (4.4, 3.2 & 2.4mbTOC respectively). PID headspace readings did not identify any volatiles within the groundwater wells.

7.2.2 Geochemical Parameters

Geochemical parameters recorded during the investigation are presented in **Table T26-T34, Appendix C**. The geochemical parameters indicate the following:

- Groundwater ranges from pH 7.34 (BH7) to 5.71 (BH1) indicating neutral to slightly acidic groundwater conditions.
- Electrical conductivity ranged from 300 µs/cm (BH8) to 420 µs/cm (BH1) indicating groundwater is fresh.

7.2.3 Analytical Results

Three groundwater samples were submitted for analysis. Analytical results obtained during the investigation are presented in **Table T26 – Table T32, Appendix C**, compared to the adopted assessment criteria presented in **Section 6.3**. Analytical results identified that BTEX, TRH, PAH, Heavy Metals, and PFAS analytes were detected above the LOR. A total of 6 heavy metal results exceed the ANZG 95% Freshwater criteria. One sample exceeds the PFAS NEMP 2020 Freshwater 99% limit.

7.3 QUALITY ASSURANCE AND QUALITY CONTROL

Based on a review of the results against the DQO's and DQI's for the project (presented in the data validation in **Appendix H**), the overall data quality is considered acceptable for interpretive use. Copies of the final NATA endorsed laboratory reports, including internal QA/QC results and chain-of-custody documentation for both laboratories are attached as **Appendix G**. Calibration certificates are presented in **Appendix I**.



8 DISCUSSION OF RESULTS

8.1 SOIL

Lithology & Sensory Observations

The subsurface profile encountered was generally consistent across the investigation locations. Surface cover consisted of a shallow layer of concrete/asphalt (0.0 – 0.2mbgl) across the site, underlain by sandy clay / gravelly sand fill material at depths ranging from 0.4mbgl to 1.3mbgl. This was generally followed by natural sandy clay / clayey sand material (dark brown to yellowish orange, low to medium plasticity, soft to firm) to a maximum depth of approximately 2.5m. This is then followed by natural clay with trace sand (medium to high plasticity, firm, red/white) that decreases with depth until non-existent at approximately 3.0m. Beneath this material is weathered sandstone / siltstone (white to red, firm to stiff) with small bands of ironstone occasionally appearing, followed by bedrock appearing as shallow as approximately 4.5mbgl to 9.6mbgl. Olfactory observations of petroleum hydrocarbons were detected in BH7, located downgradient of the Site, at depths of approximately 6.0m.

Human Health

Exceedances of the HSL C (Open Space) assessment criteria were not identified within any samples submitted for chemical analysis. Soil analytical results with concentrations above the LOR are summarized below;

- All heavy metals results are below the NEPM HILs.
- Concentrations of TRH were detected above the LOR in One sample (BH5_0.5).
- Concentrations of Organochlorine Pesticides were recorded in a total of 3 samples from the 14 samples analysed. Concentrations were below the HIL-C limit.
- Concentrations of PAH were detected in 3 samples out of a total of 40 samples analysed. All concentrations of PAH and B(a)P were below the HIL-C limits.
- PFAS was detected in 4 samples out of 13 samples analysed. Concentrations were below the HIL-C limits.
- Analysis for acid sulfate soils indicates soils on-site are potentially acid sulfate soils.

Concentrations of BTEX, Organophosphorus pesticides, Polychlorinated Biphenyls & Phenolic compounds were not recorded above the LOR. Acid sulfate soils results are discussed in a separate Kleinfelder Geotechnical report prepared for the Site.

Terrestrial Ecology & Management Limits

Exceedances of the Setting C (Open Space) assessment criteria for Ecological Investigation Levels (EILs) and Ecological Screening Levels (ESLs) were reported. Exceedances of EILs and ESLs are summarized below;

- Heavy metal concentrations of Nickel exceed the NEPM EILs in a total of 4 samples. Concentrations of Zinc exceed the NEPM EILs in a total of 7 samples.

8.2 GROUNDWATER

Groundwater Depth

Groundwater strikes were encountered during the subsurface investigation as shallow as 2.3m to the south of the Site, but generally encountered around 3.0 – 4.0m bgl. Stabilised groundwater levels prior to sampling were measured ranging between 4.4 & 2.4mbTOC respectively).

PSH & Sensory Observations

No measurable PSH was identified at the Site during the groundwater gauging and no odours were detected in purge water or groundwater samples.

Human Health

Hydrocarbons and heavy metals were detected in groundwater samples analysed. Groundwater analytical results with concentrations above the LOR are summarized below;



- BTEX was detected in BH7 groundwater well location. Concentrations of Benzene exceed the NHMRC Recreational Water criteria of 1 µg/L. Remaining concentrations were below the ANZG 2018 Freshwater 95% criteria which have been selected as the most appropriate criterion.
- Concentrations of Copper exceed the ANZG 2018 Freshwater 95% criteria in one sample.
- Concentrations of Nickel exceed the ANZG 2018 Freshwater 95% criteria in one sample.
- Concentrations of Zinc exceed the ANZG 2018 Freshwater 95% criteria in all three samples.
- PFAS was detected in one sample. The concentrations exceed the PFAS NEMP 2020 Freshwater 99% limit.

Concentrations of PAH, Organophosphorus & Organochlorine pesticides & Polychlorinated Biphenyls were not reported above the LOR.

8.2.1 Dewatering During Construction Activities

Based on the minor recorded exceedances of ANZG Freshwater criteria for heavy metals, PFAS Freshwater limit and ANZG Recreational water criteria for Benzene, groundwater extracted during any dewatering activities conducted during construction is not considered suitable for discharge to the stormwater network without pretreatment. Prior approval will need to be sought from the local water authority to discharge to the sewer network, or potentially, water may need to be pumped and treated on-site prior to discharge. Given the recorded concentrations are relatively minor, concentrations should not be a major impediment to gaining approval to discharge to the sewer network if that is determined to be the most appropriate method of water discharge during construction.



9 CONCEPTUAL SITE MODEL

A CSM is a qualitative description of Site related information regarding identified contamination sources, pathways and receptors to identify plausible exposure routes to human and ecological receptors that could cause harm. The key elements of a CSM are outlined in National Environmental Protection Council, National Environmental Protection (Assessment of Site Contamination) Measure, 2013 (NEPM, 2013) and comprise:

- Known and potential sources of soil and groundwater-derived contamination
- COPC including the mechanism of release to the environment
- A description of potentially affected environmental media (e.g. soil, surface water, groundwater, air);
- Identification of sensitive human and ecological receptors that may be exposed to sources of contamination; and
- Identification of potential and complete exposure pathways that could result in harm to human health or the environment.

For a complete exposure pathway to exist, all four elements need to present including:

- A source of contamination and mechanism of release to the environment;
- Contamination of environmental media which may act as a mechanism for transport or contamination sink;
- A point of exposure for human health and/or ecological receptors with contaminated environmental media; and
- An exposure route (e.g. ingestion, skin contact or oral inhalation).

Where one or more of the above elements is missing, the exposure pathway is considered to be incomplete and there is therefore no direct risk to the receptors. Where this is identified, the exposure pathway does not warrant further assessment and is eliminated from the assessment of potential risk. Where all elements are present, consideration needs to be made to the magnitude and extent of the identified contamination and a professional judgement made as to the need for further Site-specific risk assessment (Tier 2), remediation and/or longer-term management.

The CSM for the Site has been completed considering the future proposed land use setting (commercial/industrial) as detailed in **Section 2**. Site-specific sources of contamination/affected environmental media, and the environmental setting, have been incorporated into the Tier 1 qualitative risk assessment based on the environmental investigations completed at the Site as detailed in **Section 3 – Section 8**.

9.1 SOURCES OF CONTAMINATION AND TRANSPORT MECHANISMS

The following potential primary sources of petroleum hydrocarbon contamination have been identified at the Site:

- Pesticide use from nursery operations conducted within the site.
- Petroleum Hydrocarbon and chemical storage and use, including:
 - Maintenance and refuelling activities associated with lawn mower repairs, storage and sale of solvents and hydrocarbons associated with hardware use.

9.2 HUMAN HEALTH RECEPTORS AND EXPOSURE PATHWAYS

It is understood that the Site is to be divested for commercial/industrial land uses consistent with the current use, therefore this assessment does not consider more on-Site sensitive land use settings, such as residential occupation, childcare and schooling facilities or agricultural use. Should a more sensitive land use be proposed for the Site, an additional assessment would be required.

Based on currently available information with regard to the current and future land use scenario of the Site detailed in **Section 2**, the following human receptors have been considered:

- On-Site commercial/industrial workers. It is considered that an assessment of on-Site workers is protective of any visitors to the Site;



- On-Site shallow intrusive (i.e. ground excavation) maintenance workers who may complete maintenance to above ground and underground infrastructure (e.g. services).
- Off-Site commercial/industrial workers of neighbouring properties;
- Off-Site shallow intrusive maintenance workers;
- Off-Site recreational and commercial users of the Macquarie River; and
- Off-Site residents in a low-density residential scenario with accessible soils.

The following human exposure pathways may apply:

- Dermal contact and incidental ingestion of soils.
- Inhalation of soil-derived dust in indoor and outdoor air.
- Inhalation of soil-derived vapour in indoor and outdoor air.
- Inhalation of soil-derived vapour in a trench.
- Dermal contact and incidental ingestion of groundwater/surface water.
- Inhalation of groundwater-derived vapour in indoor and outdoor air.
- Inhalation of groundwater-derived vapour in a trench.
- Ingestion of groundwater abstracted for human consumption:

The following is noted pertaining to potential receptors and exposure pathways:

An assessment of identified source-pathway-receptor (S-P-R) linkages has been presented in **Table 9-1**.



Table 9-1: S-P-R Linkages for Human Health

Exposure Pathways		Dermal contact and incidental ingestion of soils	Inhalation of soil-derived dust in indoor and outdoor air (including asbestos fibres)	Inhalation of soil-derived vapour in indoor and outdoor air	Inhalation of soil-derived vapour in a trench	Dermal contact and incidental ingestion of groundwater/surface water	Inhalation of groundwater-derived vapour in indoor and outdoor air	Inhalation of groundwater-derived vapour in a trench
Receptors								
On-Site	Commercial / Industrial Workers (future)	On-Site soils > dermal contact criteria	○ Asbestos results in soils < LOR	○ Soil results < vapour intrusion criteria.	N/A	○ Not considered to have contact with affected media	○ Groundwater results < vapour intrusion criteria	N/A
	Intrusive Maintenance Workers (current and future)	● On-Site soils > dermal contact criteria	○ Asbestos results in soils < LOR	N/A	○ Soil results < vapour intrusion criteria	● Groundwater concentrations exceed NHMRC Recreational Criteria for Benzene. 5 samples exceed ANZG 2018 Freshwater 95% for heavy metals.	N/A	○ Groundwater results < vapour intrusion criteria
Off-Site	Commercial / Industrial Workers	○ No access to Site soils	○ Asbestos results in soils < LOR	○ Exceedances not identified off-Site	N/A	○ Exceedances not identified off-Site	○ Exceedances not identified off-Site	N/A
	Intrusive Maintenance Workers	○ No access to Site soils	○ Asbestos results in soils < LOR	N/A	○ Soil results < vapour intrusion criteria	○ Exceedances not identified off-Site	N/A	○ Exceedances not identified off-Site
	Recreational and Commercial Users of the Brisbane Waters Estuary	N/A	○ Asbestos results in soils < LOR	N/A	N/A	Off-site area not assessed	Off-site area not assessed	N/A



Exposure Pathways		Dermal contact and incidental ingestion of soils	Inhalation of soil-derived dust in indoor and outdoor air (including asbestos fibres)	Inhalation of soil-derived vapour in indoor and outdoor air	Inhalation of soil-derived vapour in a trench	Dermal contact and incidental ingestion of groundwater/surface water	Inhalation of groundwater-derived vapour in indoor and outdoor air	Inhalation of groundwater-derived vapour in a trench
Receptors								
	Residents	○ No access to Site soils	○ Asbestos results in soils < LOR	○ Exceedances not identified off-Site	N/A	○ Off-site area not assessed	○ Off-site area not assessed	N/A

Notes: ● – potentially complete pathway
 ○ – incomplete pathway



9.3 ECOLOGICAL RECEPTORS AND EXPOSURE PATHWAYS

Based on the review of the environmental setting, the following potential ecological receptors have been considered:

- On-Site terrestrial flora and fauna;
- Off-Site terrestrial flora and fauna; and
- Off-Site aquatic flora and fauna of the Brisbane Waters Estuary.

Due to the lack of a significant drainage network (e.g. large, deep spoon drains or swales) and on-site surface water features (i.e. creeks, ponds, dams) which maintain regular surface water flows, on-Site aquatic receptors have not been considered as a receptor.

The Brisbane Water Estuary is located approximately 1km to the southwest of the site. Given some minor groundwater contamination has been identified within the site, The Brisbane Waters Estuary is considered a potential ecological receptor of any contamination identified on-site.

The following pathways are considered to be relevant to ecological receptors at the Site:

- Dermal contact and uptake from impacted groundwater and soils on-Site;
- Dermal contact and uptake from impacted groundwater and soils off-Site; and

Based on the following qualitative risk assessment, source-pathway-receptor linkages for ecological receptors are considered to be complete for the following:

- Off-Site aquatic flora and fauna of the Brisbane Waters Estuary.

9.4 S-P-R LINKAGE SUMMARY AND TIER 1 QUALITATIVE RISK ASSESSMENT

Based on the CSM, and Tier 1 conservative screening levels, potentially complete pathways have been identified for the following key receptors which may present a risk of increased harm to human health:

- Off-Site aquatic flora and fauna of the Brisbane Waters Estuary.

No evidence of contamination has been identified within soils at the site which exceeds the adopted land use criteria of HIL C Open Space, however, some contaminants have been identified within groundwater at the site. Given the proximity of the groundwater well locations to the site boundary and the lack of identified contamination within soils or major historical activities with high contamination potential, it is likely the identified hydrocarbons and PFAS detections are from an off-site source. Marginal heavy metal exceedances could be attributed to background heavy metal concentrations.



10 CONCLUSIONS

Kleinfelder completed a DSI at the Site with the objective of collecting sufficient environmental information on soil & groundwater conditions at the site to inform the University of Newcastle's (UoN) decision regarding the acquisition of the Site for redevelopment. The investigation involved conducting intrusive soil sampling and sampling of the 3 groundwater wells installed as part of the DSI investigation.

The key findings of the assessment are as follows:

Historical Development

- The Site has been used for storage and handling of machinery such as lawn mower repair and hardware sales which included a nursery area. The site history indicates potential contaminants of concern include Hydrocarbons, heavy metals & pesticides.

Soil Lithology and Hydrogeology

- The subsurface profile was observed to comprise a shallow fill layer with underlying alluvial soils comprising intermixed silts, sands and clays.
- Groundwater was encountered between 2.2 – 4 mbgl during Site intrusive works and was gauged in monitoring wells between 4.4m – 2.4 mbTOC during the groundwater monitoring event. Inferred groundwater flow direction was to the southwest, towards the Brisbane Waters estuary.

Soils Exceedances

Concentrations of COPC exceeding the HIL C Open Space criteria were not recorded in any sample analysed. Heavy metal concentrations of Nickel exceed the NEPM EILs in a total of 4 samples. Concentrations of Zinc exceed the NEPM EILs in a total of 7 samples. Given the sites intended redevelopment consists of a commercial ground floor, the minor exceedances of ecological criteria are not considered to be an impediment to the redevelopment of the site. Potential acid sulfate soils have been identified within the Site. Acid sulfate soils results are discussed in a separate Kleinfelder Geotechnical report prepared for the Site.

Groundwater Exceedances

- Concentrations of heavy metals exceed the ANZG 2018 95% criteria for heavy metals in 5 samples. PFAS exceeding the PFAS NEMP 202 Freshwater 99% limit was detected in one sample. Concentrations of Benzene exceed the NHMRC Recreational Water criteria of 1µg/L.

Tier 1 Qualitative Risk Assessment

Based on the CSM, and Tier 1 conservative screening levels, potentially complete pathways have been identified for the following key receptors which may present a risk of increased harm to human health:

- Off-Site aquatic flora and fauna of the Brisbane Waters Estuary.

Recommendations

No evidence of contamination has been identified within soils at the site which exceeds the adopted land use criteria of HIL C Open Space, however, some contaminants have been identified within groundwater at the site. Given the proximity of the groundwater well locations to the site boundary and the lack of identified contamination within soils or major historical activities with high contamination potential, it is likely the identified hydrocarbons and PFAS detections are from an off-site source. Marginal heavy metal exceedances could be attributed to background heavy metal concentrations.

Based on the minor recorded exceedances of ANZG Freshwater criteria for heavy metals, PFAS Freshwater limit and ANZG Recreational water criteria for Benzene, groundwater extracted during any dewatering activities conducted during construction is not considered suitable for discharge to the stormwater network without pretreatment. Prior approval will need to be sought from the local water authority to discharge to the sewer network, or potentially, water may need to be pumped and treated on-site prior to discharge. Given the recorded concentrations are relatively minor, concentrations should not be a major impediment to gaining approval to discharge to the sewer network if that is determined to be the most appropriate method of water discharge during construction.

Based on the findings of the DSI, The Site is suitable for its intended land use and redevelopment as a new University campus.



11 LIMITATIONS

This report has been prepared by Kleinfelder Australia Pty Ltd (Kleinfelder) and may be used only by the Client and its designated representatives or relevant statutory authorities and only for the purposes stated for this specific engagement within a reasonable time from its issuance, but in no event later than two years from the date of the report.

This work was performed in a manner consistent with that level of care and skill ordinarily exercised by other members of Kleinfelder's profession practicing in the same locality, under similar conditions and at the date the services are provided. Our conclusions, opinions, and recommendations are based on a limited number of observations and data. It is possible that conditions could vary between or beyond the data evaluated. Kleinfelder makes no other representation, guarantee, or warranty, express or implied, regarding the services, communication (oral or written), report, opinion, or instrument of service provided.

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The findings and conclusions contained within this report are relevant to the conditions of the site and the state of legislation currently enacted in the relevant jurisdiction in which the site is located as at the date of this report.

Additionally, the findings and conclusions contained within this report are made following a review of certain information, reports, correspondence and data noted by methods described in this report including information supplied by the client or its assigns. Kleinfelder has designed and managed the program for this report in good faith and in a manner that seeks to confirm the information provided and test its accuracy and completeness.

However, Kleinfelder does not provide guarantees or assurances regarding the accuracy, completeness and validity of information and data obtained from these sources and accepts no responsibility for errors or omissions arising from relying on data or conclusions obtained from these sources.

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12 REFERENCES

- Australia and New Zealand and Australian States and Territories (ANZAST), 2018. Australian and New Zealand Guidelines for Fresh and Marine Water Quality, as revised August 2018.
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- Standards Australia AS 4482.1-1997. Guide to the Investigation and Sampling of Sites with Potentially Contaminated Soil. Part 1: Non-volatile and semi-volatile compounds, as revised in 2005.
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APPENDIX A: FIGURES





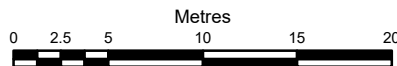
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Legend

- Site Boundary
- Primary Road
- Local Road

Sample Locations

- Borehole to rock
- Core Borehole 12m Medium Strength Sandstone
- Hand Auger



PROJECT REFERENCE: 20232408
 DATE DRAWN: 9/12/2022 12:24 Version 1
 DRAWN BY: CMiskell

DATA SOURCE:
 LPI - 2009
 Nearmap - 2022

Site Figure & Sampling Locations

University of Newcastle
 DSI
 UoN Gosford campus
 305 Mann Street, Gosford, 2308

FIGURE:

1

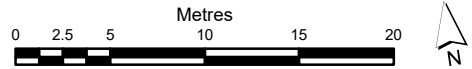


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Key
Inferred Groundwater Contours (0.5 m AHD)
Inferred Groundwater Flow Direction Vector

- Legend**
- Site Boundary
 - Primary Road
 - Local Road

- Sample Locations**
- Borehole to rock
 - Core Borehole 12m Medium Strength Sandstone



PROJECT REFERENCE: 20232408
 DATE DRAWN: 9/12/2022 12:24 Version 1
 DRAWN BY: CMiskell
 DATA SOURCE:
 LPI - 2009
 Nearmap - 2022

Groundwater Contours & Flow Direction

University of Newcastle
 DSI
 UoN Gosford campus
 305 Mann Street, Gosford, 2308

FIGURE:

2



APPENDIX B: BORE LOGS



ROCK CORING LOG BH1

Date Begin - End: 19/10/22
Logged By: J.Roby
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Overcast
Drilling Company: Tucker Environmental
Drill Crew: J. Tucker
Drilling Equipment: Geoprobe
Drilling Method: See Drilling Method Column
Bore Diameter: 100 mm. O.D.

Depth (metres)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID / FID (ppmv)	Graphical Log	FIELD EXPLORATION		MONITORING WELL CONSTRUCTION	
							Surface Condition: Asphalt	Lithologic Description	Completion Method: Flush mount cap in concrete	
0			BH2_0.5		0		FILL: CONCRETE : grey, no odour, no staining			
1			BH2_1.0		0		FILL: Sandy CLAY with Gravel : coarse sand, subrounded gravel, subrounded sand, low to medium plasticity, dark gray, no odour, moist, soft, no staining CLAY with Silt : high plasticity, orangish red, no odour, moist to wet, stiff to very stiff, no staining		Bentonite / Neat Cement Grout	
2			BH2_2.0		0		Sandy CLAY : coarse sand, subrounded sand, low to medium plasticity, yellow to white, no odour, dry to moist, medium to stiff, no staining		2" SCH 40 Solid PVC Riser	
3	Continuous Flight Auger						Silty CLAY : low plasticity, red to white, no odour, dry, very stiff, no staining		Bentonite Chips	
4									20/40 Sand Pack	
5							Completely Weathered SILTSTONE : brown to reddish white, no odour, very stiff, no staining		2" SCH 40 Slotted 0.010 PVC Pipe	
6							Completely Weathered SILTSTONE : red to yellowish white, no odour, very stiff, no staining			
7	Coring								Bentonite Chips	



PROJECT NO.:
20232408.001A


 DRAWN BY: AK
 CHECKED BY: DK
 DATE: 15/11/22

ROCK CORING LOG BH1

UON Gosford Campus
 305 Mann Street
 Gosford, NSW

Date Begin - End: 19/10/22	Drilling Company: Tucker Environmental	ROCK CORING LOG BH1
Logged By: J.Roby	Drill Crew: J. Tucker	
Hor.-Vert. Datum: Not Available	Drilling Equipment: Geoprobe	
Plunge: -90 degrees	Drilling Method: See Drilling Method Column	
Weather: Overcast	Bore Diameter: 100 mm. O.D.	

Depth (metres)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID / FID (ppmv)	Graphical Log	FIELD EXPLORATION		MONITORING WELL CONSTRUCTION		
							Surface Condition: Asphalt		Completion Method: Flush mount cap in concrete		
							Lithologic Description				
9	Coring										
10											
11											
12											
13											
14											
15											

 KLEINFELDER <i>Bright People. Right Solutions.</i>	PROJECT NO.: 20232408.001A	ROCK CORING LOG BH1
	DRAWN BY: AK CHECKED BY: DK DATE: 15/11/22	

Date Begin - End: 19/10/22	Drilling Company: Tucker Environmental	ROCK CORING LOG BH1
Logged By: J.Roby	Drill Crew: J. Tucker	
Hor.-Vert. Datum: Not Available	Drilling Equipment: Geoprobe	
Plunge: -90 degrees	Drilling Method: See Drilling Method Column	
Weather: Overcast	Bore Diameter: 100 mm. O.D.	

Depth (metres)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID / FID (ppmv)	Graphical Log	FIELD EXPLORATION		MONITORING WELL CONSTRUCTION	
							Surface Condition: Asphalt	Lithologic Description	Completion Method: Flush mount cap in concrete	
17	Coring									
18										
19										
20										
21										

The borehole was terminated at approximately 21.3 m. below ground level. Rock was encountered at a depth of 5.7 m. during this borehole. Coring started at a depth of 5.7 m. Refer to attached corresponding detailed rock coring log for rock coring information.

GROUNDWATER LEVEL INFORMATION:
 ☒ Groundwater was observed at approximately 4 m. below ground surface during drilling.
GENERAL NOTES:
 A PID (ppmv) was used for environmental field screening. A 50 mm. diameter PVC casing was drilled to a depth of 6 m. Monitoring Well installed to a depth of 6m.



PROJECT NO.:
20232408.001A

DRAWN BY: AK

CHECKED BY: DK

DATE: 15/11/22

ROCK CORING LOG BH1

UON Gosford Campus
 305 Mann Street
 Gosford, NSW

ROCK CORING LOG BH2

Date Begin - End: 18/10/22
Logged By: J.Roby
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Overcast
Drilling Company: Tucker Environmental
Drill Crew: J. Tucker
Drilling Equipment: Geoprobe
Drilling Method: See Drilling Method Column
Bore Diameter: 100 mm. O.D.

FIELD EXPLORATION						
Depth (metres)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID / FID (ppmv)	Graphical Log
						Surface Condition: Asphalt
						Lithologic Description
			BH2_0.5		0	FILL: ASPHALT : grey
1			BH2_1.0		0	FILL: Sandy GRAVEL : coarse gravel, subangular gravel, subangular sand, low plasticity, dark grey, dry to moist
						Clayey SAND : coarse sand, subangular to subrounded sand, non-plastic to low plasticity, light grey, moist, loose
2						CLAY with Sand : coarse sand, subangular to subrounded sand, low to medium plasticity, yellow, moist
						CLAY : low plasticity, grey, moist, very soft
3			BH2_3.0		0	CLAY : medium to high plasticity, orangish red, dry to moist, firm to stiff
4						CLAY with Sand : coarse sand, subrounded sand, low to medium plasticity, orangish red, wet, firm
						CLAY with Sand : coarse sand, subrounded sand, low to medium plasticity, grey, moist, firm
						CLAY : medium to high plasticity, orangish red, dry to moist, stiff
5						
6						
7						



PROJECT NO.:
20232408.001A


 DRAWN BY: AK
 CHECKED BY: DK
 DATE: 15/11/22

ROCK CORING LOG BH2

UON Gosford Campus
 305 Mann Street
 Gosford, NSW

Date Begin - End: 18/10/22	Drilling Company: Tucker Environmental	ROCK CORING LOG BH2
Logged By: J.Roby	Drill Crew: J. Tucker	
Hor.-Vert. Datum: Not Available	Drilling Equipment: Geoprobe	
Plunge: -90 degrees	Drilling Method: See Drilling Method Column	
Weather: Overcast	Bore Diameter: 100 mm. O.D.	

FIELD EXPLORATION						
Depth (metres)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID / FID (ppmv)	Graphical Log
						Surface Condition: Asphalt
						Lithologic Description
9						
10						
11						
12	Coring					
13						
14						
15						

 <p>KLEINFELDER Bright People. Right Solutions.</p>	PROJECT NO.: 20232408.001A	ROCK CORING LOG BH2
	DRAWN BY: AK CHECKED BY: DK DATE: 15/11/22	

ROCK CORING LOG BH2

Date Begin - End: 18/10/22 **Drilling Company:** Tucker Environmental
Logged By: J.Roby **Drill Crew:** J. Tucker
Hor.-Vert. Datum: Not Available **Drilling Equipment:** Geoprobe
Plunge: -90 degrees **Drilling Method:** See Drilling Method Column
Weather: Overcast **Bore Diameter:** 100 mm. O.D.

FIELD EXPLORATION						
Depth (metres)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID / FID (ppmv)	Graphical Log
						Surface Condition: Asphalt
						Lithologic Description
17	Coring					
18						
19						
20						
21						
22	The borehole was terminated at approximately 21.1 m. below ground level. Rock was encountered at a depth of 6.1 m. during this borehole. Coring started at a depth of 6.1 m. Refer to attached corresponding detailed rock coring log for rock coring information.					GROUNDWATER LEVEL INFORMATION: ▼ Groundwater was observed at approximately 3 m. below ground surface at the end of drilling. ≍ Groundwater was observed at approximately 4 m. below ground surface during drilling. GENERAL NOTES: The rock coring was backfilled with auger cuttings and bentonite.
23						



PROJECT NO.: 20232408.001A
 DRAWN BY: AK
 CHECKED BY: DK
 DATE: 15/11/22

ROCK CORING LOG BH2

UON Gosford Campus
 305 Mann Street
 Gosford, NSW

ROCK CORING LOG BH3

Date Begin - End: 19/10/22
Logged By: J.Roby
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Overcast
Drilling Company: Tucker Environmental
Drill Crew: J. Tucker
Drilling Equipment: Geoprobe
Drilling Method: See Drilling Method Column
Bore Diameter: 100 mm. O.D.

FIELD EXPLORATION

Depth (metres)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	P ID / FID (ppmv)	Graphical Log	Lithologic Description
							Surface Condition: Asphalt
							FILL: ASPHALT : grey, dry
							FILL: Sandy CLAY : coarse sand, subangular sand, low plasticity, yellowish brown, moist, soft
1			BH3_0.5		0		CLAY : medium to high plasticity, reddish brown, dry to moist, firm to stiff
			BH3_1.1		0		
2							NOTE : Density change @2.5m, stiff with low plasticity. Iron oxide staining
3			BH3_2.6		0		
4							NOTE : Density change @4m, medium very stiff.
5							Silty CLAY : low plasticity, white, dry, very stiff
6							
7							



PROJECT NO.:
20232408.001A

 DRAWN BY: AK
 CHECKED BY: DK
 DATE: 15/11/22

ROCK CORING LOG BH3

UON Gosford Campus
 305 Mann Street
 Gosford, NSW

Date Begin - End: 19/10/22
Logged By: J.Roby
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Overcast
Drilling Company: Tucker Environmental
Drill Crew: J. Tucker
Drilling Equipment: Geoprobe
Drilling Method: See Drilling Method Column
Bore Diameter: 100 mm. O.D.

ROCK CORING LOG BH3

FIELD EXPLORATION						
Depth (metres)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID / FID (ppmv)	Graphical Log
						Surface Condition: Asphalt
						Lithologic Description
9						
10						
11						
12	Coring					
13						
14						
15						



PROJECT NO.:
20232408.001A

 DRAWN BY: AK
 CHECKED BY: DK
 DATE: 15/11/22

ROCK CORING LOG BH3

UON Gosford Campus
 305 Mann Street
 Gosford, NSW

ROCK CORING LOG BH3

Date Begin - End: 19/10/22 **Drilling Company:** Tucker Environmental
Logged By: J.Roby **Drill Crew:** J. Tucker
Hor.-Vert. Datum: Not Available **Drilling Equipment:** Geoprobe
Plunge: -90 degrees **Drilling Method:** See Drilling Method Column
Weather: Overcast **Bore Diameter:** 100 mm. O.D.

FIELD EXPLORATION

Depth (metres)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID / FID (ppmv)	Graphical Log	
							Surface Condition: Asphalt
							Lithologic Description
17	Coring						
18							
19							
20							
21							<p>The borehole was terminated at approximately 20.8 m. below ground level. Rock was encountered at a depth of 6.5 m. during this borehole. Coring started at a depth of 6.5 m. Refer to attached corresponding detailed rock coring log for rock coring information.</p> <p><u>GROUNDWATER LEVEL INFORMATION:</u> ☒ Groundwater was observed at approximately 2.5 m. below ground surface during drilling. <u>GENERAL NOTES:</u> The rock coring was backfilled with auger cuttings and bentonite.</p>
22							
23							



PROJECT NO.:
20232408.001A

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CHECKED BY: DK


DATE: 15/11/22

ROCK CORING LOG BH3

UON Gosford Campus
 305 Mann Street
 Gosford, NSW

Date Begin - End: 17/10/22	Drilling Company: Tucker Environmental	SAMPLE LOG BH4
Logged By: J.Roby	Drill Crew: J. Tucker	
Hor.-Vert. Datum: Not Available	Drilling Equipment: Geoprobe	
Plunge: -90 degrees	Drilling Method: See Drilling Method Column	
Weather: Cloud/Rain	Auger Diameter: 100 mm. O.D.	

FIELD EXPLORATION						
Depth (metres)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID / FID (ppmv)	Graphical Log
						Surface Condition: Asphalt
						Lithologic Description
			BH4_0.2		0	FILL: CONCRETE : grey
			BH4_0.5		0	FILL: Gravelly SAND : coarse sand, subangular to subrounded gravel, subangular to subrounded sand, yellow, dry to moist
1			BH4_1.0		0	FILL: Silty SAND : coarse sand, angular to subangular sand, low plasticity, black, dry to moist, loose Silty CLAY : medium to coarse sand, low to medium plasticity, black, moist, soft
						Clayey SAND : coarse sand, subrounded sand, low plasticity, dark grey, moist, soft
2			BH4_2.0		0	CLAY with Sand : coarse sand, subrounded sand, medium to high plasticity, yellowish brown, moist, firm
3						
4						Note: No sand and moisture change to wet @3.5m
5						
6						Note: Colour change to light grey at 5.9m to 6.1m Note: Colour change to reddish orange @6.1m
7						
8						
9						
10						
The borehole was terminated because of practical auger refusal at approximately 9.6 m. below ground level on Bedrock.						GROUNDWATER LEVEL INFORMATION: Groundwater was observed at approximately 3.5 m. below ground surface during drilling. GENERAL NOTES: The sample was backfilled with auger cuttings.

	PROJECT NO.: 20232408.001A	SAMPLE LOG BH4
	DRAWN BY: AK CHECKED BY: DK DATE: 15/11/22	

Date Begin - End: 17/10/22 **Drilling Company:** Tucker Environmental
Logged By: J.Roby **Drill Crew:** J. Tucker
Hor.-Vert. Datum: Not Available **Drilling Equipment:** Geoprobe
Plunge: -90 degrees **Drilling Method:** See Drilling Method Column
Weather: Cloud/Rain **Auger Diameter:** 100 mm. O.D.

FIELD EXPLORATION

Depth (metres)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID / FID (ppmv)	Graphical Log	Lithologic Description
							Surface Condition: Concrete
							FILL: CONCRETE: grey, dry, Note: Orange plastic layer at 0.15
			BH5_0.2		0		FILL: GRAVEL: fine to coarse gravel, subangular to subrounded gravel, low plasticity, grey, dry
			BH5_0.5		0		Silty CLAY: low to medium plasticity, dark grey, moist, soft to firm
1			BH5_1.0		0		Sandy CLAY: fine to medium sand, subangular to subrounded sand, medium plasticity, grey, moist to wet, soft to firm
2			BH5_1.9		0		CLAY: medium plasticity, yellowish grey, moist to wet, soft to firm
							CLAY: high plasticity, orangish red, dry to moist, firm to stiff
3							Note: Moisture change to wet @3.5m
4							
5							
6							
7							
8							CLAY: high plasticity, greyish white, wet, firm to stiff
9							

The borehole was terminated because of practical auger refusal at approximately 8.3 m. below ground level on Bedrock.

GROUNDWATER LEVEL INFORMATION:
 Groundwater was observed at approximately 3.5 m. below ground surface during drilling.
GENERAL NOTES:
 The sample was backfilled with auger cuttings.




PROJECT NO.: 20232408.001A
 DRAWN BY: AK
 CHECKED BY: DK
 DATE: 15/11/22

SAMPLE LOG BH5

UON Gosford Campus
 305 Mann Street
 Gosford, NSW

Date Begin - End: 21/10/22	Drilling Company: Tucker Environmental	SAMPLE LOG BH6
Logged By: J.Roby	Drill Crew: J. Tucker	
Hor.-Vert. Datum: Not Available	Drilling Equipment: Geoprobe	
Plunge: -90 degrees	Drilling Method: See Drilling Method Column	
Weather: Cloud/Rain	Auger Diameter: 100 mm. O.D.	

FIELD EXPLORATION						
Depth (metres)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID / FID (ppmv)	Graphical Log
						Surface Condition: Concrete
						Lithologic Description
1	Continuous Flight Auger		BH6_0.5		0	FILL: CONCRETE : grey, dry
			BH6_1.0		0	FILL: Sandy CLAY : subrounded sand, low plasticity, yellow
						FILL: Silty SAND : low plasticity, dark grey, loose
						CLAY with Sand : subrounded sand, low to medium plasticity, yellowish orange, soft to firm
2						CLAY : medium plasticity, orangish red, stiff
3						CLAY with Silt : medium to high plasticity, pinkish white, stiff to very stiff, iron oxide staining
4			BH6_4.0		0	Note: Band of Ironstone @ 4.2-4.25m.
5	The borehole was terminated because of practical auger refusal at approximately 4.5 m. below ground level on Bedrock.				GROUNDWATER LEVEL INFORMATION: Groundwater was not observed during drilling or after completion. GENERAL NOTES: The sample was backfilled with auger cuttings.	
6						
7						
8						
9						

 KLEINFELDER Bright People. Right Solutions.	PROJECT NO.: 20232408.001A	SAMPLE LOG BH6
	DRAWN BY: AK CHECKED BY: DK DATE: 15/11/22	UON Gosford Campus 305 Mann Street Gosford, NSW

Date Begin - End: 21/10/22
Logged By: J.Roby
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Cloud/Rain
Drilling Company: Tucker Environmental
Drill Crew: J. Tucker
Drilling Equipment: Geoprobe
Drilling Method: See Drilling Method Column
Auger Diameter: 100 mm. O.D.

MONITORING WELL LOG BH7

Depth (metres)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID / FID (ppmv)	FIELD EXPLORATION		MONITORING WELL CONSTRUCTION	
						Graphical Log	Lithologic Description	Completion Method:	
							Surface Condition: Concrete		Flush mount cap in concrete
0			BH7_0.5		0		FILL: grey		
0.5			BH7_1.0		0		FILL: Gravelly SAND: coarse sand, subangular to subrounded gravel, subangular to subrounded sand, grey, dry Silty CLAY with Sand: coarse sand, subrounded sand, low plasticity, dark brown, dry to moist, very soft to soft		
1.5			BH7_4.0		1.0		Sandy CLAY: coarse sand, subrounded sand, low plasticity, yellowish brown, moist, very soft to soft CLAY: medium to high plasticity, reddish brown, moist, firm	Bentonite / Neat Cement Grout	
3.0							Note: Stiff @3.0m	2" SCH 40 Solid PVC Riser	
4.5			BH7_6.0		102.1		CLAY: high plasticity, white with reddish brown, moist, firm to stiff Weathered SILTSTONE: low to medium plasticity, white, dry, very stiff Note: Fractured Ironstone layer @5.0-5.1m. Moist to wet	Bentonite Chips	
5.5							Note: Wet @5.9m, becoming hard @ 6.0m moderate hydrocarbon odour	20/40 Sand Pack	
6.0								2" SCH 40 Slotted 0.010 PVC Pipe	
7.3							The borehole was terminated because of practical auger refusal at approximately 7.3 m. below ground level on Bedrock.		

GROUNDWATER LEVEL INFORMATION:
 ∇ Groundwater was observed at approximately 6 m. below ground surface during drilling.
GENERAL NOTES:
 A PID (ppmv) was used for environmental field screening. A 50 mm. diameter PVC casing was drilled to a depth of 7.3 m.
 Monitoring Well installed to a depth of 7.3m.



PROJECT NO.: 20232408.001A
 DRAWN BY: AK
 CHECKED BY: DK
 DATE: 15/11/22

MONITORING WELL LOG BH7

UON Gosford Campus
 305 Mann Street
 Gosford, NSW

PLOTTED: 16/11/2022 09:03 PM BY: JRoby

Date Begin - End: 11/10/22
Logged By: J.Roby
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Overcast

Drilling Company: Tucker Environmental
Drill Crew: J. Tucker
Drilling Equipment: Geoprobe
Drilling Method: See Drilling Method Column
Bore Diameter: 100 mm. O.D.

ROCK CORING LOG BH8

Depth (metres)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID / FID (ppmv)	FID (ppmv)	Graphical Log	FIELD EXPLORATION		MONITORING WELL CONSTRUCTION	
								Surface Condition: Concrete	Lithologic Description	Completion Method: Flush mount cap in concrete	
0											
0.5			BH8_0.5		0			FILL: CONCRETE			
1.0			BH8_1.0		0			FILL: SAND with Gravel: coarse sand, sub-angular, yellow, dry, loose		Bentonite / Neat Cement Grout	
2.0			BH8_2.0		0			Sandy CLAY: medium sand, rounded, low plasticity, dark grey, moist, very soft to soft		2" SCH 40 Solid PVC Riser	
3.0			BH8_3.0		0			Note: consistency change, firm to stiff @ 3.1-3.2m Note: Wet @ 3.2m		Bentonite Chips	
4.0			BH8_4.0		0			CLAY with Sand: high plasticity, reddish brown, dry to moist, very soft to soft			
5.0			BH8_5.0		0			SAND with Clay: coarse sand, non-plastic to low plasticity, grey, dry to moist CLAY: medium to high plasticity, red and brown, dry to moist, soft to medium		20/40 Sand Pack	
6.0			BH8_6.0		0			Note: colour change to grey at 6.5m		2" SCH 40 Slotted 0.010 PVC Pipe	
7.0											
8.0											
9.0											
10.0											
11.0								Weathered SILTSTONE: high plasticity, red and white, dry, medium stiff			
12.0								Note: White and Hard at 12.0m			
13.0											

OFFICE FILTER: NEWCASTLE

PROJECT NUMBER: 20232408.001A
 GINT TEMPLATE: E:KLF_STANDARD_GINT_LIBRARY_2023.GLB [KLF_ENVIRONMENTAL LOG]

GINT FILE: KLF_gint_master_2023



PROJECT NO.:
20232408.001A

 DRAWN BY: JR
 CHECKED BY: DK
 DATE: 15/11/22

ROCK CORING LOG BH8

UON Gosford Campus
 305 Mann Street
 Gosford, NSW

ROCK CORING LOG BH8

Date Begin - End: 11/10/22 **Drilling Company:** Tucker Environmental
Logged By: J.Roby **Drill Crew:** J. Tucker
Hor.-Vert. Datum: Not Available **Drilling Equipment:** Geoprobe
Plunge: -90 degrees **Drilling Method:** See Drilling Method Column
Weather: Overcast **Bore Diameter:** 100 mm. O.D.

Depth (metres)	FIELD EXPLORATION							MONITORING WELL CONSTRUCTION	
	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID / FID (ppmv)	FID (ppmv)	Graphical Log	Surface Condition: Concrete	
								Lithologic Description	
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									

Bentonite / Neat Cement Grout

The borehole was terminated at approximately 24.8 m. below ground level. Rock was encountered at a depth of 12.4 m. during this borehole. Coring started at a depth of 12.4 m.

GROUNDWATER LEVEL INFORMATION:
 Groundwater was observed at approximately 3 m. below ground surface during drilling.
GENERAL NOTES:
 A PID (ppmv) was used for environmental field screening.
 A 50 mm. diameter PVC casing was drilled to a depth of 9 m.
 The rock coring was backfilled with auger cuttings.



PROJECT NO.: 20232408.001A
 DRAWN BY: JR
 CHECKED BY: DK
 DATE: 15/11/22

ROCK CORING LOG BH8

UON Gosford Campus
 305 Mann Street
 Gosford, NSW

Date Begin - End: 18/10/22 **Drilling Company:** Kleinfelder
Logged By: A.King **Drill Crew:** A.King
Hor.-Vert. Datum: Not Available **Drilling Equipment:** Hand Auger
Plunge: -90 degrees **Drilling Method:** See Drilling Method Column
Weather: Cloud/Rain **Auger Diameter:** 50 mm. O.D.

HAND EXPLORATION LOG HA01

FIELD EXPLORATION						
Depth (metres)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID / FID (ppmv)	Graphical Log
Surface Condition: Asphalt						
Lithologic Description						
						FILL: CONCRETE: grey
			HA01_0.3		0	FILL: SAND: coarse sand, subrounded sand, orange, dry, loose
1	Hand Auger					
			HA01_1.4		0	CLAY: coarse sand, low plasticity, brown, moist, soft
			HA01_2.0		0	Silty SAND: coarse sand, subangular sand, low plasticity, greenish grey, dry to moist, very soft
The borehole was terminated at approximately 2.1 m. below ground level.						GROUNDWATER LEVEL INFORMATION: Groundwater was not observed during drilling or after completion. GENERAL NOTES: The hand exploration was backfilled with excavated material.



PROJECT NO.:
20232408.001A

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DATE: 15/11/22

HAND EXPLORATION LOG HA01

UON Gosford Campus
 305 Mann Street
 Gosford, NSW

Date Begin - End: 11/10/22 **Drilling Company:** Kleinfelder
Logged By: A.King **Drill Crew:** A.King
Hor.-Vert. Datum: Not Available **Drilling Equipment:** Hand Auger
Plunge: -90 degrees **Drilling Method:** See Drilling Method Column
Weather: Overcast **Auger Diameter:** 50 mm. O.D.

HAND EXPLORATION LOG HA02

FIELD EXPLORATION						
Depth (metres)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID / FID (ppmv)	Graphical Log
						Surface Condition: Concrete
						Lithologic Description
			BH8_0.3		0	FILL: CONCRETE: grey, no odor, no staining
			BH8_0.6		0	FILL: GRAVEL with Sand: grey, no odor, dry, no staining
			BH8_1.0		0	CLAY: high plasticity, red to yellow, no odor, dry, stiff to very stiff, no staining Note: Consistency change to Hard @ 0.7m.
2						The borehole was terminated at approximately 1.8 m. below ground level.
						<u>GROUNDWATER LEVEL INFORMATION:</u> Groundwater was not observed during drilling or after completion. <u>GENERAL NOTES:</u> The hand exploration was backfilled with auger cuttings.



PROJECT NO.:
20232408.001A

DRAWN BY: JR
CHECKED BY: DK
DATE: 15/11/22

HAND EXPLORATION LOG HA02

UON Gosford Campus
305 Mann Street
Gosford, NSW

Date Begin - End: 18/10/22 **Drilling Company:** Kleinfelder
Logged By: A.King **Drill Crew:** A.King
Hor.-Vert. Datum: Not Available **Drilling Equipment:** Hand Auger
Plunge: -90 degrees **Drilling Method:** See Drilling Method Column
Weather: Cloud/Rain **Auger Diameter:** 50 mm. O.D.

HAND EXPLORATION LOG HA03

FIELD EXPLORATION						
Depth (metres)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID / FID (ppmv)	Graphical Log
Surface Condition: Grass & Weeds						
Lithologic Description						
			HA03_0.1		0	FILL: Silty GRAVEL: coarse gravel, subangular to subrounded gravel, dark grey, moist, loose, Brick chunks
			HA03_0.2		0	FILL: Silty CLAY: low to medium plasticity, dark grey, moist, soft
			HA03_0.3		0	FILL: CLAY and Sand: subangular to subrounded sand, medium plasticity, yellowish grey, moist, medium stiff
						FILL: Sandy GRAVEL with Silt: coarse gravel, subangular to subrounded gravel, subangular to subrounded sand, dark grey, moist, loose CLAY: medium to high plasticity, yellow, moist, soft to medium
1	Hand Auger		HA03_0.8		0	Note: colour change to reddish yellow, high plasticity, soft to very soft.
			HA03_0.9		0	CLAY: medium to high plasticity, pale red to grey, dry to moist, soft to medium
2	<p>The borehole was terminated at approximately 2 m. below ground level.</p> <p>GROUNDWATER LEVEL INFORMATION: Groundwater was not observed during drilling or after completion. GENERAL NOTES: The hand exploration was backfilled with excavated material.</p>					



PROJECT NO.: 20232408.001A
 DRAWN BY: AK
 CHECKED BY: DK
 DATE: 15/11/22

HAND EXPLORATION LOG HA03

UON Gosford Campus
 305 Mann Street
 Gosford, NSW

Date Begin - End: 18/10/22 **Drilling Company:** Kleinfelder
Logged By: A.King **Drill Crew:** A.King
Hor.-Vert. Datum: Not Available **Drilling Equipment:** Hand Auger
Plunge: -90 degrees **Drilling Method:** See Drilling Method Column
Weather: Cloud/Rain **Auger Diameter:** 50 mm. O.D.

HAND EXPLORATION LOG HA04

FIELD EXPLORATION						
Depth (metres)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID / FID (ppmv)	Graphical Log
						Surface Condition: Concrete
						Lithologic Description
						FILL: ASPHALT: grey
			HA04_0.3		0	FILL: SAND: coarse sand, subangular to subrounded sand, yellowish grey, wet, dense
						FILL: SAND: coarse sand, subangular to subrounded sand, dark grey, moist, loose
			HA04_0.8		0	FILL: SAND: coarse sand, subangular to subrounded sand, dark brown, dry, loose
						Note: Colour change to yellow @1m
						CLAY: medium plasticity, orangish red yellow, dry, medium stiff
			HA04_2.0		0	
The borehole was terminated at approximately 2.1 m. below ground level.						GROUNDWATER LEVEL INFORMATION: Groundwater was not observed during drilling or after completion. GENERAL NOTES: The hand exploration was backfilled with excavated material.



PROJECT NO.: 20232408.001A
 DRAWN BY: AK
 CHECKED BY: DK
 DATE: 15/11/22

HAND EXPLORATION LOG HA04

UON Gosford Campus
 305 Mann Street
 Gosford, NSW

Date Begin - End: 11/10/22
Logged By: A.King
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Overcast

Drilling Company: Kleinfelder
Drill Crew: A.King
Drilling Equipment: Hand Auger
Drilling Method: See Drilling Method Column
Auger Diameter: 50 mm. O.D.

HAND EXPLORATION LOG HA05

FIELD EXPLORATION						
Depth (metres)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID / FID (ppmv)	Graphical Log
						Surface Condition: Concrete
						Lithologic Description
			BH8_0.3		0	<p>CONCRETE: grey, no odor, no staining</p> <p>SAND with Gravel: fine to coarse sand, sub-rounded, yellow, no odor, dry, loose, no staining</p>
			BH8_0.7		0	<p>Silty CLAY: low plasticity, grey, no odor, dry, soft, no staining</p> <p>Note: colour change to black @0.8m</p>
			BH8_1.5		0	<p>CLAY with Sand: low to medium plasticity, yellow, no odor, moist, very soft to soft, no staining</p> <p>CLAY: medium plasticity, red, no odor, moist, soft to medium, no staining</p>
<p>The borehole was terminated at approximately 2 m. below ground level.</p> <p>GROUNDWATER LEVEL INFORMATION: Groundwater was not observed during drilling or after completion.</p> <p>GENERAL NOTES: Monitoring Well installed to a depth of 9.0m.</p>						



PROJECT NO.:
20232408.001A

DRAWN BY: JR

CHECKED BY: DK

DATE: 15/11/22

HAND EXPLORATION LOG HA05

UON Gosford Campus
 305 Mann Street
 Gosford, NSW



APPENDIX C: ANALYTICAL TABLES



Table T1 - BTEXN / TPH / TRH in Soil



Analyte	BTEXN								Total Petroleum Hydrocarbons					Total Recoverable Hydrocarbons											
	Benzene	Toluene	Ethylbenzene	meta- & para-Xylene	ortho-Xylene	Total Xylenes	Naphthalene	Sum of BTEX	C ₆ - C ₉	C ₁₀ - C ₁₄	C ₁₅ - C ₂₈	C ₂₉ - C ₃₆	C ₁₀ - C ₃₆ sum	C ₆ - C ₁₀	C ₆ - C ₁₀ minus BTEX (F1)	>C ₁₀ - C ₁₆	>C ₁₀ - C ₁₆ minus Naphthalene (F2)	>C ₁₆ - C ₃₄	>C ₃₄ - C ₄₀	>C ₁₀ - C ₄₀ (sum)					
LOR	0.2	0.5	0.5	0.5	0.5	0.5	1.0	0.2	10	50	100	100	50	10	10	50	50	100	100	50					
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					
CRC CARE HSLS C - SO - DIRECT CONTACT	120	18000	5300	--	--	15000	1900	--	--	--	--	--	--	5100	--	3800	--	5300	7400	--					
CRC CARE HSLS IMW - SO - SAND <2M	77	NL	NL	--	--	NL	NL	--	--	--	--	--	--	NL	--	NL	--	--	--	--					
CRC CARE HSLS IMW - SO - SAND 2 TO <4M	160	NL	NL	--	--	NL	NL	--	--	--	--	--	--	NL	--	NL	--	--	--	--					
CRC CARE HSLS IMW - SO -DIRECT CONTACT	1100	120000	85000	--	--	13000	29000	--	--	--	--	--	--	82000	--	62000	--	85000	120000	--					
NEPM 2013 EIL URBAN & PUBLIC OP - AGED	--	--	--	--	--	--	170	--	--	--	--	--	--	--	--	--	--	--	--	--					
NEPM 2013 ESL URBAN & PUBLIC OP - FINE	65	105	125	--	--	45	--	--	--	--	--	--	--	--	180	--	120	1300	5600	--					
NEPM 2013 ML RES. OPEN SPA - FINE	--	--	--	--	--	--	--	--	--	--	--	--	--	800	--	1000	--	3500	10000	--					
Sample Name	Sample Date	Start Depth (m)																							
BH1_0.5	19-Oct-22	0.5	< 0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.0	< 0.2	< 10	< 50	< 100	< 100	< 50	< 10	< 10	< 50	< 50	< 100	< 100	< 50		
BH1_1.0	19-Oct-22	1.0	< 0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.0	< 0.2	< 10	< 50	< 100	< 100	< 50	< 10	< 10	< 50	< 50	< 100	< 100	< 50		
BH1_2.0	19-Oct-22	2.0	< 0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.0	< 0.2	< 10	< 50	< 100	< 100	< 50	< 10	< 10	< 50	< 50	< 100	< 100	< 50		
BH2_0.5	18-Oct-22	0.5	< 0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.0	< 0.2	< 10	< 50	< 100	< 100	< 50	< 10	< 10	< 50	< 50	< 100	< 100	< 50		
BH2_1.0	18-Oct-22	1.0	< 0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.0	< 0.2	< 10	< 50	< 100	< 100	< 50	< 10	< 10	< 50	< 50	< 100	< 100	< 50		
BH2_3.0	18-Oct-22	3.0	< 0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.0	< 0.2	< 10	< 50	< 100	< 100	< 50	< 10	< 10	< 50	< 50	< 100	< 100	< 50		
BH3_0.5	19-Oct-22	0.5	< 0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.0	< 0.2	< 10	< 50	< 100	< 100	< 50	< 10	< 10	< 50	< 50	< 100	< 100	< 50		
BH3_1.0	19-Oct-22	1.0	< 0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.0	< 0.2	< 10	< 50	< 100	< 100	< 50	< 10	< 10	< 50	< 50	< 100	< 100	< 50		
BH3_2.5	19-Oct-22	2.5	< 0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.0	< 0.2	< 10	< 50	< 100	< 100	< 50	< 10	< 10	< 50	< 50	< 100	< 100	< 50		
BH4_0.5	17-Oct-22	0.5	< 0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.0	< 0.2	< 10	< 50	< 100	< 100	< 50	< 10	< 10	< 50	< 50	< 100	< 100	< 50		
BH4_1.0	17-Oct-22	1.0	< 0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.0	< 0.2	< 10	< 50	< 100	< 100	< 50	< 10	< 10	< 50	< 50	< 100	< 100	< 50		
BH4_2.0	17-Oct-22	2.0	< 0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.0	< 0.2	< 10	< 50	< 100	< 100	< 50	< 10	< 10	< 50	< 50	< 100	< 100	< 50		
BH5_0.5	17-Oct-22	0.5	< 0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.0	< 0.2	< 10	< 50	270	170	440	< 10	< 10	< 50	< 50	400	< 100	400		
BH5_1.0	17-Oct-22	1.0	< 0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.0	< 0.2	< 10	< 50	< 100	< 100	< 50	< 10	< 10	< 50	< 50	< 100	< 100	< 50		
BH5_1.9	17-Oct-22	1.9	< 0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.0	< 0.2	< 10	< 50	< 100	< 100	< 50	< 10	< 10	< 50	< 50	< 100	< 100	< 50		
BH6_0.5	21-Oct-22	0.5	< 0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.0	< 0.2	< 10	< 50	< 100	< 100	< 50	< 10	< 10	< 50	< 50	< 100	< 100	< 50		
BH6_1.0	21-Oct-22	1.0	< 0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.0	< 0.2	< 10	< 50	< 100	< 100	< 50	< 10	< 10	< 50	< 50	< 100	< 100	< 50		
BH6_4.0	21-Oct-22	4.0	< 0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.0	< 0.2	< 10	< 50	< 100	< 100	< 50	< 10	< 10	< 50	< 50	< 100	< 100	< 50		
BH7_0.5	21-Oct-22	5.0	< 0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.0	< 0.2	< 10	< 50	< 100	< 100	< 50	< 10	< 10	< 50	< 50	< 100	< 100	< 50		
BH7_1.0	21-Oct-22	1.0	< 0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.0	< 0.2	< 10	< 50	< 100	< 100	< 50	< 10	< 10	< 50	< 50	< 100	< 100	< 50		
BH7_4.0	21-Oct-22	4.0	< 0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.0	< 0.2	< 10	< 50	< 100	< 100	< 50	< 10	< 10	< 50	< 50	< 100	< 100	< 50		
BH7_6.0	21-Oct-22	6.0	< 0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.0	< 0.2	< 10	< 50	< 100	< 100	< 50	< 10	< 10	< 50	< 50	< 100	< 100	< 50		
BH8_0.5	10-Nov-22	0.5	< 0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.0	< 0.2	< 10	< 50	< 100	< 100	< 50	< 10	< 10	< 50	< 50	< 100	< 100	< 50		
BH8_2.0	10-Nov-22	2.0	< 0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.0	< 0.2	< 10	< 50	< 100	< 100	< 50	< 10	< 10	< 50	< 50	< 100	< 100	< 50		
BH8_6.0	10-Nov-22	6.0	< 0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.0	< 0.2	< 10	< 50	< 100	< 100	< 50	< 10	< 10	< 50	< 50	< 100	< 100	< 50		
HA01_0.3	18-Oct-22	0.3	< 0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.0	< 0.2	< 10	< 50	< 100	< 100	< 50	< 10	< 10	< 50	< 50	< 100	< 100	< 50		
HA01_1.4	18-Oct-22	1.4	< 0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.0	< 0.2	< 10	< 50	< 100	< 100	< 50	< 10	< 10	< 50	< 50	< 100	< 100	< 50		
HA01_2.0	18-Oct-22	2.0	< 0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.0	< 0.2	< 10	< 50	< 100	< 100	< 50	< 10	< 10	< 50	< 50	< 100	< 100	< 50		
HA02_0.3	10-Nov-22	0.3	< 0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.0	< 0.2	< 10	< 50	< 100	< 100	< 50	< 10	< 10	< 50	< 50	< 100	< 100	< 50		
HA02_0.6	10-Nov-22	0.6	< 0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.0	< 0.2	< 10	< 50	< 100	< 100	< 50	< 10	< 10	< 50	< 50	< 100	< 100	< 50		
HA02_1.0	10-Nov-22	1.0	< 0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.0	< 0.2	< 10	< 50	< 100	< 100	< 50	< 10	< 10	< 50	< 50	< 100	< 100	< 50		
HA03_0.2	18-Oct-22	0.2	< 0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.0	< 0.2	< 10	< 50	< 100	< 100	< 50	< 10	< 10	< 50	< 50	< 100	< 100	< 50		
HA03_0.8	18-Oct-22	0.8	< 0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.0	< 0.2	< 10	< 50	< 100	< 100	< 50	< 10	< 10	< 50	< 50	< 100	< 100	< 50		
HA03_1.8	18-Oct-22	1.8	< 0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.0	< 0.2	< 10	< 50	< 100	< 100	< 50	< 10	< 10	< 50	< 50	< 100	< 100	< 50		
HA04_0.3	18-Oct-22	0.3	< 0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.0	< 0.2	< 10	< 50	< 100	< 100	< 50	< 10	< 10	< 50	< 50	< 100	< 100	< 50		
HA04_0.8	18-Oct-22	0.8	< 0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.0	< 0.2	< 10	< 50	< 100	< 100</										

Table T2 - Metals in Soil

Analyte			Metals							
			Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc
LOR			5.0	1.0	2.0	5.0	5.0	0.1	2.0	5.0
Units			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
NEPM 2013 EIL URBAN & PUBLIC OP - AGED			100	--	--	60	1100	--	30	70
NEPM 2013 HIL C - SO			300	90	300	17000	600	80	1200	30000
Sample Name	Sample Date	Start Depth (m)								
BH1_0.5	19-Oct-22	0.5	< 5.0	< 1.0	7.0	< 5.0	21	< 0.1	< 2.0	16
BH1_1.0	19-Oct-22	1.0	< 5.0	< 1.0	14	< 5.0	28	< 0.1	< 2.0	< 5.0
BH1_2.0	19-Oct-22	2.0	< 5.0	< 1.0	9.0	< 5.0	12	< 0.1	< 2.0	< 5.0
BH2_0.5	18-Oct-22	0.5	< 5.0	< 1.0	16	22	32	< 0.1	18	77
BH2_1.0	18-Oct-22	1.0	< 5.0	< 1.0	5.0	6.0	15	< 0.1	< 2.0	12
BH2_3.0	18-Oct-22	3.0	< 5.0	< 1.0	10	< 5.0	13	< 0.1	< 2.0	8.0
BH3_0.5	19-Oct-22	0.5	8.0	< 1.0	26	8.0	51	< 0.1	4.0	219
BH3_1.0	19-Oct-22	1.0	13	1.0	58	< 5.0	18	< 0.1	< 2.0	< 5.0
BH3_2.5	19-Oct-22	2.5	< 5.0	< 1.0	9.0	< 5.0	20	< 0.1	< 2.0	< 5.0
BH4_0.5	17-Oct-22	0.5	< 5.0	< 1.0	33	42	95	0.2	32	154
BH4_1.0	17-Oct-22	1.0	< 5.0	< 1.0	24	40	106	0.6	22	157
BH4_2.0	17-Oct-22	2.0	< 5.0	< 1.0	10	< 5.0	8.0	< 0.1	< 2.0	5.0
BH5_0.5	17-Oct-22	0.5	8.0	< 1.0	9.0	21	210	1.2	3.0	320
BH5_1.0	17-Oct-22	1.0	< 5.0	< 1.0	4.0	< 5.0	< 5.0	< 0.1	< 2.0	28
BH5_1.9	17-Oct-22	1.9	< 5.0	< 1.0	6.0	< 5.0	5.0	< 0.1	< 2.0	6.0
BH6_0.5	21-Oct-22	0.5	6.0	< 1.0	16	36	211	0.2	22	203
BH6_1.0	21-Oct-22	1.0	< 5.0	< 1.0	16	< 5.0	9.0	< 0.1	< 2.0	< 5.0
BH6_4.0	21-Oct-22	4.0	5.0	< 1.0	7.0	< 5.0	16	< 0.1	< 2.0	< 5.0
BH7_0.5	21-Oct-22	5.0	< 5.0	< 1.0	9.0	7.0	42	< 0.1	6.0	54
BH7_1.0	21-Oct-22	1.0	< 5.0	< 1.0	4.0	< 5.0	< 5.0	< 0.1	< 2.0	< 5.0
BH7_4.0	21-Oct-22	4.0	< 5.0	< 1.0	13	< 5.0	24	0.1	< 2.0	< 5.0
BH7_6.0	21-Oct-22	6.0	< 5.0	< 1.0	21	< 5.0	12	< 0.1	< 2.0	< 5.0
BH8_0.5	10-Nov-22	0.5	6.0	< 1.0	9.0	12	60	2.1	7.0	57
BH8_2.0	10-Nov-22	2.0	< 5.0	< 1.0	4.0	< 5.0	8.0	< 0.1	< 2.0	< 5.0
BH8_6.0	10-Nov-22	6.0	< 5.0	< 1.0	9.0	< 5.0	9.0	< 0.1	< 2.0	< 5.0
HA01_0.3	18-Oct-22	0.3	< 5.0	< 1.0	3.0	< 5.0	14	< 0.1	2.0	14
HA01_1.4	18-Oct-22	1.4	< 5.0	< 1.0	4.0	6.0	26	< 0.1	2.0	40
HA01_2.0	18-Oct-22	2.0	< 5.0	< 1.0	< 2.0	< 5.0	< 5.0	< 0.1	< 2.0	< 5.0
HA02_0.3	10-Nov-22	0.3	< 5.0	< 1.0	10	19	< 5.0	< 0.1	34	17
HA02_0.6	10-Nov-22	0.6	< 5.0	< 1.0	21	< 5.0	10	< 0.1	< 2.0	< 5.0
HA02_1.0	10-Nov-22	1.0	10	< 1.0	23	< 5.0	14	< 0.1	< 2.0	< 5.0
HA03_0.2	18-Oct-22	0.2	5.0	< 1.0	15	39	105	0.1	13	128
HA03_0.8	18-Oct-22	0.8	< 5.0	< 1.0	18	< 5.0	15	< 0.1	< 2.0	11
HA03_1.8	18-Oct-22	1.8	8.0	< 1.0	19	< 5.0	14	< 0.1	< 2.0	< 5.0
HA04_0.3	18-Oct-22	0.3	< 5.0	< 1.0	16	31	5.0	< 0.1	54	34
HA04_0.8	18-Oct-22	0.8	< 5.0	< 1.0	8.0	< 5.0	16	< 0.1	< 2.0	22
HA04_2.0	18-Oct-22	2.0	< 5.0	< 1.0	15	< 5.0	8.0	< 0.1	< 2.0	19
HA05_0.3	10-Nov-22	0.3	< 5.0	< 1.0	10	28	10	< 0.1	39	27
HA05_0.7	10-Nov-22	0.7	< 5.0	< 1.0	4.0	< 5.0	7.0	< 0.1	< 2.0	7.0
HA05_1.5	10-Nov-22	1.5	< 5.0	< 1.0	4.0	< 5.0	< 5.0	< 0.1	< 2.0	< 5.0

Notes:

< - Less than laboratory limit of reporting

mg/kg - Milligrams per kilogram

Bold indicates a detection above the laboratory limit of reporting

Highlighting indicates an exceedance of the corresponding criteria (highlighting corresponds to the guideline with the highest criteria value where analytical result exceeds more than one guideline)

Criteria:

The National Environment Protection Measures - Ecological Investigation Levels - Table 1B(1)(2)(3)(4)(5) - Urban Residential and Public Open Space, Aged Contamination

The National Environment Protection Measures (2013) - Health-based Investigation Levels - Table 1A(1) - Soil - Recreational and Open Space

Analyte			Inorganics			
			Sulphate	Chloride	Electrical Conductivity @ 25°C	pH
LOR			10	10	1.0	0.1
Units			mg/kg	mg/kg	µS/cm	pH units
Sample Name	Sample Date	Start Depth (m)				
BH1_1.0	19-Oct-22	1.0	40	< 10	30	5.3
BH1_3.0	19-Oct-22	3.0	10	< 10	17	5.4
BH2_1.0	18-Oct-22	1.0	< 10	< 10	19	7.6
BH2_3.0	18-Oct-22	3.0	40	< 10	32	5.1
BH3_1.0	19-Oct-22	1.0	90	< 10	58	4.8
BH3_2.5	19-Oct-22	2.5	30	< 10	30	5.0
BH4_1.0	17-Oct-22	1.0	< 10	< 10	93	8.3
BH4_3.0	17-Oct-22	3.0	20	< 10	21	5.7
BH5_1.0	17-Oct-22	1.0	-	-	67	6.9
BH5_1.9	17-Oct-22	1.9	40	< 10	35	4.9
BH5_2.0	17-Oct-22	2.0	20	< 10	23	5.4
BH6_1.0	21-Oct-22	1.0	50	< 10	42	4.9
BH6_4.0	21-Oct-22	4.0	20	< 10	41	4.9
BH7_1.0	21-Oct-22	1.0	50	10	45	5.6
BH7_3.0	21-Oct-22	3.0	30	< 10	28	4.9
BH7_4.0	21-Oct-22	4.0	40	< 10	39	5.1
BH7_6.0	21-Oct-22	6.0	40	50	62	5.2
BH8_1.0	10-Nov-22	1.0	90	20	105	7.9
BH8_5.0	10-Nov-22	5.0	30	< 10	22	5.2

Notes:

-- Not analysed

< - Less than laboratory limit of reporting

LOR - Laboratory limit of reporting

mg/kg - Milligrams per kilogram

µS/cm - Microsiemens per centimeter

Bold indicates a detection above the laboratory limit of reporting

Analyte			Asbestos			
			Asbestos Detected	Asbestos (Trace)	Synthetic Mineral Fibre	Organic Fibre
LOR			--	--	--	--
Units			Yes/No	Yes/No	Yes/No	Yes/No
Sample Name	Sample Date	Start Depth (m)				
BH1_0.5	19-Oct-22	0.5	No	No	No	No
BH2_0.5	18-Oct-22	0.5	No	No	No	No
BH3_0.5	19-Oct-22	0.5	No	No	No	No
BH4_0.2	17-Oct-22	0.2	No	No	No	No
BH5_0.2	17-Oct-22	0.2	No	No	No	No
BH6_0.5	21-Oct-22	0.5	No	No	No	No
BH7_0.5	21-Oct-22	5.0	No	No	No	No
BH8_0.5	10-Nov-22	0.5	No	No	No	No
HA01_0.3	18-Oct-22	0.3	No	No	No	No
HA02_0.3	10-Nov-22	0.3	No	No	No	No
HA03_0.1	18-Oct-22	0.1	No	No	No	No
HA04_0.3	18-Oct-22	0.3	No	No	No	No
HA05_0.3	10-Nov-22	0.3	No	No	No	No

Notes:

-- Not analysed

< - Less than laboratory limit of reporting

Bold indicates a detection above the laboratory limit of reporting

Table T1 - Indicators of Acid Sulphate Soils

Analyte	Field pH				SPOCAS Analysis				Acidity														
	pH (F)	pH (Fox)	Reaction Rate	pH (F) - pH (Fox)	pH (KCl)	Net Acidity (sulfur units)	Net Acidity (acidity units)	Liming Rate	Titrateable Actual Acidity (23F)	Sulfidic - Titrateable Actual Acidity (s-23F)	Net Acid Soluble Sulfur (20Je)	Acidity - Net Acid Soluble Sulfur (a-20J)	KCl Extractable Sulfur (23Ce)	Chromium Reducible Sulfur (22B)	HCl Extractable Sulfur (20Be)	acidity - Chromium Reducible Sulfur (a-22B)	Sulfidic - Net Acid Soluble Sulfur (s-20J)	ANC Fineness Factor	Net Acidity excluding ANC (sulfur units)	Net Acidity excluding ANC (acidity units)	Liming Rate excluding ANC		
Units	pH units	pH units	Reaction units	pH units	pH units	% S	mole H+/t	kg CaCO3/t	mole H+/t	% pyrite S	% S	mole H+/t	% S	% S	% S	mole H+/t	% pyrite S	-	% S	mole H+/t	kg CaCO3/t		
ASSMAC (1998) Indicators of Actual or Potential Acid Sulphate Soils	--	--	Effervescence Reaction Rate	Drop in pH of >1 unit	--	0.06	36	>LOR	--	--	--	--	--	--	--	--	--	--	--	--	--		
Sample Name	Sample Date	Start Depth (m)																					
BH1_1.0	19-Oct-22	1.0	5.3	4.0	2.0	1.3	4.2	0.23	146	11	134	0.22	< 0.02	< 10	< 0.02	0.018	< 0.02	11	< 0.02	1.5	0.23	146	11
BH1_2.0	19-Oct-22	2.0	4.7	3.5	2.0	1.2	4.3	0.15	95	7.0	83	0.13	< 0.02	< 10	< 0.02	0.019	< 0.02	12	< 0.02	1.5	0.15	95	7.0
BH2_0.5	18-Oct-22	0.5	-	-	-	-	8.2	< 0.02	< 10	< 1.0	< 2.0	< 0.02	-	-	-	0.014	< 0.02	< 10	< 0.02	1.5	< 0.02	< 10	< 1.0
BH2_1.0	18-Oct-22	1.0	6.5	4.9	2.0	1.6	6.8	< 0.02	< 10	< 1.0	< 2.0	< 0.02	-	-	-	0.013	< 0.02	< 10	< 0.02	1.5	< 0.02	< 10	< 1.0
BH2_3.0	18-Oct-22	3.0	4.9	3.8	2.0	1.1	4.8	0.08	50	4.0	45	0.07	-	-	-	0.009	< 0.02	< 10	< 0.02	1.5	0.08	50	4.0
BH3_0.5	19-Oct-22	0.5	-	-	-	-	7.6	< 0.02	< 10	< 1.0	< 2.0	< 0.02	-	-	-	0.015	< 0.02	< 10	< 0.02	1.5	< 0.02	< 10	< 1.0
BH3_1.0	19-Oct-22	1.0	4.4	3.2	2.0	1.2	4.0	0.31	195	15	178	0.28	< 0.02	< 10	0.05	0.015	0.05	< 10	< 0.02	1.5	0.31	195	15
BH3_2.5	19-Oct-22	2.5	4.8	3.4	2.0	1.4	4.3	0.18	112	8.0	72	0.11	0.06	30	< 0.02	0.018	0.03	11	0.05	1.5	0.18	112	8.0
BH4_1.0	17-Oct-22	1.0	7.5	4.6	3.0	2.9	7.4	< 0.02	< 10	< 1.0	< 2.0	< 0.02	-	-	-	0.014	< 0.02	< 10	< 0.02	1.5	< 0.02	< 10	< 1.0
BH4_2.0	17-Oct-22	2.0	6.8	5.0	2.0	1.8	5.5	0.04	23	2.0	13	0.02	-	-	-	0.016	< 0.02	< 10	< 0.02	1.5	0.04	23	2.0
BH5_0.5	17-Oct-22	0.5	-	-	-	-	7.2	< 0.02	< 10	< 1.0	< 2.0	< 0.02	-	-	-	0.012	< 0.02	< 10	< 0.02	1.5	< 0.02	< 10	< 1.0
BH5_1.0	17-Oct-22	1.0	7.0	4.4	2.0	2.6	6.9	< 0.02	< 10	< 1.0	< 2.0	< 0.02	-	-	-	0.016	< 0.02	< 10	< 0.02	1.5	< 0.02	10	< 1.0
BH5_1.9	17-Oct-22	1.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH6_1.0	21-Oct-22	1.0	7.2	4.6	2.0	2.6	5.3	0.03	18	1.0	12	< 0.02	-	-	-	0.01	< 0.02	< 10	< 0.02	1.5	0.03	18	1.0
BH6_4.0	21-Oct-22	4.0	4.4	2.9	2.0	1.5	4.4	0.19	116	9.0	80	0.13	0.06	27	< 0.02	0.014	0.03	< 10	0.04	1.5	0.19	116	9.0
BH7_1.0	21-Oct-22	1.0	5.7	3.3	2.0	2.4	5.3	0.03	17	1.0	13	0.02	-	-	-	0.007	< 0.02	< 10	< 0.02	1.5	0.03	17	1.0
BH7_4.0	21-Oct-22	4.0	-	-	-	-	4.2	0.28	174	13	145	0.23	0.05	24	< 0.02	0.009	0.02	< 10	0.04	1.5	0.28	174	13
BH7_6.0	21-Oct-22	6.0	-	-	-	-	4.8	0.07	46	3.0	41	0.06	-	-	-	0.009	< 0.02	< 10	< 0.02	1.5	0.07	46	3.0
BH8_2.0	10-Nov-22	2.0	7.6	5.3	1.0	2.3	6.0	< 0.02	10	< 1.0	2.0	< 0.02	-	-	-	0.013	< 0.02	< 10	< 0.02	1.5	< 0.02	10	< 1.0
BH8_6.0	10-Nov-22	6.0	5.3	4.7	1.0	0.6	4.6	0.08	47	4.0	40	0.06	-	-	-	0.011	< 0.02	< 10	< 0.02	1.5	0.08	47	4.0
HA01_1.4	18-Oct-22	1.4	-	-	-	-	7.0	< 0.02	< 10	< 1.0	< 2.0	< 0.02	-	-	-	0.012	< 0.02	< 10	< 0.02	1.5	< 0.02	< 10	< 1.0
HA01_2.0	18-Oct-22	2.0	-	-	-	-	6.0	< 0.02	< 10	< 1.0	3.0	< 0.02	-	-	-	0.01	< 0.02	< 10	< 0.02	1.5	< 0.02	< 10	< 1.0
HA02_0.6	10-Nov-22	0.6	-	-	-	-	4.3	0.22	140	10	130	0.21	< 0.02	< 10	0.03	0.013	0.04	< 10	< 0.02	1.5	0.22	140	10
HA04_0.8	18-Oct-22	0.8	-	-	-	-	6.2	< 0.02	< 10	< 1.0	< 2.0	< 0.02	-	-	-	0.01	< 0.02	< 10	< 0.02	1.5	< 0.02	< 10	< 1.0
HA05_0.7	10-Nov-22	0.7	-	-	-	-	5.1	0.04	24	2.0	15	0.02	-	-	-	0.013	< 0.02	< 10	< 0.02	1.5	0.04	24	2.0

1=Slight	Effervescence Reaction Rate
2= Moderate	
3= Strong	
4= Extreme	

Notes:
 - - Not analysed
 < - Less than laboratory limit of reporting
 LOR - Laboratory limit of reporting
Bold indicates a detection above the laboratory limit of reporting
 Highlighting indicates an exceedance of the corresponding criteria (highlighting corresponds to the guideline with the highest criteria value where analytical result exceeds more than one guideline)

Criteria:
 ASSMAC (1998) Indicators of Actual or Potential Acid Sulphate Soils (Section 4.3 - Tables 4.4 & 4.6) 1-1000 tonnes disturbed MEDIUM textured soils

Analyte			Polychlorinated Biphenyls
			Total PCBs
LOR			0.1
Units			mg/kg
NEPM 2013 HIL C - SO			1
Sample Name	Sample Date	Start Depth (m)	
BH1_0.5	19-Oct-22	0.5	< 0.1
BH2_0.5	18-Oct-22	0.5	< 0.1
BH3_0.5	19-Oct-22	0.5	< 0.1
BH4_0.5	17-Oct-22	0.5	< 0.1
BH5_0.5	17-Oct-22	0.5	< 0.1
BH6_0.5	21-Oct-22	0.5	< 0.1
BH7_0.5	21-Oct-22	5.0	< 0.1
BH7_6.0	21-Oct-22	6.0	< 0.1
BH8_0.5	10-Nov-22	0.5	< 0.1
HA01_0.3	18-Oct-22	0.3	< 0.1
HA02_0.3	10-Nov-22	0.3	< 0.1
HA03_0.2	18-Oct-22	0.2	< 0.1
HA04_0.3	18-Oct-22	0.3	< 0.1
HA05_0.3	10-Nov-22	0.3	< 0.1

Notes:

< - Less than laboratory limit of reporting
LOR - Laboratory limit of reporting
mg/kg - Milligrams per kilogram
PCB - Polychlorinated Biphenyl

Criteria:

The National Environment Protection Measures (2013) - Health-based Investigation Levels - Table 1A(1) - Soil - Recreational and Open Space

Analyte			Organochlorine Pesticides																			
			4,4'-DDE	4,4'-DDD	4,4'-DDT	alpha-BHC	beta-BHC	gamma-BHC	delta-BHC	Aldrin	Heptachlor epoxide	cis-Chlordane	trans-Chlordane	Chlordane	alpha-Endosulfan	beta-Endosulfan	Endosulfan (sum)	Endosulfan sulfate	Endrin	Endrin aldehyde	Endrin ketone	Dieldrin
LOR			0.05	0.05	0.2	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	0.05
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
NEPM 2013 EIL URBAN & PUBLIC OP - AGED			--	--	180	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
NEPM 2013 ESL URBAN & PUBLIC OP - FINE			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
NEPM 2013 HIL C - SO			--	--	--	--	--	--	--	--	--	--	70	--	--	340	--	20	--	--	--	--
Sample Name	Sample Date	Start Depth (m)	< 0.05	< 0.05	< 0.2	< 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	< 0.05
BH1_0.5	19-Oct-22	0.5	< 0.05	< 0.05	< 0.2	< 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	< 0.05
BH2_0.5	18-Oct-22	0.5	< 0.05	< 0.05	< 0.2	< 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	< 0.05
BH3_0.5	19-Oct-22	0.5	< 0.05	< 0.05	< 0.2	< 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	< 0.05
BH4_0.5	17-Oct-22	0.5	0.07	< 0.05	< 0.2	< 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	< 0.05
BH5_0.5	17-Oct-22	0.5	< 0.05	< 0.05	< 0.2	< 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	< 0.05
BH6_0.5	21-Oct-22	0.5	< 0.05	< 0.05	< 0.2	< 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	< 0.05
BH7_0.5	21-Oct-22	5.0	< 0.05	< 0.05	< 0.2	< 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	< 0.05
BH7_6.0	21-Oct-22	6.0	< 0.05	< 0.05	< 0.2	< 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	< 0.05
BH8_0.5	10-Nov-22	0.5	< 0.05	< 0.05	< 0.2	< 0.05	< 0.05	< 0.05	< 0.05	1.55	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.68
HA01_0.3	18-Oct-22	0.3	< 0.05	< 0.05	< 0.2	< 0.05	< 0.05	< 0.05	< 0.05	7.67	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	2.09
HA02_0.3	10-Nov-22	0.3	< 0.05	< 0.05	< 0.2	< 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	< 0.05
HA03_0.2	18-Oct-22	0.2	< 0.05	< 0.05	< 0.2	< 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	< 0.05
HA04_0.3	18-Oct-22	0.3	< 0.05	< 0.05	< 0.2	< 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	< 0.05
HA05_0.3	10-Nov-22	0.3	< 0.05	< 0.05	< 0.2	< 0.05	< 0.05	< 0.05	< 0.05	2.71	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	1.23

Notes:
 < - Less than laboratory limit of reporting
 LOR - Laboratory limit of reporting
 mg/kg - Milligrams per kilogram
 DDT - Dichlorodiphenyltrichloroethane
 DDE - Dichlorodiphenyldichloroethylene
 DDD - Dichlorodiphenyldichloroethane
Bold indicates a detection above the laboratory limit of reporting

Criteria:
 The National Environment Protection Measures - Ecological Investigation Levels - Table 1B(1)(2)(3)(4)(5) - Urban Residential and Public Open Space, Aged Contamination
 The National Environment Protection Measures - Ecological Screening Levels - Table 1B(6) - Urban Residential and Public Open Space, Fine Soil
 The National Environment Protection Measures (2013) - Health-based Investigation Levels - Table 1A(1) - Soil - Recreational and Open Space

Table T8 - OCP's / OPP's in Soil

Organophosphorus Pesticides																							
Heptachlor	Hexachlorobenzene	Methoxychlor	Sum of Aldrin + Dieldrin	Sum of DDD + DDE + DDT	Azinphos methyl	Bromophos-ethyl	Carbophenothion	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Demeton-s-methyl	Diazinon	Dichlorvos	Dimethoate	Ethion	Fenamiphos	Fenthion	Malathion	Monocrotophos	Parathion	Parathion-methyl	Pirimiphos-ethyl	Prothiophos
0.05	0.05	0.2	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	0.2	0.05	0.05
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
--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
10	10	400	10	400	--	--	--	--	250	--	--	--	--	--	--	--	--	--	--	--	--	--	--
< 0.05	< 0.05	< 0.2	< 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	< 0.2	< 0.05	< 0.05
< 0.05	< 0.05	< 0.2	< 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	< 0.2	< 0.05	< 0.05
< 0.05	< 0.05	< 0.2	< 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	< 0.2	< 0.05	< 0.05
< 0.05	< 0.05	< 0.2	< 0.05	0.07	< 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	< 0.2	< 0.05	< 0.05
< 0.05	< 0.05	< 0.2	< 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	< 0.2	< 0.05	< 0.05
< 0.05	< 0.05	< 0.2	< 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	< 0.2	< 0.05	< 0.05
< 0.05	< 0.05	< 0.2	< 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	< 0.2	< 0.05	< 0.05
< 0.05	< 0.05	< 0.2	2.23	< 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	< 0.2	< 0.05	< 0.05
< 0.05	< 0.05	< 0.2	9.76	< 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	< 0.2	< 0.05	< 0.05
< 0.05	< 0.05	< 0.2	< 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	< 0.2	< 0.05	< 0.05
< 0.05	< 0.05	< 0.2	< 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	< 0.2	< 0.05	< 0.05
< 0.05	< 0.05	< 0.2	< 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	< 0.2	< 0.05	< 0.05
< 0.05	< 0.05	< 0.2	3.94	< 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	< 0.2	< 0.05	< 0.05

Analyte			Perfluorooctane sulfonamide (FOSA)	N-Methyl-perfluorooctane sulfonamide (MeFOSA)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	Perfluorobutanoic acid (PFBA)	Perfluoro-n-pentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoate (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)
LOR			0.0002	0.0005	0.0005	0.0005	0.0005	0.0002	0.0002	0.001	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
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
PFAS NEMP 2020 - ECO DIRECT EXP SOIL			--	--	--	--	--	--	--	--	--	--	--	10	--	--
PFAS NEMP 2020 - HIL C - SOIL			--	--	--	--	--	--	--	--	--	--	--	10	--	--
Sample Name	Sample Date	Start Depth (m)														
BH1_0.5	19-Oct-22	0.5	< 0.0002	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0002	< 0.0002	< 0.001	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
BH2_0.5	18-Oct-22	0.5	< 0.0002	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0002	< 0.0002	< 0.001	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
BH3_0.5	19-Oct-22	0.5	< 0.0002	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0002	< 0.0002	< 0.001	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
BH4_0.2	17-Oct-22	0.2	< 0.0002	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0002	< 0.0002	< 0.001	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
BH5_0.2	17-Oct-22	0.2	0.0003	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.0247	0.0005	< 0.001	< 0.0002	< 0.0002	< 0.0002	0.0015	< 0.0002	< 0.0002
BH6_0.5	21-Oct-22	0.5	< 0.0002	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0002	< 0.0002	< 0.001	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
BH7_0.5	21-Oct-22	5.0	< 0.0002	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0002	< 0.0002	< 0.001	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
BH8_2.0	10-Nov-22	2.0	< 0.0002	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0002	< 0.0002	< 0.001	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
HA01_0.3	18-Oct-22	0.3	< 0.0002	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0002	< 0.0002	< 0.001	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
HA02_0.6	10-Nov-22	0.6	< 0.0002	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0002	< 0.0002	< 0.001	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
HA03_0.2	18-Oct-22	0.2	< 0.0002	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0002	< 0.0002	< 0.001	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
HA04_0.3	18-Oct-22	0.3	< 0.0002	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0002	< 0.0002	< 0.001	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
HA05_0.7	10-Nov-22	0.7	< 0.0002	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0002	< 0.0002	< 0.001	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002

Notes:

< - Less than laboratory limit of reporting
mg/kg - Milligrams per kilogram

Bold indicates a detection above the laboratory limit of reporting

Criteria:

Per- and Por-Fluoroalkyl Substances National Environment Protection Measures - Ecological Direct Exposure Guideline Values for Soil all Land uses
Per- and Por-Fluoroalkyl Substances National Environment Protection Measures - Human Health Investigation Levels for Soil - Public Open Space

Table T9 - PFAS in Soil



PFAS Compounds														Sum of PFAS		
Perfluorotridecanoic acid (PFTTrDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorobutanesulfonic acid (PFBS)	Perfluoropentanesulfonic acid (PFPeS)	Perfluorohexanesulfonic acid (PFHxS)	Perfluoroheptanesulfonate (PFHpS)	Perfluorooctanesulfonic acid (PFOS)	Perfluorodecanesulfonic acid (PFDS)	4:2 Fluorotelomer Sulfonate (4:2 FTS)	6:2 Fluorotelomer Sulfonate (6:2 FtS)	8:2 Fluorotelomer sulfonate (8:2 FtS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Sum of PFHxS and PFOS	Sum of PFAS (WADER List)	Sum of PFAS
0.0002	0.0002	0.0002	0.0005	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0005	0.0005	0.0005	0.0005	0.0002	0.0002	0.0002
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
--	--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--
--	--	--	--	--	--	1	--	1	--	--	--	--	--	1	--	--
< 0.0002	< 0.0002	< 0.0002	< 0.0005	< 0.0002	< 0.0002	< 0.0002	< 0.0002	0.0004	< 0.0002	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.0004	0.0004	0.0004
< 0.0002	< 0.0002	< 0.0002	< 0.0005	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0002	< 0.0002	< 0.0002
< 0.0002	< 0.0002	< 0.0002	< 0.0005	< 0.0002	< 0.0002	< 0.0002	< 0.0002	0.0007	< 0.0002	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.0007	0.0007	0.0007
< 0.0002	< 0.0002	< 0.0002	< 0.0005	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0002	< 0.0002	< 0.0002
< 0.0002	< 0.0002	< 0.0002	< 0.0005	< 0.0002	< 0.0002	< 0.0002	< 0.0002	0.0023	< 0.0002	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.0023	0.0038	0.0293
< 0.0002	< 0.0002	< 0.0002	< 0.0005	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0002	< 0.0002	< 0.0002
< 0.0002	< 0.0002	< 0.0002	< 0.0005	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0002	< 0.0002	< 0.0002
< 0.0002	< 0.0002	< 0.0002	< 0.0005	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0002	< 0.0002	< 0.0002
< 0.0002	< 0.0002	< 0.0002	< 0.0005	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0002	< 0.0002	< 0.0002
< 0.0002	< 0.0002	< 0.0002	< 0.0005	< 0.0002	< 0.0002	< 0.0002	< 0.0002	0.0013	< 0.0002	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.0013	0.0013	0.0013
< 0.0002	< 0.0002	< 0.0002	< 0.0005	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0002	< 0.0002	< 0.0002
< 0.0002	< 0.0002	< 0.0002	< 0.0005	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0002	< 0.0002	< 0.0002

Table T10 - Phenolic Compounds in Soil

Analyte			Phenolic Compounds (Non-Chlorinated)					Phenolic Compounds (Chlorinated)						
			Phenol	2-Methylphenol (o-Cresol)	3- & 4-Methylphenol (m&p cresol)	2-Nitrophenol	2,4-Dimethylphenol	2-Chlorophenol	4-Chloro-3-methylphenol	2,4-Dichlorophenol	2,6-Dichlorophenol	2,4,6-Trichlorophenol	2,4,5-Trichlorophenol	Pentachlorophenol
LOR			0.5	0.5	1.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	2.0
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
NEPM 2013 HIL C - SO			40000	--	--	--	--	--	--	--	--	--	--	120
Sample Name	Sample Date	Start Depth (m)												
BH1_0.5	19-Oct-22	0.5	< 0.5	< 0.5	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 2.0
BH1_1.0	19-Oct-22	1.0	< 0.5	< 0.5	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 2.0
BH1_2.0	19-Oct-22	2.0	< 0.5	< 0.5	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 2.0
BH2_0.5	18-Oct-22	0.5	< 0.5	< 0.5	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 2.0
BH2_1.0	18-Oct-22	1.0	< 0.5	< 0.5	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 2.0
BH2_3.0	18-Oct-22	3.0	< 0.5	< 0.5	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 2.0
BH3_0.5	19-Oct-22	0.5	< 0.5	< 0.5	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 2.0
BH3_1.0	19-Oct-22	1.0	< 0.5	< 0.5	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 2.0
BH3_2.5	19-Oct-22	2.5	< 0.5	< 0.5	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 2.0
BH4_0.5	17-Oct-22	0.5	< 0.5	< 0.5	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 2.0
BH4_1.0	17-Oct-22	1.0	< 0.5	< 0.5	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 2.0
BH4_2.0	17-Oct-22	2.0	< 0.5	< 0.5	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 2.0
BH5_0.5	17-Oct-22	0.5	< 0.5	< 0.5	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 2.0
BH5_1.0	17-Oct-22	1.0	< 0.5	< 0.5	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 2.0
BH5_1.9	17-Oct-22	1.9	< 0.5	< 0.5	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 2.0
BH6_0.5	21-Oct-22	0.5	< 0.5	< 0.5	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 2.0
BH6_1.0	21-Oct-22	1.0	< 0.5	< 0.5	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 2.0
BH6_4.0	21-Oct-22	4.0	< 0.5	< 0.5	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 2.0
BH7_0.5	21-Oct-22	5.0	< 0.5	< 0.5	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 2.0
BH7_1.0	21-Oct-22	1.0	< 0.5	< 0.5	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 2.0
BH7_4.0	21-Oct-22	4.0	< 0.5	< 0.5	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 2.0
BH7_6.0	21-Oct-22	6.0	< 0.5	< 0.5	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 2.0
BH8_0.5	10-Nov-22	0.5	< 0.5	< 0.5	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 2.0
BH8_2.0	10-Nov-22	2.0	< 0.5	< 0.5	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 2.0
BH8_6.0	10-Nov-22	6.0	< 0.5	< 0.5	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 2.0
HA01_0.3	18-Oct-22	0.3	< 0.5	< 0.5	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 2.0
HA01_1.4	18-Oct-22	1.4	< 0.5	< 0.5	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 2.0
HA01_2.0	18-Oct-22	2.0	< 0.5	< 0.5	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 2.0
HA02_0.3	10-Nov-22	0.3	< 0.5	< 0.5	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 2.0
HA02_0.6	10-Nov-22	0.6	< 0.5	< 0.5	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 2.0
HA02_1.0	10-Nov-22	1.0	< 0.5	< 0.5	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 2.0
HA03_0.2	18-Oct-22	0.2	< 0.5	< 0.5	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 2.0
HA03_0.8	18-Oct-22	0.8	< 0.5	< 0.5	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 2.0
HA03_1.8	18-Oct-22	1.8	< 0.5	< 0.5	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 2.0
HA04_0.3	18-Oct-22	0.3	< 0.5	< 0.5	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 2.0
HA04_0.8	18-Oct-22	0.8	< 0.5	< 0.5	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 2.0
HA04_2.0	18-Oct-22	2.0	< 0.5	< 0.5	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 2.0
HA05_0.3	10-Nov-22	0.3	< 0.5	< 0.5	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 2.0
HA05_0.7	10-Nov-22	0.7	< 0.5	< 0.5	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 2.0
HA05_1.5	10-Nov-22	1.5	< 0.5	< 0.5	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 2.0

Notes:

< - Less than laboratory limit of reporting
LOR - Laboratory limit of reporting
mg/kg - Milligrams per kilogram

Criteria:

The National Environment Protection Measures (2013) - Health-based Investigation Levels - Table 1A(1) - Soil - Recreational and Open Space

Analyte			BTEXN							Total Petroleum Hydrocarbons					Total Recoverable Hydrocarbons							
			Benzene	Toluene	Ethylbenzene	meta- & para-Xylene	ortho-Xylene	Total Xylenes	Naphthalene	Sum of BTEX	C ₆ - C ₉	C ₁₀ - C ₁₄	C ₁₅ - C ₂₈	C ₂₉ - C ₃₆	C ₁₀ - C ₃₆ sum	C ₆ - C ₁₀	C ₆ - C ₁₀ minus BTEX (F1)	>C ₁₀ - C ₁₆	>C ₁₀ - C ₁₆ minus Naphthalene (F2)	>C ₁₆ - C ₃₄	>C ₃₄ - C ₄₀	>C ₁₀ - C ₄₀ (sum)
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
Sample Name	Sample Date	Sample Type																				
HA01_0.3_18102022	18-Oct-22	Primary	< 0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.0	< 0.2	< 10	< 50	< 100	< 100	< 50	< 10	< 10	< 50	< 50	< 100	< 100	< 50
QC01_18102022	18-Oct-22	Duplicate	< 0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.0	< 0.2	< 10	< 50	< 100	< 100	< 50	< 10	< 10	< 50	< 50	< 100	< 100	< 50
Relative Percentage Difference			NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
HA01_0.3_18102022	18-Oct-22	Primary	< 0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.0	< 0.2	< 10	< 50	< 100	< 100	< 50	< 10	< 10	< 50	< 50	< 100	< 100	< 50
QC01A_10182022	18-Oct-22	Triplicate	< 0.1	< 0.1	< 0.1	< 0.2	< 0.1	< 0.3	< 0.5	-	< 20	< 20	< 50	< 50	< 50	< 20	< 20	< 50	< 50	< 100	< 100	< 100
Relative Percentage Difference			NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
BH6_0.5_21102022	21-Oct-22	Primary	< 0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.0	< 0.2	< 10	< 50	< 100	< 100	< 50	< 10	< 10	< 50	< 50	< 100	< 100	< 50
QC02_21102022	21-Oct-22	Duplicate	< 0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.0	< 0.2	< 10	< 50	< 100	< 100	< 50	< 10	< 10	< 50	< 50	< 100	< 100	< 50
Relative Percentage Difference			NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
BH6_0.5_21102022	21-Oct-22	Primary	< 0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.0	< 0.2	< 10	< 50	< 100	< 100	< 50	< 10	< 10	< 50	< 50	< 100	< 100	< 50
QC02A_10212022	21-Oct-22	Triplicate	< 0.1	< 0.1	< 0.1	< 0.2	< 0.1	< 0.3	< 0.5	-	< 20	< 20	< 50	62	62	< 20	< 20	< 50	< 50	< 100	< 100	< 100
Relative Percentage Difference			NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	47%	21%	NC	NC	NC	NC	NC	NC	NC

Notes:
 - - Not analysed
 < - Less than laboratory limit of reporting
 NC - Not calculated
 mg/kg - Milligrams per kilogram
 BTEXN - Benzene, toluene, ethylbenzene, total xylenes, naphthalene
Bold indicates a detection above the laboratory limit of reporting
 RPD - Relative Percentage Difference

Analyte			Metals							
			Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc
Units			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Sample Name	Sample Date	Sample Type								
HA01_0.3_18102022	18-Oct-22	Primary	< 5.0	< 1.0	3.0	< 5.0	14	< 0.1	2.0	14
QC01_18102022	18-Oct-22	Duplicate	< 5.0	< 1.0	3.0	< 5.0	8.0	< 0.1	< 2.0	15
Relative Percentage Difference			NC	NC	0%	NC	55%	NC	0%	7%
HA01_0.3_18102022	18-Oct-22	Primary	< 5.0	< 1.0	3.0	< 5.0	14	< 0.1	2.0	14
QC01A_10182022	18-Oct-22	Triplicate	5.1	< 0.4	< 5.0	< 5.0	9.2	< 0.1	< 5.0	18
Relative Percentage Difference			2%	NC	50%	NC	41%	NC	86%	25%
BH6_0.5_21102022	21-Oct-22	Primary	6.0	< 1.0	32 *	36	211	0.2	22	203
QC02_21102022	21-Oct-22	Duplicate	< 5.0	< 1.0	16	31	116	0.2	26	125
Relative Percentage Difference			18%	NC	0%	15%	58%	0%	17%	48%
BH6_0.5_21102022	21-Oct-22	Primary	6.0	< 1.0	16	36	211	0.2	22	203
QC02A_10212022	21-Oct-22	Triplicate	2.1	< 0.4	32	32	84	0.1	32	120
Relative Percentage Difference			96%	NC	67%	12%	86%	67%	37%	51%

Notes:

< - Less than laboratory limit of reporting

NC - Not calculated

mg/kg - Milligrams per kilogram

Bold indicates a detection above the laboratory limit of reporting

"*" denotes duplicate/triplicate sample result adopted for analytical use due to RPD >50%

Orange highlighting indicates an RPD in excess of 50%

RPD - Relative Percentage Difference

Analyte			Polycyclic Aromatic Hydrocarbons																					
			Naphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Chrysene	Benzo[a]anthracene	Benzo[k]fluoranthene	Benzo[b] & Benzo[j]fluoranthene	Benzo[a]pyrene	Indeno[1,2,3-c,d]pyrene	Dibenz[a,h]anthracene	Benzo[g,h,i]perylene	Total PAH	Benzo[a]pyrene TEQ	Benzo[a]pyrene TEQ (LOR)	Benzo[a]pyrene TEQ (Half LOR)		
Sample Name	Sample Date	Sample Type	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		
HA01_0.3_18102022	18-Oct-22	Primary	< 1.0	< 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	< 0.5	< 0.5	1.2	0.6	
QC01_18102022	18-Oct-22	Duplicate	< 1.0	< 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	< 0.5	< 0.5	1.2	0.6	
Relative Percentage Difference			NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	0%	0%	
HA01_0.3_18102022	18-Oct-22	Primary	< 1.0	< 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	< 0.5	< 0.5	1.2	0.6	
QC01A_10182022	18-Oct-22	Triplicate	< 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	< 0.5	< 0.5	< 0.5	1.2	0.6	
Relative Percentage Difference			NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	0%	0%
BH6_0.5_21102022	21-Oct-22	Primary	< 1.0	< 0.5	< 0.5	< 0.5	0.5	< 0.5	1.7	1.6	0.7	0.7	< 0.5	1.0	1.0	0.5	< 0.5	0.6	8.3	1.2	1.8	1.8	1.5	
QC02_21102022	21-Oct-22	Duplicate	< 1.0	< 0.5	< 0.5	< 0.5	0.6	< 0.5	1.7	1.5	0.6	0.7	< 0.5	0.9	0.9	0.5	< 0.5	0.6	8.0	1.1	1.7	1.4		
Relative Percentage Difference			NC	NC	NC	NC	18%	NC	0%	6%	15%	0%	NC	11%	11%	0%	NC	0%	4%	9%	6%	7%		
BH6_0.5_21102022	21-Oct-22	Primary	< 1.0	< 0.5	< 0.5	< 0.5	0.5	< 0.5	1.7	1.6	0.7	0.7	< 0.5	1.0	1.0	0.5	< 0.5	0.6	8.3	1.2	1.8	1.8	1.5	
QC02A_10212022	21-Oct-22	Triplicate	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	1.2	1.1	0.8	0.6	0.6	-	< 0.5	< 0.5	< 0.5	4.3	< 0.5	1.2	1.2	0.7		
Relative Percentage Difference			NC	NC	NC	NC	0%	NC	34%	37%	13%	15%	18%	NC	67%	0%	NC	18%	63%	82%	40%	73%		

Notes:
 - - Not analysed
 < - Less than laboratory limit of reporting
 LOR - Laboratory limit of reporting
 NC - Not calculated
 mg/kg - Milligrams per kilogram
Bold indicates a detection above the laboratory limit of reporting
 Orange highlighting indicates an RPD in excess of 50%
 RPD - Relative Percentage Difference

Analyte			Polychlorinated Biphenyls
			Total PCBs
Units			mg/kg
Sample Name	Sample Date	Sample Type	
HA01_0.3_18102022	18-Oct-22	Primary	< 0.1
QC01_18102022	18-Oct-22	Duplicate	< 0.1
Relative Percentage Difference			NC
HA01_0.3_18102022	18-Oct-22	Primary	< 0.1
QC01A_10182022	18-Oct-22	Triplicate	< 0.1
Relative Percentage Difference			NC
BH6_0.5_21102022	21-Oct-22	Primary	< 0.1
QC02_21102022	21-Oct-22	Duplicate	< 0.1
Relative Percentage Difference			NC
BH6_0.5_21102022	21-Oct-22	Primary	< 0.1
QC02A_10212022	21-Oct-22	Triplicate	< 0.1
Relative Percentage Difference			NC

Notes:

- - Not analysed
- < - Less than laboratory limit of reporting
- LOR - Laboratory limit of reporting
- NC - Not calculated
- mg/kg - Milligrams per kilogram
- PCB - Polychlorinated Biphenyl

Analyte			Organochlorine Pesticides																						
			4,4'-DDE	4,4'-DDD	4,4'-DDT	alpha-BHC	beta-BHC	gamma-BHC	delta-BHC	Aldrin	Heptachlor epoxide	cis-Chlordane	trans-Chlordane	Chlordane	alpha-Endosulfan	beta-Endosulfan	Endosulfan (sum)	Endosulfan sulfate	Endrin	Endrin aldehyde	Endrin ketone	Dieldrin			
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			
Sample Name	Sample Date	Sample Type																							
HA01_0.3_18102022	18-Oct-22	Primary	< 0.05	< 0.05	< 0.2	< 0.05	< 0.05	< 0.05	< 0.05	7.67	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	2.8 *	< 0.05	0.21 *	3.8 *	
QC01_18102022	18-Oct-22	Duplicate	< 0.05	< 0.05	< 0.2	< 0.05	< 0.05	< 0.05	< 0.05	7.02	< 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	2.28	
Relative Percentage Difference			NC	NC	NC	NC	NC	NC	NC	9%	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	9%	
HA01_0.3_18102022	18-Oct-22	Primary	< 0.05	< 0.05	< 0.2	< 0.05	< 0.05	< 0.05	< 0.05	7.67	< 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	2.09	
QC01A_10182022	18-Oct-22	Triplicate	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	10	< 0.05	-	-	< 0.1	< 0.05	< 0.05	-	< 0.05	< 0.05	< 0.05	2.8	< 0.05	0.21	3.8	
Relative Percentage Difference			NC	NC	NC	NC	NC	NC	NC	26%	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	193%	NC	123%	58%
BH6_0.5_21102022	21-Oct-22	Primary	< 0.05	< 0.05	< 0.2	< 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	< 0.05	< 0.05	< 0.05	
QC02_21102022	21-Oct-22	Duplicate	< 0.05	< 0.05	< 0.2	< 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	< 0.05	< 0.05	< 0.05	
Relative Percentage Difference			NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
BH6_0.5_21102022	21-Oct-22	Primary	< 0.05	< 0.05	< 0.2	< 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	< 0.05	< 0.05	< 0.05	
QC02A_10212022	21-Oct-22	Triplicate	< 0.05	< 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	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
Relative Percentage Difference			NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC

Notes:
- - Not analysed
< - Less than laboratory limit of reporting
LOR - Laboratory limit of reporting
NC - Not calculated
mg/kg - Milligrams per kilogram
DDT - Dichlorodiphenyltrichloroethane
DDE - Dichlorodiphenyldichloroethylene
DDD - Dichlorodiphenyldichloroethane
Bold indicates a detection above the laboratory limit of reporting
**" denotes duplicate/triplicate sample result adopted for analytical use due to RPD >50%
Orange highlighting indicates an RPD in excess of 50%
RPD - Relative Percentage Difference

Analyte			Perfluorooctane sulfonamide (FOSA)	N-Methyl-perfluorooctane sulfonamide (MeFOSA)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	Perfluorobutanoic acid (PFBA)	Perfluoro-n-pentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoate (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)
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
Sample Name	Sample Date	Sample Type														
HA01_0.3_18102022	18-Oct-22	Primary	< 0.0002	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0002	< 0.0002	< 0.001	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
QC01_18102022	18-Oct-22	Duplicate	< 0.0002	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0002	< 0.0002	< 0.001	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Relative Percentage Difference			NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
HA01_0.3_18102022	18-Oct-22	Primary	< 0.0002	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0002	< 0.0002	< 0.001	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
QC01A_10182022	18-Oct-22	Triplicate	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.01	< 0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Relative Percentage Difference			NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
BH6_0.5_21102022	21-Oct-22	Primary	< 0.0002	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0002	< 0.0002	< 0.001	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
QC02_21102022	21-Oct-22	Duplicate	< 0.0002	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0002	< 0.0002	< 0.001	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Relative Percentage Difference			NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
BH6_0.5_21102022	21-Oct-22	Primary	< 0.0002	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0002	< 0.0002	< 0.001	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
QC02A_10212022	21-Oct-22	Triplicate	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.01	< 0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Relative Percentage Difference			NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC

Notes:

- Not analysed
- < - Less than laboratory limit of reporting
- EPA - Environment Protection Authority
- NC - Not calculated
- mg/kg - Milligrams per kilogram

Analyte			Phenolic Compounds (Non-Chlorinated)					Phenolic Compounds (Chlorinated)						
			Phenol	2-Methylphenol (o-Cresol)	3- & 4-Methylphenol (m&p cresol)	2-Nitrophenol	2,4-Dimethylphenol	2-Chlorophenol	4-Chloro-3-methylphenol	2,4-Dichlorophenol	2,6-Dichlorophenol	2,4,6-Trichlorophenol	2,4,5-Trichlorophenol	Pentachlorophenol
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
Sample Name	Sample Date	Sample Type												
HA01_0.3_18102022	18-Oct-22	Primary	< 0.5	< 0.5	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 2.0
QC01_18102022	18-Oct-22	Duplicate	< 0.5	< 0.5	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 2.0
Relative Percentage Difference			NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
HA01_0.3_18102022	18-Oct-22	Primary	< 0.5	< 0.5	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 2.0
QC01A_10182022	18-Oct-22	Triplicate	< 0.5	< 0.2	< 0.4	< 1.0	< 0.5	< 0.5	< 1.0	< 0.5	< 0.5	< 1.0	< 1.0	< 1.0
Relative Percentage Difference			NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
BH6_0.5_21102022	21-Oct-22	Primary	< 0.5	< 0.5	< 1.0	< 0.5	< 0.5	< 0.5	1.1 *	< 0.5	< 0.5	< 0.5	< 0.5	< 2.0
QC02_21102022	21-Oct-22	Duplicate	< 0.5	< 0.5	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 2.0
Relative Percentage Difference			NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
BH6_0.5_21102022	21-Oct-22	Primary	< 0.5	< 0.5	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 2.0
QC02A_10212022	21-Oct-22	Triplicate	< 0.5	< 0.2	< 0.4	< 1.0	< 0.5	< 0.5	1.1	< 0.5	< 0.5	< 1.0	< 1.0	< 1.0
Relative Percentage Difference			NC	NC	NC	NC	NC	NC	75%	NC	NC	NC	NC	NC

Notes:

-- Not analysed

< - Less than laboratory limit of reporting

LOR - Laboratory limit of reporting

NC - Not calculated

mg/kg - Milligrams per kilogram

Bold indicates a detection above the laboratory limit of reporting

"*" denotes duplicate/triplicate sample result adopted for analytical use due to RPD >50%

Orange highlighting indicates an RPD in excess of 50%

RPD - Relative Percentage Difference

Table T18 - BTEXN / TPH / TRH Rinsate and Trip Blanks

Analyte			BTEXN							Total Petroleum Hydroc			
			Benzene	Toluene	Ethylbenzene	meta- & para-Xylene	ortho-Xylene	Total Xylenes	Naphthalene	Sum of BTEX	C ₆ - C ₉	C ₁₀ - C ₁₄	C ₁₅ - C ₂₈
Units			µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	
Sample Name	Sample Date	Sample Type											
TB_171022_17102022	17-Oct-22	Trip Blank	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100
TB_181022_18102022	18-Oct-22	Trip Blank	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100
TB_191022_19102022	19-Oct-22	Trip Blank	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100
TB_211022_21102022	21-Oct-22	Trip Blank	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100
RB01_17102022	17-Oct-22	Rinsate	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100
RB02_18102022	18-Oct-22	Rinsate	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100
RB03_19102022	19-Oct-22	Rinsate	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100
RB04_21102022	21-Oct-22	Rinsate	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100
RB05_21102022	21-Oct-22	Rinsate	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100

Notes:

< - Less than laboratory limit of reporting

µg/L - Micrograms per litre

BTEXN - Benzene, toluene, ethylbenzene, total xylenes, naphthalene

Analyte			Metals								
			Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	
Units			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	
Sample Name	Sample Date	Sample Type									
TB_171022_17102022	17-Oct-22	Trip Blank	< 0.001	< 0.0001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.0001	< 0.001	< 0.005
TB_181022_18102022	18-Oct-22	Trip Blank	< 0.001	< 0.0001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.0001	< 0.001	< 0.005
TB_191022_19102022	19-Oct-22	Trip Blank	< 0.001	< 0.0001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.0001	< 0.001	< 0.005
TB_211022_21102022	21-Oct-22	Trip Blank	< 0.001	< 0.0001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.0001	< 0.001	< 0.005
RB01_17102022	17-Oct-22	Rinsate	< 0.001	< 0.0001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.0001	< 0.001	< 0.005
RB02_18102022	18-Oct-22	Rinsate	< 0.001	< 0.0001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.0001	< 0.001	< 0.005
RB03_19102022	19-Oct-22	Rinsate	< 0.001	< 0.0001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.0001	< 0.001	< 0.005
RB04_21102022	21-Oct-22	Rinsate	< 0.001	< 0.0001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.0001	< 0.001	< 0.005
RB05_21102022	21-Oct-22	Rinsate	< 0.001	< 0.0001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.0001	< 0.001	< 0.005

Notes:

< - Less than laboratory limit of reporting
mg/L - Milligrams per litre

Analyte			Polycyclic Aromat									
			Naphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Chrysene	Benzo[a]anthracene
Units			µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Sample Name	Sample Date	Sample Type										
TB_171022_17102022	17-Oct-22	Trip Blank	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TB_181022_18102022	18-Oct-22	Trip Blank	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TB_191022_19102022	19-Oct-22	Trip Blank	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TB_211022_21102022	21-Oct-22	Trip Blank	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
RB01_17102022	17-Oct-22	Rinsate	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
RB02_18102022	18-Oct-22	Rinsate	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
RB03_19102022	19-Oct-22	Rinsate	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
RB04_21102022	21-Oct-22	Rinsate	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
RB05_21102022	21-Oct-22	Rinsate	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Notes:

< - Less than laboratory limit of reporting

µg/L - Micrograms per litre

Analyte			Polychlorinated Biphenyls
			Total PCBs
Units			µg/L
Sample Name	Sample Date	Sample Type	
TB_171022_17102022	17-Oct-22	Trip Blank	< 1.0
TB_181022_18102022	18-Oct-22	Trip Blank	< 1.0
TB_191022_19102022	19-Oct-22	Trip Blank	< 1.0
TB_211022_21102022	21-Oct-22	Trip Blank	< 1.0
RB01_17102022	17-Oct-22	Rinsate	< 1.0
RB02_18102022	18-Oct-22	Rinsate	< 1.0
RB03_19102022	19-Oct-22	Rinsate	< 1.0
RB04_21102022	21-Oct-22	Rinsate	< 1.0
RB05_21102022	21-Oct-22	Rinsate	< 1.0

Notes:

- < - Less than laboratory limit of reporting
- LOR - Laboratory limit of reporting
- µg/L - Micrograms per litre
- PCB - Polychlorinated Biphenyl

Analyte			Organochlorine Pesticides																			
			4,4'-DDE	4,4'-DDD	4,4'-DDT	alpha-BHC	beta-BHC	gamma-BHC	delta-BHC	Aldrin	Heptachlor epoxide	cis-Chlordane	trans-Chlordane	Chlordane	alpha-Endosulfan	beta-Endosulfan	Endosulfan sulfate	Endrin	Endrin aldehyde	Endrin ketone	Dieldrin	Heptachlor
Units			µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Sample Name	Sample Date	Sample Type																				
TB_171022_17102022	17-Oct-22	Trip Blank	< 0.5	< 0.5	< 2.0	< 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	< 0.5
TB_181022_18102022	18-Oct-22	Trip Blank	< 0.5	< 0.5	< 2.0	< 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	< 0.5
TB_191022_19102022	19-Oct-22	Trip Blank	< 0.5	< 0.5	< 2.0	< 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	< 0.5
TB_211022_21102022	21-Oct-22	Trip Blank	< 0.5	< 0.5	< 2.0	< 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	< 0.5
RB01_17102022	17-Oct-22	Rinsate	< 0.5	< 0.5	< 2.0	< 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	< 0.5
RB02_18102022	18-Oct-22	Rinsate	< 0.5	< 0.5	< 2.0	< 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	< 0.5
RB03_19102022	19-Oct-22	Rinsate	< 0.5	< 0.5	< 2.0	< 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	< 0.5
RB04_21102022	21-Oct-22	Rinsate	< 0.5	< 0.5	< 2.0	< 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	< 0.5
RB05_21102022	21-Oct-22	Rinsate	< 0.5	< 0.5	< 2.0	< 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	< 0.5

Notes:
 < - Less than laboratory limit of reporting
 LOR - Laboratory limit of reporting
 µg/L - Micrograms per litre
 DDT - Dichlorodiphenyltrichloroethane
 DDE - Dichlorodiphenyldichloroethylene
 DDD - Dichlorodiphenyldichloroethane

Table T22 - OCP OPP Rinsate and Trip Blanks



Organophosphorus Pesticides																						
Hexachlorobenzene	Methoxychlor	Sum of Aldrin + Dieldrin	Sum of DDD + DDE + DDT	Azinphos methyl	Bromophos-ethyl	Carbophenothion	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Demeton-s-methyl	Diazinon	Dichlorvos	Dimethoate	Ethion	Fenamiphos	Fenthion	Malathion	Monocrotophos	Parathion	Parathion-methyl	Pirimiphos-ethyl	Prothiophos
µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
< 0.5	< 2.0	< 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	< 2.0	< 2.0	< 2.0	< 0.5	< 0.5
< 0.5	< 2.0	< 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	< 2.0	< 2.0	< 2.0	< 0.5	< 0.5
< 0.5	< 2.0	< 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	< 2.0	< 2.0	< 2.0	< 0.5	< 0.5
< 0.5	< 2.0	< 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	< 2.0	< 2.0	< 2.0	< 0.5	< 0.5
< 0.5	< 2.0	< 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	< 2.0	< 2.0	< 2.0	< 0.5	< 0.5
< 0.5	< 2.0	< 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	< 2.0	< 2.0	< 2.0	< 0.5	< 0.5
< 0.5	< 2.0	< 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	< 2.0	< 2.0	< 2.0	< 0.5	< 0.5
< 0.5	< 2.0	< 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	< 2.0	< 2.0	< 2.0	< 0.5	< 0.5
< 0.5	< 2.0	< 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	< 2.0	< 2.0	< 2.0	< 0.5	< 0.5
< 0.5	< 2.0	< 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	< 2.0	< 2.0	< 2.0	< 0.5	< 0.5
< 0.5	< 2.0	< 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	< 2.0	< 2.0	< 2.0	< 0.5	< 0.5

Analyte			Perfluorooctane sulfonamide (FOSA)	N-Methyl-perfluorooctane sulfonamide (MeFOSA)	N-Ethyl-perfluorooctane sulfonamide (EtFOSA)	N-Methyl-perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl-perfluorooctane sulfonamidoethanol (EtFOSE)	N-Ethyl-perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Methyl-perfluorooctane sulfonamidoacetic acid (MeFOSAA)	Perfluorobutanoic acid (PFBA)	Perfluoro-n-pentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoate (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)
Units			µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Sample Name	Sample Date	Sample Type														
TB_181022_18102022	18-Oct-22	Trip Blank	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02
TB_211022_21102022	21-Oct-22	Trip Blank	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02
RB02_18102022	18-Oct-22	Rinsate	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02
RB04_21102022	21-Oct-22	Rinsate	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02

Notes:

< - Less than laboratory limit of reporting
µg/L - Micrograms per litre

PFAS Compounds														Sum of PFAS		
Perfluorotridecanoic acid (PFTTrDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorobutanesulfonic acid (PFBS)	Perfluoropentanesulfonic acid (PFPeS)	Perfluorohexanesulfonic acid (PFHxS)	Perfluoroheptanesulfonate (PFHpS)	Perfluorooctanesulfonic acid (PFOS)	Perfluorodecane sulfonic acid (PFDS)	1H,1H,2H,2H-perfluorohexanesulfonic acid (4:2 FTS)	6:2 Fluorotelomer Sulfonate (6:2 Fts)	8:2 Fluorotelomer sulfonate (8:2 Fts)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Sum of PFHxS and PFOS	Sum of PFAS (WADER List)	Sum of PFAS
µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01

Table T24 - Phenolic Compounds Rinsate and Trip Blanks

Analyte			Phenolic Compounds (Non-Chlorinated)					Phenolic Compounds (Chlorinated)						
			Phenol	2-Methylphenol (o-Cresol)	3- & 4-Methylphenol (m&p cresol)	2-Nitrophenol	2,4-Dimethylphenol	2-Chlorophenol	4-Chloro-3-methylphenol	2,4-Dichlorophenol	2,6-Dichlorophenol	2,4,6-Trichlorophenol	2,4,5-Trichlorophenol	Pentachlorophenol
Units			µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Sample Name	Sample Date	Sample Type												
TB_171022_17102022	17-Oct-22	Trip Blank	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0
TB_181022_18102022	18-Oct-22	Trip Blank	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0
TB_191022_19102022	19-Oct-22	Trip Blank	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0
TB_211022_21102022	21-Oct-22	Trip Blank	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0
RB01_17102022	17-Oct-22	Rinsate	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0
RB02_18102022	18-Oct-22	Rinsate	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0
RB03_19102022	19-Oct-22	Rinsate	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0
RB04_21102022	21-Oct-22	Rinsate	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0
RB05_21102022	21-Oct-22	Rinsate	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0

Notes:

< - Less than laboratory limit of reporting
LOR - Laboratory limit of reporting
µg/L - Micrograms per litre

Analyte			Inorganics			
			Sulphate	Chloride	Electrical Conductivity @ 25°C	pH
LOR			10	10	1.0	0.1
Units			mg/kg	mg/kg	µS/cm	pH units
Sample Name	Sample Date	Start Depth (m)				
BH1_1.0	19-Oct-22	1.0	40	< 10	30	5.3
BH1_3.0	19-Oct-22	3.0	10	< 10	17	5.4
BH2_1.0	18-Oct-22	1.0	< 10	< 10	19	7.6
BH2_3.0	18-Oct-22	3.0	40	< 10	32	5.1
BH3_1.0	19-Oct-22	1.0	90	< 10	58	4.8
BH3_2.5	19-Oct-22	2.5	30	< 10	30	5.0
BH4_1.0	17-Oct-22	1.0	< 10	< 10	93	8.3
BH4_3.0	17-Oct-22	3.0	20	< 10	21	5.7
BH5_1.0	17-Oct-22	1.0	-	-	67	6.9
BH5_1.9	17-Oct-22	1.9	40	< 10	35	4.9
BH5_2.0	17-Oct-22	2.0	20	< 10	23	5.4
BH6_1.0	21-Oct-22	1.0	50	< 10	42	4.9
BH6_4.0	21-Oct-22	4.0	20	< 10	41	4.9
BH7_1.0	21-Oct-22	1.0	50	10	45	5.6
BH7_3.0	21-Oct-22	3.0	30	< 10	28	4.9
BH7_4.0	21-Oct-22	4.0	40	< 10	39	5.1
BH7_6.0	21-Oct-22	6.0	40	50	62	5.2

Notes:

- - Not analysed

< - Less than laboratory limit of reporting

LOR - Laboratory limit of reporting

mg/kg - Milligrams per kilogram

µS/cm - Microsiemens per centimeter

Bold indicates a detection above the laboratory limit of reporting

Analyte	BTEXN								Total Petroleum Hydrocarbons					Total Recoverable Hydrocarbons						
	Benzene	Toluene	Ethylbenzene	meta- & para-Xylene	ortho-Xylene	Total Xylenes	Naphthalene	Sum of BTEX	C ₆ - C ₉	C ₁₀ - C ₁₄	C ₁₅ - C ₂₈	C ₂₉ - C ₃₆	C ₁₀ - C ₃₆ sum	C ₆ - C ₁₀	C ₆ - C ₁₀ minus BTEX (F1)	>C ₁₀ - C ₁₆	>C ₁₀ - C ₁₆ minus Naphthalene (F2)	>C ₁₆ - C ₃₄	>C ₃₄ - C ₄₀	>C ₁₀ - C ₄₀ (sum)
LOR	1.0	2.0	2.0	2.0	2.0	2.0	5.0	1.0	20	50	100	50	50	20	20	100	100	100	100	100
Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
ANZG 2018 FRESHWATER 95% LOSP	950	180	80	--	350	--	16	--	--	--	--	--	--	--	--	--	--	--	--	--
CRC CARE HSL IMW - GW - SAND 2 TO <4M	NL	NL	NL	--	--	NL	NL	NL	--	--	--	--	--	NL	--	NL	--	--	--	--
NEPM 2013 HSL C - GW - SAND - 2 TO <4M	NL	NL	NL	--	--	NL	NL	NL	--	--	--	--	--	NL	--	NL	--	--	--	--
NHMRC - RISK IN RECREATIONAL WATER	1	800	300	--	--	600	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Name	Sample Date	SWL (mBTOC)																		
BH1	23-Nov-22	4.442	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 20	< 50	< 100	< 50	< 50	< 20	< 20	< 100	< 100	< 100	< 100	< 100
BH7	23-Nov-22	3.230	8.0	< 2.0	29	4.0	< 2.0	4.0	19	41	140	440	< 100	< 50	440	150	110	450	430	< 100
BH8	23-Nov-22	2.239	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 20	< 50	< 100	< 50	< 50	< 20	< 20	< 100	< 100	< 100	< 100	< 100

Notes:

< - Less than laboratory limit of reporting

NL - Not limiting

µg/L - Micrograms per litre

BTEXN - Benzene, toluene, ethylbenzene, total xylenes, naphthalene

Bold indicates a detection above the laboratory limit of reporting

Highlighting indicates an exceedance of the corresponding criteria (highlighting corresponds to the guideline with the highest criteria value where analytical result exceeds more than one guideline)

Criteria:

Australian and New-Zealand Guidelines (2018) Freshwater 95% Level Of Species Protection Toxicant Default Guideline Values

The Cooperative Research Centre for Contamination Assessment and Remediation of the Environment - Water Health Screening Levels for Petroleum Hydrocarbons in Soil and Groundwater for Vapour Intrusion for Intrusive Maintenance Worker Shallow Trench in Sand

The National Environment Protection Measures (2013) - Health Screening Levels - Table 1A(4) - Groundwater for Vapour Intrusion - Recreational and Open Space - Sand

National Health and Medical Research Council - Guidelines for Managing Risks in Recreational Water

Analyte			Inorganics	
			Electrical Conductivity @ 25°C	pH
LOR			1.0	0.01
Units			µS/cm	pH units
NHMRC - RISK IN RECREATIONAL WATER			--	8.5
Sample Name	Sample Date	SWL (mBTOC)		
BH1	23-Nov-22	4.442	429	5.8
BH7	23-Nov-22	3.230	308	5.48
BH8	23-Nov-22	2.239	317	5.83

Notes:

µS/cm - Microsiemens per centimeter

Bold indicates a detection above the laboratory limit of reporting

Criteria:

National Health and Medical Research Council - Guidelines for Managing Risks in Recreational Water

Table T28 - Metals in Groundwater

Analyte			Metals							
			Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc
LOR			0.001	0.0001	0.001	0.001	0.001	0.0001	0.001	0.005
Units			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
ANZG 2018 FRESHWATER 95% LOSP			--	0.0002	--	0.0014	0.0034	0.0006	0.011	0.008
NHMRC - RISK IN RECREATIONAL WATER			0.01	0.002	0.05	2	0.01	0.001	0.02	--
Sample Name	Sample Date	SWL (mBTOC)								
BH1	23-Nov-22	4.442	< 0.001	< 0.0001	< 0.001	< 0.001	< 0.001	< 0.0001	0.004	0.015
BH7	23-Nov-22	3.230	< 0.001	< 0.0001	0.001	0.007	0.001	< 0.0001	0.018	0.074
BH8	23-Nov-22	2.239	< 0.001	< 0.0001	< 0.001	< 0.001	< 0.001	< 0.0001	0.003	0.024

Notes:
 < - Less than laboratory limit of reporting
 mg/L - Milligrams per litre
Bold indicates a detection above the laboratory limit of reporting
 Highlighting indicates an exceedance of the corresponding criteria (highlighting corresponds to the guideline with the highest criteria value where analytical result exceeds more than one guideline)

Criteria:
 Australian and New-Zealand Guidelines (2018) Freshwater 95% Level Of Species Protection Toxicant Default Guideline Values
 National Health and Medical Research Council - Guidelines for Managing Risks in Recreational Water

Analyte	Polycyclic Aromatic Hydrocarbons															Total PAH	Benzo[a]pyrene TEQ		
	Naphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Chrysene	Benzo[a]anthracene	Benzo[k]fluoranthene	Benzo[b] & Benzo[j]fluoranthene	Benzo[a]pyrene	Indeno[1,2,3-c,d]pyrene	Dibenz[a,h]anthracene			Benzo[g,h,i]perylene	
LOR	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.5	1.0	1.0	1.0	0.5	0.5	
Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	
ANZG 2018 FRESHWATER 95% LOSP	16	--	--	--	2	0.4	1.4	--	--	--	--	--	0.2	--	--	--	--	--	
NHMRC - RISK IN RECREATIONAL WATER	--	--	--	--	--	--	--	--	--	--	--	--	0.01	--	--	--	--	--	
Sample Name	Sample Date	SWL (mBTOC)																	
BH1	23-Nov-22	4.442	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 0.5	< 1.0	< 1.0	< 1.0	< 1.0	< 0.5	< 0.5
BH7	23-Nov-22	3.230	10	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 0.5	< 1.0	< 1.0	< 1.0	< 1.0	10	< 0.5
BH8	23-Nov-22	2.239	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 0.5	< 1.0	< 1.0	< 1.0	< 1.0	< 0.5	< 0.5

Notes:

< - Less than laboratory limit of reporting

µg/L - Micrograms per litre

Bold indicates a detection above the laboratory limit of reporting

Highlighting indicates an exceedance of the corresponding criteria (highlighting corresponds to the guideline with the highest criteria value where analytical result exceeds more than one guideline)

Criteria:

Australian and New-Zealand Guidelines (2018) Freshwater 95% Level Of Species Protection Toxicant Default Guideline Values

National Health and Medical Research Council - Guidelines for Managing Risks in Recreational Water

Analyte			Polychlorinated Biphenyls
			Total PCBs
LOR			1.0
Units			µg/L
Sample Name	Sample Date	SWL (mBTOC)	
BH1	23-Nov-22	4.442	< 1.0
BH7	23-Nov-22	3.230	< 1.0
BH8	23-Nov-22	2.239	< 1.0

Notes:

< - Less than laboratory limit of reporting

LOR - Laboratory limit of reporting

µg/L - Micrograms per litre

PCB - Polychlorinated Biphenyl

Analyte	Organochlorine Pesticides																				
	4,4'-DDE	4,4'-DDD	4,4'-DDT	alpha-BHC	beta-BHC	gamma-BHC	delta-BHC	Aldrin	Heptachlor epoxide	cis-Chlordane	trans-Chlordane	Chlordane	alpha-Endosulfan	beta-Endosulfan	Endosulfan sulfate	Endrin	Endrin aldehyde	Endrin ketone	Dieldrin	Heptachlor	
LOR	0.5	0.5	2.0	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	0.5	0.5
Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
ANZG 2018 FRESHWATER 95% LOSP	--	--	0.01	--	--	0.2	--	--	--	--	--	0.08	--	--	--	0.02	--	--	--	--	0.09
NHMRC - RISK IN RECREATIONAL WATER	--	--	9	--	--	10	--	--	--	--	--	2	--	--	--	--	--	--	--	--	0.3
Sample Name	Sample Date	SWL (mBTOC)																			
BH1	23-Nov-22	4.442	< 0.5	< 0.5	< 2.0	< 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
BH7	23-Nov-22	3.230	< 0.5	< 0.5	< 2.0	< 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
BH8	23-Nov-22	2.239	< 0.5	< 0.5	< 2.0	< 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

Notes:

< - Less than laboratory limit of reporting
LOR - Laboratory limit of reporting
µg/L - Micrograms per litre
DDT - Dichlorodiphenyltrichloroethane
DDE - Dichlorodiphenyldichloroethylene
DDD - Dichlorodiphenyldichloroethane

Criteria:

Australian and New-Zealand Guidelines (2018) Freshwater 95% Level Of Species Protection Toxicant Default Guideline Values
National Health and Medical Research Council - Guidelines for Managing Risks in Recreational Water

Table T31 - OCPs / OPPs in Groundwater

				Organophosphorus Pesticides																			
Hexachlorobenzene	Methoxychlor	Sum of Aldrin + Dieldrin	Sum of DDD + DDE + DDT	Azinphos methyl	Bromophos-ethyl	Carbophenothion	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Demeton-s-methyl	Diazinon	Dichlorvos	Dimethoate	Ethion	Fenamiphos	Fenthion	Malathion	Monocrotophos	Parathion	Parathion-methyl	Pirimiphos-ethyl	Prothiophos	
0.5	2.0	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	2.0	2.0	2.0	0.5	0.5	
µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
0.1	--	--	--	0.02	--	--	--	0.01	--	--	0.01	--	0.15	--	--	--	0.05	--	0.004	--	--	--	
--	300	0.3	--	30	10	0.5	2	10	--	--	4	5	7	4	0.5	7	70	2	20	0.7	0.5	--	
< 0.5	< 2.0	< 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	< 2.0	< 2.0	< 2.0	< 0.5	< 0.5	
< 0.5	< 2.0	< 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	< 2.0	< 2.0	< 2.0	< 0.5	< 0.5	
< 0.5	< 2.0	< 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	< 2.0	< 2.0	< 2.0	< 0.5	< 0.5	

Analyte	PFAS Compounds																
	Perfluorooctane sulfonamide (FOSA)	N-Methyl-perfluorooctane sulfonamide (MeFOSA)	N-Ethyl-perfluorooctane sulfonamide (EtFOSA)	N-Methyl-perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl-perfluorooctane sulfonamidoethanol (EtFOSE)	N-Ethyl-perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Methyl-perfluorooctane sulfonamidoacetic acid (MeFOSAA)	Perfluorobutanoic acid (PFBA)	Perfluoro-n-pentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoate (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluorotridecanoic acid (PFTrDA)		
LOR	0.02	0.05	0.05	0.05	0.05	0.02	0.02	0.1	0.02	0.02	0.02	0.01	0.02	0.02	0.02		
Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L		
NHMRC - RISK IN RECREATIONAL WATER	--	--	--	--	--	--	--	--	--	--	--	0.56	--	--	--		
PFAS NEMP 2020 - HUMAN HEALTH RECREATION	--	--	--	--	--	--	--	--	--	--	--	10	--	--	--		
PFAS NEMP 2020 FRESHWATER 99% LOSP	--	--	--	--	--	--	--	--	--	--	--	19	--	--	--		
Sample Name	Sample Date	SWL (mBTOC)	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02
BH1	23-Nov-22	4.442	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02
BH7	23-Nov-22	3.230	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02
BH8	23-Nov-22	2.239	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02

Notes:

< - Less than laboratory limit of reporting

µg/L - Micrograms per litre

Bold indicates a detection above the laboratory limit of reporting

Highlighting indicates an exceedance of the corresponding criteria (highlighting corresponds to the guideline with the highest criteria value where analytical result exceeds more than one guideline)

Criteria:

National Health and Medical Research Council - Guidelines for Managing Risks in Recreational Water

Per- and Por-Fluoroalkyl Substances National Environment Protection Measures - Human Health Guideline Values - Recreational Water Quality Guideline Value (NHMRC 2019)

Per- and Por-Fluoroalkyl Substances National Environment Protection Measures Freshwater 99% Species Protection - High Conservation Value Systems

Table T32 - PFAS in Groundwater

													Sum of PFAS		
Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorobutanesulfonic acid (PFBS)	Perfluoropentanesulfonic acid (PFPeS)	Perfluorohexanesulfonic acid (PFHxS)	Perfluoroheptanesulfonate (PFHpS)	Perfluorooctanesulfonic acid (PFOS)	Perfluorodecane sulfonic acid (PFDS)	4:2 Fluorotelomer Sulfonate (4:2 FTS)	6:2 Fluorotelomer Sulfonate (6:2 FtS)	8:2 Fluorotelomer sulfonate (8:2 FtS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Sum of PFHxS and PFOS	Sum of PFAS (WADER List)	Sum of PFAS
0.02	0.02	0.05	0.02	0.02	0.01	0.02	0.01	0.02	0.05	0.05	0.05	0.05	0.01	0.01	0.01
µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
--	--	--	--	--	--	--	--	--	--	--	--	--	0.07	--	--
--	--	--	--	--	2	--	2	--	--	--	--	--	2	--	--
--	--	--	--	--	--	--	0.00023	--	--	--	--	--	--	--	--
< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01	< 0.02	0.05	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	0.05	0.05	0.05

Table T33 - Groundwater Gauging Data



Well ID	Date	DTW (mBTOC)	Total Well Depth (m)	Dry Indicator (Y/N)	LNAPL (mBTOC)	LNAPL Thickness (m)	Remark	Technician
BH1	23-Nov-22	4.442	6.55	N	ND	ND	Light brown, NO/NS, slow recharge	M. Ferguson
BH7	23-Nov-22	3.23	6.81	N	ND	ND	Pink/orange, moderate HC odour, NS, moderate recharge	M. Ferguson
BH8	23-Nov-22	2.239	6.98	N	ND	ND	Orange, NO/NS, fast recharge	M. Ferguson

Table T34 - Field Water Quality Parameters



Well ID	Date	DO ppm	ORP mV	PH pH units	SC uS/cm	TDS mg/L	TEMP deg C
BH1	23-Nov-22	1.65	118	5.71	420	273	21.1
BH7	23-Nov-22	4.93	49	7.34	304	197	18
BH8	23-Nov-22	2.71	112	5.82	300	195	18.6

Analyte			BTEXN							Total Petroleum Hydrocarbons					Total Recoverable Hydrocarbons							
			Benzene	Toluene	Ethylbenzene	meta- & para-Xylene	ortho-Xylene	Total Xylenes	Naphthalene	Sum of BTEX	C ₆ - C ₉	C ₁₀ - C ₁₄	C ₁₅ - C ₂₈	C ₂₉ - C ₃₆	C ₁₀ - C ₃₆ sum	C ₆ - C ₁₀	C ₆ - C ₁₀ minus BTEX (F1)	>C ₁₀ - C ₁₆	>C ₁₀ - C ₁₆ minus Naphthalene (F2)	>C ₁₆ - C ₃₄	>C ₃₄ - C ₄₀	>C ₁₀ - C ₄₀ (sum)
Units			µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	
Sample Name	Sample Date	Sample Type																				
TB_231122_23112022	23-Nov-22	Trip Blank	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 1.0	< 20	< 50	< 100	< 50	< 50	< 20	< 20	< 100	< 100	< 100	< 100	< 100	
RB01_23112022	23-Nov-22	Rinsate	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 1.0	< 20	< 50	< 100	< 50	< 50	< 20	< 20	< 100	< 100	< 100	< 100	< 100	
BH7_23112022	23-Nov-22	Primary	8.0	< 2.0	29	7.0 *	< 2.0	9.0 *	41	140	440	400 *	< 50	920 *	280 *	210 *	450	430	300 *	< 100	890 *	
QC01_23112022	23-Nov-22	Duplicate	8.0	< 2.0	30	4.0	< 2.0	4.0	42	130	460	< 100	< 50	460	160	120	470	450	< 100	< 100	470	
Relative Percentage Difference			0%	NC	3%	0%	NC	0%	5%	2%	7%	NC	NC	4%	6%	9%	4%	5%	NC	NC	4%	
BH7_23112022	23-Nov-22	Primary	8.0	< 2.0	29	4.0	< 2.0	4.0	19	140	440	< 100	< 50	440	150	110	450	430	< 100	< 100	450	
QC01A_23112022	23-Nov-22	Triplicate	11	< 1.0	47	7.0	2.0	9.0	-	200	520	400	< 100	920	280	210	590	560	300	< 100	890	
Relative Percentage Difference			32%	NC	47%	55%	0%	77%	NC	35%	17%	120%	NC	71%	60%	63%	27%	26%	100%	NC	66%	

Notes:

- - Not analysed
- < - Less than laboratory limit of reporting
- NC - Not calculated
- µg/L - Micrograms per litre
- BTEXN - Benzene, toluene, ethylbenzene, total xylenes, naphthalene
- Bold** indicates a detection above the laboratory limit of reporting
- *** denotes duplicate/triplicate sample result adopted for analytical use due to RPD >50%
- Orange highlighting indicates an RPD in excess of 50%
- RPD - Relative Percentage Difference

Table T36 - Groundwater Quality Control Data Analysis - Metals



Analyte			Metals								
			Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	
Units			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	
Sample Name	Sample Date	Sample Type									
TB_231122_23112022	23-Nov-22	Trip Blank	< 0.001	< 0.0001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.0001	< 0.001	< 0.005
RB01_23112022	23-Nov-22	Rinsate	< 0.001	< 0.0001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.0001	< 0.001	< 0.005
BH7_23112022	23-Nov-22	Primary	< 0.001	< 0.0001	0.001	0.007	0.001	< 0.0001	0.018	0.074	
QC01_23112022	23-Nov-22	Duplicate	< 0.001	< 0.0001	< 0.001	< 0.001	< 0.001	< 0.0001	0.01	0.022	
Relative Percentage Difference			NC	NC	0%	150%	0%	NC	57%	108%	
BH7_23112022	23-Nov-22	Primary	< 0.001	< 0.0001	0.001	0.007	0.001	< 0.0001	0.018	0.074	
QC01A_23112022	23-Nov-22	Triplicate	< 0.001	< 0.0002	< 0.001	0.003	< 0.001	< 0.0001	0.021	0.053	
Relative Percentage Difference			NC	NC	0%	80%	0%	NC	15%	33%	

Notes:

< - Less than laboratory limit of reporting

NC - Not calculated

mg/L - Milligrams per litre

Bold indicates a detection above the laboratory limit of reporting

Orange highlighting indicates an RPD in excess of 50%

RPD - Relative Percentage Difference

Analyte			Polycyclic Aromatic Hydrocarbons																						
			Naphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Chrysene	Benzo[a]anthracene	Benzo[k]fluoranthene	Benzo[b] & Benzo[j]fluoranthene	Benzo[a]pyrene	Indeno[1,2,3-c,d]pyrene	Dibenz[a,h]anthracene	Benzo[g,h,i]perylene	Total PAH	Benzo[a]pyrene TEQ					
Sample Name	Sample Date	Sample Type	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L						
TB_231122_23112022	23-Nov-22	Trip Blank	< 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	< 0.5	< 1.0	< 1.0	< 1.0	< 0.5	< 0.5
RB01_23112022	23-Nov-22	Rinsate	< 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	< 0.5	< 1.0	< 1.0	< 1.0	< 0.5	< 0.5
BH7_23112022	23-Nov-22	Primary	19	< 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	< 0.5	< 1.0	< 1.0	< 1.0	10	< 0.5
QC01_23112022	23-Nov-22	Duplicate	20	< 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	< 0.5	< 1.0	< 1.0	< 1.0	10	< 0.5
Relative Percentage Difference			5%	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	2%	NC
BH7_23112022	23-Nov-22	Primary	19	< 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	< 0.5	< 1.0	< 1.0	< 1.0	10	< 0.5
QC01A_23112022	23-Nov-22	Triplicate	30	< 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	< 0.5	< 1.0	< 1.0	< 1.0	16	-
Relative Percentage Difference			45%	NC	0%	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	42%	NC

Notes:
 - - Not analysed
 < - Less than laboratory limit of reporting
 NC - Not calculated
 µg/L - Micrograms per litre
Bold indicates a detection above the laboratory limit of reporting
 RPD - Relative Percentage Difference

Table T38 - Groundwater Quality Control Data Analysis - PCBs

Analyte			Polychlorinated Biphenyls
			Total PCBs
Units			µg/L
Sample Name	Sample Date	Sample Type	
TB_231122_23112022	23-Nov-22	Trip Blank	< 1.0
RB01_23112022	23-Nov-22	Rinsate	< 1.0
BH7_23112022	23-Nov-22	Primary	< 1.0
QC01_23112022	23-Nov-22	Duplicate	< 1.0
Relative Percentage Difference			NC
BH7_23112022	23-Nov-22	Primary	< 1.0
QC01A_23112022	23-Nov-22	Triplicate	< 0.005
Relative Percentage Difference			NC

Notes:

- - Not analysed
- < - Less than laboratory limit of reporting
- LOR - Laboratory limit of reporting
- NC - Not calculated
- µg/L - Micrograms per litre
- mg/L - Milligrams per litre
- PCB - Polychlorinated Biphenyl

Analyte			Organochlorine Pesticides													
			4,4'-DDE	4,4'-DDD	4,4'-DDT	alpha-BHC	beta-BHC	gamma-BHC	delta-BHC	Aldrin	Heptachlor epoxide	cis-Chlordane	trans-Chlordane	Chlordane	alpha-Endosulfan	beta-Endosulfan
Units			µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Sample Name	Sample Date	Sample Type														
TB_231122_23112022	23-Nov-22	Trip Blank	< 0.5	< 0.5	< 2.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
RB01_23112022	23-Nov-22	Rinsate	< 0.5	< 0.5	< 2.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
BH7_23112022	23-Nov-22	Primary	< 0.5	< 0.5	< 2.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
QC01_23112022	23-Nov-22	Duplicate	< 0.5	< 0.5	< 2.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Relative Percentage Difference			NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
BH7_23112022	23-Nov-22	Primary	< 0.5	< 0.5	< 2.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
QC01A_23112022	23-Nov-22	Triplicate	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	-	-	< 2.0	< 0.2	< 0.2
Relative Percentage Difference			NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC

Notes:

- - Not analysed
- < - Less than laboratory limit of reporting
- LOR - Laboratory limit of reporting
- NC - Not calculated
- µg/L - Micrograms per litre
- DDT - Dichlorodiphenyltrichloroethane
- DDE - Dichlorodiphenyldichloroethylene
- DDD - Dichlorodiphenyldichloroethane

Analyte			Perfluorooctane sulfonamide (FOSA)	N-Methyl-perfluorooctane sulfonamide (MeFOSA)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	Perfluorobutanoic acid (PFBA)	Perfluoro-n-pentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoate (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)
Units			µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Sample Name	Sample Date	Sample Type														
TB_231122_23112022	23-Nov-22	Trip Blank	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02
RB01_23112022	23-Nov-22	Rinsate	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02
BH7_23112022	23-Nov-22	Primary	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02
QC01_23112022	23-Nov-22	Duplicate	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02
Relative Percentage Difference			NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
BH7_23112022	23-Nov-22	Primary	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02
QC01A_23112022	23-Nov-22	Triplicate	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Relative Percentage Difference			NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC

Notes:

- Not analysed
- < - Less than laboratory limit of reporting
- EPA - Environment Protection Authority
- NC - Not calculated
- µg/L - Micrograms per litre
- Bold** indicates a detection above the laboratory limit of reporting
- RPD - Relative Percentage Difference

PFAS Compounds														Sum of PFAS		
Perfluorotridecanoic acid (PFTTrDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorobutanesulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexanesulfonic acid (PFHxS)	Perfluoroheptane sulfonate (PFHpS)	Perfluorooctanesulfonic acid (PFOS)	Perfluorodecanesulfonic acid (PFDS)	4:2 Fluorotelomer Sulfonate (4:2 FTS)	6:2 Fluorotelomer Sulfonate (6:2 FtS)	8:2 Fluorotelomer sulfonate (8:2 FtS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Sum of PFHxS and PFOS	Sum of PFAS (WADER List)	Sum of PFAS
µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.01	< 0.01	< 0.01	< 0.05	< 0.01	< 0.01	0.01	< 0.05	< 0.1
NC	NC	NC	NC	NC	NC	NC	NC	0%	NC	NC	NC	NC	NC	0%	NC	NC



APPENDIX D: PLANNING & HISTORICAL CERTIFICATES OF TITLE



ADVANCE LEGAL SEARCHERS PTY LTD

(ACN 147 943 842)
ABN 82 147 943 842

18/36 Osborne Road,
Manly NSW 2095

Mobile: 0412 169 809
Email: search@alsearchers.com.au

13th November, 2022

LAND INSIGHT AND RESOURCES PTY LTD

The Commons,
388 George Street,
SYDNEY NSW 2000

Attention: Tim Osborne,

RE: 305 – 309 Mann Street,
Gosford

Note 1:	Lots 29 & 30	Section 1	DP 1591	(page 1)
Note 2:	Lot 31	Section 1	DP 1591	(page 3)
Note 3:	Lot 32	Section 1	DP 1591	(page 5)
Note 4:	Lot 1		DP 911163	(page 7)
Note 5:	Lot 1		DP 911164	(page 9)
Note 6:	Lot 1	Section 1	DP 1591	(page 11)
Note 7:	Lot 2	Section 1	DP 1591	(page 13)
Note 8:	Lot 4	Section 1	DP 1591	(page 15)

Note 1:

Current Search

Folio Identifier Auto Consol 11143-245 (title attached)

Lots 29 & 30 Section 1 DP 1591 (plan attached)

Dated 11th November, 2022

Registered Proprietor:

HUNTER AND CENTRAL COAST DEVELOPMENT CORPORATION

(ABN 94 688 782 063)

Title Tree
Lots 29 & 30 Section 1 DP 1591

Folio Identifier Auto Consol 11143-245

Certificate of Title Volume 11143 Folio 245

Certificate of Title Volume 916 Folio 158

Index

T – Transfer

(L) – Lease

Summary of Proprietor(s)
Lots 29 & 30 Section 1 DP 1591

Year	Proprietor(s)	
	(Lots 29 & 30 Section 1 DP 1591 – A/C 11143-245)	
12 Nov 2020 – todate	Hunter and Central Coast Development Corporation (<i>ABN 94 688 782 063</i>)	T
26 Mar 2009	New South Wales Land and Housing Corporation (<i>ABN 24 960 729 253</i>)	T
21 Jan 1997	Mangrove Properties Pty Limited (<i>ACN 076 415 659</i>)	T
11 Sep 1991	Gosford Co-Operative Citrus Packing House Limited	
<i>(11 Sep 1991 todate)</i>	<i>(various leases shown on Historical Folio A/C 11143-245(attached))</i>	<i>(L)</i>
	(Lots 29 & 30 Section 1 DP 1591 – CTVol 11143 Fol 245)	
01 Oct 1969	Gosford Co-Operative Citrus Packing House Limited	T
17 Sep 1969	Horace Sydney Hunt, ganger	
	(Lots 29 & 30 Section 1 DP 1591 – Area 1 Rood 3 Perches – CTVol 916 Fol 158)	
06 Jul 1917	Horace Sydney Hunt, ganger	T
31 Aug 1915	Candace Sarah Mullard, widow	T
17 Mar 1906	Henry John Bourne, plumber	T

Note 2:

Current Search

Folio Identifier 31/1/1591 (historical attached)

DP 1591 (plan attached)

Dated 11th November, 2022

Registered Proprietor:

HUNTER AND CENTRAL COAST DEVELOPMENT CORPORATION

(ABN 94 688 782 063)

**Title Tree
Lot 31 Section 1 DP 1591**

Folio Identifier 31/1/1591

Certificate of Title Volume 901 Folio 140

Index

T – Transfer

(L) – Lease

A – Application

Summary of Proprietor(s) Lot 31 Section 1 DP 1591

Year	Proprietor(s)	
	(Lot 31 Section 1 DP 1591)	
12 Nov 2020 – todate	Hunter and Central Coast Development Corporation (<i>ABN 94 688 782 063</i>)	T
26 Mar 2009	New South Wales Land and Housing Corporation (<i>ABN 24 960 729 253</i>)	T
21 Jan 1997	Mangrove Properties Pty Limited (<i>ACN 076 415 659</i>)	T
26 May 1994	Gosford Co-Operative Citrus Packing House Limited	
13 Dec 1990	Hazel Jean Hunt-Sharman	
<i>(13 Dec 1990 todate)</i>	<i>(various leases shown on Historical Folio 31/1/1591 (attached))</i>	<i>(L)</i>
	(Lot 31 Section 1 DP 1591 – Area 21 ½ Perches – CTVol 901 Fol 40)	
27 Jul 1987	Hazel Jean Hunt-Sharman	T
27 Oct 1980	Florence Mary Thomson, company director	T
30 May 1957	Florence Mary Kirkness, spinster	A
21 Sep 1920	William Hastings Kirkness, sawmiller	T
05 Nov 1888	Thomas Thompson, farmer	T

Note 3:

Current Search

Folio Identifier 32/1/1591

DP 1591 (plan attached)

Dated 11th November, 2022

Registered Proprietor:

HUNTER AND CENTRAL COAST DEVELOPMENT CORPORATION

(ABN 94 688 782 063)

Title Tree
Lot 32 Section 1 DP 1591

Folio Identifier 32/1/1591

Certificate of Title Volume 6513 Folio 197

Certificate of Title Volume 828 Folio 152

Index

T – Transfer

(L) – Lease

Summary of Proprietor(s) Lot 32 Section 1 DP 1591

Year	Proprietor(s)	
	(Lot 32 Section 1 DP 1591)	
12 Nov 2020 – todate	Hunter and Central Coast Development Corporation (<i>ABN 94 688 782 063</i>)	T
26 Mar 2009	New South Wales Land and Housing Corporation (<i>ABN 24 960 729 253</i>)	T
21 Jan 1997	Mangrove Properties Pty Limited (<i>ACN 076 415 659</i>)	T
09 Apr 1989	Gosford Co-Operative Citrus Packing House Limited	
(09 Apr 1989 todate)	(<i>various leases shown on Historical Folio 32/1/1591</i>)	(L)
	(Lot 32 Section 1 DP 1591 – Area 27 Perches – CTVol 6513 Fol 197)	
18 Aug 1988	Gosford Co-Operative Citrus Packing House Limited	T
19 May 1981	Quids Inn Pty Limited	T
10 Jun 1952	Hazel Jean Hunt Sharman, married woman	T
	(Lots 26 to 28 & 32 Section 1 DP 1591 – Area 2 Roods 14 ½ Perches – CTVol 828 Fol 152)	
13 Nov 1917	William Hastings Kirkness, sawmill proprietor	T
15 Mar 1887	James Jefferies, congregational minister	

Note 4:

Current Search

Folio Identifier 1/911163 (historical attached)

DP 911163 (plan attached)

Dated 11th November, 2022

Registered Proprietor:

HUNTER AND CENTRAL COAST DEVELOPMENT CORPORATION

(ABN 94 688 782 063)

**Title Tree
Lot 1 DP 911163**

Folio Identifier 1/911163

Certificate of Title Volume 13192 Folio 235

Certificate of Title Volume 959 Folio 87

Index

T – Transfer

(L) – Lease

**Summary of Proprietor(s)
Lot 1 DP 911163**

Year	Proprietor(s)	
	(Lot 1 DP 911163)	
12 Nov 2020 – todate	Hunter and Central Coast Development Corporation (<i>ABN 94 688 782 063</i>)	T
26 Mar 2009	New South Wales Land and Housing Corporation (<i>ABN 24 960 729 253</i>)	T
21 Jan 1997	Mangrove Properties Pty Limited (<i>ACN 076 415 659</i>)	T
17 Nov 1988	Gosford Co-Operative Citrus Packing House Limited	
<i>(17 Nov 1988 todate)</i>	<i>(various leases shown on Historical Folio 1/911163 (attached))</i>	<i>(L)</i>
	(Lot 1 DP 911163 – CTVol 13192 Fol 235)	
23 Nov 1976	Gosford Co-Operative Citrus Packing House Limited	
	(Lot 1 DP 911163 – Area 10 ³/₄ Perches – CTVol 959 Fol 87)	
28 Sep 1943	Gosford Co-Operative Citrus Packing House Limited	T
31 Aug 1915	Candace Sarah Mullard, widow	T
17 Mar 1906	Henry John Bourne, plumber	T
21 Nov 1890	John James Mullard, cordial manufacturer	T
08 Feb 1890	Mary Bourne, widow	T

Note 5:

Current Search

Folio Identifier 1/911164

DP 911163 (plan attached)

Dated 11th November, 2022

Registered Proprietor:

HUNTER AND CENTRAL COAST DEVELOPMENT CORPORATION

(ABN 94 688 782 063)

**Title Tree
Lot 1 DP 911164**

Folio Identifier 1/911164

Certificate of Title Volume 13192 Folio 234

Certificate of Title Volume 959 Folio 100

Index

T – Transfer

(L) – Lease

**Summary of Proprietor(s)
Lot 1 DP 911164**

Year	Proprietor(s)	
	(Lot 1 DP 911164)	
12 Nov 2020 – todate	Hunter and Central Coast Development Corporation (<i>ABN 94 688 782 063</i>)	T
26 Mar 2009	New South Wales Land and Housing Corporation (<i>ABN 24 960 729 253</i>)	T
21 Jan 1997	Mangrove Properties Pty Limited (<i>ACN 076 415 659</i>)	T
17 Nov 1988 (17 Nov 1988 todate)	Gosford Co-Operative Citrus Packing House Limited (<i>various leases shown on Historical Folio 1/911164</i>)	(L)
	(Lot 1 DP 911164 – CTVol 13192 Fol 234)	
23 Nov 1976	Gosford Co-Operative Citrus Packing House Limited	
	(Lot 1 DP 911164 – Area 10 ³/₄ Perches – CTVol 959 Fol 100)	
28 Sep 1943	Gosford Co-Operative Citrus Packing House Limited	T
31 Aug 1915	Candace Sarah Mullard, widow	T
17 Mar 1906	Henry John Bourne, plumber	T
08 Feb 1890	John James Mullard, cordial manufacturer	T

Note 6:

Current Search

Folio Identifier 1/1/1591

DP 1591 (plan attached)

Dated 11th November, 2022

Registered Proprietor:

HUNTER AND CENTRAL COAST DEVELOPMENT CORPORATION

(ABN 94 688 782 063)

**Title Tree
Lot 1 Section 1 DP 1591**

Folio Identifier 1/1/1591

Certificate of Title Volume 4944 Folio 198

Certificate of Title Volume 820 Folio 115

Index

T – Transfer

(L) – Lease

TA – Transmission Application

**Summary of Proprietor(s)
Lot 1 Section 1 DP 1591**

Year	Proprietor(s)	
	(Lot 1 Section 1 DP 1591)	
12 Nov 2020 – todate	Hunter and Central Coast Development Corporation (<i>ABN 94 688 782 063</i>)	T
26 Mar 2009	New South Wales Land and Housing Corporation (<i>ABN 24 960 729 253</i>)	T
21 Jan 1997	Mangrove Properties Pty Limited (<i>ACN 076 415 659</i>)	T
17 Nov 1988 (17 Nov 1988 todate)	Gosford Co-Operative Citrus Packing House Limited (<i>various leases shown on Historical Folio 1/911164</i>)	(L)
	(Lot 1 Section 1 DP 1591 – Area 27 ¼ Perches – CTVol 4944 Fol 198)	
20 Oct 1944	Gosford Co-Operative Citrus Packing House Limited	T
(08 Jul 1938 to 20 Oct 1944)	(<i>lease to Forrest Douglas Burns, baker, John Hanley, baker & Frank James Payne, baker</i>)	(L)
29 Jun 1938	Edward Vincent Whelan, baker	
	(Lot 1 Section 1 DP 1591 – Area 27 ¼ Perches – CTVol 820 Fol 115)	
26 Jun 1928	Edward Vincent Whelan, baker	T
23 Apr 1926	Robert Henry Burns, baker	T
07 Apr 1924	William Gosby, poultry farmer	T
10 Sep 1907	Albert Aggett, boarding house proprietor	TA
02 Nov 1893	Southerton Aggett, senior constable of police	T

Note 7:

Current Search

Folio Identifier 2/1/1591 (historical title attached)

DP 1591 (plan attached)

Dated 11th November, 2022

Registered Proprietor:

HUNTER AND CENTRAL COAST DEVELOPMENT CORPORATION

(ABN 94 688 782 063)

Title Tree

Lot 2 Section 1 DP 1591

Folio Identifier 2/1/1591

Certificate of Title Volume 13192 Folio 236

Certificate of Title Volume 1074 Folio 243

Index

T – Transfer

(L) – Lease

TA – Transmission Application

**Summary of Proprietor(s)
Lot 2 Section 1 DP 1591**

Year	Proprietor(s)	
	(Lot 2 Section 1 DP 1591)	
12 Nov 2020 – todate	Hunter and Central Coast Development Corporation (<i>ABN 94 688 782 063</i>)	T
26 Mar 2009	New South Wales Land and Housing Corporation (<i>ABN 24 960 729 253</i>)	T
21 Jan 1997	Mangrove Properties Pty Limited (<i>ACN 076 415 659</i>)	T
14 Sep 1989	Gosford Co-Operative Citrus Packing House Limited	
(14 Sep 1989 todate)	(<i>various leases shown on Historical Folio 2/1/1591 (attached)</i>)	(L)
	(Lot 2 Section 1 DP 1591 – CTVol 13192 Fol 236)	
23 Nov 1976	Gosford Co-Operative Citrus Packing House Limited	T
	(Lot 2 Section 1 DP 1591 – Area 21 ¾ Perches – CTVol 1074 Fol 243)	
28 Sep 1943	Gosford Co-Operative Citrus Packing House Limited	T
31 Aug 1915	Candace Sarah Mullard, widow	T
17 Mar 1906	Henry John Bourne, plumber	T
07 Nov 1892	John James Mullard, lemonade manufacturer	T

Note 8:

Current Search

Folio Identifier 4/1/1591 (historical title attached)

DP 1591 (plan attached)

Dated 11th November, 2022

Registered Proprietor:

HUNTER AND CENTRAL COAST DEVELOPMENT CORPORATION

(ABN 94 688 782 063)

Title Tree

Lot 4 Section 1 DP 1591

Folio Identifier 4/1/1591

Certificate of Title Volume 15441 Folio 218

Certificate of Title Volume 7310 Folio's 37 to 40

Certificate of Title Volume 1753 Folio 219

Index

T – Transfer

(L) – Lease

TA – Transmission Application

CN – Change of Name

A – Section 94 Application

Summary of Proprietor(s) Lot 4 Section 1 DP 1591

Year	Proprietor(s)	
	(Lot 4 Section 1 DP 1591)	
12 Nov 2020 – todate	Hunter and Central Coast Development Corporation (<i>ABN 94 688 782 063</i>)	T
26 Mar 2009	New South Wales Land and Housing Corporation (<i>ABN 24 960 729 253</i>)	T
21 Jan 1997	Mangrove Properties Pty Limited (<i>ACN 076 415 659</i>)	T
11 Feb 1992	Gosford Co-Operative Citrus Packing House Limited	T
<i>(11 Feb 1992 todate)</i>	<i>(various leases shown on Historical Folio 2/1/1591 (attached))</i>	<i>(L)</i>
	(Lots 4 to 9 & 24 to 28 Section 1 DP 1591 – CTVol 15441 Fol 218)	
23 Nov 1986	G. E. Moore Pty Limited	T
	(Lots 4 to 9 & 24 to 28 Section 1 DP 1591 – Area 1 Acre 1 Rood 38 Perches – CTVol 7310 Fol's 37 to 40)	
24 Mar 1986	G. E. Moore Pty Limited	T
20 Feb 1986	Burns Phils Trustee Company (Canberra) Limited Ross Terrell Morland Hazel Jean Hunt Sharman, married woman Marjorie Joyce Millar Cockcroft, married woman Florence Mary Thomson, wife of Geoffrey David Thomson, company director	TA
27 May 1976	Mabel Elizabeth Peter, married woman Hazel Jean Hunt Sharman, married woman Marjorie Joyce Millar Cockcroft, married woman Florence Mary Thomson, wife of Geoffrey David Thomson, company director	CN
24 Jun 1957	Mabel Elizabeth Peter, married woman Hazel Jean Hunt Sharman, married woman Marjorie Joyce Millar Cockcroft, married woman Florence Mary Kirkness, spinster	
	(Lots 4 to 7 Section 1 DP 1591 – Area 2 Rood 7 Perches – CTVol 1753 Fol 219)	
30 May 1957	Florence Mary Kirkness, spinster	A
13 Nov 1917	William Hastings Kirkness, sawmill proprietor	T
02 Feb 1907	James Jefferies, congregational minister	



Timothy Osborne
L 24 300 Barangaroo Ave
SYDNEY NSW 2000

SECTION 10.7(2) AND (5) PLANNING CERTIFICATE

Under Section 10.7 of the Environmental Planning and Assessment Act, 1979

Receipt No: 17863881

Receipt Date: 15 November 2022

Property Address: 299 Mann Street, GOSFORD NSW 2250

Property Description: Lot 1 Sec 1 DP 1591, Lot 2 Sec 1 DP 1591, Lot 4 Sec 1 DP 1591, Lot 29 Sec 1 DP 1591, Lot 30 Sec 1 DP 1591, Lot 31 Sec 1 DP 1591, Lot 32 Sec 1 DP 1591, Lot 1 DP 911163, Lot 1 DP 911164

Property Owner: Hunter And Central Coast Development Corporation

Certificate No: 55541

Reference No: LI-3048:227262

Date of issue: 15-Nov-2022

The information contained within this certificate relates to the land.



Wyong Office: 2 Hely St / PO Box 20 Wyong NSW 2259

P 02 4306 7900 | **E** ask@centralcoast.nsw.gov.au | **W** centralcoast.nsw.gov.au | ABN 73 149 644 003

**ADVICE PROVIDED PURSUANT TO S.10.7(2) OF THE ENVIRONMENTAL
PLANNING AND ASSESSMENT ACT 1979**

1	NAMES OF RELEVANT PLANNING INSTRUMENTS AND DEVELOPMENT CONTROL PLANS
----------	---

(1) Environmental Planning Instruments and Development Control Plans which apply to the land

State Environmental Planning Policy (Precincts Regional) 2021 Pt 5.8 Gosford City Centre

Gosford City Centre Development Control Plan 2018

**ZONE B4 MIXED USE UNDER STATE ENVIRONMENTAL PLANNING POLICY
(GOSFORD CITY CENTRE) 2018**

State Environment Planning Policy (Exempt and Complying Development Codes) 2008

State Environment Planning Policy (Building Sustainability Index: BASIX) 2004

State Environment Planning Policy No. 65 – Design Quality of Residential Apartment Development

State Environment Planning Policy (Primary Production) 2021

State Environment Planning Policy (Transport and Infrastructure) 2021

State Environment Planning Policy (Biodiversity and Conservation) 2021

State Environment Planning Policy (Resilience and Hazards) 2021

State Environment Planning Policy (Industry and Employment) 2021

State Environment Planning Policy (Resources and Energy) 2021

State Environment Planning Policy (Planning Systems) 2021

State Environmental Planning Policy (Housing) 2021

(2) Proposed Environmental Planning Instruments and Draft Development Control Plans which will apply to the land and is or has been the subject of community consultation or public exhibition

Proposed State Environmental Planning Policy (Transport and Infrastructure) 2021

Proposed State Environment Planning Policy (Building Sustainability Index: BASIX) 2004

Standard Instrument (Local Environmental Plans) Order 2006

2	ZONING AND LAND USE UNDER RELEVANT PLANNING INSTRUMENTS
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(a) Identity of the Zone

Lot 1 Sec 1 DP 1591, Lot 2 Sec 1 DP 1591, Lot 4 Sec 1 DP 1591, Lot 29 Sec 1 DP 1591, Lot 30 Sec 1 DP 1591, Lot 31 Sec 1 DP 1591, Lot 32 Sec 1 DP 1591, Lot 1 DP 911163, Lot 1 DP 911164

B4 Mixed Use SEPP

(b) For each of the environmental planning instruments referred to in clause 1, please refer to the attached land use table to determine (i), (ii) and (iii) listed below:

(i) development that may be carried out within the zone without the need for development consent,

(ii) development which may not be carried out within the zone except with development consent and

(iii) development which is prohibited within the zone.

(c) Whether additional permitted uses apply to the land

Additional Permitted Uses apply to this land. Please refer to State Environmental Planning Policy (Precincts—Regional) 2021 Schedule 5 Additional permitted uses—Chapter 5'

(d) Development Standards applying to the land that fix minimum land dimensions for the erection of a dwelling-house

There are no development standards applying to the land that fix minimum land dimensions for the erection of a dwelling-house on the land. However there are minimum lot sizes applying to the subdivision of land, and in some zones the entitlement to erect a dwelling-house, or carry out other types of residential development, is linked to that minimum lot size.

(e) Land includes or comprises critical habitat

No

(f) Land is in a conservation area

No

(g) Item of environmental heritage is situated on the land

Yes.

3	CONTRIBUTION PLANS
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Gosford City Council Section 94A Development Contributions Plan - Gosford City Centre

4	COMPLYING DEVELOPMENT
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Whether or not the land is land on which complying development can be carried out under each of the codes for complying development because of the provisions of clause 1.17A(1)(c) to (e), (2), (3) and (4), 1.18(1)(c3) and 1.19 of *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*?

GENERAL HOUSING CODE

Complying development under the General Housing Code may not be carried out on the land. The land is affected by the requirements for complying development: The land is identified as an item of environmental heritage or a heritage item by an environmental planning instrument or on which is located an item that is so identified. If the item identified as an item of environmental heritage in an environmental planning instrument does not comprise, or is not located on, the whole of the relevant land, then restriction applies only to the part of the land that is described and mapped on that instrument. Please contact your Private Accredited Certifier to ascertain the extent of the constraint on the land.

RURAL HOUSING CODE

Complying development under the Rural Housing Code may not be carried out on the land. The land is affected by the requirements for complying development: The land is identified as an item of environmental heritage or a heritage item by an environmental planning instrument or on which is located an item that is so identified. If the item identified as an item of environmental heritage in an environmental planning instrument does not comprise, or is not located on, the whole of the relevant land, then restriction applies only to the part of the land that is described and mapped on that instrument. Please contact your Private Accredited Certifier to ascertain the extent of the constraint on the land.

LOW RISE HOUSING DIVERSITY CODE

Complying development under the Low Rise Housing Diversity Code may not be carried out on the land. The land is affected by the requirements for complying development: The land is identified as an item of environmental heritage or a heritage item by an environmental planning instrument or on which is located an item that is so identified. If the item identified as an item of environmental heritage in an environmental planning instrument does not comprise, or is not located on, the whole of the relevant land, then restriction applies only to the part of the land that is described and mapped on that instrument. Please contact your Private Accredited certifier to ascertain the extent of the constraints on the land.

GREENFIELD HOUSING CODE

Greenfield Housing Code **is not** applicable to this land.

HOUSING ALTERATIONS CODE

Complying development under the Housing Alterations Code may not be carried out on the land. The land is affected by the requirements for complying development: The land is identified as an item of environmental heritage or a heritage item by an environmental planning instrument or on which is located an item that is so identified. If the item identified as an item of environmental heritage in an environmental planning instrument does not comprise, or is not located on, the whole of the relevant land, then restriction applies only to the part of the land that is described and mapped on that instrument. Please contact your Private Accredited Certifier to ascertain the extent of the constraint on the land.

GENERAL DEVELOPMENT CODE

Complying development under the General Development Code may not be carried out on the land. The land is affected by the requirements for complying development: The land is identified as an item of environmental heritage or a heritage item by an environmental planning instrument or on which is located an item that is so identified. If the item identified as an item of environmental heritage in an environmental planning instrument does not comprise, or is not located on, the whole of the relevant land, then restriction applies only to the part of the land that is described and mapped on that instrument. Please contact your Private Accredited Certifier to ascertain the extent of the constraint on the land.

COMMERCIAL AND INDUSTRIAL ALTERATIONS CODE

Complying development under the Commercial and Industrial Alterations Code may not be carried out on the land. The land is affected by the requirements for complying development: The land is identified as an item of environmental heritage or a heritage item by an environmental planning instrument or on which is located an item that is so identified. If the item identified as an item of environmental heritage in an environmental planning instrument does not comprise, or is not located on, the whole of the relevant land, then restriction applies only to the part of the land that is described and mapped on that instrument. Please contact your Private Accredited Certifier to ascertain the extent of the constraint on the land.

COMMERCIAL AND INDUSTRIAL (NEW BUILDINGS AND ADDITIONS) CODE

Complying development under the Commercial and Industrial (New Buildings and Additions) Code may not be carried out on the land. The land is affected by the requirements for complying development: The land is identified as an item of environmental heritage or a heritage item by an environmental planning instrument or on which is located an item that is so identified. If the item identified as an item of environmental heritage in an environmental planning instrument does not comprise, or is not located on, the whole of the relevant land, then restriction applies only to the part of the land that is described and mapped on that instrument. Please contact your Private Accredited Certifier to ascertain the extent of the constraint on the land.

CONTAINER RECYCLING FACILITIES CODE

Complying development under the Container Recycling Facilities Code **may not** be carried out on the land. The land is affected by the requirements for complying development: The land is identified as an item of environmental heritage or a heritage item by an environmental

planning instrument or on which is located an item that is so identified. If the item identified as an item of environmental heritage in an environmental planning instrument does not comprise, or is not located on, the whole of the relevant land, then restriction applies only to the part of the land that is described and mapped on that instrument. Please contact your Private Accredited Certifier to ascertain the extent of the constraint on the land.

SUBDIVISIONS CODE

Complying development under the Subdivisions Code may not be carried out on the land. The land is affected by the requirements for complying development: The land is identified as an item of environmental heritage or a heritage item by an environmental planning instrument or on which is located an item that is so identified. If the item identified as an item of environmental heritage in an environmental planning instrument does not comprise, or is not located on, the whole of the relevant land, then restriction applies only to the part of the land that is described and mapped on that instrument. Please contact your Private Accredited Certifier to ascertain the extent of the constraint on the land.

DEMOLITION CODE

Complying development under the Demolition Code may not be carried out on the land. The land is affected by the requirements for complying development: The land is identified as an item of environmental heritage or a heritage item by an environmental planning instrument or on which is located an item that is so identified. If the item identified as an item of environmental heritage in an environmental planning instrument does not comprise, or is not located on, the whole of the relevant land, then restriction applies only to the part of the land that is described and mapped on that instrument. Please contact your Private Accredited Certifier to ascertain the extent of the constraint on the land.

FIRE SAFETY CODE

Complying development under the Fire Safety Code may not be carried out on the land. The land is affected by the requirements for complying development: The land is identified as an item of environmental heritage or a heritage item by an environmental planning instrument or on which is located an item that is so identified. If the item identified as an item of environmental heritage in an environmental planning instrument does not comprise, or is not located on, the whole of the relevant land, then restriction applies only to the part of the land that is described and mapped on that instrument. Please contact your Private Accredited Certifier to ascertain the extent of the constraint on the land.

5	EXEMPT DEVELOPMENT
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Whether or not the land is land on which exempt development may be carried out under each of the exempt development codes under *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008* because of that Policy, clause 1.16(1) (b1)–(d) or 1.16A.

GENERAL EXEMPT DEVELOPMENT CODE

Exempt development under the General Exempt Development Code applies to this land. This information needs to be read in conjunction with the whole of the State Environmental

Planning Policy (Exempt and Complying Development Codes) 2008.

ADVERTISING AND SIGNAGE EXEMPT DEVELOPMENT CODE

Exempt development under the Advertising and Signage Exempt Development Code applies to this land. This information needs to be read in conjunction with the whole of the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.

TEMPORARY USES AND STRUCTURES EXEMPT DEVELOPMENT CODE

Exempt development under the Temporary Uses and Structures Exempt Development Code applies to this land. This information needs to be read in conjunction with the whole of the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.

6	AFFECTED BUILDING NOTICES AND BUILDING PRODUCT RECTIFICATION ORDERS (<i>BUILDING PRODUCT SAFETY ACT 2017</i>)
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1(a) Is there any affected building notice of which the council is aware that is in force in respect of the land?

No

1(b) Is there any building product rectification order of which the council is aware that is in force in respect of the land and has not been fully complied with?

No

1(c) Is there any notice of intention to make a building product rectification order of which the council is aware has been given in respect of the land and is outstanding?

No

In this section—

affected building notice has the same meaning as in the *Building Products (Safety) Act 2017*, Part 4.

building product rectification order has the same meaning as in the *Building Products (Safety) Act 2017*

7	LAND RESERVED FOR ACQUISITION
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The following environmental planning instruments and proposed environmental planning instruments make provisions for the acquisition of the land by a public authority as referred to in Section 3.15 of the Act:

Nil

8	ROAD WIDENING AND ROAD ALIGNMENT
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(a) DIVISION 2 OF PART 3 OF THE *ROADS ACT 1993*

The land is not affected by road realignment or road widening under the above.

(b) ENVIRONMENTAL PLANNING INSTRUMENT

The land is not affected by road realignment or road widening under the above.

(c) COUNCIL RESOLUTIONS

The land is not affected by road realignment or road widening under the above.

9	FLOOD RELATED DEVELOPMENT CONTROLS
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(1) The land or part of the land **is** within the flood planning area and **is** subject to flood related development controls.

(2) The land or part of the land **is** between the flood planning area and the probable maximum flood and **is** subject to flood related development controls.

(3) In this section—

flood planning area has the same meaning as in the Floodplain Development Manual.

Floodplain Development Manual means the Floodplain Development Manual (ISBN 0 7347 5476 0) published by the NSW Government in April 2005.

probable maximum flood has the same meaning as in the Floodplain Development Manual.

10	COUNCIL AND OTHER PUBLIC AUTHORITY POLICIES ON HAZARD RISK RESTRICTIONS
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This land **is** affected by a policy adopted by the council or other public authority that restricts the development of the land because of the likelihood of risk restrictions. This land **is** affected because:

Acid sulfate class 5.

In this section—

adopted policy means a policy adopted—

(a) by the council, or

(b) by another public authority, if the public authority has notified the council that the policy will be included in a planning certificate issued by the council.

11	BUSH FIRE PRONE LAND
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The information currently available to Council indicates that this land **is not** bushfire prone land (as defined in the Act).

12	LOOSE-FILL ASBESTOS INSULATION
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This land does not include any residential premises (within the meaning of Division 1A of Part 8 of the *Home Building Act 1989*) that are listed on the register that is required to be maintained under that Division. That register lists residential premises that contain or have contained loose-fill asbestos insulation.

13	MINE SUBSIDENCE
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The land **IS NOT WITHIN** a Mine Subsidence District declared under section 20 of the *Coal Mine Subsidence Compensation Act 2017*.

14	PAPER SUBDIVISION INFORMATION
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- (1) The name of any development plan adopted by a relevant authority that:
- (a) applies to this land or
 - (b) that is proposed to be subject to a consent ballot.

Nil

- (2) The date of any subdivision order that applies to this land.

Not applicable

Words and expressions used in this clause have the same meaning as they have in Part 10 of the *Environmental Planning and Assessment Regulation 2021* and Schedule 7 of the *Environmental Planning and Assessment Act 1979*.

15	PROPERTY VEGETATION PLANS
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Council **has not** been notified by Local Land Services – Greater Sydney that the land is subject to a property vegetation plan approved under Part 4 of the *Native Vegetation Act 2003*.

16	BIODIVERSITY STEWARDSHIP SITES
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Council **has not** been notified by the Director-General of the Department of Planning and Environment that the land is a biodiversity stewardship site under a biodiversity stewardship agreement under Part 5 of the *Biodiversity Conservation Act, 2016*.

Note: Biodiversity stewardship agreements include biobanking agreements under the *Threatened Species Conservation Act 1995, Part 7A* that are taken to be biodiversity stewardship agreements under the *Biodiversity Conservation Act 2016, Part 5*.

17	BIODIVERSITY CERTIFIED LAND
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The land **is not** biodiversity certified land within the meaning of Part 8 of the *Biodiversity Conservation Act, 2016*.

Note: Biodiversity certified land includes land certified under the *Threatened Species Conservation Act 1995*, Part 7AA that is taken to be certified under the *Biodiversity Conservation Act 2016*, Part 8.

18	ORDERS UNDER TREES (DISPUTES BETWEEN NEIGHBOURS) ACT 2006
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Council **has not** been notified of an Order issued under the Trees (Disputes between Neighbours) Act 2006.

NOTE: This advice is based on information provided by the Land and Environment Court

19	ANNUAL CHARGES UNDER LOCAL GOVERNMENT ACT 1993 FOR COASTAL PROTECTION SERVICES THAT RELATE TO EXISTING COASTAL PROTECTION WORKS
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The owner (or any previous owner) of the land has not consented in writing to the land being subject to annual charges under section 496B of the *Local Government Act 1993* for coastal protection services that relate to existing coastal protection works.

In this section—

existing coastal protection works has the same meaning as in the *Local Government Act 1993*, section 553B.

Note—

Existing coastal protection works are works to reduce the impact of coastal hazards on land, such as seawalls, revetments, groynes and beach nourishment, that existed before 1 January 2011.

20	WESTERN SYDNEY AEROTROPOLIS
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Not applicable to Central Coast Local Government Area

21	DEVELOPMENT CONSENT CONDITIONS FOR SENIORS HOUSING
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Council **is not** aware of there being a current Site Compatibility Certificate (seniors housing) issued by the Director-General of the Department of Planning and Environment in respect of the land.

NOTE: This advice is based on information provided by the NSW Department of Planning and Environment.

22

**SITE COMPATIBILITY CERTIFICATES AND DEVELOPMENT CONSENT
CONDITIONS FOR AFFORDABLE RENTAL HOUSING**

Council **is not** aware of there being a valid Site Compatibility Certificate (affordable rental housing) issued by the Director-General of the Department of Planning and Environment in respect of the land.

NOTE: This advice is based on information provided by the NSW Department of Planning and Environment.

NOTE

CONTAMINATED LAND MANAGEMENT ACT 1997

The following matters are prescribed by section 59 (2) of the *Contaminated Land Management Act 1997* as additional matters to be specified in a planning certificate:

- (a) The land to which the certificate relates is significantly contaminated land within the meaning of that Act - if the land (or part of the land) is significantly contaminated land at the date when the certificate is issued,

No

- (b) The land to which the certificate relates is subject to a management order within the meaning of that Act - if it is subject to such an order at the date when the certificate is issued,

No

- (c) The land to which the certificate relates is the subject of an approved voluntary management proposal within the meaning of that Act - if it is the subject of such an approved proposal at the date when the certificate is issued,

No

- (d) The land to which the certificate relates is subject to an ongoing maintenance order within the meaning of that Act - if it is subject to such an order at the date when the certificate is issued,

No

- (e) The land to which the certificate relates is the subject of a site audit statement within the meaning of that Act - if a copy of such a statement has been provided at any time to the local authority issuing the certificate.

No

**ADVICE PROVIDED PURSUANT TO S.10.7(5) OF THE ENVIRONMENTAL
PLANNING AND ASSESSMENT ACT 1979**

NOTE: SECTION 10.7(6) OF THE ACT STATES THAT A COUNCIL SHALL NOT INCUR ANY LIABILITY IN RESPECT OF ANY ADVICE PROVIDED IN GOOD FAITH PURSUANT TO SUBSECTION (5).

- 23.1** The property is subject to Environmental Planning and Assessment (Special Infrastructure Contribution - Gosford City Centre) Determination 2018 made by the Minister for Planning, pursuant to section 7.23 of the Environmental Planning and Assessment Act 1979 on 12 October 2018 (enquiries to the Department of Planning Industry and Environment).

For any enquiries regarding this Certificate, please contact Council's Customer Contact Centre on 1300 463 954.

Karen Hansen
Signed on Behalf of Central Coast Council

LAND USE TABLE

Zone B4 Mixed Use

State Environmental Planning Policy (Precincts—Regional) 2021 Gosford City Centre

1 Objectives of zone

- To provide a mixture of compatible land uses.
- To integrate suitable business, office, residential, retail and other development in accessible locations so as to maximise public transport patronage and encourage walking and cycling.
- To encourage a diverse and compatible range of activities, including commercial and retail development, cultural and entertainment facilities, tourism, leisure and recreation facilities, social, education and health services and higher density residential development.
- To allow development in Point Frederick to take advantage of and retain view corridors while avoiding a continuous built edge along the waterfront.
- To create opportunities to improve the public domain and pedestrian links of Gosford City Centre.
- To enliven the Gosford waterfront by allowing a wide range of commercial, retail and residential activities immediately adjacent to it and increase opportunities for more interaction between public and private domains.
- To protect and enhance the scenic qualities and character of Gosford City Centre.

2 Permitted without consent

Nil




























3 Permitted with consent

Boarding houses; Centre-based child care facilities; Commercial premises; Community facilities; Educational establishments; Entertainment facilities; Function centres; Hotel or motel accommodation; Information and education facilities; Medical centres; Passenger transport facilities; Recreation facilities (indoor); Registered clubs; Respite day care centres; Restricted premises; Roads; Seniors housing; Shop top housing; Any other development not specified in item 2 or 4
































4 Prohibited

Agriculture; Air transport facilities; Amusement centres; Animal boarding or training establishments; Biosolids treatment facilities; Boat building and repair facilities; Boat sheds; Camping grounds; Car parks; Caravan parks; Cemeteries; Charter and tourism boating facilities; Correctional centres; Crematoria; Depots; Dual occupancies; Dwelling houses; Eco-tourist facilities; Electricity generating works; Environmental facilities; Environmental protection works; Exhibition homes; Exhibition villages; Extractive industries; Farm buildings; Flood mitigation works; Forestry; Freight transport facilities; Group homes (transitional); Heavy industrial storage

establishments; Highway service centres; Home-based child care; Home businesses; Home occupations (sex services); Hospitals; Hostels; Industrial retail outlets; Industries; Marinas; Mooring pens; Moorings; Mortuaries; Open cut mining; Recreation facilities (major); Recreation facilities (outdoor); Research stations; Resource recovery facilities; Rural industries; Rural workers' dwellings; Secondary dwellings; Semi-detached dwellings; Service stations; Sewage treatment plants; Sex services premises; Storage premises; Transport depots; Vehicle body repair workshops; Vehicle repair stations; Veterinary hospitals; Warehouse or distribution centres; Waste disposal facilities; Water recreation structures; Water recycling facilities; Water supply systems; Wholesale supplies

	Status	Surv/Comp	Purpose
DP18726 Lot(s): 7			
 DP1225681	REGISTERED	SURVEY	EASEMENT
DP1006006 Lot(s): 100, 101, 103			
 DP862610	HISTORICAL	SURVEY	CONSOLIDATION
DP1011599 Lot(s): 1			
 DP406428	HISTORICAL	SURVEY	UNRESEARCHED
DP1044058 Lot(s): 202			
 DP1177250	REGISTERED	SURVEY	EASEMENT
 DP1190778	REGISTERED	COMPILATION	EASEMENT
Lot(s): 202, 203			
 DP805082	HISTORICAL	SURVEY	SUBDIVISION
DP1187459 Lot(s): 1			
 DP1184980	HISTORICAL	COMPILATION	LIMITED FOLIO CREATION
 DP1184994	HISTORICAL	COMPILATION	LIMITED FOLIO CREATION
 DP1185021	HISTORICAL	COMPILATION	LIMITED FOLIO CREATION
 DP1252825	REGISTERED	SURVEY	SURVEY INFORMATION ONLY
 CA166835 - LOT 119 DP1184980			
 CA166843 - LOT 120 DP1184994			
 CA166855 - LOT 121 DP1185021			
DP1233004 Lot(s): 301			
 DP157518	HISTORICAL	SURVEY	UNRESEARCHED
 DP160507	HISTORICAL	SURVEY	UNRESEARCHED
 DP163187	HISTORICAL	SURVEY	UNRESEARCHED
 DP316723	HISTORICAL	SURVEY	UNRESEARCHED
 DP503890	HISTORICAL	SURVEY	SUBDIVISION
 DP996187	HISTORICAL	COMPILATION	DEPARTMENTAL
 DP1050222	HISTORICAL	SURVEY	DELIMITATION
 DP1074996	HISTORICAL	SURVEY	DELIMITATION
 DP1216982	HISTORICAL	SURVEY	ROADS ACT, 1993
 DP1254687	PRE-ALLOCATED	UNAVAILABLE	EASEMENT
 DP1261483	PRE-ALLOCATED	UNAVAILABLE	BUILDING STRATUM SUBDIVISION
 NSW GAZ. 08-04-2016			Folio : 758
ACQUIRED FOR THE PURPOSES OF THE HEALTH ADMINISTRATION ACT 1982 AFFECTING LOTS 31-32 DP1074996			
 NSW GAZ. 24-06-2016			Folio : 1589
ACQUIRED FOR THE PURPOSES OF THE HEALTH ADMINISTRATION ACT 1982 - LOT 1 DP1050222			
 CA176143 - LOT 100 DP1216982			
 NSW GAZ. 07-04-2017			Folio : 1190
ACQUIRED FOR THE PURPOSES OF THE HEALTH ADMINISTRATION ACT 1982 - LOT 100 DP1216982			
DP1250970 Lot(s): 30			
 DP1591	HISTORICAL	SURVEY	UNRESEARCHED
 DP1283709	REGISTERED	COMPILATION	EASEMENT
 SP104583	PRE-ALLOCATED	UNAVAILABLE	STRATA PLAN
DP1258445 Lot(s): 2			
 DP18726	HISTORICAL	SURVEY	UNRESEARCHED
 DP229792	HISTORICAL	SURVEY	SUBDIVISION
 DP1251945	HISTORICAL	SURVEY	CONSOLIDATION
 SP100980	REGISTERED	COMPILATION	PART STRATA

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	Status	Surv/Comp	Purpose
SP14004			
 DP1042082	REGISTERED	SURVEY	CONSOLIDATION
 SP87023	REGISTERED	COMPILATION	STRATA SUBDIVISION PLAN
SP62240			
 DP882655	HISTORICAL	SURVEY	CONSOLIDATION
SP63890			
 DP14122	HISTORICAL	SURVEY	UNRESEARCHED
 DP1017650	HISTORICAL	SURVEY	REDEFINITION
SP64935			
 DP758466	HISTORICAL	COMPILATION	CROWN ADMIN NO.
 DP1008734	HISTORICAL	SURVEY	ROADS ACT, 1993
 DP1011052	HISTORICAL	SURVEY	CONSOLIDATION
SP68909			
 DP1591	HISTORICAL	SURVEY	UNRESEARCHED
 DP1042082	HISTORICAL	SURVEY	CONSOLIDATION
SP69798			
 DP1591	HISTORICAL	SURVEY	UNRESEARCHED
 DP1046093	HISTORICAL	SURVEY	CONSOLIDATION
SP72451			
 DP1048303	HISTORICAL	SURVEY	CONSOLIDATION
 DP1061661	HISTORICAL	SURVEY	SUBDIVISION
SP73137			
 DP14122	HISTORICAL	SURVEY	UNRESEARCHED
 DP1063968	HISTORICAL	SURVEY	CONSOLIDATION
SP77413			
 DP1591	HISTORICAL	SURVEY	UNRESEARCHED
 DP18726	HISTORICAL	SURVEY	UNRESEARCHED
 DP349868	HISTORICAL	COMPILATION	UNRESEARCHED
 DP1004626	HISTORICAL	COMPILATION	LIMITED FOLIO CREATION
 DP1008225	HISTORICAL	SURVEY	CONSOLIDATION
 DP1078487	HISTORICAL	SURVEY	CONSOLIDATION
 SP77414	REGISTERED	COMPILATION	STRATA SUBDIVISION PLAN
 PA81430 - LOT 1 DP1008225			
SP94753			
 DP1223347	HISTORICAL	SURVEY	CONSOLIDATION
SP100980			
 DP18726	HISTORICAL	SURVEY	UNRESEARCHED
 DP229792	HISTORICAL	SURVEY	SUBDIVISION
 DP1251945	HISTORICAL	SURVEY	CONSOLIDATION
 DP1258445	HISTORICAL	SURVEY	BUILDING STRATUM SUBDIVISION
Road			
Polygon Id(s): 106755488			
 DP1252825	REGISTERED	SURVEY	SURVEY INFORMATION ONLY
Polygon Id(s): 105052945, 105239842, 105301929, 105409981, 105568651, 105648072, 106714651, 106714660			
 EX-SUR 59/33 DP446245			

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Plan	Surv/Comp	Purpose
DP1591	SURVEY	UNRESEARCHED
DP12148	SURVEY	UNRESEARCHED
DP14122	SURVEY	UNRESEARCHED
DP18726	SURVEY	UNRESEARCHED
DP127201	COMPILATION	DEPARTMENTAL
DP154681	SURVEY	UNRESEARCHED
DP158415	SURVEY	UNRESEARCHED
DP163456	SURVEY	UNRESEARCHED
DP175082	COMPILATION	UNRESEARCHED
DP201121	SURVEY	SUBDIVISION
DP229792	SURVEY	SUBDIVISION
DP309913	SURVEY	UNRESEARCHED
DP330139	COMPILATION	UNRESEARCHED
DP345236	SURVEY	UNRESEARCHED
DP346510	COMPILATION	UNRESEARCHED
DP348997	COMPILATION	UNRESEARCHED
DP377238	COMPILATION	UNRESEARCHED
DP400455	SURVEY	UNRESEARCHED
DP406884	SURVEY	UNRESEARCHED
DP503890	SURVEY	SUBDIVISION
DP589618	SURVEY	SUBDIVISION
DP706156	COMPILATION	CONSOLIDATION
DP744701	COMPILATION	DEPARTMENTAL
DP787759	SURVEY	SUBDIVISION
DP805082	SURVEY	SUBDIVISION
DP837225	SURVEY	REDEFINITION
DP857320	SURVEY	REDEFINITION
DP911163	COMPILATION	UNRESEARCHED
DP911164	COMPILATION	UNRESEARCHED
DP960197	COMPILATION	UNRESEARCHED
DP981674	COMPILATION	UNRESEARCHED
DP996250	COMPILATION	DEPARTMENTAL
DP1006006	SURVEY	SUBDIVISION
DP1011599	COMPILATION	CONSOLIDATION
DP1044058	SURVEY	SUBDIVISION
DP1187459	SURVEY	CONSOLIDATION
DP1233004	SURVEY	SUBDIVISION
DP1233004	UNRESEARCHED	SUBDIVISION
DP1250970	SURVEY	CONSOLIDATION
DP1258445	SURVEY	BUILDING STRATUM SUBDIVISION
DP1258445	UNRESEARCHED	BUILDING STRATUM SUBDIVISION
SP11994	COMPILATION	STRATA PLAN
SP14004	COMPILATION	STRATA PLAN
SP18828	COMPILATION	STRATA PLAN
SP20058	COMPILATION	STRATA PLAN
SP20095	COMPILATION	STRATA PLAN
SP31797	COMPILATION	STRATA PLAN
SP33362	COMPILATION	STRATA PLAN
SP34699	COMPILATION	STRATA PLAN
SP36478	COMPILATION	STRATA PLAN
SP38390	COMPILATION	STRATA PLAN
SP38798	COMPILATION	STRATA PLAN
SP39086	COMPILATION	STRATA PLAN
SP46812	COMPILATION	STRATA PLAN
SP54939	COMPILATION	STRATA PLAN
SP57750	COMPILATION	STRATA PLAN
SP57998	COMPILATION	STRATA PLAN
SP62240	COMPILATION	STRATA PLAN
SP63890	COMPILATION	STRATA PLAN
SP64935	COMPILATION	STRATA PLAN
SP68909	COMPILATION	STRATA PLAN
SP69798	COMPILATION	STRATA PLAN
SP72451	COMPILATION	STRATA PLAN
SP73137	COMPILATION	STRATA PLAN
SP77413	COMPILATION	STRATA PLAN

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ACTIVITY PRIOR TO SEPTEMBER 2002 you must refer to the RGs Charting and Reference Maps.

Locality : GOSFORD

Parish : GOSFORD

LGA : CENTRAL COAST

County : NORTHUMBERLAND

Plan	Surv/Comp	Purpose
SP94753	COMPILATION	STRATA PLAN
SP100980	COMPILATION	PART STRATA

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11143245

NEW SOUTH WALES



CATE OF TITLE
PROPERTY ACT, 1900, as amended.

Vol. 11143 Fol. 245

Appln. No.6338

Prior Title Vol.916 Fol.158



CDS Edition issued 17-9-1969
L545965

I certify that the person described in the First Schedule is the registered proprietor of the undermentioned estate in the land within described subject nevertheless to such exceptions encumbrances and interests as are shown in the Second Schedule.

Witness *L. Balliner*

Jawatson
Registrar General.



PLAN SHOWING LOCATION OF LAND

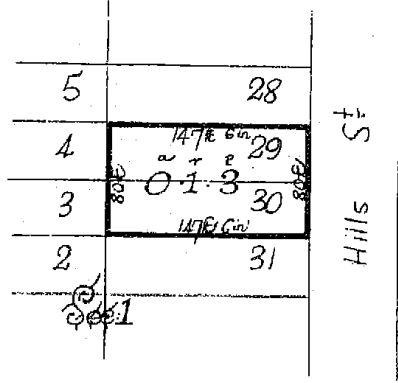
CANCELLED

SEE AUTO FOLIO

WARNING: THIS DOCUMENT MUST NOT BE REMOVED FROM THE LAND TILES OFFICE.

PERSONS ARE CAUTIONED AGAINST ALTERING OR ADDING TO THIS CERTIFICATE OR ANY NOTIFICATION HEREON

11143
Fol. 245
(Page 1) Vol. 11143



ESTATE AND LAND REFERRED TO

Estate in Fee Simple in Lots 29 and 30 of Section 1 in Deposited Plan 1591 at Gosford in the Shire of Gosford Parish of Gosford and County of Northumberland being part of Suburban Allotment 4 of Section 28 granted to Henry Augustus Crause on 15-10-1858.

FIRST SCHEDULE

~~HORACE SYDNEY HUNE of Gosford, Ganger.~~

SECOND SCHEDULE

1. Reservations and conditions, if any, contained in the Crown Grant above referred to.

Jawatson
Registrar General

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	INSTRUMENT		ENTERED	Signature of Registrar General
	NATURE	NUMBER		
Yorkford Co-operative Citizens Saving House Limited	Transfer	LS99426	1-6-1969	<i>[Signature]</i>

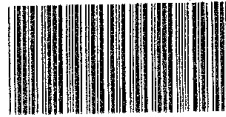
LS33426
 P926369
 CT 18/10/77
 P42895X182
 Mfg. 79263
 25.3.8
 259.3.83
 T472801 DM
 X139729
 30
 Z14262 DM
 622 M1

SECOND SCHEDULE (continued)

PARTICULARS	ENTERED	Signature of Registrar General	CANCELLATION
Mortgage to The Commercial Bank of Australia Limited	15-10-1976	<i>[Signature]</i>	X139729
Mortgage to Commonwealth Development Bank of Australia	19-11-1977	<i>[Signature]</i>	7472801
X139730 Mortgage to Australian Association of Co-Operatives Limited Registered	15-10-1987	<i>[Signature]</i>	19/10/1990
Z14262P Mortgage to National Australia Bank Limited Registered	19/10/1990	<i>[Signature]</i>	
CANCELLED			
SEE AUTO FOLIO			

NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR GENERAL ARE CANCELLED

CERTIFICATE OF TITLE



NEW SOUTH WALES

PROPERTY ACT, 1900

Vol. **13192** Fol. **234**

Appln. No. 6338

Prior Title Vol. 959 Fol. 100



EDITION ISSUED

23 11 1976

I certify that the person described in the First Schedule is the registered proprietor of the undermentioned estate in the land within described subject nevertheless to such exceptions encumbrances and interests as are shown in the Second Schedule.

CANCELLED

J. J. J.
Registrar General.

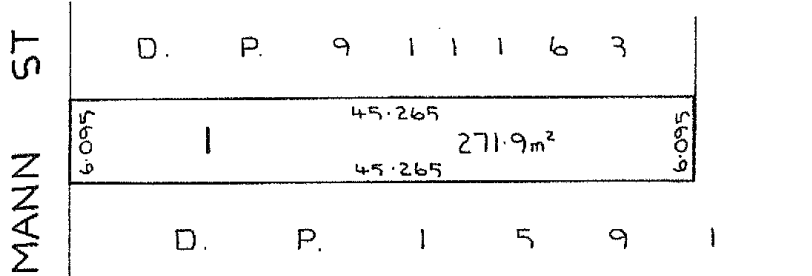


SEE AUTO FOLIO



PLAN SHOWING LOCATION OF LAND

LENGTHS ARE IN METRES



P926369 M.X.

REDUCTION RATIO 1:400

ESTATE AND LAND REFERRED TO

911164

Estate in Fee Simple in Lot 1 in Deposited Plan 911163 at Gosford in the Shire of Gosford Parish of Gosford and County of Northumberland being part of Suburban Allotment 4 of Section 28 granted to Henry Augustus Crause on 15-10-1858.

FIRST SCHEDULE

GOSFORD CO-OPERATIVE CITRUS PACKING HOUSE LIMITED.

SECOND SCHEDULE

- Reservations and conditions, if any, contained in the Crown Grant above referred to.
- ~~Mortgage No. P926369 to The Commercial Bank of Australia Limited, Registered 21-10-1976, X139729.~~

19761123

Reg. Gen.

22-6-1977

WARNING: THIS DOCUMENT MUST NOT BE REMOVED FROM THE LAND TITLES OFFICE.

PERSONS ARE CAUTIONED AGAINST ALTERING OR ADDING TO THIS CERTIFICATE OR ANY NOTIFICATION HEREON

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR		NATURE	INSTRUMENT NUMBER	DATE	ENTERED	Signature of Registrar General

SECOND SCHEDULE (continued)

NATURE	INSTRUMENT NUMBER	DATE	PARTICULARS	ENTERED	Signature of Registrar General	DISCHARGED	CANCELLATION
Charge	283854		to Commonwealth Bank of Australia				
X139730	283854		to Commonwealth Bank of Australia	15-10-1987			1472801

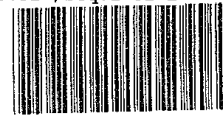
NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR GENERAL ARE CANCELLED

ESB
27/12/23

CT 18/10/17

6-2-3-53
7472801/R
X139730
2012

CERTIFICATE OF TITLE



NEW SOUTH WALES

PROPERTY ACT, 1900

Vol. **13192** Fol. **235**

Appln. No. 6338

Prior Title Vol. 959 Fol. 87



EDITION ISSUED

23 11 1976

I certify that the person described in the First Schedule is the registered proprietor of the undermentioned estate in the land within described subject nevertheless to such exceptions encumbrances and interests as are shown in the Second Schedule.

CANCELLED

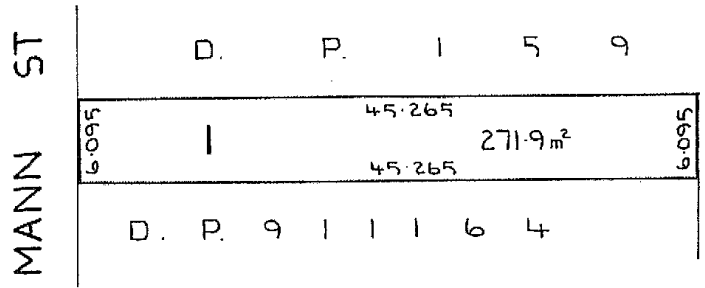
Registrar General.



PLAN SHOWING LOCATION OF LAND

SEE AUTO FOLIO

LENGTHS ARE IN METRES



P926369 M.X.

REDUCTION RATIO 1:400

ESTATE AND LAND REFERRED TO

Estate in Fee Simple in Lot 1 in Deposited Plan ⁹¹¹¹⁶³~~911164~~ at Gosford in the Shire of Gosford Parish of Gosford and County of Northumberland being part of Suburban Allotment 4 of Section 28 granted to Henry Augustus Crause on 15-10-1858.

FIRST SCHEDULE

GOSFORD CO-OPERATIVE CITRUS PACKING HOUSE LIMITED.

SECOND SCHEDULE

- Reservations and conditions, if any, contained in the Crown Grant above referred to.
- ~~Mortgage No. P926369 to The Commercial Bank of Australia Limited, Registered 21-10-1976.~~ X139729.

1977M042
Reg. Gen.
22-6-1977

WARNING: THIS DOCUMENT MUST NOT BE REMOVED FROM THE LAND TITLES OFFICE.

PERSONS ARE CAUTIONED AGAINST ALTERING OR ADDING TO THIS CERTIFICATE OR ANY NOTIFICATION HEREON

13192 235

(Page 1) Vol.

13192-235
 CT 18/10/77
 9439950166
 11610226264
 257252
 075313
 747201041
 X135729 DV
 30M

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	INSTRUMENT		ENTERED	Signature of Registrar General
	NATURE	NUMBER		
<p>CANCELLED</p> <p>SEE AUTO FOLIO</p>				

SECOND SCHEDULE (continued)

INSTRUMENT NUMBER	NATURE	PARTICULARS	ENTERED	Signature of Registrar General	CANCELLATION
28954	X139950 Mortgage to Australian Corporation of Co-Operative Limited.	to be commencing with development at Bank of Australia	18-11-77		Discharged T472801

NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR GENERAL ARE CANCELLED

CIFICATE OF TITLE
L PROPERTY ACT, 1900



13192236

NEW SOUTH WALES

Vol. **13192** Fol. **236**

Appln. No. 6338

Prior Title Vol. 1074 Fol. 243



EDITION ISSUED

23 11 1976

I certify that the person described in the First Schedule is the registered proprietor of the undermentioned estate in the land within described subject nevertheless to such exceptions encumbrances and interests as are shown in the Second Schedule.

CANCELLED
Jaworski
REGISTRAR GENERAL
NEW SOUTH WALES



PLAN SHOWING LOCATION OF LAND

LENGTHS ARE IN METRES

MANN	ST	D. P. 9 1 1 1 6 4			
		12.19	2	550.1m ²	12.19
					31
		1		SEC. 1	

P926369 M.X

REDUCTION RATIO 1:500

^S
GRY

ESTATE AND LAND REFERRED TO

Estate in Fee Simple in Lot 2 of Section 1 in Deposited Plan 1591 at Gosford in the Shire of Gosford Parish of Gosford and County of Northumberland being part of Suburban Allotment 4 of Section 28 granted to Henry Augustus Crause on 15-10-1858.

FIRST SCHEDULE

GOSFORD CO-OPERATIVE CITRUS PACKING HOUSE LIMITED.

SECOND SCHEDULE

1. Reservations and conditions, if any, contained in the Crown Grant above referred to.
- ~~2. Mortgage No. P926369 to The Commercial Bank of Australia Limited, Registered 21-10-1976, X139729~~

WARNING: THIS DOCUMENT MUST NOT BE REMOVED FROM THE LAND TITLES OFFICE.

PERSONS ARE CAUTIONED AGAINST ALTERING OR ADDING TO THIS CERTIFICATE OR ANY NOTIFICATION HEREON

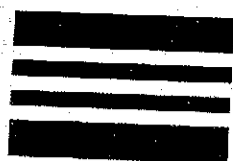
13192 Fol. 236
(Page 1) Vol.

CT 18/10/77
 Q4488954 Mfg
 Mfg. 1992 6x
 257382
 CT 9.3.83
 T172801M
 X130729 DC
 X130730M

FIRST SCHEDULE (continued)				
REGISTERED PROPRIETOR	INSTRUMENT NUMBER		ENTERED	Signature of Registrar General
	NATURE	DATE		
CANCELLED				
	SEE AUTO FOLIO			

SECOND SCHEDULE (continued)							
NATURE	INSTRUMENT NUMBER	DATE	PARTICULARS	ENTERED	Signature of Registrar General	DISCHARGED	CANCELLATION
X135130P Mortgage to Quotabank Australia			Registered 15-10-1987				

NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR GENERAL ARE CANCELLED



PERSONS ARE CAUTIONED AGAINST ALTERING OR ADDING TO THIS CERTIFICATE OR ANY NOTIFICATION HEREON

(Page 1) Vol 15441 Fol 218

- 1. Reservations and conditions in the Crown grant.
- 2. W232184 Mortgage to A.G.C. (Advances) Limited.

SECOND SCHEDULE

~~G.E. MOORE & CO. LIMITED.~~

W232183

FIRST SCHEDULE

Lots 4 to 9 inclusive and Lots 24 to 28 inclusive of Section 1 in DP1591 at Gosford in the City of Gosford Parish of Gosford County of Northumberland.

LAND REFERRED TO

NEW

HILLS ST	10	90.22					
	9						
	8						
	7	60.2 m ²			73.15		
	6		SECT 1				
	5						
	4	12.19				45.265	
	3						
	28						44.96
	29						

LENGTHS ARE IN METRES

PLAN SHOWING LOCATION OF LAND

I certify that the person named in the First Schedule is the registered proprietor of an estate in fee simple (or such other estate or interest as is set out below) in the land described subject to the recordings appearing in the Second Schedule and to the provisions of the Real Property Act, 1900.



Registrar General.

[Signature]

First Title Old System

Prior Titles Vol. 7310 Fols. 37 to 40 incl.



EDITION 5 ISSUED 5 1986

5 1986

NEW SOUTH WALES

REAL PROPERTY ACT, 1900

ON ISSUE OF NEW FORM OF TITLE

CANCELLED



15441218

NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR GENERAL ARE CANCELLED

40828-4036

FIRST SCHEDULE (continued)
REGISTERED PROPRIETOR

Registrar General

Gosford Co-operative Citrus Packing House Limited as to part being Lot 4 of Sec 1 in DP1591 and G.E. MOORE PTY LIMITED as to the residue being Lots 5 to 9 incl. & Lots 24 to 28 incl of Section 1 in DP1591 by Transfer E21274. Registered 15-1-1992.



SECOND SCHEDULE (continued)

PARTICULARS

Registrar General

CANCELLATION

W902296 Mortgage to Westpac Banking Corporation. Registered 9.6.1987.
W232184 Mortgage E21272 Discharged as regards Lot 4 of Sec 1 in DP1591. Registered 15-1-1992.
W902296 Mortgage E21273 Discharged as regards Lot 4 of Sec 1 in DP1591. Registered 15-1-1992.



FOLIO CANCELLED - NEW FOLIO IS 4/1/1591

FOLIO CANCELLED - NEW FOLIO IS AUTO. CONSOL
FOR LOTS 5 TO 9 INCL & LOTS 24 TO 28
INCL. OF SEC. 1 IN DP1591.

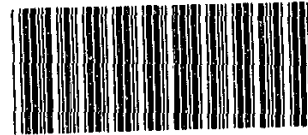
NOTATIONS AND UNREGISTERED DEALINGS

W902296/14 A
DP1591 REJECTED
E212720M
730M } R
74T } R
75M } R
76T } R

97-01T

TRANSFER

Real Property Act, 1900



2777087 U



8

Office of State Revenue use only

OFFICE OF STATE REVENUE
1996/97 STAMP DUTY (N.S.W. TREASURY) N12
DUTY \$ 2-00 1ST FECN 000628304

(A) **LAND TRANSFERRED**

Show no more than 20 References to Title.
If appropriate, specify the share transferred.

FOLIO IDENTIFIERS:-

1/1/1591, 2/1/1591, 4/1/1591, 31/1/1591, 32/1/1591,
1/911163, 1/911164 & Vol. 1143 Fol. 245

(B) **LODGED BY**

L.T.O. Box	Name, Address or DX and Telephone
122J	John Blake
	REFERENCE (max. 15 characters): MANGROVE

(C) **TRANSFEROR**

GOSFORD CO-OPERATIVE CITRUS PACKING HOUSE LIMITED

(D) acknowledges receipt of the consideration of \$924,000.00

and as regards the land specified above transfers to the Transferee an estate in fee simple

(E) subject to the following **ENCUMBRANCES** 1. 2. 3.

(F) **TRANSFEEE**

T TS (s713 LGA) TW (Sheriff)	ACN 076 415 659
	MANGROVE PROPERTIES PTY. LIMITED / AS TRUSTEE OF THE MANGROVE PROPERTIES UNIT TRUST
(G) TENANCY:	

(H) We certify this dealing correct for the purposes of the Real Property Act, 1900. DATED 14-1-97

Signed in my presence by the Transferor who is personally known to me.

THE COMMON SEAL of GOSFORD CO-OPERATIVE CITRUS
PACKING HOUSE LIMITED was hereunto affixed
pursuant to a Resolution of the Board of

Directors in the presence of:

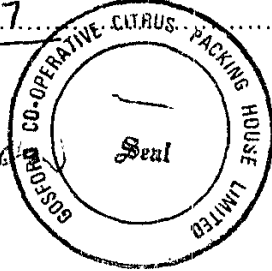
.....
Name of Witness (BLOCK LETTERS)

.....
Address of Witness

Al Berto
A. B. Gibbon
DIRECTORS

W. Brazel
SECRETARY

Signature of Transferor



Signed in my presence by the Transferee who is personally known to me.

.....
Signature of Witness

.....
Name of Witness (BLOCK LETTERS)

.....
Address of Witness

G. R. Brazel

Solicitor for the Transferee

G. R. Brazel

CHECKED BY (office use only)

Lodger Details

Lodger Code 505211
Name NEW SOUTH WALES LAND AND HOUSING CORPORATION
Address L 1, 223-239 LIVERPOOL RD
ASHFIELD 2131
Lodger Box 1W
Phone
Email
Reference AZB:20200264

Land Registry Document Identification

AQ541608

Transfer (Paper Version)

Jurisdiction NEW SOUTH WALES

Privacy Collection Statement

The information in this form is collected under statutory authority and used for the purpose of maintaining publicly searchable registers and indexes

Land

1/1/1591
1/911164
2/1/1591
32/1/1591
1/911163
4/1/1591
31/1/1591
11143-245

Applicant

NEW SOUTH WALES LAND AND HOUSING CORPORATION ABN 24960729253
State/Territory government or body

Affirmation Statement

The Certifier certifies that the attachment is a true copy of the Instrument, a duly executed version of which has been retained by the Certifier.

Attachment

See attached Dealing

Execution

The Certifier has retained the evidence supporting this Registry Instrument or Document.

The Certifier has taken reasonable steps to ensure that this Registry Instrument or Document is correct and compliant with relevant legislation and any Prescribed Requirement.

Executed on behalf of NEW SOUTH WALES LAND AND HOUSING CORPORATION
Signer Name ALISON ROSE BERMUDEZ
Signer Organisation NEW SOUTH WALES LAND AND HOUSING CORPORATION
Signer Role PRACTITIONER CERTIFIER
Execution Date 09/11/2020

Form: 01T
 Release: 6-3

TRANSFER
 New South Wales
 Real Property Act 1900

Leave this space clear. Affix additional pages to the top left-hand corner.

PRIVACY NOTE: Section 31B of the Real Property Act 1900 (RP Act) authorises the Registrar General to collect the information required by this form for the establishment and maintenance of the Real Property Act Register. Section 96B RP Act requires that the Register is made available to any person for search upon payment of a fee, if any.

STAMP DUTY

Insert Duties Assessment No. as issued by Revenue NSW Office.
 Duties Assessment No. **9928278-001**

(A) **TORRENS TITLE**

1/1/1591, 2/1/1591, 4/1/1591, AUTO CONSOL 11143-245, 31/1/1591, 32/1/1591, 1/911163, 1/911164

(B) **LODGED BY**

Document Collection Box 416Q	Name, Address or DX, Telephone, and Customer Account Number if any NSW LAND AND HOUSING CORPORATION LOCKED BAG 5022 FARRAMATTA NSW 2124	CODES T TW
	Email: <u>alison.bermudez@dpie.nsw.gov.au</u>	
	Reference: <u>AZB:20200264</u>	

(C) **TRANSFEROR**

NEW SOUTH WALES LAND AND HOUSING CORPORATION AEN 24 960 729 253

(D) **CONSIDERATION** The transferor acknowledges receipt of the consideration of \$ 0.00 and as regards

(E) **ESTATE** the abovementioned land transfers to the transferee an estate in fee simple

(F) **SHARE TRANSFERRED**

(G) Encumbrances (if applicable):

(H) **TRANSFeree**
 HUNTER AND CENTRAL COAST DEVELOPMENT CORPORATION ABN 94 688 782 063

(I) **TENANCY:**

DATE

(J) I certify that I am an eligible witness and that an authorised officer of the transferor signed this dealing in my presence. [See note* below].

Certified correct for the purposes of the Real Property Act 1900 by the authorised officer named below.

Signature of witness: *Nghia*
 Name of witness: Nghia Nguyen-le
 Address of witness: 223-239 Liverpool Rd
Asfield NSW 2131

Signature of authorised officer: *Alison Bermudez*
 Authorised officer's name: ALISON BERMUDEZ
 Authority of officer: DELEGATE
 Signing on behalf of: NEW SOUTH WALES LAND AND HOUSING CORPORATION

I certify that I am an eligible witness and that an authorised officer of the transferee signed this dealing in my presence. [See note* below].

Certified correct for the purposes of the Real Property Act 1900 by the authorised officer named below.

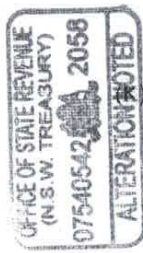
Signature of witness: *Anthony*
 Name of witness: ANTHONY STEVENS
 Address of witness: 27 SAERBURN PL
CHARLESBURN NSW
2290

Signature of authorised officer: *V. Misewska*
 Authorised officer's name: VALENTINA MISEVSKA
 Authority of officer: CHIEF EXECUTIVE
 Signing on behalf of: HUNTER AND CENTRAL COAST DEVELOPMENT CORPORATION

The transferee certifies that the eNOS data relevant to this dealing has been submitted and stored under eNOS ID No. 553223931 Full name: ALISON BERMUDEZ Signature: *Alison*
2197439

* s117 RP Act requires that you must have known the signatory for more than 12 months or have sighted identifying documentation.
 ALL HANDWRITING MUST BE IN BLOCK CAPITALS Page 1 of 1 2005

Alison Bermudez
9/11/2020 I am authorised to
make this change.



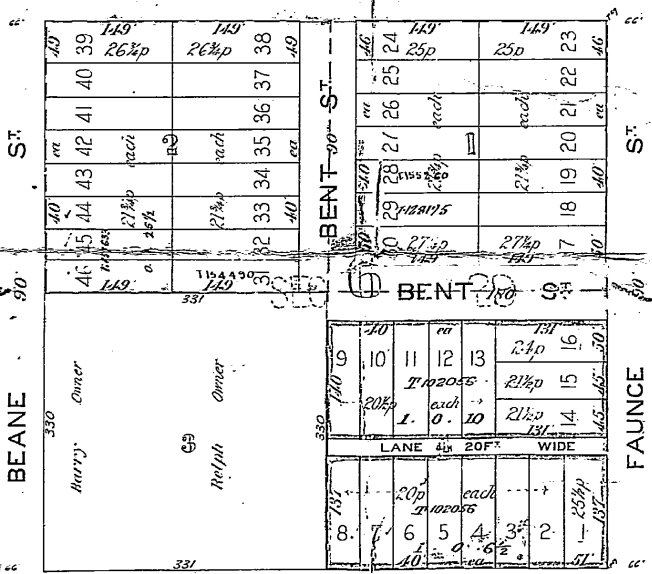
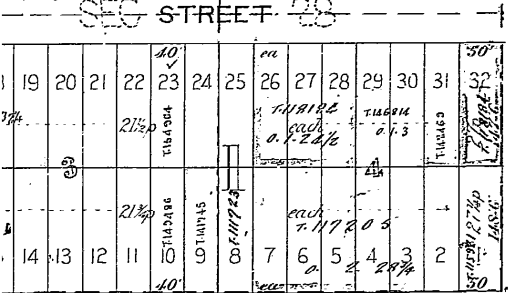
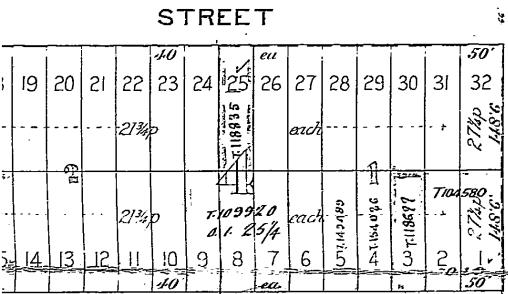
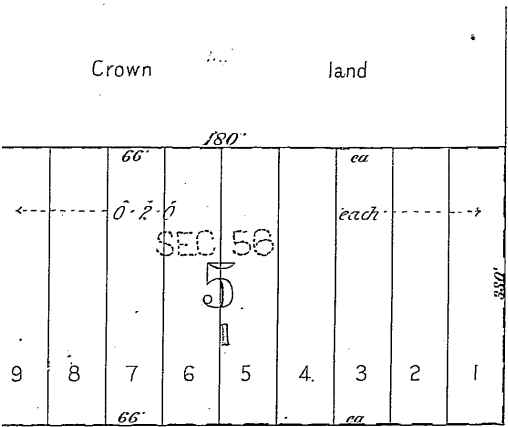
Loaded by
A. F. Kelly
DP 1591

on 70
cc 57

UMBERLAND

1591

COPY MADE
EXAMINED
MAR 13 2014
21.2.40



[Handwritten signature]
Attended Surveyor
88.4.1920
4/11/1928

I, Bruce Richard Davies, Registrar General for New South Wales, certify that this negative is a photograph made as a permanent record of a document in my custody this 29th day of June, 1979.

10	20	30	40	50	60	70	80	90	100	110	120	130	140
----	----	----	----	----	----	----	----	----	-----	-----	-----	-----	-----

Table of



SUBDIVISION

allo^{ts} of lots 1, 2, 3 & 4 Section 69 & lots 1, 4 Section 70
 allo^{ts} 1, 2, 3 & 4 Sec 28 allo^{ts} 1, 2, 4 Sec 29 allo^{ts} 1 Sec 56 allo^{ts} 1, 2, 3 & 4 Sec 57
 TOWN OF GOSFORD

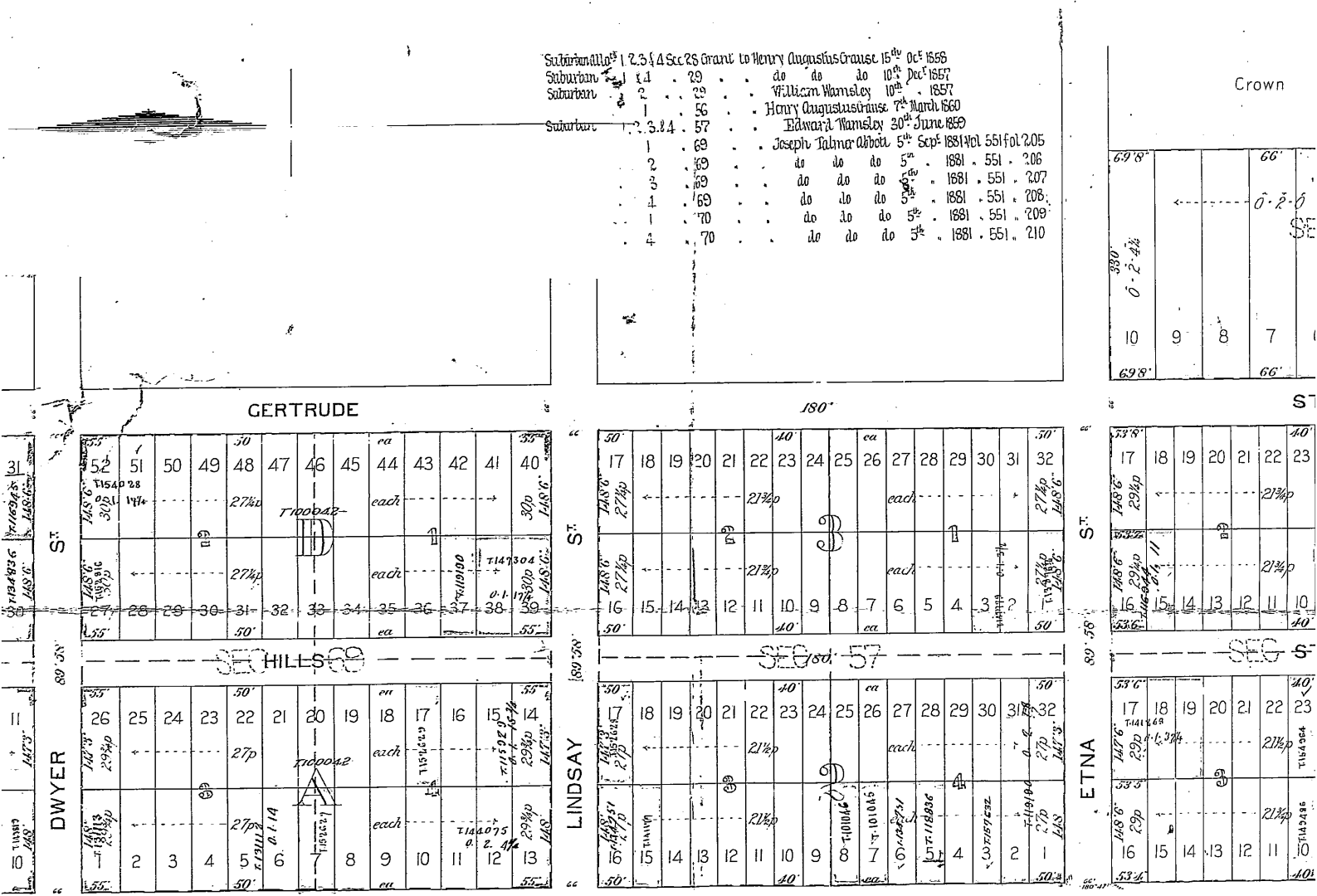
PARISH OF GOSFORD C^o OF NORTHUMBER

Scale 100 f^t to an inch

Suburban allo^{ts} 1, 2, 3 & 4 Sec 28 Grant to Henry Augustus Crause 15th Oct 1856
 Suburban 1 1 29 do do do 10th Dec 1857
 Suburban 2 2 29 William Wamsley 10th 1857
 Suburban 1 1 56 Henry Augustus Crause 7th March 1860
 Suburban 1 2, 3 & 4 57 Edward Wamsley 30th June 1860
 1 1 69 Joseph Tabner Abbott 5th Sep 1881 Vol 551 fol 205
 2 2 59 do do do 5th 1881 . 551 . 206
 3 3 59 do do do 5th 1881 . 551 . 207
 4 4 69 do do do 5th 1881 . 551 . 208
 1 1 70 do do do 5th 1881 . 551 . 209
 4 4 70 do do do 5th 1881 . 551 . 210

Crown

69' 8"			66'
330			0-2-4 1/2
10	9	8	7
69' 8"			66'



I, Bruce Richard Davies, Registrar General for New South Wales, certify that this negative is a photograph made of a permanent record of a document in my custody this 29th day of June, 1979

DP 1591

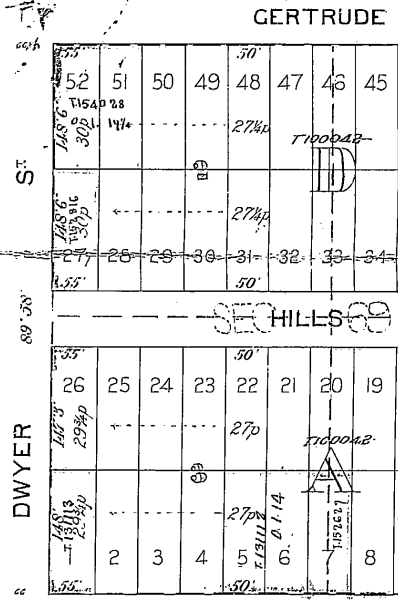
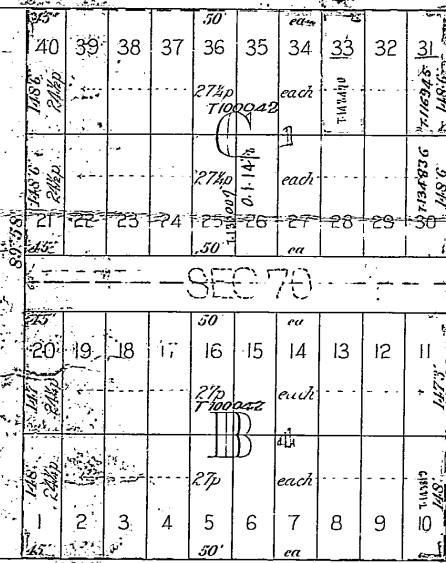
FELT INCHES	METRES
3 3/4	1.01
4	6.095
40	12.19
45	13.715
46	14.02
49	14.935
50	15.24
51	15.545
53	16.255
53	16.36
55	16.765
66	20.115
69	21.235
90	27.43
137	41.76
140	42.67
147	44.88
147	44.96
148	45.11
148	45.265
149	45.415
180	54.86
330	100.58
331	100.89

AC RD P SQ H

- 14 1/2	366.7
- 20	505.9
- 20 1/2	518.5
- 21 1/2	543.8
- 21 3/4	550.1
- 24	607
- 25	632.3
- 25 1/2	645
- 26 3/4	676.6
- 27	682.9
- 27 1/4	689.2
- 27 1/2	695.6
- 29	733.5
- 29 1/4	739.8
- 29 3/4	752.5
- 30	758.8
- 1 3	1088
- 1 3 1/2	1100
- 1 3	1239
- 1 14	1366
- 1 14 1/4	1372
- 1 14 1/2	1378
- 1 16 3/4	1435
- 1 17 1/8	1448
- 1 24 1/2	1631
- 1 25 1/4	1650
- 1 25 1/2	1657
- 1 26 1/2	1682
- 1 32 1/4	1827
- 1 37 1/4	1954
- 2	2023
- 2 4 1/4	2131
- 2 18	2479
- 2 28 3/4	2751
- 6 1/2	4211
- 10	4300

DP 1591

57/11/85



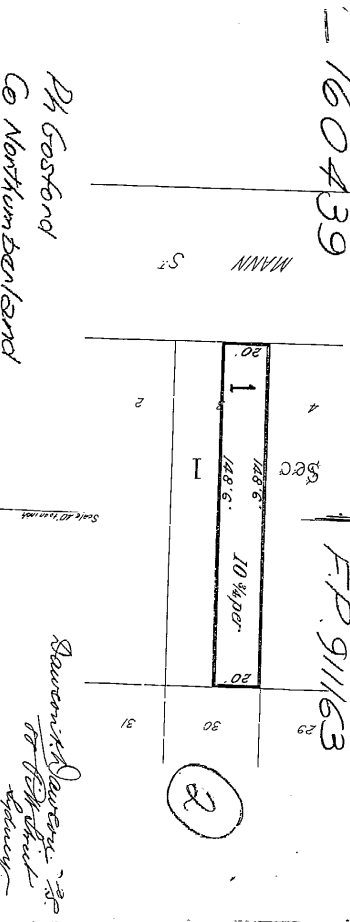
I, Bruce Richard Davies, Registrar General for New South Wales, certify that this negative is a photograph made as a permanent record of a document in my custody this 29th day of June, 1979

3

LOT NUMBERS ADDED IN REGISTRAR GENERAL'S OFFICE.

I, Jack Hayward Watson, Registrar General for New South Wales, certify that this negative is a photograph made as a permanent record of a document in my custody this 26th day of November, 1976.

J. Hayward Watson



21. If the instrument is to be registered, the Registrar-General may require the instrument to be verified by the person named in the instrument or by a person named in a Statutory Declaration made by him or her. A Statutory Declaration is a statement made by a person under the authority of the Statutory Declarations Act, 1959, and is treated for all purposes as if it were a sworn statement.

22. The Registrar-General may require the instrument to be verified by the person named in the instrument or by a person named in a Statutory Declaration made by him or her. A Statutory Declaration is a statement made by a person under the authority of the Statutory Declarations Act, 1959, and is treated for all purposes as if it were a sworn statement.

23. If the instrument is to be registered, the Registrar-General may require the instrument to be verified by the person named in the instrument or by a person named in a Statutory Declaration made by him or her. A Statutory Declaration is a statement made by a person under the authority of the Statutory Declarations Act, 1959, and is treated for all purposes as if it were a sworn statement.

In witness whereof, I have hereunto subscribed my name at Sydney, the 15th day of November, 1976, in the year of our Lord one thousand eight hundred and eighty-six.

Signed in my presence by the said **James Jeffrey**
 who is personally known to me

[Signature]
 Signed *[Signature]*

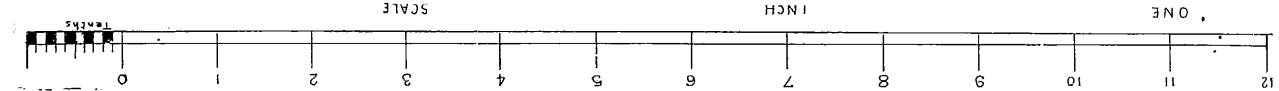
Signed in my presence by the said **Murray Clemons**
 who is personally known to me

[Signature]

Accepted, and I hereby certify this Transfer to be correct for the purposes of the Real Property Act.

THOMAS STACE
 Registrar-General

[Signature]



* If signed by natural persons, the signature must be printed and in full. If signed by a company, the name of the company must be printed in full and its registered office must be stated.

LOT NUMBERS ADDED IN REGISTRAR GENERAL'S OFFICE.

I, Jack Hayward Watson, Registrar General for New South Wales, certify that this negative is a photograph made as a permanent record of a document in my custody this 26th day of November, 1976.

Jack Hayward Watson

**Dh Gosford
Co Northumberland**

460.440

F.P. 911164 (2)

MANN ST			
Area	Area	Area	Area
4	1	29	31
188'6"	128'6"	10 1/2, 100'	
20'	20'		

*Rosemary Rosemary Rose
at Gosford
26/11/76*

3. In this declaration the signed and acknowledged copy of the original Declaration of Intention is enclosed in a separate envelope addressed to the Registrar General for New South Wales, to be opened in accordance with the provisions of the Act. The original Declaration of Intention is enclosed in a separate envelope addressed to the Registrar General for New South Wales, to be opened in accordance with the provisions of the Act. The original Declaration of Intention is enclosed in a separate envelope addressed to the Registrar General for New South Wales, to be opened in accordance with the provisions of the Act.

In witness whereof, I have become subscribed my name, at Gosford the 26th day of November in the year of our Lord one thousand eight hundred and eighty seven

Signed in my presence by the said
James Jeffrey
 WHO IS PERSONALLY KNOWN TO ME
Jack Hayward Watson
 Signed
 (Who will also sign Declaration in accordance with James Kelsie at the top of the 1st page)
Frank Garrow

Signed in my presence by the said
John James Chilled
 WHO IS PERSONALLY KNOWN TO ME
John Maxwell

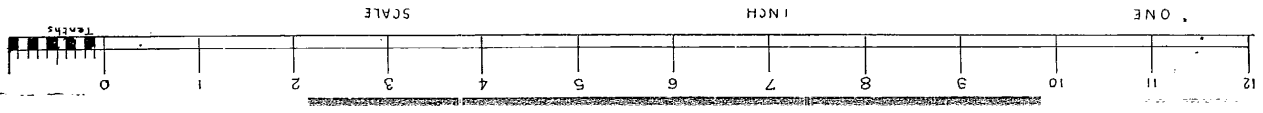
*Accepted, and I hereby certify this transfer to be correct for the purposes of the Real Property Act.

John Maxwell
 Registrar

(*) The above may be signed in the Schedule of Transfers to be provided. See note 3 of the Act. Section 141 requires that the above certificate be signed in the presence of the Registrar and in the presence of the parties to the transfer and that any person who is not a party to the transfer and who is not a party to the transfer is not a party to the transfer.

* If signed by virtue of any power of attorney, the original must be presented and an attested copy deposited, accompanied by the original power of attorney, in the presence of the Registrar.

57X





NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE

11/11/2022 8:52AM

FOLIO: 1/911163

First Title(s): SEE PRIOR TITLE(S)
Prior Title(s): VOL 13192 FOL 235

<u>Recorded</u>	<u>Number</u>	<u>Type of Instrument</u>	<u>C.T. Issue</u>
21/8/1988		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
17/11/1988		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
23/10/1990	Z142621	DISCHARGE OF MORTGAGE	
23/10/1990	Z142622	MORTGAGE	EDITION 1
21/1/1997	2777085	DISCHARGE OF MORTGAGE	
21/1/1997	2777087	TRANSFER	
21/1/1997	2777088	MORTGAGE	EDITION 2
4/3/2004	AA465888	CAVEAT	
16/3/2004	AA444130	CAVEAT	
5/7/2005	AB466840	CHARGE	
5/7/2005	AB466841	TRANSFER OF CHARGE	EDITION 3
17/7/2007	AD272770	WITHDRAWAL OF CAVEAT	
17/7/2007	AD156367	REQUEST	EDITION 4
26/3/2009	AE461687	DISCHARGE OF MORTGAGE	
26/3/2009	AE461688	DISCHARGE OF CHARGE	
26/3/2009	AE461689	TRANSFER	EDITION 5
14/1/2014	AI297065	LEASE	EDITION 6
19/10/2020	AQ473461	REQUEST	
12/11/2020	AQ541608	TRANSFER	EDITION 7

*** END OF SEARCH ***

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PRINTED ON 11/11/2022



NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE

11/11/2022 8:52AM

FOLIO: 2/1/1591

First Title(s): SEE PRIOR TITLE(S)
Prior Title(s): VOL 13192 FOL 236

<u>Recorded</u>	<u>Number</u>	<u>Type of Instrument</u>	<u>C.T. Issue</u>
8/8/1989		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
14/9/1989		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
23/10/1990	Z142621	DISCHARGE OF MORTGAGE	
23/10/1990	Z142622	MORTGAGE	EDITION 1
21/1/1997	2777085	DISCHARGE OF MORTGAGE	
21/1/1997	2777087	TRANSFER	
21/1/1997	2777088	MORTGAGE	EDITION 2
4/3/2004	AA465888	CAVEAT	
16/3/2004	AA444130	CAVEAT	
5/7/2005	AB466840	CHARGE	
5/7/2005	AB466841	TRANSFER OF CHARGE	EDITION 3
17/7/2007	AD272770	WITHDRAWAL OF CAVEAT	
17/7/2007	AD156367	REQUEST	EDITION 4
26/3/2009	AE461687	DISCHARGE OF MORTGAGE	
26/3/2009	AE461688	DISCHARGE OF CHARGE	
26/3/2009	AE461689	TRANSFER	EDITION 5
14/1/2014	AI297065	LEASE	EDITION 6
19/10/2020	AQ473461	REQUEST	
12/11/2020	AQ541608	TRANSFER	EDITION 7

*** END OF SEARCH ***

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NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE

11/11/2022 8:52AM

FOLIO: 4/1/1591

First Title(s): OLD SYSTEM
Prior Title(s): VOL 15441 FOL 218

<u>Recorded</u>	<u>Number</u>	<u>Type of Instrument</u>	<u>C.T. Issue</u>
11/2/1992	E21274	TRANSFER	FOLIO CREATED EDITION 1
12/2/1992	E21275	MORTGAGE	
12/2/1992	E21276	TRANSFER OF MORTGAGE	EDITION 2
21/1/1997	2777086	DISCHARGE OF MORTGAGE	
21/1/1997	2777087	TRANSFER	
21/1/1997	2777088	MORTGAGE	EDITION 3
4/3/2004	AA465888	CAVEAT	
16/3/2004	AA444130	CAVEAT	
5/7/2005	AB466840	CHARGE	
5/7/2005	AB466841	TRANSFER OF CHARGE	EDITION 4
17/7/2007	AD272770	WITHDRAWAL OF CAVEAT	
17/7/2007	AD156367	REQUEST	EDITION 5
26/3/2009	AE461687	DISCHARGE OF MORTGAGE	
26/3/2009	AE461688	DISCHARGE OF CHARGE	
26/3/2009	AE461689	TRANSFER	EDITION 6
14/1/2014	AI297065	LEASE	EDITION 7
19/10/2020	AQ473461	REQUEST	
12/11/2020	AQ541608	TRANSFER	EDITION 8

*** END OF SEARCH ***

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NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE

11/11/2022 8:52AM

FOLIO: 31/1/1591

First Title(s): SEE PRIOR TITLE(S)
Prior Title(s): VOL 901 FOL 140

<u>Recorded</u>	<u>Number</u>	<u>Type of Instrument</u>	<u>C.T. Issue</u>
16/9/1989		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
13/12/1990		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
26/5/1994	U295941	TRANSFER	EDITION 1
21/1/1997	2777087	TRANSFER	
21/1/1997	2777088	MORTGAGE	EDITION 2
4/3/2004	AA465888	CAVEAT	
16/3/2004	AA444130	CAVEAT	
5/7/2005	AB466840	CHARGE	
5/7/2005	AB466841	TRANSFER OF CHARGE	EDITION 3
17/7/2007	AD272770	WITHDRAWAL OF CAVEAT	
17/7/2007	AD156367	REQUEST	EDITION 4
26/3/2009	AE461687	DISCHARGE OF MORTGAGE	
26/3/2009	AE461688	DISCHARGE OF CHARGE	
26/3/2009	AE461689	TRANSFER	EDITION 5
14/1/2014	AI297065	LEASE	EDITION 6
19/10/2020	AQ473461	REQUEST	
12/11/2020	AQ541608	TRANSFER	EDITION 7

*** END OF SEARCH ***

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NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE

11/11/2022 8:52AM

FOLIO: AUTO CONSOL 11143-245

Recorded	Number	Type of Instrument	C.T. Issue
11/9/1991		CONSOL HISTORY RECORD CREATED FOR AUTO CONSOL 11143-245	
		PARCELS IN CONSOL ARE: 29-30/1/1591.	
21/1/1997	2777085	DISCHARGE OF MORTGAGE	
21/1/1997	2777087	TRANSFER	
21/1/1997	2777088	MORTGAGE	EDITION 1
4/3/2004	AA465888	CAVEAT	
16/3/2004	AA444130	CAVEAT	
5/7/2005	AB466840	CHARGE	
5/7/2005	AB466841	TRANSFER OF CHARGE	EDITION 2
17/7/2007	AD272770	WITHDRAWAL OF CAVEAT	
17/7/2007	AD156367	REQUEST	EDITION 3
26/3/2009	AE461687	DISCHARGE OF MORTGAGE	
26/3/2009	AE461688	DISCHARGE OF CHARGE	
26/3/2009	AE461689	TRANSFER	EDITION 4
14/1/2014	AI297065	LEASE	EDITION 5
19/10/2020	AQ473461	REQUEST	
12/11/2020	AQ541608	TRANSFER	EDITION 6

*** END OF SEARCH ***

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NEW SOUTH WALES LAND REGISTRY SERVICES - TITLE SEARCH

FOLIO: AUTO CONSOL 11143-245

SEARCH DATE	TIME	EDITION NO	DATE
11/11/2022	8:52 AM	6	12/11/2020

LAND

LAND DESCRIBED IN SCHEDULE OF PARCELS
AT GOSFORD
LOCAL GOVERNMENT AREA CENTRAL COAST
PARISH OF GOSFORD COUNTY OF NORTHUMBERLAND
TITLE DIAGRAM DP1591

FIRST SCHEDULE

HUNTER AND CENTRAL COAST DEVELOPMENT CORPORATION (T AQ541608)

SECOND SCHEDULE (1 NOTIFICATION)

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)

NOTATIONS

UNREGISTERED DEALINGS: NIL

SCHEDULE OF PARCELS

LOTS 29-30 SEC. 1 IN DP1591.

*** END OF SEARCH ***

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PRINTED ON 11/11/2022



APPENDIX E: PHOTOLOG





Photo 1:
Northeast corner of Site facing a neighbouring property to the north.



Photo 2:
Northeast corner of Site facing the main structure to the west.



Photo 3:
Central vegetated area (former nursery) of the Site facing southwest.



Photo 4:
Southern exterior of Site with adjacent pedestrian pathway front entrance is to the left of image.



Photo 5:
Eastern extent of Site and former carpark area. Residential building to the south.



Photo 6:
Historical retaining wall inside central vegetated area of Site.



Project No: 20232408

Date: 15/11/2022

Suite 3, 240-244 Pacific Highway, Charlestown, NSW
2290

Phone: +61 2 4949 5200

SITE PHOTOGRAPHS

The University of Newcastle

305 Mann Street, Gosford NSW, Australia



Photo 7:
Western portion of the Site's main structure facing Mann Street (west of Site). Historical main entrance is to the left of the image.



Photo 8:
Southwestern portion of the Site's main structure. Main entrance is visible in this image and has been bordered to restrict access.



Photo 9:
Former southern patio of Site. This portion of Site is heavily disturbed with overgrown vegetation and smashed glass.



Photo 10:
Former segment of main structure related to historical nursery activities. Segment is adjacent to central vegetated area in former carpark located to the east.



Photo 11:
Southern area of Site. Former office buildings are located on above floor with access located at the back of this image.



Photo 12:
Inside of top floor segment of main structure, adjacent to former nursery area to the east.



Project No: 20232408

Date: 15/11/2022

Suite 3, 240-244 Pacific Highway, Charlestown, NSW
2290

Phone: +61 2 4949 5200

SITE PHOTOGRAPHS

The University of Newcastle

305 Mann Street, Gosford NSW, Australia



Photo 13:
Interior of main structure facing east. Main entrance located behind. Back of the image is top floor and is former area related to historical nursery activities.



Photo 14:
Eastern extent of former carpark facing the main structure of the Site to the west.



Photo 15:
Western exterior of Site. Mann Street located to the left. The main entrance of building is located at the back of this image.



Project No: 20232408

Date: 15/11/2022

Suite 3, 240-244 Pacific Highway, Charlestown, NSW
2290

Phone: +61 2 4949 5200

SITE PHOTOGRAPHS

The University of Newcastle

305 Mann Street, Gosford NSW, Australia



APPENDIX F: ENVIRO SCREEN REPORT



Product Guide

NEW SOUTH WALES

About this Report

Your Report has been produced by Land Insight and Resources (LI Resources).

The data used in this report was sourced from:

Sensitive receptors - © Department of Finance, Services & Innovation Licenced, Google, Nearmap.

Zoning, Planning Controls and Topography © State of New South Wales, Planning and Environment Information Management Unit licenced under Creative Commons CC-BY (<https://creativecommons.org/licenses/by/4.0/deed.en>)

Soil, Acid Sulfate Soil & Salinity – © State Government of New South Wales and Office of Environment and Heritage (OEH) (Creative Commons Attribution 4.0 <https://creativecommons.org/licenses/by/4.0/deed.en>) and Commonwealth Scientific and Industrial Research Organisation (CSIRO) Australian Soil Resource Information System (ASRIS).

Hydrogeological Landscapes of New South Wales and the Australian Capital Territory, Department of Planning, Industry & Environment & Environmental Planning Instrument, Department of Planning, Industry & Environment.

Geology - NSW Planning & Environment – Resources & Energy: © State of New South Wales through NSW Department of Industry.

Coal Seam Gas Wells – NSW Planning & Environment – Resources & Energy: © State of New South Wales and Office of Environment and Heritage licenced under Creative Commons CC-BY (<https://creativecommons.org/licenses/by/4.0/deed.en>).

Petroleum Wells and Boreholes – © Commonwealth of Australia (Geoscience Australia) licenced under Creative Commons CC-BY (<https://creativecommons.org/licenses/by/4.0/deed.en>).

Aquifer Type - National Groundwater Information System © Commonwealth of Australia (Bureau of Meteorology) licenced under Creative Commons CC-BY (<https://creativecommons.org/licenses/by/3.0/deed.en>).

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UPSS Environmentally Sensitive Zone - © State of NSW Environment Protection Authority.

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Groundwater Bores - NSW Department of Primary Industries - Office of Water © State of NSW (DPI Water) licenced under Creative Commons CC-BY (<https://creativecommons.org/licenses/by/3.0/au/>). © Commonwealth of Australia (Bureau of Meteorology) licenced under Creative Commons CC-BY (<https://creativecommons.org/licenses/by/3.0/deed.en>).

Groundwater Vulnerability - © State of New South Wales, Planning and Environment Information Management Unit licenced under Creative Commons CC-BY (<https://creativecommons.org/licenses/by/3.0/deed.en>).

Groundwater Exclusion Zones – © Department of Trade and Investment, Regional Infrastructure and Services – Office of Water (Botany Groundwater Exclusion Zones) and © State of NSW Environment Protection Authority (RAAF Base Williamtown Management Areas).

Hydrogeologic Unit - © Commonwealth of Australia (Bureau of Meteorology) 2018 licenced under Creative Commons CC-BY (<https://creativecommons.org/licenses/by/3.0/deed.en>).

Groundwater Dependent Ecosystems (National and Regional) - © Commonwealth of Australia (Bureau of Meteorology) 2018 licenced under Creative Commons CC-BY (<https://creativecommons.org/licenses/by/3.0/deed.en>)

Other Known Borehole Investigations - © Land Insight & Resources.

The NSW Government PFAS Investigation Program - © State of NSW Environment Protection Authority.

Contaminated Land Record of Notices, Sites Notified as Contaminated to the NSW EPA, Former Gasworks and PFAS investigation program - © State of NSW Environment Protection Authority.

Licensing Under the POEO Act 1997 - State of New South Wales through the EPA.

NPI © Commonwealth of Australia licenced under Creative Commons CC-BY (<https://creativecommons.org/licenses/by/4.0/deed.en>). The data includes facilities from 1998 to 2021.

Waste Management Facilities; ARFF; Liquid Fuel & Aviation Fuel Depots/Terminals; Power Stations; Telephone Exchanges; Wastewater Treatment Facilities - © Commonwealth of Australia (Geoscience Australia) 2017 licenced under Creative Commons CC-BY (<https://creativecommons.org/licenses/by/4.0/deed.en>).

UXO and Military Facilities- Australian Government - Various sources and Department of Defence © Commonwealth of Australia, 2017-2019. *The data supplied is based on Defence's assessment of information obtained from a variety of sources. It does not reflect any UXO remediation conducted on behalf of any person or organisation other than Defence. While Defence makes all reasonable efforts to ensure that the information provided is accurate, complete and up-to-date, there may be limitations to the sources available to Defence and the information may be subject to change. The information relating to a specific parcel of land should not be relied upon without additional checks and/or verification from the relevant state, territory or local government. Further information as to Defence's UXO categorisation criteria; along with Defence's recommendations to state and local authorities, is available on the Defence internet.*

Derelict Mines and Quarries - © State of New South Wales through NSW Department of Industry.

Service Stations & Repairs and Dry Cleaners (Recent) - © Google 2017-2022; Nearmap data; Geoscience Australia; Dry Cleaning Institute of Australia.

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World Heritage Areas – © Australian Government Australian Government Department of Sustainability, Environment, Water, Population and Communities.

National Heritage Areas – © Australian Government Australian Government Department of Sustainability, Environment, Water, Population and Communities.

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Coastal SEPP Data – © State of New South Wales, Planning and Environment Information Management Unit licenced under Creative Commons CC-BY (<https://creativecommons.org/licenses/by/4.0/deed.en>).

Bushfire Prone Land - NSW Rural Fire Service ©.

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Other Data – if applicable

Cattle Dip Site Locator Northern Rivers Region - © State of New South Wales through NSW Department of Industry

Legacy Landfills – LI Resources proprietary dataset. Dataset is derived from verified Council Records, Aerial Photography Interpretation, Historic Zoning Maps, Historic Topographic Maps, Historic Parish Maps and Derelict Mines and Quarries Information - © State of New South Wales through NSW Department of Industry.

Parramatta River Catchment Land Use Areas - Compiled by LI Resources, derived from Parramatta River Estuary Processes Study (2010).

Naturally Occurring Asbestos - © State of New South Wales and Department of Planning and Environment licenced under Creative Commons CC-BY (<https://creativecommons.org/licenses/by/4.0/deed.en>).

Historic Aerial Photography - © State of New South Wales, Department of Finance, Services & Innovation licenced under Creative Commons CC-BY (<https://creativecommons.org/licenses/by/4.0/deed.en>), Google Earth Professional, Nearmap, Jacobs (formerly SKM), AeroMetrex, AAMHatch, Fugro Spatial Solutions, Wheelans Insites, Aerial Acquisitions, Geo-Spectrum (Australia) Pty Ltd.

Historical Commercial & Trade Directory Data –

Sydney

1932-1933 John Sands Sydney Trades Directory – Copyright Expired

1940 & 1950 Commonwealth of Australia Telephone Directory Sydney – Copyright Expired

1960-1961 Telecom Australia Pink Pages Sydney – Permission for use Sensis, 2017.

1970-1971 United Business Directories Sydney – Licenced under Hardie Grant, 2017.

1974-1975 NSW Post Office Yellow Pages Sydney Buying Guide and Commercial/Industrial Directories – Permission for use Sensis, 2017.

1980-1981 & 1990-1991 Telecom Australia Yellow Pages Sydney – Permission for use Sensis, 2017.

2005 - 2015 Datajet.com.au - Permission for Use, 2022.

Regional NSW

1971, 1981 & 1991 Telecom Australia Yellow Pages Country NSW Directories – Permission for use Sensis, 2017.

While every effort is made to ensure the details in your Report are correct, LI Resources cannot guarantee the accuracy or completeness of the information or data provided or obtained from the data sources.

For more detailed information regarding data source and update frequency, please contact LI Resources at info@landinsight.co

Glossary

AVIATION RESCUE FIRE FIGHTING FACILITIES (ARFF); LIQUID FUEL & AVIATION FUEL DEPOTS/TERMINALS; POWER STATIONS; TELEPHONE EXCHANGES & WASTEWATER TREATMENT FACILITIES

These facilities may be associated with the use, storage, treatment and disposal of a range of chemicals and products such as PFAS (Per- and poly-fluoroalkyl substances), solvents, petroleum products, asbestos, PCBs (polychlorinated biphenyls) and others.

BUSHFIRE PRONE LAND

This data may assist environmental consultants, developers and others understand whether any bushfire risk is present in the area that may require specific management and/or restrict site investigations and development works.

COAL SEAM GAS, PETROLEUM WELLS AND BOREHOLES

This data may assist environmental consultants during investigations as to previous resource exploration with an area, resources present (i.e. coal, gas and petroleum), lithological data and potential for environmental contamination.

DEPARTMENT OF DEFENCE UNEXPLODED ORDNANCE (UXO) SITES

UXO is any sort of military ammunition or explosive ordnance which has failed to function as intended. It includes a range of ammunition used by the Navy, Army and Air Force; and many other types of ammunition and explosives including training munitions. UXO contamination has arisen mainly as a result of military training activities, since European settlement. In the past large numbers of ranges and training areas were approved for use in many areas of Australia. As a result, there are now a number of sites around Australia which are affected by UXO. For more information see www.defence.gov.au/UXO

DERELICT MINES AND QUARRIES

Outstanding legacy issues surrounding derelict mines and quarries have the potential to cause safety and environmental impacts and may also be an indicator of the presence of unregulated landfill.

DRY CLEANERS (CURRENT)

Dry cleaners often use or have used hazardous and flammable chemicals in their operations. Incorrect storage and disposal of these chemicals may result in fire/explosion risks or contamination of soil and groundwater or result in human health risks.

GROUNDWATER EXCLUSION ZONES

Groundwater exclusion zones are present in certain areas where aquifers are known to be contaminated or where past activities may have affected groundwater quality. Restrictions on the use of groundwater in those areas are in place and differ between the various management/exclusion zones.

HERITAGE – FEDERAL, STATE AND LOCAL

This data may assist environmental consultants, developers and others understand whether any heritage items are present on the site that may require specific management and/or restrict site investigations and development works.

HISTORICAL COMMERCIAL & TRADE DIRECTORY DATABASE (1932, 1940, 1950, 1960, 1970; 1974, 1980 and 1990)

An LI Resources proprietary database of historical potentially contaminating activities previously listed as having been undertaken on the property or surrounding area. Activities have been catalogued based on 'low to high risk activities' either known to cause potential contamination risk (based on Managing Land Contamination Planning Guidelines, SEPP 55 remediation of land, 1998) or to assist in guidance for sampling and remediation programs by environmental consultants.

HISTORICAL (LEGACY) LANDFILLS

An LI Resources proprietary dataset containing the location of former legacy landfills. Legacy landfills are widely present across the country, with many locations unknown. Most of these landfills were created prior to current environmental guidelines (i.e. remain unlined and uncapped) resulting in the potential for leaching of hazardous substances into waterways, production of odours, migration of landfill gas and stability issues.

HYDROGEOLOGY

This data includes information for environmental consultants on aquifer properties, the presence of wetlands and groundwater monitoring bores. This information can assist in the understanding of contaminant pathways and receptors.

Groundwater monitoring bores are primarily needed to assess changes to water table levels, groundwater quality and to assess groundwater flow direction. Impacts on groundwater result from contaminated water movement, leaching of surface pollutants caused by rainfall or irrigation water percolation, leakage of stored matter or the disposal of wastes. The presence of a monitoring bore may indicate that a site has been or is being investigated.

LICENSING UNDER THE POEO ACT 1997

The POEO public register includes a range of specified information on environment protection licences issued under the POEO Act to regulate air, noise, water and waste pollution and impacts. The licences and notices provide information on the type of industrial activities undertaken in an area and if any clean-up and preventative action notices have been issued under that licence.

MILITARY FACILITIES

Military practices at certain facilities may cause potential contamination through the use of chemicals ranging from cleaning solvents and paints to ammunition, explosives and firefighting foam. These chemicals can cause human and ecological health risks.

NATURALLY OCCURRING ASBESTOS

Asbestos is found as a naturally occurring mineral in many areas of regional NSW and may occur in veins within rock formations. Naturally occurring asbestos is generally found when building roads, working on construction sites and undertaking excavation activities. This data provides information on the areas identified with a low to high probability of naturally occurring.

NPI INDUSTRIAL FACILITIES

Industrial facilities that trigger a defined threshold(s) for the emission of pollutants identified in the National Pollution Inventory (NPI), must estimate and report their emissions. The pollutants identified under the NPI are those that are known to have possible effects on human health and the environment.

NSW EPA CONTAMINATED LAND RECORD OF NOTICES ISSUED UNDER THE CLM Act 1997

The EPA is required by law to maintain a record of notices relating to contaminated land, including notices declaring land to be 'Significantly Contaminated Land' under the Contaminated Land Management Act 1997. The EPA record of notices provides information on all sites that have been declared significantly contaminated.

NSW EPA FORMER GASWORKS SITES

Former gasworks often leave a legacy of soil and groundwater contamination. The major contaminants in these instances include tars, oils, hydrocarbon sludges, spent oxide wastes, ash and ammoniacal recovery wastes. Some of these contaminants are carcinogenic to humans and toxic to aquatic ecosystems and therefore may pose a risk to human health and the environment.

NSW EPA FORMER URANIUM PROCESSING SITE AT HUNTERS HILL

In 2008 a Parliamentary Inquiry held into the former uranium processing site at Hunters Hill, Sydney, found radiation levels were too low to require site remediation. During the investigation it became evident that there were two separate causes of gamma radiation in the vicinity of Nelson Parade (7-9 Nelson Parade – former uranium processing plant and Kelly's Bush – former tin smelter). The investigations found that levels of radiation on properties surrounding 7-9 Nelson Parade, at Kelly's Bush and in nearby areas of Hunters Hill were below relevant national and international guidelines for the protection of health and therefore remediation was not warranted. Further information can be found at www.epa.nsw.gov.au

NSW EPA JAMES HARDIE ASBESTOS WASTE CONTAMINATION LEGACY

During the 1960s and 70s, bulk asbestos waste associated with manufacturing and waste disposal by the former James Hardie Industries was delivered as fill to areas targeted because of their low-lying geography. Between December 2007 and February 2008, the Department of Environment Climate Change and Water conducted site inspections of those disposal sites. None of the inspected sites were found to be a significant risk to human health or the environment, provided the sites remained sealed or undisturbed. Further information can be found at www.epa.nsw.gov.au

NSW EPA SITES NOTIFIED AS CONTAMINATED TO THE NSW EPA

The EPA maintains a record of all sites notified to it by owners or occupiers of sites believed to be significantly contaminated.

NSW EPA PFAS INVESTIGATION PROGRAM

The NSW EPA is investigating particular sites to better understand the extent of PFAS use and contamination in NSW. PFAS are a group of chemicals that include perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA).

They have many specialty applications and are widely used in a range of products in Australia and internationally. PFAS are an emerging contaminant, which means that their ecological and/or human health effects are unclear. Further information can be found at www.epa.nsw.gov.au

OTHER POTENTIALLY CONTAMINATED SITES

An LI Resources proprietary database of recent potentially contaminating activities previously listed as having been undertaken on the property or surrounding area. Activities have been catalogued based on 'moderate to high risk activities' either known to cause potential contamination risk or to assist in guidance for sampling and remediation programs by environmental consultants. Please note this database is not exhaustive and may not list all activities in the area.

PARRAMATTA RIVER CATCHMENT LAND USE AREAS

An LI Resources proprietary dataset containing land use changes around the Parramatta River catchment area. Details include land reclamation areas, loss of foreshore and major land use changes (i.e. industrial to residential land). These changes may indicate presence of unregulated landfill and potential contamination associated with former industrial land use.

PUBLIC REGISTER OF PROPERTIES AFFECTED BY LOOSE-FILL ASBESTOS INSULATION

The NSW Government is required to maintain a register of residential properties that contain loose-fill asbestos insulation. This assists members of the wider community to be informed about any risks associated with a specific property and to take any appropriate safety measures. For more information see www.fairtrading.nsw.gov.au

SENSITIVE RECEPTORS

This data may assist environmental consultants during investigations as to the location and proximity of any sensitive receptors in the area, such as aged care, child care, community and religious facilities; sports grounds; national and state parks etc.

COASTAL MANAGEMENT (STATE ENVIRONMENTAL PLANNING POLICY)

The aim of this Policy is to promote an integrated and co-ordinated approach to land use planning in the coastal zone in a manner consistent with the objects of the Coastal Management Act 2016, including the management objectives for each coastal management area, by

- (a) managing development in the coastal zone and protecting the environmental assets of the coast, and
- (b) establishing a framework for land use planning to guide decision-making in the coastal zone, and
- (c) mapping the 4 coastal management areas that comprise the NSW coastal zone for the purpose of the definitions in the Coastal Management Act 2016.

SOIL LANDSCAPE AND GEOLOGY

This data may assist environmental consultants during investigations as to the physical site properties that could govern potential contaminant retention or migration.

SERVICE STATIONS (CURRENT)

Service stations may contain leaking tanks which can result in petroleum products migrating into, and contaminating, the soil or groundwater or other pathways to human and biological contact.

UNDERGROUND PETROLEUM STORAGE SYSTEMS (UPSS) ENVIRONMENTALLY SENSITIVE ZONES

UPSS environmentally sensitive zones represent a conservative assessment of areas likely to be vulnerable to contamination from leaking UPSS. This information can assist environmental consultants on the risk a UPSS site poses to a recognised environmentally sensitive receptor.

WASTE MANAGEMENT FACILITIES

A waste facility is a premises used for the storage, treatment, processing, sorting or disposal of waste. These include landfills, waste transfer stations and waste reprocessing facilities. Waste facilities emit regulated substances to air and water, such as methane gas, and can produce odours, dust and noise.

Terms and Conditions

Terms and Conditions

1. Land Insight and Resources (LI Resources) will perform the Services in accordance with these terms and conditions
2. By submitting the Application Form, the User acknowledges that it has read and understood these terms and conditions and agrees to be bound by them.
3. LI Resources reserves the right to change these terms and conditions. Any change shall be effective upon notice, which may be given by LI Resources posting such change on the Website, or by direct communication with the User.

Services

4. LI Resources agrees to undertake the Services using due skill, care and diligence.
5. The User assumes the sole risk of making use of, and/or relying on, the Report and the Services. LI Resources makes no representations about the suitability, completeness, timeliness, reliability, legality, or accuracy of the Services.
6. Unless LI Resources agrees expressly otherwise:
 - (A) The Services are solely for the use and benefit of the User; and
 - (B) LI Resources does not accept any liability, whether directly or indirectly, for any liability or loss suffered or incurred by any third party placing any reliance on the performance of the Services or any Documents or material arising from or in connection with the Services.
7. The User warrants to LI Resources that it will not use the Services for any purpose that is unlawful or is otherwise inconsistent with these terms and conditions.
8. The User will not alter in any way or provide a copy of the Report or any Document prepared by LI Resources to any other person without LI Resources's prior written consent.

Payment Terms

9. The Fee will be payable at the time of submitting the Application Form unless invoicing payment terms have been negotiated prior to purchase with LI Resources.
10. The User and LI Resources may agree in writing to vary the Services. The fee for each variation shall be agreed between LI Resources and the User.
11. The User agrees to pay LI Resources the Fee, including the fee for any variation requested in accordance with clause 12.
12. If the User's rights are terminated and the User has made an advance payment, LI Resources will refund the User a reasonable proportion of the balance as determined by LI Resources in relation to the value of Services already provided.
13. GST at the prevailing rate is payable in addition to the Fee. The User agrees to pay any other applicable taxes, duties or government imposed fees related to the User's use of the Services.

Intellectual Property

14. LI Resources owns all intellectual property in the Report and arising from or in connection with the Services.
15. LI Resources grants the User a royalty free licence to use LI Resources's intellectual property for that User's personal assessment of its Property(s) only.

Privacy Policy

16. Upon submitting the Application Form the User consents to LI Resources's use of the personal data provided by the User for the purposes of providing the Services.
17. The Reliance on the Report, the use of the Services and the use of LI Resources's Website is at the User's own risk. The User accepts that LI Resources does not guarantee the confidentiality of any communication or information transmitted through the use of the Website.
18. LI Resources will not provide to any third party any personal data provided by a User without the User's permission.
19. The User acknowledges that any feedback provided to LI Resources over the Website is not confidential and that LI Resources has the right to publish, reproduce, disseminate, transmit, distribute and copy (in whole or in part) any such feedback without the approval of the User.
20. LI Resources assumes no responsibility or liability for any content, communications or feedback submitted by a User over the Website. If a User has submitted objectionable content, communications or Feedback, LI Resources may, in its sole discretion, terminate that User's account, take legal action, or notify the appropriate authorities or parties, without prior notice.

Third Party Services

21. The User accepts that, although the Website may contain or provide information regarding applications, products and/or services provided or offered by third parties, LI Resources does not recommend or endorse any such third party applications, products and/or services.
22. The report contains content provided to LI Resources by other parties (Third Party Content). LI Resources is not responsible for, does not endorse and makes no representations either expressly or impliedly concerning the accuracy or completeness of any Third Party Content. You rely on the Third Party Content completely at your own risk.

Limit and Extent of Liability

23. LI Resources's liability is limited to the amount of the Fee. Liability arising in the provision of the Services is reduced to the extent that it arises out of or in connection with any negligent act or omission by the User.
24. Neither party is liable to the other for loss of actual or anticipated revenue or profits, increased capital or financing costs, increased operational or borrowing costs, pure economic loss, exemplary or punitive damages or indirect or consequential damages or loss.
25. In no event shall LI Resources or any directors, officers, employees or agents be liable for any indirect, punitive, incidental, special, or consequential damages arising out of or in any way connected with the use of the Website, any delay or inability to use the Website, any information available on the Website, or otherwise arising out of the utilisation of the Website, whether based in contract, tort, strict liability, or otherwise, even if LI Resources has been advised of the possibility of such damages. The negation of damages set forth herein is a fundamental element of the basis of the bargain between LI Resources and the User. The Services would not be provided without such limitations.

Property Verification

26. The User accepts that the Services provided do not take into account any information relating to the actual state or condition of the Property.
27. The User acknowledges that the Services are not to be interpreted as commenting on the physical characteristics or condition of the Property, any particular purpose or use of that Property or the saleability or value of the Property.

Termination and Modification

28. LI Resources reserves the right in its sole discretion to terminate, block or restrict the User's use of the Services or any portion thereof, for any reason, and without notice. In addition, LI Resources reserves the right in its sole discretion to terminate or modify any part of the Website without notice, for any reason.

Anti-Hacking

29. The User agrees not to directly or indirectly, attempt to or disrupt, impair, interfere with, alter or modify the Website or any of its content.
30. The User agrees not to allow, aid or abet third parties to directly or indirectly, attempt to or disrupt, impair, interfere with, alter or modify the Website or any of its content, or obtain access to any information regarding any User or any other Report issued to a User.

Complaints

31. Any complaints in relation to the Services should, in the first instance, be in writing and addressed to LI Resources Customer Service at: info@liresources.com.au. LI Resources will respond to any such complaints in writing as soon as practicably possible.

General Matters

32. These terms and conditions are governed by and will be construed and enforced in accordance with the laws of the State of New South Wales, Australia. If any dispute, controversy or claim arises out of or relating to these terms and conditions, whether sounding in contract, tort or otherwise, it shall be resolved by use of an alternative dispute resolution procedure acceptable to both parties with the assistance of a mediator. If the dispute has not been resolved to the satisfaction of either party within 60 days of initiation of the procedure or if either party fails or refuses to participate in or withdraws from participating in the procedure, then either party may refer the dispute to the court.
33. These terms and conditions apply to all Services provided by LI Resources.
34. If there is any inconsistency between these terms and conditions and any other document or agreement between the parties, these terms and conditions will prevail.
35. These terms and conditions represent the entire agreement between the parties.
36. The User authorises LI Resources to destroy Documents which LI Resources has prepared or holds in connection with the Services 7 years after the last date on which the Services were provided.
37. If any of the terms of the Application Form or the terms and conditions are invalid, unenforceable or void, the relevant term must be read down to the maximum extent possible or severed from the rest of the Application Form or these terms and conditions.

-
38. These terms and conditions can only be amended or varied by a written document signed by both parties.
39. Neither party may assign or transfer any rights or obligations arising in the provision of the Services or these terms and conditions without the other party's written consent.

Defined Terms

Application Form	Means the form and accompanying information provided on the Website, completed and submitted by the User to request the Services.
Document	Includes a report, and any other written or electronic document.
Fee	Means the amount set out in the Application Form or confirmed via an invoice.
Property	Means the property to which the Services and the Report relate.
Report	Means the Document prepared by LI Resources and provided to the User which contains the environmental and development data which is relevant to the Property.
Services	Means the review of data and information on which the Report is based, and the preparation and provision to the User of the Report.
Website	Means LI Resources's online site, that is: www.liresources.com.au
User	Means the person(s) set out in the Application Form including that person's permitted successors.



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Enviro-Screen Report

305 Mann Street
Gosford, NSW

7 September 2022

Report n°:
LI-2920 ESR





Understanding your report

Your Report has been produced by Land Insight and Resources (Land Insight).

Your Report is based on information available from public databases and sources at the date of reporting. The information gathered relates to land that is within a 200 to 2000m radius (buffer zone) from the boundaries of the Property. A smaller or larger radius may be applied for certain records (as listed under records and as shown in report maps).

While every effort is made to ensure the details in your Report are correct, Land Insight cannot guarantee the accuracy or completeness of the information or data provided.

The report provided by Land Insight includes data listed on page 4 (table of contents). All sources of data and definitions are provided in the Product Guide (Attached). For a full list of references, metadata, publications or additional information not provided in this report, please contact info@landinsight.co

The report does not include title searches; dangerous good searches or; property certificates (unless requested); or information derived from a physical inspection, such as hazardous building materials, areas of infilling or dumping/spilling of potentially contaminated materials. It is important to note that these documents and an inspection can contain information relevant to contamination that may not be identified by this Report.

Due to the ongoing nature of database development and frequency of updates provided by various state government regulators the data displayed within this report is only current from date of production.

This Report, and your use of it, is regulated by Land Insight's Terms and Conditions (See Land Insight's Product Guide).

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ATTACHMENTS

Attachment A - Report Maps

Attachment B - Historical Imagery

Land Insight Product Guide and Terms and Conditions

SUMMARY

 Section 1	PROPERTY SETTING	Identified
Sensitive Receptors Planning Control Heritage Soil and Land Information Geology and Topography		
 Section 2	HYDROGEOLOGY	Identified
Aquifer Groundwater Bores and Other Borehole investigations Groundwater Dependent Ecosystems (GDE) Hydrogeology Units Wetlands		
 Section 3	ENVIRONMENTAL REGISTERS LICENCES AND INCIDENTS	Identified
Contaminated Land Public Register Sites Regulate by Other Jurisdictional Body (Former Gaswork sites / PFAS sites) Licensing and Regulated Sites National Pollutant Inventory (NPI)		
 Section 4	POTENTIALLY CONTAMINATED AREAS	Identified
Former Potentially Contaminated Land Current and Historical Potentially Contaminating activities (PCA)		
 Section 5	NATURAL HAZARDS	Identified
Erosion risk Bushfire prone land Fire history Flood hazards		



Section 1 Property Setting



1.1 SENSITIVE RECEPTORS

Map 1.1 (200m Buffer)

Sensitive receptor	Category	Distance (m)	Direction
The Orthodontist	Hospital and Health Care	71.8	North
Digital Dental	Hospital and Health Care	135.4	North
Gosford Precinct - The University of Newcastle, Australia	Education	160.6	West
Rumbalara Reserve	Parks	170.0	South-east

1.2 PLANNING CONTROLS

Map 1.2 (onsite)

Zoning

Code	Zoning	Details
B4	Mixed Use	SEPP (Gosford City Centre) 2018 Land Zoning Map

Environmental Planning Instruments

Type	Category	Details
APU	Additional Permitted Uses	SEPP (Gosford City Centre) 2018 Additional Permitted Uses Map
CL1	Development Incentives Application - Gosford City Centre	Gosford Local Environmental Plan 2014

Other Planning Information

Type	Category	Details
Not identified	-	-

1.3 HERITAGE

Map 1.3 (200m Buffer)

State and Local Heritage

Site ID	Site Name	Type	Details	Distance (m)	Direction
43	Mitre 10 store	Local	Item - General	0	Onsite
320	Steps of former private hospital	Local	Item - General	20.1	South
322	House	Local	Item - General	133.1	South
45	Railway bridge and viaduct	Local	Item - General	159.3	North
47	Railway turntable	Local	Item - General	192.9	South
48	Signal box, water column and tank	Local	Item - General	192.9	South
49	Large-faced clock with wooden frame	Local	Item - General	192.9	South

Australian Heritage Database

Site ID	Site Name	Type	Details	Distance (m)	Direction
106369	Sydney Cultural Crescent Rock Art	National Heritage List	Class = Indigenous Status = Assessment initiated by AHC	0	Onsite

Commonwealth Heritage List, National Heritage List and World Heritage Area.

1.4 SOIL AND LAND USE INFORMATION

Map 1.4a/1.4b (onsite)

Soil Landscape

Soil Landscape	ERer	Erina	Soil Group	Erosional
Description	Landscape—undulating to rolling rises and low hills on the Terrigal Formation. Local relief <60 m; slope gradients <25%. Rounded narrow crests with moderately inclined slopes. Extensively cleared tall open-forest with open-heathland in exposed coastal areas. Soils—moderately deep to deep (100->200 cm) Yellow Podzolic Soils (Dy2.11, Dy3.11, Dy5.11) on fine-grained bedrock with Yellow Podzolic Soils (Dy3.21) in poorly drained areas; moderately deep to deep (50->150 cm) Yellow Podzolic Soils (Dy2.21, Dy3.21, Dy2.51) and Yellow Earths (Gn2.21) on coarse-grained parent material with Yellow Earths (Gn2.44, Gn2.21, Gn2.24) on footslopes and deep (>300 cm) Structured Loams (Um6.11) and Yellow Earths (Gn2.24) along drainage lines. Limitations—mass movement (localised), high soil erosion hazard, foundation hazard (localised), localised high run-on, seasonal waterlogging of footslopes, strongly acid soils of low fertility.			

Salinity

Salinity Hazard	Not identified	-
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Radon

Radon Level	Bq/m ³	6
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Typical radon levels in Australia are low and the values shown are the average values for each census district. For specific location, factors such as the local geology and house type could lead to different values. (ARPANSA).

Acid Sulfate Soil

ASS Risk Map (Table 1.4.1)	On the Property?	Within Buffer?
Class	Class 5	Class 5

National Acid Sulfate Soils Atlas

Atlas of Australian ASS (Table 1.4.2)	Cq(p4)	ASS in inland lakes, waterways, wetlands and riparian zones	Probability of Occurrence	Extremely low probability of occurrence
--	--------	---	---------------------------	---

Table 1.4.1. Classification scheme in the ASS Planning Maps

Class of Land as shown on ASS Planning Maps	
1	Any works.
2a	Works below the natural ground surface. Works by which the watertable is likely to be lowered.
2b	Works other than ploughing below the natural ground surface. Works by which the watertable is likely to be lowered.
3	Works more than 1 metre below the natural ground surface. Works by which the watertable is likely to be lowered more than 1 metre below the natural ground surface.
4	Works more than 2 metres below the natural ground surface. Works by which the watertable is likely to be lowered more than 2 metres below the natural ground surface.
5	Works within 500 metres of adjacent Class 1, 2a, 2b, 3 or 4 land that is below 5 metres Australian Height Datum and by which the watertable is likely to be lowered below 1 metre Australian Height Datum on adjacent Class 1, 2a, 2b, 3 or 4 land.

For each class of land, the maps identify the type of works likely to present an environmental risk if undertaken in the particular class of land. If these types of works are proposed, further investigation is required to determine if ASS are actually present and whether they are present in such concentrations as to pose a risk to the environment.

Table 1.4.2. Atlas of Australian Acid Sulfate Soils¹ (ASRIS) (CSIRO/NatCASS)

Probability of Occurrence of ASS ¹	
A	High Probability of occurrence - (>70% chance of occurrence in mapping unit)
B	Low Probability of occurrence - (6-70% chance of occurrence in mapping unit)
C	Extremely low probability of occurrence - (1-5% chance of occurrence in mapping unit)
D	No probability of occurrence - (<1% chance of occurrence in mapping unit)
x	Disturbed ASS ¹ terrain - (ASS ¹ material present below urban development).
u	Unclassified - (Insufficient information to classify map unit)
Zones	
a	Potential acid sulfate soil material and/or Monosulfidic Black Ooze (MBO).
b, c	Potential acid sulfate soil generally within upper 1 m.
c, d, e	ASS ¹ generally within upper 1 m.
f	ASS ¹ generally below 1 m from the surface
g	ASS ¹ , generally below 3 m from the surface.
h	ASS ¹ generally within 1 m of the surface.
i, j	ASS ¹ generally below 1 m of the surface.
k	ASS ¹ material and/or Monosulfidic Black Ooze (MBO).
l, m, n, o, p, q	ASS ¹ generally within upper 1 m in wet / riparian areas.
Subscripts to codes	
(a)	Actual acid sulfate soil (AASS) = sulfuric material.
(p)	Potential acid sulfate soil (PASS) = sulfidic material.
(q)	Monosulfidic Black Ooze (MBO) is organic ooze enriched by iron monosulfides.

Table 1.4.2. Atlas of Australian Acid Sulfate Soils¹ (ASRIS) (CSIRO/NatCASS)

Confidence levels	
(1)	All necessary analytical and morphological data are available
(2)	Analytical data are incomplete but are sufficient to classify the soil with a reasonable degree of confidence
(3)	No necessary analytical data are available, but confidence is fair, based on a knowledge of similar soils in similar environments
(4)	No necessary analytical data are available, and classifier has little knowledge or experience with ASS, hence classification is provisional

¹Acid Sulfate Soils (ASS) are all those soils in which sulfuric acid may be produced, is being produced, or has been produced in amounts that have a lasting effect on main soil characteristics (Pons 1973). Acid sulfate soil (ASS) may include PASS or AASS + PASS. Potential acid sulfate soil (PASS) = sulfidic material. Actual acid sulfate soil (AASS) = sulfuric material.

1.5 GEOLOGY AND TOPOGRAPHY

Map 1.5 (onsite)

Geology

Map Sheet	Code	Formation	Age	Group	Dominant Lithology	Description
Newcastle to Wollongong Coastal Quaternary Mapping	Tngb	Burralow Formation	Lower Triassic (base) to Middle Triassic (top)	Narrabeen Group	Sandstone	Fine-grained, micaceous, quartz- to quartz-lithic sandstone; interbedded with siltstone, grey shale and red-brown claystone.

Naturally Occurring Asbestos Potential (NOA)

Category	On the Property?	Within Buffer?
Not identified	-	-

Topography

Topography	15-22 mAHD
------------	------------



Section 2 Hydrogeology



2.1 HYDROGEOLOGY AND GROUNDWATER BORES

Map 2.1 (2000m Buffer)

	On the Property?	Within Buffer?
Aquifer Type	Porous, extensive aquifers of low to moderate productivity	Porous, extensive aquifers of low to moderate productivity
Drinking Water Catchments	Not identified	Not identified
Protected Riparian Corridor	Not identified	Not identified
UPSS Environmentally Sensitive Zone	Hawkesbury River	Hawkesbury River
Wetlands	Not identified	Estuarine water body

Groundwater Bores

Map ID	Groundwater Bore ID	Authorised Purpose	Completion Date	Drilled Depth (m)	Final Depth (m)	SWL (m)	Salinity (mg/l)	Yield (L/s)	Distance (m)	Direction
3	GW100343	Monitoring	15/03/1993	73.0	73.0	5.5	<Null>	9	401.9	North-west
17	GW053790	Water supply	1/01/1980	<Null>	42.7	<Null>	<Null>	<Null>	484.1	West
7	GW105399	Recreation	14/08/2003	48.5	48.5	6.6	<Null>	2.5	749.3	North
13	GW201179	Monitoring	12/03/2007	16.2	16.2	3.05	<Null>	<Null>	797.6	North-west
28	GW201677	Town water supply	<Null>	205.0	205.0	7	<Null>	8	879.6	North
18	GW201679	Irrigation	<Null>	102.0	102.0	<Null>	<Null>	<Null>	904.3	South-west
16	GW065029	Recreation	22/12/1989	<Null>	62.0	8	Fresh	5	906.8	North-west

Map ID	Groundwater Bore ID	Authorised Purpose	Completion Date	Drilled Depth (m)	Final Depth (m)	SWL (m)	Salinity (mg/l)	Yield (L/s)	Distance (m)	Direction
24	GW201689	Monitoring	<Null>	62.0	62.0	3.6	<Null>	4	911.5	North
19	GW201893	Recreation (groundwater)	<Null>	78.0	78.0	<Null>	<Null>	1.5	926.5	South
2	GW072796	Recreation	21/01/1995	90.0	90.0	9	Good	0.8	965.7	West
12	GW201054	Monitoring	26/10/2007	10.5	10.5	1.5	<Null>	<Null>	1197.5	North
8	GW107812	Monitoring	2/11/2004	5.0	5.0	2.53	<Null>	<Null>	1204.3	North
41	GW201688	Test bore	16/04/2005	160.0	160.0	<Null>	<Null>	<Null>	1303.9	North
42	GW201688	Town water supply	16/04/2005	160.0	160.0	<Null>	<Null>	<Null>	1303.9	North
27	GW201889	Monitoring	22/02/2006	150.0	150.0	4	<Null>	<Null>	1311.2	North
45	GW201888	Monitoring	16/02/2006	42.0	42.0	<Null>	<Null>	<Null>	1312.6	North
26	GW201886	Monitoring	8/03/2006	46.0	46.0	4	<Null>	6	1340.1	North
9	GW200840	Monitoring	24/05/2010	8.0	8.0	3	<Null>	<Null>	1388.0	South-west
10	GW200839	Monitoring	12/05/2010	7.5	7.5	3	<Null>	<Null>	1388.0	South-west
11	GW200838	Monitoring	12/05/2010	7.5	7.5	3	<Null>	<Null>	1388.0	South-west
43	GW201885	Monitoring	28/09/2005	60.0	60.0	<Null>	<Null>	8.76	1391.5	North
36	GW201056	Monitoring	5/12/2011	15.0	15.2	1.1	<Null>	<Null>	1411.4	North
25	GW201678	Town water supply	15/01/2006	184.0	165.0	4	<Null>	25	1418.4	North
39	GW201180	Monitoring	12/02/2006	42.0	42.0	<Null>	<Null>	<Null>	1444.6	North
5	GW104667	Monitoring	3/01/2003	42.5	42.5	12.6	<Null>	4	1488.3	West
22	GW201894	Monitoring	2/02/2006	144	144	2.5	<Null>	<Null>	1498.1	North
23	GW201895	Monitoring	2/02/2006	24	24	2.5	<Null>	<Null>	1500.1	North
46	GW202285	Test bore, town water supply	11/03/2005	130	125.5	<Null>	<Null>	<Null>	1589.9	North
35	GW201220	Monitoring	24/03/2006	156	156	<Null>	<Null>	<Null>	1604.9	North
21	GW202234	Monitoring	<Null>	<Null>	5.1	1.5	<Null>	<Null>	1611.4	West
44	GW201887	Monitoring	31/03/2006	42	42	<Null>	<Null>	<Null>	1635.4	North
40	GW014431	Water supply for livestock	1/03/1960	<Null>	24.3	<Null>	<Null>	<Null>	1638.2	North-west
48	GW204856	Null	N/A	58	58	<Null>	<Null>	1	1642.2	North-west
47	GW204855	Null	N/A	58	58	<Null>	<Null>	1	1642.6	North-west
38	GW201162	Monitoring	11/03/2005	125.5	125.5	<Null>	<Null>	<Null>	1645.5	North
37	GW201191	Monitoring	26/10/2007	0.25	10.5	1.5	<Null>	<Null>	1653.5	North
4	GW100229	Recreation	24/01/1993	39	39	<Null>	<Null>	4.8	1665.7	West

Map ID	Groundwater Bore ID	Authorised Purpose	Completion Date	Drilled Depth (m)	Final Depth (m)	SWL (m)	Salinity (mg/l)	Yield (L/s)	Distance (m)	Direction
29	GW042838	Irrigated agriculture	1/08/1975	29	29	5.5	501-1000 ppm	0.821	1674.8	North-west
1	GW100174	Unknown	4/11/1992	60	60	<Null>	<Null>	3.1	1676.4	West
33	GW107069	Monitoring	11/10/2004	4	4	1.52	<Null>	<Null>	1690.1	West
31	GW107070	Monitoring	11/10/2004	5	5	1.48	<Null>	<Null>	1705.1	West
30	GW107072	Monitoring	11/10/2004	2.5	2.5	1.22	<Null>	<Null>	1739.6	West
34	GW107071	Monitoring	11/10/2004	5	5	1.24	<Null>	<Null>	1739.6	West
20	GW202233	Monitoring	7/03/2006	0	5.2	1	<Null>	<Null>	1780.9	West
32	GW107073	Monitoring	12/10/2004	4.2	4.2	1.12	<Null>	<Null>	1782.0	West
15	GW202604	Monitoring	17/10/2011	4	4	<Null>	<Null>	<Null>	1968.4	South
14	GW202603	Monitoring	17/10/2011	4	4	<Null>	<Null>	<Null>	1979.7	South
6	GW018385	Water supply	1/02/1960	33.5	33.5	<Null>	<Null>	<Null>	1986.5	North

Groundwater Bores Driller Lithology Details

Groundwater Bore ID	From Depth - To Depth (m)	Lithology	Distance (m)	Direction
GW100343	0m-9m 9m-18.5m 18.5m-29m 29m-30m 30m-45m 45m-47m 47m-52m 52m-54m 54m-55m 55m-61m 61m-62m 62m-72.5m 72.5m-73m	Topsoil & sand (wb) Red clay Sand (wb) Gravel (wb) Grey sandstone (medium grain) Grey sandstone, clay (medium grain) Grey sandstone (fine grain) Grey sandstone (medium grain) & bed shale Clay band Grey sandstone (medium grain) Grey sandstone (medium grain) & bed shale Grey sandstone (medium grain) w.b. Grey sandstone (medium grain) & bed shale	401.9	North-west
GW053790	#N/A		484.1	West
GW105399	0m-4m 4m-15m 15m-25m 25m-27m 27m-29m 29m-35.5m 35.5m-37m 37m-37.3m 37.3m-40m 40m-40.2m 40.2m-44.1m 44.1m-44.2m 44.2m-44.4m 44.4m-45m 45m-48.5m	Clay Sand/silt/clay/sandstone bands/rocks Sandstone grey soft Claystone fractured Sandstone grey soft Siltstone soft Sandstone grey Clay Sandstone grey Clay Siltstone soft Dolerite Dolerite fractured Dolerite v/fine grain/hard/cream Sandstone grey	749.3	North
GW201179	0m-2.5m 2.5m-3.5m 3.5m-13.5m 13.5m-16.2m	Fill,soil,clay,gravel Sandy clay Sand silty wet,grey Sand,yellow brown	797.6	North-west

Groundwater Bore ID	From Depth - To Depth (m)	Lithology	Distance (m)	Direction
GW201677	#N/A		879.6	North
GW201679	65m-65m	Shale	904.3	South-west
GW065029	#N/A		906.8	North-west
GW201689	#N/A		911.5	North
GW201893	#N/A		926.5	South
GW072796	5m-17m	Clay-sandstone	965.7	West
GW201054	0m-0.1m 0.1m-0.25m 0.25m-0.45m 0.45m-1.8m 1.8m-2m 2m-8.5m 8.5m-10.5m	Fill: asphalt Fill: road base Fill: concrete slab Clay, brown Sand, dry, brown Sand, wet, grey Sand, bands of & hard clay	1197.5	North
GW107812	0m-0.5m 0.5m-3.8m 3.8m-5m	Topsoil/fill Silty sandy clay Silty sand	1204.3	North
GW201688	#N/A		1303.9	North
GW201688	#N/A		1303.9	North
GW201889	#N/A		1311.2	North
GW201888	#N/A		1312.6	North
GW201886	#N/A		1340.1	North
GW200840	0m-1.5m 1.5m-3m 3m-6m 6m-8m	Fill Sandstone, light yellow, weathered Sandstone, fractured, yellow, grey lense Sandstone, grey, black lense	1388.0	South-west
GW200839	0m-1.5m 1.5m-3m 3m-6m 6m-7.5m	Fill Sandstone, light yellow, weathered Sandstone, fractured, yellow, grey lense Sandstone, grey, black lense	1388.0	South-west
GW200838	0m-1.5m 1.5m-3m 3m-6m 6m-7.5m	Fill Sandstone, light yellow, weathered Sandstone, fractured, yellow, grey lense Sandstone, grey, black lense	1388.0	South-west
GW201885	#N/A		1391.5	North
GW201056	0m-0.4m 0.4m-1.5m 1.5m-5m 5m-15m	Fill: road base Sand, brown Sand, light grey Sand, dark grey	1411.4	North
GW201678	#N/A		1418.4	North
GW201180	0m-5m 5m-10m 10m-18m 18m-26m 26m-38m 38m-42m	Grey clay and alluvials Sand medium /fine Clay/sandstone Sandstone grey,shale grey Shale grey,clays soft Shales grey	1444.6	North
GW104667	0m-0.2m 0.2m-8m 8m-17.3m 17.3m-18.5m 18.5m-20m 20m-20.5m 20.5m-22m 22m-23.5m 23.5m-27.5m 27.5m-29.7m 29.7m-32.5m 32.5m-33m	Bitumen Sandstone l/brown Sandstone/claystone Sandstone fractured Sandstone/ironstone fractured Ironstone Sandstone l/brown Claystone Sandstone/ironstone Claystone Sandstone l/brown Sandstone/quartz	1488.3	West

Groundwater Bore ID	From Depth - To Depth (m)	Lithology	Distance (m)	Direction
	33m-34.5m Claystone/shale 34.5m-36m Siltstone soft 36m-37.3m Clay l/blue/stiff 37.3m-38.5m Siltstone l/grey 38.5m-42.2m Shale red 42.2m-42.5m Siltstone			
GW201894	24m-24m Clay & Mixed Gravels, Grey		1498.1	North
GW201895	#N/A		1500.1	North
GW202285	#N/A		1589.9	North
GW201220	0m-3m Clay brown 3m-8m Sand 8m-19m Clay grey 19m-29m Clay grey brown 29m-156m Clay grey,shales		1604.9	North
GW202234	#N/A		1611.4	West
GW201887	#N/A		1635.4	North
GW014431	#N/A		1638.2	North-west
GW204856	#N/A		1642.2	North-west
GW204855	#N/A		1642.6	North-west
GW201162	0m-24m Sand slop, grey, with wood 24m-31m Shale, & clay layers 31m-48m Shale, grey 48m-54m Sandstone, grey 54m-60m Shale, grey 60m-81m Sandstone, grey, fractured 81m-84m Sandstone, grey 84m-90m Shale, & grey sandstone 90m-94m Sandstone, grey 94m-106m Shale, grey to brown 106m-118m Sandstone, grey, fractured 118m-121m Shale & sandstone layers 121m-124m Shale, dark grey 124m-125.5m Shale, grey green		1645.5	North
GW201191	0m-0.1m Asphalt 0.1m-0.25m Road base 0.25m-0.45m Concrete slab 0.45m-1.8m Clay brown 1.8m-2m Sand dry brown 2m-8.5m Sand wet grey 8.5m-10.5m Clay hard		1653.5	North
GW100229	0m-8m White sandstone 8m-20m Grey sandstone 20m-29m Brown weathered sandstone 29m-33m Grey sandstone 33m-39m Grey siltstone		1665.7	West
GW042838	0m-0.24m Soil 0.24m-3.35m Clay 3.35m-9.14m Sand wet clay 9.14m-12.5m Clay 12.5m-22.86m Sandstone water supply 22.86m-28.96m Shale		1674.8	North-west
GW100174	0m-1m Sandy black loam 1m-3m Grey clay 3m-4m Silty grey sand		1676.4	West

Groundwater Bore ID	From Depth - To Depth (m)	Lithology	Distance (m)	Direction
	4m-8m Sandy grey clay 8m-9m White silty sand 9m-12m Sandy grey clay 12m-18m Grey clay 18m-21m Brown weathered sandstone 21m-22m Fractured grey sandstone 22m-35m Grey sandstone 35m-36m Fractured sandstone 36m-56m Grey siltstone 56m-57m Soft grey shale 57m-60m Grey sandstone			
GW107069	0m-1.2m Fill, sandy clay 1.2m-2.1m Fill, clay 2.1m-3.7m Peat, sandy clay 3.7m-4m Sand		1690.1	West
GW107070	0m-2m Fill, sandy clay 2m-3m Peat, sandy clay 3m-4m Sand 4m-5m Sandy clay		1705.1	West
GW107072	0m-2.5m Fill., sandy clay		1739.6	West
GW107071	0m-2m Fill, clayey sand 2m-2.3m Sandy clay 2.3m-2.8m Peat, sandy clay 2.8m-5m Sand		1739.6	West
GW202233	#N/A		1780.9	West
GW107073	0m-2.1m Fill, sandy clay 2.1m-2.8m Peat, sandy clay 2.8m-3.5m Sand 3.5m-4.2m Clay		1782.0	West
GW202604	0m-0.15m Silt, Sandy; Topsoil, Soft, Brown, Frequent Roots, Moderate To High Organic Content 0.15m-0.9m Silt, Sandy; Soft, Light Brown, Reduced Organic Content 0.9m-2.8m Silt, Sandy; Fine Grained Sands, Brown-Grey 2.8m-4m Silt, Sandy; Fine Grained Sands, Hard, Brown-Grey, Wet From 3M		1968.4	South
GW202603	0m-0.3m Sand, Slightly Sand, Slightly Gravelly; Gravels Subangular-Subrounded, Fine To Medium Grain Of Sandstone, Light Brown M 0.3m-1m Sand, Silty; Fine Grained, Light Brown, Some Root Structures 1m-3m Silt, Sandy; Fine Grained Sand, Soft, Light Brown 3m-4m Silt, Sandy; Fine Grained Sand, Soft, Grey Mottled Brown, Wet		1979.7	South
GW018385	0m-21.33m Driller 21.33m-33.52m Sandstone		1986.5	North

2.2 HYDROGEOLOGY AND OTHER BOREHOLES

Map 2.2 (500m Buffer)

	On the Property?	Within Buffer?
Groundwater Vulnerability	Not identified	Not identified
Groundwater Exclusion Zones ^{1,2}	Not identified	Not identified
Hydrogeologic Unit	Surficial Sediment Aquifer (porous media - unconsolidated) Late Permian/Triassic sediments (porous media - consolidated)	Surficial Sediment Aquifer (porous media - unconsolidated) Late Permian/Triassic sediments (porous media - consolidated)

¹ - Botany Groundwater Management Zones (BGMZ): Zone 1 - the use of groundwater remains banned; Zones 2 to 4 - domestic groundwater use is banned, especially for drinking water, watering gardens, washing windows and cars, bathing, or to fill swimming pools.

² - Williamstown Groundwater Management Zones (WGMZ): Primary Management Zone – this area has significantly higher levels of PFAS detected and therefore, the strongest advice applies. Secondary Management Zone – this area has some detected levels of PFAS; Broader Management Zone – the topography and hydrology of the area means PFAS detections could occur now and into the future.

Groundwater Dependent Ecosystems (GDE)

	On the Property?	Within Buffer?
Aquatic	Not identified	Not identified
Terrestrial	Not identified	Moderate potential GDE - from regional studies Low potential GDE - from regional studies

Aquatic - Ecosystems that rely on the Surface expression of groundwater.

Terrestrial - Ecosystems that rely on the Subsurface expression of groundwater.

Other Known Borehole Investigations (Coal Seam Gas (CSG), Petroleum Wells and Other Boreholes)

Borehole ID	Purpose	Project	Client/ License	Date Drilled	Depth (m)	Distance (m)	Direction
GRD_JK1	Borehole	Proposed Retail and Residential Development for 280 to 310 Main St Gosford	Karedis Nominees Pty Ltd	01/03/2016	19.0	55.6	South-west
GRD_JK2	Borehole	Proposed Retail and Residential Development for 280 to 310 Main St Gosford	Karedis Nominees Pty Ltd	01/03/2016	10.1	63.0	South-west
GRD_JK3	Borehole	Proposed Retail and Residential Development for 280 to 310 Main St Gosford	Karedis Nominees Pty Ltd	01/03/2016	9.5	81.4	South-west
T_TP-13S01	Test Pit	Gosford Passing Loops Project - Downer	TfNSW	01/06/2013	1.1	102.6	North-west
T_TP-13S43	Test Pit	Gosford Passing Loops Project - Downer	TfNSW	01/06/2013	1.3	139.2	North-west
T_TP-13S02	Test Pit	Gosford Passing Loops Project - Downer	TfNSW	01/06/2013	0.8	163.2	North
T_BH-13K04	Borehole	Gosford Passing Loops Project - Downer	TfNSW	01/06/2013	5.5	223.7	North
T_BH-13S01	Borehole	Gosford Passing Loops Project - Downer	TfNSW	01/06/2013	13.7	226.9	North
T_TP-13S04	Test Pit	Gosford Passing Loops Project - Downer	TfNSW	01/06/2013	1.3	227.0	North
T_TP-13RS02	Test Pit	Gosford Passing Loops Project - Downer	TfNSW	01/06/2013	4.0	254.5	North
GT0001079	Intrusive Investigation	A collection of NSW geotechnical reports as part of the NSW Government Geotechnical	Review existing documentation located at Gosford regional sewerage trunk main A : investigation of	1/01/1984	0.0	327.6	South-west

Borehole ID	Purpose	Project	Client/ License	Date Drilled	Depth (m)	Distance (m)	Direction
		Report Database Project (GGRD).	pipeline movements				
T_81.625_UP	Hand Auger	Gosford Passing Loops Project - Downer	TfNSW	01/06/2013	2.7	337.7	North
T_81.625_DN	Hand Auger	Gosford Passing Loops Project - Downer	TfNSW	01/06/2013	2.8	338.3	North
T_BH-13S03	Borehole	Gosford Passing Loops Project - Downer	TfNSW	01/06/2013	14.0	427.6	North
T_TP-13S06	Test Pit	Gosford Passing Loops Project - Downer	TfNSW	01/06/2013	1.0	447.8	North
T_BH-13K01	Borehole	Gosford Passing Loops Project - Downer	TfNSW	01/06/2013	17.0	456.6	North
T_TP-13S08	Test Pit	Gosford Passing Loops Project - Downer	TfNSW	01/06/2013	2.0	489.2	North
T_TP-13S07	Test Pit	Gosford Passing Loops Project - Downer	TfNSW	01/06/2013	1.6	493.2	North



Section 3 Environmental Registers, Licences and Incidents



3.1 CONTAMINATED LAND PUBLIC REGISTER

Map 3.1 (1000m Buffer)

Sites Notified as Contaminated to the EPA

Site Name	Address	Activity that caused Contamination	EPA Site Management Class (Table 3.1.1)	Distance (m)	Direction
Not identified	-	-	-	-	-

If the record does not contain a complete street address and/or cannot be located, the records' geographic location will be approximated and reported as being within the surrounding area.

Contaminated Land Record of Notices

Site Name	Area n°	Address	Notices	Distance (m)	Direction
Not identified	-	-	-	-	-

If the record does not contain a complete street address and/or cannot be located, the records' geographic location will be approximated and reported as being within the surrounding area.

Table 3.1.1 EPA Site Management Class Explanation

EPA Site Management Class	
Under Assessment	The contamination is being assessed by the EPA to determine whether regulation is required. The EPA may require further information to complete the assessment. For example, the completion of management actions regulated under the planning process or Protection of the Environment Operations Act 1997. Alternatively, the EPA may require information via a notice issued under s77 of the Contaminated Land Management Act 1997 or issue a Preliminary Investigation Order.
Regulation under the CLM Act not required	The EPA has completed an assessment of the contamination and decided that regulation under the Contaminated Land Management Act 1997 is not required.
Regulation being finalised	The EPA has completed an assessment of the contamination and decided that the contamination is significant enough to warrant regulation under the Contaminated Land Management Act 1997. A regulatory approach is being finalised.

Table 3.1.1 EPA Site Management Class Explanation

Contamination currently regulated under the CLM Act	The EPA has completed an assessment of the contamination and decided that the contamination is significant enough to warrant regulation under the Contaminated Land Management Act 1997 (CLM Act). Management of the contamination is regulated by the EPA under the CLM Act. Regulatory notices are available on the EPA's Contaminated Land Public Record.
Contamination currently regulated under the POEO Act	The EPA has completed an assessment of the contamination and decided that the contamination is significant enough to warrant regulation. Management of the contamination is regulated under the Protection of the Environment Operations Act 1997 (POEO Act). The EPA's regulatory actions under the POEO Act are available on the POEO public register.
Contamination being managed via the planning process (EP&A Act)	The EPA has completed an assessment of the contamination and decided that the contamination is significant enough to warrant regulation. The contamination of this site is managed by the consent authority under the Environmental Planning and Assessment Act 1979 (EP&A Act) planning approval process, with EPA involvement as necessary to ensure significant contamination is adequately addressed. The consent authority is typically a local council or the Department of Planning and Environment.
Contamination formerly regulated under the CLM Act	The EPA has determined that the contamination is no longer significant enough to warrant regulation under the Contaminated Land Management Act 1997 (CLM Act). The contamination was addressed under the CLM Act.
Contamination formerly regulated under the POEO Act	The EPA has determined that the contamination is no longer significant enough to warrant regulation. The contamination was addressed by the appropriate consent authority via the planning process under the Environmental Planning and Assessment Act 1979 (EP&A Act).
Contamination was addressed via the planning process (EP&A Act)	The EPA has determined that the contamination is no longer significant enough to warrant regulation. The contamination was addressed by the appropriate consent authority via the planning process under the Environmental Planning and Assessment Act 1979 (EP&A Act).
Ongoing maintenance required to manage residual contamination (CLM Act)	The EPA has determined that ongoing maintenance, under the Contaminated Land Management Act 1997 (CLM Act), is required to manage the residual contamination. Regulatory notices under the CLM Act are available on the EPA's Contaminated Land Public Record.

The EPA maintains a record of sites that have been notified to the EPA by owners or occupiers as contaminated land. The sites notified to the EPA are recorded on the register at various stages of the assessment and/or remediation process.

3.2 LICENCES, APPROVALS & ASSESSMENTS

Map 3.2 (500m Buffer)

Licences

Licence N°	Licence holder	Location Name	Premise Address	Fee Based Activity	Distance (m)*	Direction
Not identified	-	-	-	-	-	-

If the record does not contain a complete street address and/or cannot be located, the records' geographic location will be approximated and reported as being within the surrounding area.

Other Licences still Regulated by EPA

Licence N°	Licence holder	Location Name	Premise Address	Fee Based Activity	Status	Distance (m)*	Direction
20269	DOWNER EDI WORKS PTY LTD	DOWNER EDI WORKS PTY LTD	<null>	Railway systems activities Crushing, grinding or separating	Surrendered	59.1	West
10338	NORTHERN SYDNEY AND CENTRAL COAST AREA HEALTH SERVICE	GOSFORD HOSPITAL	HOLDEN STREET, GOSFORD NSW	Hazardous, Industrial or Group A Waste Generation or Storage	Delicensed	243.3	West
10404	HEALTH CARE NORTH GOSFORD PTY LTD	NORTH GOSFORD PRIVATE HOSPITAL	9 BURRABIL AVENUE, GOSFORD NSW	Hazardous, Industrial or Group A Waste Generation or Storage	Delicensed	394.2	East

If the record does not contain a complete street address and/or cannot be located, the records' geographic location will be approximated and reported as being within the surrounding area.

Clean Up and Penalty Notices

Location ID	Notice Type	Notice N°	Licence holder	Location Name	Premise Address	Distance (m)*	Direction
Not identified	-	-	-	-	-	-	-

If the record does not contain a complete street address and/or cannot be located, the records' geographic location will be approximated and reported as being within the surrounding area.

3.3 SITES REGULATED BY OTHER JURISDICTIONAL BODY

Map 3.3 (2000m Buffer)

Defence, Military Sites and UXO Areas

Site name	Type*	Description	Distance (m)	Direction
Not identified	-	-	-	-

*RCIP (Regional Contamination Investigation Program). UXO (Unexploded Ordnance Areas)

Former Gasworks Sites

Site name	Description	Distance (m)	Direction
Not identified	-	-	-

PFAS Sites

Site name	Description	Source	Distance (m) *	Direction
Not identified	-	-	-	-

National Pollutant Inventory (NPI)

Facility name	Address	Primary ANZSIC Class	Latest report	Distance (m)	Direction
Not identified	-	-	-	-	-



Section 4 Potentially Contaminated Areas



4.1 POTENTIALLY CONTAMINATING ACTIVITIES

Map 4.1 (200m Buffer)

Liquid Fuel Facilities

Site name	Category	Location	Status*	Distance (m)	Direction
Not identified	-	-	-	-	-

Waste Management Facilities & Recycling Centres

Site name	Category	Location	Status*	Distance (m)	Direction
Not identified	-	-	-	-	-

***Status:** Data is current as when this report was created.

The operational status of the business is determined using the available data sources and does not indicate real-time conditions at the site.

Current: business is operating on the day this report was issued.

Former: business that have been closed or discontinued within 2 years from the date of this report.

Liquid Fuel Facilities Datasets, representing the spatial locations of liquid fuel depots, refineries, terminals and petrol stations present in the Australian Government National Liquid Fuel Facilities Dataset and Petrol stations identified by Land Insights. Waste Management Facilities, representing the spatial locations of reprocessing facilities, transfer stations and landfills present in the Australian Government National Waste Management Facilities Dataset and Waste/Recycling facilities identified by Land Insights.

A more comprehensive list of all Potentially Contaminating Activities is available in the Due Diligence Insight report.

4.2 HISTORICAL BUSINESS DIRECTORIES

(not mapped)

1930 Historical Business Data

Activity	Name	Address	Positional accuracy ¹	Distance (m)	Direction
Not identified	-	-	-	-	-

1940 Historical Business Data

Activity	Name	Address	Positional accuracy ¹	Distance (m)	Direction
Not identified	-	-	-	-	-

1950 Historical Business Data

Activity	Name	Address	Positional accuracy ¹	Distance (m)	Direction
Not identified	-	-	-	-	-

1965 Historical Business Data

Activity	Name	Address	Positional accuracy ¹	Distance (m)	Direction
Floor Coverings	Central Floor Coverings Pty Ltd	276,PacificHghwy,NSW	Address	123.1	South
Fruiterers & Greengrocers	Vitagliano Gateano	276,PacificHghwy,NSW	Address	123.1	South
Plumbers & Gasfitters	Gumley J T&Sons	276,PacificHghwy,NSW	Address	123.1	South
Tile Layers	Cox A E	64,ShowgroundRd,NSW	Address	170.3	West

1970 Historical Business Data

Activity	Name	Address	Positional accuracy ¹	Distance (m)	Direction
Gases-Industrial &/or Medical	C.I.G. - Gosford Engineers Supplies Pty Ltd	322 Mann Street, Gosford,NSW	Address	71.7	North
Television Hiring	Radio Rentals Pty. Ltd.	144 Gertrude Street, Gosford,NSW	Address	86.4	East
Dust & Fume Control Equipment	Albany Felt Pty Ltd	Pacific Highway, Gosford,NSW	Street	-	North
Carriers Heavy	Toukley Transport Service	Pacific Highway Kanwal, Gosford,NSW	Street	-	North

1980 Historical Business Data

Activity	Name	Address	Positional accuracy	Distance (m)	Direction
Agricultural Machinery	Gosford Packing House (Retail)	307 Mann, Gosford,NSW	Address	0.0	Onsite
Hardware - Retail	Gosford Packing House (Retail) Pty. Ltd.	307 Mann, Gosford,NSW	Address	0.0	Onsite
Irrigation & Reticulation Systems	Gosford Packing House (Retail) Pty. Ltd.	307 Mann Street, Gosford,NSW	Address	0.0	Onsite
Lawn Mowers - Retail &/or Repairs	Gosford Packing House (Retail) Pty. Ltd.	307 Mann Street, Gosford,NSW	Address	0.0	Onsite

Activity	Name	Address	Positional accuracy	Distance (m)	Direction
Pumps MFRS &/or Merchants	Gosford Packing House (Retail) Pty. Ltd.)	307 Mann Street, Gosford,NSW	Address	0.0	Onsite
Saws	Gosford Packing House (Retail) Pty. Ltd.	307 Mann Street, Gosford,NSW	Address	0.0	Onsite
Building Supplies	Gosford Sawmills & Joinery Works	315 Mann Street, Gosford,NSW	Address	5.5	North
Buildings--Prefabricated &/or Portable	Gosford Sawmills & Joinery Works	315 Mann Street, Gosford,NSW	Address	5.5	North
Fencing Contractors	Gosford Sawmills & Joinery Works	315 Mann, Gosford,NSW	Address	5.5	North
Garage Builders &/or Prefabricators	Gosford Garages	315 Mann Street, Gosford,NSW	Address	5.5	North
Hardware - Retail	Gosford Sawmills & Joinery Works	315 Mann, Gosford,NSW	Address	5.5	North
Timber Merchants	Gosford Sawmills & Joinery Works	315 Mann Street, Gosford,NSW	Address	5.5	North
Motor Service Stations & Garages	Ashworth J A	46 Beane, Gosford,NSW	Address	9.8	South
Civil Engineers	Appleyard L D & Associates Pty. Ltd.	297 Mann Street, Gosford,NSW	Address	24.1	South
Engineers - Consulting	Appleyard L D & Associates Pty. Ltd.	297 Mann Street, Gosford,NSW	Address	24.1	South
Nurserymen - Retail	Gosford Packing House Home Garden Centre	310 Mann Street, Gosford,NSW	Address	28.8	West
Bathroom Equipment &/or Accessories	Gosford Tiles (Wall & Floor) Pty. Ltd.	319 Mann, Gosford,NSW	Address	29.2	North
Hire Contractors	Invalid Aids & Equipment Sales & Hire Pty.Ltd.	319 Mann Street, Gosford,NSW	Address	29.3	North
Invalid Aids &/or Equipment	Invalid Aids & Equipment Sales & Hire Pty. Ltd.	319 Mann Street, Gosford,NSW	Address	29.3	North
Tile Layers - Wall & Floor	Gosford Tiles (Wall & Floor) Pty. Ltd.	319 Mann street, Gosford,NSW	Address	29.3	North
Tiles Wall & Floor	Gosford Tiles (Wall & Floor) Pty. Ltd.	319 Mann street, Gosford,NSW	Address	29.3	North
Medical Laboratories	Ultrasound Diagnostic Service	16 Hill, Gosford,NSW	Address	71.0	North
Motor Engineers & Repairers	Parsons Garage Pty. Ltd.	325 Mann Street, Gosford,NSW	Address	71.1	North
Panel Beaters &/or Painters	Bourke's Smash Repairs	325 Mann Street, Gosford,NSW	Address	71.1	North
Towing Stations	Bourke's Smash Repairs	325 Mann, Gosford,NSW	Address	71.1	North
Motor Service Stations & Garages	Caltex Oil (Aust) Pty. Ltd.	322 Mann, Gosford,NSW	Address	71.7	North
Motor Body Builders	Bourke's Smash Repairs	325 Mann, Gosford,NSW	Address	71.7	North
Motor Service Stations & Garages	Parsons Garage Pty. Ltd.	325 Mann, Gosford,NSW	Address	71.7	North
Joinery	Parry B & Sons Pty. Ltd.	55 Beane Street, Gosford,NSW	Address	71.9	South-east
Shop & Office Fitting	Parry B & Sons Pty. Ltd.	55 Beane, Gosford,NSW	Address	72.5	South-east
Motor Cars & Trucks--Used	K.A.M.S. Car Centre	329 Mann, Gosford,NSW	Address	82.9	North
Motor Replacement Parts	Gosford Spare Parts	20 Hills, Gosford,NSW	Address	87.1	North
Motor Wreckers	Gosford Spare Parts	20 Hill Street, Gosford,NSW	Address	87.1	North

Activity	Name	Address	Positional accuracy	Distance (m)	Direction
Heating, Hot Water & Ventilating Engineers	Dux Heathers	18a Hill,Gosford,NSW	Address	91.0	North
Heating, Hot Water & Ventilating Engineers	Hot Water Maintenance	18a Hill,Gosford,NSW	Address	91.0	North
Stoves & Ranges Service & Parts	Hot Water Maintenance	18a Hill Street, Gosford,NSW	Address	91.7	North
Engineers - General	Kirkness Jim	170 Gertrude Street, Gosford,NSW	Address	101.0	East
Totalizator MFRS &/or Installers	Racecourse Totalizators Pty. Ltd.	170 Gertrude,Gosford,NSW	Address	101.0	East
Power Transmission Equipment	Kirkness Jim	170 Gertrude,Gosford,NSW	Address	103.0	East
Electrical Appliances--Mfrs &/or W'salers	G.E.C - AEI (Aust) Pty. Ltd.	59 Beane,Gosford,NSW	Address	105.0	South-east
Brake &/or Clutch Services	Gosford Brake Service	330 Mann Street, Gosford,NSW	Address	113.2	North
Motor Replacement Parts	Gosford Brake Service	330 Mann Street, Gosford,NSW	Address	113.9	North
Advertising - Direct Mail Services	Golden Business Agencies	337a Mann,Gosford,NSW	Address	129.7	North
Motor Replacement Parts	Clancy's Brake Service	33 Etna,Gosford,NSW	Address	134.7	North
Brake &/or Clutch Services	Clancy's Brake Service	33 Etna Street, Gosford,NSW	Address	134.9	North
Abrasives	Gosford Engineers Supplies Pty. Ltd.	332 Mann,Gosford,NSW	Address	135.8	North
Electric Tools	Rupes	332 Mann,Gosford,NSW	Address	135.8	North
Engineers' Supplies	Gosford Engineers Supplies Pty. Ltd.	332 Mann Street, Gosford,NSW	Address	135.8	North
Gas Suppliers	C.I.G. Gosford Engineers Supplies	332 Mann, Gosford,NSW	Address	135.8	North
Gas Suppliers	Gosford Engineers Supply Pty. Ltd.	332 Mann Street, Gosford,NSW	Address	135.8	North
Hydraulic Equipment & Supplies	Gosford Engineers Supply Pty. Ltd.	332 Mann Street, Gosford,NSW	Address	135.8	North
Barbecues &/or Barbecues Equipment	Gosford Engineers Supplies Pty. Ltd.	332 Mann Street, Gosford,NSW	Address	136.2	North
Brake &/or Clutch Lining Mfrs &/or W'salers	Gosford Brake Service	332 Mann Street, Gosford,NSW	Address	136.2	North
Hoses & Fittings -Mfrs &/or W'salers	Gosford Engineers Supply Pty. Ltd.	332 Mann Street, Gosford,NSW	Address	136.2	North
Builders & Contractors	Sullivan Noel John	29 Hill, Gosford,NSW	Address	142.3	North
Building Designers	Mooney Grahame J & Associates	277 Mann Street, Gosford,NSW	Address	143.0	South
Engineers - Consulting	A C E A (Maryon-Taylor-Brown)	277 Mann, Gosford,NSW	Address	143.0	South
Tennis Court Construction &/or Repairs	Compact Tennis (Central Coast) Pty. Ltd.	277 Mann, Gosford,NSW	Address	143.0	South
Invalid Aids &/or Equipment	Medihire	277 Mann St., Gosford,NSW	Address	143.4	South
Carpets, Linoleums & Vinyls - Mfrs. &/or W'Salers	Camberg Carpets	275 Mann Street, Gosford,NSW	Address	151.0	South
Agricultural Machinery	Central Coast International Trucks	Pacific Highway, Gosford,NSW	Street	-	North
Motor Cars & Trucks--New	Advax (Gosford) Motor Service Pty. Ltd.	Pacific Highway (Cnr. Pennell Street),North Gosford, NSW	Street	-	North

Activity	Name	Address	Positional accuracy	Distance (m)	Direction
Motor Cars & Trucks--New	Central Coast International trucks	Pacific Highway,Gosford,NSW	Street	-	North
Motor Engineers & Repairers	Advanx (Gosford) Motor Service Pty. Ltd.	Pacific Highway, Gosford North,NSW	Street	-	North
Tyres--Recapping, Retreading & Repairing	Dunlop Tyres	Cnr. Mann Street & Racecourse Road, Gosford,NSW	Street	-	North
Tyres--Recapping, Retreading & Repairing	Gosford Tyre Service	Pacific Highway,North Gosford,NSW	Street	-	North
Tyres--Retail	Dunlop Tyres	Cnr Mann Street & Racecourse Road, Gosford,NSW	Street	-	North
Zoos, Sanctuaries & Animal Parks	Australian Reptile Park	Pacific Highway,Gosford North,NSW	Street	-	North
Motor Cars & Trucks--Used	Advanx (Gosford) Motor Service Pty. Ltd.	Pacific Highway,Gosford North,NSW	Street	-	North
Motor Cars & Trucks--Used	Central Coast International trucks	Pacific Highway, Gosford,NSW	Street	-	North
Motor Service Stations & Garages	Ampol Gosford	Pacific Highway, Gosford,NSW	Street	-	North
Motor Service Stations & Garages	Ampol Petroleum Ltd.	Pacific Highway, Gosford,NSW	Street	161.6	North
Wallpapers & Wall Coverings	BBC Hardware Central Coast	Pacific Highway, Gosford,NSW	Street	161.6	North
Engineers - General	Kirkness Jim	41 Etna Street, Gosford,NSW	Address	161.9	North-east
Hardware - Retail	Woy Woy Hardware	68 Showground Road, Gosford,NSW	Address	162.1	West
Stationers - Mfrg &/or Wholesale	Ironmonger C & E Pty. Ltd.	259 Mann Street, Gosford,NSW	Address	176.2	South
Office Furniture	C & E Ironmonger Pty. Ltd.	259 Mann Street, Gosford,NSW	Address	176.4	South
Office Furniture	Ironmonger C & E Pty. Ltd.	259 Manns,Gosford,NSW	Address	176.4	South
Shelving & Storage Systems	Ironmonger C & E Pty. Ltd.	259 Mann,Gosford,NSW	Address	176.4	South
Motor Cars & Trucks--Used	Paladin Motors	339 Mann Street, Gosford,NSW	Address	179.8	North
Motor Cars & Trucks--New	Paladin Motors	339 Mann,Gosford,NSW	Address	180.2	North
Radio Communication Equipment & Systems	Gosford Chrysler Marine	339 Mann Street, Gosford,NSW	Address	180.2	North
Television Receivers--Retail	Trident Television Pty. Ltd.	257 Mann,Gosford,NSW	Address	190.8	South
Photographers-Portrait & Wedding	Naylor Clifford Photography	38 Etna,Gosford,NSW	Address	199.0	North-east

1990 Historical Business Data

Activity	Name	Address	Positional accuracy	Distance (m)	Direction
Fertilizers	Gosford Packing House Mitre 10	307 Mann,Gosford,NSW	Address	0.0	Onsite
Nurserymen--Retail	Gosford Packing Hosue ktre	307 Mann,Gosford,NSW	Address	0.0	Onsite
Outboard Motors	Gosford Packaging House	307 Mann Street,Gosford,NSW	Address	0.0	Onsite
Pumps--Mfrs &/or Merchants	Gosford Packaging House Mitre 10	307 Mann,Gosford,NSW	Address	0.0	Onsite
Saws	Gosford Packing House	307 Mann,Gosford,NSW	Address	0.0	Onsite

Activity	Name	Address	Positional accuracy	Distance (m)	Direction
Tractors &/or Parts	Gosford Packing House	307 Mann Street, Gosford,NSW	Address	0.0	Onsite
Gates &/or Fencing Materials	Gosford Packing House Mitre 10	307 Mann Street, Gosford,NSW	Address	0.0	Onsite
Panel Beaters &/or Painters	Bats Automotive	54 Beane Street, Gosford,NSW	Address	18.0	South-east
Rustproofing &/or Protective Services	Bats Automotive	54 Beane, Gosford,NSW	Address	18.0	South-east
Lawn Mower - Retail & Repairs	Gosford Packing House	310 Mann, Gosford,NSW	Address	31.8	West
Trailers &/or Equipment	Gosford Packing House	310 Mann, Gosford,NSW	Address	31.8	West
Motor Engineers & Repairers	Caltex Service Centre	322 Mann, Gosford,NSW	Address	71.7	North
Motor Service Stations & Garages	Caltex Oil (Aust) Pty. Ltd.	322 Mann, Gosford,NSW	Address	71.7	North
Medical Supplies	Child Safe Gosford & Wyong	325 Mann, Gosford,NSW	Address	71.7	North
Motor Cars--New	Mann Street Motor World Pty. Ltd.	325 Mann, Gosford,NSW	Address	71.7	North
Motor Engineers & Repairers	Frost's Auto Centre	325 Mann, Gosford,NSW	Address	71.7	North
Motor Accessories--Retail	Frost's Auto Centre	325 Mann, Gosford,NSW	Address	71.7	North
Cabinet Makers	Goodwins Joinery	55 Beane, Gosford,NSW	Address	72.5	South-east
Shop & Office Fitting	Goodwins Joinery	55 Beane, Gosford,NSW	Address	72.5	South-east
Totalizator mfrs &/or installers	Racecourse Totalizators Pty. Ltd.	18a Hills, Gosford,NSW	Address	91.7	North
Motor Engineers & Repairers	General Muffler Co The	326 Mann Street, Gosford,NSW	Address	93.6	North
Motor Replacement Parts	General Muffler Co The	326 Mann Street, Gosford,NSW	Address	93.6	North
Mufflers C/or Exhaust Systems	General Muffler Co The	326 Mann Street, Gosford,NSW	Address	93.6	North
Motor Accessories--Retail	General Muffler Co The	326 Mann, Gosford,NSW	Address	93.6	North
Mufflers &/or Exhaust System	Can-Aim	326 Mann Street, Gosford,NSW	Address	93.6	North
Mufflers &/or Exhaust System	Genera Muffler Co (Gosford) The	326 Mann Street, Gosford,NSW	Address	93.6	North
Mufflers &/or Exhaust System	General Muffler Co The	326 Mann Street, Gosford,NSW	Address	93.6	North
Bearings & Bushings	Kirkness Jim	170 Gertrude Street, Gosford,NSW	Address	103.0	East
Engineers--General	Kirkness Jim	170 Gertrude Street & 41 Erina Street, Gosford,NSW	Address	103.0	East
Engineers' Supplies	Kirkness Jim	170 Gertrude, Gosford,NSW	Address	103.0	East
Grinding - Precision & General	Kirkness Jim	170 Gertrude Street, Gosford,NSW	Address	103.0	East
Marine Engineers	Kirkness Jim	170 Gertrude, Gosford,NSW	Address	103.0	East
Toolmakers	Kirkness Jim	170 Gertrude, Gosford,NSW	Address	103.0	East
Power Transmission Equipment & Supplies	Kirkness Jim	170 Gertrude Street, Gosford,NSW	Address	103.0	East
Plan Printing Equipment &/or Services	Mastertouch Copying & Secretarial Service	59a Beane, Gosford,NSW	Address	105.0	South-east

Activity	Name	Address	Positional accuracy	Distance (m)	Direction
Power Steering	Gosford Brake Service	330 Mann Street,Gosford,NSW	Address	113.2	North
Brake &/or Clutch Lining MFRS &/or W'salers	Gosford Brake Service	330 Mann,Gosford,NSW	Address	113.2	North
Brake &/or Clutch Services	Gosford Brake Service	330 Mann St.,Gosford,NSW	Address	113.2	North
Burglar Alarm Systems	Knightguard Executive Security Services Pty. Ltd.	278 Mann,Gosford,NSW	Address	130.4	South
Computer Equipment - Hardware	Computercare Services	278 Mann,Gosford,NSW	Address	130.4	South
Computer Equipment - Repairs & Service	Computercare Services	278 Mann,Gosford,NSW	Address	130.4	South
Engineers' Supplies	Ges Trading	332 Mann,Gosford,NSW	Address	136.2	North
Cleaning Equipment- Steam, Pressure, Chemical, Etc.	Ges Trading	332 Mann Street,Gosford,NSW	Address	136.2	North
Building Consultants	Mooney Grahame J & Associates Building Design Services	277 Mann,Gosford,NSW	Address	143.4	South
Batteries--Storage	Beaurepairs	Cnr Mann Street & Racecourse Road,Gosford,NSW	Street	-	North
Motor Cars--New	Advanx Motors Pty. Ltd.	Cnr Penell Street & Pacific Highway,Gosford North,NSW	Street	-	North
Motor Cars--New	Grawill Motors Pty. Ltd.	Pacific Highway,Gosford,NSW	Street	-	North
Tyre--Retail	Beaurepairs	Cnr. Mann Street & Racecourse Road,Gosford,NSW	Street	-	North
Tyre--Retail	Beaurepairs for tyres	Cnr. Mann Street & Racecourse Road,Gosford,NSW	Street	-	North
Tyre--Retreading, Recapping & Repairing	Beaureoairers	Cnr. Mann Street & Racecourse Road,Gosford,NSW	Street	-	North
Wheel alignment & balancing	Beaurepairs	Cnr. Mann Street & Racecourse Road,Gosford,NSW	Street	-	North
Brake &/or Clutch Services	Beaurepairs	Cnr Mann St. & Rececourse Road,Gosford,NSW	Street	-	North
Brake &/or Clutch Service	Beaurepairs	Corner of Mann Street & Racecourse Road,Gosford,NSW	Street	-	North
Office Requisites	Ironmonger C & E Pty. Ltd.	259 Mann,Gosford,NSW	Address	176.2	South
Stationers--Mfrg &/or W'sale	Ironmonger C & E Pty. Ltd.	259 Mann,Gosford,NSW	Address	176.2	South
Motor Cars--Used	Centre Car Sales	339 Mann,Gosford,NSW	Address	179.8	North

2005 Historical Business Data

Activity	Name	Address	Positional accuracy	Distance (m)	Direction
Fireplaces & Accessories; Firewood; Grain & Produce--Retail; Pet Foods & Supplies	Gosford Mitre	307 Mann St, GOSFORD,NSW,2250	Address	0.0	Onsite
Fertilizers	Gosford Packing House	307 Mann St, GOSFORD,NSW,2250	Address	0.0	Onsite
Agricultural Machinery	All Ag Repairs Central Mangrove	307 Mann St, GOSFORD,NSW,2250	Address	0.0	Onsite
Stock Feeds & Supplements; Lawn Mowers--Retail & Repairs	Mangrove Produce & Hardware	307 Mann St, GOSFORD,NSW,2250	Address	0.0	Onsite
Hardware--Retail	Mitre Australia Ltd., Gosford	307 Mann St, GOSFORD,NSW,2250	Address	0.0	Onsite
Locks & Locksmiths; Safes & Strongroom Doors	Gosford Locksmiths	4/ 319 Mann St, GOSFORD,NSW,2250	Address	29.2	North
Locks & Locksmiths	Central Coast Safe Co	4/ 319 Mann St, GOSFORD,NSW,2250	Address	29.2	North
Safes & Strongroom Doors	Central Coast Safe Co, Gosford	Unit 4/ 319 Mann St, GOSFORD,NSW,2250	Address	29.2	North
Boat & Yacht Builders & Repairers; Boat & Yacht Sales	Central Coast Ski Boats	Unit 5, 319 Mann St, GOSFORD,NSW,2250	Address	29.2	North
Locksmiths' Supplies; Locks--Mfrs & Distributors; Safes & Strongroom Doors	Central Coast Locksmiths	4/ 319 Mann St, GOSFORD,NSW,2250	Address	29.2	North
Brake & Clutch Services; Motor Engineers & Repairers	Mann St. Automotive Repairs	Unit 5, 319 Mann St, GOSFORD,NSW,2250	Address	29.2	North
Windscreens & Repairs	O'Brien, Gosford	1/ 319 Mann St, GOSFORD,NSW,2250	Address	29.2	North
Safes & Strongroom Doors	Wyong Locksmiths	4/ 319 Mann St, GOSFORD,NSW,2250	Address	29.2	North
Air Compressors & Service; Power Tools--Retail & Repairs; Tools; Ladders, Steps, Trestles & Accessories	Rossline Pumps & Machinery Pty Ltd	310 Mann St, GOSFORD,NSW,2250	Address	31.8	West
Air Tools & Accessories--Supply & Service; Power Tools--Retail & Repairs	Rossline Pumps & Machinery Pty. Ltd.	310 Mann St, GOSFORD,NSW,2250	Address	31.8	West
Motor Cars--New	Eurotech	321 Mann St, GOSFORD,NSW,2250	Address	48.3	North
Motor Cars--New; Motor Cars--Used; Motor Replacement Parts; Motor Engineers & Repairers	Eurotech, Gosford	321 Mann St, GOSFORD,NSW,2250	Address	48.3	North
Gastroenterology; Medical Practitioners	Mackender Darryl Dr	Suite 7, 16 Hills St, GOSFORD,NSW,2250	Street	71.0	North
Car Hire & Minibus Rental; Truck & Bus Rental; Furniture Removals & Storage	Avis	322 Mann St, GOSFORD,NSW,2250	Address	71.7	North
Wedding Cars	Avis Central Coast	322 Mann St, GOSFORD,NSW,2250	Address	71.7	North
Motor Car Seats & Conversions; Safety	Safe Travel Solutions	325a Mann St, GOSFORD,NSW,2250	Address	71.7	North

Activity	Name	Address	Positional accuracy	Distance (m)	Direction
Equipment & Accessories; Hire - Medical & Nursery Equipment					
Signs--Plastic & Foam; Signwriters	Signtalk	325 Mann St, GOSFORD,NSW,2250	Address	71.7	North
Spas, Hot Tubs & Equipment	Aristocrat Spa Pools	325 Mann St, GOSFORD,NSW,2250	Address	71.7	North
Motor Cars--Used	Cruisin Motors	331 Mann St, GOSFORD,NSW,2250	Address	92.5	North
Mufflers & Exhaust Systems; Shock Absorbers, Springs & Suspensions	General Muffler Co., Gosford	326 Mann St, GOSFORD,NSW,2250	Address	93.6	North
Mufflers & Exhaust Systems	Carline Mufflers, Gosford	326 Mann St, GOSFORD,NSW,2250	Address	93.6	North
Brake & Clutch Services; Power Steering; Motor Engineers & Repairers	Gosford Brake Service	330 Mann St, GOSFORD,NSW,2250	Address	113.2	North
Brake & Clutch Services; Motor Engineers & Repairers	B Wild Auto Repairs	330 Mann St, GOSFORD,NSW,2250	Address	113.2	North
Motor Engineers & Repairers	Gosford City Suzuki	333-337 Mann St, GOSFORD,NSW,2250	Address	130.1	North
Gastroenterology; Medical Practitioners	Thomas Mark D	33 Etna St, GOSFORD,NSW,2250	Address	134.9	North
Power Tools--Retail & Repairs	Gasweld Discount Tool Centre	332 Mann St, GOSFORD,NSW,2250	Address	136.2	North
Cleaning Equipment--Steam, Pressure, Chemical Etc	Karcher	332 Mann St, GOSFORD,NSW,2250	Address	136.2	North
Radio Stations	Radio Five-O-Plus . FM	277 Mann St, GOSFORD,NSW,2250	Address	143.4	South
Aircraft Charter & Rental Services	Dakota National Air	Pacific Hwy, GOSFORD,NSW,2250	Street	-	North
Generators & Generating Sets	David Best	Pacific Hwy, GOSFORD,NSW,2250	Street	-	North
Trucks & Buses--New; Truck Equipment & Parts; Truck & Bus Repairs	David Best Truck Centre	Pacific Hwy, GOSFORD,NSW,2250	Street	-	North
Truck Equipment & Parts; Truck & Bus Repairs	Fleet Parts Australia Pty Ltd	Pacific Hwy, GOSFORD,NSW,2250	Street	-	North
Trucks & Buses--New; Motor Engineers & Repairers; Truck & Bus Repairs	Best Hino	Pacific Hwy, GOSFORD,NSW,2250	Street	-	North
Trucks & Buses--New	Best Hino Gosford	Pacific Hwy, GOSFORD,NSW,2250	Street	-	North
Trucks & Buses--Used	Best Truck Centre	Pacific Hwy, GOSFORD,NSW,2250	Street	-	North
Trucks & Buses--New	Mack Trucks	Pacific Hwy, GOSFORD,NSW,2250	Street	-	North
Trucks & Buses--New	Volvo	Pacific Hwy, GOSFORD,NSW,2250	Street	-	North
Nails & Nailing Equipment Sales & Repairs	Nail Man	Racecourse Rd (Cnr Mann St), GOSFORD,NSW,2250	Street	-	North
Tyres--Retail; Wheel Alignment & Balancing; Batteries--Automotive	Beaurepairs, Gosford	334 Mann St, GOSFORD,NSW,2250	Address	197.9	North

2010 Historical Business Data

Activity	Name	Address	Positional accuracy	Distance (m)	Direction
Mufflers & Exhaust System Replacement & Repairs	General Muffler Co.	Unit 5/ 319 Mann St GOSFORD 2250 NSW	Address	29.2	North
Mufflers & Exhaust System Replacement & Repairs	Cadoron Pty Ltd	Unit 5 319 Mann St GOSFORD 2250 NSW	Address	29.2	North
Boat & Yacht Builders	Central Coast Ski Boats	Unit 5 319 Mann St GOSFORD 2250 NSW	Address	29.2	North
Windscreens New & Repairs	O'Brien	319 Mann St GOSFORD 2250 NSW	Address	29.2	North
Engineers - Motor & Repairers	Central Coast Eurocars	321-325 Mann St GOSFORD 2250 NSW	Address	48.3	North
Packaging Materials Supplies	Convex Australia	Lvl3/ 293-295 Mann St GOSFORD 2250 NSW	Address	49.5	South
Wedding - Car Hire	Avis Central Coast	322 Mann St GOSFORD 2250 NSW	Address	71.7	North
Furniture Storage & Removals	Avis	322 Mann St GOSFORD 2250 NSW	Address	72.8	North
Engineers - Motor & Repairers	Gosford Brake Service	330 Mann St GOSFORD 2250 NSW	Address	113.2	North
Engineers - Motor & Repairers	B Wild Auto Repairs	330 Mann St GOSFORD 2250 NSW	Address	113.2	North
Engineers - Motor & Repairers	Repco Authorised Service	330 Mann St GOSFORD 2250 NSW	Address	113.2	North
Engineers - Motor & Repairers	Gosford City Suzuki	333-337 Mann St GOSFORD 2250 NSW	Address	130.1	North
Internet Cafes	Cyber Xcape	U3/ 278 Mann St GOSFORD 2250 NSW	Address	130.7	South
Internet Cafes	Cyberxcape Internet Cafe	Shp 3&4/ 278 Manns St GOSFORD 2250 NSW	Address	130.7	South
Furniture Storage & Removals	A Plus Removals	78 Showground Rd GOSFORD 2250 NSW	Address	154.2	West
Cars - New	Central Coast Chrysler Jeep	373/387 Mann St NORTH GOSFORD 2250 NSW	Address	161.6	North
Cold Storage - Refrigeration	Central Coast Cold Stores Pty Ltd	Lot120/ Racecourse Rd EAST GOSFORD 2250 NSW	Address	194.7	North-west
Tyre Retailers	Beaurepaires	334 Mann St GOSFORD 2250 NSW	Address	197.9	North

2015 Historical Business Data

Activity	Name	Address	Positional accuracy	Distance (m)	Direction
Fertiliser Supplies	Gosford Packing House	307 Mann St Gosford NSW 2250	Address	0.0	Onsite
Lock Distributors & M/Factrs	Central Coast Locksmiths	4 / 319 Mann St Gosford NSW 2250	Address	16.8	North
Boat & Yacht Builders	Central Coast Ski Boats	Unit 5 319 Mann St Gosford NSW 2250	Address	16.8	North
Mufflers & Exhaust System Replacement & Repairs	General Muffler Co.	Unit 5 319 Mann St Gosford NSW 2250	Address	16.8	North
Mufflers & Exhaust System Replacement & Repairs	General Muffler Co.	Unit 5/ 319 Mann St Gosford NSW 2250	Address	16.8	North
Security Doors & Windows Equipment & Installation	Opposite Lock	321 Mann St Gosford NSW 2250	Address	47.3	North
Bus & Truck Rental Hire	Avis	322 Mann St Gosford NSW 2250	Address	52.0	North-west
Wedding - Car Hire	Avis Central Coast	322 Mann St Gosford NSW 2250	Address	52.0	North-west

Activity	Name	Address	Positional accuracy	Distance (m)	Direction
Packaging Materials Supplies	Convex Australia	Lvl3/ 293-295 Mann St Gosford NSW 2250	Address	55.5	South
Carpet Furniture & Upholstery Cleaning	Ams Furniture Systems	320 Mann St Gosford NSW 2250	Address	68.3	North
Cars - New	Central Coast Eurocars	325 Mann St Gosford NSW 2250	Address	71.5	North
Brake & Clutch Services Including Mobile	B Wild Auto Repairs	330 Mann St Gosford NSW 2250	Address	119.2	North
Brake & Clutch Services Including Mobile	Gosford Brake & Mechanical Service	330 Mann St Gosford NSW 2250	Address	119.2	North
Brake & Clutch Services Including Mobile	Gosford Brake Service	330 Mann St Gosford NSW 2250	Address	119.2	North
Engineers - Motor & Repairers	Gosford City Suzuki	333 Mann St Gosford NSW 2250	Address	128.2	North
Internet Cafes	Cyber Xcape	U3/ 278 Mann St Gosford NSW 2250	Address	148.0	South-west
Car Accessories - Retail	Nissan	354 Mann St Gosford NSW 2250	Address	158.6	North
Cars - New	Renault	600 Pacific Hwy Gosford NSW 2250	Address	158.6	North
Tyre Retailers	Beaurepaires	334 Mann St Gosford NSW 2250	Address	193.6	North

Land Insight uses a number of address geocoding techniques and has characterised them based on completeness (match rates) and positional accuracy. When a historical street address is incomplete or a match is not found, a record identified as being in the surrounding area will be included for reference and the accuracy of the data is approximate only. An explanation of the positional accuracy records is defined in the table below.

Historical data positional accuracy and georeferencing results explanation		
Positional accuracy	Georeferenced	Description
Address	Located to the address level	<i>When street address and names fully match.</i>
Street	Located to the street centroid	<i>When street names match but no exact address was found. Location is approximate.</i>
Place	Located to the structure, building or complex	<i>When building, residential complex or structure name match but no exact address was found. Location is approximate.</i>
Suburb	Located to the suburb area	<i>When suburb name match but no exact address was found. Location is approximate.</i>

The data used in this section was extracted from range of historical commercial trade directories and business listings. The business addresses were geocoded using historical information and the accuracy of the data may vary due to changes to the physical address at a given locality over time or the quality of the original records. From 2005, the historical business records in this section are considered more accurate as information was extracted from digital directories with geographic coordinate location information available. On this basis, reliance on the historic listing data should be considered when assessing the risk of contamination from an activity at the site. The presence of a business listing does not definitively confirm the actual activity that has occurred at the site. For more information on how these records were geocoded and the methodology used by Land Insight, contact us at info@landinsight.co.

Historical business directory listings have been filtered to match activities and industries considered to have a likelihood of causing contamination. These activities have been identified through published state and national guidelines and regulations. Please note that any record not identified within this section (due to error or unforeseen omission) does not necessarily mean that the screened area is not potentially contaminated or free of any risks.



Section 5 Natural Hazards



5.1 Natural Hazards

Map 5.1 (500m Buffer)

Erosion Risk

Category	On the Property?	Within Buffer?
Existing Erosion/ Sedimentation	Minor to moderate	Minor to moderate

Fire Hazard

Category	On the Property?	Within Buffer?
Bush Fire Prone Land (BLP)	-	Vegetation Buffer Vegetation Category 1
Fire History	-	2000-01 Wildfire 2001-02 Wildfire

Flood Hazard

Category	On the Property?	Within Buffer?
Probable Maximum Flood	-	PMF



The Commons
388 George Street
Sydney NSW 2000 Australia
info@landinsight.co
www.landinsight.co



Appendix A

REPORT MAPS

305 Mann Street
Gosford, NSW



Subject Area and Sensitive Receptors



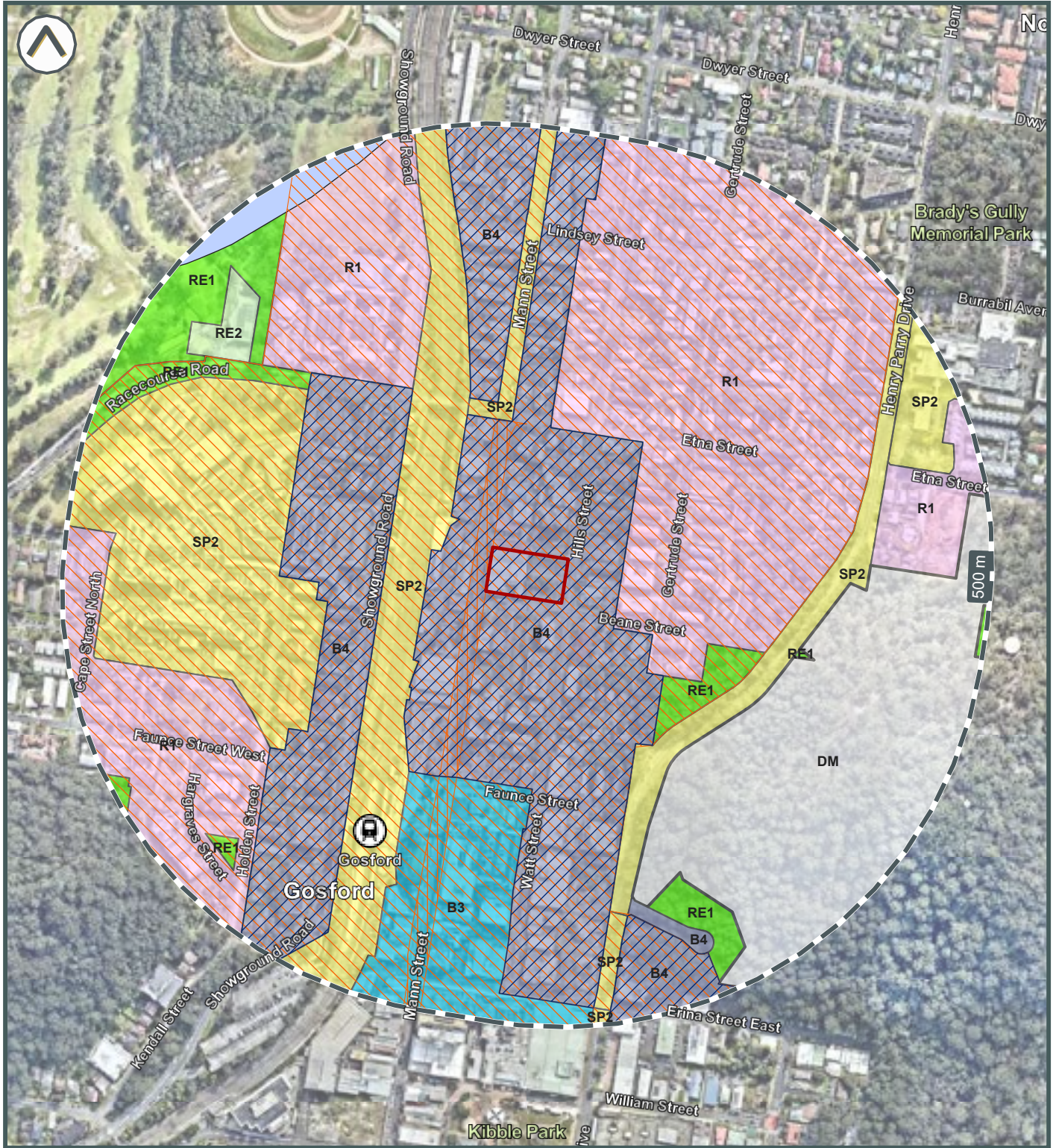
©2022 Land Insight (U) www.landinsight.co | 6/09/2022 | Data source: Please refer to 'Digital Data Sources' in the Product Guide

- Subject area
- Education
- Hospital and Health Care
- Parks





Planning Controls

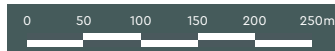


©2022 Land Insight (U) www.landinsight.co | 6/09/2022 | Data source: Please refer to 'Digital Data Sources' in the Product Guide

- Subject area
- Additional Permitted Land Uses
- Local Provisions
- Special Provisions

- Land Zoning
- R1 | General Residential
 - RE1 | Public Recreation
 - RE2 | Private Recreation
 - SP2 | Special Purposes Zone - Infrastructure

- State Environmental Planning Policy (Resilience and Hazards) 2021
- Coastal Environment Area





Heritage



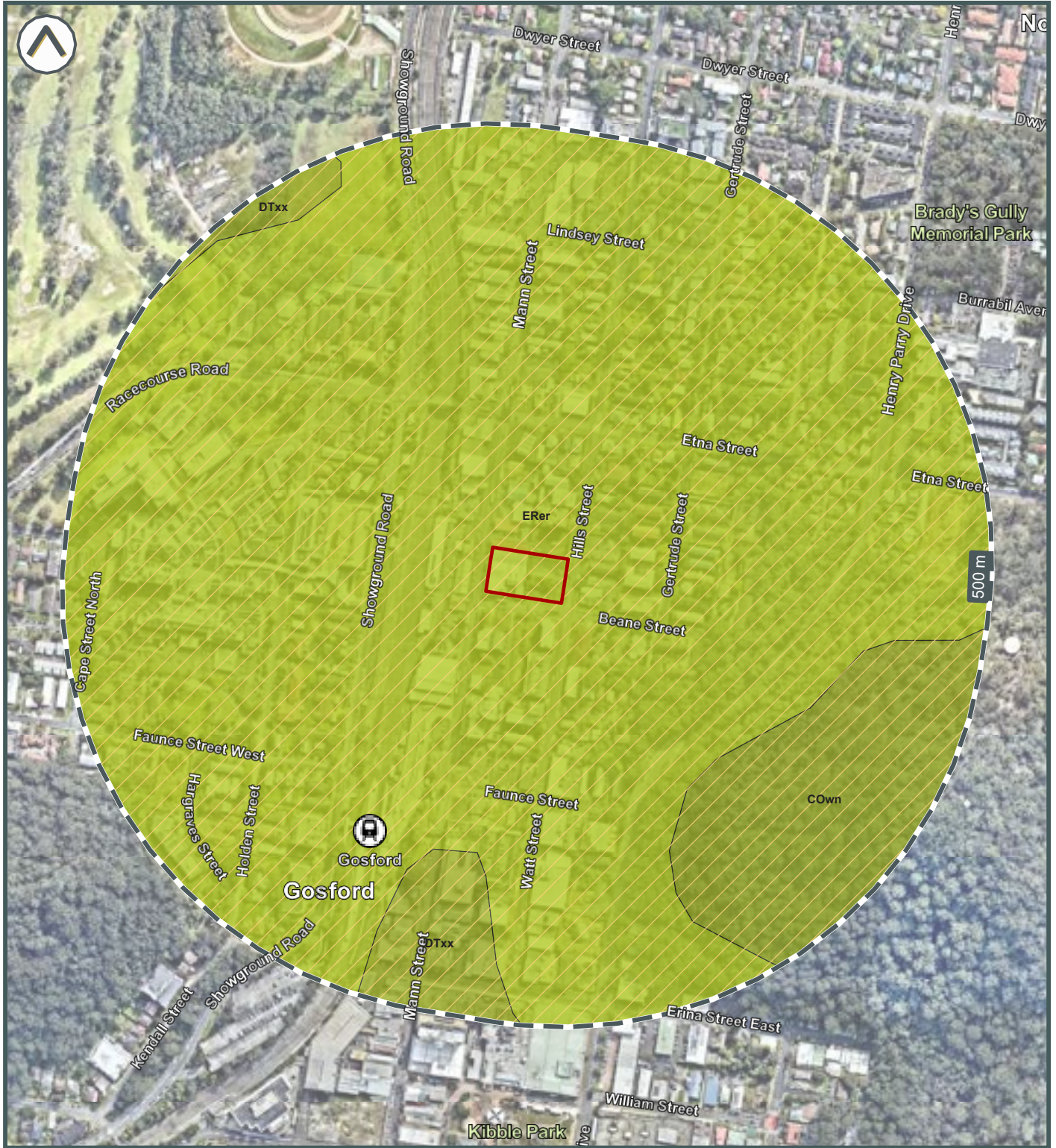
©2022 Land Insight (U) www.landinsight.co | 6/09/2022 | Data source: Please refer to 'Digital Data Sources' in the Product Guide

- Subject area
- State Heritage Register (SHR)
- Commonwealth Heritage List (CHL)
- World Heritage Area (WHA)
- Heritage (LEP)
- National Heritage List (NHL)



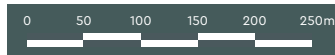


Soil Landscape and Salinity



©2022 Land Insight (U) www.landinsight.co | 6/09/2022 | Data source: Please refer to 'Digital Data Sources' in the Product Guide

- Subject area
- Radon Level (Bq/m³) 5-19
- Soil Landscape COwn, Colluvial
- DTxx, Disturbed terrain
- ERer, Erosional



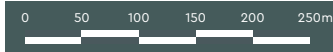


Acid Sulfate Soils



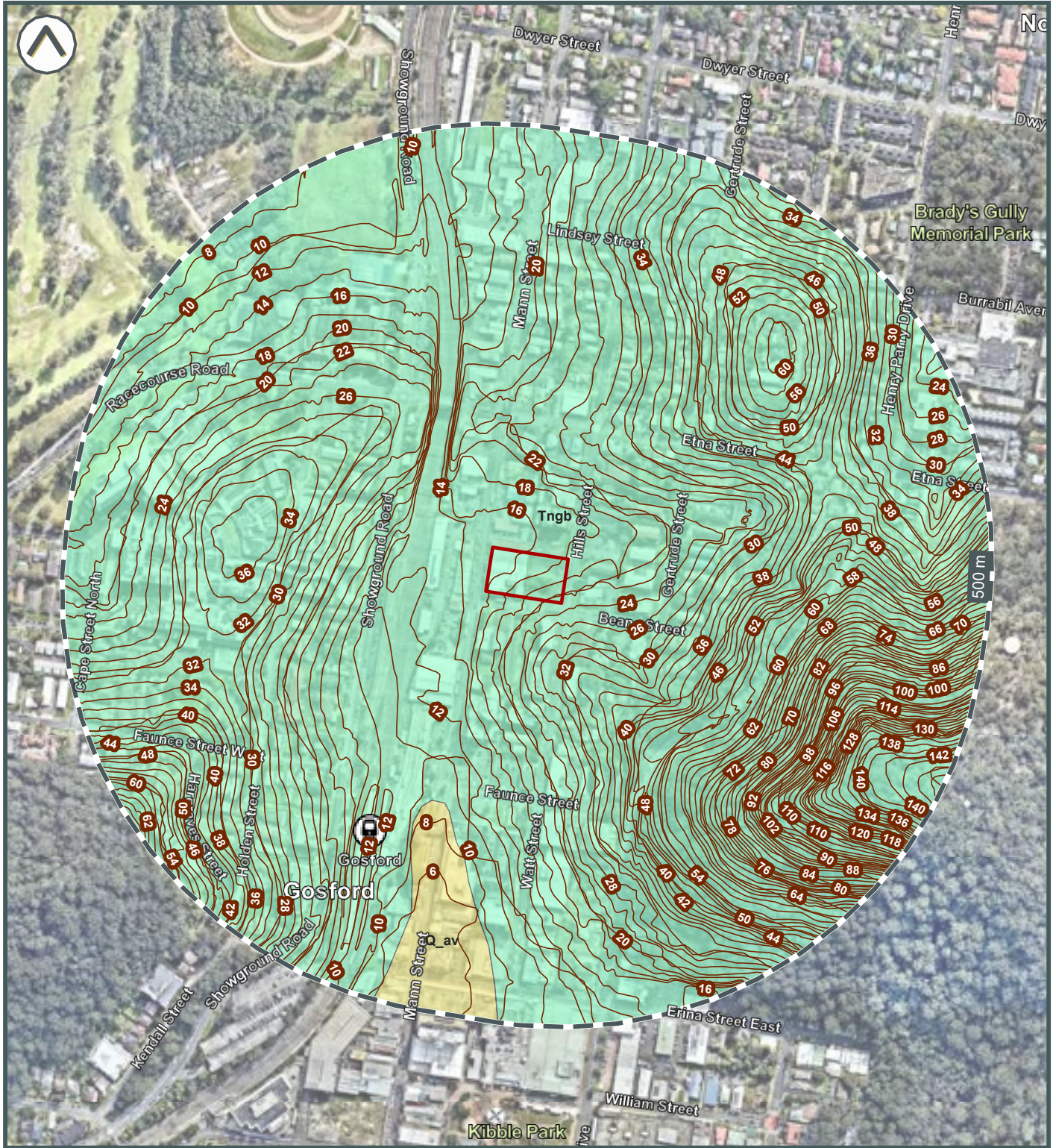
©2022 Land Insight (U) www.landinsight.co | 6/09/2022 | Data source: Please refer to 'Digital Data Sources' in the Product Guide

- Subject area
- Acid Sulfate Soil Risk Class 5
- ASRS Atlas of Australian Sulfate Soils Cq(p4) | ASS in inland lakes, waterways, wetlands and riparian zones



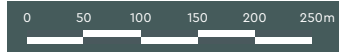


Geology and Topography



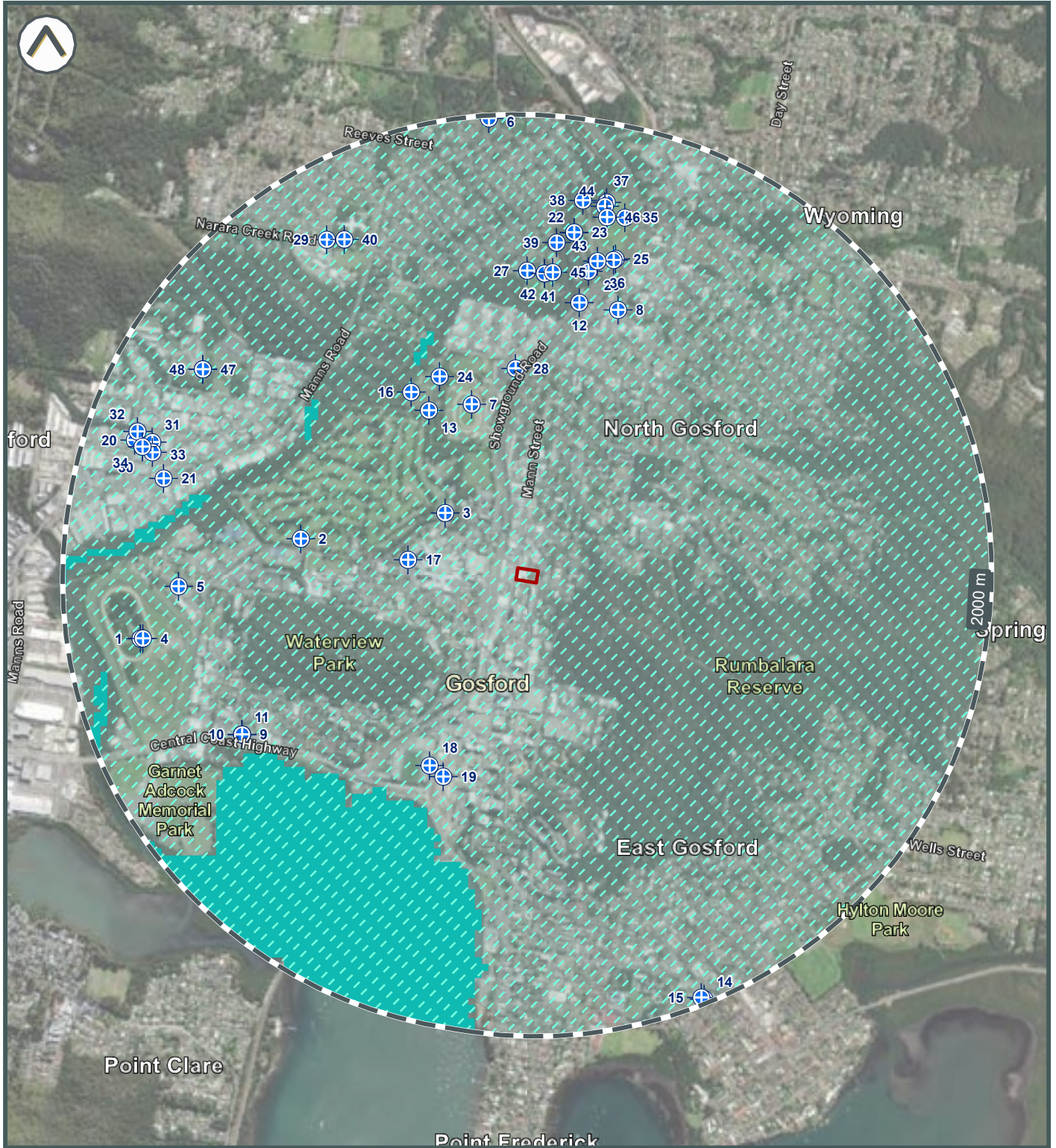
©2022 Land Insight (U) www.landinsight.co | 6/09/2022 | Data source: Please refer to 'Digital Data Sources' in the Product Guide

- Subject area
- Topographic contour (m)
- Cenozoic Sedimentary Province
- Q_av
- PERMO-TRIASSIC BASINS
- Tngb





Hydrogeology and Groundwater Boreholes



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- Subject area
- Groundwater bores
- Wetlands
- UPSS Environmentally Sensitive Zone
- Porous, extensive aquifers of low to moderate productivity



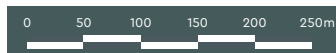


Hydrogeology and Other Boreholes



©2022 Land Insight (U) www.landinsight.co | 6/09/2022 | Data source: Please refer to 'Digital Data Sources' in the Product Guide

- Subject area
- Other borehole/monitoring well location
- Ecosystems that rely on Subsurface presence of Groundwater
- Moderate potential GDE - from regional studies
- Low potential GDE - from regional studies
- Hydrogeologic Unit
- Surficial Sediment Aquifer (porous media - unconsolidated)
- Late Permian/Triassic sediments (porous media - consolidated)





Contaminated Land Public Register



©2022 Land Insight (U) www.landinsight.co | 6/09/2022 | Data source: Please refer to 'Digital Data Sources' in the Product Guide

-  Subject area
-  Contaminated Land Public Register (EPA)
-  EPA Notified Contaminated Sites
-  EPA Record of Notices



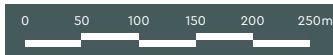


Licences, Approvals & Assessments



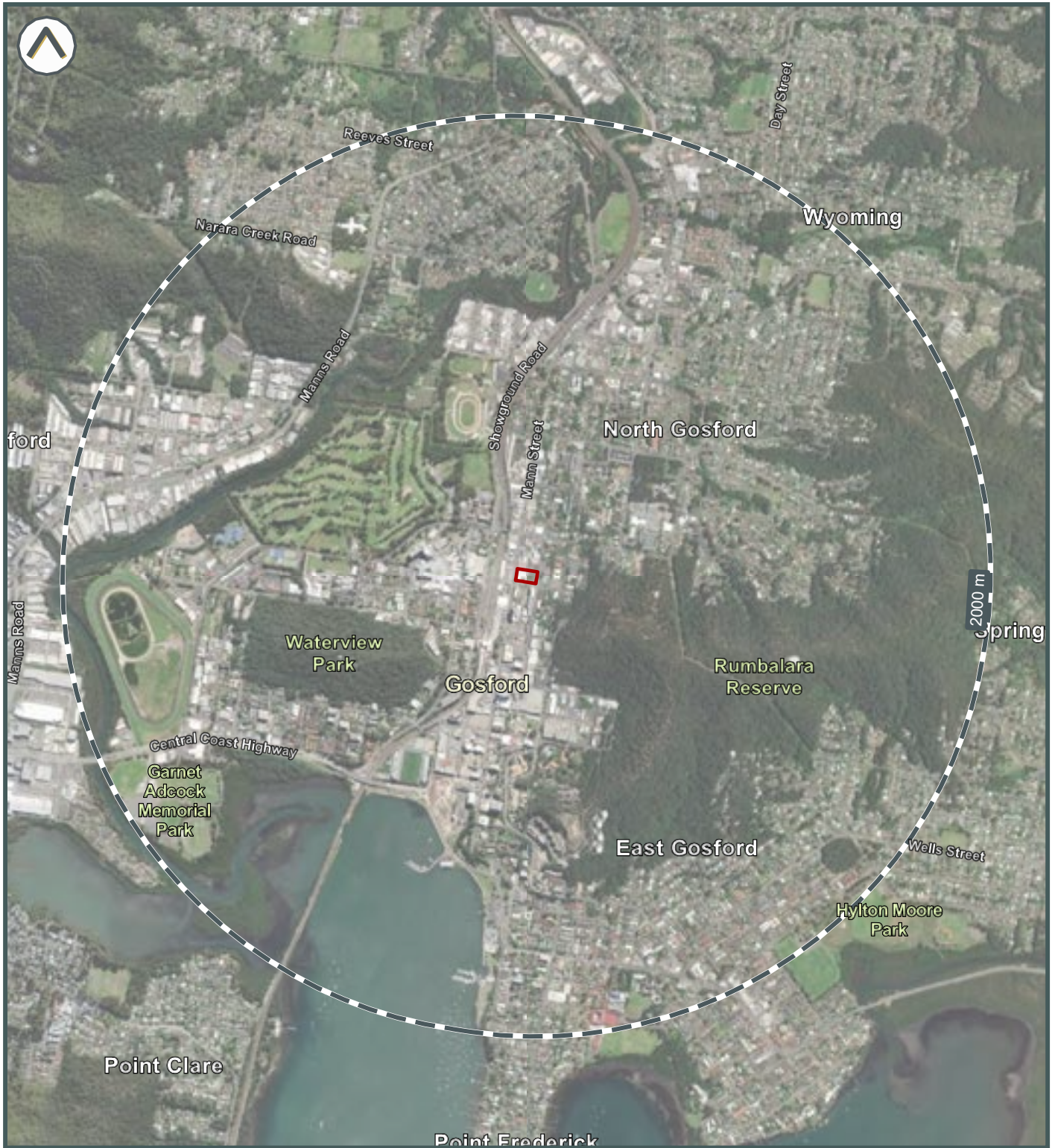
©2022 Land Insight (U) www.landinsight.co | 6/09/2022 | Data source: Please refer to 'Digital Data Sources' in the Product Guide

- Subject area
- POEO Licences Issued
- Suspended / Revoked
- Delicensed / No longer in force
- Surrendered
- Clean Up and Penalty Notices





Sites Regulated by Other Jurisdictional Body



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- Subject area
- PFAS sites
- NPI Facilities
- Former Gasworks
- Defence Area / Military Sites
- Defence Controlled Area
- Unexploded Ordnance (UXO) Areas
- Substantial Potential
- Slight potential
- Sea Dumping of Depth Charges
- Sea Dumping of Depth Charges (Chemical munitions sea dumping)
- Other Sea Dumping Sites
- Other





Potentially Contaminating Activities (PCAs)



©2022 Land Insight (U) www.landinsight.co | 6/09/2022 | Data source: Please refer to 'Digital Data Sources' in the Product Guide

- Subject area
- Fuel Terminals & Depots
- Petrol Stations
- Waste and Recycling Facilities
- Former Potentially Contaminating Activity

Data is current as when this report was created. However due to the turnover of business locations, some addresses may be former.



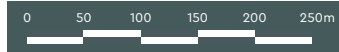


Fire and Flood Hazards



©2022 Land Insight (U) www.landinsight.co | 6/09/2022 | Data source: Please refer to 'Digital Data Sources' in the Product Guide

- Subject area
- Flood Hazard
- PMF (Probable Maximum Flood)
- Fire History
- Bushfire Prone Land
- Vegetation Category 1
- Vegetation Buffer
- Erosion Hazard
- Minor to moderate



An aerial photograph of a vibrant turquoise river winding through a rugged, rocky landscape. The river is flanked by steep, grey rock banks and dense, green and yellowish vegetation. The water's color is strikingly bright, suggesting a high concentration of minerals or a specific geological formation. The surrounding terrain is a mix of large boulders, smaller rocks, and patches of dry grass and shrubs.

Appendix B

HISTORIC IMAGERY

305 Mann Street
Gosford, NSW

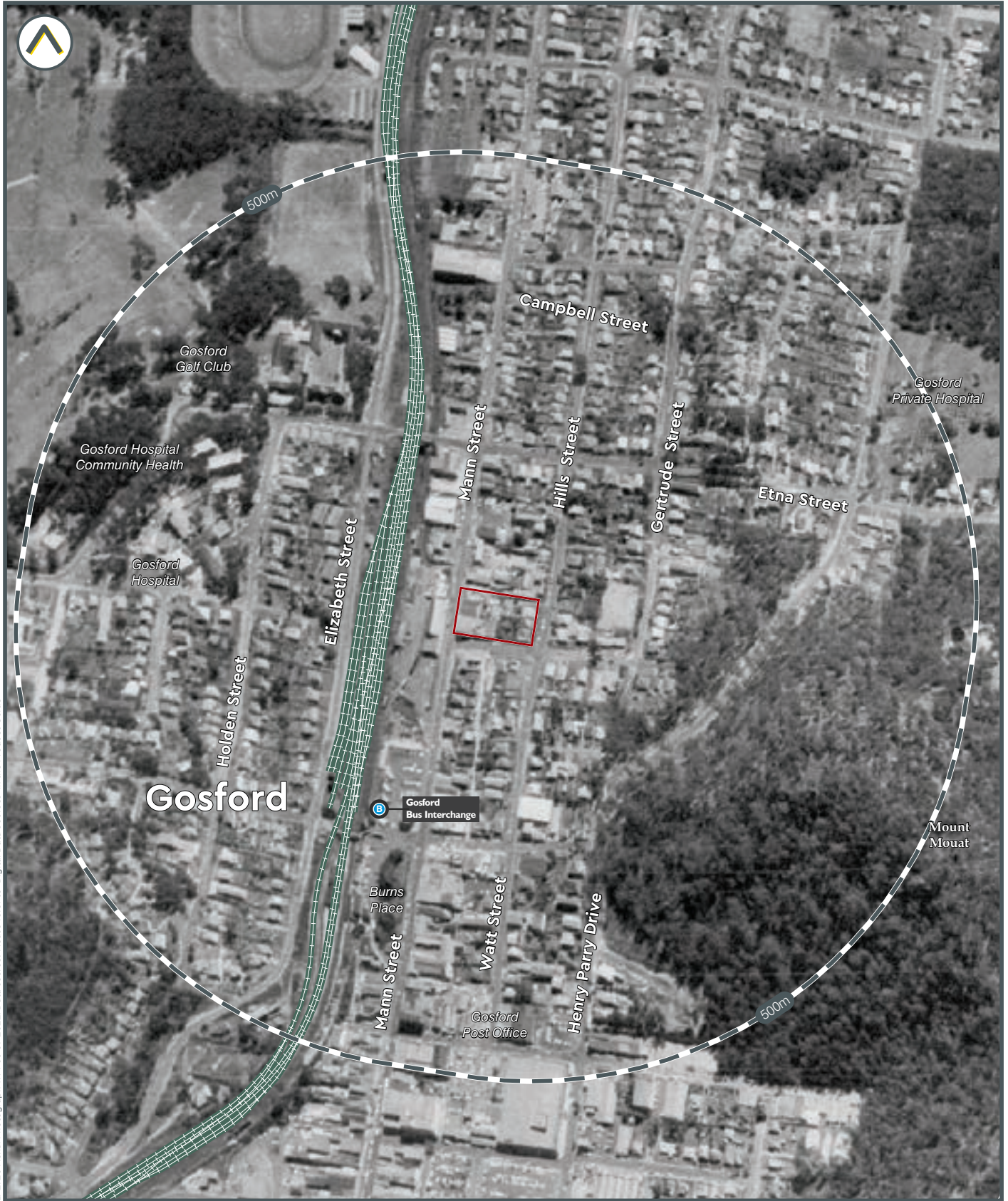
Historic Aerial Photograph - 1966



LI-2920 Aerial Photograph 1966 06 09 2022. Data source: 'Digital Data Sources' in the Product Guide



Historic Aerial Photograph - 1971



LI-2920 Aerial Photograph 1971 06 09 2022. Data source: Please refer to 'Digital Data Sources' in the Product Guide



Historic Aerial Photograph - 1976



LI-2920 Aerial Photograph 1976 06 09 2022. Data source: Please refer to 'Digital Data Sources' in the Product Guide



Historic Aerial Photograph - 1980



LI-2920 Aerial Photograph 1980 06 09 2022. Data source: Please refer to 'Digital Data Sources' in the Product Guide



Historic Aerial Photograph - 1984



LI-2920 Aerial Photograph 1980 06 09 2022. Data source: Please refer to 'Digital Data Sources' in the Product Guide

Subject area

0 200m



Historic Aerial Photograph - 1991



LI-2920 Aerial Photograph 1980 06 09 2022. Data source: Please refer to 'Digital Data Sources' in the Product Guide



Historic Aerial Photograph - 1994



LI-2920 Aerial Photograph 1980 06 09 2022. Data source: Please refer to 'Digital Data Sources' in the Product Guide



Historic Aerial Photograph - 2002



LI-2920 Aerial Photograph 2002.06.09.2022. Data source: Please refer to 'Digital Data Sources' in the Product Guide



Historic Aerial Photograph - 2006



LI-2920 Aerial Photograph 2006 06 09 2022. Data source: Please refer to 'Digital Data Sources' in the Product Guide

Subject area

0 200m



Historic Aerial Photograph - 2010



LI-2020 Aerial Photograph 2010 06 09 2022. Data source: Please refer to 'Digital Data Sources' in the Product Guide

 Subject area





Historic Aerial Photograph - 2013



LI-2920 Aerial Photograph 2010 06 09 2022. Data source: Please refer to 'Digital Data Sources' in the Product Guide



Historic Aerial Photograph - 2016



LI-2020 Aerial Photograph 2016 06 09 2022. Data source: Please refer to 'Digital Data Sources' in the Product Guide



Historic Aerial Photograph - 2019



LI-2020 Aerial Photograph 2019 06 09 2022. Data source: Please refer to 'Digital Data Sources' in the Product Guide



Historic Aerial Photograph - 2022



LI-2020 Aerial Photograph 2022 06 09 2022. Data source: Please refer to 'Digital Data Sources' in the Product Guide





APPENDIX G: LABORATORY CERTIFICATES





ASB @ EW.

Client: Kleinfelder Australia Pty Ltd Suite 3, 240 - 244 Pacific Highway Charlestown NSW 2290 Phone: 02 4949 5200	SITE, COC AND CONTACT DATA				
	Site Name:	UON Gosford	Sampler Name:	Jai Roby	
	QUOTE NUMBER		Contact Number:	0401499275	
	Job No.:	20232402	Contact e-mail:	Jrobby@kleinfelder.com	
	Required TAT:	24 hrs 48 hrs 3 days 5 days 7 days	PM name (if not sampler):	Mal Adrien	
Data QA level:	LAB minimum unless specified			PM e-mail:	Madrien@kleinfelder.com

Laboratory:
 ALS
 5/585 Maitland Rd
 Mayfield West,
 Newcastle NSW 2304
 Phone: (02) 4014 2500

Send Results to:
 Madrien@kleinfelder.com
 dkousbroek@kleinfelder.com
 www.als.com.au
 Phone: 02 4949 5200

CHAIN OF CUSTODY	
Relinquished by (print): <i>Jai Roby</i> (sign)	Received by (print): <i>Mal Adrien</i> (sign)
Date / Time: 17/10/22 3:00	Date / Time: 17/10/22 5:21
Temp. (°C): 20	Temp. (°C): 20
Notes: ice present / no ice seals intact / no seal	Notes: ice present / no ice seals intact / no seal

Sample ID	Lab ID	Sample Point	Sample Type	Date	Start Depth	End Depth	Units	# Containers	Organic Analytes			Metals		Other Analytes					Comments
									S-19	S-27	EC+PH	S-1	Asbestos - EA200G	Chromium Suite - EA033	PFAS - 28 Analytes - EP231X	pH Fox - EA037	Soil Specificity		
1	BHS_02		Soil	17/10/22				2					X		X				
2	BHS_05							3		X				X					
3	BHS_10							2		X	X					X			
4	BHS_20							2						X		X	X		
5	BHS_19							2		X							X		
6	BHS_30							10						X		X			
7	BHS_40							10						X		X			
8	BHS_50							10						X		X			
9	BHS_60							10						X		X			
10	BHS_70							10						X		X			
11	BHS_80							10						X		X			
12	BH4_02												X		X				
13	BH4_05									X									
14	BH4_10							4		X	X				X	X	X		
15	BH4_20							2		X				X		X			
16	BH4_30							2						X		X	X		
17	BH4_40							1						X		X			

S-19 = TRH(C6-C40)/BTEXN/PAH/OC/OP/PCB & Metals**
 S-1 = 7 Metals**
 S-27 = TRH(C6-C40)/BTEXN /PAH/Phenols & 8 metals ***

Environmental Division
 Sydney
 Work Order Reference
ES2237206



Telephone : +61-2-9784 8555



CERTIFICATE OF ANALYSIS

Work Order : **ES2237206**
Client : **KLEINFELDER AUSTRALIA PTY LTD**
Contact : J Roby
Address : 95 MITCHELL ROAD
 CARDIFF NSW 2285

Telephone : ----
Project : 20232402
Order number : ----
C-O-C number : ----
Sampler : Jai Roby
Site : UON Gosford
Quote number : EN/222
No. of samples received : 24
No. of samples analysed : 24

Page : 1 of 30
Laboratory : Environmental Division Sydney
Contact : Graeme Jablonskas
Address : 277-289 Woodpark Road Smithfield NSW Australia 2164

Telephone : +6138549 9609
Date Samples Received : 17-Oct-2022 17:22
Date Analysis Commenced : 19-Oct-2022
Issue Date : 27-Oct-2022 18:35



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
- Descriptive 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.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Evie Sidarta	Inorganic Chemist	Sydney Inorganics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW
Jake Spooner	Laboratory Technician	Newcastle - Asbestos, Mayfield West, NSW
Layla Hafner	Acid Sulphate Soils - 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.

- EP075 (SIM): Where reported, 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.
- 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.
- Corrosion assessment for Concrete and Steel piles in soil per Australian Standard AS2159-2009 uses a combination of soil and groundwater data (Tables 6.4.2 C & 6.5.2 C). In the absence of groundwater data, assessment has been made against soil criteria only. Refer to AS2159-2009 section 6.4 for further interpretation of corrosion assessment. ALS is not NATA accredited for Corrosion Assessment comments
- EA167: Soil Condition A – High permeability soils (e.g. sands and gravels) which are in groundwater
- EA167: Soil Condition B – Low permeability soils (e.g. silts and clays) or all soils above groundwater
- EP068: Positive result has been confirmed by re-extraction and re-analysis.
- 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: EA037 (Rapid Field and F(ox) screening): pH F(ox) Reaction Rate: 1 - Slight; 2 - Moderate; 3 - Strong; 4 - Extreme
- 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'.
- EA037 ASS Field Screening: NATA accreditation does not cover performance of this service.
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Trace' - Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EA200 Legend



- EA200 'Ch' Chrysotile (white asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2
- EA200: 'Yes' - Asbestos detected by polarised light microscopy including dispersion staining.
- EA200: 'No*' - No asbestos found, at the reporting limit of 0.1g/kg, by polarised light microscopy including dispersion staining. Asbestos material was detected and positively identified at concentrations estimated to be below 0.1g/kg.
- EA200: 'No' - No asbestos found at the reporting limit 0.1g/kg, by polarised light microscopy including dispersion staining.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH5_0.2	BH5_0.5	BH5_1.0	BH5_2.0	BH5_1.9
Sampling date / time				17-Oct-2022 00:00	17-Oct-2022 00:00	17-Oct-2022 00:00	17-Oct-2022 00:00	17-Oct-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2237206-001	ES2237206-002	ES2237206-003	ES2237206-004	ES2237206-005	
				Result	Result	Result	Result	Result	
EA002: pH 1:5 (Soils)									
pH Value	----	0.1	pH Unit	----	----	6.9	5.4	4.9	
EA010: Conductivity (1:5)									
Electrical Conductivity @ 25°C	----	1	µS/cm	----	----	67	23	35	
EA033-A: Actual Acidity									
pH KCl (23A)	----	0.1	pH Unit	----	7.2	6.9	5.4	----	
Titrateable Actual Acidity (23F)	----	2	mole H+ / t	----	<2	<2	6	----	
sulfidic - Titrateable 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	0.016	0.018	----	
acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	----	<10	10	11	----	
EA033-C: Acid Neutralising Capacity									
Acid Neutralising Capacity (19A2)	----	0.01	% CaCO3	----	1.10	0.47	----	----	
acidity - Acid Neutralising Capacity (a-19A2)	----	10	mole H+ / t	----	219	95	----	----	
sulfidic - Acid Neutralising Capacity (s-19A2)	----	0.01	% pyrite S	----	0.35	0.15	----	----	
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	0.03	----	
Net Acidity (acidity units)	----	10	mole H+ / t	----	<10	<10	17	----	
Liming Rate	----	1	kg CaCO3/t	----	<1	<1	1	----	
Net Acidity excluding ANC (sulfur units)	----	0.02	% S	----	<0.02	<0.02	0.03	----	
Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	----	<10	10	17	----	
Liming Rate excluding ANC	----	1	kg CaCO3/t	----	<1	<1	1	----	
EA037: Ass Field Screening Analysis									
ø pH (F)	----	0.1	pH Unit	----	----	7.0	5.1	----	
ø pH (Fox)	----	0.1	pH Unit	----	----	4.4	3.8	----	
ø Reaction Rate	----	1	-	----	----	2	2	----	
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	0.1	%	4.9	----	----	15.3	----	
Moisture Content	----	1.0	%	----	12.8	11.5	----	15.1	
EA080: Resistivity									
Resistivity at 25°C	----	1	ohm cm	----	----	----	43500	28600	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH5_0.2	BH5_0.5	BH5_1.0	BH5_2.0	BH5_1.9
Sampling date / time				17-Oct-2022 00:00	17-Oct-2022 00:00	17-Oct-2022 00:00	17-Oct-2022 00:00	17-Oct-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2237206-001	ES2237206-002	ES2237206-003	ES2237206-004	ES2237206-005	
				Result	Result	Result	Result	Result	
EA167: Corrosion Classification (per AS2159-2009)									
∅ Exposure Classification - Concrete Piles Soil Condition A	----	-	-	----	----	----	Moderate	Moderate	
∅ Exposure Classification - Concrete Piles Soil Condition B	----	-	-	----	----	----	Mild	Mild	
∅ Exposure Classification - Steel Piles Soil Condition A	----	-	-	----	----	----	Non Aggressive	Non Aggressive	
∅ Exposure Classification - Steel Piles Soil Condition B	----	-	-	----	----	----	Non Aggressive	Non Aggressive	
EA200: AS 4964 - 2004 Identification of Asbestos in Soils									
Asbestos Detected	1332-21-4	0.1	g/kg	No	----	----	----	----	
Asbestos (Trace)	1332-21-4	5	Fibres	No	----	----	----	----	
Asbestos Type	1332-21-4	-	--	-	----	----	----	----	
Sample weight (dry)	----	0.01	g	353	----	----	----	----	
APPROVED IDENTIFIER:	----	-	--	J.SPOONER	----	----	----	----	
Synthetic Mineral Fibre	----	0.1	g/kg	No	----	----	----	----	
Organic Fibre	----	0.1	g/kg	No	----	----	----	----	
ED040S: Soluble Major Anions									
Sulfate as SO4 2-	14808-79-8	10	mg/kg	----	----	----	20	40	
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	10	mg/kg	----	----	----	<10	<10	
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg	----	8	<5	----	<5	
Cadmium	7440-43-9	1	mg/kg	----	<1	<1	----	<1	
Chromium	7440-47-3	2	mg/kg	----	9	4	----	6	
Copper	7440-50-8	5	mg/kg	----	21	<5	----	<5	
Lead	7439-92-1	5	mg/kg	----	210	<5	----	5	
Nickel	7440-02-0	2	mg/kg	----	3	<2	----	<2	
Zinc	7440-66-6	5	mg/kg	----	320	28	----	6	
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg	----	1.2	<0.1	----	<0.1	
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	----	----	----	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH5_0.2	BH5_0.5	BH5_1.0	BH5_2.0	BH5_1.9
Sampling date / time				17-Oct-2022 00:00	17-Oct-2022 00:00	17-Oct-2022 00:00	17-Oct-2022 00:00	17-Oct-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2237206-001	ES2237206-002	ES2237206-003	ES2237206-004	ES2237206-005	
				Result	Result	Result	Result	Result	
EP068A: Organochlorine Pesticides (OC) - Continued									
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	----	<0.05	----	----	----	
beta-BHC	319-85-7	0.05	mg/kg	----	<0.05	----	----	----	
gamma-BHC	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	----	----	----	
^ Total Chlordane (sum)	----	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	----	----	----	
^ 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	----	----	----	
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	----	----	----	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH5_0.2	BH5_0.5	BH5_1.0	BH5_2.0	BH5_1.9
Sampling date / time				17-Oct-2022 00:00	17-Oct-2022 00:00	17-Oct-2022 00:00	17-Oct-2022 00:00	17-Oct-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2237206-001	ES2237206-002	ES2237206-003	ES2237206-004	ES2237206-005	
				Result	Result	Result	Result	Result	
EP068B: Organophosphorus Pesticides (OP) - Continued									
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	----	----	----	
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									
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	----	0.9	<0.5	----	<0.5	
Pyrene	129-00-0	0.5	mg/kg	----	0.8	<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	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH5_02	BH5_05	BH5_1.0	BH5_2.0	BH5_1.9
Sampling date / time				17-Oct-2022 00:00	17-Oct-2022 00:00	17-Oct-2022 00:00	17-Oct-2022 00:00	17-Oct-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2237206-001	ES2237206-002	ES2237206-003	ES2237206-004	ES2237206-005	
				Result	Result	Result	Result	Result	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
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	----	2.7	<0.5	----	<0.5	
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	----	0.6	<0.5	----	<0.5	
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	----	0.9	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	----	270	<100	----	<100	
C29 - C36 Fraction	----	100	mg/kg	----	170	<100	----	<100	
^ C10 - C36 Fraction (sum)	----	50	mg/kg	----	440	<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	----	400	<100	----	<100	
>C34 - C40 Fraction	----	100	mg/kg	----	<100	<100	----	<100	
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	----	400	<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	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH5_0.2	BH5_0.5	BH5_1.0	BH5_2.0	BH5_1.9
Sampling date / time				17-Oct-2022 00:00	17-Oct-2022 00:00	17-Oct-2022 00:00	17-Oct-2022 00:00	17-Oct-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2237206-001	ES2237206-002	ES2237206-003	ES2237206-004	ES2237206-005	
				Result	Result	Result	Result	Result	
EP080: BTEXN - Continued									
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	----	----	----	----	
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	----	----	----	----	
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	----	----	----	----	
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	----	----	----	----	
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	0.0023	----	----	----	----	
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	----	----	----	----	
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	----	----	----	----	
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	----	----	----	----	
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	----	----	----	----	
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	----	----	----	----	
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	0.0015	----	----	----	----	
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	----	----	----	----	
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	----	----	----	----	
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	----	----	----	----	
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	----	----	----	----	
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	----	----	----	----	
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	----	----	----	----	
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	0.0003	----	----	----	----	
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	----	----	----	----	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH5_0.2	BH5_0.5	BH5_1.0	BH5_2.0	BH5_1.9
Sampling date / time				17-Oct-2022 00:00	17-Oct-2022 00:00	17-Oct-2022 00:00	17-Oct-2022 00:00	17-Oct-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2237206-001	ES2237206-002	ES2237206-003	ES2237206-004	ES2237206-005	
				Result	Result	Result	Result	Result	
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	----	----	----	----	
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	----	----	----	----	
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	----	----	----	----	
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	0.0005	----	----	----	----	
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	0.0247	----	----	----	----	
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	----	----	----	----	
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	----	----	----	----	
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	----	----	----	----	
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	----	----	----	----	
EP231P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg	0.0293	----	----	----	----	
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	0.0023	----	----	----	----	
Sum of PFAS (WA DER List)	----	0.0002	mg/kg	0.0038	----	----	----	----	
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%	----	93.9	----	----	----	
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%	----	76.2	----	----	----	
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%	----	77.8	----	----	----	
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%	----	83.4	85.9	----	82.9	
2-Chlorophenol-D4	93951-73-6	0.5	%	----	88.5	97.8	----	91.0	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH5_0.2	BH5_0.5	BH5_1.0	BH5_2.0	BH5_1.9
Sampling date / time				17-Oct-2022 00:00	17-Oct-2022 00:00	17-Oct-2022 00:00	17-Oct-2022 00:00	17-Oct-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2237206-001	ES2237206-002	ES2237206-003	ES2237206-004	ES2237206-005	
				Result	Result	Result	Result	Result	
EP075(SIM)S: Phenolic Compound Surrogates - Continued									
2,4,6-Tribromophenol	118-79-6	0.5	%	----	59.8	73.1	----	62.0	
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%	----	85.2	90.2	----	83.2	
Anthracene-d10	1719-06-8	0.5	%	----	104	104	----	105	
4-Terphenyl-d14	1718-51-0	0.5	%	----	102	102	----	104	
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	0.2	%	----	88.1	89.9	----	95.1	
Toluene-D8	2037-26-5	0.2	%	----	83.7	89.5	----	94.5	
4-Bromofluorobenzene	460-00-4	0.2	%	----	90.8	94.6	----	101	
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%	98.0	----	----	----	----	
13C8-PFOA	----	0.0002	%	94.5	----	----	----	----	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH5_3.0	BH5_4.0	BH5_5.0	BH5_6.0	BH5_7.0
Sampling date / time				17-Oct-2022 00:00	17-Oct-2022 00:00	17-Oct-2022 00:00	17-Oct-2022 00:00	17-Oct-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2237206-006	ES2237206-007	ES2237206-008	ES2237206-009	ES2237206-010	
				Result	Result	Result	Result	Result	
EA033-A: Actual Acidity									
pH KCl (23A)	----	0.1	pH Unit	4.4	4.5	4.3	4.6	4.4	
Titrateable Actual Acidity (23F)	----	2	mole H+ / t	60	74	102	57	76	
sulfidic - Titrateable Actual Acidity (s-23F)	----	0.02	% pyrite S	0.10	0.12	0.16	0.09	0.12	
EA033-B: Potential Acidity									
Chromium Reducible Sulfur (22B)	----	0.005	% S	0.015	0.015	0.011	0.016	0.010	
acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	<10	<10	<10	10	<10	
EA033-D: Retained Acidity									
KCl Extractable Sulfur (23Ce)	----	0.02	% S	<0.02	----	<0.02	----	<0.02	
HCl Extractable Sulfur (20Be)	----	0.02	% S	<0.02	----	0.02	----	0.02	
Net Acid Soluble Sulfur (20Je)	----	0.02	% S	<0.02	----	<0.02	----	<0.02	
acidity - Net Acid Soluble Sulfur (a-20J)	----	10	mole H+ / t	<10	----	<10	----	<10	
sulfidic - Net Acid Soluble Sulfur (s-20J)	----	0.02	% pyrite S	<0.02	----	<0.02	----	<0.02	
EA033-E: Acid Base Accounting									
ANC Fineness Factor	----	0.5	-	1.5	1.5	1.5	1.5	1.5	
Net Acidity (sulfur units)	----	0.02	% S	0.12	0.13	0.18	0.11	0.14	
Net Acidity (acidity units)	----	10	mole H+ / t	74	84	113	67	85	
Liming Rate	----	1	kg CaCO3/t	6	6	8	5	6	
Net Acidity excluding ANC (sulfur units)	----	0.02	% S	0.12	0.13	0.18	0.11	0.14	
Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	74	84	113	67	85	
Liming Rate excluding ANC	----	1	kg CaCO3/t	6	6	8	5	6	
EA037: Ass Field Screening Analysis									
∅ pH (F)	----	0.1	pH Unit	5.1	5.1	5.1	5.0	5.1	
∅ pH (Fox)	----	0.1	pH Unit	3.9	3.8	3.8	3.8	3.8	
∅ Reaction Rate	----	1	-	2	2	2	2	2	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)		Sample ID		BH5_8.0	BH4_0.2	BH4_0.5	BH4_1.0	BH4_2.0
		Sampling date / time		17-Oct-2022 00:00	17-Oct-2022 00:00	17-Oct-2022 00:00	17-Oct-2022 00:00	17-Oct-2022 00:00
Compound	CAS Number	LOR	Unit	ES2237206-011	ES2237206-012	ES2237206-013	ES2237206-014	ES2237206-015
				Result	Result	Result	Result	Result
EA002: pH 1:5 (Soils)								
pH Value	----	0.1	pH Unit	----	----	----	8.3	----
EA010: Conductivity (1:5)								
Electrical Conductivity @ 25°C	----	1	µS/cm	----	----	----	93	----
EA033-A: Actual Acidity								
pH KCl (23A)	----	0.1	pH Unit	4.5	----	----	7.4	5.5
Titratable Actual Acidity (23F)	----	2	mole H+ / t	75	----	----	<2	13
sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	0.12	----	----	<0.02	0.02
EA033-B: Potential Acidity								
Chromium Reducible Sulfur (22B)	----	0.005	% S	0.016	----	----	0.014	0.016
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	----	----	----	1.60	----
acidity - Acid Neutralising Capacity (a-19A2)	----	10	mole H+ / t	----	----	----	320	----
sulfidic - Acid Neutralising Capacity (s-19A2)	----	0.01	% pyrite S	----	----	----	0.51	----
EA033-E: Acid Base Accounting								
ANC Fineness Factor	----	0.5	-	1.5	----	----	1.5	1.5
Net Acidity (sulfur units)	----	0.02	% S	0.14	----	----	<0.02	0.04
Net Acidity (acidity units)	----	10	mole H+ / t	84	----	----	<10	23
Liming Rate	----	1	kg CaCO3/t	6	----	----	<1	2
Net Acidity excluding ANC (sulfur units)	----	0.02	% S	0.14	----	----	<0.02	0.04
Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	84	----	----	<10	23
Liming Rate excluding ANC	----	1	kg CaCO3/t	6	----	----	<1	2
EA037: Ass Field Screening Analysis								
∅ pH (F)	----	0.1	pH Unit	5.3	----	----	7.5	6.8
∅ pH (Fox)	----	0.1	pH Unit	3.5	----	----	4.6	5.0
∅ Reaction Rate	----	1	-	2	----	----	3	2
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	0.1	%	----	12.1	----	----	----
Moisture Content	----	1.0	%	----	----	10.8	15.7	14.8
EA080: Resistivity								
Resistivity at 25°C	----	1	ohm cm	----	----	----	10800	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH5_8.0	BH4_0.2	BH4_0.5	BH4_1.0	BH4_2.0
Sampling date / time				17-Oct-2022 00:00	17-Oct-2022 00:00	17-Oct-2022 00:00	17-Oct-2022 00:00	17-Oct-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2237206-011	ES2237206-012	ES2237206-013	ES2237206-014	ES2237206-015	
				Result	Result	Result	Result	Result	
EA167: Corrosion Classification (per AS2159-2009)									
∅ Exposure Classification - Concrete Piles Soil Condition A	----	-	-	----	----	----	Mild	----	
∅ Exposure Classification - Concrete Piles Soil Condition B	----	-	-	----	----	----	Non Aggressive	----	
∅ Exposure Classification - Steel Piles Soil Condition A	----	-	-	----	----	----	Non Aggressive	----	
∅ Exposure Classification - Steel Piles Soil Condition B	----	-	-	----	----	----	Non Aggressive	----	
EA200: AS 4964 - 2004 Identification of Asbestos in Soils									
Asbestos Detected	1332-21-4	0.1	g/kg	----	No	----	----	----	
Asbestos (Trace)	1332-21-4	5	Fibres	----	No	----	----	----	
Asbestos Type	1332-21-4	-	--	----	-	----	----	----	
Sample weight (dry)	----	0.01	g	----	282	----	----	----	
APPROVED IDENTIFIER:	----	-	--	----	J.SPOONER	----	----	----	
Synthetic Mineral Fibre	----	0.1	g/kg	----	No	----	----	----	
Organic Fibre	----	0.1	g/kg	----	No	----	----	----	
ED040S: Soluble Major Anions									
Sulfate as SO4 2-	14808-79-8	10	mg/kg	----	----	----	<10	----	
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	10	mg/kg	----	----	----	<10	----	
EG005(ED093)T: Total Metals by ICP-AES									
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	----	----	33	24	10	
Copper	7440-50-8	5	mg/kg	----	----	42	40	<5	
Lead	7439-92-1	5	mg/kg	----	----	95	106	8	
Nickel	7440-02-0	2	mg/kg	----	----	32	22	<2	
Zinc	7440-66-6	5	mg/kg	----	----	154	157	5	
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg	----	----	0.2	0.6	<0.1	
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	----	----	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH5_8.0	BH4_0.2	BH4_0.5	BH4_1.0	BH4_2.0
Sampling date / time				17-Oct-2022 00:00	17-Oct-2022 00:00	17-Oct-2022 00:00	17-Oct-2022 00:00	17-Oct-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2237206-011	ES2237206-012	ES2237206-013	ES2237206-014	ES2237206-015	
				Result	Result	Result	Result	Result	
EP068A: Organochlorine Pesticides (OC) - Continued									
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	----	----	<0.05	----	----	
beta-BHC	319-85-7	0.05	mg/kg	----	----	<0.05	----	----	
gamma-BHC	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	----	----	
[^] Total Chlordane (sum)	----	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	----	----	0.07	----	----	
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	----	----	
[^] 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	----	----	0.07	----	----	
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	----	----	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH5_8.0	BH4_0.2	BH4_0.5	BH4_1.0	BH4_2.0
Sampling date / time				17-Oct-2022 00:00	17-Oct-2022 00:00	17-Oct-2022 00:00	17-Oct-2022 00:00	17-Oct-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2237206-011	ES2237206-012	ES2237206-013	ES2237206-014	ES2237206-015	
				Result	Result	Result	Result	Result	
EP068B: Organophosphorus Pesticides (OP) - Continued									
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	----	----	
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									
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	----	----	1.9	1.2	<0.5	
Anthracene	120-12-7	0.5	mg/kg	----	----	0.7	<0.5	<0.5	
Fluoranthene	206-44-0	0.5	mg/kg	----	----	4.3	2.7	<0.5	
Pyrene	129-00-0	0.5	mg/kg	----	----	3.9	2.6	<0.5	
Benz(a)anthracene	56-55-3	0.5	mg/kg	----	----	1.6	1.0	<0.5	
Chrysene	218-01-9	0.5	mg/kg	----	----	1.6	1.0	<0.5	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH5_8.0	BH4_0.2	BH4_0.5	BH4_1.0	BH4_2.0
Sampling date / time				17-Oct-2022 00:00	17-Oct-2022 00:00	17-Oct-2022 00:00	17-Oct-2022 00:00	17-Oct-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2237206-011	ES2237206-012	ES2237206-013	ES2237206-014	ES2237206-015	
				Result	Result	Result	Result	Result	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	----	----	1.8	1.4	<0.5	
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	----	----	0.8	0.5	<0.5	
Benzo(a)pyrene	50-32-8	0.5	mg/kg	----	----	2.2	1.5	<0.5	
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	----	----	1.2	0.8	<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	----	----	1.4	0.9	<0.5	
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	----	----	21.4	13.6	<0.5	
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	----	----	2.8	1.9	<0.5	
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	----	----	3.0	2.1	0.6	
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	----	----	3.3	2.4	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	
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	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH5_8.0	BH4_0.2	BH4_0.5	BH4_1.0	BH4_2.0
Sampling date / time				17-Oct-2022 00:00	17-Oct-2022 00:00	17-Oct-2022 00:00	17-Oct-2022 00:00	17-Oct-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2237206-011	ES2237206-012	ES2237206-013	ES2237206-014	ES2237206-015	
				Result	Result	Result	Result	Result	
EP080: BTEXN - Continued									
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	----	<0.0002	----	----	----	
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	----	<0.0002	----	----	----	
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	----	<0.0002	----	----	----	
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	----	<0.0002	----	----	----	
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	----	<0.0002	----	----	----	
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	----	<0.0002	----	----	----	
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	----	<0.001	----	----	----	
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	----	<0.0002	----	----	----	
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	----	<0.0002	----	----	----	
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	----	<0.0002	----	----	----	
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	----	<0.0002	----	----	----	
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	----	<0.0002	----	----	----	
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	----	<0.0002	----	----	----	
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	----	<0.0002	----	----	----	
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	----	<0.0002	----	----	----	
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	----	<0.0002	----	----	----	
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	----	<0.0005	----	----	----	
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	----	<0.0002	----	----	----	
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	----	<0.0005	----	----	----	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH5_8.0	BH4_0.2	BH4_0.5	BH4_1.0	BH4_2.0
Sampling date / time				17-Oct-2022 00:00	17-Oct-2022 00:00	17-Oct-2022 00:00	17-Oct-2022 00:00	17-Oct-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2237206-011	ES2237206-012	ES2237206-013	ES2237206-014	ES2237206-015	
				Result	Result	Result	Result	Result	
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	----	<0.0005	----	----	----	
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	----	<0.0005	----	----	----	
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	----	<0.0005	----	----	----	
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	----	<0.0002	----	----	----	
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	----	<0.0002	----	----	----	
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	----	<0.0005	----	----	----	
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	----	<0.0005	----	----	----	
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	----	<0.0005	----	----	----	
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	----	<0.0005	----	----	----	
EP231P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg	----	<0.0002	----	----	----	
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	----	<0.0002	----	----	----	
Sum of PFAS (WA DER List)	----	0.0002	mg/kg	----	<0.0002	----	----	----	
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%	----	----	115	----	----	
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%	----	----	78.0	----	----	
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%	----	----	72.8	----	----	
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%	----	----	82.5	89.0	85.8	
2-Chlorophenol-D4	93951-73-6	0.5	%	----	----	96.7	91.8	96.0	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH5_8.0	BH4_0.2	BH4_0.5	BH4_1.0	BH4_2.0
Sampling date / time				17-Oct-2022 00:00	17-Oct-2022 00:00	17-Oct-2022 00:00	17-Oct-2022 00:00	17-Oct-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2237206-011	ES2237206-012	ES2237206-013	ES2237206-014	ES2237206-015	
				Result	Result	Result	Result	Result	
EP075(SIM)S: Phenolic Compound Surrogates - Continued									
2,4,6-Tribromophenol	118-79-6	0.5	%	----	----	69.4	61.1	54.2	
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%	----	----	89.3	81.6	92.0	
Anthracene-d10	1719-06-8	0.5	%	----	----	110	104	111	
4-Terphenyl-d14	1718-51-0	0.5	%	----	----	107	99.6	108	
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	0.2	%	----	----	92.5	92.9	93.2	
Toluene-D8	2037-26-5	0.2	%	----	----	90.4	90.4	92.0	
4-Bromofluorobenzene	460-00-4	0.2	%	----	----	97.7	97.6	98.7	
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%	----	110	----	----	----	
13C8-PFOA	----	0.0002	%	----	98.5	----	----	----	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)		Sample ID		BH4_3.0	BH4_4.0	BH4_5.0	BH4_6.0	BH4_7.0	
Sampling date / time		17-Oct-2022 00:00		17-Oct-2022 00:00		17-Oct-2022 00:00		17-Oct-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2237206-016	ES2237206-017	ES2237206-018	ES2237206-019	ES2237206-020	
				Result	Result	Result	Result	Result	
EA002: pH 1:5 (Soils)									
pH Value	----	0.1	pH Unit	5.7	----	----	----	----	
EA010: Conductivity (1:5)									
Electrical Conductivity @ 25°C	----	1	µS/cm	21	----	----	----	----	
EA033-A: Actual Acidity									
pH KCl (23A)	----	0.1	pH Unit	4.8	4.6	4.6	4.7	4.6	
Titrateable Actual Acidity (23F)	----	2	mole H+ / t	31	45	52	41	51	
sulfidic - Titrateable Actual Acidity (s-23F)	----	0.02	% pyrite S	0.05	0.07	0.08	0.06	0.08	
EA033-B: Potential Acidity									
Chromium Reducible Sulfur (22B)	----	0.005	% S	0.016	0.010	0.016	0.010	0.013	
acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	<10	<10	<10	<10	<10	
EA033-E: Acid Base Accounting									
ANC Fineness Factor	----	0.5	-	1.5	1.5	1.5	1.5	1.5	
Net Acidity (sulfur units)	----	0.02	% S	0.06	0.08	0.10	0.08	0.10	
Net Acidity (acidity units)	----	10	mole H+ / t	41	51	62	47	60	
Liming Rate	----	1	kg CaCO3/t	3	4	5	4	4	
Net Acidity excluding ANC (sulfur units)	----	0.02	% S	0.06	0.08	0.10	0.08	0.10	
Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	41	51	62	47	60	
Liming Rate excluding ANC	----	1	kg CaCO3/t	3	4	5	4	4	
EA037: Ass Field Screening Analysis									
∅ pH (F)	----	0.1	pH Unit	5.5	5.2	5.0	5.0	5.0	
∅ pH (Fox)	----	0.1	pH Unit	4.0	4.0	3.9	4.0	3.6	
∅ Reaction Rate	----	1	-	2	2	2	2	2	
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	0.1	%	15.3	----	----	----	----	
EA080: Resistivity									
Resistivity at 25°C	----	1	ohm cm	47600	----	----	----	----	
EA167: Corrosion Classification (per AS2159-2009)									
∅ Exposure Classification - Concrete Piles Soil Condition A	----	-	-	Mild	----	----	----	----	
∅ Exposure Classification - Concrete Piles Soil Condition B	----	-	-	Non Aggressive	----	----	----	----	
∅ Exposure Classification - Steel Piles Soil Condition A	----	-	-	Non Aggressive	----	----	----	----	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH4_3.0	BH4_4.0	BH4_5.0	BH4_6.0	BH4_7.0
Sampling date / time					17-Oct-2022 00:00	17-Oct-2022 00:00	17-Oct-2022 00:00	17-Oct-2022 00:00	17-Oct-2022 00:00
Compound	CAS Number	LOR	Unit		ES2237206-016	ES2237206-017	ES2237206-018	ES2237206-019	ES2237206-020
				Result	Result	Result	Result	Result	Result
EA167: Corrosion Classification (per AS2159-2009) - Continued									
∅ Exposure Classification - Steel Piles Soil Condition B	----	-	-	Non Aggressive	----	----	----	----	----
ED040S: Soluble Major Anions									
Sulfate as SO4 2-	14808-79-8	10	mg/kg	20	----	----	----	----	----
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	10	mg/kg	<10	----	----	----	----	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)		Sample ID		BH4_8.0	BH4_9.0	----	----	----
		Sampling date / time		17-Oct-2022 00:00	17-Oct-2022 00:00	----	----	----
Compound	CAS Number	LOR	Unit	ES2237206-021	ES2237206-022	-----	-----	-----
				Result	Result	----	----	----
EA033-A: Actual Acidity								
pH KCl (23A)	----	0.1	pH Unit	4.5	4.3	----	----	----
Titrateable Actual Acidity (23F)	----	2	mole H+ / t	66	120	----	----	----
sulfidic - Titrateable Actual Acidity (s-23F)	----	0.02	% pyrite S	0.10	0.19	----	----	----
EA033-B: Potential Acidity								
Chromium Reducible Sulfur (22B)	----	0.005	% S	0.010	0.011	----	----	----
acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	<10	<10	----	----	----
EA033-D: Retained Acidity								
KCl Extractable Sulfur (23Ce)	----	0.02	% S	----	<0.02	----	----	----
HCl Extractable Sulfur (20Be)	----	0.02	% S	----	<0.02	----	----	----
Net Acid Soluble Sulfur (20Je)	----	0.02	% S	----	<0.02	----	----	----
acidity - Net Acid Soluble Sulfur (a-20J)	----	10	mole H+ / t	----	<10	----	----	----
sulfidic - Net Acid Soluble Sulfur (s-20J)	----	0.02	% pyrite S	----	<0.02	----	----	----
EA033-E: Acid Base Accounting								
ANC Fineness Factor	----	0.5	-	1.5	1.5	----	----	----
Net Acidity (sulfur units)	----	0.02	% S	0.12	0.21	----	----	----
Net Acidity (acidity units)	----	10	mole H+ / t	72	130	----	----	----
Liming Rate	----	1	kg CaCO3/t	5	10	----	----	----
Net Acidity excluding ANC (sulfur units)	----	0.02	% S	0.12	0.21	----	----	----
Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	72	130	----	----	----
Liming Rate excluding ANC	----	1	kg CaCO3/t	5	10	----	----	----
EA037: Ass Field Screening Analysis								
∅ pH (F)	----	0.1	pH Unit	5.0	5.0	----	----	----
∅ pH (Fox)	----	0.1	pH Unit	3.7	3.9	----	----	----
∅ Reaction Rate	----	1	-	2	2	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	RB01	TB_171022	----	----	----
Sampling date / time				17-Oct-2022 00:00	17-Oct-2022 00:00	----	----	----	
Compound	CAS Number	LOR	Unit	ES2237206-023	ES2237206-024	-----	-----	-----	
				Result	Result	----	----	----	
EG020F: Dissolved Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L	<0.001	----	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	----	----	----	----	----
Chromium	7440-47-3	0.001	mg/L	<0.001	----	----	----	----	----
Copper	7440-50-8	0.001	mg/L	<0.001	----	----	----	----	----
Nickel	7440-02-0	0.001	mg/L	<0.001	----	----	----	----	----
Lead	7439-92-1	0.001	mg/L	<0.001	----	----	----	----	----
Zinc	7440-66-6	0.005	mg/L	<0.005	----	----	----	----	----
EG020T: Total Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L	----	<0.001	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L	----	<0.0001	----	----	----	----
Chromium	7440-47-3	0.001	mg/L	----	<0.001	----	----	----	----
Copper	7440-50-8	0.001	mg/L	----	<0.001	----	----	----	----
Nickel	7440-02-0	0.001	mg/L	----	<0.001	----	----	----	----
Lead	7439-92-1	0.001	mg/L	----	<0.001	----	----	----	----
Zinc	7440-66-6	0.005	mg/L	----	<0.005	----	----	----	----
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L	<0.0001	----	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L	----	<0.0001	----	----	----	----
EP066: Polychlorinated Biphenyls (PCB)									
^ Total Polychlorinated biphenyls		----	1	µg/L	<1	<1	----	----	----
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.5	µg/L	<0.5	<0.5	----	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	<0.5	----	----	----	----
beta-BHC	319-85-7	0.5	µg/L	<0.5	<0.5	----	----	----	----
gamma-BHC	58-89-9	0.5	µg/L	<0.5	<0.5	----	----	----	----
delta-BHC	319-86-8	0.5	µg/L	<0.5	<0.5	----	----	----	----
Heptachlor	76-44-8	0.5	µg/L	<0.5	<0.5	----	----	----	----
Aldrin	309-00-2	0.5	µg/L	<0.5	<0.5	----	----	----	----
Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	<0.5	----	----	----	----
trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	<0.5	----	----	----	----
alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	<0.5	----	----	----	----
cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	<0.5	----	----	----	----
Dieldrin	60-57-1	0.5	µg/L	<0.5	<0.5	----	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	RB01	TB_171022	----	----	----
Sampling date / time				17-Oct-2022 00:00	17-Oct-2022 00:00	----	----	----	
Compound	CAS Number	LOR	Unit	ES2237206-023	ES2237206-024	-----	-----	-----	
				Result	Result	----	----	----	
EP068A: Organochlorine Pesticides (OC) - Continued									
4.4`-DDE	72-55-9	0.5	µg/L	<0.5	<0.5	----	----	----	
Endrin	72-20-8	0.5	µg/L	<0.5	<0.5	----	----	----	
beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	<0.5	----	----	----	
4.4`-DDD	72-54-8	0.5	µg/L	<0.5	<0.5	----	----	----	
Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	<0.5	----	----	----	
Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	<0.5	----	----	----	
4.4`-DDT	50-29-3	2.0	µg/L	<2.0	<2.0	----	----	----	
Endrin ketone	53494-70-5	0.5	µg/L	<0.5	<0.5	----	----	----	
Methoxychlor	72-43-5	2.0	µg/L	<2.0	<2.0	----	----	----	
^ Total Chlordane (sum)	----	0.5	µg/L	<0.5	<0.5	----	----	----	
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/5 0-2	0.5	µg/L	<0.5	<0.5	----	----	----	
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.5	µg/L	<0.5	<0.5	----	----	----	
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.5	µg/L	<0.5	<0.5	----	----	----	
Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	<0.5	----	----	----	
Monocrotophos	6923-22-4	2.0	µg/L	<2.0	<2.0	----	----	----	
Dimethoate	60-51-5	0.5	µg/L	<0.5	<0.5	----	----	----	
Diazinon	333-41-5	0.5	µg/L	<0.5	<0.5	----	----	----	
Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	<0.5	----	----	----	
Parathion-methyl	298-00-0	2.0	µg/L	<2.0	<2.0	----	----	----	
Malathion	121-75-5	0.5	µg/L	<0.5	<0.5	----	----	----	
Fenthion	55-38-9	0.5	µg/L	<0.5	<0.5	----	----	----	
Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	<0.5	----	----	----	
Parathion	56-38-2	2.0	µg/L	<2.0	<2.0	----	----	----	
Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	<0.5	----	----	----	
Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	<0.5	----	----	----	
Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	<0.5	----	----	----	
Fenamiphos	22224-92-6	0.5	µg/L	<0.5	<0.5	----	----	----	
Prothiofos	34643-46-4	0.5	µg/L	<0.5	<0.5	----	----	----	
Ethion	563-12-2	0.5	µg/L	<0.5	<0.5	----	----	----	
Carbophenothion	786-19-6	0.5	µg/L	<0.5	<0.5	----	----	----	
Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	<0.5	----	----	----	
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	----	----	----	



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	RB01	TB_171022	----	----	----
Sampling date / time				17-Oct-2022 00:00	17-Oct-2022 00:00	----	----	----	
Compound	CAS Number	LOR	Unit	ES2237206-023	ES2237206-024	-----	-----	-----	
				Result	Result	----	----	----	
EP075(SIM)A: Phenolic Compounds - Continued									
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	----	----	----	
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	----	----	----	
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	----	----	----	
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	----	----	----	
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	----	----	----	
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	----	----	----	
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	----	----	----	
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	----	----	----	
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	----	----	----	
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	----	----	----	
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	----	----	----	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	----	----	----	
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	----	----	----	
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	----	----	----	
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	----	----	----	
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	----	----	----	
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	----	----	----	
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	----	----	----	
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	----	----	----	
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	----	----	----	
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	----	----	----	
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L	<1.0	<1.0	----	----	----	
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	----	----	----	
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	----	----	----	
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	----	----	----	
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	----	----	----	
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	----	----	----	
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	----	----	----	
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	----	----	----	
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L	<20	<20	----	----	----	
C10 - C14 Fraction	----	50	µg/L	<50	<50	----	----	----	
C15 - C28 Fraction	----	100	µg/L	<100	<100	----	----	----	



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	RB01	TB_171022	----	----	----
Sampling date / time				17-Oct-2022 00:00	17-Oct-2022 00:00	----	----	----	
Compound	CAS Number	LOR	Unit	ES2237206-023	ES2237206-024	-----	-----	-----	
				Result	Result	----	----	----	
EP080/071: Total Petroleum Hydrocarbons - Continued									
C29 - C36 Fraction	----	50	µg/L	<50	<50	----	----	----	
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	----	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	----	----	----	
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	----	----	----	
>C10 - C16 Fraction	----	100	µg/L	<100	<100	----	----	----	
>C16 - C34 Fraction	----	100	µg/L	<100	<100	----	----	----	
>C34 - C40 Fraction	----	100	µg/L	<100	<100	----	----	----	
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	----	----	----	
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	----	----	----	
EP080: BTEXN									
Benzene	71-43-2	1	µg/L	<1	<1	----	----	----	
Toluene	108-88-3	2	µg/L	<2	<2	----	----	----	
Ethylbenzene	100-41-4	2	µg/L	<2	<2	----	----	----	
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	----	----	----	
ortho-Xylene	95-47-6	2	µg/L	<2	<2	----	----	----	
^ Total Xylenes	----	2	µg/L	<2	<2	----	----	----	
^ Sum of BTEX	----	1	µg/L	<1	<1	----	----	----	
Naphthalene	91-20-3	5	µg/L	<5	<5	----	----	----	
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	1	%	80.3	80.4	----	----	----	
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.5	%	75.3	76.8	----	----	----	
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.5	%	72.2	68.0	----	----	----	
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1.0	%	29.3	27.2	----	----	----	
2-Chlorophenol-D4	93951-73-6	1.0	%	52.5	52.8	----	----	----	
2,4,6-Tribromophenol	118-79-6	1.0	%	41.0	48.1	----	----	----	
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%	66.2	59.9	----	----	----	
Anthracene-d10	1719-06-8	1.0	%	74.4	76.8	----	----	----	



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	RB01	TB_171022	----	----	----
Sampling date / time				17-Oct-2022 00:00	17-Oct-2022 00:00	----	----	----	
Compound	CAS Number	LOR	Unit	ES2237206-023	ES2237206-024	-----	-----	-----	
				Result	Result	----	----	----	
EP075(SIM)T: PAH Surrogates - Continued									
4-Terphenyl-d14	1718-51-0	1.0	%	86.2	86.3	----	----	----	
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	2	%	105	101	----	----	----	
Toluene-D8	2037-26-5	2	%	100	105	----	----	----	
4-Bromofluorobenzene	460-00-4	2	%	102	101	----	----	----	

Analytical Results

Descriptive Results

Sub-Matrix: SOIL		
Method: Compound	Sample ID - Sampling date / time	Analytical Results
EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	BH5_0.2 - 17-Oct-2022 00:00	Soil sample.
EA200: Description	BH4_0.2 - 17-Oct-2022 00:00	Soil sample.



Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	39	149
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	49	147
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	35	143
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2,4,6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	73	133
Toluene-D8	2037-26-5	74	132
4-Bromofluorobenzene	460-00-4	72	130
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	45	134
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	67	111
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	67	111
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	44
2-Chlorophenol-D4	93951-73-6	14	94
2,4,6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	32	112



Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

Inter-Laboratory Testing

Analysis conducted by ALS Brisbane, NATA accreditation no. 825, site no. 818 (Chemistry) 18958 (Biology).

(SOIL) EA037: Ass Field Screening Analysis

(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

Analysis conducted by ALS Newcastle, NATA accreditation no. 825, site no. 1656 (Chemistry) 9854 (Biology).

(SOIL) EA200: AS 4964 - 2004 Identification of Asbestos in Soils



QUALITY CONTROL REPORT

Work Order : ES2237206

Page : 1 of 27

Client : KLEINFELDER AUSTRALIA PTY LTD

Laboratory : Environmental Division Sydney

Contact : J Roby

Contact : Graeme Jablonskas

Address : 95 MITCHELL ROAD
CARDIFF NSW 2285

Address : 277-289 Woodpark Road Smithfield NSW Australia 2164

Telephone : ----

Telephone : +6138549 9609

Project : 20232402

Date Samples Received : 17-Oct-2022

Order number : ----

Date Analysis Commenced : 19-Oct-2022

C-O-C number : ----

Issue Date : 27-Oct-2022

Sampler : Jai Roby

Site : UON Gosford

Quote number : EN/222

No. of samples received : 24

No. of samples analysed : 24



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
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Evie Sidarta	Inorganic Chemist	Sydney Inorganics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW
Jake Spooner	Laboratory Technician	Newcastle - Asbestos, Mayfield West, NSW
Layla Hafner	Acid Sulphate Soils - 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

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: 4652795)									
ES2237206-003	BH5_1.0	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	4	4	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	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	28	24	15.2	No Limit
ES2237846-036	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	22	24	10.7	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	15	16	7.7	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	18	18	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	13	13	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	24	26	8.8	No Limit
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 4659088)									
ES2237198-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	8	8	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	3	<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	12	10	19.6	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	9	10	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	10	7	27.0	No Limit
ES2237198-014	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	11	11	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: 4659088) - continued									
ES2237198-014	Anonymous	EG005T: Nickel	7440-02-0	2	mg/kg	10	8	28.1	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	8	8	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	22	22	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	15	15	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	34	31	6.4	No Limit
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 4659089)									
ES2237206-015	BH4_2.0	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	10	10	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	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	8	8	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	5	6	0.0	No Limit
ES2237391-017	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	4	9	66.4	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: Copper	7440-50-8	5	mg/kg	6	7	25.9	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	26	35	31.8	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	40	60	40.8	0% - 50%
EA002: pH 1:5 (Soils) (QC Lot: 4652803)									
ES2237276-006	Anonymous	EA002: pH Value	----	0.1	pH Unit	5.6	5.6	0.0	0% - 20%
ES2237206-004	BH5_2.0	EA002: pH Value	----	0.1	pH Unit	5.4	5.4	0.0	0% - 20%
EA010: Conductivity (1:5) (QC Lot: 4652804)									
ES2237276-006	Anonymous	EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	210	196	7.0	0% - 20%
ES2237206-004	BH5_2.0	EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	23	24	6.3	0% - 20%
EA033-A: Actual Acidity (QC Lot: 4662134)									
EB2230348-002	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	8.1	8.2	0.0	0% - 20%
EM2220656-005	Anonymous	EA033: sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	0.19	0.20	0.0	No Limit
		EA033: Titratable Actual Acidity (23F)	----	2	mole H+ / t	120	122	2.4	0% - 20%
		EA033: pH KCl (23A)	----	0.1	pH Unit	4.4	4.4	0.0	0% - 20%
EA033-A: Actual Acidity (QC Lot: 4662135)									
ES2237206-011	BH5_8.0	EA033: sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	0.12	0.12	0.0	No Limit
		EA033: Titratable Actual Acidity (23F)	----	2	mole H+ / t	75	74	1.4	0% - 20%
		EA033: pH KCl (23A)	----	0.1	pH Unit	4.5	4.5	0.0	0% - 20%
ES2237391-003	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	5	4	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 (%)
EA033-A: Actual Acidity (QC Lot: 4662135) - continued									
ES2237391-003	Anonymous	EA033: pH KCl (23A)	----	0.1	pH Unit	5.9	5.9	0.0	0% - 20%
EA033-B: Potential Acidity (QC Lot: 4662134)									
EB2230348-002	Anonymous	EA033: Chromium Reducible Sulfur (22B)	----	0.005	% S	0.014	0.017	20.0	No Limit
		EA033: acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	<10	11	0.0	No Limit
EM2220656-005	Anonymous	EA033: Chromium Reducible Sulfur (22B)	----	0.005	% S	0.014	0.014	0.0	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: 4662135)									
ES2237206-011	BH5_8.0	EA033: Chromium Reducible Sulfur (22B)	----	0.005	% S	0.016	0.014	10.7	No Limit
		EA033: acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	<10	<10	0.0	No Limit
ES2237391-003	Anonymous	EA033: Chromium Reducible Sulfur (22B)	----	0.005	% S	0.010	0.011	0.0	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: 4662134)									
EB2230348-002	Anonymous	EA033: Acid Neutralising Capacity (19A2)	----	0.01	% CaCO3	0.86	0.86	0.0	0% - 20%
		EA033: sulfidic - Acid Neutralising Capacity (s-19A2)	----	0.01	% pyrite S	0.27	0.28	0.0	0% - 20%
		EA033: acidity - Acid Neutralising Capacity (a-19A2)	----	10	mole H+ / t	171	172	0.7	0% - 50%
EA033-D: Retained Acidity (QC Lot: 4662134)									
EM2220656-005	Anonymous	EA033: sulfidic - Net Acid Soluble Sulfur (s-20J)	----	0.02	% pyrite S	<0.02	<0.02	0.0	No Limit
		EA033: Net Acid Soluble Sulfur (20Je)	----	0.02	% S	<0.02	<0.02	0.0	No Limit
		EA033: KCl Extractable Sulfur (23Ce)	----	0.02	% S	0.04	0.04	0.0	No Limit
		EA033: HCl Extractable Sulfur (20Be)	----	0.02	% S	0.04	0.04	0.0	No Limit
		EA033: acidity - Net Acid Soluble Sulfur (a-20J)	----	10	mole H+ / t	<10	<10	0.0	No Limit
EA037: Ass Field Screening Analysis (QC Lot: 4659734)									
ES2237206-003	BH5_1.0	EA037: pH (F)	----	0.1	pH Unit	7.0	6.9	0.0	0% - 20%
		EA037: pH (Fox)	----	0.1	pH Unit	4.4	4.6	2.2	0% - 20%
ES2237206-016	BH4_3.0	EA037: pH (F)	----	0.1	pH Unit	5.5	5.5	0.0	0% - 20%
		EA037: pH (Fox)	----	0.1	pH Unit	4.0	4.1	0.0	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 4652810)									
ES2237206-005	BH5_1.9	EA055: Moisture Content	----	0.1	%	15.1	15.0	0.0	0% - 50%
ES2237846-038	Anonymous	EA055: Moisture Content	----	0.1	%	32.2	31.0	3.7	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 4659097)									
ES2237198-004	Anonymous	EA055: Moisture Content	----	0.1	%	15.1	15.1	0.0	0% - 50%
ES2237198-019	Anonymous	EA055: Moisture Content	----	0.1	%	18.8	18.6	1.2	0% - 50%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 4659098)									



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 (%)
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 4659098) - continued									
ES2237391-002	Anonymous	EA055: Moisture Content	----	0.1	%	18.3	18.3	0.0	0% - 50%
ES2237525-002	Anonymous	EA055: Moisture Content	----	0.1	%	20.3	20.9	3.1	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 4661398)									
EB2230121-013	Anonymous	EA055: Moisture Content	----	0.1	%	5.5	5.8	4.6	0% - 20%
EB2230121-024	Anonymous	EA055: Moisture Content	----	0.1	%	24.2	22.3	8.4	0% - 20%
ED040S: Soluble Major Anions (QC Lot: 4652805)									
ES2237206-004	BH5_2.0	ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	20	20	0.0	No Limit
ED045G: Chloride by Discrete Analyser (QC Lot: 4652806)									
ES2237206-004	BH5_2.0	ED045G: Chloride	16887-00-6	10	mg/kg	<10	<10	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 4652796)									
ES2237206-003	BH5_1.0	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: 4659087)									
ES2237198-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES2237198-014	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: 4659091)									
ES2237206-015	BH4_2.0	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES2237391-017	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 4647083)									
ES2237206-002	BH5_0.5	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 4647082)									
ES2237206-002	BH5_0.5	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	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



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: 4647082) - continued									
ES2237206-002	BH5_0.5	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: 4647082)									
ES2237206-002	BH5_0.5	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		
EP075(SIM)A: Phenolic Compounds (QC Lot: 4647081)									
ES2237206-002	BH5_0.5	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: 4647081)							
ES2237206-002	BH5_0.5	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



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: 4647081) - continued									
ES2237206-002	BH5_0.5	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	0.9	0.9	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	0.8	0.8	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): Dibenzo(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): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	2.7	1.7	45.5	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	0.6	<0.5	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 4647080)									
ES2237206-002	BH5_0.5	EP071: C15 - C28 Fraction	----	100	mg/kg	270	340	22.1	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	170	240	35.1	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 4650376)									
ES2237142-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES2237142-013	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 4647080)									
ES2237206-002	BH5_0.5	EP071: >C16 - C34 Fraction	----	100	mg/kg	400	550	31.6	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: 4650376)									
ES2237142-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES2237142-013	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080: BTEXN (QC Lot: 4650376)									
ES2237142-001	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
ES2237142-013	Anonymous	EP080: Benzene	71-43-2	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 (%)		
EP080: BTEXN (QC Lot: 4650376) - continued											
ES2237142-013	Anonymous	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	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
			106-42-3								
		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		
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 4655148)											
ES2237206-001	BH5_0.2	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit		
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit		
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit		
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit		
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	0.0023	0.0020	14.0	0% - 50%		
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit		
ES2237391-009	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit		
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit		
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit		
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit		
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit		
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit		
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 4655148)											
ES2237206-001	BH5_0.2	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit		
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit		
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit		
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	0.0015	0.0010	36.7	No Limit		
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit		
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit		
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit		
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit		
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit		
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit		
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit		
		ES2237391-009	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
				EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
				EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1			0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit		
EP231X: Perfluorononanoic acid (PFNA)	375-95-1			0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit		
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2			0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit		
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8			0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit		
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1			0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit		
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	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 (%)
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 4655148) - continued									
ES2237391-009	Anonymous	EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 4655148)									
ES2237206-001	BH5_0.2	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	0.0003	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	0.0005	0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	0.0247	0.0203	19.6	0% - 20%
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
ES2237391-009	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 4655148)									
ES2237206-001	BH5_0.2	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
ES2237391-009	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	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 (%)
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 4655148) - continued									
ES2237391-009	Anonymous	EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
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 (%)
EG020F: Dissolved Metals by ICP-MS (QC Lot: 4657873)									
ES2237707-002	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
ES2237832-004	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
EG020T: Total Metals by ICP-MS (QC Lot: 4657914)									
ES2237375-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	0.0002	0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.034	0.034	0.0	0% - 20%
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	0.038	0.038	0.0	0% - 20%
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.056	0.055	2.0	0% - 20%
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.014	0.014	0.0	0% - 50%
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.003	0.003	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.017	0.017	0.0	No Limit
ES2237576-005	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.003	0.004	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.018	0.020	7.4	0% - 50%
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.029	0.032	9.1	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 4657872)									
ES2237231-001	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.1 µg/L	<0.0001	0.0	No Limit



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 (%)
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 4657812)									
ES2237206-024	TB_171022	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES2237608-008	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 4647065)									
ES2237408-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	1	µg/L	<1	<1	0.0	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 4647063)									
ES2237408-001	Anonymous	EP068: alpha-BHC	319-84-6	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP068: gamma-BHC	58-89-9	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP068: Aldrin	309-00-2	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP068: 4,4'-DDE	72-55-9	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP068: Endrin	72-20-8	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP068: 4,4'-DDD	72-54-8	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP068: 4,4'-DDT	50-29-3	2	µg/L	<2.0	<2.0	0.0	No Limit
EP068: Methoxychlor	72-43-5	2	µg/L	<2.0	<2.0	0.0	No Limit		
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 4647063)									
ES2237408-001	Anonymous	EP068: Dichlorvos	62-73-7	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP068: Dimethoate	60-51-5	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP068: Diazinon	333-41-5	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP068: Malathion	121-75-5	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP068: Fenthion	55-38-9	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP068: Fenamiphos	22224-92-6	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP068: Prothiofos	34643-46-4	0.5	µg/L	<0.5	<0.5	0.0	No Limit



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 (%)
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 4647063) - continued									
ES2237408-001	Anonymous	EP068: Ethion	563-12-2	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP068: Carbophenothion	786-19-6	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP068: Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP068: Monocrotophos	6923-22-4	2	µg/L	<2.0	<2.0	0.0	No Limit
		EP068: Parathion-methyl	298-00-0	2	µg/L	<2.0	<2.0	0.0	No Limit
		EP068: Parathion	56-38-2	2	µg/L	<2.0	<2.0	0.0	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 4647064)									
ES2237408-001	Anonymous	EP075(SIM): Phenol	108-95-2	1	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	1	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	1	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	1	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	1	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	1	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	1	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	1	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	1	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2	µg/L	<2.0	<2.0	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	µg/L	<2.0	<2.0	0.0	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 4647064)									
ES2237408-001	Anonymous	EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2	1	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	205-82-3	1	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	1	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	1	µg/L	<1.0	<1.0	0.0	No Limit		
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 4647062)									
ES2237408-001	Anonymous	EP071: C15 - C28 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	µg/L	<50	<50	0.0	No Limit



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 (%)
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 4647062) - continued									
ES2237408-001	Anonymous	EP071: C29 - C36 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 4660873)									
ES2237672-007	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES2237672-002	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	40	50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 4647062)									
ES2237408-001	Anonymous	EP071: >C10 - C16 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: >C16 - C34 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 4660873)									
ES2237672-007	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES2237672-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	40	40	0.0	No Limit
EP080: BTEXN (QC Lot: 4660873)									
ES2237672-007	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
ES2237672-002	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	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: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Acceptable Limits (%)	
						LCS	Low	High	
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4652795)									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	121.1 mg/kg	113	88.0	113	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	0.74 mg/kg	104	70.0	130	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	19.6 mg/kg	104	68.0	132	
EG005T: Copper	7440-50-8	5	mg/kg	<5	52.9 mg/kg	103	89.0	111	
EG005T: Lead	7439-92-1	5	mg/kg	<5	60.8 mg/kg	96.7	82.0	119	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.3 mg/kg	95.2	80.0	120	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	139.3 mg/kg	92.2	66.0	133	
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4659088)									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	121.1 mg/kg	94.6	88.0	113	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	0.74 mg/kg	93.5	70.0	130	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	19.6 mg/kg	103	68.0	132	
EG005T: Copper	7440-50-8	5	mg/kg	<5	52.9 mg/kg	98.4	89.0	111	
EG005T: Lead	7439-92-1	5	mg/kg	<5	60.8 mg/kg	95.5	82.0	119	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.3 mg/kg	95.0	80.0	120	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	139.3 mg/kg	87.2	66.0	133	
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4659089)									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	121.1 mg/kg	91.1	88.0	113	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	0.74 mg/kg	92.2	70.0	130	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	19.6 mg/kg	102	68.0	132	
EG005T: Copper	7440-50-8	5	mg/kg	<5	52.9 mg/kg	100	89.0	111	
EG005T: Lead	7439-92-1	5	mg/kg	<5	60.8 mg/kg	93.0	82.0	119	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.3 mg/kg	94.2	80.0	120	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	139.3 mg/kg	87.2	66.0	133	
EA002: pH 1:5 (Soils) (QCLot: 4652803)									
EA002: pH Value	----	----	pH Unit	----	4 pH Unit	101	98.8	101	
					7 pH Unit	# 101	99.2	100	
EA010: Conductivity (1:5) (QCLot: 4652804)									
EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	1412 µS/cm	100	92.0	108	
EA033-A: Actual Acidity (QCLot: 4662134)									
EA033: pH KCl (23A)	----	----	pH Unit	----	4.4 pH Unit	98.6	91.0	107	
EA033: Titratable Actual Acidity (23F)	----	2	mole H+ / t	<2	16 mole H+ / t	101	70.0	124	
EA033: sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	<0.02	----	----	----	----	
EA033-A: Actual Acidity (QCLot: 4662135)									
EA033: pH KCl (23A)	----	----	pH Unit	----	4.4 pH Unit	99.4	91.0	107	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
				Result	Spike	Spike Recovery (%)	Acceptable Limits (%)	
					Concentration	LCS	Low	High
EA033-A: Actual Acidity (QCLot: 4662135) - continued								
EA033: Titratable Actual Acidity (23F)	----	2	mole H+ / t	<2	16 mole H+ / t	111	70.0	124
EA033: sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	<0.02	----	----	----	----
EA033-B: Potential Acidity (QCLot: 4662134)								
EA033: Chromium Reducible Sulfur (22B)	----	0.005	% S	<0.005	0.246 % S	97.0	77.0	121
EA033: acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	<10	----	----	----	----
EA033-B: Potential Acidity (QCLot: 4662135)								
EA033: Chromium Reducible Sulfur (22B)	----	0.005	% S	<0.005	0.246 % S	102	77.0	121
EA033: acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	<10	----	----	----	----
EA033-C: Acid Neutralising Capacity (QCLot: 4662134)								
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: 4662135)								
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-D: Retained Acidity (QCLot: 4662134)								
EA033: Net Acid Soluble Sulfur (20Je)	----	0.02	% S	<0.02	----	----	----	----
EA033: acidity - Net Acid Soluble Sulfur (a-20J)	----	10	mole H+ / t	<10	----	----	----	----
EA033: sulfidic - Net Acid Soluble Sulfur (s-20J)	----	0.02	% pyrite S	<0.02	----	----	----	----
EA033: KCl Extractable Sulfur (23Ce)	----	0.02	% S	<0.02	0.055 % S	102	70.0	128
EA033: HCl Extractable Sulfur (20Be)	----	0.02	% S	<0.02	0.696 % S	94.5	70.0	120
EA033-D: Retained Acidity (QCLot: 4662135)								
EA033: Net Acid Soluble Sulfur (20Je)	----	0.02	% S	<0.02	----	----	----	----
EA033: acidity - Net Acid Soluble Sulfur (a-20J)	----	10	mole H+ / t	<10	----	----	----	----
EA033: sulfidic - Net Acid Soluble Sulfur (s-20J)	----	0.02	% pyrite S	<0.02	----	----	----	----
EA033: KCl Extractable Sulfur (23Ce)	----	0.02	% S	<0.02	0.055 % S	102	70.0	128
EA033: HCl Extractable Sulfur (20Be)	----	0.02	% S	<0.02	0.696 % S	94.5	70.0	120
ED040S: Soluble Major Anions (QCLot: 4652805)								
ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	<10	750 mg/kg	94.9	80.0	120
ED045G: Chloride by Discrete Analyser (QCLot: 4652806)								
ED045G: Chloride	16887-00-6	10	mg/kg	<10	250 mg/kg	96.8	75.0	125
				<10	5000 mg/kg	97.4	79.0	117
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4652796)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.087 mg/kg	123	70.0	125
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4659087)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.087 mg/kg	90.0	70.0	125



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Acceptable Limits (%)	
					Concentration	LCS	Low	High	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4659091)									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.087 mg/kg	90.2	70.0	125	
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 4647083)									
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	106	62.0	126	
EP068A: Organochlorine Pesticides (OC) (QCLot: 4647082)									
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	91.6	69.0	113	
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	92.2	65.0	117	
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	98.4	67.0	119	
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	102	68.0	116	
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	94.7	65.0	117	
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	90.4	67.0	115	
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	90.9	69.0	115	
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	97.1	62.0	118	
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	96.0	63.0	117	
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	102	66.0	116	
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	98.0	64.0	116	
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	104	66.0	116	
EP068: 4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	97.6	67.0	115	
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	91.1	67.0	123	
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	98.3	69.0	115	
EP068: 4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	102	69.0	121	
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	91.8	56.0	120	
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	98.9	62.0	124	
EP068: 4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	101	66.0	120	
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	100	64.0	122	
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	85.0	54.0	130	
EP068B: Organophosphorus Pesticides (OP) (QCLot: 4647082)									
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	86.2	59.0	119	
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	100	62.0	128	
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	75.0	54.0	126	
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	86.3	67.0	119	
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	96.2	70.0	120	
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	93.9	72.0	120	
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	83.2	68.0	120	
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	90.2	68.0	122	
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	94.0	69.0	117	
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	97.5	76.0	118	
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	81.6	64.0	122	
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	95.8	70.0	116	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Acceptable Limits (%)	
					Concentration	LCS	Low	High	
EP068B: Organophosphorus Pesticides (OP) (QCLot: 4647082) - continued									
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	92.6	69.0	121	
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	96.2	66.0	118	
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	80.6	68.0	124	
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	96.6	62.0	112	
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	91.2	68.0	120	
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	94.4	65.0	127	
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	57.0	41.0	123	
EP075(SIM)A: Phenolic Compounds (QCLot: 4647081)									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	6 mg/kg	92.2	71.0	125	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	6 mg/kg	97.6	72.0	124	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	6 mg/kg	90.6	71.0	123	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	12 mg/kg	92.6	67.0	127	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	6 mg/kg	88.4	54.0	114	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	6 mg/kg	96.7	68.0	126	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	6 mg/kg	97.2	66.0	120	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	6 mg/kg	99.1	70.0	120	
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	6 mg/kg	91.5	70.0	116	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	6 mg/kg	80.3	54.0	114	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	6 mg/kg	86.5	60.0	114	
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	12 mg/kg	34.5	10.0	80.0	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 4647081)									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	97.3	77.0	125	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	90.6	72.0	124	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	92.3	73.0	127	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	91.1	72.0	126	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	99.9	75.0	127	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	98.4	77.0	127	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	104	73.0	127	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	104	74.0	128	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	93.4	69.0	123	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	96.2	75.0	127	
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	91.8	68.0	116	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	94.4	74.0	126	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	98.4	70.0	126	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	95.5	61.0	121	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	94.6	62.0	118	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	93.1	63.0	121	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Acceptable Limits (%)	
						LCS	Low	High	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4647080)									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	95.0	75.0	129	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	99.3	77.0	131	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	101	71.0	129	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4650376)									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	100	68.4	128	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4647080)									
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	98.8	77.0	125	
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	98.3	74.0	138	
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	103	63.0	131	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4650376)									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	104	68.4	128	
EP080: BTEXN (QCLot: 4650376)									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	101	62.0	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	102	67.0	121	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	104	65.0	117	
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	106	66.0	118	
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	105	68.0	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	99.9	63.0	119	
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4655148)									
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.00125 mg/kg	92.0	72.0	128	
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	101	73.0	123	
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	85.2	67.0	130	
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	94.8	70.0	132	
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	94.8	68.0	136	
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	82.4	59.0	134	
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4655148)									
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	82.1	71.0	135	
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	96.8	69.0	132	
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	108	70.0	132	
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	106	71.0	131	
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	104	69.0	133	
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	107	72.0	129	
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	0.00125 mg/kg	97.6	69.0	133	
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	101	64.0	136	
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	107	69.0	135	
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	113	66.0	139	
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	95.0	69.0	133	



Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Acceptable Limits (%)	
						LCS	Low	High	High
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4655148)									
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	86.8	67.0	137	
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	0.00312 mg/kg	96.8	71.6	129	
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	102	69.8	131	
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	83.0	68.7	130	
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	93.4	65.1	134	
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	84.0	63.0	144	
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	86.0	61.0	139	
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4655148)									
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00125 mg/kg	87.2	62.0	145	
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00125 mg/kg	86.8	64.0	140	
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	0.00125 mg/kg	85.6	65.0	137	
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	0.00125 mg/kg	80.4	69.2	143	

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Acceptable Limits (%)	
						LCS	Low	High	High
EG020F: Dissolved Metals by ICP-MS (QCLot: 4657873)									
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	93.1	85.0	114	
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	93.2	84.0	110	
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	92.0	85.0	111	
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	91.0	81.0	111	
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	90.4	83.0	111	
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	92.6	82.0	112	
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	89.4	81.0	117	
EG020T: Total Metals by ICP-MS (QCLot: 4657914)									
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	104	82.0	114	
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	106	84.0	112	
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	100	86.0	116	
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	103	83.0	118	
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	104	85.0	115	
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	102	84.0	116	
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	102	79.0	117	
EG035F: Dissolved Mercury by FIMS (QCLot: 4657872)									
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	99.2	83.0	105	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4657812)									



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Acceptable Limits (%)	
					Concentration	LCS	Low	High	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4657812) - continued									
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	98.7	77.0	111	
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 4647065)									
EP066: Total Polychlorinated biphenyls	----	1	µg/L	<1	10 µg/L	87.5	68.9	113	
EP068A: Organochlorine Pesticides (OC) (QCLot: 4647063)									
EP068: alpha-BHC	319-84-6	0.5	µg/L	<0.5	5 µg/L	82.0	64.9	107	
EP068: Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	5 µg/L	82.5	58.3	111	
EP068: beta-BHC	319-85-7	0.5	µg/L	<0.5	5 µg/L	90.2	69.0	117	
EP068: gamma-BHC	58-89-9	0.5	µg/L	<0.5	5 µg/L	86.2	70.0	112	
EP068: delta-BHC	319-86-8	0.5	µg/L	<0.5	5 µg/L	91.4	68.9	110	
EP068: Heptachlor	76-44-8	0.5	µg/L	<0.5	5 µg/L	82.9	65.2	108	
EP068: Aldrin	309-00-2	0.5	µg/L	<0.5	5 µg/L	83.8	65.8	109	
EP068: Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	5 µg/L	87.4	67.1	107	
EP068: trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	5 µg/L	84.4	64.1	110	
EP068: alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	5 µg/L	89.6	66.7	112	
EP068: cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	5 µg/L	85.7	63.2	111	
EP068: Dieldrin	60-57-1	0.5	µg/L	<0.5	5 µg/L	93.5	65.2	113	
EP068: 4,4'-DDE	72-55-9	0.5	µg/L	<0.5	5 µg/L	87.8	66.0	112	
EP068: Endrin	72-20-8	0.5	µg/L	<0.5	5 µg/L	89.1	65.2	113	
EP068: beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	5 µg/L	93.2	67.3	114	
EP068: 4,4'-DDD	72-54-8	0.5	µg/L	<0.5	5 µg/L	94.7	72.0	122	
EP068: Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	5 µg/L	98.6	66.9	109	
EP068: Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	5 µg/L	96.3	65.2	112	
EP068: 4,4'-DDT	50-29-3	2	µg/L	<2.0	5 µg/L	98.6	65.2	112	
EP068: Endrin ketone	53494-70-5	0.5	µg/L	<0.5	5 µg/L	93.6	63.8	110	
EP068: Methoxychlor	72-43-5	2	µg/L	<2.0	5 µg/L	95.5	61.1	114	
EP068B: Organophosphorus Pesticides (OP) (QCLot: 4647063)									
EP068: Dichlorvos	62-73-7	0.5	µg/L	<0.5	5 µg/L	91.7	65.6	114	
EP068: Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	5 µg/L	100	63.7	113	
EP068: Monocrotophos	6923-22-4	2	µg/L	<2.0	5 µg/L	24.2	19.7	48.0	
EP068: Dimethoate	60-51-5	0.5	µg/L	<0.5	5 µg/L	82.8	69.5	110	
EP068: Diazinon	333-41-5	0.5	µg/L	<0.5	5 µg/L	89.0	71.1	110	
EP068: Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	5 µg/L	89.2	77.0	119	
EP068: Parathion-methyl	298-00-0	2	µg/L	<2.0	5 µg/L	76.8	70.0	124	
EP068: Malathion	121-75-5	0.5	µg/L	<0.5	5 µg/L	85.6	68.4	116	
EP068: Fenthion	55-38-9	0.5	µg/L	<0.5	5 µg/L	85.9	68.6	112	
EP068: Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	5 µg/L	85.5	75.0	119	
EP068: Parathion	56-38-2	2	µg/L	<2.0	5 µg/L	78.5	67.0	121	
EP068: Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	5 µg/L	86.9	69.0	121	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Acceptable Limits (%)	
					Concentration	LCS	Low	High	
EP068B: Organophosphorus Pesticides (OP) (QCLot: 4647063) - continued									
EP068: Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	5 µg/L	80.6	71.8	110	
EP068: Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	5 µg/L	86.4	67.5	112	
EP068: Fenamiphos	22224-92-6	0.5	µg/L	<0.5	5 µg/L	80.7	64.1	116	
EP068: Prothiofos	34643-46-4	0.5	µg/L	<0.5	5 µg/L	90.4	67.8	114	
EP068: Ethion	563-12-2	0.5	µg/L	<0.5	5 µg/L	88.6	74.0	120	
EP068: Carbophenothion	786-19-6	0.5	µg/L	<0.5	5 µg/L	93.6	66.2	114	
EP068: Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	5 µg/L	77.4	51.6	128	
EP075(SIM)A: Phenolic Compounds (QCLot: 4647064)									
EP075(SIM): Phenol	108-95-2	1	µg/L	<1.0	5 µg/L	39.4	24.5	61.9	
EP075(SIM): 2-Chlorophenol	95-57-8	1	µg/L	<1.0	5 µg/L	77.0	52.0	90.0	
EP075(SIM): 2-Methylphenol	95-48-7	1	µg/L	<1.0	5 µg/L	74.7	51.0	91.0	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2	µg/L	<2.0	10 µg/L	64.7	44.0	88.0	
EP075(SIM): 2-Nitrophenol	88-75-5	1	µg/L	<1.0	5 µg/L	76.4	48.0	100	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	1	µg/L	<1.0	5 µg/L	74.2	49.0	99.0	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	1	µg/L	<1.0	5 µg/L	74.3	53.0	105	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	1	µg/L	<1.0	5 µg/L	83.1	57.0	105	
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1	µg/L	<1.0	5 µg/L	82.7	53.0	99.0	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	1	µg/L	<1.0	5 µg/L	80.6	50.0	106	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	1	µg/L	<1.0	5 µg/L	85.8	51.0	105	
EP075(SIM): Pentachlorophenol	87-86-5	2	µg/L	<2.0	10 µg/L	46.9	10.0	95.0	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 4647064)									
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	72.0	50.0	94.0	
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	78.0	63.6	114	
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	78.8	62.2	113	
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	97.1	63.9	115	
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	78.9	62.6	116	
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	85.4	64.3	116	
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	98.9	63.6	118	
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	98.6	63.1	118	
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	85.3	64.1	117	
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	90.1	62.5	116	
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	80.7	61.7	119	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	83.2	63.0	115	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	83.2	63.3	117	
EP075(SIM): Indeno(1,2,3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	81.0	59.9	118	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	82.1	61.2	117	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	80.8	59.1	118	



Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Acceptable Limits (%)	
						LCS	Low	High	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4647062)									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	83.5	53.7	97.0	
EP071: C15 - C28 Fraction	----	100	µg/L	<100	600 µg/L	91.5	63.3	107	
EP071: C29 - C36 Fraction	----	50	µg/L	<50	400 µg/L	86.3	58.3	120	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4660873)									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	94.2	75.0	127	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4647062)									
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	500 µg/L	77.6	53.9	95.5	
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	700 µg/L	101	57.8	110	
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	300 µg/L	98.1	50.5	115	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4660873)									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	96.6	75.0	127	
EP080: BTEXN (QCLot: 4660873)									
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	99.4	70.0	122	
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	95.6	69.0	123	
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	102	70.0	120	
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	98.4	69.0	121	
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	101	72.0	122	
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	102	70.0	120	

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	Spike Recovery(%)		Acceptable Limits (%)	
					MS	Low	High	
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4652795)								
ES2237206-003	BH5_1.0	EG005T: Arsenic	7440-38-2	50 mg/kg	97.0	70.0	130	
		EG005T: Cadmium	7440-43-9	50 mg/kg	99.2	70.0	130	
		EG005T: Chromium	7440-47-3	50 mg/kg	98.4	68.0	132	
		EG005T: Copper	7440-50-8	250 mg/kg	100	70.0	130	
		EG005T: Lead	7439-92-1	250 mg/kg	100	70.0	130	
		EG005T: Nickel	7440-02-0	50 mg/kg	98.3	70.0	130	
		EG005T: Zinc	7440-66-6	250 mg/kg	96.4	66.0	133	
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4659088)								
ES2237198-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	95.8	70.0	130	
		EG005T: Cadmium	7440-43-9	50 mg/kg	94.5	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
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4659088) - continued							
ES2237198-001	Anonymous	EG005T: Chromium	7440-47-3	50 mg/kg	98.7	68.0	132
		EG005T: Copper	7440-50-8	250 mg/kg	95.3	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	95.6	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	93.8	70.0	130
		EG005T: Zinc	7440-66-6	250 mg/kg	95.2	66.0	133
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4659089)							
ES2237206-015	BH4_2.0	EG005T: Arsenic	7440-38-2	50 mg/kg	87.3	70.0	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	92.8	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	91.0	68.0	132
		EG005T: Copper	7440-50-8	250 mg/kg	92.3	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	93.2	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	89.6	70.0	130
		EG005T: Zinc	7440-66-6	250 mg/kg	93.3	66.0	133
ED045G: Chloride by Discrete Analyser (QCLot: 4652806)							
ES2237206-004	BH5_2.0	ED045G: Chloride	16887-00-6	250 mg/kg	102	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4652796)							
ES2237206-003	BH5_1.0	EG035T: Mercury	7439-97-6	5 mg/kg	101	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4659087)							
ES2237198-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	108	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4659091)							
ES2237206-015	BH4_2.0	EG035T: Mercury	7439-97-6	5 mg/kg	95.5	70.0	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 4647083)							
ES2237206-002	BH5_0.5	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	107	70.0	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 4647082)							
ES2237206-002	BH5_0.5	EP068: gamma-BHC	58-89-9	0.5 mg/kg	110	70.0	130
		EP068: Heptachlor	76-44-8	0.5 mg/kg	96.7	70.0	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	86.0	70.0	130
		EP068: Dieldrin	60-57-1	0.5 mg/kg	99.1	70.0	130
		EP068: Endrin	72-20-8	2 mg/kg	114	70.0	130
		EP068: 4,4'-DDT	50-29-3	2 mg/kg	85.1	70.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 4647082)							
ES2237206-002	BH5_0.5	EP068: Diazinon	333-41-5	0.5 mg/kg	86.3	70.0	130
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	97.8	70.0	130
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	94.0	70.0	130
		EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	101	70.0	130
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	92.4	70.0	130



Sub-Matrix: SOIL

				Matrix Spike (MS) Report				
				Spike Concentration	SpikeRecovery(%) MS	Acceptable Limits (%)		
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
EP075(SIM)A: Phenolic Compounds (QCLot: 4647081)								
ES2237206-002	BH5_0.5	EP075(SIM): Phenol	108-95-2	10 mg/kg	93.5	70.0	130	
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	97.9	70.0	130	
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	89.4	60.0	130	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	102	70.0	130	
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	47.4	20.0	130	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 4647081)								
ES2237206-002	BH5_0.5	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	97.3	70.0	130	
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	92.6	70.0	130	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4647080)								
ES2237206-002	BH5_0.5	EP071: C10 - C14 Fraction	----	480 mg/kg	82.0	73.0	137	
		EP071: C15 - C28 Fraction	----	3100 mg/kg	90.8	53.0	131	
		EP071: C29 - C36 Fraction	----	2060 mg/kg	88.0	52.0	132	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4650376)								
ES2237142-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	90.1	70.0	130	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4647080)								
ES2237206-002	BH5_0.5	EP071: >C10 - C16 Fraction	----	860 mg/kg	90.1	73.0	137	
		EP071: >C16 - C34 Fraction	----	4320 mg/kg	87.0	53.0	131	
		EP071: >C34 - C40 Fraction	----	890 mg/kg	86.3	52.0	132	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4650376)								
ES2237142-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	92.5	70.0	130	
EP080: BTEXN (QCLot: 4650376)								
ES2237142-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	82.8	70.0	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	86.6	70.0	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	91.2	70.0	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	91.3	70.0	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	90.8	70.0	130	
	EP080: Naphthalene	91-20-3	2.5 mg/kg	90.4	70.0	130		
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4655148)								
ES2237206-001	BH5_0.2	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.00125 mg/kg	116	72.0	128	
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.00125 mg/kg	111	73.0	123	
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00125 mg/kg	114	67.0	130	
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.00125 mg/kg	122	70.0	132	
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00125 mg/kg	132	68.0	136	
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.00125 mg/kg	128	59.0	134	
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4655148)								



Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4655148) - continued							
ES2237206-001	BH5_0.2	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	98.0	71.0	135
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	121	69.0	132
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	98.0	70.0	132
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	114	71.0	131
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	103	69.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.00125 mg/kg	120	72.0	129
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.00125 mg/kg	114	69.0	133
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.00125 mg/kg	114	64.0	136
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.00125 mg/kg	110	69.0	135
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.00125 mg/kg	118	66.0	139
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.00312 mg/kg	101	69.0	133
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4655148)							
ES2237206-001	BH5_0.2	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.00125 mg/kg	86.0	67.0	137
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.00312 mg/kg	117	71.6	129
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.00312 mg/kg	107	69.8	131
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.00312 mg/kg	97.1	68.7	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.00312 mg/kg	102	65.1	134
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.00125 mg/kg	102	63.0	144
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.00125 mg/kg	# Not Determined	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4655148)							
ES2237206-001	BH5_0.2	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00125 mg/kg	92.8	62.0	145
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00125 mg/kg	94.8	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.00125 mg/kg	81.2	65.0	137
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.00125 mg/kg	88.0	69.2	143

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG020F: Dissolved Metals by ICP-MS (QCLot: 4657873)							
ES2237707-001	Anonymous	EG020A-F: Arsenic	7440-38-2	1 mg/L	94.4	70.0	130
		EG020A-F: Cadmium	7440-43-9	0.25 mg/L	96.4	70.0	130
		EG020A-F: Chromium	7440-47-3	1 mg/L	94.6	70.0	130
		EG020A-F: Copper	7440-50-8	1 mg/L	95.0	70.0	130
		EG020A-F: Lead	7439-92-1	1 mg/L	94.9	70.0	130



Sub-Matrix: WATER

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG020F: Dissolved Metals by ICP-MS (QCLot: 4657873) - continued							
ES2237707-001	Anonymous	EG020A-F: Nickel	7440-02-0	1 mg/L	95.7	70.0	130
		EG020A-F: Zinc	7440-66-6	1 mg/L	94.9	70.0	130
EG020T: Total Metals by ICP-MS (QCLot: 4657914)							
ES2237206-024	TB_171022	EG020A-T: Arsenic	7440-38-2	1 mg/L	110	70.0	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	112	70.0	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	110	70.0	130
		EG020A-T: Copper	7440-50-8	1 mg/L	84.3	70.0	130
		EG020A-T: Lead	7439-92-1	1 mg/L	108	70.0	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	109	70.0	130
		EG020A-T: Zinc	7440-66-6	1 mg/L	108	70.0	130
EG035F: Dissolved Mercury by FIMS (QCLot: 4657872)							
ES2237206-023	RB01	EG035F: Mercury	7439-97-6	0.01 mg/L	98.7	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4657812)							
ES2237391-019	Anonymous	EG035T: Mercury	7439-97-6	0.01 mg/L	96.0	70.0	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 4647065)							
ES2237408-002	Anonymous	EP066: Total Polychlorinated biphenyls	----	10 µg/L	87.2	68.2	116
EP068A: Organochlorine Pesticides (OC) (QCLot: 4647063)							
ES2237408-002	Anonymous	EP068: gamma-BHC	58-89-9	5 µg/L	85.5	70.0	130
		EP068: Heptachlor	76-44-8	5 µg/L	74.7	70.0	130
		EP068: Aldrin	309-00-2	5 µg/L	78.4	70.0	130
		EP068: Dieldrin	60-57-1	5 µg/L	84.6	70.0	130
		EP068: Endrin	72-20-8	20 µg/L	80.8	70.0	130
		EP068: 4,4'-DDT	50-29-3	20 µg/L	72.2	70.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 4647063)							
ES2237408-002	Anonymous	EP068: Diazinon	333-41-5	5 µg/L	97.9	70.0	130
		EP068: Chlorpyrifos-methyl	5598-13-0	5 µg/L	75.1	70.0	130
		EP068: Pirimphos-ethyl	23505-41-1	5 µg/L	83.4	70.0	130
		EP068: Bromophos-ethyl	4824-78-6	5 µg/L	88.4	70.0	130
		EP068: Prothiofos	34643-46-4	5 µg/L	84.1	70.0	130
EP075(SIM)A: Phenolic Compounds (QCLot: 4647064)							
ES2237408-002	Anonymous	EP075(SIM): Phenol	108-95-2	20 µg/L	34.0	20.0	130
		EP075(SIM): 2-Chlorophenol	95-57-8	20 µg/L	84.5	60.0	130
		EP075(SIM): 2-Nitrophenol	88-75-5	20 µg/L	68.3	60.0	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	20 µg/L	78.0	70.0	130
		EP075(SIM): Pentachlorophenol	87-86-5	20 µg/L	47.1	20.0	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 4647064)							



Sub-Matrix: WATER

				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: 4647064) - continued							
ES2237408-002	Anonymous	EP075(SIM): Acenaphthene	83-32-9	20 µg/L	81.9	70.0	130
		EP075(SIM): Pyrene	129-00-0	20 µg/L	80.0	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4647062)							
ES2237408-002	Anonymous	EP071: C10 - C14 Fraction	----	200 µg/L	97.7	70.0	130
		EP071: C15 - C28 Fraction	----	250 µg/L	122	71.0	130
		EP071: C29 - C36 Fraction	----	200 µg/L	100	67.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4660873)							
ES2237672-007	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	116	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4647062)							
ES2237408-002	Anonymous	EP071: >C10 - C16 Fraction	----	250 µg/L	95.2	70.0	130
		EP071: >C16 - C34 Fraction	----	350 µg/L	89.9	75.0	130
		EP071: >C34 - C40 Fraction	----	150 µg/L	81.5	67.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4660873)							
ES2237672-007	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	117	70.0	130
EP080: BTEXN (QCLot: 4660873)							
ES2237672-007	Anonymous	EP080: Benzene	71-43-2	25 µg/L	96.0	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	98.9	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	105	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	102	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	106	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	100	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: ES2237206	Page	: 1 of 15
Client	: KLEINFELDER AUSTRALIA PTY LTD	Laboratory	: Environmental Division Sydney
Contact	: J Roby	Telephone	: +6138549 9609
Project	: 20232402	Date Samples Received	: 17-Oct-2022
Site	: UON Gosford	Issue Date	: 27-Oct-2022
Sampler	: Jai Roby	No. of samples received	: 24
Order number	: ----	No. of samples analysed	: 24

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.
- 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, **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
Laboratory Control Spike (LCS) Recoveries							
EA002: pH 1:5 (Soils)	QC-4652803-002	----	pH Value	----	101 %	99.2-100%	Recovery greater than upper control limit
Matrix Spike (MS) Recoveries							
EP231C: Perfluoroalkyl Sulfonamides	ES2237206--001	BH5_0.2	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.

Outliers : Analysis Holding Time Compliance

Matrix: **SOIL**

Method	Extraction / Preparation			Analysis			
	Container / Client Sample ID(s)	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EA002: pH 1:5 (Soils)							
Soil Glass Jar - Unpreserved							
BH5_1.0, BH5_1.9, BH4_3.0	BH5_2.0, BH4_1.0,	----	----	----	24-Oct-2022	21-Oct-2022	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	Sample Date	Extraction / Preparation			Analysis			
		Container / Client Sample ID(s)	Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA002: pH 1:5 (Soils)								
Soil Glass Jar - Unpreserved (EA002)								
BH5_1.0, BH5_1.9, BH4_3.0	17-Oct-2022	BH5_2.0, BH4_1.0,	21-Oct-2022	24-Oct-2022	✓	24-Oct-2022	21-Oct-2022	*
EA010: Conductivity (1:5)								
Soil Glass Jar - Unpreserved (EA010)								
BH5_1.0, BH5_1.9, BH4_3.0	17-Oct-2022	BH5_2.0, BH4_1.0,	21-Oct-2022	24-Oct-2022	✓	24-Oct-2022	18-Nov-2022	✓



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-A: Actual Acidity							
Snap Lock Bag - frozen (EA033) BH5_0.5, BH4_1.0	17-Oct-2022	27-Oct-2022	17-Oct-2023	✓	27-Oct-2022	25-Jan-2023	✓
Soil Glass Jar - Frozen (EA033) BH5_1.0, BH5_2.0, BH5_3.0, BH5_4.0, BH5_5.0, BH5_6.0, BH5_7.0, BH5_8.0, BH4_2.0, BH4_3.0, BH4_4.0, BH4_5.0, BH4_6.0, BH4_7.0, BH4_8.0, BH4_9.0	17-Oct-2022	27-Oct-2022	17-Oct-2023	✓	27-Oct-2022	25-Jan-2023	✓
EA033-B: Potential Acidity							
Snap Lock Bag - frozen (EA033) BH5_0.5, BH4_1.0	17-Oct-2022	27-Oct-2022	17-Oct-2023	✓	27-Oct-2022	25-Jan-2023	✓
Soil Glass Jar - Frozen (EA033) BH5_1.0, BH5_2.0, BH5_3.0, BH5_4.0, BH5_5.0, BH5_6.0, BH5_7.0, BH5_8.0, BH4_2.0, BH4_3.0, BH4_4.0, BH4_5.0, BH4_6.0, BH4_7.0, BH4_8.0, BH4_9.0	17-Oct-2022	27-Oct-2022	17-Oct-2023	✓	27-Oct-2022	25-Jan-2023	✓
EA033-C: Acid Neutralising Capacity							
Snap Lock Bag - frozen (EA033) BH5_0.5, BH4_1.0	17-Oct-2022	27-Oct-2022	17-Oct-2023	✓	27-Oct-2022	25-Jan-2023	✓
Soil Glass Jar - Frozen (EA033) BH5_1.0, BH5_2.0, BH5_3.0, BH5_4.0, BH5_5.0, BH5_6.0, BH5_7.0, BH5_8.0, BH4_2.0, BH4_3.0, BH4_4.0, BH4_5.0, BH4_6.0, BH4_7.0, BH4_8.0, BH4_9.0	17-Oct-2022	27-Oct-2022	17-Oct-2023	✓	27-Oct-2022	25-Jan-2023	✓



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) BH5_0.5, BH4_1.0	17-Oct-2022	27-Oct-2022	17-Oct-2023	✓	27-Oct-2022	25-Jan-2023	✓	
Soil Glass Jar - Frozen (EA033) BH5_1.0, BH5_2.0, BH5_3.0, BH5_4.0, BH5_5.0, BH5_6.0, BH5_7.0, BH5_8.0, BH4_2.0, BH4_3.0, BH4_4.0, BH4_5.0, BH4_6.0, BH4_7.0, BH4_8.0, BH4_9.0	17-Oct-2022	27-Oct-2022	17-Oct-2023	✓	27-Oct-2022	25-Jan-2023	✓	
EA033-E: Acid Base Accounting								
Snap Lock Bag - frozen (EA033) BH5_0.5, BH4_1.0	17-Oct-2022	27-Oct-2022	17-Oct-2023	✓	27-Oct-2022	25-Jan-2023	✓	
Soil Glass Jar - Frozen (EA033) BH5_1.0, BH5_2.0, BH5_3.0, BH5_4.0, BH5_5.0, BH5_6.0, BH5_7.0, BH5_8.0, BH4_2.0, BH4_3.0, BH4_4.0, BH4_5.0, BH4_6.0, BH4_7.0, BH4_8.0, BH4_9.0	17-Oct-2022	27-Oct-2022	17-Oct-2023	✓	27-Oct-2022	25-Jan-2023	✓	
EA037: Ass Field Screening Analysis								
Snap Lock Bag - frozen (EA037) BH4_1.0	17-Oct-2022	25-Oct-2022	15-Apr-2023	✓	25-Oct-2022	15-Apr-2023	✓	
Soil Glass Jar - Frozen (EA037) BH5_1.0, BH5_2.0, BH5_3.0, BH5_4.0, BH5_5.0, BH5_6.0, BH5_7.0, BH5_8.0, BH4_2.0, BH4_3.0, BH4_4.0, BH4_5.0, BH4_6.0, BH4_7.0, BH4_8.0, BH4_9.0	17-Oct-2022	25-Oct-2022	15-Apr-2023	✓	25-Oct-2022	15-Apr-2023	✓	



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	
EA055: Moisture Content (Dried @ 105-110°C)								
HDPE Soil Jar (EA055)								
BH5_0.2, BH4_0.2	17-Oct-2022	----	----	----	26-Oct-2022	31-Oct-2022	✓	
Soil Glass Jar - Unpreserved (EA055)								
BH5_1.0, BH5_1.9, BH4_3.0	17-Oct-2022	----	----	----	21-Oct-2022	31-Oct-2022	✓	
Soil Glass Jar - Unpreserved (EA055)								
BH5_0.5, BH4_2.0	17-Oct-2022	----	----	----	25-Oct-2022	31-Oct-2022	✓	
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200)								
BH5_0.2, BH4_0.2	17-Oct-2022	----	----	----	19-Oct-2022	15-Apr-2023	✓	
ED040S: Soluble Major Anions								
Soil Glass Jar - Unpreserved (ED040S)								
BH5_2.0, BH4_1.0	17-Oct-2022	21-Oct-2022	14-Nov-2022	✓	24-Oct-2022	18-Nov-2022	✓	
ED045G: Chloride by Discrete Analyser								
Soil Glass Jar - Unpreserved (ED045G)								
BH5_2.0, BH4_1.0	17-Oct-2022	21-Oct-2022	14-Nov-2022	✓	24-Oct-2022	18-Nov-2022	✓	
EG005(ED093)T: Total Metals by ICP-AES								
Soil Glass Jar - Unpreserved (EG005T)								
BH5_1.0, BH4_1.0	17-Oct-2022	23-Oct-2022	15-Apr-2023	✓	24-Oct-2022	15-Apr-2023	✓	
Soil Glass Jar - Unpreserved (EG005T)								
BH5_0.5, BH4_2.0	17-Oct-2022	25-Oct-2022	15-Apr-2023	✓	26-Oct-2022	15-Apr-2023	✓	
EG035T: Total Recoverable Mercury by FIMS								
Soil Glass Jar - Unpreserved (EG035T)								
BH5_1.0, BH4_1.0	17-Oct-2022	23-Oct-2022	14-Nov-2022	✓	24-Oct-2022	14-Nov-2022	✓	
Soil Glass Jar - Unpreserved (EG035T)								
BH5_0.5, BH4_2.0	17-Oct-2022	25-Oct-2022	14-Nov-2022	✓	26-Oct-2022	14-Nov-2022	✓	
EP066: Polychlorinated Biphenyls (PCB)								
Soil Glass Jar - Unpreserved (EP066)								
BH5_0.5, BH4_0.5	17-Oct-2022	20-Oct-2022	31-Oct-2022	✓	24-Oct-2022	29-Nov-2022	✓	
EP068A: Organochlorine Pesticides (OC)								
Soil Glass Jar - Unpreserved (EP068)								
BH5_0.5, BH4_0.5	17-Oct-2022	20-Oct-2022	31-Oct-2022	✓	24-Oct-2022	29-Nov-2022	✓	



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) BH5_0.5, BH4_0.5	17-Oct-2022	20-Oct-2022	31-Oct-2022	✓	24-Oct-2022	29-Nov-2022	✓	
EP075(SIM)A: Phenolic Compounds								
Soil Glass Jar - Unpreserved (EP075(SIM)) BH5_0.5, BH5_1.9, BH4_1.0, BH5_1.0, BH4_0.5, BH4_2.0	17-Oct-2022	20-Oct-2022	31-Oct-2022	✓	21-Oct-2022	29-Nov-2022	✓	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP075(SIM)) BH5_0.5, BH5_1.9, BH4_1.0, BH5_1.0, BH4_0.5, BH4_2.0	17-Oct-2022	20-Oct-2022	31-Oct-2022	✓	21-Oct-2022	29-Nov-2022	✓	
EP080/071: Total Petroleum Hydrocarbons								
Soil Glass Jar - Unpreserved (EP080) BH5_0.5, BH5_1.9, BH4_1.0, BH5_1.0, BH4_0.5, BH4_2.0	17-Oct-2022	20-Oct-2022	31-Oct-2022	✓	21-Oct-2022	31-Oct-2022	✓	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
Soil Glass Jar - Unpreserved (EP080) BH5_0.5, BH5_1.9, BH4_1.0, BH5_1.0, BH4_0.5, BH4_2.0	17-Oct-2022	20-Oct-2022	31-Oct-2022	✓	21-Oct-2022	31-Oct-2022	✓	
EP080: BTEXN								
Soil Glass Jar - Unpreserved (EP080) BH5_0.5, BH5_1.9, BH4_1.0, BH5_1.0, BH4_0.5, BH4_2.0	17-Oct-2022	20-Oct-2022	31-Oct-2022	✓	21-Oct-2022	31-Oct-2022	✓	
EP231A: Perfluoroalkyl Sulfonic Acids								
HDPE Soil Jar (EP231X) BH5_0.2, BH4_0.2	17-Oct-2022	24-Oct-2022	15-Apr-2023	✓	26-Oct-2022	03-Dec-2022	✓	
EP231B: Perfluoroalkyl Carboxylic Acids								
HDPE Soil Jar (EP231X) BH5_0.2, BH4_0.2	17-Oct-2022	24-Oct-2022	15-Apr-2023	✓	26-Oct-2022	03-Dec-2022	✓	
EP231C: Perfluoroalkyl Sulfonamides								
HDPE Soil Jar (EP231X) BH5_0.2, BH4_0.2	17-Oct-2022	24-Oct-2022	15-Apr-2023	✓	26-Oct-2022	03-Dec-2022	✓	
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
HDPE Soil Jar (EP231X) BH5_0.2, BH4_0.2	17-Oct-2022	24-Oct-2022	15-Apr-2023	✓	26-Oct-2022	03-Dec-2022	✓	



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
EP231P: PFAS Sums							
HDPE Soil Jar (EP231X) BH5_0.2, BH4_0.2	17-Oct-2022	24-Oct-2022	15-Apr-2023	✓	26-Oct-2022	03-Dec-2022	✓

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
EG020F: Dissolved Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F) RB01	17-Oct-2022	----	----	----	25-Oct-2022	15-Apr-2023	✓
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) TB_171022	17-Oct-2022	25-Oct-2022	15-Apr-2023	✓	25-Oct-2022	15-Apr-2023	✓
EG035F: Dissolved Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F) RB01	17-Oct-2022	----	----	----	26-Oct-2022	14-Nov-2022	✓
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T) TB_171022	17-Oct-2022	----	----	----	26-Oct-2022	14-Nov-2022	✓
EP066: Polychlorinated Biphenyls (PCB)							
Amber Glass Bottle - Unpreserved (EP066) RB01, TB_171022	17-Oct-2022	20-Oct-2022	24-Oct-2022	✓	21-Oct-2022	29-Nov-2022	✓
EP068A: Organochlorine Pesticides (OC)							
Amber Glass Bottle - Unpreserved (EP068) RB01, TB_171022	17-Oct-2022	20-Oct-2022	24-Oct-2022	✓	21-Oct-2022	29-Nov-2022	✓
EP068B: Organophosphorus Pesticides (OP)							
Amber Glass Bottle - Unpreserved (EP068) RB01, TB_171022	17-Oct-2022	20-Oct-2022	24-Oct-2022	✓	21-Oct-2022	29-Nov-2022	✓
EP075(SIM)A: Phenolic Compounds							
Amber Glass Bottle - Unpreserved (EP075(SIM)) RB01, TB_171022	17-Oct-2022	20-Oct-2022	24-Oct-2022	✓	21-Oct-2022	29-Nov-2022	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM)) RB01, TB_171022	17-Oct-2022	20-Oct-2022	24-Oct-2022	✓	21-Oct-2022	29-Nov-2022	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071) RB01, TB_171022	17-Oct-2022	20-Oct-2022	24-Oct-2022	✓	21-Oct-2022	29-Nov-2022	✓
Amber VOC Vial - Sulfuric Acid (EP080) RB01, TB_171022	17-Oct-2022	26-Oct-2022	31-Oct-2022	✓	26-Oct-2022	31-Oct-2022	✓



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
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071)							
RB01, TB_171022	17-Oct-2022	20-Oct-2022	24-Oct-2022	✓	21-Oct-2022	29-Nov-2022	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
RB01, TB_171022	17-Oct-2022	26-Oct-2022	31-Oct-2022	✓	26-Oct-2022	31-Oct-2022	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080)							
RB01, TB_171022	17-Oct-2022	26-Oct-2022	31-Oct-2022	✓	26-Oct-2022	31-Oct-2022	✓



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	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
Analytical Methods							
Laboratory Duplicates (DUP)							
ASS Field Screening Analysis	EA037	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Chloride Soluble By Discrete Analyser	ED045G	1	6	16.67	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Chromium Suite for Acid Sulphate Soils	EA033	4	40	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Electrical Conductivity (1:5)	EA010	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Major Anions - Soluble	ED040S	1	6	16.67	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055	8	80	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	6	16.67	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	13	15.38	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	2	50.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
pH (1:5)	EA002	2	19	10.53	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	2	50.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	5	46	10.87	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	6	60	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	6	16.67	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	18	11.11	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Chloride Soluble By Discrete Analyser	ED045G	2	6	33.33	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Chromium Suite for Acid Sulphate Soils	EA033	2	40	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Electrical Conductivity (1:5)	EA010	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Major Anions - Soluble	ED040S	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	13	7.69	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	2	50.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
pH (1:5)	EA002	2	19	10.53	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	2	50.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	3	46	6.52	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	3	60	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Chloride Soluble By Discrete Analyser	ED045G	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Chromium Suite for Acid Sulphate Soils	EA033	2	40	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Electrical Conductivity (1:5)	EA010	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Major Anions - Soluble	ED040S	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	13	7.69	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							
Pesticides by GCMS	EP068	1	2	50.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	2	50.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	3	46	6.52	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	3	60	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Chloride Soluble By Discrete Analyser	ED045G	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	13	7.69	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	2	50.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	2	50.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	3	46	6.52	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	3	60	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard

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)							
Dissolved Mercury by FIMS	EG035F	1	7	14.29	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	18	11.11	10.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	5	20.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	4	25.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	4	25.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	12	16.67	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	4	25.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Dissolved Mercury by FIMS	EG035F	1	7	14.29	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	5	20.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	4	25.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	4	25.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	12	8.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	4	25.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard



Matrix: **WATER** Evaluation: * = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
Analytical Methods							
Method Blanks (MB)							
Dissolved Mercury by FIMS	EG035F	1	7	14.29	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	5	20.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	4	25.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	4	25.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	12	8.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	4	25.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Dissolved Mercury by FIMS	EG035F	1	7	14.29	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	5	20.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	4	25.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	4	25.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	12	8.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	4	25.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	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 (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).
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).
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.
ASS Field Screening Analysis	* EA037	SOIL	In house: Referenced to Acid Sulfate Soils Laboratory Methods Guidelines. As received samples are tested for pH field and pH fox and assessed for a reaction rating.
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).
Resistivity (1:5)	EA080	SOIL	In house: Calculated from Electrical Conductivity
Corrosion Classification for Steel and Concrete Piles	* EA167	SOIL	In house: Exposure classification is determined according to Australian Standard AS2159-2009.
Asbestos Identification in Soils	EA200	SOIL	AS 4964 Method for the qualitative identification of asbestos in bulk samples Analysis by Polarised Light Microscopy including dispersion staining
Major Anions - Soluble	ED040S	SOIL	In house: Soluble Anions are determined off a 1:5 soil / water extract by ICPAES.
Chloride Soluble By Discrete Analyser	ED045G	SOIL	In house: Referenced to APHA 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 (SnCl ₂) (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 SnCl ₂ 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)
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).



Analytical Methods	Method	Matrix	Method Descriptions
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.
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	SOIL	In-house: Analysis of soils by solvent extraction followed by LC-Electrospray-MS-MS, Negative Mode using MRM using internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to a portion of soil which is then extracted with MTBE and an ion pairing reagent. A portion of extract is exchanged into the analytical solvent mixture, combined with an equal volume reagent water and filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. Samples are 0.45µm filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl ₂)(Cold Vapour generation) AAS) Samples are 0.45µm filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ 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).
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl ₂)(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 unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ 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).
Polychlorinated Biphenyls (PCB)	EP066	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample 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)



Analytical Methods	Method	Matrix	Method Descriptions
Pesticides by GCMS	EP068	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample 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)
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015 The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS in SIM Mode 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	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Drying only	EN020D	SOIL	In house
Drying at 85 degrees, bagging and labelling (ASS)	EN020PR	SOIL	In house
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.
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).
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.
QuEChERS Extraction of Solids	ORG71	SOIL	In house: Sequential extractions with Acetonitrile/Methanol by shaking. Extraction efficiency aided by the addition of salts under acidic conditions. Where relevant, interferences from co-extracted organics are removed with dispersive clean-up media (dSPE). The extract is either diluted or concentrated and exchanged into the analytical solvent.
Digestion for Total Recoverable Metals	EN25	WATER	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)
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for purging.





ABB@EN

Client:		SITE, COC AND CONTACT DATA						Laboratory:			
Kleinfelder Australia Pty Ltd Suite 3, 240 - 244 Pacific Highway Charlestown NSW 2290 Phone: 02 4949 5200		Site Name:	UON Gosford		Sampler Name:	Jai Roby		ALS 5/585 Maitland Rd Mayfield West, Newcastle NSW 2304 Phone: (02) 4014 2500			
QUOTE NUMBER		Job No.:		Contact Number:		Contact e-mail:		Send Results to:			
20232402		20232402		0401499275		j.robby@kleinfelder.com		Macion@kleinfelder.com dkousbroek@kleinfelder.com			
Required TAT:		Data QA level:		PM name (if not sampler):		PM e-mail:		newcastle@kleinfelder.com Phone: 02 4949 5200			
24 hrs 48 hrs 3 days 5 days 7 days		LAB minimum unless specified.		Madi Adrien		Madi@kleinfelder.com					

CHAIN OF CUSTODY											
Relinquished by (print):			Received by (print):			Relinquished:			Received by:		
Jai Roby			[Signature]			[Signature]			[Signature]		
(sign)			(sign)			(sign)			(sign)		
Date / Time:			Date / Time:			Date / Time:			Date / Time:		
18/10/22 4:00pm			18-10-22 5:40			18/10/22 7:30					
Notes:			Notes:			Notes:			Notes:		
			ice present / no ice seals intact / no seal						ice present / no ice seals intact / no seal		

Sample ID	Lab ID	Sample Point	Sample Type	Date	Start Depth	End Depth	Units	# Containers	Organic Analytes		Metals		Other Analytes				Comments	
									S-19	S-27	S-1	Asbestos - EA200C	Chromium Suite - EA033	PFAS - 29 Analytes - EP231X	pH For - EA037	Seal Integrity		
1	HA03_0-1												X					
2	HA03_0-2								X		X							
3	HA03_0-3												X					
4	HA03_0-8									X	X							
5	HA03_1-8								X	X	X							
6	HA04_0-3								X		X		X					
7	HA04_0-8									X	X		X					
8	HA04_2-0								X	X	X		X					
9	BH2_0-5								X		X		X					
10	BH2_1-0									X				X	X			
11	BH2_2-0									X			X					
12	BH2_3-0									X			X		X			
13	BH2_4-0												X		X			
14	BH2_5-0												X		X			
15	BH2_5-0												X		X			
16	HA04_0-3								X		X		X					
17	HA04_1-4									X		X	X					

Environmental Division
Sydney
Work Order Reference
ES2237391



Telephone : - 61-2-8784 8555

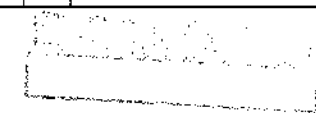
Relinquished By / Date:
 Connote, Courier
 WO No: ES2237391
 Attached By PO / Internal Sheet:

S-19 = TRH(C6-C40)/BTEXN/PAH/OC/PCB & Metals
 S-1 = 7 Metals
 S-27 = TRH(C6-C40)/BTEXN/PAH/Phenols & 8 metals ***



Client:		SITE, COC AND CONTACT DATA										Laboratory:																																																																																																																					
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S-19 = TRH(C6-C40)/BTEXN/PAH/VOC/OP/PCB, 8 Metals
 S-1 = 7 Metals**
 S-27 = TRH(C6-C40)/BTEXN/PAH/Phenols & 8 metals ***





CERTIFICATE OF ANALYSIS

Work Order : ES2237391
Client : KLEINFELDER AUSTRALIA PTY LTD
Contact : Mr Malcolm Adrien
Address : Suite 3, 240 - 244 Pacific Highway Charlestown NSW 2290
Telephone : 02 4949 5200
Project : 20232402
Order number : ----
C-O-C number : ----
Sampler : Jai Roby
Site : UON Gosford
Quote number : EN/222
No. of samples received : 22
No. of samples analysed : 21

Page : 1 of 36
Laboratory : Environmental Division Sydney
Contact : Graeme Jablonskas
Address : 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone : +6138549 9609
Date Samples Received : 18-Oct-2022 17:40
Date Analysis Commenced : 21-Oct-2022
Issue Date : 28-Oct-2022 16:26



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
Descriptive 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.

Table with 3 columns: Signatories, Position, Accreditation Category. Lists names like Ankit Joshi, Edwandy Fadjjar, Franco Lentini, Ivan Taylor, Jake Spooner, Kim McCabe, Layla Hafner, Timothy Creagh and their respective roles and accreditation categories.



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.

- EP075 (SIM): Where reported, 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.
- 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.
- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- 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.
- EP068: Positive results have been confirmed by re-extraction and re-analysis.
- 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: EA037 (Rapid Field and F(ox) screening): pH F(ox) Reaction Rate: 1 - Slight; 2 - Moderate; 3 - Strong; 4 - Extreme
- 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'.
- EA037 ASS Field Screening: NATA accreditation does not cover performance of this service.
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Trace' - Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EA200 Legend
- EA200 'Ch' Chrysotile (white asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.



- EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2
 - EA200: 'Yes' - Asbestos detected by polarised light microscopy including dispersion staining.
 - EA200: 'No*' - No asbestos found, at the reporting limit of 0.1g/kg, by polarised light microscopy including dispersion staining. Asbestos material was detected and positively identified at concentrations estimated to be below 0.1g/kg.
 - EA200: 'No' - No asbestos found at the reporting limit 0.1g/kg, by polarised light microscopy including dispersion staining.
 - EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.
-



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	HA03_0.1	HA03_0.2	HA03_0.3	HA03_0.8	HA03_1.8
Sampling date / time				18-Oct-2022 00:00	18-Oct-2022 00:00	18-Oct-2022 00:00	18-Oct-2022 00:00	18-Oct-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2237391-001	ES2237391-002	ES2237391-003	ES2237391-004	ES2237391-005	
				Result	Result	Result	Result	Result	
EA033-A: Actual Acidity									
pH KCl (23A)	----	0.1	pH Unit	----	----	5.9	----	----	
Titration Actual Acidity (23F)	----	2	mole H+ / t	----	----	5	----	----	
sulfidic - Titration Actual Acidity (s-23F)	----	0.02	% pyrite S	----	----	<0.02	----	----	
EA033-B: Potential Acidity									
Chromium Reducible Sulfur (22B)	----	0.005	% S	----	----	0.010	----	----	
acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	----	----	<10	----	----	
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	----	----	11	----	----	
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	----	----	11	----	----	
Liming Rate excluding ANC	----	1	kg CaCO3/t	----	----	<1	----	----	
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%	----	18.3	----	17.5	19.5	
EA200: AS 4964 - 2004 Identification of Asbestos in Soils									
Asbestos Detected	1332-21-4	0.1	g/kg	No	----	----	----	----	
Asbestos (Trace)	1332-21-4	5	Fibres	No	----	----	----	----	
Asbestos Type	1332-21-4	-	--	-	----	----	----	----	
Synthetic Mineral Fibre	----	0.1	g/kg	No	----	----	----	----	
Organic Fibre	----	0.1	g/kg	No	----	----	----	----	
Sample weight (dry)	----	0.01	g	125	----	----	----	----	
APPROVED IDENTIFIER:	----	-	--	J.SPOONER	----	----	----	----	
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg	----	5	----	<5	8	
Cadmium	7440-43-9	1	mg/kg	----	<1	----	<1	<1	
Chromium	7440-47-3	2	mg/kg	----	15	----	18	19	
Copper	7440-50-8	5	mg/kg	----	39	----	<5	<5	
Lead	7439-92-1	5	mg/kg	----	105	----	15	14	
Nickel	7440-02-0	2	mg/kg	----	13	----	<2	<2	
Zinc	7440-66-6	5	mg/kg	----	128	----	11	<5	
EG035T: Total Recoverable Mercury by FIMS									



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	HA03_0.1	HA03_0.2	HA03_0.3	HA03_0.8	HA03_1.8
Sampling date / time				18-Oct-2022 00:00	18-Oct-2022 00:00	18-Oct-2022 00:00	18-Oct-2022 00:00	18-Oct-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2237391-001	ES2237391-002	ES2237391-003	ES2237391-004	ES2237391-005	
				Result	Result	Result	Result	Result	
EG035T: Total Recoverable Mercury by FIMS - Continued									
Mercury	7439-97-6	0.1	mg/kg	----	0.1	----	<0.1	<0.1	
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	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	----	----	----	
^ Total Chlordane (sum)	----	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	----	----	----	
^ 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	HA03_0.1	HA03_0.2	HA03_0.3	HA03_0.8	HA03_1.8
Sampling date / time				18-Oct-2022 00:00	18-Oct-2022 00:00	18-Oct-2022 00:00	18-Oct-2022 00:00	18-Oct-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2237391-001	ES2237391-002	ES2237391-003	ES2237391-004	ES2237391-005	
				Result	Result	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	----	----	----	
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									
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	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	HA03_0.1	HA03_0.2	HA03_0.3	HA03_0.8	HA03_1.8
Sampling date / time					18-Oct-2022 00:00	18-Oct-2022 00:00	18-Oct-2022 00:00	18-Oct-2022 00:00	18-Oct-2022 00:00
Compound	CAS Number	LOR	Unit		ES2237391-001	ES2237391-002	ES2237391-003	ES2237391-004	ES2237391-005
				Result	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
Benzo(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
>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



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	HA03_0.1	HA03_0.2	HA03_0.3	HA03_0.8	HA03_1.8
Sampling date / time				18-Oct-2022 00:00	18-Oct-2022 00:00	18-Oct-2022 00:00	18-Oct-2022 00:00	18-Oct-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2237391-001	ES2237391-002	ES2237391-003	ES2237391-004	ES2237391-005	
				Result	Result	Result	Result	Result	
EP080: BTEXN - Continued									
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	
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	----	<0.0002	----	----	----	
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	----	<0.0002	----	----	----	
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	----	<0.0002	----	----	----	
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	----	<0.0002	----	----	----	
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	----	0.0013	----	----	----	
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	----	<0.0002	----	----	----	
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	----	<0.001	----	----	----	
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	----	<0.0002	----	----	----	
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	----	<0.0002	----	----	----	
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	----	<0.0002	----	----	----	
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	----	<0.0002	----	----	----	
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	----	<0.0002	----	----	----	
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	----	<0.0002	----	----	----	
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	----	<0.0002	----	----	----	
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	----	<0.0002	----	----	----	
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	----	<0.0002	----	----	----	
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	----	<0.0005	----	----	----	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	HA03_0.1	HA03_0.2	HA03_0.3	HA03_0.8	HA03_1.8
Sampling date / time				18-Oct-2022 00:00	18-Oct-2022 00:00	18-Oct-2022 00:00	18-Oct-2022 00:00	18-Oct-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2237391-001	ES2237391-002	ES2237391-003	ES2237391-004	ES2237391-005	
				Result	Result	Result	Result	Result	
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	----	<0.0002	----	----	----	
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	----	<0.0005	----	----	----	
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	----	<0.0005	----	----	----	
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	----	<0.0005	----	----	----	
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	----	<0.0005	----	----	----	
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	----	<0.0002	----	----	----	
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	----	<0.0002	----	----	----	
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	----	<0.0005	----	----	----	
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	----	<0.0005	----	----	----	
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	----	<0.0005	----	----	----	
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	----	<0.0005	----	----	----	
EP231P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg	----	0.0013	----	----	----	
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	----	0.0013	----	----	----	
Sum of PFAS (WA DER List)	----	0.0002	mg/kg	----	0.0013	----	----	----	
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%	----	81.4	----	----	----	
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%	----	70.2	----	----	----	
EP068T: Organophosphorus Pesticide Surrogate									



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	HA03_0.1	HA03_0.2	HA03_0.3	HA03_0.8	HA03_1.8
Sampling date / time				18-Oct-2022 00:00	18-Oct-2022 00:00	18-Oct-2022 00:00	18-Oct-2022 00:00	18-Oct-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2237391-001	ES2237391-002	ES2237391-003	ES2237391-004	ES2237391-005	
				Result	Result	Result	Result	Result	
EP068T: Organophosphorus Pesticide Surrogate - Continued									
DEF	78-48-8	0.05	%	----	79.0	----	----	----	
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%	----	67.6	----	68.0	68.0	
2-Chlorophenol-D4	93951-73-6	0.5	%	----	76.4	----	76.4	76.7	
2,4,6-Tribromophenol	118-79-6	0.5	%	----	66.9	----	65.3	62.9	
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%	----	78.8	----	80.8	81.6	
Anthracene-d10	1719-06-8	0.5	%	----	92.4	----	98.7	99.3	
4-Terphenyl-d14	1718-51-0	0.5	%	----	80.9	----	84.3	84.4	
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	0.2	%	----	89.0	----	82.6	85.3	
Toluene-D8	2037-26-5	0.2	%	----	85.4	----	86.1	85.9	
4-Bromofluorobenzene	460-00-4	0.2	%	----	98.4	----	97.8	98.3	
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%	----	100	----	----	----	
13C8-PFOA	----	0.0002	%	----	97.5	----	----	----	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)		Sample ID		HA04_0.3	HA04_0.8	HA04_2.0	BH2_0.5	BH2_1.0
		Sampling date / time		18-Oct-2022 00:00	18-Oct-2022 00:00	18-Oct-2022 00:00	18-Oct-2022 00:00	18-Oct-2022 00:00
Compound	CAS Number	LOR	Unit	ES2237391-006	ES2237391-007	ES2237391-008	ES2237391-009	ES2237391-010
				Result	Result	Result	Result	Result
EA002: pH 1:5 (Soils)								
pH Value	----	0.1	pH Unit	----	----	----	----	7.6
EA010: Conductivity (1:5)								
Electrical Conductivity @ 25°C	----	1	µS/cm	----	----	----	----	19
EA033-A: Actual Acidity								
pH KCl (23A)	----	0.1	pH Unit	----	6.2	----	8.2	6.8
Titrateable Actual Acidity (23F)	----	2	mole H+ / t	----	<2	----	<2	<2
sulfidic - Titrateable 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	----	0.010	----	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	----	----	----	1.17	0.24
acidity - Acid Neutralising Capacity (a-19A2)	----	10	mole H+ / t	----	----	----	234	49
sulfidic - Acid Neutralising Capacity (s-19A2)	----	0.01	% pyrite S	----	----	----	0.38	0.08
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
EA037: Ass Field Screening Analysis								
ø pH (F)	----	0.1	pH Unit	----	----	----	----	6.5
ø pH (Fox)	----	0.1	pH Unit	----	----	----	----	4.9
ø Reaction Rate	----	1	-	----	----	----	----	2
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	19.5	13.2	15.6	7.7	9.9
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21.4	0.1	g/kg	No	----	----	No	----
Asbestos (Trace)	1332-21.4	5	Fibres	No	----	----	No	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	HA04_0.3	HA04_0.8	HA04_2.0	BH2_0.5	BH2_1.0
Sampling date / time				18-Oct-2022 00:00	18-Oct-2022 00:00	18-Oct-2022 00:00	18-Oct-2022 00:00	18-Oct-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2237391-006	ES2237391-007	ES2237391-008	ES2237391-009	ES2237391-010	
				Result	Result	Result	Result	Result	
EA200: AS 4964 - 2004 Identification of Asbestos in Soils - Continued									
Asbestos Type	1332-21-4	-	--	-	----	----	-	----	
Synthetic Mineral Fibre	----	0.1	g/kg	No	----	----	No	----	
Organic Fibre	----	0.1	g/kg	No	----	----	No	----	
Sample weight (dry)	----	0.01	g	91.0	----	----	149	----	
APPROVED IDENTIFIER:	----	-	--	J.SPOONER	----	----	J.SPOONER	----	
ED040S : Soluble Sulfate by ICPAES									
Sulfate as SO4 2-	14808-79-8	10	mg/kg	----	----	----	----	<10	
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	10	mg/kg	----	----	----	----	<10	
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	<5	
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1	
Chromium	7440-47-3	2	mg/kg	16	8	15	16	5	
Copper	7440-50-8	5	mg/kg	31	<5	<5	22	6	
Lead	7439-92-1	5	mg/kg	5	16	8	32	15	
Nickel	7440-02-0	2	mg/kg	54	<2	<2	18	<2	
Zinc	7440-66-6	5	mg/kg	34	22	19	77	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	
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	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	----	
^ Total Chlordane (sum)	----	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	----	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	HA04_0.3	HA04_0.8	HA04_2.0	BH2_0.5	BH2_1.0
Sampling date / time				18-Oct-2022 00:00	18-Oct-2022 00:00	18-Oct-2022 00:00	18-Oct-2022 00:00	18-Oct-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2237391-006	ES2237391-007	ES2237391-008	ES2237391-009	ES2237391-010	
				Result	Result	Result	Result	Result	
EP068A: Organochlorine Pesticides (OC) - Continued									
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	----	
^ 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	----	
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	----	
EP075(SIM)A: Phenolic Compounds									



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	HA04_0.3	HA04_0.8	HA04_2.0	BH2_0.5	BH2_1.0
Sampling date / time					18-Oct-2022 00:00	18-Oct-2022 00:00	18-Oct-2022 00:00	18-Oct-2022 00:00	18-Oct-2022 00:00
Compound	CAS Number	LOR	Unit		ES2237391-006	ES2237391-007	ES2237391-008	ES2237391-009	ES2237391-010
					Result	Result	Result	Result	Result
EP075(SIM)A: Phenolic Compounds - Continued									
Phenol	108-95-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg		<2	<2	<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									



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	HA04_0.3	HA04_0.8	HA04_2.0	BH2_0.5	BH2_1.0
Sampling date / time				18-Oct-2022 00:00	18-Oct-2022 00:00	18-Oct-2022 00:00	18-Oct-2022 00:00	18-Oct-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2237391-006	ES2237391-007	ES2237391-008	ES2237391-009	ES2237391-010	
				Result	Result	Result	Result	Result	
EP080/071: Total Petroleum Hydrocarbons - Continued									
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	
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	
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	----	----	<0.0002	----	
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	----	----	<0.0002	----	
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	----	----	<0.0002	----	
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	----	----	<0.0002	----	
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	----	----	<0.0002	----	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	HA04_0.3	HA04_0.8	HA04_2.0	BH2_0.5	BH2_1.0
Sampling date / time				18-Oct-2022 00:00	18-Oct-2022 00:00	18-Oct-2022 00:00	18-Oct-2022 00:00	18-Oct-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2237391-006	ES2237391-007	ES2237391-008	ES2237391-009	ES2237391-010	
				Result	Result	Result	Result	Result	
EP231A: Perfluoroalkyl Sulfonic Acids - Continued									
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	----	----	<0.0002	----	
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	----	----	<0.001	----	
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	----	----	<0.0002	----	
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	----	----	<0.0002	----	
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	----	----	<0.0002	----	
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	----	----	<0.0002	----	
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	----	----	<0.0002	----	
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	----	----	<0.0002	----	
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	----	----	<0.0002	----	
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	----	----	<0.0002	----	
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	----	----	<0.0002	----	
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	----	----	<0.0005	----	
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	----	----	<0.0002	----	
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	----	----	<0.0005	----	
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	----	----	<0.0005	----	
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	----	----	<0.0005	----	
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	----	----	<0.0005	----	
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	----	----	<0.0002	----	
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	----	----	<0.0002	----	
EP231D: (n:2) Fluorotelomer Sulfonic Acids									



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	HA04_0.3	HA04_0.8	HA04_2.0	BH2_0.5	BH2_1.0
Sampling date / time				18-Oct-2022 00:00	18-Oct-2022 00:00	18-Oct-2022 00:00	18-Oct-2022 00:00	18-Oct-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2237391-006	ES2237391-007	ES2237391-008	ES2237391-009	ES2237391-010	
				Result	Result	Result	Result	Result	
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	----	----	<0.0005	----	
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	----	----	<0.0005	----	
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	----	----	<0.0005	----	
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	----	----	<0.0005	----	
EP231P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg	<0.0002	----	----	<0.0002	----	
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	<0.0002	----	----	<0.0002	----	
Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	----	----	<0.0002	----	
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%	94.0	----	----	102	----	
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%	85.2	----	----	81.9	----	
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%	92.7	----	----	93.3	----	
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%	67.4	69.2	69.7	78.2	69.2	
2-Chlorophenol-D4	93951-73-6	0.5	%	75.5	77.3	78.9	88.6	72.2	
2,4,6-Tribromophenol	118-79-6	0.5	%	55.5	62.1	62.2	68.3	53.0	
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%	81.2	82.7	84.8	94.0	76.4	
Anthracene-d10	1719-06-8	0.5	%	99.4	100	103	113	94.4	
4-Terphenyl-d14	1718-51-0	0.5	%	82.1	85.3	87.8	97.6	79.0	
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	0.2	%	77.8	93.0	89.6	98.0	95.7	
Toluene-D8	2037-26-5	0.2	%	79.8	92.2	89.8	102	93.0	
4-Bromofluorobenzene	460-00-4	0.2	%	89.7	102	97.8	104	97.5	
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%	102	----	----	112	----	
13C8-PFOA	----	0.0002	%	107	----	----	105	----	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH2_2.0	BH2_3.0	BH2_4.0	BH2_5.0	BH2_6.0
Sampling date / time				18-Oct-2022 00:00	18-Oct-2022 00:00	18-Oct-2022 00:00	18-Oct-2022 00:00	18-Oct-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2237391-011	ES2237391-012	ES2237391-013	ES2237391-014	ES2237391-015	
				Result	Result	Result	Result	Result	
EA002: pH 1:5 (Soils)									
pH Value	----	0.1	pH Unit	----	5.1	----	----	----	
EA010: Conductivity (1:5)									
Electrical Conductivity @ 25°C	----	1	µS/cm	----	32	----	----	----	
EA033-A: Actual Acidity									
pH KCl (23A)	----	0.1	pH Unit	5.4	4.8	4.8	4.5	4.4	
Titrateable Actual Acidity (23F)	----	2	mole H+ / t	11	45	24	81	101	
sulfidic - Titrateable Actual Acidity (s-23F)	----	0.02	% pyrite S	<0.02	0.07	0.04	0.13	0.16	
EA033-B: Potential Acidity									
Chromium Reducible Sulfur (22B)	----	0.005	% S	0.015	0.009	0.012	0.008	0.008	
acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	<10	<10	<10	<10	<10	
EA033-D: Retained Acidity									
KCl Extractable Sulfur (23Ce)	----	0.02	% S	----	----	----	----	<0.02	
HCl Extractable Sulfur (20Be)	----	0.02	% S	----	----	----	----	<0.02	
Net Acid Soluble Sulfur (20Je)	----	0.02	% S	----	----	----	----	<0.02	
acidity - Net Acid Soluble Sulfur (a-20J)	----	10	mole H+ / t	----	----	----	----	<10	
sulfidic - Net Acid Soluble Sulfur (s-20J)	----	0.02	% pyrite S	----	----	----	----	<0.02	
EA033-E: Acid Base Accounting									
ANC Fineness Factor	----	0.5	-	1.5	1.5	1.5	1.5	1.5	
Net Acidity (sulfur units)	----	0.02	% S	0.03	0.08	0.05	0.14	0.17	
Net Acidity (acidity units)	----	10	mole H+ / t	21	50	32	86	108	
Liming Rate	----	1	kg CaCO3/t	2	4	2	6	8	
Net Acidity excluding ANC (sulfur units)	----	0.02	% S	0.03	0.08	0.05	0.14	0.17	
Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	21	50	32	86	108	
Liming Rate excluding ANC	----	1	kg CaCO3/t	2	4	2	6	8	
EA037: Ass Field Screening Analysis									
ø pH (F)	----	0.1	pH Unit	5.5	4.9	4.7	4.8	4.9	
ø pH (Fox)	----	0.1	pH Unit	4.4	3.8	3.8	3.9	3.6	
ø Reaction Rate	----	1	-	2	2	2	2	2	
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%	----	13.5	----	----	----	
ED040S : Soluble Sulfate by ICPAES									
Sulfate as SO4 2-	14808-79-8	10	mg/kg	----	40	----	----	----	
ED045G: Chloride by Discrete Analyser									



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH2_2.0	BH2_3.0	BH2_4.0	BH2_5.0	BH2_6.0
Sampling date / time				18-Oct-2022 00:00	18-Oct-2022 00:00	18-Oct-2022 00:00	18-Oct-2022 00:00	18-Oct-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2237391-011	ES2237391-012	ES2237391-013	ES2237391-014	ES2237391-015	
				Result	Result	Result	Result	Result	
ED045G: Chloride by Discrete Analyser - Continued									
Chloride	16887-00-6	10	mg/kg	----	<10	----	----	----	
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg	----	<5	----	----	----	
Cadmium	7440-43-9	1	mg/kg	----	<1	----	----	----	
Chromium	7440-47-3	2	mg/kg	----	10	----	----	----	
Copper	7440-50-8	5	mg/kg	----	<5	----	----	----	
Lead	7439-92-1	5	mg/kg	----	13	----	----	----	
Nickel	7440-02-0	2	mg/kg	----	<2	----	----	----	
Zinc	7440-66-6	5	mg/kg	----	8	----	----	----	
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg	----	<0.1	----	----	----	
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	----	----	----	
Acenaphthylene	208-96-8	0.5	mg/kg	----	<0.5	----	----	----	
Acenaphthene	83-32-9	0.5	mg/kg	----	<0.5	----	----	----	
Fluorene	86-73-7	0.5	mg/kg	----	<0.5	----	----	----	
Phenanthrene	85-01-8	0.5	mg/kg	----	<0.5	----	----	----	
Anthracene	120-12-7	0.5	mg/kg	----	<0.5	----	----	----	
Fluoranthene	206-44-0	0.5	mg/kg	----	<0.5	----	----	----	
Pyrene	129-00-0	0.5	mg/kg	----	<0.5	----	----	----	
Benz(a)anthracene	56-55-3	0.5	mg/kg	----	<0.5	----	----	----	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH2_2.0	BH2_3.0	BH2_4.0	BH2_5.0	BH2_6.0
Sampling date / time				18-Oct-2022 00:00	18-Oct-2022 00:00	18-Oct-2022 00:00	18-Oct-2022 00:00	18-Oct-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2237391-011	ES2237391-012	ES2237391-013	ES2237391-014	ES2237391-015	
				Result	Result	Result	Result	Result	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Chrysene	218-01-9	0.5	mg/kg	----	<0.5	----	----	----	
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	----	<0.5	----	----	----	
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	----	<0.5	----	----	----	
Benzo(a)pyrene	50-32-8	0.5	mg/kg	----	<0.5	----	----	----	
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	----	<0.5	----	----	----	
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	----	<0.5	----	----	----	
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	----	<0.5	----	----	----	
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	----	<0.5	----	----	----	
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	----	<0.5	----	----	----	
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	----	0.6	----	----	----	
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	----	1.2	----	----	----	
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg	----	<10	----	----	----	
C10 - C14 Fraction	----	50	mg/kg	----	<50	----	----	----	
C15 - C28 Fraction	----	100	mg/kg	----	<100	----	----	----	
C29 - C36 Fraction	----	100	mg/kg	----	<100	----	----	----	
^ C10 - C36 Fraction (sum)	----	50	mg/kg	----	<50	----	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg	----	<10	----	----	----	
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	----	<10	----	----	----	
>C10 - C16 Fraction	----	50	mg/kg	----	<50	----	----	----	
>C16 - C34 Fraction	----	100	mg/kg	----	<100	----	----	----	
>C34 - C40 Fraction	----	100	mg/kg	----	<100	----	----	----	
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	----	<50	----	----	----	
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	----	<50	----	----	----	
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg	----	<0.2	----	----	----	
Toluene	108-88-3	0.5	mg/kg	----	<0.5	----	----	----	
Ethylbenzene	100-41-4	0.5	mg/kg	----	<0.5	----	----	----	
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	----	<0.5	----	----	----	
ortho-Xylene	95-47-6	0.5	mg/kg	----	<0.5	----	----	----	
^ Sum of BTEX	----	0.2	mg/kg	----	<0.2	----	----	----	
^ Total Xylenes	----	0.5	mg/kg	----	<0.5	----	----	----	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH2_2.0	BH2_3.0	BH2_4.0	BH2_5.0	BH2_6.0
Sampling date / time				18-Oct-2022 00:00	18-Oct-2022 00:00	18-Oct-2022 00:00	18-Oct-2022 00:00	18-Oct-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2237391-011	ES2237391-012	ES2237391-013	ES2237391-014	ES2237391-015	
				Result	Result	Result	Result	Result	
EP080: BTEXN - Continued									
Naphthalene	91-20-3	1	mg/kg	----	<1	----	----	----	
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%	----	67.8	----	----	----	
2-Chlorophenol-D4	93951-73-6	0.5	%	----	76.2	----	----	----	
2,4,6-Tribromophenol	118-79-6	0.5	%	----	56.0	----	----	----	
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%	----	81.3	----	----	----	
Anthracene-d10	1719-06-8	0.5	%	----	99.5	----	----	----	
4-Terphenyl-d14	1718-51-0	0.5	%	----	84.4	----	----	----	
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	0.2	%	----	105	----	----	----	
Toluene-D8	2037-26-5	0.2	%	----	106	----	----	----	
4-Bromofluorobenzene	460-00-4	0.2	%	----	111	----	----	----	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	HA01_0.3	HA01_1.4	HA01_2.0	QC01	----
Sampling date / time				18-Oct-2022 00:00	18-Oct-2022 00:00	18-Oct-2022 00:00	18-Oct-2022 00:00	----	----
Compound	CAS Number	LOR	Unit	ES2237391-016	ES2237391-017	ES2237391-018	ES2237391-021	-----	-----
				Result	Result	Result	Result	----	----
EA033-A: Actual Acidity									
pH KCl (23A)	----	0.1	pH Unit	----	7.0	6.0	----	----	----
Titration Actual Acidity (23F)	----	2	mole H+ / t	----	<2	3	----	----	----
sulfidic - Titration 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	0.010	----	----	----
acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	----	<10	<10	----	----	----
EA033-C: Acid Neutralising Capacity									
Acid Neutralising Capacity (19A2)	----	0.01	% CaCO3	----	0.82	----	----	----	----
acidity - Acid Neutralising Capacity (a-19A2)	----	10	mole H+ / t	----	164	----	----	----	----
sulfidic - Acid Neutralising Capacity (s-19A2)	----	0.01	% pyrite S	----	0.26	----	----	----	----
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	----	1.0	%	3.5	9.5	13.1	3.2	----	----
EA200: AS 4964 - 2004 Identification of Asbestos in Soils									
Asbestos Detected	1332-21-4	0.1	g/kg	No	----	----	----	----	----
Asbestos (Trace)	1332-21-4	5	Fibres	No	----	----	----	----	----
Asbestos Type	1332-21-4	-	--	-	----	----	----	----	----
Synthetic Mineral Fibre	----	0.1	g/kg	No	----	----	----	----	----
Organic Fibre	----	0.1	g/kg	No	----	----	----	----	----
Sample weight (dry)	----	0.01	g	187	----	----	----	----	----
APPROVED IDENTIFIER:	----	-	--	J.SPOONER	----	----	----	----	----
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	----	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	----	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	HA01_0.3	HA01_1.4	HA01_2.0	QC01	----
Sampling date / time				18-Oct-2022 00:00	18-Oct-2022 00:00	18-Oct-2022 00:00	18-Oct-2022 00:00	----	
Compound	CAS Number	LOR	Unit	ES2237391-016	ES2237391-017	ES2237391-018	ES2237391-021	-----	
				Result	Result	Result	Result	----	
EG005(ED093)T: Total Metals by ICP-AES - Continued									
Chromium	7440-47-3	2	mg/kg	3	4	<2	3	----	
Copper	7440-50-8	5	mg/kg	<5	6	<5	<5	----	
Lead	7439-92-1	5	mg/kg	14	26	<5	8	----	
Nickel	7440-02-0	2	mg/kg	2	2	<2	<2	----	
Zinc	7440-66-6	5	mg/kg	14	40	<5	15	----	
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	----	
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	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	7.67	----	----	7.02	----	
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	----	----	<0.05	----	
^ Total Chlordane (sum)	----	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	2.09	----	----	2.28	----	
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	----	
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	9.76	----	----	9.30	----	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	HA01_0.3	HA01_1.4	HA01_2.0	QC01	----
Sampling date / time				18-Oct-2022 00:00	18-Oct-2022 00:00	18-Oct-2022 00:00	18-Oct-2022 00:00	----	
Compound	CAS Number	LOR	Unit	ES2237391-016	ES2237391-017	ES2237391-018	ES2237391-021	-----	
				Result	Result	Result	Result	----	
EP068A: Organochlorine Pesticides (OC) - Continued									
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/5 0-2	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	----	
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	----	
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----	
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----	
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----	
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	----	
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----	
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----	
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----	
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----	
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----	
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----	
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----	
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	----	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	HA01_0.3	HA01_1.4	HA01_2.0	QC01	----
Sampling date / time					18-Oct-2022 00:00	18-Oct-2022 00:00	18-Oct-2022 00:00	18-Oct-2022 00:00	----
Compound	CAS Number	LOR	Unit		ES2237391-016	ES2237391-017	ES2237391-018	ES2237391-021	-----
					Result	Result	Result	Result	----
EP075(SIM)A: Phenolic Compounds - Continued									
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	----
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	----
Benzo(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	----
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	<100	----
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	HA01_0.3	HA01_1.4	HA01_2.0	QC01	----
Sampling date / time				18-Oct-2022 00:00	18-Oct-2022 00:00	18-Oct-2022 00:00	18-Oct-2022 00:00	----	
Compound	CAS Number	LOR	Unit	ES2237391-016	ES2237391-017	ES2237391-018	ES2237391-021	-----	
				Result	Result	Result	Result	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	----	
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	----	----	<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	<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	----	
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	----	----	<0.0002	----	
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	----	----	<0.0002	----	
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	----	----	<0.0002	----	
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	----	----	<0.0002	----	
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	----	----	<0.0002	----	
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	----	----	<0.0002	----	
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	----	----	<0.001	----	
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	----	----	<0.0002	----	
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	----	----	<0.0002	----	
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	----	----	<0.0002	----	
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	----	----	<0.0002	----	
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	----	----	<0.0002	----	
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	----	----	<0.0002	----	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	HA01_0.3	HA01_1.4	HA01_2.0	QC01	----
Sampling date / time				18-Oct-2022 00:00	18-Oct-2022 00:00	18-Oct-2022 00:00	18-Oct-2022 00:00	----	
Compound	CAS Number	LOR	Unit	ES2237391-016	ES2237391-017	ES2237391-018	ES2237391-021	-----	
				Result	Result	Result	Result	----	
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	----	----	<0.0002	----	
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	----	----	<0.0002	----	
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	----	----	<0.0002	----	
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	----	----	<0.0005	----	
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	----	----	<0.0002	----	
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	----	----	<0.0005	----	
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	----	----	<0.0005	----	
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	----	----	<0.0005	----	
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	----	----	<0.0005	----	
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	----	----	<0.0002	----	
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	----	----	<0.0002	----	
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	----	----	<0.0005	----	
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	----	----	<0.0005	----	
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	----	----	<0.0005	----	
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	----	----	<0.0005	----	
EP231P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg	<0.0002	----	----	<0.0002	----	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	HA01_0.3	HA01_1.4	HA01_2.0	QC01	----
Sampling date / time				18-Oct-2022 00:00	18-Oct-2022 00:00	18-Oct-2022 00:00	18-Oct-2022 00:00	----	
Compound	CAS Number	LOR	Unit	ES2237391-016	ES2237391-017	ES2237391-018	ES2237391-021	-----	
				Result	Result	Result	Result	----	
EP231P: PFAS Sums - Continued									
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	<0.0002	----	----	<0.0002	----	
Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	----	----	<0.0002	----	
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%	86.5	----	----	87.3	----	
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%	75.4	----	----	81.3	----	
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%	77.7	----	----	87.0	----	
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%	70.2	66.3	137	81.9	----	
2-Chlorophenol-D4	93951-73-6	0.5	%	77.7	74.2	122	81.4	----	
2,4,6-Tribromophenol	118-79-6	0.5	%	42.6	54.7	79.6	55.2	----	
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%	83.3	79.1	108	89.1	----	
Anthracene-d10	1719-06-8	0.5	%	102	97.3	126	100	----	
4-Terphenyl-d14	1718-51-0	0.5	%	86.6	82.6	124	97.5	----	
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	0.2	%	91.0	95.4	79.2	105	----	
Toluene-D8	2037-26-5	0.2	%	89.3	89.8	95.8	102	----	
4-Bromofluorobenzene	460-00-4	0.2	%	91.6	94.4	102	102	----	
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%	110	----	----	107	----	
13C8-PFOA	----	0.0002	%	102	----	----	104	----	



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	TB_181022	RB02	----	----	----
Sampling date / time				18-Oct-2022 00:00	18-Oct-2022 00:00	----	----	----	
Compound	CAS Number	LOR	Unit	ES2237391-019	ES2237391-020	-----	-----	-----	
				Result	Result	----	----	----	
EG020T: Total Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	----	----	----	
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	----	----	----	
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	----	----	----	
Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	----	----	----	
Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	----	----	----	
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	----	----	----	
Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	----	----	----	
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	----	----	----	
EP066: Polychlorinated Biphenyls (PCB)									
^ Total Polychlorinated biphenyls	----	1	µg/L	<1	<1	----	----	----	
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.5	µg/L	<0.5	<0.5	----	----	----	
Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	<0.5	----	----	----	
beta-BHC	319-85-7	0.5	µg/L	<0.5	<0.5	----	----	----	
gamma-BHC	58-89-9	0.5	µg/L	<0.5	<0.5	----	----	----	
delta-BHC	319-86-8	0.5	µg/L	<0.5	<0.5	----	----	----	
Heptachlor	76-44-8	0.5	µg/L	<0.5	<0.5	----	----	----	
Aldrin	309-00-2	0.5	µg/L	<0.5	<0.5	----	----	----	
Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	<0.5	----	----	----	
trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	<0.5	----	----	----	
alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	<0.5	----	----	----	
cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	<0.5	----	----	----	
Dieldrin	60-57-1	0.5	µg/L	<0.5	<0.5	----	----	----	
4,4'-DDE	72-55-9	0.5	µg/L	<0.5	<0.5	----	----	----	
Endrin	72-20-8	0.5	µg/L	<0.5	<0.5	----	----	----	
beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	<0.5	----	----	----	
4,4'-DDD	72-54-8	0.5	µg/L	<0.5	<0.5	----	----	----	
Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	<0.5	----	----	----	
Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	<0.5	----	----	----	
4,4'-DDT	50-29-3	2.0	µg/L	<2.0	<2.0	----	----	----	
Endrin ketone	53494-70-5	0.5	µg/L	<0.5	<0.5	----	----	----	
Methoxychlor	72-43-5	2.0	µg/L	<2.0	<2.0	----	----	----	
^ Total Chlordane (sum)	----	0.5	µg/L	<0.5	<0.5	----	----	----	



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	TB_181022	RB02	----	----	----
Sampling date / time				18-Oct-2022 00:00	18-Oct-2022 00:00	----	----	----	
Compound	CAS Number	LOR	Unit	ES2237391-019	ES2237391-020	-----	-----	-----	
				Result	Result	----	----	----	
EP068A: Organochlorine Pesticides (OC) - Continued									
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/5 0-2	0.5	µg/L	<0.5	<0.5	----	----	----	
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.5	µg/L	<0.5	<0.5	----	----	----	
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.5	µg/L	<0.5	<0.5	----	----	----	
Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	<0.5	----	----	----	
Monocrotophos	6923-22-4	2.0	µg/L	<2.0	<2.0	----	----	----	
Dimethoate	60-51-5	0.5	µg/L	<0.5	<0.5	----	----	----	
Diazinon	333-41-5	0.5	µg/L	<0.5	<0.5	----	----	----	
Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	<0.5	----	----	----	
Parathion-methyl	298-00-0	2.0	µg/L	<2.0	<2.0	----	----	----	
Malathion	121-75-5	0.5	µg/L	<0.5	<0.5	----	----	----	
Fenthion	55-38-9	0.5	µg/L	<0.5	<0.5	----	----	----	
Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	<0.5	----	----	----	
Parathion	56-38-2	2.0	µg/L	<2.0	<2.0	----	----	----	
Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	<0.5	----	----	----	
Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	<0.5	----	----	----	
Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	<0.5	----	----	----	
Fenamiphos	22224-92-6	0.5	µg/L	<0.5	<0.5	----	----	----	
Prothiofos	34643-46-4	0.5	µg/L	<0.5	<0.5	----	----	----	
Ethion	563-12-2	0.5	µg/L	<0.5	<0.5	----	----	----	
Carbophenothion	786-19-6	0.5	µg/L	<0.5	<0.5	----	----	----	
Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	<0.5	----	----	----	
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	----	----	----	
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	----	----	----	
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	----	----	----	
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	----	----	----	
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	----	----	----	
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	----	----	----	
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	----	----	----	
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	----	----	----	
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	----	----	----	
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	----	----	----	
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	----	----	----	



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	TB_181022	RB02	----	----	----
Sampling date / time				18-Oct-2022 00:00	18-Oct-2022 00:00	----	----	----	
Compound	CAS Number	LOR	Unit	ES2237391-019	ES2237391-020	-----	-----	-----	
				Result	Result	----	----	----	
EP075(SIM)A: Phenolic Compounds - Continued									
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	----	----	----	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	----	----	----	
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	----	----	----	
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	----	----	----	
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	----	----	----	
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	----	----	----	
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	----	----	----	
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	----	----	----	
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	----	----	----	
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	----	----	----	
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	----	----	----	
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L	<1.0	<1.0	----	----	----	
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	----	----	----	
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	----	----	----	
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	----	----	----	
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	----	----	----	
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	----	----	----	
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	----	----	----	
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	----	----	----	
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L	<20	<20	----	----	----	
C10 - C14 Fraction	----	50	µg/L	<50	<50	----	----	----	
C15 - C28 Fraction	----	100	µg/L	<100	<100	----	----	----	
C29 - C36 Fraction	----	50	µg/L	<50	<50	----	----	----	
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	----	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	----	----	----	
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	----	----	----	
>C10 - C16 Fraction	----	100	µg/L	<100	<100	----	----	----	
>C16 - C34 Fraction	----	100	µg/L	<100	<100	----	----	----	
>C34 - C40 Fraction	----	100	µg/L	<100	<100	----	----	----	
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	----	----	----	



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	TB_181022	RB02	----	----	----
Sampling date / time				18-Oct-2022 00:00	18-Oct-2022 00:00	----	----	----	
Compound	CAS Number	LOR	Unit	ES2237391-019	ES2237391-020	-----	-----	-----	
				Result	Result	----	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	----	----	----	
EP080: BTEXN									
Benzene	71-43-2	1	µg/L	<1	<1	----	----	----	
Toluene	108-88-3	2	µg/L	<2	<2	----	----	----	
Ethylbenzene	100-41-4	2	µg/L	<2	<2	----	----	----	
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	----	----	----	
ortho-Xylene	95-47-6	2	µg/L	<2	<2	----	----	----	
^ Total Xylenes	----	2	µg/L	<2	<2	----	----	----	
^ Sum of BTEX	----	1	µg/L	<1	<1	----	----	----	
Naphthalene	91-20-3	5	µg/L	<5	<5	----	----	----	
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	----	----	----	
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	----	----	----	
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	<0.01	----	----	----	
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	----	----	----	
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	----	----	----	
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	----	----	----	
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	----	----	----	
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	----	----	----	
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	----	----	----	
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	----	----	----	
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	----	----	----	
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	----	----	----	
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	----	----	----	
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	----	----	----	



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	TB_181022	RB02	----	----	----
Sampling date / time				18-Oct-2022 00:00	18-Oct-2022 00:00	----	----	----	
Compound	CAS Number	LOR	Unit	ES2237391-019	ES2237391-020	-----	-----	-----	
				Result	Result	----	----	----	
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	----	----	----	
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	----	----	----	
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	----	----	----	
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	----	----	----	
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	----	----	----	
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	----	----	----	
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	----	----	----	
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	----	----	----	
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	----	----	----	
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	----	----	----	
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	----	----	----	
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	----	----	----	
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	----	----	----	
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	----	----	----	
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	----	----	----	
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	<0.01	<0.01	----	----	----	



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	TB_181022	RB02	----	----	----
Sampling date / time				18-Oct-2022 00:00	18-Oct-2022 00:00	----	----	----	
Compound	CAS Number	LOR	Unit	ES2237391-019	ES2237391-020	-----	-----	-----	
				Result	Result	----	----	----	
EP231P: PFAS Sums - Continued									
Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	<0.01	----	----	----	
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	1	%	101	72.6	----	----	----	
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.5	%	75.0	65.4	----	----	----	
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.5	%	82.0	76.0	----	----	----	
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1.0	%	27.3	20.9	----	----	----	
2-Chlorophenol-D4	93951-73-6	1.0	%	65.0	55.0	----	----	----	
2,4,6-Tribromophenol	118-79-6	1.0	%	54.3	44.6	----	----	----	
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%	74.3	61.4	----	----	----	
Anthracene-d10	1719-06-8	1.0	%	81.3	70.0	----	----	----	
4-Terphenyl-d14	1718-51-0	1.0	%	91.1	70.8	----	----	----	
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	2	%	105	106	----	----	----	
Toluene-D8	2037-26-5	2	%	107	101	----	----	----	
4-Bromofluorobenzene	460-00-4	2	%	104	99.9	----	----	----	
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%	96.9	93.5	----	----	----	
13C8-PFOA	----	0.02	%	94.8	98.9	----	----	----	

Analytical Results

Descriptive Results

Sub-Matrix: SOIL

Method: Compound	Sample ID - Sampling date / time	Analytical Results
EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	HA03_0.1 - 18-Oct-2022 00:00	Soil sample.
EA200: Description	HA04_0.3 - 18-Oct-2022 00:00	Soil sample.
EA200: Description	BH2_0.5 - 18-Oct-2022 00:00	Soil sample.
EA200: Description	HA01_0.3 - 18-Oct-2022 00:00	Soil sample.



Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	39	149
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	49	147
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	35	143
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2,4,6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	73	133
Toluene-D8	2037-26-5	74	132
4-Bromofluorobenzene	460-00-4	72	130
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	45	134
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	67	111
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	67	111
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	44
2-Chlorophenol-D4	93951-73-6	14	94
2,4,6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	32	112



Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

Inter-Laboratory Testing

Analysis conducted by ALS Brisbane, NATA accreditation no. 825, site no. 818 (Chemistry) 18958 (Biology).

- (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) EA037: Ass Field Screening Analysis

Analysis conducted by ALS Brisbane, NATA accreditation no. 825, site no. 818 (Chemistry) 18958 (Biology). Only applies to samples ES2237391 (018).

- (SOIL) EA055: Moisture Content (Dried @ 105-110°C)
- (SOIL) EG005(ED093)T: Total Metals by ICP-AES
- (SOIL) EG035T: Total Recoverable Mercury by FIMS
- (SOIL) EP080/071: Total Petroleum Hydrocarbons
- (SOIL) EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions
- (SOIL) EP080: BTEXN
- (SOIL) EP080S: TPH(V)/BTEX Surrogates
- (SOIL) EP075(SIM)B: Polynuclear Aromatic Hydrocarbons
- (SOIL) EP075(SIM)A: Phenolic Compounds
- (SOIL) EP075(SIM)S: Phenolic Compound Surrogates
- (SOIL) EP075(SIM)T: PAH Surrogates

Analysis conducted by ALS Newcastle, NATA accreditation no. 825, site no. 1656 (Chemistry) 9854 (Biology).

- (SOIL) EA200: AS 4964 - 2004 Identification of Asbestos in Soils



QUALITY CONTROL REPORT

Table with 2 columns: Field Name and Value. Fields include Work Order (ES2237391), Client (KLEINFELDER AUSTRALIA PTY LTD), Laboratory (Environmental Division Sydney), and various sample and analysis details.



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.

Table with 3 columns: Signatories, Position, and Accreditation Category. Lists names like Ankit Joshi, Edwandy Fadjar, Franco Lentini, etc., along with their roles and accreditation details.



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

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: 4656621)									
ES2237391-010	BH2_1.0	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	5	4	34.2	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	24.9	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	15	11	31.6	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	12	6	60.5	No Limit
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 4659089)									
ES2237206-015	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	10	10	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	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	8	8	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	5	6	0.0	No Limit
ES2237391-017	HA01_1.4	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	4	9	66.4	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: Copper	7440-50-8	5	mg/kg	6	7	25.9	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	26	35	31.8	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	40	60	40.8	0% - 50%
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 4659426)									
ES2237391-018	HA01_2.0	EG005T: Cadmium	7440-43-9	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: 4659426) - continued									
ES2237391-018	HA01_2.0	EG005T: Chromium	7440-47-3	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	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
EA002: pH 1:5 (Soils) (QC Lot: 4656616)									
ES2235799-001	Anonymous	EA002: pH Value	----	0.1	pH Unit	9.0	9.2	2.1	0% - 20%
ES2237529-002	Anonymous	EA002: pH Value	----	0.1	pH Unit	6.5	6.6	0.0	0% - 20%
EA010: Conductivity (1:5) (QC Lot: 4656614)									
ES2235799-001	Anonymous	EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	54	48	13.1	0% - 20%
ES2237529-002	Anonymous	EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	60	60	0.0	0% - 20%
EA033-A: Actual Acidity (QC Lot: 4662135)									
ES2237206-011	Anonymous	EA033: sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	0.12	0.12	0.0	No Limit
		EA033: Titratable Actual Acidity (23F)	----	2	mole H+ / t	75	74	1.4	0% - 20%
		EA033: pH KCl (23A)	----	0.1	pH Unit	4.5	4.5	0.0	0% - 20%
ES2237391-003	HA03_0.3	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	5	4	0.0	No Limit
		EA033: pH KCl (23A)	----	0.1	pH Unit	5.9	5.9	0.0	0% - 20%
EA033-A: Actual Acidity (QC Lot: 4664801)									
ES2237391-018	HA01_2.0	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	3	3	0.0	No Limit
		EA033: pH KCl (23A)	----	0.1	pH Unit	6.0	6.0	0.0	0% - 20%
EA033-B: Potential Acidity (QC Lot: 4662135)									
ES2237206-011	Anonymous	EA033: Chromium Reducible Sulfur (22B)	----	0.005	% S	0.016	0.014	10.7	No Limit
		EA033: acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	<10	<10	0.0	No Limit
ES2237391-003	HA03_0.3	EA033: Chromium Reducible Sulfur (22B)	----	0.005	% S	0.010	0.011	0.0	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: 4664801)									
ES2237391-018	HA01_2.0	EA033: Chromium Reducible Sulfur (22B)	----	0.005	% S	0.010	0.010	0.0	No Limit
		EA033: acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	<10	<10	0.0	No Limit
EA037: Ass Field Screening Analysis (QC Lot: 4659734)									
ES2237206-003	Anonymous	EA037: pH (F)	----	0.1	pH Unit	7.0	6.9	0.0	0% - 20%
		EA037: pH (Fox)	----	0.1	pH Unit	4.4	4.6	2.2	0% - 20%
ES2237206-016	Anonymous	EA037: pH (F)	----	0.1	pH Unit	5.5	5.5	0.0	0% - 20%
		EA037: pH (Fox)	----	0.1	pH Unit	4.0	4.1	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 (%)
EA037: Ass Field Screening Analysis (QC Lot: 4659735)									
ES2237391-013	BH2_4.0	EA037: pH (F)	----	0.1	pH Unit	4.7	4.7	0.0	0% - 20%
		EA037: pH (Fox)	----	0.1	pH Unit	3.8	3.8	0.0	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 4656623)									
ES2237325-001	Anonymous	EA055: Moisture Content	----	0.1	%	26.1	25.2	3.2	0% - 20%
ES2237505-005	Anonymous	EA055: Moisture Content	----	0.1	%	23.0	23.3	1.1	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 4659098)									
ES2237391-002	HA03_0.2	EA055: Moisture Content	----	0.1	%	18.3	18.3	0.0	0% - 50%
ES2237525-002	Anonymous	EA055: Moisture Content	----	0.1	%	20.3	20.9	3.1	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 4664483)									
ES2237391-018	HA01_2.0	EA055: Moisture Content	----	0.1	%	13.1	13.0	0.8	0% - 50%
ED040S: Soluble Major Anions (QC Lot: 4656617)									
ES2237529-002	Anonymous	ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	20	20	0.0	No Limit
ED045G: Chloride by Discrete Analyser (QC Lot: 4656615)									
ES2235799-001	Anonymous	ED045G: Chloride	16887-00-6	10	mg/kg	<10	<10	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 4656622)									
ES2237391-010	BH2_1.0	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: 4659091)									
ES2237206-015	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES2237391-017	HA01_1.4	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: 4659427)									
ES2237391-018	HA01_2.0	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 4655974)									
ES2237391-002	HA03_0.2	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 4656011)									
ES2237391-021	QC01	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 4655973)									
ES2237391-002	HA03_0.2	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	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



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: 4655973) - continued									
ES2237391-002	HA03_0.2	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: 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
EP068A: Organochlorine Pesticides (OC) (QC Lot: 4656014)									
ES2237391-021	QC01	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	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	7.02	6.82	2.9	0% - 20%
		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	2.28	2.14	6.5	0% - 20%
		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: 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: 4655973)									
ES2237391-002	HA03_0.2	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



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: 4655973) - continued									
ES2237391-002	HA03_0.2	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		
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 4656014)									
ES2237391-021	QC01	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		
EP075(SIM)A: Phenolic Compounds (QC Lot: 4655972)									
ES2237391-017	HA01_1.4	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



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: 4655972) - continued									
ES2237391-017	HA01_1.4	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
ES2237391-002	HA03_0.2	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: 4656013)									
ES2237553-008	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
		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
ES2237391-021	QC01	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



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: 4656013) - continued									
ES2237391-021	QC01	EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 4659428)									
ES2237391-018	HA01_2.0	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: 4655972)									
ES2237391-017	HA01_1.4	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	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): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES2237391-002	HA03_0.2	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



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: 4655972) - continued									
ES2237391-002	HA03_0.2	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): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 4656013)									
ES2237553-008	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	0.8	0.9	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	0.7	0.6	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	18.1	# 13.5	28.9	0% - 20%
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	4.2	3.4	22.3	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	26.1	24.9	4.7	0% - 20%
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	21.7	22.3	2.7	0% - 20%
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	8.2	8.5	3.7	0% - 50%
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	8.0	8.5	5.3	0% - 50%
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	10.1	10.4	2.6	0% - 20%
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	4.1	4.3	4.7	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	10.5	11.3	7.0	0% - 20%
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	5.4	5.8	7.4	0% - 50%
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	1.0	1.1	11.2	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	6.0	6.0	0.0	0% - 50%
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	125	122	2.8	0% - 20%
EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	14.4	15.4	6.9	0% - 20%		
ES2237391-021	QC01	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



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: 4656013) - continued									
ES2237391-021	QC01	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): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 4659428)									
ES2237391-018	HA01_2.0	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): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080/071: Total Petroleum Hydrocarbons (QC Lot: 4655869)							
ES2237391-002	HA03_0.2	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES2237391-016	HA01_0.3	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 4655971)									
ES2237391-017	HA01_1.4	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	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: 4655971) - continued									
ES2237391-017	HA01_1.4	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
ES2237391-002	HA03_0.2	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: 4656012)									
ES2237553-008	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	190	230	18.2	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	130	200	41.8	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES2237391-021	QC01	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: 4659429)									
ES2237391-018	HA01_2.0	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: 4659444)									
ES2237391-018	HA01_2.0	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 4655869)									
ES2237391-002	HA03_0.2	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES2237391-016	HA01_0.3	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: 4655971)									
ES2237391-017	HA01_1.4	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
ES2237391-002	HA03_0.2	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: 4656012)									
ES2237553-008	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	280	360	24.9	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	130	28.2	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES2237391-021	QC01	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: 4659429)									
ES2237391-018	HA01_2.0	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



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: 4659444)										
ES2237391-018	HA01_2.0	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
EP080: BTEXN (QC Lot: 4655869)										
ES2237391-002	HA03_0.2	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	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
			95-47-6	EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0
ES2237391-016	HA01_0.3	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit	
		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	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
ES2237391-018	HA01_2.0	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: 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	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
EP080: BTEXN (QC Lot: 4659444)										
ES2237391-018	HA01_2.0	EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
		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: 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	
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 4655148)										
ES2237206-001	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit	
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit	
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit	
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit	
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	0.0023	0.0020	14.0	0% - 50%	
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit	
ES2237391-009	BH2_0.5	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit	
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit	
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit	
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit	
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit	
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit	
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 4655148)										
ES2237206-001	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit	
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	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 (%)		
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 4655148) - continued											
ES2237206-001	Anonymous	EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit		
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	0.0015	0.0010	36.7	No Limit		
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit		
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit		
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit		
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit		
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit		
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit		
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit		
ES2237391-009	BH2_0.5	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit		
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit		
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit		
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit		
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit		
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit		
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit		
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit		
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit		
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit		
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit		
		EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 4655148)									
		ES2237206-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	0.0003	<0.0002	0.0	No Limit
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9			0.0002	mg/kg	0.0005	0.0005	0.0	No Limit		
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6			0.0002	mg/kg	0.0247	0.0203	19.6	0% - 20%		
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8			0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit		
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2			0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit		
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7			0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit		
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2			0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit		
ES2237391-009	BH2_0.5	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit		
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit		
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit		
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	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 (%)
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 4655148) - continued									
ES2237391-009	BH2_0.5	EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 4655148)									
ES2237206-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
ES2237391-009	BH2_0.5	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
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 (%)
EG020T: Total Metals by ICP-MS (QC Lot: 4657914)									
ES2237375-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	0.0002	0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.034	0.034	0.0	0% - 20%
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	0.038	0.038	0.0	0% - 20%
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.056	0.055	2.0	0% - 20%
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.014	0.014	0.0	0% - 50%
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.003	0.003	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.017	0.017	0.0	No Limit
ES2237576-005	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.003	0.004	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.018	0.020	7.4	0% - 50%
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.029	0.032	9.1	No Limit



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 (%)
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 4657812)									
ES2237206-024	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES2237608-008	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 4660873)									
ES2237672-007	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES2237672-002	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	40	50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 4660873)									
ES2237672-007	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES2237672-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	40	40	0.0	No Limit
EP080: BTEXN (QC Lot: 4660873)									
ES2237672-007	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
ES2237672-002	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	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: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Acceptable Limits (%)	
						LCS	Low	High	
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4656621)									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	121.1 mg/kg	108	88.0	113	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	0.74 mg/kg	110	70.0	130	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	19.6 mg/kg	100	68.0	132	
EG005T: Copper	7440-50-8	5	mg/kg	<5	52.9 mg/kg	109	89.0	111	
EG005T: Lead	7439-92-1	5	mg/kg	<5	60.8 mg/kg	112	82.0	119	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.3 mg/kg	99.0	80.0	120	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	139.3 mg/kg	89.7	66.0	133	
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4659089)									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	121.1 mg/kg	91.1	88.0	113	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	0.74 mg/kg	92.2	70.0	130	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	19.6 mg/kg	102	68.0	132	
EG005T: Copper	7440-50-8	5	mg/kg	<5	52.9 mg/kg	100	89.0	111	
EG005T: Lead	7439-92-1	5	mg/kg	<5	60.8 mg/kg	93.0	82.0	119	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.3 mg/kg	94.2	80.0	120	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	139.3 mg/kg	87.2	66.0	133	
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4659426)									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	100 mg/kg	85.4	84.0	123	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	----	----	----	----	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	15 mg/kg	91.4	83.0	125	
EG005T: Copper	7440-50-8	5	mg/kg	<5	48 mg/kg	92.0	86.0	122	
EG005T: Lead	7439-92-1	5	mg/kg	<5	54 mg/kg	86.1	84.0	119	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	13 mg/kg	86.2	81.5	118	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	144 mg/kg	89.9	80.0	120	
EA002: pH 1:5 (Soils) (QCLot: 4656616)									
EA002: pH Value	----	----	pH Unit	----	4 pH Unit	101	98.8	101	
				----	7 pH Unit	100	99.2	100	
EA010: Conductivity (1:5) (QCLot: 4656614)									
EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	1412 µS/cm	99.3	92.0	108	
EA033-A: Actual Acidity (QCLot: 4662135)									
EA033: pH KCl (23A)	----	----	pH Unit	----	4.4 pH Unit	99.4	91.0	107	
EA033: Titratable Actual Acidity (23F)	----	2	mole H+ / t	<2	16 mole H+ / t	111	70.0	124	
EA033: sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	<0.02	----	----	----	----	
EA033-A: Actual Acidity (QCLot: 4664801)									
EA033: pH KCl (23A)	----	----	pH Unit	----	4.4 pH Unit	98.6	91.0	107	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
				Result	Spike Concentration	Spike Recovery (%)	Acceptable Limits (%)	
					LCS	Low	High	
EA033-A: Actual Acidity (QCLot: 4664801) - continued								
EA033: Titratable Actual Acidity (23F)	----	2	mole H+ / t	<2	16 mole H+ / t	106	70.0	124
EA033: sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	<0.02	----	----	----	----
EA033-B: Potential Acidity (QCLot: 4662135)								
EA033: Chromium Reducible Sulfur (22B)	----	0.005	% S	<0.005	0.246 % S	102	77.0	121
EA033: acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	<10	----	----	----	----
EA033-B: Potential Acidity (QCLot: 4664801)								
EA033: Chromium Reducible Sulfur (22B)	----	0.005	% S	<0.005	0.246 % S	90.8	77.0	121
EA033: acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	<10	----	----	----	----
EA033-C: Acid Neutralising Capacity (QCLot: 4662135)								
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-D: Retained Acidity (QCLot: 4662135)								
EA033: Net Acid Soluble Sulfur (20Je)	----	0.02	% S	<0.02	----	----	----	----
EA033: acidity - Net Acid Soluble Sulfur (a-20J)	----	10	mole H+ / t	<10	----	----	----	----
EA033: sulfidic - Net Acid Soluble Sulfur (s-20J)	----	0.02	% pyrite S	<0.02	----	----	----	----
EA033: KCl Extractable Sulfur (23Ce)	----	0.02	% S	<0.02	0.055 % S	102	70.0	128
EA033: HCl Extractable Sulfur (20Be)	----	0.02	% S	<0.02	0.696 % S	94.5	70.0	120
ED040S: Soluble Major Anions (QCLot: 4656617)								
ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	<10	750 mg/kg	97.4	80.0	120
ED045G: Chloride by Discrete Analyser (QCLot: 4656615)								
ED045G: Chloride	16887-00-6	10	mg/kg	<10	250 mg/kg	99.4	75.0	125
				<10	5000 mg/kg	99.5	79.0	117
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4656622)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.087 mg/kg	98.3	70.0	125
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4659091)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.087 mg/kg	90.2	70.0	125
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4659427)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.085 mg/kg	78.6	70.0	125
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 4655974)								
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	98.9	62.0	126
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 4656011)								
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	72.0	62.0	126
EP068A: Organochlorine Pesticides (OC) (QCLot: 4655973)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	91.7	69.0	113
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	92.2	65.0	117
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	97.5	67.0	119



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Acceptable Limits (%)	
					Concentration	LCS	Low	High	
EP068A: Organochlorine Pesticides (OC) (QCLot: 4655973) - continued									
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	95.8	68.0	116	
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	87.7	65.0	117	
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	90.1	67.0	115	
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	91.7	69.0	115	
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	94.6	62.0	118	
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	91.8	63.0	117	
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	98.8	66.0	116	
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	92.8	64.0	116	
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	91.7	66.0	116	
EP068: 4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	94.1	67.0	115	
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	92.0	67.0	123	
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	102	69.0	115	
EP068: 4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	100	69.0	121	
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	88.2	56.0	120	
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	90.3	62.0	124	
EP068: 4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	94.6	66.0	120	
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	95.5	64.0	122	
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	93.1	54.0	130	
EP068A: Organochlorine Pesticides (OC) (QCLot: 4656014)									
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	91.8	69.0	113	
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	89.4	65.0	117	
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	96.2	67.0	119	
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	95.2	68.0	116	
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	86.1	65.0	117	
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	88.2	67.0	115	
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	91.3	69.0	115	
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	91.1	62.0	118	
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	89.9	63.0	117	
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	93.6	66.0	116	
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	89.4	64.0	116	
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	82.2	66.0	116	
EP068: 4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	93.0	67.0	115	
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	91.8	67.0	123	
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	99.3	69.0	115	
EP068: 4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	99.8	69.0	121	
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	83.8	56.0	120	
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	85.5	62.0	124	
EP068: 4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	92.5	66.0	120	
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	91.9	64.0	122	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
				Result	Spike	Spike Recovery (%)		
					Concentration	LCS	Acceptable Limits (%) Low High	
EP068A: Organochlorine Pesticides (OC) (QCLot: 4656014) - continued								
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	91.2	54.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 4655973)								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	75.1	59.0	119
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	92.3	62.0	128
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	86.9	54.0	126
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	90.0	67.0	119
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	96.8	70.0	120
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	92.4	72.0	120
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	91.0	68.0	120
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	91.9	68.0	122
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	94.5	69.0	117
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	95.1	76.0	118
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	89.1	64.0	122
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	96.9	70.0	116
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	88.2	69.0	121
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	95.7	66.0	118
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	88.1	68.0	124
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	97.5	62.0	112
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	96.4	68.0	120
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	92.2	65.0	127
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	57.6	41.0	123
EP068B: Organophosphorus Pesticides (OP) (QCLot: 4656014)								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	76.9	59.0	119
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	96.0	62.0	128
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	80.0	54.0	126
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	91.8	67.0	119
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	95.2	70.0	120
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	91.7	72.0	120
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	90.8	68.0	120
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	91.6	68.0	122
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	93.5	69.0	117
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	93.6	76.0	118
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	88.9	64.0	122
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	96.6	70.0	116
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	89.4	69.0	121
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	93.4	66.0	118
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	95.5	68.0	124
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	95.3	62.0	112
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	95.0	68.0	120



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Acceptable Limits (%)	
					Concentration	LCS	Low	High	
EP068B: Organophosphorus Pesticides (OP) (QCLot: 4656014) - continued									
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	90.5	65.0	127	
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	59.9	41.0	123	
EP075(SIM)A: Phenolic Compounds (QCLot: 4655972)									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	6 mg/kg	92.9	71.0	125	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	6 mg/kg	93.7	72.0	124	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	6 mg/kg	94.4	71.0	123	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	12 mg/kg	100	67.0	127	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	6 mg/kg	86.9	54.0	114	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	6 mg/kg	93.4	68.0	126	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	6 mg/kg	92.3	66.0	120	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	6 mg/kg	96.1	70.0	120	
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	6 mg/kg	89.1	70.0	116	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	6 mg/kg	77.4	54.0	114	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	6 mg/kg	82.5	60.0	114	
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	12 mg/kg	60.1	10.0	80.0	
EP075(SIM)A: Phenolic Compounds (QCLot: 4656013)									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	6 mg/kg	93.0	71.0	125	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	6 mg/kg	95.4	72.0	124	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	6 mg/kg	92.8	71.0	123	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	12 mg/kg	88.1	67.0	127	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	6 mg/kg	81.5	54.0	114	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	6 mg/kg	90.4	68.0	126	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	6 mg/kg	89.3	66.0	120	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	6 mg/kg	94.8	70.0	120	
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	6 mg/kg	98.6	70.0	116	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	6 mg/kg	84.7	54.0	114	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	6 mg/kg	85.8	60.0	114	
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	12 mg/kg	48.6	10.0	80.0	
EP075(SIM)A: Phenolic Compounds (QCLot: 4659428)									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	1.5 mg/kg	125	78.0	134	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	1.5 mg/kg	117	78.0	132	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	1.5 mg/kg	120	78.0	132	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	3 mg/kg	126	77.2	135	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	1.5 mg/kg	145	42.9	156	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	1.5 mg/kg	129	70.3	141	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	1.5 mg/kg	119	69.9	135	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	1.5 mg/kg	114	72.9	136	
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	1.5 mg/kg	105	53.3	138	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Acceptable Limits (%)	
					Concentration	LCS	Low	High	
EP075(SIM)A: Phenolic Compounds (QCLot: 4659428) - continued									
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	1.5 mg/kg	91.5	50.9	140	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	1.5 mg/kg	89.4	45.5	140	
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	3 mg/kg	72.4	20.0	130	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 4655972)									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	101	77.0	125	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	88.5	72.0	124	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	89.8	73.0	127	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	90.4	72.0	126	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	96.4	75.0	127	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	99.1	77.0	127	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	99.7	73.0	127	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	99.6	74.0	128	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	87.8	69.0	123	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	94.5	75.0	127	
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	84.3	68.0	116	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	100	74.0	126	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	98.5	70.0	126	
EP075(SIM): Indeno(1,2,3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	102	61.0	121	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	100	62.0	118	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	96.8	63.0	121	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 4656013)									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	90.2	77.0	125	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	96.4	72.0	124	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	94.9	73.0	127	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	95.8	72.0	126	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	91.6	75.0	127	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	91.7	77.0	127	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	97.5	73.0	127	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	97.0	74.0	128	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	90.0	69.0	123	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	88.7	75.0	127	
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	89.4	68.0	116	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	96.3	74.0	126	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	96.0	70.0	126	
EP075(SIM): Indeno(1,2,3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	82.6	61.0	121	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	80.3	62.0	118	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	80.7	63.0	121	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Acceptable Limits (%)	
						LCS	Low	High	High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 4659428)									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	1.5 mg/kg	107	72.6	133	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	1.5 mg/kg	122	63.2	144	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	1.5 mg/kg	107	66.0	132	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	1.5 mg/kg	107	76.2	134	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	1.5 mg/kg	106	71.8	137	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	1.5 mg/kg	102	77.1	143	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	1.5 mg/kg	110	74.1	140	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	1.5 mg/kg	110	72.0	139	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	1.5 mg/kg	111	58.0	145	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	1.5 mg/kg	102	63.0	147	
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	1.5 mg/kg	97.9	70.5	142	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	1.5 mg/kg	107	75.5	138	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	1.5 mg/kg	96.7	68.5	140	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	1.5 mg/kg	106	58.4	143	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	1.5 mg/kg	111	52.1	149	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	1.5 mg/kg	106	64.6	140	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4655869)									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	92.6	68.4	128	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4655971)									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	88.8	75.0	129	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	104	77.0	131	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	99.2	71.0	129	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4656012)									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	104	75.0	129	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	113	77.0	131	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	126	71.0	129	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4659429)									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	379 mg/kg	101	79.4	125	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	407 mg/kg	102	78.8	122	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	----	----	----	----	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4659444)									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	18 mg/kg	120	64.0	120	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4655869)									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	93.8	68.4	128	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4655971)									
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	100	77.0	125	
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	99.8	74.0	138	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)	Acceptable Limits (%)	
						LCS	Low	High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4655971) - continued								
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	94.8	63.0	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4656012)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	108	77.0	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	117	74.0	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	93.3	63.0	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4659429)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	502 mg/kg	99.2	81.0	132
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	379 mg/kg	88.1	67.2	130
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4659444)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	22.5 mg/kg	119	58.1	124
EP080: BTEXN (QCLot: 4655869)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	98.8	62.0	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	97.7	67.0	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	96.2	65.0	117
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	97.7	66.0	118
	106-42-3							
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	99.0	68.0	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	95.1	63.0	119
EP080: BTEXN (QCLot: 4659444)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	99.0	68.0	107
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	102	69.0	108
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	99.9	68.0	109
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	103	70.0	114
	106-42-3							
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	106	74.0	116
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	95.7	74.0	109
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4655148)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.00125 mg/kg	92.0	72.0	128
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	101	73.0	123
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	85.2	67.0	130
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	94.8	70.0	132
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	94.8	68.0	136
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	82.4	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4655148)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	82.1	71.0	135
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	96.8	69.0	132
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	108	70.0	132



Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Acceptable Limits (%)	
						LCS	Low	High	
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4655148) - continued									
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	106	71.0	131	
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	104	69.0	133	
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	107	72.0	129	
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	0.00125 mg/kg	97.6	69.0	133	
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	101	64.0	136	
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	107	69.0	135	
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	113	66.0	139	
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	95.0	69.0	133	
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4655148)									
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	86.8	67.0	137	
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	0.00312 mg/kg	96.8	71.6	129	
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	102	69.8	131	
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	83.0	68.7	130	
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	93.4	65.1	134	
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	84.0	63.0	144	
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	86.0	61.0	139	
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4655148)									
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00125 mg/kg	87.2	62.0	145	
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00125 mg/kg	86.8	64.0	140	
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	0.00125 mg/kg	85.6	65.0	137	
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	0.00125 mg/kg	80.4	69.2	143	

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Acceptable Limits (%)	
						LCS	Low	High	
EG020T: Total Metals by ICP-MS (QCLot: 4657914)									
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	104	82.0	114	
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	106	84.0	112	
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	100	86.0	116	
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	103	83.0	118	
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	104	85.0	115	
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	102	84.0	116	
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	102	79.0	117	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4657812)									
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	98.7	77.0	111	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Acceptable Limits (%)	
						LCS	Low	High	
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 4652454)									
EP066: Total Polychlorinated biphenyls	----	1	µg/L	<1	10 µg/L	89.6	68.9	113	
EP068A: Organochlorine Pesticides (OC) (QCLot: 4652452)									
EP068: alpha-BHC	319-84-6	0.5	µg/L	<0.5	5 µg/L	77.8	64.9	107	
EP068: Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	5 µg/L	83.4	58.3	111	
EP068: beta-BHC	319-85-7	0.5	µg/L	<0.5	5 µg/L	83.6	69.0	117	
EP068: gamma-BHC	58-89-9	0.5	µg/L	<0.5	5 µg/L	78.5	70.0	112	
EP068: delta-BHC	319-86-8	0.5	µg/L	<0.5	5 µg/L	85.9	68.9	110	
EP068: Heptachlor	76-44-8	0.5	µg/L	<0.5	5 µg/L	76.4	65.2	108	
EP068: Aldrin	309-00-2	0.5	µg/L	<0.5	5 µg/L	82.2	65.8	109	
EP068: Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	5 µg/L	81.2	67.1	107	
EP068: trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	5 µg/L	79.2	64.1	110	
EP068: alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	5 µg/L	83.0	66.7	112	
EP068: cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	5 µg/L	80.4	63.2	111	
EP068: Dieldrin	60-57-1	0.5	µg/L	<0.5	5 µg/L	82.1	65.2	113	
EP068: 4,4'-DDE	72-55-9	0.5	µg/L	<0.5	5 µg/L	80.7	66.0	112	
EP068: Endrin	72-20-8	0.5	µg/L	<0.5	5 µg/L	84.8	65.2	113	
EP068: beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	5 µg/L	83.3	67.3	114	
EP068: 4,4'-DDD	72-54-8	0.5	µg/L	<0.5	5 µg/L	88.3	72.0	122	
EP068: Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	5 µg/L	91.1	66.9	109	
EP068: Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	5 µg/L	86.4	65.2	112	
EP068: 4,4'-DDT	50-29-3	2	µg/L	<2.0	5 µg/L	80.7	65.2	112	
EP068: Endrin ketone	53494-70-5	0.5	µg/L	<0.5	5 µg/L	80.9	63.8	110	
EP068: Methoxychlor	72-43-5	2	µg/L	<2.0	5 µg/L	80.1	61.1	114	
EP068B: Organophosphorus Pesticides (OP) (QCLot: 4652452)									
EP068: Dichlorvos	62-73-7	0.5	µg/L	<0.5	5 µg/L	77.4	65.6	114	
EP068: Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	5 µg/L	78.9	63.7	113	
EP068: Monocrotophos	6923-22-4	2	µg/L	<2.0	5 µg/L	24.6	19.7	48.0	
EP068: Dimethoate	60-51-5	0.5	µg/L	<0.5	5 µg/L	99.5	69.5	110	
EP068: Diazinon	333-41-5	0.5	µg/L	<0.5	5 µg/L	82.8	71.1	110	
EP068: Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	5 µg/L	82.5	77.0	119	
EP068: Parathion-methyl	298-00-0	2	µg/L	<2.0	5 µg/L	79.7	70.0	124	
EP068: Malathion	121-75-5	0.5	µg/L	<0.5	5 µg/L	87.4	68.4	116	
EP068: Fenthion	55-38-9	0.5	µg/L	<0.5	5 µg/L	82.2	68.6	112	
EP068: Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	5 µg/L	79.5	75.0	119	
EP068: Parathion	56-38-2	2	µg/L	<2.0	5 µg/L	79.3	67.0	121	
EP068: Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	5 µg/L	81.9	69.0	121	
EP068: Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	5 µg/L	92.9	71.8	110	
EP068: Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	5 µg/L	83.0	67.5	112	
EP068: Fenamiphos	22224-92-6	0.5	µg/L	<0.5	5 µg/L	89.2	64.1	116	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Acceptable Limits (%)	
					Concentration	LCS	Low	High	
EP068B: Organophosphorus Pesticides (OP) (QCLot: 4652452) - continued									
EP068: Prothiofos	34643-46-4	0.5	µg/L	<0.5	5 µg/L	84.7	67.8	114	
EP068: Ethion	563-12-2	0.5	µg/L	<0.5	5 µg/L	87.4	74.0	120	
EP068: Carbophenothion	786-19-6	0.5	µg/L	<0.5	5 µg/L	81.5	66.2	114	
EP068: Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	5 µg/L	102	51.6	128	
EP075(SIM)A: Phenolic Compounds (QCLot: 4652453)									
EP075(SIM): Phenol	108-95-2	1	µg/L	<1.0	5 µg/L	37.5	24.5	61.9	
EP075(SIM): 2-Chlorophenol	95-57-8	1	µg/L	<1.0	5 µg/L	73.6	52.0	90.0	
EP075(SIM): 2-Methylphenol	95-48-7	1	µg/L	<1.0	5 µg/L	76.5	51.0	91.0	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2	µg/L	<2.0	10 µg/L	64.0	44.0	88.0	
EP075(SIM): 2-Nitrophenol	88-75-5	1	µg/L	<1.0	5 µg/L	77.2	48.0	100	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	1	µg/L	<1.0	5 µg/L	72.3	49.0	99.0	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	1	µg/L	<1.0	5 µg/L	73.3	53.0	105	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	1	µg/L	<1.0	5 µg/L	83.6	57.0	105	
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1	µg/L	<1.0	5 µg/L	86.9	53.0	99.0	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	1	µg/L	<1.0	5 µg/L	97.4	50.0	106	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	1	µg/L	<1.0	5 µg/L	77.2	51.0	105	
EP075(SIM): Pentachlorophenol	87-86-5	2	µg/L	<2.0	10 µg/L	42.5	10.0	95.0	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 4652453)									
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	69.8	50.0	94.0	
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	80.9	63.6	114	
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	81.1	62.2	113	
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	86.7	63.9	115	
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	99.2	62.6	116	
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	87.9	64.3	116	
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	90.4	63.6	118	
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	86.5	63.1	118	
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	87.6	64.1	117	
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	79.7	62.5	116	
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2	1	µg/L	<1.0	5 µg/L	87.5	61.7	119	
	205-82-3								
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	80.7	63.0	115	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	81.3	63.3	117	
EP075(SIM): Indeno(1,2,3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	86.9	59.9	118	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	87.4	61.2	117	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	83.8	59.1	118	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4652451)									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	64.0	53.7	97.0	
EP071: C15 - C28 Fraction	----	100	µg/L	<100	600 µg/L	81.9	63.3	107	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Acceptable Limits (%)	
						LCS	Low	High	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4652451) - continued									
EP071: C29 - C36 Fraction	----	50	µg/L	<50	400 µg/L	90.7	58.3	120	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4660873)									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	94.2	75.0	127	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4652451)									
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	500 µg/L	65.1	53.9	95.5	
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	700 µg/L	87.8	57.8	110	
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	300 µg/L	84.2	50.5	115	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4660873)									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	96.6	75.0	127	
EP080: BTEXN (QCLot: 4660873)									
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	99.4	70.0	122	
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	95.6	69.0	123	
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	102	70.0	120	
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	98.4	69.0	121	
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	101	72.0	122	
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	102	70.0	120	
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4657097)									
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	84.0	72.0	130	
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.25 µg/L	94.4	71.0	127	
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	103	68.0	131	
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.25 µg/L	88.8	69.0	134	
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	93.0	65.0	140	
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.25 µg/L	80.2	53.0	142	
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4657097)									
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	90.4	73.0	129	
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	90.8	72.0	129	
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	90.8	72.0	129	
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	101	72.0	130	
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	98.6	71.0	133	
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	97.0	69.0	130	
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	92.8	71.0	129	
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	98.0	69.0	133	
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	89.4	72.0	134	
EP231X: Perfluorotridecanoic acid (PFTriDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	84.8	65.0	144	
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	102	71.0	132	
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4657097)									
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	95.8	67.0	137	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Acceptable Limits (%)	
					Concentration	LCS	Low	High	
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4657097) - continued									
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	98.2	68.0	141	
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	89.1	62.6	147	
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	86.7	66.0	145	
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	95.2	57.6	145	
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	91.0	65.0	136	
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	87.8	61.0	135	
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4657097)									
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.25 µg/L	91.6	63.0	143	
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.25 µg/L	91.4	64.0	140	
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.25 µg/L	100	67.0	138	
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.25 µg/L	89.2	71.4	144	

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	Spike Recovery (%) MS	Acceptable Limits (%)	
						Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4656621)							
ES2237391-010	BH2_1.0	EG005T: Arsenic	7440-38-2	50 mg/kg	105	70.0	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	95.6	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	97.8	68.0	132
		EG005T: Copper	7440-50-8	250 mg/kg	100	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	112	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	100	70.0	130
		EG005T: Zinc	7440-66-6	250 mg/kg	94.6	66.0	133
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4659089)							
ES2237206-015	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	87.3	70.0	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	92.8	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	91.0	68.0	132
		EG005T: Copper	7440-50-8	250 mg/kg	92.3	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	93.2	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	89.6	70.0	130
		EG005T: Zinc	7440-66-6	250 mg/kg	93.3	66.0	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
ED045G: Chloride by Discrete Analyser (QCLot: 4656615)							
ES2235799-001	Anonymous	ED045G: Chloride	16887-00-6	250 mg/kg	104	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4656622)							
ES2237391-010	BH2_1.0	EG035T: Mercury	7439-97-6	5 mg/kg	100	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4659091)							
ES2237206-015	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	95.5	70.0	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 4655974)							
ES2237391-002	HA03_0.2	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	117	70.0	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 4656011)							
ES2237391-021	QC01	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	80.8	70.0	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 4655973)							
ES2237391-002	HA03_0.2	EP068: gamma-BHC	58-89-9	0.5 mg/kg	99.4	70.0	130
		EP068: Heptachlor	76-44-8	0.5 mg/kg	89.5	70.0	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	87.9	70.0	130
		EP068: Dieldrin	60-57-1	0.5 mg/kg	86.4	70.0	130
		EP068: Endrin	72-20-8	2 mg/kg	84.6	70.0	130
		EP068: 4.4'-DDT	50-29-3	2 mg/kg	84.8	70.0	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 4656014)							
ES2237391-021	QC01	EP068: gamma-BHC	58-89-9	0.5 mg/kg	87.9	70.0	130
		EP068: Heptachlor	76-44-8	0.5 mg/kg	75.1	70.0	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	# Not Determined	70.0	130
		EP068: Dieldrin	60-57-1	0.5 mg/kg	# Not Determined	70.0	130
		EP068: Endrin	72-20-8	2 mg/kg	82.0	70.0	130
		EP068: 4.4'-DDT	50-29-3	2 mg/kg	72.2	70.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 4655973)							
ES2237391-002	HA03_0.2	EP068: Diazinon	333-41-5	0.5 mg/kg	78.4	70.0	130
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	92.2	70.0	130
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	99.2	70.0	130
		EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	100	70.0	130
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	92.6	70.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 4656014)							
ES2237391-021	QC01	EP068: Diazinon	333-41-5	0.5 mg/kg	84.7	70.0	130
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	76.7	70.0	130
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	83.3	70.0	130
		EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	82.2	70.0	130



Sub-Matrix: SOIL

				Matrix Spike (MS) Report			
				Spike Concentration	Spike Recovery(%) MS	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP068B: Organophosphorus Pesticides (OP) (QCLot: 4656014) - continued							
ES2237391-021	QC01	EP068: Prothiofos	34643-46-4	0.5 mg/kg	78.1	70.0	130
EP075(SIM)A: Phenolic Compounds (QCLot: 4655972)							
ES2237391-002	HA03_0.2	EP075(SIM): Phenol	108-95-2	10 mg/kg	99.0	70.0	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	99.9	70.0	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	98.1	60.0	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	96.5	70.0	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	87.0	20.0	130
EP075(SIM)A: Phenolic Compounds (QCLot: 4656013)							
ES2237391-021	QC01	EP075(SIM): Phenol	108-95-2	10 mg/kg	93.7	70.0	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	90.2	70.0	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	80.3	60.0	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	98.8	70.0	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	41.6	20.0	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 4655972)							
ES2237391-002	HA03_0.2	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	97.9	70.0	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	111	70.0	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 4656013)							
ES2237391-021	QC01	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	93.9	70.0	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	99.0	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4655869)							
ES2237391-002	HA03_0.2	EP080: C6 - C9 Fraction	----	32.5 mg/kg	88.5	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4655971)							
ES2237391-002	HA03_0.2	EP071: C10 - C14 Fraction	----	480 mg/kg	93.0	73.0	137
		EP071: C15 - C28 Fraction	----	3100 mg/kg	108	53.0	131
		EP071: C29 - C36 Fraction	----	2060 mg/kg	119	52.0	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4656012)							
ES2237391-021	QC01	EP071: C10 - C14 Fraction	----	480 mg/kg	103	73.0	137
		EP071: C15 - C28 Fraction	----	3100 mg/kg	104	53.0	131
		EP071: C29 - C36 Fraction	----	2060 mg/kg	107	52.0	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4659444)							
ES2237391-018	HA01_2.0	EP080: C6 - C9 Fraction	----	8 mg/kg	86.7	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4655869)							
ES2237391-002	HA03_0.2	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	89.6	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4655971)							
ES2237391-002	HA03_0.2	EP071: >C10 - C16 Fraction	----	860 mg/kg	94.6	73.0	137



Sub-Matrix: SOIL

				Matrix Spike (MS) Report				
				Spike Concentration	SpikeRecovery(%) MS	Acceptable Limits (%)		
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4655971) - continued								
ES2237391-002	HA03_0.2	EP071: >C16 - C34 Fraction	----	4320 mg/kg	115	53.0	131	
		EP071: >C34 - C40 Fraction	----	890 mg/kg	102	52.0	132	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4656012)								
ES2237391-021	QC01	EP071: >C10 - C16 Fraction	----	860 mg/kg	95.0	73.0	137	
		EP071: >C16 - C34 Fraction	----	4320 mg/kg	109	53.0	131	
		EP071: >C34 - C40 Fraction	----	890 mg/kg	94.1	52.0	132	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4659444)								
ES2237391-018	HA01_2.0	EP080: C6 - C10 Fraction	C6_C10	8 mg/kg	86.9	70.0	130	
EP080: BTEXN (QCLot: 4655869)								
ES2237391-002	HA03_0.2	EP080: Benzene	71-43-2	2.5 mg/kg	82.3	70.0	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	85.1	70.0	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	88.8	70.0	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	89.0	70.0	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	88.1	70.0	130	
	91-20-3	2.5 mg/kg	84.8	70.0	130			
EP080: BTEXN (QCLot: 4659444)								
ES2237391-018	HA01_2.0	EP080: Benzene	71-43-2	2 mg/kg	91.5	70.0	130	
		EP080: Toluene	108-88-3	2 mg/kg	103	70.0	130	
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4655148)								
ES2237206-001	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.00125 mg/kg	116	72.0	128	
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.00125 mg/kg	111	73.0	123	
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00125 mg/kg	114	67.0	130	
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.00125 mg/kg	122	70.0	132	
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00125 mg/kg	132	68.0	136	
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.00125 mg/kg	128	59.0	134	
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4655148)								
ES2237206-001	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	98.0	71.0	135	
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	121	69.0	132	
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	98.0	70.0	132	
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	114	71.0	131	
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	103	69.0	133	
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.00125 mg/kg	120	72.0	129	
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.00125 mg/kg	114	69.0	133	
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.00125 mg/kg	114	64.0	136	
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.00125 mg/kg	110	69.0	135	
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.00125 mg/kg	118	66.0	139	



Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4655148) - continued							
ES2237206-001	Anonymous	EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.00312 mg/kg	101	69.0	133
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4655148)							
ES2237206-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.00125 mg/kg	86.0	67.0	137
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.00312 mg/kg	117	71.6	129
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.00312 mg/kg	107	69.8	131
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.00312 mg/kg	97.1	68.7	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.00312 mg/kg	102	65.1	134
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.00125 mg/kg	102	63.0	144
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.00125 mg/kg	# Not Determined	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4655148)							
ES2237206-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00125 mg/kg	92.8	62.0	145
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00125 mg/kg	94.8	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.00125 mg/kg	81.2	65.0	137
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.00125 mg/kg	88.0	69.2	143

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG020T: Total Metals by ICP-MS (QCLot: 4657914)							
ES2237206-024	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	110	70.0	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	112	70.0	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	110	70.0	130
		EG020A-T: Copper	7440-50-8	1 mg/L	84.3	70.0	130
		EG020A-T: Lead	7439-92-1	1 mg/L	108	70.0	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	109	70.0	130
		EG020A-T: Zinc	7440-66-6	1 mg/L	108	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4657812)							
ES2237391-019	TB_181022	EG035T: Mercury	7439-97-6	0.01 mg/L	96.0	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4660873)							
ES2237672-007	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	116	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4660873)							
ES2237672-007	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	117	70.0	130
EP080: BTEXN (QCLot: 4660873)							

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 Work Order : ES2237391
 Client : KLEINFELDER AUSTRALIA PTY LTD
 Project : 20232402



Sub-Matrix: WATER

				<i>Matrix Spike (MS) Report</i>				
				<i>Spike</i>	<i>SpikeRecovery(%)</i>	<i>Acceptable Limits (%)</i>		
<i>Laboratory sample ID</i>	<i>Sample ID</i>	<i>Method: Compound</i>	<i>CAS Number</i>	<i>Concentration</i>	<i>MS</i>	<i>Low</i>	<i>High</i>	
EP080: BTEXN (QCLot: 4660873) - continued								
ES2237672-007	Anonymous	EP080: Benzene	71-43-2	25 µg/L	96.0	70.0	130	
		EP080: Toluene	108-88-3	25 µg/L	98.9	70.0	130	
		EP080: Ethylbenzene	100-41-4	25 µg/L	105	70.0	130	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	102	70.0	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	25 µg/L	106	70.0	130	
	EP080: Naphthalene	91-20-3	25 µg/L	100	70.0	130		

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: ES2237391	Page	: 1 of 17
Client	: KLEINFELDER AUSTRALIA PTY LTD	Laboratory	: Environmental Division Sydney
Contact	: Mr Malcolm Adrien	Telephone	: +6138549 9609
Project	: 20232402	Date Samples Received	: 18-Oct-2022
Site	: UON Gosford	Issue Date	: 28-Oct-2022
Sampler	: Jai Roby	No. of samples received	: 22
Order number	: ----	No. of samples analysed	: 21

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 Laboratory Control outliers occur.**
- Duplicate outliers exist - please see following pages for full details.
- Matrix Spike outliers exist - please see following pages for full details.
- Surrogate recovery outliers exist for all regular sample matrices - please see following pages for full details.

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

- Quality Control Sample Frequency Outliers exist - please see following pages for full details.



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							
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons	ES2237553--008	Anonymous	Phenanthrene	85-01-8	28.9 %	0% - 20%	RPD exceeds LOR based limits
Matrix Spike (MS) Recoveries							
EP068A: Organochlorine Pesticides (OC)	ES2237391--021	QC01	Aldrin	309-00-2	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EP068A: Organochlorine Pesticides (OC)	ES2237391--021	QC01	Dieldrin	60-57-1	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EP231C: Perfluoroalkyl Sulfonamides	ES2237206--001	Anonymous	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.

Regular Sample Surrogates

Sub-Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Samples Submitted							
EP075(SIM)S: Phenolic Compound Surrogates	ES2237391-018	HA01_2.0	Phenol-d6	13127-88-3	137 %	63.0-123 %	Recovery greater than upper data quality objective

Sub-Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Samples Submitted							
EP068S: Organochlorine Pesticide Surrogate	ES2237391-020	RB02	Dibromo-DDE	21655-73-2	65.4 %	66.5-111 %	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	
EA002: pH 1:5 (Soils)								
Soil Glass Jar - Unpreserved	BH2_1.0, BH2_3.0	BH2_3.0	----	----	----	25-Oct-2022	24-Oct-2022	1
EA033-A: Actual Acidity								
Soil Glass Jar - Unpreserved	BH2_1.0, BH2_3.0, BH2_5.0	BH2_2.0, BH2_4.0, BH2_6.0	27-Oct-2022	19-Oct-2022	8	----	----	----
EA033-B: Potential Acidity								



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
EA033-B: Potential Acidity - Analysis Holding Time Compliance						
Soil Glass Jar - Unpreserved BH2_1.0, BH2_3.0, BH2_5.0, BH2_2.0, BH2_4.0, BH2_6.0	27-Oct-2022	19-Oct-2022	8	----	----	----
EA033-C: Acid Neutralising Capacity						
Soil Glass Jar - Unpreserved BH2_1.0, BH2_3.0, BH2_5.0, BH2_2.0, BH2_4.0, BH2_6.0	27-Oct-2022	19-Oct-2022	8	----	----	----
EA033-D: Retained Acidity						
Soil Glass Jar - Unpreserved BH2_1.0, BH2_3.0, BH2_5.0, BH2_2.0, BH2_4.0, BH2_6.0	27-Oct-2022	19-Oct-2022	8	----	----	----
EA033-E: Acid Base Accounting						
Soil Glass Jar - Unpreserved BH2_1.0, BH2_3.0, BH2_5.0, BH2_2.0, BH2_4.0, BH2_6.0	27-Oct-2022	19-Oct-2022	8	----	----	----
EA037: Ass Field Screening Analysis						
Soil Glass Jar - Unpreserved BH2_1.0, BH2_3.0, BH2_5.0, BH2_2.0, BH2_4.0, BH2_6.0	25-Oct-2022	19-Oct-2022	6	25-Oct-2022	19-Oct-2022	6

Outliers : Frequency of Quality Control Samples

Matrix: **SOIL**

Quality Control Sample Type Method	Count		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
Matrix Spikes (MS)					
PAH/Phenols (SIM)	0	1	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	0	1	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	0	1	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	1	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Quality Control Sample Type Method	Count		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)					
PAH/Phenols (GC/MS - SIM)	0	6	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	11	0.00	10.00	NEPM 2013 B3 & ALS QC Standard



Matrix: **WATER**

Quality Control Sample Type Method	Count		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP) - Continued					
Pesticides by GCMS	0	3	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	0	3	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	9	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
PAH/Phenols (GC/MS - SIM)	0	6	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	11	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	0	3	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	0	3	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	9	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

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			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA002: pH 1:5 (Soils)							
Soil Glass Jar - Unpreserved (EA002) BH2_1.0, BH2_3.0	18-Oct-2022	24-Oct-2022	25-Oct-2022	✔	25-Oct-2022	24-Oct-2022	✖
EA010: Conductivity (1:5)							
Soil Glass Jar - Unpreserved (EA010) BH2_1.0, BH2_3.0	18-Oct-2022	24-Oct-2022	25-Oct-2022	✔	25-Oct-2022	21-Nov-2022	✔
EA033-A: Actual Acidity							
Snap Lock Bag - frozen on receipt at ALS (EA033) HA03_0.3, BH2_0.5, HA01_1.4	18-Oct-2022	27-Oct-2022	18-Oct-2023	✔	27-Oct-2022	25-Jan-2023	✔
Snap Lock Bag - frozen on receipt at ALS (EA033) HA01_2.0	18-Oct-2022	28-Oct-2022	18-Oct-2023	✔	28-Oct-2022	26-Jan-2023	✔
Soil Glass Jar - Unpreserved (EA033) BH2_1.0, BH2_3.0, BH2_5.0, BH2_2.0, BH2_4.0, BH2_6.0	18-Oct-2022	27-Oct-2022	19-Oct-2022	✖	27-Oct-2022	25-Jan-2023	✔



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 on receipt at ALS (EA033) HA03_0.3, BH2_0.5,	HA04_0.8, HA01_1.4	18-Oct-2022	27-Oct-2022	18-Oct-2023	✔	27-Oct-2022	25-Jan-2023	✔
Snap Lock Bag - frozen on receipt at ALS (EA033) HA01_2.0		18-Oct-2022	28-Oct-2022	18-Oct-2023	✔	28-Oct-2022	26-Jan-2023	✔
Soil Glass Jar - Unpreserved (EA033) BH2_1.0, BH2_3.0, BH2_5.0,	BH2_2.0, BH2_4.0, BH2_6.0	18-Oct-2022	27-Oct-2022	19-Oct-2022	✖	27-Oct-2022	25-Jan-2023	✔
EA033-C: Acid Neutralising Capacity								
Snap Lock Bag - frozen on receipt at ALS (EA033) HA03_0.3, BH2_0.5,	HA04_0.8, HA01_1.4	18-Oct-2022	27-Oct-2022	18-Oct-2023	✔	27-Oct-2022	25-Jan-2023	✔
Snap Lock Bag - frozen on receipt at ALS (EA033) HA01_2.0		18-Oct-2022	28-Oct-2022	18-Oct-2023	✔	28-Oct-2022	26-Jan-2023	✔
Soil Glass Jar - Unpreserved (EA033) BH2_1.0, BH2_3.0, BH2_5.0,	BH2_2.0, BH2_4.0, BH2_6.0	18-Oct-2022	27-Oct-2022	19-Oct-2022	✖	27-Oct-2022	25-Jan-2023	✔
EA033-D: Retained Acidity								
Snap Lock Bag - frozen on receipt at ALS (EA033) HA03_0.3, BH2_0.5,	HA04_0.8, HA01_1.4	18-Oct-2022	27-Oct-2022	18-Oct-2023	✔	27-Oct-2022	25-Jan-2023	✔
Snap Lock Bag - frozen on receipt at ALS (EA033) HA01_2.0		18-Oct-2022	28-Oct-2022	18-Oct-2023	✔	28-Oct-2022	26-Jan-2023	✔
Soil Glass Jar - Unpreserved (EA033) BH2_1.0, BH2_3.0, BH2_5.0,	BH2_2.0, BH2_4.0, BH2_6.0	18-Oct-2022	27-Oct-2022	19-Oct-2022	✖	27-Oct-2022	25-Jan-2023	✔
EA033-E: Acid Base Accounting								
Snap Lock Bag - frozen on receipt at ALS (EA033) HA03_0.3, BH2_0.5,	HA04_0.8, HA01_1.4	18-Oct-2022	27-Oct-2022	18-Oct-2023	✔	27-Oct-2022	25-Jan-2023	✔
Snap Lock Bag - frozen on receipt at ALS (EA033) HA01_2.0		18-Oct-2022	28-Oct-2022	18-Oct-2023	✔	28-Oct-2022	26-Jan-2023	✔
Soil Glass Jar - Unpreserved (EA033) BH2_1.0, BH2_3.0, BH2_5.0,	BH2_2.0, BH2_4.0, BH2_6.0	18-Oct-2022	27-Oct-2022	19-Oct-2022	✖	27-Oct-2022	25-Jan-2023	✔



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	
EA037: Ass Field Screening Analysis								
Soil Glass Jar - Unpreserved (EA037) BH2_1.0, BH2_3.0, BH2_5.0, BH2_2.0, BH2_4.0, BH2_6.0	18-Oct-2022	25-Oct-2022	19-Oct-2022	✘	25-Oct-2022	19-Oct-2022	✘	
EA055: Moisture Content (Dried @ 105-110°C)								
Snap Lock Bag - frozen on receipt at ALS (EA055) HA01_2.0	18-Oct-2022	----	----	----	27-Oct-2022	16-Apr-2023	✔	
Soil Glass Jar - Unpreserved (EA055) BH2_1.0, BH2_3.0	18-Oct-2022	----	----	----	24-Oct-2022	01-Nov-2022	✔	
Soil Glass Jar - Unpreserved (EA055) HA03_0.2, HA03_1.8, HA04_0.8, BH2_0.5, HA01_1.4, HA03_0.8, HA04_0.3, HA04_2.0, HA01_0.3, QC01	18-Oct-2022	----	----	----	25-Oct-2022	01-Nov-2022	✔	
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200) HA03_0.1, BH2_0.5, HA04_0.3, HA01_0.3	18-Oct-2022	----	----	----	21-Oct-2022	16-Apr-2023	✔	
ED040S : Soluble Sulfate by ICPAES								
Soil Glass Jar - Unpreserved (ED040S) BH2_1.0, BH2_3.0	18-Oct-2022	24-Oct-2022	15-Nov-2022	✔	25-Oct-2022	21-Nov-2022	✔	
ED045G: Chloride by Discrete Analyser								
Soil Glass Jar - Unpreserved (ED045G) BH2_1.0, BH2_3.0	18-Oct-2022	24-Oct-2022	15-Nov-2022	✔	25-Oct-2022	21-Nov-2022	✔	
EG005(ED093)T: Total Metals by ICP-AES								
Soil Glass Jar - Unpreserved (EG005T) BH2_1.0, BH2_3.0	18-Oct-2022	24-Oct-2022	16-Apr-2023	✔	25-Oct-2022	16-Apr-2023	✔	
Soil Glass Jar - Unpreserved (EG005T) HA01_2.0	18-Oct-2022	25-Oct-2022	16-Apr-2023	✔	25-Oct-2022	16-Apr-2023	✔	
Soil Glass Jar - Unpreserved (EG005T) HA03_0.2, HA03_1.8, HA04_0.8, BH2_0.5, HA01_1.4, HA03_0.8, HA04_0.3, HA04_2.0, HA01_0.3, QC01	18-Oct-2022	25-Oct-2022	16-Apr-2023	✔	26-Oct-2022	16-Apr-2023	✔	



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
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T) BH2_1.0, BH2_3.0	18-Oct-2022	24-Oct-2022	15-Nov-2022	✓	25-Oct-2022	15-Nov-2022	✓
Soil Glass Jar - Unpreserved (EG035T) HA03_0.2, HA03_1.8, HA04_0.8, BH2_0.5, HA01_1.4, QC01 HA03_0.8, HA04_0.3, HA04_2.0, HA01_0.3, HA01_2.0	18-Oct-2022	25-Oct-2022	15-Nov-2022	✓	26-Oct-2022	15-Nov-2022	✓
EP066: Polychlorinated Biphenyls (PCB)							
Soil Glass Jar - Unpreserved (EP066) HA03_0.2, BH2_0.5, QC01 HA04_0.3, HA01_0.3	18-Oct-2022	24-Oct-2022	01-Nov-2022	✓	26-Oct-2022	03-Dec-2022	✓
EP068A: Organochlorine Pesticides (OC)							
Soil Glass Jar - Unpreserved (EP068) HA03_0.2, BH2_0.5, QC01 HA04_0.3, HA01_0.3	18-Oct-2022	24-Oct-2022	01-Nov-2022	✓	26-Oct-2022	03-Dec-2022	✓
EP068B: Organophosphorus Pesticides (OP)							
Soil Glass Jar - Unpreserved (EP068) HA03_0.2, BH2_0.5, QC01 HA04_0.3, HA01_0.3	18-Oct-2022	24-Oct-2022	01-Nov-2022	✓	26-Oct-2022	03-Dec-2022	✓
EP075(SIM)A: Phenolic Compounds							
Soil Glass Jar - Unpreserved (EP075(SIM)) QC01	18-Oct-2022	24-Oct-2022	01-Nov-2022	✓	25-Oct-2022	03-Dec-2022	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) HA03_0.2, HA03_1.8, HA04_0.8, BH2_0.5, BH2_3.0, HA01_1.4 HA03_0.8, HA04_0.3, HA04_2.0, BH2_1.0, HA01_0.3	18-Oct-2022	24-Oct-2022	01-Nov-2022	✓	26-Oct-2022	03-Dec-2022	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) HA01_2.0	18-Oct-2022	25-Oct-2022	01-Nov-2022	✓	26-Oct-2022	04-Dec-2022	✓



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)) QC01	18-Oct-2022	24-Oct-2022	01-Nov-2022	✓	25-Oct-2022	03-Dec-2022	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) HA03_0.2, HA03_1.8, HA04_0.8, BH2_0.5, BH2_3.0, HA01_1.4 HA03_0.8, HA04_0.3, HA04_2.0, BH2_1.0, HA01_0.3,	18-Oct-2022	24-Oct-2022	01-Nov-2022	✓	26-Oct-2022	03-Dec-2022	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) HA01_2.0	18-Oct-2022	25-Oct-2022	01-Nov-2022	✓	26-Oct-2022	04-Dec-2022	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP080) HA03_0.2, HA03_1.8, HA04_0.8, BH2_0.5, BH2_3.0, HA01_1.4, HA03_0.8, HA04_0.3, HA04_2.0, BH2_1.0, HA01_0.3, QC01	18-Oct-2022	24-Oct-2022	01-Nov-2022	✓	25-Oct-2022	01-Nov-2022	✓
Soil Glass Jar - Unpreserved (EP080) HA01_2.0	18-Oct-2022	25-Oct-2022	01-Nov-2022	✓	25-Oct-2022	01-Nov-2022	✓
Soil Glass Jar - Unpreserved (EP071) HA01_2.0	18-Oct-2022	25-Oct-2022	01-Nov-2022	✓	26-Oct-2022	04-Dec-2022	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP080) HA03_0.2, HA03_1.8, HA04_0.8, BH2_0.5, BH2_3.0, HA01_1.4, HA03_0.8, HA04_0.3, HA04_2.0, BH2_1.0, HA01_0.3, QC01	18-Oct-2022	24-Oct-2022	01-Nov-2022	✓	25-Oct-2022	01-Nov-2022	✓
Soil Glass Jar - Unpreserved (EP080) HA01_2.0	18-Oct-2022	25-Oct-2022	01-Nov-2022	✓	25-Oct-2022	01-Nov-2022	✓
Soil Glass Jar - Unpreserved (EP071) HA01_2.0	18-Oct-2022	25-Oct-2022	01-Nov-2022	✓	26-Oct-2022	04-Dec-2022	✓



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) HA03_0.2, HA03_1.8, HA04_0.8, BH2_0.5, BH2_3.0, HA01_1.4, HA03_0.8, HA04_0.3, HA04_2.0, BH2_1.0, HA01_0.3, QC01	18-Oct-2022	24-Oct-2022	01-Nov-2022	✓	25-Oct-2022	01-Nov-2022	✓	
Soil Glass Jar - Unpreserved (EP080) HA01_2.0	18-Oct-2022	25-Oct-2022	01-Nov-2022	✓	25-Oct-2022	01-Nov-2022	✓	
EP231A: Perfluoroalkyl Sulfonic Acids								
HDPE Soil Jar (EP231X) HA03_0.2, HA01_0.3, HA04_0.3, QC01	18-Oct-2022	24-Oct-2022	16-Apr-2023	✓	26-Oct-2022	03-Dec-2022	✓	
Soil Glass Jar - Unpreserved (EP231X) BH2_0.5	18-Oct-2022	24-Oct-2022	16-Apr-2023	✓	26-Oct-2022	03-Dec-2022	✓	
EP231B: Perfluoroalkyl Carboxylic Acids								
HDPE Soil Jar (EP231X) HA03_0.2, HA01_0.3, HA04_0.3, QC01	18-Oct-2022	24-Oct-2022	16-Apr-2023	✓	26-Oct-2022	03-Dec-2022	✓	
Soil Glass Jar - Unpreserved (EP231X) BH2_0.5	18-Oct-2022	24-Oct-2022	16-Apr-2023	✓	26-Oct-2022	03-Dec-2022	✓	
EP231C: Perfluoroalkyl Sulfonamides								
HDPE Soil Jar (EP231X) HA03_0.2, HA01_0.3, HA04_0.3, QC01	18-Oct-2022	24-Oct-2022	16-Apr-2023	✓	26-Oct-2022	03-Dec-2022	✓	
Soil Glass Jar - Unpreserved (EP231X) BH2_0.5	18-Oct-2022	24-Oct-2022	16-Apr-2023	✓	26-Oct-2022	03-Dec-2022	✓	
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
HDPE Soil Jar (EP231X) HA03_0.2, HA01_0.3, HA04_0.3, QC01	18-Oct-2022	24-Oct-2022	16-Apr-2023	✓	26-Oct-2022	03-Dec-2022	✓	
Soil Glass Jar - Unpreserved (EP231X) BH2_0.5	18-Oct-2022	24-Oct-2022	16-Apr-2023	✓	26-Oct-2022	03-Dec-2022	✓	
EP231P: PFAS Sums								
HDPE Soil Jar (EP231X) HA03_0.2, HA01_0.3, HA04_0.3, QC01	18-Oct-2022	24-Oct-2022	16-Apr-2023	✓	26-Oct-2022	03-Dec-2022	✓	
Soil Glass Jar - Unpreserved (EP231X) BH2_0.5	18-Oct-2022	24-Oct-2022	16-Apr-2023	✓	26-Oct-2022	03-Dec-2022	✓	

Matrix: **WATER**

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



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	
EG020T: Total Metals by ICP-MS								
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) TB_181022, RB02	18-Oct-2022	25-Oct-2022	16-Apr-2023	✓	25-Oct-2022	16-Apr-2023	✓	
EG035T: Total Recoverable Mercury by FIMS								
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T) TB_181022, RB02	18-Oct-2022	----	----	----	26-Oct-2022	15-Nov-2022	✓	
EP066: Polychlorinated Biphenyls (PCB)								
Amber Glass Bottle - Unpreserved (EP066) TB_181022, RB02	18-Oct-2022	21-Oct-2022	25-Oct-2022	✓	25-Oct-2022	30-Nov-2022	✓	
EP068A: Organochlorine Pesticides (OC)								
Amber Glass Bottle - Unpreserved (EP068) TB_181022, RB02	18-Oct-2022	21-Oct-2022	25-Oct-2022	✓	25-Oct-2022	30-Nov-2022	✓	
EP068B: Organophosphorus Pesticides (OP)								
Amber Glass Bottle - Unpreserved (EP068) TB_181022, RB02	18-Oct-2022	21-Oct-2022	25-Oct-2022	✓	25-Oct-2022	30-Nov-2022	✓	
EP075(SIM)A: Phenolic Compounds								
Amber Glass Bottle - Unpreserved (EP075(SIM)) TB_181022, RB02	18-Oct-2022	21-Oct-2022	25-Oct-2022	✓	25-Oct-2022	30-Nov-2022	✓	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP075(SIM)) TB_181022, RB02	18-Oct-2022	21-Oct-2022	25-Oct-2022	✓	25-Oct-2022	30-Nov-2022	✓	
EP080/071: Total Petroleum Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP071) TB_181022, RB02	18-Oct-2022	21-Oct-2022	25-Oct-2022	✓	25-Oct-2022	30-Nov-2022	✓	
Amber VOC Vial - Sulfuric Acid (EP080) TB_181022, RB02	18-Oct-2022	26-Oct-2022	01-Nov-2022	✓	26-Oct-2022	01-Nov-2022	✓	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
Amber Glass Bottle - Unpreserved (EP071) TB_181022, RB02	18-Oct-2022	21-Oct-2022	25-Oct-2022	✓	25-Oct-2022	30-Nov-2022	✓	
Amber VOC Vial - Sulfuric Acid (EP080) TB_181022, RB02	18-Oct-2022	26-Oct-2022	01-Nov-2022	✓	26-Oct-2022	01-Nov-2022	✓	
EP080: BTEXN								
Amber VOC Vial - Sulfuric Acid (EP080) TB_181022, RB02	18-Oct-2022	26-Oct-2022	01-Nov-2022	✓	26-Oct-2022	01-Nov-2022	✓	
EP231A: Perfluoroalkyl Sulfonic Acids								
HDPE (no PTFE) (EP231X) TB_181022, RB02	18-Oct-2022	24-Oct-2022	16-Apr-2023	✓	25-Oct-2022	16-Apr-2023	✓	
EP231B: Perfluoroalkyl Carboxylic Acids								
HDPE (no PTFE) (EP231X) TB_181022, RB02	18-Oct-2022	24-Oct-2022	16-Apr-2023	✓	25-Oct-2022	16-Apr-2023	✓	

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 Work Order : ES2237391
 Client : KLEINFELDER AUSTRALIA PTY LTD
 Project : 20232402



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
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X) TB_181022, RB02	18-Oct-2022	24-Oct-2022	16-Apr-2023	✓	25-Oct-2022	16-Apr-2023	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X) TB_181022, RB02	18-Oct-2022	24-Oct-2022	16-Apr-2023	✓	25-Oct-2022	16-Apr-2023	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X) TB_181022, RB02	18-Oct-2022	24-Oct-2022	16-Apr-2023	✓	25-Oct-2022	16-Apr-2023	✓



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	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
Analytical Methods							
Laboratory Duplicates (DUP)							
ASS Field Screening Analysis	EA037	3	23	13.04	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Chloride Soluble By Discrete Analyser	ED045G	1	8	12.50	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Chromium Suite for Acid Sulphate Soils	EA033	3	21	14.29	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Electrical Conductivity (1:5)	EA010	2	18	11.11	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Major Anions - Soluble	ED040S	1	6	16.67	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055	4	40	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	4	38	10.53	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	13	15.38	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	2	10	20.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
pH (1:5)	EA002	2	19	10.53	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	2	11	18.18	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	3	20	15.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	3	22	13.64	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	4	38	10.53	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	19	10.53	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Chloride Soluble By Discrete Analyser	ED045G	2	8	25.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Chromium Suite for Acid Sulphate Soils	EA033	2	21	9.52	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Electrical Conductivity (1:5)	EA010	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Major Anions - Soluble	ED040S	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	2	38	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	13	7.69	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	2	10	20.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
pH (1:5)	EA002	2	19	10.53	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	2	11	18.18	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	20	10.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	22	9.09	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	38	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Chloride Soluble By Discrete Analyser	ED045G	1	8	12.50	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Chromium Suite for Acid Sulphate Soils	EA033	2	21	9.52	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Electrical Conductivity (1:5)	EA010	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Major Anions - Soluble	ED040S	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	2	38	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	13	7.69	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							
Pesticides by GCMS	EP068	2	10	20.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	2	11	18.18	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	20	10.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	22	9.09	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	38	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Chloride Soluble By Discrete Analyser	ED045G	1	8	12.50	5.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	2	38	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	13	7.69	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	2	10	20.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	2	11	18.18	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	20	10.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	22	9.09	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	38	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard

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)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	6	0.00	10.00	✗	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	11	0.00	10.00	✗	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	3	0.00	10.00	✗	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	3	0.00	10.00	✗	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	12	16.67	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	9	0.00	10.00	✗	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	11	9.09	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	12	8.33	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
Method Blanks (MB)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard



Matrix: **WATER** Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
Analytical Methods							
Method Blanks (MB) - Continued							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	11	9.09	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	3	33.33	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	3	33.33	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	12	8.33	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
Matrix Spikes (MS)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	6	0.00	5.00	✖	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	11	0.00	5.00	✖	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	3	0.00	5.00	✖	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	3	0.00	5.00	✖	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	12	8.33	5.00	✔	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	9	0.00	5.00	✖	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	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 (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).
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).
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.
ASS Field Screening Analysis	* EA037	SOIL	In house: Referenced to Acid Sulfate Soils Laboratory Methods Guidelines. As received samples are tested for pH field and pH fox and assessed for a reaction rating.
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).
Asbestos Identification in Soils	EA200	SOIL	AS 4964 Method for the qualitative identification of asbestos in bulk samples Analysis by Polarised Light Microscopy including dispersion staining
Major Anions - Soluble	ED040S	SOIL	In house: Soluble Anions are determined off a 1:5 soil / water extract by ICPAES.
Chloride Soluble By Discrete Analyser	ED045G	SOIL	In house: Referenced to APHA 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 (SnCl ₂) (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 SnCl ₂ 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)
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).



Analytical Methods	Method	Matrix	Method Descriptions
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.
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	SOIL	In-house: Analysis of soils by solvent extraction followed by LC-Electrospray-MS-MS, Negative Mode using MRM using internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to a portion of soil which is then extracted with MTBE and an ion pairing reagent. A portion of extract is exchanged into the analytical solvent mixture, combined with an equal volume reagent water and filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl ₂)(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 unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ 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).
Polychlorinated Biphenyls (PCB)	EP066	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample 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	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample 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)
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015 The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS in SIM Mode 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	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM Schedule B(3)



Analytical Methods	Method	Matrix	Method Descriptions
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.
Preparation Methods	Method	Matrix	Method Descriptions
Drying only	EN020D	SOIL	In house
Drying at 85 degrees, bagging and labelling (ASS)	EN020PR	SOIL	In house
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.
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).
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.
QuEChERS Extraction of Solids	ORG71	SOIL	In house: Sequential extractions with Acetonitrile/Methanol by shaking. Extraction efficiency aided by the addition of salts under acidic conditions. Where relevant, interferences from co-extracted organics are removed with dispersive clean-up media (dSPE). The extract is either diluted or concentrated and exchanged into the analytical solvent.
Digestion for Total Recoverable Metals	EN25	WATER	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)
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for purging.
Solid Phase Extraction (SPE) for PFAS in water	ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

Phoung Tran

From: Jason Dighton
Sent: Friday, 21 October 2022 6:08 PM
To: Phoung Tran
Subject: FW: [EXTERNAL] - ES2237552 20232402 Sample Analysis

Hi Phoung,

Could we please update per the below!

Best regards,



alsglobal.com
High Integrity

Jason Dighton
Client Services Officer, Environmental
Sydney, NSW

O: +61 2 8784 8555
D: +61 2 8784 8509
Jason.Dighton@alsglobal.com
2/7-289 Woodpark Road
Smithfield NSW 2164 AUSTRALIA

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Environmental Division
Sydney
Work Order Reference
ES2237552



Telephone : + 61-2-8784 8555

From: Jai Roby [mailto:JRoby@kleinfelder.com]
Sent: Friday, 21 October 2022 6:06 PM
To: Jason Dighton <jason.dighton@ALSGlobal.com>
Subject: [EXTERNAL] - ES2237552 20232402 Sample Analysis

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.

Hey mate,

I noticed on the COC of workorder ES2237552, Job 20232402, that I forgot to add analyses for samples RB03 & TB_191022.
Can these samples have analyses S-19 and S-1 please.

Thanks,

Jai Roby

B.Sc (Earth Sciences) (Hons).

Graduate Environmental Scientist – Contaminated Land Management

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Kleinfelder acknowledges the traditional Owners of the Lands on which our business operates and
lands throughout Australia. We pay our respect to Aboriginal and Torres Strait Islander cultures,
and to Elders past and present.



CERTIFICATE OF ANALYSIS

Work Order : ES2237552
Client : KLEINFELDER AUSTRALIA PTY LTD
Contact : J Roby
Address : 95 MITCHELL ROAD
CARDIFF NSW 2285
Telephone : ----
Project : 20232402
Order number : ----
C-O-C number : ----
Sampler : J Roby
Site : UON Gosford
Quote number : EN/222
No. of samples received : 16
No. of samples analysed : 15

Page : 1 of 27
Laboratory : Environmental Division Sydney
Contact : Graeme Jablonskas
Address : 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone : +6138549 9609
Date Samples Received : 19-Oct-2022 15:42
Date Analysis Commenced : 21-Oct-2022
Issue Date : 03-Nov-2022 13:46



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
Descriptive 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.

Table with 3 columns: Signatories, Position, Accreditation Category. Lists names like Alana Smylie, Ankit Joshi, Ben Felgendrejeris, Edwandy Fadjar, Franco Lentini, Ivan Taylor, Kim McCabe and their respective roles and accreditation categories.



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.

- EP075 (SIM): Where reported, 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.
- 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.
- Corrosion assessment for Concrete and Steel piles in soil per Australian Standard AS2159-2009 uses a combination of soil and groundwater data (Tables 6.4.2 C & 6.5.2 C). In the absence of groundwater data, assessment has been made against soil criteria only. Refer to AS2159-2009 section 6.4 for further interpretation of corrosion assessment. ALS is not NATA accredited for Corrosion Assessment comments
- EA167: Soil Condition A – High permeability soils (e.g. sands and gravels) which are in groundwater
- EA167: Soil Condition B – Low permeability soils (e.g. silts and clays) or all soils above groundwater
- 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: EA037 (Rapid Field and F(ox) screening): pH F(ox) Reaction Rate: 1 - Slight; 2 - Moderate; 3 - Strong; 4 - Extreme
- 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'.
- EA037 ASS Field Screening: NATA accreditation does not cover performance of this service.
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Trace' - Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EA200 Legend
- EA200 'Ch' Chrysotile (white asbestos)



- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2
- EA200: 'Yes' - Asbestos detected by polarised light microscopy including dispersion staining.
- EA200: 'No*' - No asbestos found, at the reporting limit of 0.1g/kg, by polarised light microscopy including dispersion staining. Asbestos material was detected and positively identified at concentrations estimated to be below 0.1g/kg.
- EA200: 'No' - No asbestos found at the reporting limit 0.1g/kg, by polarised light microscopy including dispersion staining.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH1_0.5	BH1_1.0	BH1_2.0	BH1_3.0	BH1_4.0
Sampling date / time				19-Oct-2022 00:00	19-Oct-2022 00:00	19-Oct-2022 00:00	19-Oct-2022 00:00	19-Oct-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2237552-001	ES2237552-002	ES2237552-003	ES2237552-004	ES2237552-005	
				Result	Result	Result	Result	Result	
EA002: pH 1:5 (Soils)									
pH Value	----	0.1	pH Unit	----	5.3	----	5.4	----	
EA010: Conductivity (1:5)									
Electrical Conductivity @ 25°C	----	1	µS/cm	----	30	----	17	----	
EA033-A: Actual Acidity									
pH KCl (23A)	----	0.1	pH Unit	----	4.2	4.3	4.3	4.4	
Titrateable Actual Acidity (23F)	----	2	mole H+ / t	----	134	83	70	53	
sulfidic - Titrateable Actual Acidity (s-23F)	----	0.02	% pyrite S	----	0.22	0.13	0.11	0.08	
EA033-B: Potential Acidity									
Chromium Reducible Sulfur (22B)	----	0.005	% S	----	0.018	0.019	0.012	0.014	
acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	----	11	12	<10	<10	
EA033-D: Retained Acidity									
KCl Extractable Sulfur (23Ce)	----	0.02	% S	----	<0.02	<0.02	<0.02	<0.02	
HCl Extractable Sulfur (20Be)	----	0.02	% S	----	<0.02	<0.02	<0.02	0.04	
Net Acid Soluble Sulfur (20Je)	----	0.02	% S	----	<0.02	<0.02	<0.02	0.07	
acidity - Net Acid Soluble Sulfur (a-20J)	----	10	mole H+ / t	----	<10	<10	<10	34	
sulfidic - Net Acid Soluble Sulfur (s-20J)	----	0.02	% pyrite S	----	<0.02	<0.02	<0.02	0.06	
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	----	0.23	0.15	0.12	0.15	
Net Acidity (acidity units)	----	10	mole H+ / t	----	146	95	77	96	
Liming Rate	----	1	kg CaCO3/t	----	11	7	6	7	
Net Acidity excluding ANC (sulfur units)	----	0.02	% S	----	0.23	0.15	0.12	0.15	
Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	----	146	95	77	96	
Liming Rate excluding ANC	----	1	kg CaCO3/t	----	11	7	6	7	
EA037: Ass Field Screening Analysis									
ø pH (F)	----	0.1	pH Unit	----	5.3	4.7	4.9	5.2	
ø pH (Fox)	----	0.1	pH Unit	----	4.0	3.5	3.4	3.7	
ø Reaction Rate	----	1	-	----	2	2	2	2	
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%	13.8	21.9	12.3	10.8	----	
EA080: Resistivity									
Resistivity at 25°C	----	1	ohm cm	----	33300	----	58800	----	
EA167: Corrosion Classification (per AS2159-2009)									



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH1_0.5	BH1_1.0	BH1_2.0	BH1_3.0	BH1_4.0
Sampling date / time					19-Oct-2022 00:00	19-Oct-2022 00:00	19-Oct-2022 00:00	19-Oct-2022 00:00	19-Oct-2022 00:00
Compound	CAS Number	LOR	Unit		ES2237552-001	ES2237552-002	ES2237552-003	ES2237552-004	ES2237552-005
				Result	Result	Result	Result	Result	Result
EA167: Corrosion Classification (per AS2159-2009) - Continued									
∅ Exposure Classification - Concrete Piles Soil Condition A	----	-	-	----	Moderate	----	Moderate	----	----
∅ Exposure Classification - Concrete Piles Soil Condition B	----	-	-	----	Mild	----	Mild	----	----
∅ Exposure Classification - Steel Piles Soil Condition A	----	-	-	----	Non Aggressive	----	Non Aggressive	----	----
∅ Exposure Classification - Steel Piles Soil Condition B	----	-	-	----	Non Aggressive	----	Non Aggressive	----	----
EA200: AS 4964 - 2004 Identification of Asbestos in Soils									
Asbestos Detected	1332-21-4	0.1	g/kg	No	----	----	----	----	----
Asbestos (Trace)	1332-21-4	5	Fibres	No	----	----	----	----	----
Asbestos Type	1332-21-4	-	--	-	----	----	----	----	----
Sample weight (dry)	----	0.01	g	255	----	----	----	----	----
APPROVED IDENTIFIER:	----	-	--	A. SMYLIE	----	----	----	----	----
Synthetic Mineral Fibre	----	0.1	g/kg	No	----	----	----	----	----
Organic Fibre	----	0.1	g/kg	No	----	----	----	----	----
ED040S: Soluble Major Anions									
Sulfate as SO4 2-	14808-79-8	10	mg/kg	----	40	----	10	----	----
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	10	mg/kg	----	<10	----	<10	----	----
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	----	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	----	----
Chromium	7440-47-3	2	mg/kg	7	14	9	----	----	----
Copper	7440-50-8	5	mg/kg	<5	<5	<5	<5	----	----
Lead	7439-92-1	5	mg/kg	21	28	12	----	----	----
Nickel	7440-02-0	2	mg/kg	<2	<2	<2	<2	----	----
Zinc	7440-66-6	5	mg/kg	16	<5	<5	<5	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	----	----
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	----	----	----	----	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH1_0.5	BH1_1.0	BH1_2.0	BH1_3.0	BH1_4.0
Sampling date / time				19-Oct-2022 00:00	19-Oct-2022 00:00	19-Oct-2022 00:00	19-Oct-2022 00:00	19-Oct-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2237552-001	ES2237552-002	ES2237552-003	ES2237552-004	ES2237552-005	
				Result	Result	Result	Result	Result	
EP068A: Organochlorine Pesticides (OC) - Continued									
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	----	----	----	----	
beta-BHC	319-85-7	0.05	mg/kg	<0.05	----	----	----	----	
gamma-BHC	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	----	----	----	----	
^ Total Chlordane (sum)	----	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	----	----	----	----	
^ 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	----	----	----	----	
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	----	----	----	----	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH1_0.5	BH1_1.0	BH1_2.0	BH1_3.0	BH1_4.0
Sampling date / time				19-Oct-2022 00:00	19-Oct-2022 00:00	19-Oct-2022 00:00	19-Oct-2022 00:00	19-Oct-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2237552-001	ES2237552-002	ES2237552-003	ES2237552-004	ES2237552-005	
				Result	Result	Result	Result	Result	
EP068B: Organophosphorus Pesticides (OP) - Continued									
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	----	----	----	----	
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									
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	----	----	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH1_0.5	BH1_1.0	BH1_2.0	BH1_3.0	BH1_4.0
Sampling date / time					19-Oct-2022 00:00	19-Oct-2022 00:00	19-Oct-2022 00:00	19-Oct-2022 00:00	19-Oct-2022 00:00
Compound	CAS Number	LOR	Unit	ES2237552-001	ES2237552-002	ES2237552-003	ES2237552-004	ES2237552-005	
				Result	Result	Result	Result	Result	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
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	----	----	
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	----	----	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH1_0.5	BH1_1.0	BH1_2.0	BH1_3.0	BH1_4.0
Sampling date / time				19-Oct-2022 00:00	19-Oct-2022 00:00	19-Oct-2022 00:00	19-Oct-2022 00:00	19-Oct-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2237552-001	ES2237552-002	ES2237552-003	ES2237552-004	ES2237552-005	
				Result	Result	Result	Result	Result	
EP080: BTEXN - Continued									
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	----	----	----	----	
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	----	----	----	----	
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	----	----	----	----	
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	----	----	----	----	
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	0.0004	----	----	----	----	
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	----	----	----	----	
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	----	----	----	----	
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	----	----	----	----	
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	----	----	----	----	
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	----	----	----	----	
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	----	----	----	----	
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	----	----	----	----	
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	----	----	----	----	
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	----	----	----	----	
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	----	----	----	----	
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	----	----	----	----	
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	----	----	----	----	
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	----	----	----	----	
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	----	----	----	----	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH1_0.5	BH1_1.0	BH1_2.0	BH1_3.0	BH1_4.0
Sampling date / time				19-Oct-2022 00:00	19-Oct-2022 00:00	19-Oct-2022 00:00	19-Oct-2022 00:00	19-Oct-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2237552-001	ES2237552-002	ES2237552-003	ES2237552-004	ES2237552-005	
				Result	Result	Result	Result	Result	
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	----	----	----	----	
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	----	----	----	----	
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	----	----	----	----	
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	----	----	----	----	
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	----	----	----	----	
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	----	----	----	----	
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	----	----	----	----	
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	----	----	----	----	
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	----	----	----	----	
EP231P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg	0.0004	----	----	----	----	
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	0.0004	----	----	----	----	
Sum of PFAS (WA DER List)	----	0.0002	mg/kg	0.0004	----	----	----	----	
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%	100	----	----	----	----	
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%	94.9	----	----	----	----	
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%	112	----	----	----	----	
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%	84.9	90.6	93.0	----	----	
2-Chlorophenol-D4	93951-73-6	0.5	%	81.5	85.1	85.3	----	----	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH1_0.5	BH1_1.0	BH1_2.0	BH1_3.0	BH1_4.0
Sampling date / time				19-Oct-2022 00:00	19-Oct-2022 00:00	19-Oct-2022 00:00	19-Oct-2022 00:00	19-Oct-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2237552-001	ES2237552-002	ES2237552-003	ES2237552-004	ES2237552-005	
				Result	Result	Result	Result	Result	
EP075(SIM)S: Phenolic Compound Surrogates - Continued									
2,4,6-Tribromophenol	118-79-6	0.5	%	84.1	88.8	84.3	----	----	
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%	98.1	104	102	----	----	
Anthracene-d10	1719-06-8	0.5	%	98.0	103	104	----	----	
4-Terphenyl-d14	1718-51-0	0.5	%	98.5	106	105	----	----	
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	0.2	%	94.4	84.4	85.8	----	----	
Toluene-D8	2037-26-5	0.2	%	96.7	90.9	95.7	----	----	
4-Bromofluorobenzene	460-00-4	0.2	%	97.5	106	110	----	----	
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%	93.0	----	----	----	----	
13C8-PFOA	----	0.0002	%	98.5	----	----	----	----	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH1_5.0	BH3_0.5	BH3_1.0	BH3_2.5	BH3_3.0
Sampling date / time				19-Oct-2022 00:00	19-Oct-2022 00:00	19-Oct-2022 00:00	19-Oct-2022 00:00	19-Oct-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2237552-006	ES2237552-007	ES2237552-008	ES2237552-009	ES2237552-010	
				Result	Result	Result	Result	Result	
EA002: pH 1:5 (Soils)									
pH Value	----	0.1	pH Unit	----	----	4.8	5.0	----	
EA010: Conductivity (1:5)									
Electrical Conductivity @ 25°C	----	1	µS/cm	----	----	58	30	----	
EA033-A: Actual Acidity									
pH KCl (23A)	----	0.1	pH Unit	4.4	7.6	4.0	4.3	4.1	
Titrateable Actual Acidity (23F)	----	2	mole H+ / t	61	<2	178	72	86	
sulfidic - Titrateable Actual Acidity (s-23F)	----	0.02	% pyrite S	0.10	<0.02	0.28	0.11	0.14	
EA033-B: Potential Acidity									
Chromium Reducible Sulfur (22B)	----	0.005	% S	0.018	0.015	0.015	0.018	0.017	
acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	12	<10	<10	11	11	
EA033-C: Acid Neutralising Capacity									
Acid Neutralising Capacity (19A2)	----	0.01	% CaCO3	----	1.22	----	----	----	
acidity - Acid Neutralising Capacity (a-19A2)	----	10	mole H+ / t	----	244	----	----	----	
sulfidic - Acid Neutralising Capacity (s-19A2)	----	0.01	% pyrite S	----	0.39	----	----	----	
EA033-D: Retained Acidity									
KCl Extractable Sulfur (23Ce)	----	0.02	% S	<0.02	----	0.05	<0.02	<0.02	
HCl Extractable Sulfur (20Be)	----	0.02	% S	<0.02	----	0.05	0.03	<0.02	
Net Acid Soluble Sulfur (20Je)	----	0.02	% S	<0.02	----	<0.02	0.06	<0.02	
acidity - Net Acid Soluble Sulfur (a-20J)	----	10	mole H+ / t	<10	----	<10	30	<10	
sulfidic - Net Acid Soluble Sulfur (s-20J)	----	0.02	% pyrite S	<0.02	----	<0.02	0.05	<0.02	
EA033-E: Acid Base Accounting									
ANC Fineness Factor	----	0.5	-	1.5	1.5	1.5	1.5	1.5	
Net Acidity (sulfur units)	----	0.02	% S	0.12	<0.02	0.31	0.18	0.16	
Net Acidity (acidity units)	----	10	mole H+ / t	73	<10	195	112	97	
Liming Rate	----	1	kg CaCO3/t	5	<1	15	8	7	
Net Acidity excluding ANC (sulfur units)	----	0.02	% S	0.12	<0.02	0.31	0.18	0.16	
Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	73	<10	195	112	97	
Liming Rate excluding ANC	----	1	kg CaCO3/t	5	<1	15	8	7	
EA037: Ass Field Screening Analysis									
ø pH (F)	----	0.1	pH Unit	5.3	----	4.4	4.8	4.6	
ø pH (Fox)	----	0.1	pH Unit	3.4	----	3.2	3.4	3.4	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH1_5.0	BH3_0.5	BH3_1.0	BH3_2.5	BH3_3.0
Sampling date / time				19-Oct-2022 00:00	19-Oct-2022 00:00	19-Oct-2022 00:00	19-Oct-2022 00:00	19-Oct-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2237552-006	ES2237552-007	ES2237552-008	ES2237552-009	ES2237552-010	
				Result	Result	Result	Result	Result	
EA037: Ass Field Screening Analysis - Continued									
∅ Reaction Rate	----	1	-	2	----	2	2	3	
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%	----	21.0	23.5	11.3	----	
EA080: Resistivity									
Resistivity at 25°C	----	1	ohm cm	----	----	17200	33300	----	
EA167: Corrosion Classification (per AS2159-2009)									
∅ Exposure Classification - Concrete Piles Soil Condition A	----	-	-	----	----	Moderate	Moderate	----	
∅ Exposure Classification - Concrete Piles Soil Condition B	----	-	-	----	----	Mild	Mild	----	
∅ Exposure Classification - Steel Piles Soil Condition A	----	-	-	----	----	Non Aggressive	Non Aggressive	----	
∅ Exposure Classification - Steel Piles Soil Condition B	----	-	-	----	----	Non Aggressive	Non Aggressive	----	
EA200: AS 4964 - 2004 Identification of Asbestos in Soils									
Asbestos Detected	1332-21-4	0.1	g/kg	----	No	----	----	----	
Asbestos (Trace)	1332-21-4	5	Fibres	----	No	----	----	----	
Asbestos Type	1332-21-4	-	--	----	-	----	----	----	
Sample weight (dry)	----	0.01	g	----	271	----	----	----	
APPROVED IDENTIFIER:	----	-	--	----	A. SMYLIE	----	----	----	
Synthetic Mineral Fibre	----	0.1	g/kg	----	No	----	----	----	
Organic Fibre	----	0.1	g/kg	----	No	----	----	----	
ED040S: Soluble Major Anions									
Sulfate as SO4 2-	14808-79-8	10	mg/kg	----	----	90	30	----	
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	10	mg/kg	----	----	<10	<10	----	
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg	----	8	13	<5	----	
Cadmium	7440-43-9	1	mg/kg	----	<1	1	<1	----	
Chromium	7440-47-3	2	mg/kg	----	26	58	9	----	
Copper	7440-50-8	5	mg/kg	----	8	<5	<5	----	
Lead	7439-92-1	5	mg/kg	----	51	18	20	----	
Nickel	7440-02-0	2	mg/kg	----	4	<2	<2	----	
Zinc	7440-66-6	5	mg/kg	----	219	<5	<5	----	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH1_5.0	BH3_0.5	BH3_1.0	BH3_2.5	BH3_3.0
Sampling date / time				19-Oct-2022 00:00	19-Oct-2022 00:00	19-Oct-2022 00:00	19-Oct-2022 00:00	19-Oct-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2237552-006	ES2237552-007	ES2237552-008	ES2237552-009	ES2237552-010	
				Result	Result	Result	Result	Result	
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg	----	<0.1	<0.1	<0.1	----	
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	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	----	----	----	
^ Total Chlordane (sum)	----	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	----	----	----	
^ 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	----	----	----	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH1_5.0	BH3_0.5	BH3_1.0	BH3_2.5	BH3_3.0
Sampling date / time				19-Oct-2022 00:00	19-Oct-2022 00:00	19-Oct-2022 00:00	19-Oct-2022 00:00	19-Oct-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2237552-006	ES2237552-007	ES2237552-008	ES2237552-009	ES2237552-010	
				Result	Result	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	----	----	----	
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									
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	----	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH1_5.0	BH3_0.5	BH3_1.0	BH3_2.5	BH3_3.0
Sampling date / time				19-Oct-2022 00:00	19-Oct-2022 00:00	19-Oct-2022 00:00	19-Oct-2022 00:00	19-Oct-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2237552-006	ES2237552-007	ES2237552-008	ES2237552-009	ES2237552-010	
				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	----	
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	----	
Benzo(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	----	
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	----	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH1_5.0	BH3_0.5	BH3_1.0	BH3_2.5	BH3_3.0
Sampling date / time				19-Oct-2022 00:00	19-Oct-2022 00:00	19-Oct-2022 00:00	19-Oct-2022 00:00	19-Oct-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2237552-006	ES2237552-007	ES2237552-008	ES2237552-009	ES2237552-010	
				Result	Result	Result	Result	Result	
EP080: BTEXN - Continued									
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	----	
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	----	<0.0002	----	----	----	
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	----	<0.0002	----	----	----	
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	----	<0.0002	----	----	----	
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	----	<0.0002	----	----	----	
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	----	0.0007	----	----	----	
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	----	<0.0002	----	----	----	
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	----	<0.001	----	----	----	
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	----	<0.0002	----	----	----	
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	----	<0.0002	----	----	----	
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	----	<0.0002	----	----	----	
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	----	<0.0002	----	----	----	
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	----	<0.0002	----	----	----	
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	----	<0.0002	----	----	----	
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	----	<0.0002	----	----	----	
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	----	<0.0002	----	----	----	
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	----	<0.0002	----	----	----	
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	----	<0.0005	----	----	----	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH1_5.0	BH3_0.5	BH3_1.0	BH3_2.5	BH3_3.0
Sampling date / time				19-Oct-2022 00:00	19-Oct-2022 00:00	19-Oct-2022 00:00	19-Oct-2022 00:00	19-Oct-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2237552-006	ES2237552-007	ES2237552-008	ES2237552-009	ES2237552-010	
				Result	Result	Result	Result	Result	
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	----	<0.0002	----	----	----	
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	----	<0.0005	----	----	----	
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	----	<0.0005	----	----	----	
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	----	<0.0005	----	----	----	
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	----	<0.0005	----	----	----	
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	----	<0.0002	----	----	----	
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	----	<0.0002	----	----	----	
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	----	<0.0005	----	----	----	
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	----	<0.0005	----	----	----	
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	----	<0.0005	----	----	----	
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	----	<0.0005	----	----	----	
EP231P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg	----	0.0007	----	----	----	
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	----	0.0007	----	----	----	
Sum of PFAS (WA DER List)	----	0.0002	mg/kg	----	0.0007	----	----	----	
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%	----	81.2	----	----	----	
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%	----	80.6	----	----	----	
EP068T: Organophosphorus Pesticide Surrogate									



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH1_5.0	BH3_0.5	BH3_1.0	BH3_2.5	BH3_3.0
Sampling date / time				19-Oct-2022 00:00	19-Oct-2022 00:00	19-Oct-2022 00:00	19-Oct-2022 00:00	19-Oct-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2237552-006	ES2237552-007	ES2237552-008	ES2237552-009	ES2237552-010	
				Result	Result	Result	Result	Result	
EP068T: Organophosphorus Pesticide Surrogate - Continued									
DEF	78-48-8	0.05	%	----	81.7	----	----	----	
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%	----	84.2	88.5	84.4	----	
2-Chlorophenol-D4	93951-73-6	0.5	%	----	82.3	85.1	80.8	----	
2,4,6-Tribromophenol	118-79-6	0.5	%	----	84.1	86.4	81.1	----	
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%	----	99.9	102	97.3	----	
Anthracene-d10	1719-06-8	0.5	%	----	99.1	101	99.1	----	
4-Terphenyl-d14	1718-51-0	0.5	%	----	103	105	99.4	----	
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	0.2	%	----	89.0	82.6	100	----	
Toluene-D8	2037-26-5	0.2	%	----	103	89.1	106	----	
4-Bromofluorobenzene	460-00-4	0.2	%	----	119	88.7	103	----	
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%	----	97.0	----	----	----	
13C8-PFOA	----	0.0002	%	----	95.0	----	----	----	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH3_4.0	BH3_5.0	BH3_6.0	----	----
Sampling date / time				19-Oct-2022 00:00	19-Oct-2022 00:00	19-Oct-2022 00:00	----	----	
Compound	CAS Number	LOR	Unit	ES2237552-011	ES2237552-012	ES2237552-013	-----	-----	
				Result	Result	Result	----	----	
EA033-A: Actual Acidity									
pH KCl (23A)	----	0.1	pH Unit	4.6	4.2	4.4	----	----	
Titrateable Actual Acidity (23F)	----	2	mole H+ / t	42	57	53	----	----	
sulfidic - Titrateable Actual Acidity (s-23F)	----	0.02	% pyrite S	0.07	0.09	0.08	----	----	
EA033-B: Potential Acidity									
Chromium Reducible Sulfur (22B)	----	0.005	% S	0.021	0.012	0.016	----	----	
acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	13	<10	<10	----	----	
EA033-D: Retained Acidity									
KCl Extractable Sulfur (23Ce)	----	0.02	% S	----	<0.02	<0.02	----	----	
HCl Extractable Sulfur (20Be)	----	0.02	% S	----	0.02	<0.02	----	----	
Net Acid Soluble Sulfur (20Je)	----	0.02	% S	----	0.05	<0.02	----	----	
acidity - Net Acid Soluble Sulfur (a-20J)	----	10	mole H+ / t	----	22	<10	----	----	
sulfidic - Net Acid Soluble Sulfur (s-20J)	----	0.02	% pyrite S	----	0.04	<0.02	----	----	
EA033-E: Acid Base Accounting									
ANC Fineness Factor	----	0.5	-	1.5	1.5	1.5	----	----	
Net Acidity (sulfur units)	----	0.02	% S	0.09	0.14	0.10	----	----	
Net Acidity (acidity units)	----	10	mole H+ / t	55	88	63	----	----	
Liming Rate	----	1	kg CaCO3/t	4	6	5	----	----	
Net Acidity excluding ANC (sulfur units)	----	0.02	% S	0.09	0.14	0.10	----	----	
Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	55	88	63	----	----	
Liming Rate excluding ANC	----	1	kg CaCO3/t	4	6	5	----	----	
EA037: Ass Field Screening Analysis									
∅ pH (F)	----	0.1	pH Unit	5.1	5.0	5.0	----	----	
∅ pH (Fox)	----	0.1	pH Unit	3.8	3.5	3.6	----	----	
∅ Reaction Rate	----	1	-	2	2	2	----	----	



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	RB03	TB_191022	----	----	----
Sampling date / time				19-Oct-2022 00:00	19-Oct-2022 00:00	----	----	----	
Compound	CAS Number	LOR	Unit	ES2237552-014	ES2237552-015	-----	-----	-----	
				Result	Result	----	----	----	
EG020F: Dissolved Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	----	----	----	
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	----	----	----	
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	----	----	----	
Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	----	----	----	
Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	----	----	----	
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	----	----	----	
Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	----	----	----	
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	----	----	----	
EP066: Polychlorinated Biphenyls (PCB)									
^ Total Polychlorinated biphenyls	----	1	µg/L	<1	<1	----	----	----	
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.5	µg/L	<0.5	<0.5	----	----	----	
Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	<0.5	----	----	----	
beta-BHC	319-85-7	0.5	µg/L	<0.5	<0.5	----	----	----	
gamma-BHC	58-89-9	0.5	µg/L	<0.5	<0.5	----	----	----	
delta-BHC	319-86-8	0.5	µg/L	<0.5	<0.5	----	----	----	
Heptachlor	76-44-8	0.5	µg/L	<0.5	<0.5	----	----	----	
Aldrin	309-00-2	0.5	µg/L	<0.5	<0.5	----	----	----	
Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	<0.5	----	----	----	
trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	<0.5	----	----	----	
alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	<0.5	----	----	----	
cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	<0.5	----	----	----	
Dieldrin	60-57-1	0.5	µg/L	<0.5	<0.5	----	----	----	
4,4'-DDE	72-55-9	0.5	µg/L	<0.5	<0.5	----	----	----	
Endrin	72-20-8	0.5	µg/L	<0.5	<0.5	----	----	----	
beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	<0.5	----	----	----	
4,4'-DDD	72-54-8	0.5	µg/L	<0.5	<0.5	----	----	----	
Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	<0.5	----	----	----	
Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	<0.5	----	----	----	
4,4'-DDT	50-29-3	2.0	µg/L	<2.0	<2.0	----	----	----	
Endrin ketone	53494-70-5	0.5	µg/L	<0.5	<0.5	----	----	----	
Methoxychlor	72-43-5	2.0	µg/L	<2.0	<2.0	----	----	----	
^ Total Chlordane (sum)	----	0.5	µg/L	<0.5	<0.5	----	----	----	



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	RB03	TB_191022	----	----	----
Sampling date / time				19-Oct-2022 00:00	19-Oct-2022 00:00	----	----	----	
Compound	CAS Number	LOR	Unit	ES2237552-014	ES2237552-015	-----	-----	-----	
				Result	Result	----	----	----	
EP068A: Organochlorine Pesticides (OC) - Continued									
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/5 0-2	0.5	µg/L	<0.5	<0.5	----	----	----	
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.5	µg/L	<0.5	<0.5	----	----	----	
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.5	µg/L	<0.5	<0.5	----	----	----	
Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	<0.5	----	----	----	
Monocrotophos	6923-22-4	2.0	µg/L	<2.0	<2.0	----	----	----	
Dimethoate	60-51-5	0.5	µg/L	<0.5	<0.5	----	----	----	
Diazinon	333-41-5	0.5	µg/L	<0.5	<0.5	----	----	----	
Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	<0.5	----	----	----	
Parathion-methyl	298-00-0	2.0	µg/L	<2.0	<2.0	----	----	----	
Malathion	121-75-5	0.5	µg/L	<0.5	<0.5	----	----	----	
Fenthion	55-38-9	0.5	µg/L	<0.5	<0.5	----	----	----	
Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	<0.5	----	----	----	
Parathion	56-38-2	2.0	µg/L	<2.0	<2.0	----	----	----	
Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	<0.5	----	----	----	
Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	<0.5	----	----	----	
Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	<0.5	----	----	----	
Fenamiphos	22224-92-6	0.5	µg/L	<0.5	<0.5	----	----	----	
Prothiofos	34643-46-4	0.5	µg/L	<0.5	<0.5	----	----	----	
Ethion	563-12-2	0.5	µg/L	<0.5	<0.5	----	----	----	
Carbophenothion	786-19-6	0.5	µg/L	<0.5	<0.5	----	----	----	
Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	<0.5	----	----	----	
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	----	----	----	
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	----	----	----	
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	----	----	----	
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	----	----	----	
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	----	----	----	
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	----	----	----	
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	----	----	----	
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	----	----	----	
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	----	----	----	
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	----	----	----	
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	----	----	----	



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	RB03	TB_191022	----	----	----
Sampling date / time				19-Oct-2022 00:00	19-Oct-2022 00:00	----	----	----	
Compound	CAS Number	LOR	Unit	ES2237552-014	ES2237552-015	-----	-----	-----	
				Result	Result	----	----	----	
EP075(SIM)A: Phenolic Compounds - Continued									
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	----	----	----	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	----	----	----	
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	----	----	----	
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	----	----	----	
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	----	----	----	
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	----	----	----	
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	----	----	----	
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	----	----	----	
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	----	----	----	
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	----	----	----	
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	----	----	----	
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L	<1.0	<1.0	----	----	----	
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	----	----	----	
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	----	----	----	
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	----	----	----	
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	----	----	----	
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	----	----	----	
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	----	----	----	
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	----	----	----	
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L	<20	<20	----	----	----	
C10 - C14 Fraction	----	50	µg/L	<50	<50	----	----	----	
C15 - C28 Fraction	----	100	µg/L	<100	<100	----	----	----	
C29 - C36 Fraction	----	50	µg/L	<50	<50	----	----	----	
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	----	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	----	----	----	
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	----	----	----	
>C10 - C16 Fraction	----	100	µg/L	<100	<100	----	----	----	
>C16 - C34 Fraction	----	100	µg/L	<100	<100	----	----	----	
>C34 - C40 Fraction	----	100	µg/L	<100	<100	----	----	----	
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	----	----	----	



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	RB03	TB_191022	----	----	----		
Sampling date / time				19-Oct-2022 00:00	19-Oct-2022 00:00	----	----	----			
Compound	CAS Number	LOR	Unit	ES2237552-014	ES2237552-015	-----	-----	-----			
				Result	Result	----	----	----			
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued											
^ >C10 - C16 Fraction minus Naphthalene (F2)				----	100	µg/L	<100	<100	----	----	----
EP080: BTEXN											
Benzene	71-43-2	1	µg/L	<1	<1	----	----	----			
Toluene	108-88-3	2	µg/L	<2	<2	----	----	----			
Ethylbenzene	100-41-4	2	µg/L	<2	<2	----	----	----			
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	----	----	----			
ortho-Xylene	95-47-6	2	µg/L	<2	<2	----	----	----			
^ Total Xylenes	----	2	µg/L	<2	<2	----	----	----			
^ Sum of BTEX	----	1	µg/L	<1	<1	----	----	----			
Naphthalene	91-20-3	5	µg/L	<5	<5	----	----	----			
EP066S: PCB Surrogate											
Decachlorobiphenyl	2051-24-3	1	%	83.0	93.8	----	----	----			
EP068S: Organochlorine Pesticide Surrogate											
Dibromo-DDE	21655-73-2	0.5	%	75.8	92.7	----	----	----			
EP068T: Organophosphorus Pesticide Surrogate											
DEF	78-48-8	0.5	%	67.6	81.1	----	----	----			
EP075(SIM)S: Phenolic Compound Surrogates											
Phenol-d6	13127-88-3	1.0	%	36.7	40.3	----	----	----			
2-Chlorophenol-D4	93951-73-6	1.0	%	74.4	80.6	----	----	----			
2,4,6-Tribromophenol	118-79-6	1.0	%	84.9	81.4	----	----	----			
EP075(SIM)T: PAH Surrogates											
2-Fluorobiphenyl	321-60-8	1.0	%	86.3	98.0	----	----	----			
Anthracene-d10	1719-06-8	1.0	%	98.5	109	----	----	----			
4-Terphenyl-d14	1718-51-0	1.0	%	95.2	107	----	----	----			
EP080S: TPH(V)/BTEX Surrogates											
1,2-Dichloroethane-D4	17060-07-0	2	%	113	116	----	----	----			
Toluene-D8	2037-26-5	2	%	109	108	----	----	----			
4-Bromofluorobenzene	460-00-4	2	%	107	107	----	----	----			



Analytical Results

Descriptive Results

Sub-Matrix: **SOIL**

<i>Method: Compound</i>	<i>Sample ID - Sampling date / time</i>	<i>Analytical Results</i>
EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	BH1_0.5 - 19-Oct-2022 00:00	Soil sample.
EA200: Description	BH3_0.5 - 19-Oct-2022 00:00	Soil sample.



Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	39	149
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	49	147
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	35	143
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2,4,6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	73	133
Toluene-D8	2037-26-5	74	132
4-Bromofluorobenzene	460-00-4	72	130
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	45	134
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	67	111
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	67	111
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	44
2-Chlorophenol-D4	93951-73-6	14	94
2,4,6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	32	112



Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

Inter-Laboratory Testing

Analysis conducted by ALS Brisbane, NATA accreditation no. 825, site no. 818 (Chemistry) 18958 (Biology).

(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) EA037: Ass Field Screening Analysis

Analysis conducted by ALS Newcastle, NATA accreditation no. 825, site no. 1656 (Chemistry) 9854 (Biology).

(SOIL) EA200: AS 4964 - 2004 Identification of Asbestos in Soils



QUALITY CONTROL REPORT

Work Order : ES2237552

Page : 1 of 23

Client : KLEINFELDER AUSTRALIA PTY LTD

Laboratory : Environmental Division Sydney

Contact : J Roby

Contact : Graeme Jablonskas

Address : 95 MITCHELL ROAD
CARDIFF NSW 2285

Address : 277-289 Woodpark Road Smithfield NSW Australia 2164

Telephone : ----

Telephone : +6138549 9609

Project : 20232402

Date Samples Received : 19-Oct-2022

Order number : ----

Date Analysis Commenced : 21-Oct-2022

C-O-C number : ----

Issue Date : 03-Nov-2022

Sampler : J Roby

Site : UON Gosford

Quote number : EN/222

No. of samples received : 16

No. of samples analysed : 15



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
Alana Smylie	Team Leader - Asbestos	Newcastle - Asbestos, Mayfield West, NSW
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Ben Felgendrejeris	Senior Acid Sulfate Soil Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW
Kim McCabe	Senior Inorganic 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

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: 4658923)									
ES2237552-002	BH1_1.0	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	14	15	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	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	28	28	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 4665195)									
ES2237552-001	BH1_0.5	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	7	7	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	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	21	21	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	16	14	0.0	No Limit
ES2238013-007	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	19	20	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	18	18	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	15	14	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	16	16	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	8	9	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	32	33	0.0	No Limit
EA002: pH 1:5 (Soils) (QC Lot: 4658929)									
ES2237844-003	Anonymous	EA002: pH Value	----	0.1	pH Unit	9.6	9.6	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: 4658929) - continued									
ES2237552-002	BH1_1.0	EA002: pH Value	----	0.1	pH Unit	5.3	5.3	0.0	0% - 20%
EA010: Conductivity (1:5) (QC Lot: 4658930)									
ES2237844-003	Anonymous	EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	457	466	2.0	0% - 20%
ES2237552-002	BH1_1.0	EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	30	28	3.8	0% - 20%
EA033-A: Actual Acidity (QC Lot: 4671360)									
ES2236400-019	Anonymous	EA033: sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	0.14	0.15	0.0	No Limit
		EA033: Titratable Actual Acidity (23F)	----	2	mole H+ / t	87	92	5.1	0% - 20%
		EA033: pH KCl (23A)	----	0.1	pH Unit	4.1	4.1	0.0	0% - 20%
ES2237552-012	BH3_5.0	EA033: sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	0.09	0.09	0.0	No Limit
		EA033: Titratable Actual Acidity (23F)	----	2	mole H+ / t	57	56	2.8	0% - 20%
		EA033: pH KCl (23A)	----	0.1	pH Unit	4.2	4.2	0.0	0% - 20%
EA033-A: Actual Acidity (QC Lot: 4676411)									
EB2232071-001	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	5.7	5.7	0.0	0% - 20%
EA033-B: Potential Acidity (QC Lot: 4671360)									
ES2236400-019	Anonymous	EA033: Chromium Reducible Sulfur (22B)	----	0.005	% S	0.025	0.026	0.0	No Limit
		EA033: acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	16	16	0.0	No Limit
ES2237552-012	BH3_5.0	EA033: Chromium Reducible Sulfur (22B)	----	0.005	% S	0.012	0.015	17.3	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: 4676411)									
EB2232071-001	Anonymous	EA033: Chromium Reducible Sulfur (22B)	----	0.005	% S	0.083	0.086	3.5	0% - 50%
		EA033: acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	52	53	3.5	No Limit
EA033-D: Retained Acidity (QC Lot: 4671360)									
ES2236400-019	Anonymous	EA033: sulfidic - Net Acid Soluble Sulfur (s-20J)	----	0.02	% pyrite S	<0.02	<0.02	0.0	No Limit
		EA033: Net Acid Soluble Sulfur (20Je)	----	0.02	% S	<0.02	<0.02	0.0	No Limit
		EA033: KCl Extractable Sulfur (23Ce)	----	0.02	% S	0.03	0.02	0.0	No Limit
		EA033: HCl Extractable Sulfur (20Be)	----	0.02	% S	0.03	0.03	0.0	No Limit
		EA033: acidity - Net Acid Soluble Sulfur (a-20J)	----	10	mole H+ / t	<10	<10	0.0	No Limit
ES2237552-012	BH3_5.0	EA033: sulfidic - Net Acid Soluble Sulfur (s-20J)	----	0.02	% pyrite S	0.04	0.03	0.0	No Limit
		EA033: Net Acid Soluble Sulfur (20Je)	----	0.02	% S	0.05	0.04	0.0	No Limit
		EA033: KCl Extractable Sulfur (23Ce)	----	0.02	% S	<0.02	<0.02	0.0	No Limit
		EA033: HCl Extractable Sulfur (20Be)	----	0.02	% S	0.02	0.02	0.0	No Limit
		EA033: acidity - Net Acid Soluble Sulfur (a-20J)	----	10	mole H+ / t	22	21	8.4	No Limit
EA037: Ass Field Screening Analysis (QC Lot: 4665937)									
EB2231191-041	Anonymous	EA037: pH (F)	----	0.1	pH Unit	5.9	5.9	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 (%)
EA037: Ass Field Screening Analysis (QC Lot: 4665937) - continued									
EB2231191-041	Anonymous	EA037: pH (Fox)	----	0.1	pH Unit	4.3	4.3	0.0	0% - 20%
EB2231191-051	Anonymous	EA037: pH (F)	----	0.1	pH Unit	5.5	5.5	0.0	0% - 20%
		EA037: pH (Fox)	----	0.1	pH Unit	2.0	2.1	0.0	0% - 20%
EA037: Ass Field Screening Analysis (QC Lot: 4665938)									
ES2237552-010	BH3_3.0	EA037: pH (F)	----	0.1	pH Unit	4.6	4.6	0.0	0% - 20%
		EA037: pH (Fox)	----	0.1	pH Unit	3.4	3.4	0.0	0% - 20%
ES2238022-007	Anonymous	EA037: pH (F)	----	0.1	pH Unit	4.8	4.8	0.0	0% - 20%
		EA037: pH (Fox)	----	0.1	pH Unit	3.5	3.4	0.0	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 4658936)									
ES2237552-008	BH3_1.0	EA055: Moisture Content	----	0.1	%	23.5	22.8	3.2	0% - 20%
ES2237844-002	Anonymous	EA055: Moisture Content	----	0.1	%	9.3	10.1	7.6	0% - 50%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 4665200)									
ES2237552-007	BH3_0.5	EA055: Moisture Content	----	0.1	%	21.0	23.2	10.2	0% - 20%
ES2238013-010	Anonymous	EA055: Moisture Content	----	0.1	%	16.8	17.4	3.7	0% - 50%
ED040S: Soluble Major Anions (QC Lot: 4658928)									
ES2237552-002	BH1_1.0	ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	40	40	0.0	No Limit
ED045G: Chloride by Discrete Analyser (QC Lot: 4658927)									
ES2237844-003	Anonymous	ED045G: Chloride	16887-00-6	10	mg/kg	350	340	0.0	0% - 20%
ES2237552-002	BH1_1.0	ED045G: Chloride	16887-00-6	10	mg/kg	<10	<10	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 4658924)									
ES2237552-002	BH1_1.0	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: 4665196)									
ES2237552-001	BH1_0.5	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES2238013-007	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 4656126)									
ES2237552-001	BH1_0.5	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 4656125)									
ES2237552-001	BH1_0.5	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	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



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: 4656125) - continued									
ES2237552-001	BH1_0.5	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: 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: 4656125)									
ES2237552-001	BH1_0.5	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		
EP075(SIM)A: Phenolic Compounds (QC Lot: 4656124)									
ES2237973-005	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
		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



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: 4656124) - continued									
ES2237973-005	Anonymous	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
ES2237552-001	BH1_0.5	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: 4656124)									
ES2237973-005	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): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
ES2237552-001	BH1_0.5	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



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: 4656124) - continued									
ES2237552-001	BH1_0.5	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): Dibenzo(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): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 4656123)									
ES2237973-005	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
ES2237552-001	BH1_0.5	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: 4661339)									
ES2237552-001	BH1_0.5	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES2238111-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 4656123)									
ES2237973-005	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
ES2237552-001	BH1_0.5	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: 4661339)									
ES2237552-001	BH1_0.5	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES2238111-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080: BTEXN (QC Lot: 4661339)									
ES2237552-001	BH1_0.5	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: 4661339) - continued									
ES2237552-001	BH1_0.5	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
ES2238111-001	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
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 4657618)									
EP2213833-003	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
ES2237325-005	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 4657618)									
EP2213833-003	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
ES2237325-005	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	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 (%)
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 4657618) - continued									
ES2237325-005	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 4657618)									
EP2213833-003	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		ES2237325-005	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9			0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6			0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8			0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2			0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7			0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2			0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 4657618)									
EP2213833-003	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	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 (%)
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 4657618) - continued									
EP2213833-003	Anonymous	EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
ES2237325-005	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit

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 (%)
EG020F: Dissolved Metals by ICP-MS (QC Lot: 4666288)									
ES2238197-007	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.008	0.007	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.005	0.0	No Limit
ES2238029-001	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit

EG035F: Dissolved Mercury by FIMS (QC Lot: 4666287)									
ES2237552-015	TB_191022	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES2238203-002	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit

EP080/071: Total Petroleum Hydrocarbons (QC Lot: 4662697)									
ES2238016-003	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	20	20	0.0	No Limit
ES2238034-003	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit

EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 4662697)									
ES2238016-003	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES2238034-003	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit

EP080: BTEXN (QC Lot: 4662697)									
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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 (%)
EP080: BTEXN (QC Lot: 4662697) - continued									
ES2238016-003	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	3	3	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
ES2238034-003	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	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: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Acceptable Limits (%)	
						LCS	Low	High	
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4658923)									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	121.1 mg/kg	99.8	88.0	113	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	0.74 mg/kg	98.4	70.0	130	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	19.6 mg/kg	100	68.0	132	
EG005T: Copper	7440-50-8	5	mg/kg	<5	52.9 mg/kg	100	89.0	111	
EG005T: Lead	7439-92-1	5	mg/kg	<5	60.8 mg/kg	106	82.0	119	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.3 mg/kg	98.9	80.0	120	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	139.3 mg/kg	85.8	66.0	133	
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4665195)									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	121.1 mg/kg	96.4	88.0	113	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	0.74 mg/kg	87.2	70.0	130	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	19.6 mg/kg	100	68.0	132	
EG005T: Copper	7440-50-8	5	mg/kg	<5	52.9 mg/kg	105	89.0	111	
EG005T: Lead	7439-92-1	5	mg/kg	<5	60.8 mg/kg	93.4	82.0	119	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.3 mg/kg	95.4	80.0	120	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	139.3 mg/kg	88.7	66.0	133	
EA002: pH 1:5 (Soils) (QCLot: 4658929)									
EA002: pH Value	----	----	pH Unit	----	4 pH Unit	101	98.8	101	
					7 pH Unit	100	98.8	101	
EA010: Conductivity (1:5) (QCLot: 4658930)									
EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	1412 µS/cm	95.6	92.0	108	
EA033-A: Actual Acidity (QCLot: 4671360)									
EA033: pH KCl (23A)	----	----	pH Unit	----	4.4 pH Unit	100	91.0	107	
EA033: Titratable Actual Acidity (23F)	----	2	mole H+ / t	<2	16 mole H+ / t	105	70.0	124	
EA033: sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	<0.02	----	----	----	----	
EA033-A: Actual Acidity (QCLot: 4676411)									
EA033: pH KCl (23A)	----	----	pH Unit	----	4.4 pH Unit	99.7	91.0	107	
EA033: Titratable Actual Acidity (23F)	----	2	mole H+ / t	<2	16 mole H+ / t	112	70.0	124	
EA033: sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	<0.02	----	----	----	----	
EA033-B: Potential Acidity (QCLot: 4671360)									
EA033: Chromium Reducible Sulfur (22B)	----	0.005	% S	<0.005	0.246 % S	99.9	77.0	121	
EA033: acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	<10	----	----	----	----	
EA033-B: Potential Acidity (QCLot: 4676411)									
EA033: Chromium Reducible Sulfur (22B)	----	0.005	% S	<0.005	0.246 % S	103	77.0	121	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
				Result	Spike	Spike Recovery (%)	Acceptable Limits (%)	
					Concentration	LCS	Low	High
EA033-B: Potential Acidity (QCLot: 4676411) - continued								
EA033: acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	<10	----	----	----	----
EA033-C: Acid Neutralising Capacity (QCLot: 4676411)								
EA033: Acid Neutralising Capacity (19A2)	----	0.01	% CaCO3	<0.01	10 % CaCO3	96.6	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-D: Retained Acidity (QCLot: 4671360)								
EA033: Net Acid Soluble Sulfur (20Je)	----	0.02	% S	<0.02	----	----	----	----
EA033: acidity - Net Acid Soluble Sulfur (a-20J)	----	10	mole H+ / t	<10	----	----	----	----
EA033: sulfidic - Net Acid Soluble Sulfur (s-20J)	----	0.02	% pyrite S	<0.02	----	----	----	----
EA033: KCl Extractable Sulfur (23Ce)	----	0.02	% S	<0.02	0.055 % S	103	70.0	128
EA033: HCl Extractable Sulfur (20Be)	----	0.02	% S	<0.02	0.696 % S	102	70.0	120
ED040S: Soluble Major Anions (QCLot: 4658928)								
ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	<10	750 mg/kg	96.7	80.0	120
ED045G: Chloride by Discrete Analyser (QCLot: 4658927)								
ED045G: Chloride	16887-00-6	10	mg/kg	<10	250 mg/kg	102	75.0	125
				<10	5000 mg/kg	101	79.0	117
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4658924)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.087 mg/kg	95.8	70.0	125
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4665196)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.087 mg/kg	96.6	70.0	125
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 4656126)								
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	99.0	62.0	126
EP068A: Organochlorine Pesticides (OC) (QCLot: 4656125)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	77.4	69.0	113
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	80.5	65.0	117
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	85.1	67.0	119
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	83.0	68.0	116
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	76.8	65.0	117
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	79.8	67.0	115
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	82.1	69.0	115
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	84.3	62.0	118
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	82.6	63.0	117
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	84.4	66.0	116
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	83.4	64.0	116
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	87.7	66.0	116
EP068: 4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	83.3	67.0	115
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	80.2	67.0	123
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	87.8	69.0	115



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Acceptable Limits (%)	
						LCS	Low	High	
EP068A: Organochlorine Pesticides (OC) (QCLot: 4656125) - continued									
EP068: 4.4'-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	89.2	69.0	121	
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	76.0	56.0	120	
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	85.0	62.0	124	
EP068: 4.4'-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	81.8	66.0	120	
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	81.9	64.0	122	
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	80.2	54.0	130	
EP068B: Organophosphorus Pesticides (OP) (QCLot: 4656125)									
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	77.1	59.0	119	
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	84.1	62.0	128	
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	97.8	54.0	126	
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	96.9	67.0	119	
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	83.5	70.0	120	
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	82.6	72.0	120	
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	79.9	68.0	120	
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	89.6	68.0	122	
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	83.1	69.0	117	
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	83.3	76.0	118	
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	78.2	64.0	122	
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	83.7	70.0	116	
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	82.0	69.0	121	
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	89.4	66.0	118	
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	99.2	68.0	124	
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	86.3	62.0	112	
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	82.6	68.0	120	
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	81.9	65.0	127	
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	66.0	41.0	123	
EP075(SIM)A: Phenolic Compounds (QCLot: 4656124)									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	6 mg/kg	94.7	71.0	125	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	6 mg/kg	94.1	72.0	124	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	6 mg/kg	94.6	71.0	123	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	12 mg/kg	94.2	67.0	127	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	6 mg/kg	81.4	54.0	114	
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	6 mg/kg	98.0	68.0	126	
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	6 mg/kg	94.1	66.0	120	
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	6 mg/kg	92.6	70.0	120	
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	6 mg/kg	93.0	70.0	116	
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	6 mg/kg	85.9	54.0	114	
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	6 mg/kg	91.1	60.0	114	
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	12 mg/kg	39.6	10.0	80.0	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)	Acceptable Limits (%)	
						LCS	Low	High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 4656124)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	98.6	77.0	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	100	72.0	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	97.5	73.0	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	100	72.0	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	103	75.0	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	103	77.0	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	102	73.0	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	102	74.0	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	95.9	69.0	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	97.9	75.0	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	95.4	68.0	116
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	95.6	74.0	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	96.4	70.0	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	94.2	61.0	121
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	93.9	62.0	118
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	93.4	63.0	121
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4656123)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	93.0	75.0	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	95.2	77.0	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	89.9	71.0	129
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4661339)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	104	68.4	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4656123)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	93.2	77.0	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	94.1	74.0	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	71.8	63.0	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4661339)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	106	68.4	128
EP080: BTEXN (QCLot: 4661339)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	99.1	62.0	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	100	67.0	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	101	65.0	117
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	103	66.0	118
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	102	68.0	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	96.8	63.0	119
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4657618)								



Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Acceptable Limits (%)	
						LCS	Low	High	
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4657618) - continued									
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.00125 mg/kg	78.8	72.0	128	
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	89.6	73.0	123	
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	85.2	67.0	130	
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	88.0	70.0	132	
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	90.8	68.0	136	
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	92.4	59.0	134	
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4657618)									
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	95.5	71.0	135	
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	86.0	69.0	132	
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	85.2	70.0	132	
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	98.0	71.0	131	
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	102	69.0	133	
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	88.4	72.0	129	
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	0.00125 mg/kg	94.8	69.0	133	
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	96.0	64.0	136	
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	98.4	69.0	135	
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	96.0	66.0	139	
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	100	69.0	133	
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4657618)									
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	99.2	67.0	137	
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	0.00312 mg/kg	96.3	71.6	129	
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	91.0	69.8	131	
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	94.7	68.7	130	
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	96.3	65.1	134	
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	98.4	63.0	144	
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	94.4	61.0	139	
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4657618)									
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00125 mg/kg	94.4	62.0	145	
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00125 mg/kg	98.8	64.0	140	
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	0.00125 mg/kg	91.2	65.0	137	
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	0.00125 mg/kg	84.0	69.2	143	

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Acceptable Limits (%)	
						LCS	Low	High	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Acceptable Limits (%)	
					Concentration	LCS	Low	High	
EG020F: Dissolved Metals by ICP-MS (QCLot: 4666288)									
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	98.1	85.0	114	
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	96.8	84.0	110	
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	96.6	85.0	111	
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	95.0	81.0	111	
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	97.3	83.0	111	
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	95.7	82.0	112	
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	92.8	81.0	117	
EG035F: Dissolved Mercury by FIMS (QCLot: 4666287)									
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	94.8	83.0	105	
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 4655978)									
EP066: Total Polychlorinated biphenyls	----	1	µg/L	<1	10 µg/L	92.6	68.9	113	
EP068A: Organochlorine Pesticides (OC) (QCLot: 4655976)									
EP068: alpha-BHC	319-84-6	0.5	µg/L	<0.5	5 µg/L	83.5	64.9	107	
EP068: Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	5 µg/L	86.1	58.3	111	
EP068: beta-BHC	319-85-7	0.5	µg/L	<0.5	5 µg/L	97.9	69.0	117	
EP068: gamma-BHC	58-89-9	0.5	µg/L	<0.5	5 µg/L	90.3	70.0	112	
EP068: delta-BHC	319-86-8	0.5	µg/L	<0.5	5 µg/L	99.4	68.9	110	
EP068: Heptachlor	76-44-8	0.5	µg/L	<0.5	5 µg/L	84.4	65.2	108	
EP068: Aldrin	309-00-2	0.5	µg/L	<0.5	5 µg/L	86.4	65.8	109	
EP068: Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	5 µg/L	93.1	67.1	107	
EP068: trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	5 µg/L	90.7	64.1	110	
EP068: alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	5 µg/L	95.9	66.7	112	
EP068: cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	5 µg/L	95.0	63.2	111	
EP068: Dieldrin	60-57-1	0.5	µg/L	<0.5	5 µg/L	99.8	65.2	113	
EP068: 4,4'-DDE	72-55-9	0.5	µg/L	<0.5	5 µg/L	96.5	66.0	112	
EP068: Endrin	72-20-8	0.5	µg/L	<0.5	5 µg/L	106	65.2	113	
EP068: beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	5 µg/L	92.3	67.3	114	
EP068: 4,4'-DDD	72-54-8	0.5	µg/L	<0.5	5 µg/L	98.1	72.0	122	
EP068: Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	5 µg/L	97.8	66.9	109	
EP068: Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	5 µg/L	95.4	65.2	112	
EP068: 4,4'-DDT	50-29-3	2	µg/L	<2.0	5 µg/L	107	65.2	112	
EP068: Endrin ketone	53494-70-5	0.5	µg/L	<0.5	5 µg/L	99.8	63.8	110	
EP068: Methoxychlor	72-43-5	2	µg/L	<2.0	5 µg/L	98.0	61.1	114	
EP068B: Organophosphorus Pesticides (OP) (QCLot: 4655976)									
EP068: Dichlorvos	62-73-7	0.5	µg/L	<0.5	5 µg/L	83.6	65.6	114	
EP068: Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	5 µg/L	96.8	63.7	113	
EP068: Monocrotophos	6923-22-4	2	µg/L	<2.0	5 µg/L	24.7	19.7	48.0	
EP068: Dimethoate	60-51-5	0.5	µg/L	<0.5	5 µg/L	96.2	69.5	110	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Acceptable Limits (%)	
					Concentration	LCS	Low	High	
EP068B: Organophosphorus Pesticides (OP) (QCLot: 4655976) - continued									
EP068: Diazinon	333-41-5	0.5	µg/L	<0.5	5 µg/L	96.6	71.1	110	
EP068: Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	5 µg/L	97.9	77.0	119	
EP068: Parathion-methyl	298-00-0	2	µg/L	<2.0	5 µg/L	93.8	70.0	124	
EP068: Malathion	121-75-5	0.5	µg/L	<0.5	5 µg/L	104	68.4	116	
EP068: Fenthion	55-38-9	0.5	µg/L	<0.5	5 µg/L	94.2	68.6	112	
EP068: Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	5 µg/L	93.8	75.0	119	
EP068: Parathion	56-38-2	2	µg/L	<2.0	5 µg/L	93.0	67.0	121	
EP068: Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	5 µg/L	91.6	69.0	121	
EP068: Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	5 µg/L	90.1	71.8	110	
EP068: Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	5 µg/L	95.6	67.5	112	
EP068: Fenamiphos	22224-92-6	0.5	µg/L	<0.5	5 µg/L	103	64.1	116	
EP068: Prothiofos	34643-46-4	0.5	µg/L	<0.5	5 µg/L	95.7	67.8	114	
EP068: Ethion	563-12-2	0.5	µg/L	<0.5	5 µg/L	96.1	74.0	120	
EP068: Carbophenothion	786-19-6	0.5	µg/L	<0.5	5 µg/L	102	66.2	114	
EP068: Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	5 µg/L	90.8	51.6	128	
EP075(SIM)A: Phenolic Compounds (QCLot: 4655977)									
EP075(SIM): Phenol	108-95-2	1	µg/L	<1.0	5 µg/L	39.3	24.5	61.9	
EP075(SIM): 2-Chlorophenol	95-57-8	1	µg/L	<1.0	5 µg/L	73.1	52.0	90.0	
EP075(SIM): 2-Methylphenol	95-48-7	1	µg/L	<1.0	5 µg/L	70.1	51.0	91.0	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2	µg/L	<2.0	10 µg/L	68.9	44.0	88.0	
EP075(SIM): 2-Nitrophenol	88-75-5	1	µg/L	<1.0	5 µg/L	71.9	48.0	100	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	1	µg/L	<1.0	5 µg/L	68.0	49.0	99.0	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	1	µg/L	<1.0	5 µg/L	80.2	53.0	105	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	1	µg/L	<1.0	5 µg/L	81.0	57.0	105	
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1	µg/L	<1.0	5 µg/L	81.0	53.0	99.0	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	1	µg/L	<1.0	5 µg/L	81.4	50.0	106	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	1	µg/L	<1.0	5 µg/L	88.3	51.0	105	
EP075(SIM): Pentachlorophenol	87-86-5	2	µg/L	<2.0	10 µg/L	82.8	10.0	95.0	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 4655977)									
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	80.9	50.0	94.0	
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	84.5	63.6	114	
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	86.1	62.2	113	
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	87.9	63.9	115	
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	81.8	62.6	116	
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	77.9	64.3	116	
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	87.0	63.6	118	
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	92.5	63.1	118	
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	83.5	64.1	117	
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	91.9	62.5	116	



Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Acceptable Limits (%)	
					Concentration	LCS	Low	High	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 4655977) - continued									
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	95.1	61.7	119	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	92.2	63.0	115	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	95.0	63.3	117	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	96.4	59.9	118	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	99.1	61.2	117	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	93.4	59.1	118	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4655975)									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	73.1	53.7	97.0	
EP071: C15 - C28 Fraction	----	100	µg/L	<100	600 µg/L	91.8	63.3	107	
EP071: C29 - C36 Fraction	----	50	µg/L	<50	400 µg/L	109	58.3	120	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4662697)									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	86.6	75.0	127	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4655975)									
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	500 µg/L	73.0	53.9	95.5	
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	700 µg/L	72.8	57.8	110	
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	300 µg/L	102	50.5	115	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4662697)									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	87.1	75.0	127	
EP080: BTEXN (QCLot: 4662697)									
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	97.5	70.0	122	
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	105	69.0	123	
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	104	70.0	120	
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	102	69.0	121	
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	106	72.0	122	
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	108	70.0	120	

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	SpikeRecovery(%)	Acceptable Limits (%)	
				Concentration	MS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4658923)							
ES2237552-002	BH1_1.0	EG005T: Arsenic	7440-38-2	50 mg/kg	96.8	70.0	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	102	70.0	130



Sub-Matrix: SOIL

				Matrix Spike (MS) Report			
				Spike Concentration	SpikeRecovery(%) MS	Acceptable Limits (%) Low High	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4658923) - continued							
ES2237552-002	BH1_1.0	EG005T: Chromium	7440-47-3	50 mg/kg	99.2	68.0	132
		EG005T: Copper	7440-50-8	250 mg/kg	96.0	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	104	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	97.6	70.0	130
		EG005T: Zinc	7440-66-6	250 mg/kg	93.6	66.0	133
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4665195)							
ES2237552-001	BH1_0.5	EG005T: Arsenic	7440-38-2	50 mg/kg	95.0	70.0	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	95.7	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	92.6	68.0	132
		EG005T: Copper	7440-50-8	250 mg/kg	93.7	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	94.5	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	94.2	70.0	130
		EG005T: Zinc	7440-66-6	250 mg/kg	93.8	66.0	133
ED045G: Chloride by Discrete Analyser (QCLot: 4658927)							
ES2237552-002	BH1_1.0	ED045G: Chloride	16887-00-6	250 mg/kg	101	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4658924)							
ES2237552-002	BH1_1.0	EG035T: Mercury	7439-97-6	5 mg/kg	91.5	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4665196)							
ES2237552-001	BH1_0.5	EG035T: Mercury	7439-97-6	5 mg/kg	95.9	70.0	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 4656126)							
ES2237552-001	BH1_0.5	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	111	70.0	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 4656125)							
ES2237552-001	BH1_0.5	EP068: gamma-BHC	58-89-9	0.5 mg/kg	85.8	70.0	130
		EP068: Heptachlor	76-44-8	0.5 mg/kg	74.1	70.0	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	87.5	70.0	130
		EP068: Dieldrin	60-57-1	0.5 mg/kg	90.8	70.0	130
		EP068: Endrin	72-20-8	2 mg/kg	73.8	70.0	130
		EP068: 4,4'-DDT	50-29-3	2 mg/kg	73.9	70.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 4656125)							
ES2237552-001	BH1_0.5	EP068: Diazinon	333-41-5	0.5 mg/kg	88.6	70.0	130
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	82.3	70.0	130
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	83.5	70.0	130
		EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	90.0	70.0	130
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	75.8	70.0	130
EP075(SIM)A: Phenolic Compounds (QCLot: 4656124)							
ES2237552-001	BH1_0.5	EP075(SIM): Phenol	108-95-2	10 mg/kg	86.2	70.0	130



Sub-Matrix: SOIL

				Matrix Spike (MS) Report			
				Spike Concentration	SpikeRecovery(%) MS	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP075(SIM)A: Phenolic Compounds (QCLot: 4656124) - continued							
ES2237552-001	BH1_0.5	EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	83.4	70.0	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	80.5	60.0	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	83.7	70.0	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	66.2	20.0	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 4656124)							
ES2237552-001	BH1_0.5	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	85.4	70.0	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	92.2	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4656123)							
ES2237552-001	BH1_0.5	EP071: C10 - C14 Fraction	----	480 mg/kg	90.2	73.0	137
		EP071: C15 - C28 Fraction	----	3100 mg/kg	108	53.0	131
		EP071: C29 - C36 Fraction	----	2060 mg/kg	111	52.0	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4661339)							
ES2238111-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	106	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4656123)							
ES2237552-001	BH1_0.5	EP071: >C10 - C16 Fraction	----	860 mg/kg	92.6	73.0	137
		EP071: >C16 - C34 Fraction	----	4320 mg/kg	114	53.0	131
		EP071: >C34 - C40 Fraction	----	890 mg/kg	95.5	52.0	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4661339)							
ES2238111-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	108	70.0	130
EP080: BTEXN (QCLot: 4661339)							
ES2238111-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	100	70.0	130
		EP080: Toluene	108-88-3	2.5 mg/kg	102	70.0	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	104	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	104	70.0	130
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	105	70.0	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	99.8	70.0	130
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4657618)							
EP2213833-003	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.00125 mg/kg	90.8	72.0	128
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.00125 mg/kg	102	73.0	123
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00125 mg/kg	88.0	67.0	130
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.00125 mg/kg	96.4	70.0	132
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00125 mg/kg	96.0	68.0	136
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.00125 mg/kg	104	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4657618)							
EP2213833-003	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	86.6	71.0	135



Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4657618) - continued							
EP2213833-003	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	112	69.0	132
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	110	70.0	132
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	108	71.0	131
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	116	69.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.00125 mg/kg	110	72.0	129
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.00125 mg/kg	114	69.0	133
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.00125 mg/kg	104	64.0	136
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.00125 mg/kg	119	69.0	135
		EP231X: Perfluorotridecanoic acid (PFTTrDA)	72629-94-8	0.00125 mg/kg	107	66.0	139
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.00312 mg/kg	101	69.0	133		
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4657618)							
EP2213833-003	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.00125 mg/kg	110	67.0	137
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.00312 mg/kg	104	71.6	129
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.00312 mg/kg	103	69.8	131
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.00312 mg/kg	93.8	68.7	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.00312 mg/kg	96.5	65.1	134
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.00125 mg/kg	106	63.0	144
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.00125 mg/kg	106	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4657618)							
EP2213833-003	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00125 mg/kg	100	62.0	145
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00125 mg/kg	96.0	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.00125 mg/kg	96.0	65.0	137
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.00125 mg/kg	103	69.2	143

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG020F: Dissolved Metals by ICP-MS (QCLot: 4666288)							
ES2238029-002	Anonymous	EG020A-F: Arsenic	7440-38-2	1 mg/L	126	70.0	130
		EG020A-F: Cadmium	7440-43-9	0.25 mg/L	123	70.0	130
		EG020A-F: Chromium	7440-47-3	1 mg/L	120	70.0	130
		EG020A-F: Copper	7440-50-8	1 mg/L	122	70.0	130
		EG020A-F: Lead	7439-92-1	1 mg/L	121	70.0	130
		EG020A-F: Nickel	7440-02-0	1 mg/L	120	70.0	130



Sub-Matrix: WATER

				Matrix Spike (MS) Report				
				Spike	SpikeRecovery(%)	Acceptable Limits (%)		
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
EG020F: Dissolved Metals by ICP-MS (QCLot: 4666288) - continued								
ES2238029-002	Anonymous	EG020A-F: Zinc	7440-66-6	1 mg/L	123	70.0	130	
EG035F: Dissolved Mercury by FIMS (QCLot: 4666287)								
ES2237552-014	RB03	EG035F: Mercury	7439-97-6	0.01 mg/L	89.6	70.0	130	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4662697)								
ES2238016-003	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	79.9	70.0	130	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4662697)								
ES2238016-003	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	83.9	70.0	130	
EP080: BTEXN (QCLot: 4662697)								
ES2238016-003	Anonymous	EP080: Benzene	71-43-2	25 µg/L	81.8	70.0	130	
		EP080: Toluene	108-88-3	25 µg/L	86.9	70.0	130	
		EP080: Ethylbenzene	100-41-4	25 µg/L	89.8	70.0	130	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	85.5	70.0	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	25 µg/L	87.4	70.0	130	
	EP080: Naphthalene	91-20-3	25 µg/L	99.2	70.0	130		

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: ES2237552	Page	: 1 of 13
Client	: KLEINFELDER AUSTRALIA PTY LTD	Laboratory	: Environmental Division Sydney
Contact	: J Roby	Telephone	: +6138549 9609
Project	: 20232402	Date Samples Received	: 19-Oct-2022
Site	: UON Gosford	Issue Date	: 03-Nov-2022
Sampler	: J Roby	No. of samples received	: 16
Order number	: ----	No. of samples analysed	: 15

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.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**



Outliers : Frequency of Quality Control Samples

Matrix: **SOIL**

Quality Control Sample Type Method	Count		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)					
Major Anions - Soluble	1	12	8.33	10.00	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Quality Control Sample Type Method	Count		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)					
PAH/Phenols (GC/MS - SIM)	0	5	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	0	5	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	0	5	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	5	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
PAH/Phenols (GC/MS - SIM)	0	5	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	0	5	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	0	5	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	5	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

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			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA002: pH 1:5 (Soils)							
Soil Glass Jar - Unpreserved (EA002) BH1_1.0, BH3_1.0, BH1_3.0, BH3_2.5	19-Oct-2022	25-Oct-2022	26-Oct-2022	✓	26-Oct-2022	26-Oct-2022	✓
EA010: Conductivity (1:5)							
Soil Glass Jar - Unpreserved (EA010) BH1_1.0, BH3_1.0, BH1_3.0, BH3_2.5	19-Oct-2022	25-Oct-2022	26-Oct-2022	✓	26-Oct-2022	22-Nov-2022	✓



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-A: Actual Acidity							
Snap Lock Bag - frozen (EA033) BH3_0.5	19-Oct-2022	03-Nov-2022	19-Oct-2023	✓	03-Nov-2022	01-Feb-2023	✓
Soil Glass Jar - Frozen (EA033) BH1_1.0, BH1_2.0, BH1_3.0, BH1_4.0, BH1_5.0, BH1_6.0, BH3_2.5, BH3_1.0, BH3_4.0, BH3_3.0, BH3_6.0, BH3_5.0,	19-Oct-2022	01-Nov-2022	19-Oct-2023	✓	01-Nov-2022	30-Jan-2023	✓
EA033-B: Potential Acidity							
Snap Lock Bag - frozen (EA033) BH3_0.5	19-Oct-2022	03-Nov-2022	19-Oct-2023	✓	03-Nov-2022	01-Feb-2023	✓
Soil Glass Jar - Frozen (EA033) BH1_1.0, BH1_2.0, BH1_3.0, BH1_4.0, BH1_5.0, BH1_6.0, BH3_2.5, BH3_1.0, BH3_4.0, BH3_3.0, BH3_6.0, BH3_5.0,	19-Oct-2022	01-Nov-2022	19-Oct-2023	✓	01-Nov-2022	30-Jan-2023	✓
EA033-C: Acid Neutralising Capacity							
Snap Lock Bag - frozen (EA033) BH3_0.5	19-Oct-2022	03-Nov-2022	19-Oct-2023	✓	03-Nov-2022	01-Feb-2023	✓
Soil Glass Jar - Frozen (EA033) BH1_1.0, BH1_2.0, BH1_3.0, BH1_4.0, BH1_5.0, BH1_6.0, BH3_2.5, BH3_1.0, BH3_4.0, BH3_3.0, BH3_6.0, BH3_5.0,	19-Oct-2022	01-Nov-2022	19-Oct-2023	✓	01-Nov-2022	30-Jan-2023	✓
EA033-D: Retained Acidity							
Snap Lock Bag - frozen (EA033) BH3_0.5	19-Oct-2022	03-Nov-2022	19-Oct-2023	✓	03-Nov-2022	01-Feb-2023	✓
Soil Glass Jar - Frozen (EA033) BH1_1.0, BH1_2.0, BH1_3.0, BH1_4.0, BH1_5.0, BH1_6.0, BH3_2.5, BH3_1.0, BH3_4.0, BH3_3.0, BH3_6.0, BH3_5.0,	19-Oct-2022	01-Nov-2022	19-Oct-2023	✓	01-Nov-2022	30-Jan-2023	✓



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) BH3_0.5	19-Oct-2022	03-Nov-2022	19-Oct-2023	✓	03-Nov-2022	01-Feb-2023	✓
Soil Glass Jar - Frozen (EA033) BH1_1.0, BH1_3.0, BH1_5.0, BH3_2.5, BH3_4.0, BH3_6.0 BH1_2.0, BH1_4.0, BH3_1.0, BH3_3.0, BH3_5.0	19-Oct-2022	01-Nov-2022	19-Oct-2023	✓	01-Nov-2022	30-Jan-2023	✓
EA037: Ass Field Screening Analysis							
Soil Glass Jar - Frozen (EA037) BH1_1.0, BH1_3.0, BH1_5.0, BH3_2.5, BH3_4.0, BH3_6.0 BH1_2.0, BH1_4.0, BH3_1.0, BH3_3.0, BH3_5.0	19-Oct-2022	28-Oct-2022	17-Apr-2023	✓	28-Oct-2022	17-Apr-2023	✓
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055) BH1_1.0, BH3_1.0 BH1_3.0, BH3_2.5	19-Oct-2022	----	----	----	25-Oct-2022	02-Nov-2022	✓
Soil Glass Jar - Unpreserved (EA055) BH1_0.5, BH3_0.5 BH1_2.0	19-Oct-2022	----	----	----	27-Oct-2022	02-Nov-2022	✓
EA200: AS 4964 - 2004 Identification of Asbestos in Soils							
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200) BH1_0.5, BH3_0.5	19-Oct-2022	----	----	----	21-Oct-2022	17-Apr-2023	✓
ED040S: Soluble Major Anions							
Soil Glass Jar - Unpreserved (ED040S) BH1_1.0, BH3_1.0 BH1_3.0, BH3_2.5	19-Oct-2022	25-Oct-2022	16-Nov-2022	✓	26-Oct-2022	22-Nov-2022	✓
ED045G: Chloride by Discrete Analyser							
Soil Glass Jar - Unpreserved (ED045G) BH1_1.0, BH3_1.0 BH1_3.0, BH3_2.5	19-Oct-2022	25-Oct-2022	16-Nov-2022	✓	26-Oct-2022	22-Nov-2022	✓



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) BH1_1.0, BH3_2.5	BH3_1.0	19-Oct-2022	25-Oct-2022	17-Apr-2023	✓	26-Oct-2022	17-Apr-2023	✓
Soil Glass Jar - Unpreserved (EG005T) BH1_0.5, BH3_0.5	BH1_2.0	19-Oct-2022	27-Oct-2022	17-Apr-2023	✓	31-Oct-2022	17-Apr-2023	✓
EG035T: Total Recoverable Mercury by FIMS								
Soil Glass Jar - Unpreserved (EG035T) BH1_1.0, BH3_2.5	BH3_1.0	19-Oct-2022	25-Oct-2022	16-Nov-2022	✓	26-Oct-2022	16-Nov-2022	✓
Soil Glass Jar - Unpreserved (EG035T) BH1_0.5, BH3_0.5	BH1_2.0	19-Oct-2022	27-Oct-2022	16-Nov-2022	✓	31-Oct-2022	16-Nov-2022	✓
EP066: Polychlorinated Biphenyls (PCB)								
Soil Glass Jar - Unpreserved (EP066) BH1_0.5	BH3_0.5	19-Oct-2022	27-Oct-2022	02-Nov-2022	✓	31-Oct-2022	06-Dec-2022	✓
EP068A: Organochlorine Pesticides (OC)								
Soil Glass Jar - Unpreserved (EP068) BH1_0.5	BH3_0.5	19-Oct-2022	27-Oct-2022	02-Nov-2022	✓	31-Oct-2022	06-Dec-2022	✓
EP068B: Organophosphorus Pesticides (OP)								
Soil Glass Jar - Unpreserved (EP068) BH1_0.5	BH3_0.5	19-Oct-2022	27-Oct-2022	02-Nov-2022	✓	31-Oct-2022	06-Dec-2022	✓
EP075(SIM)A: Phenolic Compounds								
Soil Glass Jar - Unpreserved (EP075(SIM)) BH1_0.5, BH1_2.0, BH3_1.0	BH1_1.0, BH3_0.5, BH3_2.5	19-Oct-2022	27-Oct-2022	02-Nov-2022	✓	28-Oct-2022	06-Dec-2022	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP075(SIM)) BH1_0.5, BH1_2.0, BH3_1.0	BH1_1.0, BH3_0.5, BH3_2.5	19-Oct-2022	27-Oct-2022	02-Nov-2022	✓	28-Oct-2022	06-Dec-2022	✓
EP080/071: Total Petroleum Hydrocarbons								
Soil Glass Jar - Unpreserved (EP080) BH1_0.5, BH1_2.0, BH3_1.0	BH1_1.0, BH3_0.5, BH3_2.5	19-Oct-2022	26-Oct-2022	02-Nov-2022	✓	27-Oct-2022	02-Nov-2022	✓
Soil Glass Jar - Unpreserved (EP071) BH1_0.5, BH1_2.0, BH3_1.0	BH1_1.0, BH3_0.5, BH3_2.5	19-Oct-2022	27-Oct-2022	02-Nov-2022	✓	28-Oct-2022	06-Dec-2022	✓



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)								
BH1_0.5, BH1_2.0, BH3_1.0	BH1_1.0, BH3_0.5, BH3_2.5	19-Oct-2022	26-Oct-2022	02-Nov-2022	✓	27-Oct-2022	02-Nov-2022	✓
Soil Glass Jar - Unpreserved (EP071)								
BH1_0.5, BH1_2.0, BH3_1.0	BH1_1.0, BH3_0.5, BH3_2.5	19-Oct-2022	27-Oct-2022	02-Nov-2022	✓	28-Oct-2022	06-Dec-2022	✓
EP080: BTEXN								
Soil Glass Jar - Unpreserved (EP080)								
BH1_0.5, BH1_2.0, BH3_1.0	BH1_1.0, BH3_0.5, BH3_2.5	19-Oct-2022	26-Oct-2022	02-Nov-2022	✓	27-Oct-2022	02-Nov-2022	✓
EP231A: Perfluoroalkyl Sulfonic Acids								
HDPE Soil Jar (EP231X)								
BH1_0.5,	BH3_0.5	19-Oct-2022	26-Oct-2022	17-Apr-2023	✓	28-Oct-2022	05-Dec-2022	✓
EP231B: Perfluoroalkyl Carboxylic Acids								
HDPE Soil Jar (EP231X)								
BH1_0.5,	BH3_0.5	19-Oct-2022	26-Oct-2022	17-Apr-2023	✓	28-Oct-2022	05-Dec-2022	✓
EP231C: Perfluoroalkyl Sulfonamides								
HDPE Soil Jar (EP231X)								
BH1_0.5,	BH3_0.5	19-Oct-2022	26-Oct-2022	17-Apr-2023	✓	28-Oct-2022	05-Dec-2022	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
HDPE Soil Jar (EP231X)								
BH1_0.5,	BH3_0.5	19-Oct-2022	26-Oct-2022	17-Apr-2023	✓	28-Oct-2022	05-Dec-2022	✓
EP231P: PFAS Sums								
HDPE Soil Jar (EP231X)								
BH1_0.5,	BH3_0.5	19-Oct-2022	26-Oct-2022	17-Apr-2023	✓	28-Oct-2022	05-Dec-2022	✓

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	
EG020F: Dissolved Metals by ICP-MS								
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F)								
RB03,	TB_191022	19-Oct-2022	----	----	----	28-Oct-2022	17-Apr-2023	✓
EG035F: Dissolved Mercury by FIMS								
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F)								
RB03,	TB_191022	19-Oct-2022	----	----	----	28-Oct-2022	16-Nov-2022	✓
EP066: Polychlorinated Biphenyls (PCB)								
Amber Glass Bottle - Unpreserved (EP066)								
RB03,	TB_191022	19-Oct-2022	25-Oct-2022	26-Oct-2022	✓	27-Oct-2022	04-Dec-2022	✓



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	
EP068A: Organochlorine Pesticides (OC)								
Amber Glass Bottle - Unpreserved (EP068) RB03, TB_191022	19-Oct-2022	25-Oct-2022	26-Oct-2022	✓	27-Oct-2022	04-Dec-2022	✓	
EP068B: Organophosphorus Pesticides (OP)								
Amber Glass Bottle - Unpreserved (EP068) RB03, TB_191022	19-Oct-2022	25-Oct-2022	26-Oct-2022	✓	27-Oct-2022	04-Dec-2022	✓	
EP075(SIM)A: Phenolic Compounds								
Amber Glass Bottle - Unpreserved (EP075(SIM)) RB03, TB_191022	19-Oct-2022	25-Oct-2022	26-Oct-2022	✓	27-Oct-2022	04-Dec-2022	✓	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP075(SIM)) RB03, TB_191022	19-Oct-2022	25-Oct-2022	26-Oct-2022	✓	27-Oct-2022	04-Dec-2022	✓	
EP080/071: Total Petroleum Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP071) RB03, TB_191022	19-Oct-2022	25-Oct-2022	26-Oct-2022	✓	27-Oct-2022	04-Dec-2022	✓	
Amber VOC Vial - Sulfuric Acid (EP080) RB03, TB_191022	19-Oct-2022	27-Oct-2022	02-Nov-2022	✓	27-Oct-2022	02-Nov-2022	✓	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
Amber Glass Bottle - Unpreserved (EP071) RB03, TB_191022	19-Oct-2022	25-Oct-2022	26-Oct-2022	✓	27-Oct-2022	04-Dec-2022	✓	
Amber VOC Vial - Sulfuric Acid (EP080) RB03, TB_191022	19-Oct-2022	27-Oct-2022	02-Nov-2022	✓	27-Oct-2022	02-Nov-2022	✓	
EP080: BTEXN								
Amber VOC Vial - Sulfuric Acid (EP080) RB03, TB_191022	19-Oct-2022	27-Oct-2022	02-Nov-2022	✓	27-Oct-2022	02-Nov-2022	✓	



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	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
Analytical Methods							
Laboratory Duplicates (DUP)							
ASS Field Screening Analysis	EA037	4	40	10.00	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Chloride Soluble By Discrete Analyser	ED045G	2	13	15.38	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Chromium Suite for Acid Sulphate Soils	EA033	3	24	12.50	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Electrical Conductivity (1:5)	EA010	2	19	10.53	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Major Anions - Soluble	ED040S	1	12	8.33	10.00	✖	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055	4	40	10.00	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
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	20	10.00	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	19	10.53	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	8	12.50	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	3	28	10.71	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	3	28	10.71	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	2	14	14.29	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Chloride Soluble By Discrete Analyser	ED045G	2	13	15.38	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Chromium Suite for Acid Sulphate Soils	EA033	2	24	8.33	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Electrical Conductivity (1:5)	EA010	1	19	5.26	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Major Anions - Soluble	ED040S	1	12	8.33	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
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	5.00	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	19	10.53	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	8	12.50	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	28	7.14	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	28	7.14	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	1	14	7.14	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Chloride Soluble By Discrete Analyser	ED045G	1	13	7.69	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Chromium Suite for Acid Sulphate Soils	EA033	2	24	8.33	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Electrical Conductivity (1:5)	EA010	1	19	5.26	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Major Anions - Soluble	ED040S	1	12	8.33	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
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	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	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
Analytical Methods							
Method Blanks (MB) - Continued							
Pesticides by GCMS	EP068	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	8	12.50	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	28	7.14	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	28	7.14	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	1	14	7.14	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Chloride Soluble By Discrete Analyser	ED045G	1	13	7.69	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
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	5.00	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	8	12.50	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	28	7.14	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	28	7.14	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	1	14	7.14	5.00	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER** Evaluation: * = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
Analytical Methods							
Laboratory Duplicates (DUP)							
Dissolved Mercury by FIMS	EG035F	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	18	11.11	10.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	5	0.00	10.00	✗	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	5	0.00	10.00	✗	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	5	0.00	10.00	✗	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	5	0.00	10.00	✗	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Dissolved Mercury by FIMS	EG035F	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	5	20.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	5	20.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	5	20.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	5	20.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Dissolved Mercury by FIMS	EG035F	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	5	20.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard



Matrix: **WATER** Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
Analytical Methods							
Method Blanks (MB) - Continued							
Pesticides by GCMS	EP068	1	5	20.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	5	20.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	5	20.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Dissolved Mercury by FIMS	EG035F	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	18	5.56	5.00	✔	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	5	0.00	5.00	✖	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	5	0.00	5.00	✖	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	5	0.00	5.00	✖	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	5	0.00	5.00	✖	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	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 (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).
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).
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.
ASS Field Screening Analysis	* EA037	SOIL	In house: Referenced to Acid Sulfate Soils Laboratory Methods Guidelines. As received samples are tested for pH field and pH fox and assessed for a reaction rating.
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).
Resistivity (1:5)	EA080	SOIL	In house: Calculated from Electrical Conductivity
Corrosion Classification for Steel and Concrete Piles	* EA167	SOIL	In house: Exposure classification is determined according to Australian Standard AS2159-2009.
Asbestos Identification in Soils	EA200	SOIL	AS 4964 Method for the qualitative identification of asbestos in bulk samples Analysis by Polarised Light Microscopy including dispersion staining
Major Anions - Soluble	ED040S	SOIL	In house: Soluble Anions are determined off a 1:5 soil / water extract by ICPAES.
Chloride Soluble By Discrete Analyser	ED045G	SOIL	In house: Referenced to APHA 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 (SnCl ₂) (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 SnCl ₂ 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)
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).



Analytical Methods	Method	Matrix	Method Descriptions
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.
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	SOIL	In-house: Analysis of soils by solvent extraction followed by LC-Electrospray-MS-MS, Negative Mode using MRM using internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to a portion of soil which is then extracted with MTBE and an ion pairing reagent. A portion of extract is exchanged into the analytical solvent mixture, combined with an equal volume reagent water and filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. Samples are 0.45µm filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl ₂)(Cold Vapour generation) AAS) Samples are 0.45µm filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ 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).
Polychlorinated Biphenyls (PCB)	EP066	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample 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	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample 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)
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015 The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS in SIM Mode 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	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Drying only	EN020D	SOIL	In house
Drying at 85 degrees, bagging and labelling (ASS)	EN020PR	SOIL	In house
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.
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).
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.
QuEChERS Extraction of Solids	ORG71	SOIL	In house: Sequential extractions with Acetonitrile/Methanol by shaking. Extraction efficiency aided by the addition of salts under acidic conditions. Where relevant, interferences from co-extracted organics are removed with dispersive clean-up media (dSPE). The extract is either diluted or concentrated and exchanged into the analytical solvent.
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for purging.

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.

Hey mate,

Sample #5, #6, #7 and #8 should be analysed for pHfox – EA037, instead of soil aggressivity.
Also, please send sample #15 to Eurofins please. It should have said "please send to Eurofins". My bad.

Cheers,

Jai Roby
B.Sc (Earth Sciences) (Hons).
Graduate Environmental Scientist – Contaminated Land Management

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Environmental Division
Sydney
Work Order Reference
ES2237973



Telephone: +61 2 8794 8000

Kleinfelder acknowledges the traditional Owners of the lands on which our business operates and works throughout Australia. We pay our respects to Aboriginal and Torres Strait Islander cultures and to Elders past and present.

From: Jason Dighton <jason.dighton@ALSGlobal.com>
Sent: Monday, 24 October 2022 10:33 AM
To: Jai Roby <JRoby@kleinfelder.com>
Subject: ALS Workorder ES2237973, Project 20232402

External Email

Good Morning Jai,

Regarding the aforementioned workorder, please note the following from the Sample Receipt team:

- Work order has been committed without soil aggressivity for sample #6 (sample id BH7_5.0) and #8 (sample id BH7_7.0) due to soil jar not being supplied.
- Sample #15 (sample id OC02A) placed on hold. Please clarify if sample required send to other lab for QC?

Best regards,



Right to be seen
Left to be heard

Jason Dighton
Client Services Officer, Environmental
Sydney, NSW

O: +61 2 8784 8555
D: +61 2 8784 8509
Jason.Dighton@aisglobal.com
777-289 Woodpark Road
Smithfield NSW 2164 AUSTRALIA

aisglobal.com





CERTIFICATE OF ANALYSIS

Work Order : ES2237973
Client : KLEINFELDER AUSTRALIA PTY LTD
Contact : J Roby
Address : 95 MITCHELL ROAD
CARDIFF NSW 2285
Telephone : ----
Project : 20232402
Order number : ----
C-O-C number : ----
Sampler : Jai Roby
Site : UON Gosford
Quote number : EN/222
No. of samples received : 17
No. of samples analysed : 17

Page : 1 of 35
Laboratory : Environmental Division Sydney
Contact : Graeme Jablonskas
Address : 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone : +6138549 9609
Date Samples Received : 21-Oct-2022 16:26
Date Analysis Commenced : 24-Oct-2022
Issue Date : 03-Nov-2022 12:23



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
Descriptive 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.

Table with 3 columns: Signatories, Position, Accreditation Category. Rows include Alana Smylie, Ankit Joshi, Ben Felgendrejeris, Edwandy Fadjjar, Franco Lentini, and Franco Lentini with their respective roles and accreditation categories.



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.

- EP075 (SIM): Where reported, 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.
- 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.
- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- 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.
- Corrosion assessment for Concrete and Steel piles in soil per Australian Standard AS2159-2009 uses a combination of soil and groundwater data (Tables 6.4.2 C & 6.5.2 C). In the absence of groundwater data, assessment has been made against soil criteria only. Refer to AS2159-2009 section 6.4 for further interpretation of corrosion assessment. ALS is not NATA accredited for Corrosion Assessment comments
- EA167: Soil Condition A – High permeability soils (e.g. sands and gravels) which are in groundwater
- EA167: Soil Condition B – Low permeability soils (e.g. silts and clays) or all soils above groundwater
- ASS: EA033 (CRS Suite): ANC not required because pH KCl less than 6.5
- ASS: EA037 (Rapid Field and F(ox) screening): pH F(ox) Reaction Rate: 1 - Slight; 2 - Moderate; 3 - Strong; 4 - Extreme
- 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'.
- EA037 ASS Field Screening: NATA accreditation does not cover performance of this service.
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Trace' - Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EA200 Legend



- EA200 'Ch' Chrysotile (white asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2
- EA200: 'Yes' - Asbestos detected by polarised light microscopy including dispersion staining.
- EA200: 'No*' - No asbestos found, at the reporting limit of 0.1g/kg, by polarised light microscopy including dispersion staining. Asbestos material was detected and positively identified at concentrations estimated to be below 0.1g/kg.
- EA200: 'No' - No asbestos found at the reporting limit 0.1g/kg, by polarised light microscopy including dispersion staining.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH7_0.5	BH7_1.0	BH7_2.0	BH7_3.0	BH7_4.0
Sampling date / time				21-Oct-2022 00:00	21-Oct-2022 00:00	21-Oct-2022 00:00	21-Oct-2022 00:00	21-Oct-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2237973-001	ES2237973-002	ES2237973-003	ES2237973-004	ES2237973-005	
				Result	Result	Result	Result	Result	
EA002: pH 1:5 (Soils)									
pH Value	----	0.1	pH Unit	----	5.6	----	4.9	5.1	
EA010: Conductivity (1:5)									
Electrical Conductivity @ 25°C	----	1	µS/cm	----	45	----	28	39	
EA033-A: Actual Acidity									
pH KCl (23A)	----	0.1	pH Unit	----	5.3	4.4	4.4	4.2	
Titrateable Actual Acidity (23F)	----	2	mole H+ / t	----	13	104	90	145	
sulfidic - Titrateable Actual Acidity (s-23F)	----	0.02	% pyrite S	----	0.02	0.17	0.14	0.23	
EA033-B: Potential Acidity									
Chromium Reducible Sulfur (22B)	----	0.005	% S	----	0.007	0.013	0.017	0.009	
acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	----	<10	<10	10	<10	
EA033-D: Retained Acidity									
KCl Extractable Sulfur (23Ce)	----	0.02	% S	----	----	0.04	0.02	<0.02	
HCl Extractable Sulfur (20Be)	----	0.02	% S	----	----	0.04	0.03	0.02	
Net Acid Soluble Sulfur (20Je)	----	0.02	% S	----	----	<0.02	<0.02	0.05	
acidity - Net Acid Soluble Sulfur (a-20J)	----	10	mole H+ / t	----	----	<10	<10	24	
sulfidic - Net Acid Soluble Sulfur (s-20J)	----	0.02	% pyrite S	----	----	<0.02	<0.02	0.04	
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	----	0.03	0.18	0.17	0.28	
Net Acidity (acidity units)	----	10	mole H+ / t	----	17	114	108	174	
Liming Rate	----	1	kg CaCO3/t	----	1	8	8	13	
Net Acidity excluding ANC (sulfur units)	----	0.02	% S	----	0.03	0.18	0.17	0.28	
Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	----	17	114	108	174	
Liming Rate excluding ANC	----	1	kg CaCO3/t	----	1	8	8	13	
EA037: Ass Field Screening Analysis									
ø pH (F)	----	0.1	pH Unit	----	5.7	4.8	5.3	----	
ø pH (Fox)	----	0.1	pH Unit	----	3.3	3.4	4.0	----	
ø Reaction Rate	----	1	-	----	2	2	4	----	
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	0.1	%	----	----	----	17.0	----	
Moisture Content	----	1.0	%	15.5	11.8	----	----	19.5	
EA080: Resistivity									
Resistivity at 25°C	----	1	ohm cm	----	22200	----	35700	25600	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH7_0.5	BH7_1.0	BH7_2.0	BH7_3.0	BH7_4.0
Sampling date / time				21-Oct-2022 00:00	21-Oct-2022 00:00	21-Oct-2022 00:00	21-Oct-2022 00:00	21-Oct-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2237973-001	ES2237973-002	ES2237973-003	ES2237973-004	ES2237973-005	
				Result	Result	Result	Result	Result	
EA167: Corrosion Classification (per AS2159-2009)									
∅ Exposure Classification - Concrete Piles Soil Condition A	----	-	-	----	Mild	----	Moderate	Moderate	
∅ Exposure Classification - Concrete Piles Soil Condition B	----	-	-	----	Non Aggressive	----	Mild	Mild	
∅ Exposure Classification - Steel Piles Soil Condition A	----	-	-	----	Non Aggressive	----	Non Aggressive	Non Aggressive	
∅ Exposure Classification - Steel Piles Soil Condition B	----	-	-	----	Non Aggressive	----	Non Aggressive	Non Aggressive	
EA200: AS 4964 - 2004 Identification of Asbestos in Soils									
Asbestos Detected	1332-21-4	0.1	g/kg	No	----	----	----	----	
Asbestos (Trace)	1332-21-4	5	Fibres	No	----	----	----	----	
Asbestos Type	1332-21-4	-	--	-	----	----	----	----	
Sample weight (dry)	----	0.01	g	244	----	----	----	----	
APPROVED IDENTIFIER:	----	-	--	A. SMYLIE	----	----	----	----	
Synthetic Mineral Fibre	----	0.1	g/kg	No	----	----	----	----	
Organic Fibre	----	0.1	g/kg	No	----	----	----	----	
ED040S: Soluble Major Anions									
Sulfate as SO4 2-	14808-79-8	10	mg/kg	----	50	----	30	40	
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	10	mg/kg	----	10	----	<10	<10	
EG005(ED093)T: Total Metals by ICP-AES									
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	9	4	----	----	13	
Copper	7440-50-8	5	mg/kg	7	<5	----	----	<5	
Lead	7439-92-1	5	mg/kg	42	<5	----	----	24	
Nickel	7440-02-0	2	mg/kg	6	<2	----	----	<2	
Zinc	7440-66-6	5	mg/kg	54	<5	----	----	<5	
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	----	----	0.1	
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	----	----	----	----	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH7_0.5	BH7_1.0	BH7_2.0	BH7_3.0	BH7_4.0
Sampling date / time					21-Oct-2022 00:00	21-Oct-2022 00:00	21-Oct-2022 00:00	21-Oct-2022 00:00	21-Oct-2022 00:00
Compound	CAS Number	LOR	Unit		ES2237973-001	ES2237973-002	ES2237973-003	ES2237973-004	ES2237973-005
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		<0.05	----	----	----	----
beta-BHC	319-85-7	0.05	mg/kg		<0.05	----	----	----	----
gamma-BHC	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	----	----	----	----
[^] Total Chlordane (sum)	----	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	----	----	----	----
[^] 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	----	----	----	----
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	----	----	----	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH7_0.5	BH7_1.0	BH7_2.0	BH7_3.0	BH7_4.0
Sampling date / time				21-Oct-2022 00:00	21-Oct-2022 00:00	21-Oct-2022 00:00	21-Oct-2022 00:00	21-Oct-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2237973-001	ES2237973-002	ES2237973-003	ES2237973-004	ES2237973-005	
				Result	Result	Result	Result	Result	
EP068B: Organophosphorus Pesticides (OP) - Continued									
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	----	----	----	----	
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									
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	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH7_0.5	BH7_1.0	BH7_2.0	BH7_3.0	BH7_4.0
Sampling date / time					21-Oct-2022 00:00	21-Oct-2022 00:00	21-Oct-2022 00:00	21-Oct-2022 00:00	21-Oct-2022 00:00
Compound	CAS Number	LOR	Unit	ES2237973-001	ES2237973-002	ES2237973-003	ES2237973-004	ES2237973-005	
				Result	Result	Result	Result	Result	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
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	
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	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH7_0.5	BH7_1.0	BH7_2.0	BH7_3.0	BH7_4.0
Sampling date / time				21-Oct-2022 00:00	21-Oct-2022 00:00	21-Oct-2022 00:00	21-Oct-2022 00:00	21-Oct-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2237973-001	ES2237973-002	ES2237973-003	ES2237973-004	ES2237973-005	
				Result	Result	Result	Result	Result	
EP080: BTEXN - Continued									
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	----	----	----	----	
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	----	----	----	----	
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	----	----	----	----	
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	----	----	----	----	
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	----	----	----	----	
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	----	----	----	----	
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	----	----	----	----	
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	----	----	----	----	
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	----	----	----	----	
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	----	----	----	----	
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	----	----	----	----	
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	----	----	----	----	
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	----	----	----	----	
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	----	----	----	----	
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	----	----	----	----	
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	----	----	----	----	
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	----	----	----	----	
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	----	----	----	----	
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	----	----	----	----	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH7_0.5	BH7_1.0	BH7_2.0	BH7_3.0	BH7_4.0
Sampling date / time				21-Oct-2022 00:00	21-Oct-2022 00:00	21-Oct-2022 00:00	21-Oct-2022 00:00	21-Oct-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2237973-001	ES2237973-002	ES2237973-003	ES2237973-004	ES2237973-005	
				Result	Result	Result	Result	Result	
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	----	----	----	----	
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	----	----	----	----	
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	----	----	----	----	
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	----	----	----	----	
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	----	----	----	----	
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	----	----	----	----	
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	----	----	----	----	
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	----	----	----	----	
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	----	----	----	----	
EP231P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg	<0.0002	----	----	----	----	
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	<0.0002	----	----	----	----	
Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	----	----	----	----	
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%	74.6	----	----	----	----	
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%	86.7	----	----	----	----	
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%	78.0	----	----	----	----	
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%	84.7	89.7	----	----	85.4	
2-Chlorophenol-D4	93951-73-6	0.5	%	80.8	84.9	----	----	85.9	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH7_0.5	BH7_1.0	BH7_2.0	BH7_3.0	BH7_4.0
Sampling date / time				21-Oct-2022 00:00	21-Oct-2022 00:00	21-Oct-2022 00:00	21-Oct-2022 00:00	21-Oct-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2237973-001	ES2237973-002	ES2237973-003	ES2237973-004	ES2237973-005	
				Result	Result	Result	Result	Result	
EP075(SIM)S: Phenolic Compound Surrogates - Continued									
2,4,6-Tribromophenol	118-79-6	0.5	%	79.6	85.7	----	----	80.4	
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%	96.0	104	----	----	95.7	
Anthracene-d10	1719-06-8	0.5	%	95.5	105	----	----	91.8	
4-Terphenyl-d14	1718-51-0	0.5	%	97.8	106	----	----	99.0	
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	0.2	%	88.9	96.3	----	----	90.6	
Toluene-D8	2037-26-5	0.2	%	89.5	99.9	----	----	96.5	
4-Bromofluorobenzene	460-00-4	0.2	%	93.2	96.2	----	----	92.1	
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%	93.0	----	----	----	----	
13C8-PFOA	----	0.0002	%	92.5	----	----	----	----	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH7_5.0	BH7_6.0	BH7_7.0	BH6_0.5	BH6_1.0
Sampling date / time				21-Oct-2022 00:00	21-Oct-2022 00:00	21-Oct-2022 00:00	21-Oct-2022 00:00	21-Oct-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2237973-006	ES2237973-007	ES2237973-008	ES2237973-009	ES2237973-010	
				Result	Result	Result	Result	Result	
EA002: pH 1:5 (Soils)									
pH Value	----	0.1	pH Unit	----	5.2	----	----	4.9	
EA010: Conductivity (1:5)									
Electrical Conductivity @ 25°C	----	1	µS/cm	----	62	----	----	42	
EA033-A: Actual Acidity									
pH KCl (23A)	----	0.1	pH Unit	4.3	4.8	4.7	----	5.3	
Titrateable Actual Acidity (23F)	----	2	mole H+ / t	138	41	49	----	12	
sulfidic - Titrateable Actual Acidity (s-23F)	----	0.02	% pyrite S	0.22	0.06	0.08	----	<0.02	
EA033-B: Potential Acidity									
Chromium Reducible Sulfur (22B)	----	0.005	% S	0.009	0.009	0.011	----	0.010	
acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	<10	<10	<10	----	<10	
EA033-D: Retained Acidity									
KCl Extractable Sulfur (23Ce)	----	0.02	% S	<0.02	----	----	----	----	
HCl Extractable Sulfur (20Be)	----	0.02	% S	<0.02	----	----	----	----	
Net Acid Soluble Sulfur (20Je)	----	0.02	% S	<0.02	----	----	----	----	
acidity - Net Acid Soluble Sulfur (a-20J)	----	10	mole H+ / t	<10	----	----	----	----	
sulfidic - Net Acid Soluble Sulfur (s-20J)	----	0.02	% pyrite S	<0.02	----	----	----	----	
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	0.23	0.07	0.09	----	0.03	
Net Acidity (acidity units)	----	10	mole H+ / t	143	46	56	----	18	
Liming Rate	----	1	kg CaCO3/t	11	3	4	----	1	
Net Acidity excluding ANC (sulfur units)	----	0.02	% S	0.23	0.07	0.09	----	0.03	
Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	143	46	56	----	18	
Liming Rate excluding ANC	----	1	kg CaCO3/t	11	3	4	----	1	
EA037: Ass Field Screening Analysis									
ø pH (F)	----	0.1	pH Unit	----	----	----	----	7.2	
ø pH (Fox)	----	0.1	pH Unit	----	----	----	----	4.6	
ø Reaction Rate	----	1	-	----	----	----	----	2	
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	0.1	%	----	27.7	----	----	----	
Moisture Content	----	1.0	%	----	----	----	10.3	18.3	
EA080: Resistivity									
Resistivity at 25°C	----	1	ohm cm	----	16100	----	----	23800	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH7_5.0	BH7_6.0	BH7_7.0	BH6_0.5	BH6_1.0
Sampling date / time				21-Oct-2022 00:00	21-Oct-2022 00:00	21-Oct-2022 00:00	21-Oct-2022 00:00	21-Oct-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2237973-006	ES2237973-007	ES2237973-008	ES2237973-009	ES2237973-010	
				Result	Result	Result	Result	Result	
EA167: Corrosion Classification (per AS2159-2009)									
∅ Exposure Classification - Concrete Piles Soil Condition A	----	-	-	----	Moderate	----	----	Moderate	
∅ Exposure Classification - Concrete Piles Soil Condition B	----	-	-	----	Mild	----	----	Mild	
∅ Exposure Classification - Steel Piles Soil Condition A	----	-	-	----	Non Aggressive	----	----	Non Aggressive	
∅ Exposure Classification - Steel Piles Soil Condition B	----	-	-	----	Non Aggressive	----	----	Non Aggressive	
EA200: AS 4964 - 2004 Identification of Asbestos in Soils									
Asbestos Detected	1332-21-4	0.1	g/kg	----	----	----	No	----	
Asbestos (Trace)	1332-21-4	5	Fibres	----	----	----	No	----	
Asbestos Type	1332-21-4	-	--	----	----	----	-	----	
Sample weight (dry)	----	0.01	g	----	----	----	277	----	
APPROVED IDENTIFIER:	----	-	--	----	----	----	A. SMYLIE	----	
Synthetic Mineral Fibre	----	0.1	g/kg	----	----	----	No	----	
Organic Fibre	----	0.1	g/kg	----	----	----	No	----	
ED040S: Soluble Major Anions									
Sulfate as SO4 2-	14808-79-8	10	mg/kg	----	40	----	----	50	
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	10	mg/kg	----	50	----	----	<10	
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg	----	<5	----	6	<5	
Cadmium	7440-43-9	1	mg/kg	----	<1	----	<1	<1	
Chromium	7440-47-3	2	mg/kg	----	21	----	16	16	
Copper	7440-50-8	5	mg/kg	----	<5	----	36	<5	
Lead	7439-92-1	5	mg/kg	----	12	----	211	9	
Nickel	7440-02-0	2	mg/kg	----	<2	----	22	<2	
Zinc	7440-66-6	5	mg/kg	----	<5	----	203	<5	
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg	----	<0.1	----	0.2	<0.1	
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	----	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH7_5.0	BH7_6.0	BH7_7.0	BH6_0.5	BH6_1.0
Sampling date / time					21-Oct-2022 00:00	21-Oct-2022 00:00	21-Oct-2022 00:00	21-Oct-2022 00:00	21-Oct-2022 00:00
Compound	CAS Number	LOR	Unit		ES2237973-006	ES2237973-007	ES2237973-008	ES2237973-009	ES2237973-010
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
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	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	----	
^ Total Chlordane (sum)	----	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	----	
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	----	
^ 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	----	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH7_5.0	BH7_6.0	BH7_7.0	BH6_0.5	BH6_1.0
Sampling date / time				21-Oct-2022 00:00	21-Oct-2022 00:00	21-Oct-2022 00:00	21-Oct-2022 00:00	21-Oct-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2237973-006	ES2237973-007	ES2237973-008	ES2237973-009	ES2237973-010	
				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	----	
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									
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	----	1.7	<0.5	
Pyrene	129-00-0	0.5	mg/kg	----	<0.5	----	1.6	<0.5	
Benz(a)anthracene	56-55-3	0.5	mg/kg	----	<0.5	----	0.7	<0.5	
Chrysene	218-01-9	0.5	mg/kg	----	<0.5	----	0.7	<0.5	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH7_5.0	BH7_6.0	BH7_7.0	BH6_0.5	BH6_1.0
Sampling date / time					21-Oct-2022 00:00	21-Oct-2022 00:00	21-Oct-2022 00:00	21-Oct-2022 00:00	21-Oct-2022 00:00
Compound	CAS Number	LOR	Unit	ES2237973-006	ES2237973-007	ES2237973-008	ES2237973-009	ES2237973-010	
				Result	Result	Result	Result	Result	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	----	<0.5	----	1.0	<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	----	1.0	<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	----	0.6	<0.5	
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	----	<0.5	----	8.3	<0.5	
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	----	<0.5	----	1.2	<0.5	
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	----	0.6	----	1.5	0.6	
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	----	1.2	----	1.8	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	
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	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH7_5.0	BH7_6.0	BH7_7.0	BH6_0.5	BH6_1.0
Sampling date / time				21-Oct-2022 00:00	21-Oct-2022 00:00	21-Oct-2022 00:00	21-Oct-2022 00:00	21-Oct-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2237973-006	ES2237973-007	ES2237973-008	ES2237973-009	ES2237973-010	
				Result	Result	Result	Result	Result	
EP080: BTEXN - Continued									
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	----	----	----	<0.0002	----	
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	----	----	----	<0.0002	----	
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	----	----	----	<0.0002	----	
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	----	----	----	<0.0002	----	
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	----	----	----	<0.0002	----	
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	----	----	----	<0.0002	----	
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	----	----	----	<0.001	----	
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	----	----	----	<0.0002	----	
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	----	----	----	<0.0002	----	
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	----	----	----	<0.0002	----	
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	----	----	----	<0.0002	----	
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	----	----	----	<0.0002	----	
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	----	----	----	<0.0002	----	
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	----	----	----	<0.0002	----	
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	----	----	----	<0.0002	----	
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	----	----	----	<0.0002	----	
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	----	----	----	<0.0005	----	
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	----	----	----	<0.0002	----	
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	----	----	----	<0.0005	----	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH7_5.0	BH7_6.0	BH7_7.0	BH6_0.5	BH6_1.0
Sampling date / time				21-Oct-2022 00:00	21-Oct-2022 00:00	21-Oct-2022 00:00	21-Oct-2022 00:00	21-Oct-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2237973-006	ES2237973-007	ES2237973-008	ES2237973-009	ES2237973-010	
				Result	Result	Result	Result	Result	
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	----	----	----	<0.0005	----	
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	----	----	----	<0.0005	----	
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	----	----	----	<0.0005	----	
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	----	----	----	<0.0002	----	
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	----	----	----	<0.0002	----	
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	----	----	----	<0.0005	----	
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	----	----	----	<0.0005	----	
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	----	----	----	<0.0005	----	
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	----	----	----	<0.0005	----	
EP231P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg	----	----	----	<0.0002	----	
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	----	----	----	<0.0002	----	
Sum of PFAS (WA DER List)	----	0.0002	mg/kg	----	----	----	<0.0002	----	
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%	----	82.2	----	84.0	----	
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%	----	96.8	----	96.0	----	
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%	----	80.9	----	78.3	----	
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%	----	88.6	----	83.6	85.6	
2-Chlorophenol-D4	93951-73-6	0.5	%	----	83.8	----	80.9	82.1	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH7_5.0	BH7_6.0	BH7_7.0	BH6_0.5	BH6_1.0
Sampling date / time				21-Oct-2022 00:00	21-Oct-2022 00:00	21-Oct-2022 00:00	21-Oct-2022 00:00	21-Oct-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2237973-006	ES2237973-007	ES2237973-008	ES2237973-009	ES2237973-010	
				Result	Result	Result	Result	Result	
EP075(SIM)S: Phenolic Compound Surrogates - Continued									
2,4,6-Tribromophenol	118-79-6	0.5	%	----	82.4	----	80.4	81.6	
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%	----	100	----	94.9	99.0	
Anthracene-d10	1719-06-8	0.5	%	----	97.7	----	98.2	101	
4-Terphenyl-d14	1718-51-0	0.5	%	----	102	----	99.6	102	
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	0.2	%	----	76.4	----	102	94.6	
Toluene-D8	2037-26-5	0.2	%	----	77.7	----	106	96.9	
4-Bromofluorobenzene	460-00-4	0.2	%	----	81.0	----	99.9	94.2	
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%	----	----	----	100	----	
13C8-PFOA	----	0.0002	%	----	----	----	92.5	----	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	BH6_2.0	BH6_3.0	BH6_4.0	QC02	----
Sampling date / time			21-Oct-2022 00:00	21-Oct-2022 00:00	21-Oct-2022 00:00	21-Oct-2022 00:00	----	----
Compound	CAS Number	LOR	Unit	ES2237973-011	ES2237973-012	ES2237973-013	ES2237973-014	-----
				Result	Result	Result	Result	----
EA002: pH 1:5 (Soils)								
pH Value	----	0.1	pH Unit	----	----	4.9	----	----
EA010: Conductivity (1:5)								
Electrical Conductivity @ 25°C	----	1	µS/cm	----	----	41	----	----
EA033-A: Actual Acidity								
pH KCl (23A)	----	0.1	pH Unit	4.4	4.2	4.4	----	----
Titrateable Actual Acidity (23F)	----	2	mole H+ / t	85	133	80	----	----
sulfidic - Titrateable Actual Acidity (s-23F)	----	0.02	% pyrite S	0.14	0.21	0.13	----	----
EA033-B: Potential Acidity								
Chromium Reducible Sulfur (22B)	----	0.005	% S	0.008	0.009	0.014	----	----
acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	<10	<10	<10	----	----
EA033-D: Retained Acidity								
KCl Extractable Sulfur (23Ce)	----	0.02	% S	<0.02	0.03	<0.02	----	----
HCl Extractable Sulfur (20Be)	----	0.02	% S	<0.02	0.04	0.03	----	----
Net Acid Soluble Sulfur (20Je)	----	0.02	% S	<0.02	<0.02	0.06	----	----
acidity - Net Acid Soluble Sulfur (a-20J)	----	10	mole H+ / t	<10	<10	27	----	----
sulfidic - Net Acid Soluble Sulfur (s-20J)	----	0.02	% pyrite S	<0.02	<0.02	0.04	----	----
EA033-E: Acid Base Accounting								
ANC Fineness Factor	----	0.5	-	1.5	1.5	1.5	----	----
Net Acidity (sulfur units)	----	0.02	% S	0.14	0.23	0.19	----	----
Net Acidity (acidity units)	----	10	mole H+ / t	90	145	116	----	----
Liming Rate	----	1	kg CaCO3/t	7	11	9	----	----
Net Acidity excluding ANC (sulfur units)	----	0.02	% S	0.14	0.23	0.19	----	----
Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	90	145	116	----	----
Liming Rate excluding ANC	----	1	kg CaCO3/t	7	11	9	----	----
EA037: Ass Field Screening Analysis								
ø pH (F)	----	0.1	pH Unit	4.9	4.8	4.4	----	----
ø pH (Fox)	----	0.1	pH Unit	3.4	3.1	2.9	----	----
ø Reaction Rate	----	1	-	2	2	2	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	----	----	16.3	9.0	----
EA080: Resistivity								
Resistivity at 25°C	----	1	ohm cm	----	----	24400	----	----
EA167: Corrosion Classification (per AS2159-2009)								



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH6_2.0	BH6_3.0	BH6_4.0	QC02	----
Sampling date / time				21-Oct-2022 00:00	21-Oct-2022 00:00	21-Oct-2022 00:00	21-Oct-2022 00:00	----	
Compound	CAS Number	LOR	Unit	ES2237973-011	ES2237973-012	ES2237973-013	ES2237973-014	-----	
				Result	Result	Result	Result	----	
EA167: Corrosion Classification (per AS2159-2009) - Continued									
∅ Exposure Classification - Concrete Piles Soil Condition A	----	-	-	----	----	Moderate	----	----	
∅ Exposure Classification - Concrete Piles Soil Condition B	----	-	-	----	----	Mild	----	----	
∅ Exposure Classification - Steel Piles Soil Condition A	----	-	-	----	----	Non Aggressive	----	----	
∅ Exposure Classification - Steel Piles Soil Condition B	----	-	-	----	----	Non Aggressive	----	----	
ED040S: Soluble Major Anions									
Sulfate as SO4 2-	14808-79-8	10	mg/kg	----	----	20	----	----	
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	10	mg/kg	----	----	<10	----	----	
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg	----	----	5	<5	----	
Cadmium	7440-43-9	1	mg/kg	----	----	<1	<1	----	
Chromium	7440-47-3	2	mg/kg	----	----	7	16	----	
Copper	7440-50-8	5	mg/kg	----	----	<5	31	----	
Lead	7439-92-1	5	mg/kg	----	----	16	116	----	
Nickel	7440-02-0	2	mg/kg	----	----	<2	26	----	
Zinc	7440-66-6	5	mg/kg	----	----	<5	125	----	
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg	----	----	<0.1	0.2	----	
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	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	----	
^ Total Chlordane (sum)	----	0.05	mg/kg	----	----	----	<0.05	----	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH6_2.0	BH6_3.0	BH6_4.0	QC02	----
Sampling date / time				21-Oct-2022 00:00	21-Oct-2022 00:00	21-Oct-2022 00:00	21-Oct-2022 00:00	----	
Compound	CAS Number	LOR	Unit	ES2237973-011	ES2237973-012	ES2237973-013	ES2237973-014	-----	
				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	----	
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	----	----	----	<0.05	----	
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/5 0-2	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	----	
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	----	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH6_2.0	BH6_3.0	BH6_4.0	QC02	----
Sampling date / time				21-Oct-2022 00:00	21-Oct-2022 00:00	21-Oct-2022 00:00	21-Oct-2022 00:00	----	
Compound	CAS Number	LOR	Unit	ES2237973-011	ES2237973-012	ES2237973-013	ES2237973-014	-----	
				Result	Result	Result	Result	----	
EP068B: Organophosphorus Pesticides (OP) - Continued									
Carbophenothion	786-19-6	0.05	mg/kg	----	----	----	<0.05	----	
Azinphos Methyl	86-50-0	0.05	mg/kg	----	----	----	<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	----	
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	0.6	----	
Anthracene	120-12-7	0.5	mg/kg	----	----	<0.5	<0.5	----	
Fluoranthene	206-44-0	0.5	mg/kg	----	----	<0.5	1.7	----	
Pyrene	129-00-0	0.5	mg/kg	----	----	<0.5	1.5	----	
Benz(a)anthracene	56-55-3	0.5	mg/kg	----	----	<0.5	0.7	----	
Chrysene	218-01-9	0.5	mg/kg	----	----	<0.5	0.6	----	
Benzo(b+j)fluoranthene	205-99-2	205-82-3	0.5	mg/kg	----	<0.5	0.9	----	
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	0.9	----	
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	0.6	----	
[^] Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	----	----	<0.5	8.0	----	
[^] Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	----	----	<0.5	1.1	----	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH6_2.0	BH6_3.0	BH6_4.0	QC02	----
Sampling date / time				21-Oct-2022 00:00	21-Oct-2022 00:00	21-Oct-2022 00:00	21-Oct-2022 00:00	----	
Compound	CAS Number	LOR	Unit	ES2237973-011	ES2237973-012	ES2237973-013	ES2237973-014	-----	
				Result	Result	Result	Result	----	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	----	----	0.6	1.4	----	
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	----	----	1.2	1.7	----	
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	----	
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	----	----	----	<0.0002	----	
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	----	----	----	<0.0002	----	
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	----	----	----	<0.0002	----	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH6_2.0	BH6_3.0	BH6_4.0	QC02	----
Sampling date / time				21-Oct-2022 00:00	21-Oct-2022 00:00	21-Oct-2022 00:00	21-Oct-2022 00:00	----	
Compound	CAS Number	LOR	Unit	ES2237973-011	ES2237973-012	ES2237973-013	ES2237973-014	-----	
				Result	Result	Result	Result	----	
EP231A: Perfluoroalkyl Sulfonic Acids - Continued									
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	----	----	----	<0.0002	----	
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	----	----	----	<0.0002	----	
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	----	----	----	<0.0002	----	
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	----	----	----	<0.001	----	
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	----	----	----	<0.0002	----	
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	----	----	----	<0.0002	----	
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	----	----	----	<0.0002	----	
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	----	----	----	<0.0002	----	
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	----	----	----	<0.0002	----	
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	----	----	----	<0.0002	----	
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	----	----	----	<0.0002	----	
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	----	----	----	<0.0002	----	
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	----	----	----	<0.0002	----	
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	----	----	----	<0.0005	----	
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	----	----	----	<0.0002	----	
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	----	----	----	<0.0005	----	
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	----	----	----	<0.0005	----	
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	----	----	----	<0.0005	----	
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	----	----	----	<0.0005	----	
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	----	----	----	<0.0002	----	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH6_2.0	BH6_3.0	BH6_4.0	QC02	----
Sampling date / time				21-Oct-2022 00:00	21-Oct-2022 00:00	21-Oct-2022 00:00	21-Oct-2022 00:00	----	
Compound	CAS Number	LOR	Unit	ES2237973-011	ES2237973-012	ES2237973-013	ES2237973-014	-----	
				Result	Result	Result	Result	----	
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	----	----	----	<0.0002	----	
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	----	----	----	<0.0005	----	
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	----	----	----	<0.0005	----	
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	----	----	----	<0.0005	----	
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	----	----	----	<0.0005	----	
EP231P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg	----	----	----	<0.0002	----	
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	----	----	----	<0.0002	----	
Sum of PFAS (WA DER List)	----	0.0002	mg/kg	----	----	----	<0.0002	----	
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%	----	----	----	89.7	----	
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%	----	----	----	99.6	----	
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%	----	----	----	92.7	----	
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%	----	----	82.4	82.2	----	
2-Chlorophenol-D4	93951-73-6	0.5	%	----	----	82.8	79.3	----	
2,4,6-Tribromophenol	118-79-6	0.5	%	----	----	77.0	81.3	----	
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%	----	----	96.5	97.0	----	
Anthracene-d10	1719-06-8	0.5	%	----	----	96.4	97.3	----	
4-Terphenyl-d14	1718-51-0	0.5	%	----	----	98.6	97.7	----	
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	0.2	%	----	----	89.7	85.8	----	
Toluene-D8	2037-26-5	0.2	%	----	----	90.2	90.0	----	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH6_2.0	BH6_3.0	BH6_4.0	QC02	----
Sampling date / time				21-Oct-2022 00:00	21-Oct-2022 00:00	21-Oct-2022 00:00	21-Oct-2022 00:00	----	
Compound	CAS Number	LOR	Unit	ES2237973-011	ES2237973-012	ES2237973-013	ES2237973-014	-----	
				Result	Result	Result	Result	----	
EP080S: TPH(V)/BTEX Surrogates - Continued									
4-Bromofluorobenzene	460-00-4	0.2	%	----	----	89.0	84.7	----	
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%	----	----	----	99.5	----	
13C8-PFOA	----	0.0002	%	----	----	----	91.5	----	



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	RB04	RB05	TB_211022	----	----
Sampling date / time				21-Oct-2022 00:00	21-Oct-2022 00:00	21-Oct-2022 00:00	----	----	
Compound	CAS Number	LOR	Unit	ES2237973-016	ES2237973-017	ES2237973-018	-----	-----	
				Result	Result	Result	----	----	
EG020F: Dissolved Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	<0.001	----	----	
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	----	----	
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	<0.001	----	----	
Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	<0.001	----	----	
Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	<0.001	----	----	
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	----	----	
Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	<0.005	----	----	
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	----	----	
EP066: Polychlorinated Biphenyls (PCB)									
^ Total Polychlorinated biphenyls	----	1	µg/L	<1	<1	<1	----	----	
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.5	µg/L	<0.5	<0.5	<0.5	----	----	
Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	<0.5	<0.5	----	----	
beta-BHC	319-85-7	0.5	µg/L	<0.5	<0.5	<0.5	----	----	
gamma-BHC	58-89-9	0.5	µg/L	<0.5	<0.5	<0.5	----	----	
delta-BHC	319-86-8	0.5	µg/L	<0.5	<0.5	<0.5	----	----	
Heptachlor	76-44-8	0.5	µg/L	<0.5	<0.5	<0.5	----	----	
Aldrin	309-00-2	0.5	µg/L	<0.5	<0.5	<0.5	----	----	
Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	<0.5	<0.5	----	----	
trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	<0.5	<0.5	----	----	
alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	<0.5	<0.5	----	----	
cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	<0.5	<0.5	----	----	
Dieldrin	60-57-1	0.5	µg/L	<0.5	<0.5	<0.5	----	----	
4,4'-DDE	72-55-9	0.5	µg/L	<0.5	<0.5	<0.5	----	----	
Endrin	72-20-8	0.5	µg/L	<0.5	<0.5	<0.5	----	----	
beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	<0.5	<0.5	----	----	
4,4'-DDD	72-54-8	0.5	µg/L	<0.5	<0.5	<0.5	----	----	
Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	<0.5	<0.5	----	----	
Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	<0.5	<0.5	----	----	
4,4'-DDT	50-29-3	2.0	µg/L	<2.0	<2.0	<2.0	----	----	
Endrin ketone	53494-70-5	0.5	µg/L	<0.5	<0.5	<0.5	----	----	
Methoxychlor	72-43-5	2.0	µg/L	<2.0	<2.0	<2.0	----	----	
^ Total Chlordane (sum)	----	0.5	µg/L	<0.5	<0.5	<0.5	----	----	



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	RB04	RB05	TB_211022	----	----
Sampling date / time				21-Oct-2022 00:00	21-Oct-2022 00:00	21-Oct-2022 00:00	----	----	
Compound	CAS Number	LOR	Unit	ES2237973-016	ES2237973-017	ES2237973-018	-----	-----	
				Result	Result	Result	----	----	
EP068A: Organochlorine Pesticides (OC) - Continued									
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/5 0-2	0.5	µg/L	<0.5	<0.5	<0.5	----	----	
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.5	µg/L	<0.5	<0.5	<0.5	----	----	
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.5	µg/L	<0.5	<0.5	<0.5	----	----	
Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	<0.5	<0.5	----	----	
Monocrotophos	6923-22-4	2.0	µg/L	<2.0	<2.0	<2.0	----	----	
Dimethoate	60-51-5	0.5	µg/L	<0.5	<0.5	<0.5	----	----	
Diazinon	333-41-5	0.5	µg/L	<0.5	<0.5	<0.5	----	----	
Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	<0.5	<0.5	----	----	
Parathion-methyl	298-00-0	2.0	µg/L	<2.0	<2.0	<2.0	----	----	
Malathion	121-75-5	0.5	µg/L	<0.5	<0.5	<0.5	----	----	
Fenthion	55-38-9	0.5	µg/L	<0.5	<0.5	<0.5	----	----	
Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	<0.5	<0.5	----	----	
Parathion	56-38-2	2.0	µg/L	<2.0	<2.0	<2.0	----	----	
Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	<0.5	<0.5	----	----	
Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	<0.5	<0.5	----	----	
Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	<0.5	<0.5	----	----	
Fenamiphos	22224-92-6	0.5	µg/L	<0.5	<0.5	<0.5	----	----	
Prothiofos	34643-46-4	0.5	µg/L	<0.5	<0.5	<0.5	----	----	
Ethion	563-12-2	0.5	µg/L	<0.5	<0.5	<0.5	----	----	
Carbophenothion	786-19-6	0.5	µg/L	<0.5	<0.5	<0.5	----	----	
Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	<0.5	<0.5	----	----	
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	<1.0	----	----	
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	----	----	
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	<1.0	----	----	
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	----	----	
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	----	----	
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	<1.0	----	----	
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	----	----	
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	----	----	
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	----	----	
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	----	----	
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	----	----	



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	RB04	RB05	TB_211022	----	----
Sampling date / time				21-Oct-2022 00:00	21-Oct-2022 00:00	21-Oct-2022 00:00	----	----	
Compound	CAS Number	LOR	Unit	ES2237973-016	ES2237973-017	ES2237973-018	-----	-----	
				Result	Result	Result	----	----	
EP075(SIM)A: Phenolic Compounds - Continued									
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	----	----	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	<1.0	----	----	
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	<1.0	----	----	
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	<1.0	----	----	
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	<1.0	----	----	
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	<1.0	----	----	
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	<1.0	----	----	
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	<1.0	----	----	
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	<1.0	----	----	
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	<1.0	----	----	
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	<1.0	----	----	
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L	<1.0	<1.0	<1.0	----	----	
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	<1.0	----	----	
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	<0.5	----	----	
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	<1.0	----	----	
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	<1.0	----	----	
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	<1.0	----	----	
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	<0.5	----	----	
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	<0.5	----	----	
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	----	----	
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	----	----	
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	----	----	
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	----	----	
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	----	----	
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	----	----	
>C10 - C16 Fraction	----	100	µg/L	<100	<100	<100	----	----	
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	----	----	
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	----	----	
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	----	----	



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	RB04	RB05	TB_211022	----	----
Sampling date / time				21-Oct-2022 00:00	21-Oct-2022 00:00	21-Oct-2022 00:00	----	----	
Compound	CAS Number	LOR	Unit	ES2237973-016	ES2237973-017	ES2237973-018	-----	-----	
				Result	Result	Result	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	----	----	
EP080: BTEXN									
Benzene	71-43-2	1	µg/L	<1	<1	<1	----	----	
Toluene	108-88-3	2	µg/L	<2	<2	<2	----	----	
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	----	----	
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	----	----	
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	----	----	
^ Total Xylenes	----	2	µg/L	<2	<2	<2	----	----	
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	----	----	
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	----	----	
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	----	<0.02	----	----	
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	----	<0.02	----	----	
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	----	<0.01	----	----	
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	----	<0.02	----	----	
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	----	<0.01	----	----	
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	----	<0.02	----	----	
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	----	<0.1	----	----	
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	----	<0.02	----	----	
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	----	<0.02	----	----	
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	----	<0.02	----	----	
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	----	<0.01	----	----	
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	----	<0.02	----	----	
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	----	<0.02	----	----	
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	----	<0.02	----	----	



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	RB04	RB05	TB_211022	----	----
Sampling date / time				21-Oct-2022 00:00	21-Oct-2022 00:00	21-Oct-2022 00:00	----	----	
Compound	CAS Number	LOR	Unit	ES2237973-016	ES2237973-017	ES2237973-018	-----	-----	
				Result	Result	Result	----	----	
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	----	<0.02	----	----	
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	----	<0.02	----	----	
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	----	<0.05	----	----	
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	----	<0.02	----	----	
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	----	<0.05	----	----	
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	----	<0.05	----	----	
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	----	<0.05	----	----	
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	----	<0.05	----	----	
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	----	<0.02	----	----	
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	----	<0.02	----	----	
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	----	<0.05	----	----	
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	----	<0.05	----	----	
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	----	<0.05	----	----	
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	----	<0.05	----	----	
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L	<0.01	----	<0.01	----	----	
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	<0.01	----	<0.01	----	----	



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	RB04	RB05	TB_211022	----	----
Sampling date / time				21-Oct-2022 00:00	21-Oct-2022 00:00	21-Oct-2022 00:00	----	----	
Compound	CAS Number	LOR	Unit	ES2237973-016	ES2237973-017	ES2237973-018	-----	-----	
				Result	Result	Result	----	----	
EP231P: PFAS Sums - Continued									
Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	<0.01	----	----	
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	1	%	87.2	87.5	72.7	----	----	
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.5	%	86.1	80.7	67.9	----	----	
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.5	%	70.0	65.3	62.5	----	----	
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1.0	%	40.5	37.7	33.9	----	----	
2-Chlorophenol-D4	93951-73-6	1.0	%	78.4	77.5	66.2	----	----	
2,4,6-Tribromophenol	118-79-6	1.0	%	78.8	88.6	66.0	----	----	
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%	94.6	86.8	81.6	----	----	
Anthracene-d10	1719-06-8	1.0	%	106	104	91.2	----	----	
4-Terphenyl-d14	1718-51-0	1.0	%	101	99.7	86.7	----	----	
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	2	%	98.5	102	93.4	----	----	
Toluene-D8	2037-26-5	2	%	91.4	96.4	87.5	----	----	
4-Bromofluorobenzene	460-00-4	2	%	95.5	102	93.4	----	----	
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%	111	----	105	----	----	
13C8-PFOA	----	0.02	%	98.9	----	96.3	----	----	

Analytical Results

Descriptive Results

Sub-Matrix: SOIL

Method: Compound	Sample ID - Sampling date / time	Analytical Results
EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	BH7_0.5 - 21-Oct-2022 00:00	Soil sample.
EA200: Description	BH6_0.5 - 21-Oct-2022 00:00	Soil sample.



Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	39	149
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	49	147
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	35	143
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2,4,6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	73	133
Toluene-D8	2037-26-5	74	132
4-Bromofluorobenzene	460-00-4	72	130
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	45	134
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	67	111
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	67	111
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	44
2-Chlorophenol-D4	93951-73-6	14	94
2,4,6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	32	112



Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

Inter-Laboratory Testing

Analysis conducted by ALS Brisbane, NATA accreditation no. 825, site no. 818 (Chemistry) 18958 (Biology).

(SOIL) EA037: Ass Field Screening Analysis

(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

Analysis conducted by ALS Newcastle, NATA accreditation no. 825, site no. 1656 (Chemistry) 9854 (Biology).

(SOIL) EA200: AS 4964 - 2004 Identification of Asbestos in Soils



QUALITY CONTROL REPORT

Work Order : ES2237973

Page : 1 of 22

Client : KLEINFELDER AUSTRALIA PTY LTD

Laboratory : Environmental Division Sydney

Contact : J Roby

Contact : Graeme Jablonskas

Address : 95 MITCHELL ROAD
CARDIFF NSW 2285

Address : 277-289 Woodpark Road Smithfield NSW Australia 2164

Telephone : ----

Telephone : +6138549 9609

Project : 20232402

Date Samples Received : 21-Oct-2022

Order number : ----

Date Analysis Commenced : 24-Oct-2022

C-O-C number : ----

Issue Date : 03-Nov-2022

Sampler : Jai Roby

Site : UON Gosford

Quote number : EN/222

No. of samples received : 17

No. of samples analysed : 17



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
Alana Smylie	Team Leader - Asbestos	Newcastle - Asbestos, Mayfield West, NSW
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Ben Felgendrejeris	Senior Acid Sulfate Soil Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Inorganics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW



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

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: 4664537)									
ES2237973-001	BH7_0.5	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	9	8	15.8	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	6	3	52.2	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	7	10	28.4	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	42	14	99.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	54	75	32.3	0% - 50%
EA002: pH 1:5 (Soils) (QC Lot: 4664528)									
ES2238092-001	Anonymous	EA002: pH Value	----	0.1	pH Unit	6.9	6.6	4.3	0% - 20%
ES2237877-002	Anonymous	EA002: pH Value	----	0.1	pH Unit	3.6	3.6	0.0	0% - 20%
EA010: Conductivity (1:5) (QC Lot: 4664526)									
ES2238092-001	Anonymous	EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	19	14	33.0	0% - 50%
ES2237877-002	Anonymous	EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	573	581	1.4	0% - 20%
EA033-A: Actual Acidity (QC Lot: 4673561)									
EM2220487-001	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	7.5	7.5	0.0	0% - 20%
ES2237932-011	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	4	4	0.0	No Limit
		EA033: pH KCl (23A)	----	0.1	pH Unit	5.8	5.8	0.0	0% - 20%
EA033-A: Actual Acidity (QC Lot: 4673562)									
ES2237973-010	BH6_1.0	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	12	12	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 (%)
EA033-A: Actual Acidity (QC Lot: 4673562) - continued									
ES2237973-010	BH6_1.0	EA033: pH KCl (23A)	----	0.1	pH Unit	5.3	5.3	0.0	0% - 20%
EA033-B: Potential Acidity (QC Lot: 4673561)									
EM2220487-001	Anonymous	EA033: Chromium Reducible Sulfur (22B)	----	0.005	% S	0.009	0.009	0.0	No Limit
		EA033: acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	<10	<10	0.0	No Limit
ES2237932-011	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
EA033-B: Potential Acidity (QC Lot: 4673562)									
ES2237973-010	BH6_1.0	EA033: Chromium Reducible Sulfur (22B)	----	0.005	% S	0.010	0.009	0.0	No Limit
		EA033: acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	<10	<10	0.0	No Limit
EA037: Ass Field Screening Analysis (QC Lot: 4670331)									
EB2231701-001	Anonymous	EA037: pH (F)	----	0.1	pH Unit	5.2	5.3	1.9	0% - 20%
		EA037: pH (Fox)	----	0.1	pH Unit	2.4	2.4	0.0	0% - 20%
EB2231701-011	Anonymous	EA037: pH (F)	----	0.1	pH Unit	6.9	7.0	0.0	0% - 20%
		EA037: pH (Fox)	----	0.1	pH Unit	2.8	3.0	3.4	0% - 20%
EA037: Ass Field Screening Analysis (QC Lot: 4670332)									
ES2237973-012	BH6_3.0	EA037: pH (F)	----	0.1	pH Unit	4.8	4.8	0.0	0% - 20%
		EA037: pH (Fox)	----	0.1	pH Unit	3.1	3.2	0.0	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 4664539)									
ES2237973-002	BH7_1.0	EA055: Moisture Content	----	0.1	%	11.8	11.9	0.0	0% - 50%
ES2238221-001	Anonymous	EA055: Moisture Content	----	0.1	%	20.1	19.8	1.5	0% - 20%
ED040S: Soluble Major Anions (QC Lot: 4664530)									
ES2237973-002	BH7_1.0	ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	50	40	0.0	No Limit
ED045G: Chloride by Discrete Analyser (QC Lot: 4664529)									
ES2237973-002	BH7_1.0	ED045G: Chloride	16887-00-6	10	mg/kg	10	10	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 4664533)									
ES2237973-001	BH7_0.5	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.1	0.0	No Limit
ES2237877-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 4656126)									
ES2237552-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 4656125)									
ES2237552-001	Anonymous	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	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



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: 4656125) - continued									
ES2237552-001	Anonymous	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: 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: 4656125)									
ES2237552-001	Anonymous	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		
EP075(SIM)A: Phenolic Compounds (QC Lot: 4656124)									
ES2237973-005	BH7_4.0	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: 4656124) - continued									
ES2237973-005	BH7_4.0	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
ES2237552-001	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
		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: 4656124)									
ES2237973-005	BH7_4.0	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	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	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: 4656124) - continued									
ES2237973-005	BH7_4.0	EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES2237552-001	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): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 4656123)									
ES2237973-005	BH7_4.0	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
ES2237552-001	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: 4666712)									
ES2237973-001	BH7_0.5	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES2238436-029	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 4656123)									
ES2237973-005	BH7_4.0	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
ES2237552-001	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



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: 4666712)										
ES2237973-001	BH7_0.5	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
ES2238436-029	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
EP080: BTEXN (QC Lot: 4666712)										
ES2237973-001	BH7_0.5	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	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
ES2238436-029	Anonymous	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit	
		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	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
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			
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 4668387)										
ES2237973-001	BH7_0.5	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit	
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit	
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit	
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit	
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit	
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit	
ES2238516-003	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit	
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit	
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit	
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit	
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	0.0003	0.0002	0.0	No Limit	
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit	
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 4668387)										
ES2237973-001	BH7_0.5	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit	
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit	
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit	
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit	
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit	
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit	
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit	
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit	
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	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 (%)
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 4668387) - continued									
ES2237973-001	BH7_0.5	EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
ES2238516-003	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 4668387)									
ES2237973-001	BH7_0.5	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
ES2238516-003	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 4668387)									



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 (%)
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 4668387) - continued									
ES2237973-001	BH7_0.5	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
ES2238516-003	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit

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 (%)
EG020F: Dissolved Metals by ICP-MS (QC Lot: 4670013)									
ES2238315-001	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.005	0.005	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.014	0.014	0.0	0% - 50%
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.145	0.147	0.9	0% - 20%
ES2238455-001	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.011	0.011	0.0	0% - 50%
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.001	0.001	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 4670012)									
ES2237973-018	TB_211022	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES2238509-001	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 4668446)									
ES2237973-016	RB04	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES2238315-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit

EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 4668446)

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 Work Order : ES2237973
 Client : KLEINFELDER AUSTRALIA PTY LTD
 Project : 20232402



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 (%)
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 4668446) - continued									
ES2237973-016	RB04	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES2238315-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080: BTEXN (QC Lot: 4668446)									
ES2237973-016	RB04	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
ES2238315-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	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: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Acceptable Limits (%)	
						LCS	Low	High	
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4664537)									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	121.1 mg/kg	92.2	88.0	113	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	0.74 mg/kg	98.5	70.0	130	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	19.6 mg/kg	104	68.0	132	
EG005T: Copper	7440-50-8	5	mg/kg	<5	52.9 mg/kg	105	89.0	111	
EG005T: Lead	7439-92-1	5	mg/kg	<5	60.8 mg/kg	99.3	82.0	119	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.3 mg/kg	97.8	80.0	120	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	139.3 mg/kg	88.0	66.0	133	
EA002: pH 1:5 (Soils) (QCLot: 4664528)									
EA002: pH Value	----	----	pH Unit	----	4 pH Unit	100	98.8	101	
				----	7 pH Unit	100	98.8	101	
EA010: Conductivity (1:5) (QCLot: 4664526)									
EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	1412 µS/cm	102	92.0	108	
EA033-A: Actual Acidity (QCLot: 4673561)									
EA033: pH KCl (23A)	----	----	pH Unit	----	4.4 pH Unit	99.4	91.0	107	
EA033: Titratable Actual Acidity (23F)	----	2	mole H+ / t	<2	16 mole H+ / t	108	70.0	124	
EA033: sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	<0.02	----	----	----	----	
EA033-A: Actual Acidity (QCLot: 4673562)									
EA033: pH KCl (23A)	----	----	pH Unit	----	4.4 pH Unit	98.4	91.0	107	
EA033: Titratable Actual Acidity (23F)	----	2	mole H+ / t	<2	16 mole H+ / t	116	70.0	124	
EA033: sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	<0.02	----	----	----	----	
EA033-B: Potential Acidity (QCLot: 4673561)									
EA033: Chromium Reducible Sulfur (22B)	----	0.005	% S	<0.005	0.246 % S	96.3	77.0	121	
EA033: acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	<10	----	----	----	----	
EA033-B: Potential Acidity (QCLot: 4673562)									
EA033: Chromium Reducible Sulfur (22B)	----	0.005	% S	<0.005	0.246 % S	99.5	77.0	121	
EA033: acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	<10	----	----	----	----	
EA033-D: Retained Acidity (QCLot: 4673561)									
EA033: Net Acid Soluble Sulfur (20Je)	----	0.02	% S	<0.02	----	----	----	----	
EA033: acidity - Net Acid Soluble Sulfur (a-20J)	----	10	mole H+ / t	<10	----	----	----	----	
EA033: sulfidic - Net Acid Soluble Sulfur (s-20J)	----	0.02	% pyrite S	<0.02	----	----	----	----	
EA033: KCl Extractable Sulfur (23Ce)	----	0.02	% S	<0.02	0.055 % S	102	70.0	128	
EA033: HCl Extractable Sulfur (20Be)	----	0.02	% S	<0.02	0.696 % S	89.5	70.0	120	
EA033-D: Retained Acidity (QCLot: 4673562)									



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Acceptable Limits (%)	
					Concentration	LCS	Low	High	
EA033-D: Retained Acidity (QCLot: 4673562) - continued									
EA033: Net Acid Soluble Sulfur (20Je)	----	0.02	% S	<0.02	----	----	----	----	
EA033: acidity - Net Acid Soluble Sulfur (a-20J)	----	10	mole H+ / t	<10	----	----	----	----	
EA033: sulfidic - Net Acid Soluble Sulfur (s-20J)	----	0.02	% pyrite S	<0.02	----	----	----	----	
EA033: KCl Extractable Sulfur (23Ce)	----	0.02	% S	<0.02	0.055 % S	102	70.0	128	
EA033: HCl Extractable Sulfur (20Be)	----	0.02	% S	<0.02	0.696 % S	89.5	70.0	120	
ED040S: Soluble Major Anions (QCLot: 4664530)									
ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	<10	750 mg/kg	101	80.0	120	
ED045G: Chloride by Discrete Analyser (QCLot: 4664529)									
ED045G: Chloride	16887-00-6	10	mg/kg	<10	250 mg/kg	101	75.0	125	
				<10	5000 mg/kg	96.5	79.0	117	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4664533)									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.087 mg/kg	100	70.0	125	
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 4656126)									
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	99.0	62.0	126	
EP068A: Organochlorine Pesticides (OC) (QCLot: 4656125)									
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	77.4	69.0	113	
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	80.5	65.0	117	
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	85.1	67.0	119	
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	83.0	68.0	116	
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	76.8	65.0	117	
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	79.8	67.0	115	
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	82.1	69.0	115	
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	84.3	62.0	118	
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	82.6	63.0	117	
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	84.4	66.0	116	
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	83.4	64.0	116	
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	87.7	66.0	116	
EP068: 4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	83.3	67.0	115	
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	80.2	67.0	123	
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	87.8	69.0	115	
EP068: 4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	89.2	69.0	121	
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	76.0	56.0	120	
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	85.0	62.0	124	
EP068: 4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	81.8	66.0	120	
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	81.9	64.0	122	
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	80.2	54.0	130	
EP068B: Organophosphorus Pesticides (OP) (QCLot: 4656125)									
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	77.1	59.0	119	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Acceptable Limits (%)	
					Concentration	LCS	Low	High	
EP068B: Organophosphorus Pesticides (OP) (QCLot: 4656125) - continued									
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	84.1	62.0	128	
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	97.8	54.0	126	
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	96.9	67.0	119	
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	83.5	70.0	120	
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	82.6	72.0	120	
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	79.9	68.0	120	
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	89.6	68.0	122	
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	83.1	69.0	117	
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	83.3	76.0	118	
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	78.2	64.0	122	
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	83.7	70.0	116	
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	82.0	69.0	121	
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	89.4	66.0	118	
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	99.2	68.0	124	
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	86.3	62.0	112	
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	82.6	68.0	120	
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	81.9	65.0	127	
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	66.0	41.0	123	
EP075(SIM)A: Phenolic Compounds (QCLot: 4656124)									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	6 mg/kg	94.7	71.0	125	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	6 mg/kg	94.1	72.0	124	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	6 mg/kg	94.6	71.0	123	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	12 mg/kg	94.2	67.0	127	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	6 mg/kg	81.4	54.0	114	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	6 mg/kg	98.0	68.0	126	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	6 mg/kg	94.1	66.0	120	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	6 mg/kg	92.6	70.0	120	
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	6 mg/kg	93.0	70.0	116	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	6 mg/kg	85.9	54.0	114	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	6 mg/kg	91.1	60.0	114	
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	12 mg/kg	39.6	10.0	80.0	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 4656124)									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	98.6	77.0	125	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	100	72.0	124	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	97.5	73.0	127	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	100	72.0	126	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	103	75.0	127	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	103	77.0	127	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	102	73.0	127	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Acceptable Limits (%)	
					Concentration	LCS	Low	High	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 4656124) - continued									
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	102	74.0	128	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	95.9	69.0	123	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	97.9	75.0	127	
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	95.4	68.0	116	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	95.6	74.0	126	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	96.4	70.0	126	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	94.2	61.0	121	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	93.9	62.0	118	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	93.4	63.0	121	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4656123)									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	93.0	75.0	129	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	95.2	77.0	131	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	89.9	71.0	129	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4666712)									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	83.0	68.4	128	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4656123)									
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	93.2	77.0	125	
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	94.1	74.0	138	
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	71.8	63.0	131	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4666712)									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	84.6	68.4	128	
EP080: BTEXN (QCLot: 4666712)									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	92.0	62.0	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	90.9	67.0	121	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	93.1	65.0	117	
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	94.2	66.0	118	
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	94.6	68.0	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	104	63.0	119	
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4668387)									
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.00125 mg/kg	83.6	72.0	128	
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	97.6	73.0	123	
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	87.2	67.0	130	
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	88.8	70.0	132	
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	80.0	68.0	136	
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	82.0	59.0	134	
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4668387)									



Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Acceptable Limits (%)	
						LCS	Low	High	
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4668387) - continued									
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	90.0	71.0	135	
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	98.4	69.0	132	
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	90.4	70.0	132	
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	97.2	71.0	131	
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	88.0	69.0	133	
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	86.8	72.0	129	
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	0.00125 mg/kg	78.8	69.0	133	
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	94.0	64.0	136	
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	102	69.0	135	
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	78.8	66.0	139	
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	94.2	69.0	133	
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4668387)									
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	111	67.0	137	
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	0.00312 mg/kg	107	71.6	129	
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	94.4	69.8	131	
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	107	68.7	130	
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	96.6	65.1	134	
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	104	63.0	144	
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	99.2	61.0	139	
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4668387)									
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00125 mg/kg	86.0	62.0	145	
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00125 mg/kg	88.8	64.0	140	
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	0.00125 mg/kg	88.4	65.0	137	
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	0.00125 mg/kg	87.6	69.2	143	

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Acceptable Limits (%)	
						LCS	Low	High	
EG020F: Dissolved Metals by ICP-MS (QCLot: 4670013)									
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	90.9	85.0	114	
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	90.6	84.0	110	
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	90.5	85.0	111	
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	90.1	81.0	111	
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	90.3	83.0	111	
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	90.2	82.0	112	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Acceptable Limits (%)	
					Concentration	LCS	Low	High	
EG020F: Dissolved Metals by ICP-MS (QCLot: 4670013) - continued									
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	92.2	81.0	117	
EG035F: Dissolved Mercury by FIMS (QCLot: 4670012)									
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	91.1	83.0	105	
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 4655978)									
EP066: Total Polychlorinated biphenyls	----	1	µg/L	<1	10 µg/L	92.6	68.9	113	
EP068A: Organochlorine Pesticides (OC) (QCLot: 4655976)									
EP068: alpha-BHC	319-84-6	0.5	µg/L	<0.5	5 µg/L	83.5	64.9	107	
EP068: Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	5 µg/L	86.1	58.3	111	
EP068: beta-BHC	319-85-7	0.5	µg/L	<0.5	5 µg/L	97.9	69.0	117	
EP068: gamma-BHC	58-89-9	0.5	µg/L	<0.5	5 µg/L	90.3	70.0	112	
EP068: delta-BHC	319-86-8	0.5	µg/L	<0.5	5 µg/L	99.4	68.9	110	
EP068: Heptachlor	76-44-8	0.5	µg/L	<0.5	5 µg/L	84.4	65.2	108	
EP068: Aldrin	309-00-2	0.5	µg/L	<0.5	5 µg/L	86.4	65.8	109	
EP068: Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	5 µg/L	93.1	67.1	107	
EP068: trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	5 µg/L	90.7	64.1	110	
EP068: alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	5 µg/L	95.9	66.7	112	
EP068: cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	5 µg/L	95.0	63.2	111	
EP068: Dieldrin	60-57-1	0.5	µg/L	<0.5	5 µg/L	99.8	65.2	113	
EP068: 4,4'-DDE	72-55-9	0.5	µg/L	<0.5	5 µg/L	96.5	66.0	112	
EP068: Endrin	72-20-8	0.5	µg/L	<0.5	5 µg/L	106	65.2	113	
EP068: beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	5 µg/L	92.3	67.3	114	
EP068: 4,4'-DDD	72-54-8	0.5	µg/L	<0.5	5 µg/L	98.1	72.0	122	
EP068: Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	5 µg/L	97.8	66.9	109	
EP068: Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	5 µg/L	95.4	65.2	112	
EP068: 4,4'-DDT	50-29-3	2	µg/L	<2.0	5 µg/L	107	65.2	112	
EP068: Endrin ketone	53494-70-5	0.5	µg/L	<0.5	5 µg/L	99.8	63.8	110	
EP068: Methoxychlor	72-43-5	2	µg/L	<2.0	5 µg/L	98.0	61.1	114	
EP068B: Organophosphorus Pesticides (OP) (QCLot: 4655976)									
EP068: Dichlorvos	62-73-7	0.5	µg/L	<0.5	5 µg/L	83.6	65.6	114	
EP068: Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	5 µg/L	96.8	63.7	113	
EP068: Monocrotophos	6923-22-4	2	µg/L	<2.0	5 µg/L	24.7	19.7	48.0	
EP068: Dimethoate	60-51-5	0.5	µg/L	<0.5	5 µg/L	96.2	69.5	110	
EP068: Diazinon	333-41-5	0.5	µg/L	<0.5	5 µg/L	96.6	71.1	110	
EP068: Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	5 µg/L	97.9	77.0	119	
EP068: Parathion-methyl	298-00-0	2	µg/L	<2.0	5 µg/L	93.8	70.0	124	
EP068: Malathion	121-75-5	0.5	µg/L	<0.5	5 µg/L	104	68.4	116	
EP068: Fenthion	55-38-9	0.5	µg/L	<0.5	5 µg/L	94.2	68.6	112	
EP068: Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	5 µg/L	93.8	75.0	119	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Acceptable Limits (%)	
						LCS	Low	High	
EP068B: Organophosphorus Pesticides (OP) (QCLot: 4655976) - continued									
EP068: Parathion	56-38-2	2	µg/L	<2.0	5 µg/L	93.0	67.0	121	
EP068: Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	5 µg/L	91.6	69.0	121	
EP068: Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	5 µg/L	90.1	71.8	110	
EP068: Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	5 µg/L	95.6	67.5	112	
EP068: Fenamiphos	22224-92-6	0.5	µg/L	<0.5	5 µg/L	103	64.1	116	
EP068: Prothiofos	34643-46-4	0.5	µg/L	<0.5	5 µg/L	95.7	67.8	114	
EP068: Ethion	563-12-2	0.5	µg/L	<0.5	5 µg/L	96.1	74.0	120	
EP068: Carbophenothion	786-19-6	0.5	µg/L	<0.5	5 µg/L	102	66.2	114	
EP068: Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	5 µg/L	90.8	51.6	128	
EP075(SIM)A: Phenolic Compounds (QCLot: 4655977)									
EP075(SIM): Phenol	108-95-2	1	µg/L	<1.0	5 µg/L	39.3	24.5	61.9	
EP075(SIM): 2-Chlorophenol	95-57-8	1	µg/L	<1.0	5 µg/L	73.1	52.0	90.0	
EP075(SIM): 2-Methylphenol	95-48-7	1	µg/L	<1.0	5 µg/L	70.1	51.0	91.0	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2	µg/L	<2.0	10 µg/L	68.9	44.0	88.0	
EP075(SIM): 2-Nitrophenol	88-75-5	1	µg/L	<1.0	5 µg/L	71.9	48.0	100	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	1	µg/L	<1.0	5 µg/L	68.0	49.0	99.0	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	1	µg/L	<1.0	5 µg/L	80.2	53.0	105	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	1	µg/L	<1.0	5 µg/L	81.0	57.0	105	
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1	µg/L	<1.0	5 µg/L	81.0	53.0	99.0	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	1	µg/L	<1.0	5 µg/L	81.4	50.0	106	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	1	µg/L	<1.0	5 µg/L	88.3	51.0	105	
EP075(SIM): Pentachlorophenol	87-86-5	2	µg/L	<2.0	10 µg/L	82.8	10.0	95.0	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 4655977)									
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	80.9	50.0	94.0	
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	84.5	63.6	114	
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	86.1	62.2	113	
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	87.9	63.9	115	
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	81.8	62.6	116	
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	77.9	64.3	116	
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	87.0	63.6	118	
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	92.5	63.1	118	
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	83.5	64.1	117	
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	91.9	62.5	116	
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	95.1	61.7	119	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	92.2	63.0	115	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	95.0	63.3	117	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	96.4	59.9	118	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	99.1	61.2	117	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Acceptable Limits (%)	
					Concentration	LCS	Low	High	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 4655977) - continued									
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	93.4	59.1	118	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4655975)									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	73.1	53.7	97.0	
EP071: C15 - C28 Fraction	----	100	µg/L	<100	600 µg/L	91.8	63.3	107	
EP071: C29 - C36 Fraction	----	50	µg/L	<50	400 µg/L	109	58.3	120	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4668446)									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	83.8	75.0	127	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4655975)									
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	500 µg/L	73.0	53.9	95.5	
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	700 µg/L	72.8	57.8	110	
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	300 µg/L	102	50.5	115	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4668446)									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	84.6	75.0	127	
EP080: BTEXN (QCLot: 4668446)									
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	91.7	70.0	122	
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	100	69.0	123	
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	101	70.0	120	
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	98.1	69.0	121	
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	104	72.0	122	
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	113	70.0	120	
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4666074)									
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	80.8	72.0	130	
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.25 µg/L	82.8	71.0	127	
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	74.4	68.0	131	
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.25 µg/L	79.8	69.0	134	
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	80.0	65.0	140	
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.25 µg/L	81.0	53.0	142	
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4666074)									
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	82.2	73.0	129	
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	92.8	72.0	129	
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	91.4	72.0	129	
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	89.8	72.0	130	
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	88.8	71.0	133	
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	86.4	69.0	130	
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	82.6	71.0	129	
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	104	69.0	133	
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	89.0	72.0	134	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)	Acceptable Limits (%)	
						LCS	Low	High
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4666074) - continued								
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	86.6	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	120	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4666074)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	112	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	105	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	112	62.6	147
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	85.7	66.0	145
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	108	57.6	145
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	94.2	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	95.2	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4666074)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.25 µg/L	79.8	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.25 µg/L	83.4	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.25 µg/L	87.4	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.25 µg/L	75.8	71.4	144

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	Spike Recovery (%)	Acceptable Limits (%)	
					MS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4664537)							
ES2237973-001	BH7_0.5	EG005T: Arsenic	7440-38-2	50 mg/kg	93.5	70.0	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	92.4	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	93.1	68.0	132
		EG005T: Copper	7440-50-8	250 mg/kg	96.3	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	86.9	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	94.2	70.0	130
		EG005T: Zinc	7440-66-6	250 mg/kg	84.7	66.0	133
ED045G: Chloride by Discrete Analyser (QCLot: 4664529)							
ES2237973-002	BH7_1.0	ED045G: Chloride	16887-00-6	250 mg/kg	99.4	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4664533)							



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: 4664533) - continued							
ES2237877-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	81.1	70.0	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 4656126)							
ES2237552-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	111	70.0	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 4656125)							
ES2237552-001	Anonymous	EP068: gamma-BHC	58-89-9	0.5 mg/kg	85.8	70.0	130
		EP068: Heptachlor	76-44-8	0.5 mg/kg	74.1	70.0	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	87.5	70.0	130
		EP068: Dieldrin	60-57-1	0.5 mg/kg	90.8	70.0	130
		EP068: Endrin	72-20-8	2 mg/kg	73.8	70.0	130
		EP068: 4.4'-DDT	50-29-3	2 mg/kg	73.9	70.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 4656125)							
ES2237552-001	Anonymous	EP068: Diazinon	333-41-5	0.5 mg/kg	88.6	70.0	130
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	82.3	70.0	130
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	83.5	70.0	130
		EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	90.0	70.0	130
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	75.8	70.0	130
EP075(SIM)A: Phenolic Compounds (QCLot: 4656124)							
ES2237552-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	86.2	70.0	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	83.4	70.0	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	80.5	60.0	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	83.7	70.0	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	66.2	20.0	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 4656124)							
ES2237552-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	85.4	70.0	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	92.2	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4656123)							
ES2237552-001	Anonymous	EP071: C10 - C14 Fraction	----	480 mg/kg	90.2	73.0	137
		EP071: C15 - C28 Fraction	----	3100 mg/kg	108	53.0	131
		EP071: C29 - C36 Fraction	----	2060 mg/kg	111	52.0	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4666712)							
ES2237973-001	BH7_0.5	EP080: C6 - C9 Fraction	----	32.5 mg/kg	101	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4656123)							
ES2237552-001	Anonymous	EP071: >C10 - C16 Fraction	----	860 mg/kg	92.6	73.0	137
		EP071: >C16 - C34 Fraction	----	4320 mg/kg	114	53.0	131
		EP071: >C34 - C40 Fraction	----	890 mg/kg	95.5	52.0	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4666712)							



Sub-Matrix: SOIL

				Matrix Spike (MS) Report			
				Spike Concentration	SpikeRecovery(%) MS	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4666712) - continued							
ES2237973-001	BH7_0.5	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	102	70.0	130
EP080: BTEXN (QCLot: 4666712)							
ES2237973-001	BH7_0.5	EP080: Benzene	71-43-2	2.5 mg/kg	96.3	70.0	130
		EP080: Toluene	108-88-3	2.5 mg/kg	92.1	70.0	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	96.2	70.0	130
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	92.9	70.0	130
		EP080: ortho-Xylene	106-42-3	2.5 mg/kg	92.0	70.0	130
		EP080: Naphthalene	95-47-6	2.5 mg/kg	92.0	70.0	130
			91-20-3	2.5 mg/kg	77.5	70.0	130
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4668387)							
ES2237973-001	BH7_0.5	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.00125 mg/kg	84.8	72.0	128
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.00125 mg/kg	115	73.0	123
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00125 mg/kg	102	67.0	130
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.00125 mg/kg	108	70.0	132
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00125 mg/kg	94.8	68.0	136
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.00125 mg/kg	93.6	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4668387)							
ES2237973-001	BH7_0.5	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	107	71.0	135
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	112	69.0	132
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	102	70.0	132
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	116	71.0	131
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	101	69.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.00125 mg/kg	94.8	72.0	129
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.00125 mg/kg	94.8	69.0	133
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.00125 mg/kg	103	64.0	136
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.00125 mg/kg	114	69.0	135
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.00125 mg/kg	80.8	66.0	139
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.00312 mg/kg	110	69.0	133
		EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4668387)					
ES2237973-001	BH7_0.5	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.00125 mg/kg	122	67.0	137
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.00312 mg/kg	124	71.6	129
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.00312 mg/kg	117	69.8	131
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.00312 mg/kg	121	68.7	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.00312 mg/kg	120	65.1	134



Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4668387) - continued							
ES2237973-001	BH7_0.5	EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.00125 mg/kg	116	63.0	144
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.00125 mg/kg	108	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4668387)							
ES2237973-001	BH7_0.5	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00125 mg/kg	92.0	62.0	145
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00125 mg/kg	102	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.00125 mg/kg	110	65.0	137
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.00125 mg/kg	117	69.2	143

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report				
				Spike	SpikeRecovery(%)	Acceptable Limits (%)		
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
EG020F: Dissolved Metals by ICP-MS (QCLot: 4670013)								
ES2237973-017	RB05	EG020A-F: Arsenic	7440-38-2	1 mg/L	108	70.0	130	
		EG020A-F: Cadmium	7440-43-9	0.25 mg/L	111	70.0	130	
		EG020A-F: Chromium	7440-47-3	1 mg/L	112	70.0	130	
		EG020A-F: Copper	7440-50-8	1 mg/L	111	70.0	130	
		EG020A-F: Lead	7439-92-1	1 mg/L	112	70.0	130	
		EG020A-F: Nickel	7440-02-0	1 mg/L	111	70.0	130	
		EG020A-F: Zinc	7440-66-6	1 mg/L	111	70.0	130	
EG035F: Dissolved Mercury by FIMS (QCLot: 4670012)								
ES2237973-016	RB04	EG035F: Mercury	7439-97-6	0.01 mg/L	88.7	70.0	130	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4668446)								
ES2237973-016	RB04	EP080: C6 - C9 Fraction	----	325 µg/L	94.0	70.0	130	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4668446)								
ES2237973-016	RB04	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	99.0	70.0	130	
EP080: BTEXN (QCLot: 4668446)								
ES2237973-016	RB04	EP080: Benzene	71-43-2	25 µg/L	95.3	70.0	130	
		EP080: Toluene	108-88-3	25 µg/L	105	70.0	130	
		EP080: Ethylbenzene	100-41-4	25 µg/L	112	70.0	130	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	107	70.0	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	25 µg/L	113	70.0	130	
	91-20-3	25 µg/L	121	70.0	130			

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: ES2237973	Page	: 1 of 16
Client	: KLEINFELDER AUSTRALIA PTY LTD	Laboratory	: Environmental Division Sydney
Contact	: J Roby	Telephone	: +6138549 9609
Project	: 20232402	Date Samples Received	: 21-Oct-2022
Site	: UON Gosford	Issue Date	: 03-Nov-2022
Sampler	: Jai Roby	No. of samples received	: 17
Order number	: ----	No. of samples analysed	: 17

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.
- **NO** Matrix Spike outliers occur.
- Surrogate recovery outliers exist for all regular sample matrices - please see following pages for full details.

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

- Quality Control Sample Frequency Outliers exist - please see following pages for full details.



Regular Sample Surrogates

Sub-Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Samples Submitted							
EP068T: Organophosphorus Pesticide Surrogate	ES2237973-017	RB05	DEF	78-48-8	65.3 %	66.5-111 %	Recovery less than lower data quality objective
EP068T: Organophosphorus Pesticide Surrogate	ES2237973-018	TB_211022	DEF	78-48-8	62.5 %	66.5-111 %	Recovery less than lower data quality objective

Outliers : Analysis Holding Time Compliance

Matrix: **SOIL**

Method	Extraction / Preparation			Analysis			
	Container / Client Sample ID(s)	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EA002: pH 1:5 (Soils)							
Soil Glass Jar - Unpreserved BH7_1.0, BH7_4.0, BH6_1.0,	BH7_3.0, BH7_6.0, BH6_4.0	---	---	---	28-Oct-2022	27-Oct-2022	1
EA033-A: Actual Acidity							
Soil Glass Jar - Unpreserved BH6_2.0, BH6_4.0	BH6_3.0,	02-Nov-2022	22-Oct-2022	11	---	---	---
EA033-B: Potential Acidity							
Soil Glass Jar - Unpreserved BH6_2.0, BH6_4.0	BH6_3.0,	02-Nov-2022	22-Oct-2022	11	---	---	---
EA033-C: Acid Neutralising Capacity							
Soil Glass Jar - Unpreserved BH6_2.0, BH6_4.0	BH6_3.0,	02-Nov-2022	22-Oct-2022	11	---	---	---
EA033-D: Retained Acidity							
Soil Glass Jar - Unpreserved BH6_2.0, BH6_4.0	BH6_3.0,	02-Nov-2022	22-Oct-2022	11	---	---	---
EA033-E: Acid Base Accounting							
Soil Glass Jar - Unpreserved BH6_2.0, BH6_4.0	BH6_3.0,	02-Nov-2022	22-Oct-2022	11	---	---	---
EA037: Ass Field Screening Analysis							
Soil Glass Jar - Unpreserved BH6_2.0, BH6_4.0	BH6_3.0,	31-Oct-2022	22-Oct-2022	9	31-Oct-2022	22-Oct-2022	9

Outliers : Frequency of Quality Control Samples



Matrix: **WATER**

Quality Control Sample Type Method	Count		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)					
PAH/Phenols (GC/MS - SIM)	0	5	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	15	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	0	5	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	0	5	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	5	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
PAH/Phenols (GC/MS - SIM)	0	5	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	15	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	0	5	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	0	5	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	5	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

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			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EA002: pH 1:5 (Soils)								
Soil Glass Jar - Unpreserved (EA002)								
BH7_1.0, BH7_4.0, BH6_1.0	BH7_3.0, BH7_6.0, BH6_4.0	21-Oct-2022	27-Oct-2022	28-Oct-2022	✓	28-Oct-2022	27-Oct-2022	*
EA010: Conductivity (1:5)								
Soil Glass Jar - Unpreserved (EA010)								
BH7_1.0, BH7_4.0, BH6_1.0	BH7_3.0, BH7_6.0, BH6_4.0	21-Oct-2022	27-Oct-2022	28-Oct-2022	✓	28-Oct-2022	24-Nov-2022	✓



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-A: Actual Acidity								
Snap Lock Bag - frozen (EA033) BH7_1.0, BH7_3.0, BH7_5.0, BH7_7.0, BH7_2.0, BH7_4.0, BH7_6.0, BH6_1.0	21-Oct-2022	02-Nov-2022	21-Oct-2023	✔	02-Nov-2022	31-Jan-2023	✔	
Soil Glass Jar - Unpreserved (EA033) BH6_2.0, BH6_4.0, BH6_3.0	21-Oct-2022	02-Nov-2022	22-Oct-2022	✘	02-Nov-2022	31-Jan-2023	✔	
EA033-B: Potential Acidity								
Snap Lock Bag - frozen (EA033) BH7_1.0, BH7_3.0, BH7_5.0, BH7_7.0, BH7_2.0, BH7_4.0, BH7_6.0, BH6_1.0	21-Oct-2022	02-Nov-2022	21-Oct-2023	✔	02-Nov-2022	31-Jan-2023	✔	
Soil Glass Jar - Unpreserved (EA033) BH6_2.0, BH6_4.0, BH6_3.0	21-Oct-2022	02-Nov-2022	22-Oct-2022	✘	02-Nov-2022	31-Jan-2023	✔	
EA033-C: Acid Neutralising Capacity								
Snap Lock Bag - frozen (EA033) BH7_1.0, BH7_3.0, BH7_5.0, BH7_7.0, BH7_2.0, BH7_4.0, BH7_6.0, BH6_1.0	21-Oct-2022	02-Nov-2022	21-Oct-2023	✔	02-Nov-2022	31-Jan-2023	✔	
Soil Glass Jar - Unpreserved (EA033) BH6_2.0, BH6_4.0, BH6_3.0	21-Oct-2022	02-Nov-2022	22-Oct-2022	✘	02-Nov-2022	31-Jan-2023	✔	
EA033-D: Retained Acidity								
Snap Lock Bag - frozen (EA033) BH7_1.0, BH7_3.0, BH7_5.0, BH7_7.0, BH7_2.0, BH7_4.0, BH7_6.0, BH6_1.0	21-Oct-2022	02-Nov-2022	21-Oct-2023	✔	02-Nov-2022	31-Jan-2023	✔	
Soil Glass Jar - Unpreserved (EA033) BH6_2.0, BH6_4.0, BH6_3.0	21-Oct-2022	02-Nov-2022	22-Oct-2022	✘	02-Nov-2022	31-Jan-2023	✔	



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) BH7_1.0, BH7_3.0, BH7_5.0, BH7_7.0, BH7_2.0, BH7_4.0, BH7_6.0, BH6_1.0	21-Oct-2022	02-Nov-2022	21-Oct-2023	✔	02-Nov-2022	31-Jan-2023	✔
Soil Glass Jar - Unpreserved (EA033) BH6_2.0, BH6_4.0, BH6_3.0	21-Oct-2022	02-Nov-2022	22-Oct-2022	✘	02-Nov-2022	31-Jan-2023	✔
EA037: Ass Field Screening Analysis							
Snap Lock Bag - frozen (EA037) BH7_1.0, BH7_3.0, BH7_2.0, BH6_1.0	21-Oct-2022	31-Oct-2022	19-Apr-2023	✔	31-Oct-2022	19-Apr-2023	✔
Soil Glass Jar - Unpreserved (EA037) BH6_2.0, BH6_4.0, BH6_3.0	21-Oct-2022	31-Oct-2022	22-Oct-2022	✘	31-Oct-2022	22-Oct-2022	✘
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055) BH7_0.5, BH7_3.0, BH7_6.0, BH6_1.0, QC02, BH7_1.0, BH7_4.0, BH6_0.5, BH6_4.0	21-Oct-2022	----	----	----	27-Oct-2022	04-Nov-2022	✔
EA200: AS 4964 - 2004 Identification of Asbestos in Soils							
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200) BH7_0.5, BH6_0.5	21-Oct-2022	----	----	----	25-Oct-2022	19-Apr-2023	✔
ED040S: Soluble Major Anions							
Soil Glass Jar - Unpreserved (ED040S) BH7_1.0, BH7_4.0, BH6_1.0, BH7_3.0, BH7_6.0, BH6_4.0	21-Oct-2022	27-Oct-2022	18-Nov-2022	✔	28-Oct-2022	24-Nov-2022	✔
ED045G: Chloride by Discrete Analyser							
Soil Glass Jar - Unpreserved (ED045G) BH7_1.0, BH7_4.0, BH6_1.0, BH7_3.0, BH7_6.0, BH6_4.0	21-Oct-2022	27-Oct-2022	18-Nov-2022	✔	28-Oct-2022	24-Nov-2022	✔
EG005(ED093)T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T) BH7_0.5, BH7_4.0, BH6_0.5, BH6_4.0, BH7_1.0, BH7_6.0, BH6_1.0, QC02	21-Oct-2022	27-Oct-2022	19-Apr-2023	✔	27-Oct-2022	19-Apr-2023	✔



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	
EG035T: Total Recoverable Mercury by FIMS								
Soil Glass Jar - Unpreserved (EG035T) BH7_0.5, BH7_4.0, BH6_0.5, BH6_4.0, BH7_1.0, BH7_6.0, BH6_1.0, QC02	21-Oct-2022	27-Oct-2022	18-Nov-2022	✓	27-Oct-2022	18-Nov-2022	✓	
EP066: Polychlorinated Biphenyls (PCB)								
Soil Glass Jar - Unpreserved (EP066) BH7_0.5, BH6_0.5, BH7_6.0, QC02	21-Oct-2022	27-Oct-2022	04-Nov-2022	✓	31-Oct-2022	06-Dec-2022	✓	
EP068A: Organochlorine Pesticides (OC)								
Soil Glass Jar - Unpreserved (EP068) BH7_0.5, BH6_0.5, BH7_6.0, QC02	21-Oct-2022	27-Oct-2022	04-Nov-2022	✓	31-Oct-2022	06-Dec-2022	✓	
EP068B: Organophosphorus Pesticides (OP)								
Soil Glass Jar - Unpreserved (EP068) BH7_0.5, BH6_0.5, BH7_6.0, QC02	21-Oct-2022	27-Oct-2022	04-Nov-2022	✓	31-Oct-2022	06-Dec-2022	✓	
EP075(SIM)A: Phenolic Compounds								
Soil Glass Jar - Unpreserved (EP075(SIM)) BH7_0.5, BH7_4.0, BH6_0.5, BH6_4.0, BH7_1.0, BH7_6.0, BH6_1.0, QC02	21-Oct-2022	27-Oct-2022	04-Nov-2022	✓	28-Oct-2022	06-Dec-2022	✓	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP075(SIM)) BH7_0.5, BH7_4.0, BH6_0.5, BH6_4.0, BH7_1.0, BH7_6.0, BH6_1.0, QC02	21-Oct-2022	27-Oct-2022	04-Nov-2022	✓	28-Oct-2022	06-Dec-2022	✓	
EP080/071: Total Petroleum Hydrocarbons								
Soil Glass Jar - Unpreserved (EP071) BH7_0.5, BH7_4.0, BH6_0.5, BH6_4.0, BH7_1.0, BH7_6.0, BH6_1.0, QC02	21-Oct-2022	27-Oct-2022	04-Nov-2022	✓	28-Oct-2022	06-Dec-2022	✓	
Soil Glass Jar - Unpreserved (EP080) BH7_0.5, BH7_4.0, BH6_0.5, BH6_4.0, BH7_1.0, BH7_6.0, BH6_1.0, QC02	21-Oct-2022	28-Oct-2022	04-Nov-2022	✓	01-Nov-2022	04-Nov-2022	✓	



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 (EP071)								
BH7_0.5, BH7_4.0, BH6_0.5, BH6_4.0	BH7_1.0, BH7_6.0, BH6_1.0, QC02	21-Oct-2022	27-Oct-2022	04-Nov-2022	✓	28-Oct-2022	06-Dec-2022	✓
Soil Glass Jar - Unpreserved (EP080)								
BH7_0.5, BH7_4.0, BH6_0.5, BH6_4.0	BH7_1.0, BH7_6.0, BH6_1.0, QC02	21-Oct-2022	28-Oct-2022	04-Nov-2022	✓	01-Nov-2022	04-Nov-2022	✓
EP080: BTEXN								
Soil Glass Jar - Unpreserved (EP080)								
BH7_0.5, BH7_4.0, BH6_0.5, BH6_4.0	BH7_1.0, BH7_6.0, BH6_1.0, QC02	21-Oct-2022	28-Oct-2022	04-Nov-2022	✓	01-Nov-2022	04-Nov-2022	✓
EP231A: Perfluoroalkyl Sulfonic Acids								
HDPE Soil Jar (EP231X)								
BH7_0.5, QC02	BH6_0.5	21-Oct-2022	28-Oct-2022	19-Apr-2023	✓	31-Oct-2022	07-Dec-2022	✓
EP231B: Perfluoroalkyl Carboxylic Acids								
HDPE Soil Jar (EP231X)								
BH7_0.5, QC02	BH6_0.5	21-Oct-2022	28-Oct-2022	19-Apr-2023	✓	31-Oct-2022	07-Dec-2022	✓
EP231C: Perfluoroalkyl Sulfonamides								
HDPE Soil Jar (EP231X)								
BH7_0.5, QC02	BH6_0.5	21-Oct-2022	28-Oct-2022	19-Apr-2023	✓	31-Oct-2022	07-Dec-2022	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
HDPE Soil Jar (EP231X)								
BH7_0.5, QC02	BH6_0.5	21-Oct-2022	28-Oct-2022	19-Apr-2023	✓	31-Oct-2022	07-Dec-2022	✓
EP231P: PFAS Sums								
HDPE Soil Jar (EP231X)								
BH7_0.5, QC02	BH6_0.5	21-Oct-2022	28-Oct-2022	19-Apr-2023	✓	31-Oct-2022	07-Dec-2022	✓

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



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	
EG020F: Dissolved Metals by ICP-MS								
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F) RB04, TB_211022	RB05,	21-Oct-2022	----	----	----	31-Oct-2022	19-Apr-2023	✓
EG035F: Dissolved Mercury by FIMS								
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F) RB04, TB_211022	RB05,	21-Oct-2022	----	----	----	31-Oct-2022	18-Nov-2022	✓
EP066: Polychlorinated Biphenyls (PCB)								
Amber Glass Bottle - Unpreserved (EP066) RB04, TB_211022	RB05,	21-Oct-2022	25-Oct-2022	28-Oct-2022	✓	27-Oct-2022	04-Dec-2022	✓
EP068A: Organochlorine Pesticides (OC)								
Amber Glass Bottle - Unpreserved (EP068) RB04, TB_211022	RB05,	21-Oct-2022	25-Oct-2022	28-Oct-2022	✓	27-Oct-2022	04-Dec-2022	✓
EP068B: Organophosphorus Pesticides (OP)								
Amber Glass Bottle - Unpreserved (EP068) RB04, TB_211022	RB05,	21-Oct-2022	25-Oct-2022	28-Oct-2022	✓	27-Oct-2022	04-Dec-2022	✓
EP075(SIM)A: Phenolic Compounds								
Amber Glass Bottle - Unpreserved (EP075(SIM)) RB04, TB_211022	RB05,	21-Oct-2022	25-Oct-2022	28-Oct-2022	✓	27-Oct-2022	04-Dec-2022	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP075(SIM)) RB04, TB_211022	RB05,	21-Oct-2022	25-Oct-2022	28-Oct-2022	✓	27-Oct-2022	04-Dec-2022	✓
EP080/071: Total Petroleum Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP071) RB04, TB_211022	RB05,	21-Oct-2022	25-Oct-2022	28-Oct-2022	✓	27-Oct-2022	04-Dec-2022	✓
Amber VOC Vial - Sulfuric Acid (EP080) RB04, TB_211022	RB05,	21-Oct-2022	31-Oct-2022	04-Nov-2022	✓	31-Oct-2022	04-Nov-2022	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
Amber Glass Bottle - Unpreserved (EP071) RB04, TB_211022	RB05,	21-Oct-2022	25-Oct-2022	28-Oct-2022	✓	27-Oct-2022	04-Dec-2022	✓
Amber VOC Vial - Sulfuric Acid (EP080) RB04, TB_211022	RB05,	21-Oct-2022	31-Oct-2022	04-Nov-2022	✓	31-Oct-2022	04-Nov-2022	✓



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	
EP080: BTEXN								
Amber VOC Vial - Sulfuric Acid (EP080) RB04, TB_211022	RB05,	21-Oct-2022	31-Oct-2022	04-Nov-2022	✓	31-Oct-2022	04-Nov-2022	✓
EP231A: Perfluoroalkyl Sulfonic Acids								
HDPE (no PTFE) (EP231X) RB04,	TB_211022	21-Oct-2022	28-Oct-2022	19-Apr-2023	✓	31-Oct-2022	19-Apr-2023	✓
EP231B: Perfluoroalkyl Carboxylic Acids								
HDPE (no PTFE) (EP231X) RB04,	TB_211022	21-Oct-2022	28-Oct-2022	19-Apr-2023	✓	31-Oct-2022	19-Apr-2023	✓
EP231C: Perfluoroalkyl Sulfonamides								
HDPE (no PTFE) (EP231X) RB04,	TB_211022	21-Oct-2022	28-Oct-2022	19-Apr-2023	✓	31-Oct-2022	19-Apr-2023	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
HDPE (no PTFE) (EP231X) RB04,	TB_211022	21-Oct-2022	28-Oct-2022	19-Apr-2023	✓	31-Oct-2022	19-Apr-2023	✓
EP231P: PFAS Sums								
HDPE (no PTFE) (EP231X) RB04,	TB_211022	21-Oct-2022	28-Oct-2022	19-Apr-2023	✓	31-Oct-2022	19-Apr-2023	✓



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	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
Analytical Methods							
Laboratory Duplicates (DUP)							
ASS Field Screening Analysis	EA037	3	22	13.64	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Chloride Soluble By Discrete Analyser	ED045G	1	9	11.11	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Chromium Suite for Acid Sulphate Soils	EA033	3	27	11.11	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Electrical Conductivity (1:5)	EA010	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Major Anions - Soluble	ED040S	1	9	11.11	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055	2	20	10.00	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
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	20	10.00	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	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	8	12.50	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	11	18.18	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	10	10.00	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	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Chloride Soluble By Discrete Analyser	ED045G	2	9	22.22	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Chromium Suite for Acid Sulphate Soils	EA033	2	27	7.41	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Electrical Conductivity (1:5)	EA010	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Major Anions - Soluble	ED040S	1	9	11.11	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
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	5.00	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	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	8	12.50	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	11	9.09	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	10	10.00	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	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Chloride Soluble By Discrete Analyser	ED045G	1	9	11.11	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Chromium Suite for Acid Sulphate Soils	EA033	2	27	7.41	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Electrical Conductivity (1:5)	EA010	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Major Anions - Soluble	ED040S	1	9	11.11	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
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	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							
Pesticides by GCMS	EP068	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	8	12.50	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	11	9.09	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	10	10.00	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	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Chloride Soluble By Discrete Analyser	ED045G	1	9	11.11	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
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	5.00	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	8	12.50	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	11	9.09	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	10	10.00	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	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard

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)							
Dissolved Mercury by FIMS	EG035F	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	15	13.33	10.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	5	0.00	10.00	✗	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	15	0.00	10.00	✗	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	5	0.00	10.00	✗	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	5	0.00	10.00	✗	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	5	0.00	10.00	✗	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Dissolved Mercury by FIMS	EG035F	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	15	6.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	5	20.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	15	6.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	5	20.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	5	20.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	5	20.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Dissolved Mercury by FIMS	EG035F	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard



Matrix: **WATER** Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
Analytical Methods							
Method Blanks (MB) - Continued							
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	15	6.67	5.00	✔	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	5	20.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	15	6.67	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	5	20.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	5	20.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	5	20.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Dissolved Mercury by FIMS	EG035F	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	15	6.67	5.00	✔	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	5	0.00	5.00	✖	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	15	0.00	5.00	✖	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	5	0.00	5.00	✖	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	5	0.00	5.00	✖	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	5	0.00	5.00	✖	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	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 (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).
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).
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.
ASS Field Screening Analysis	* EA037	SOIL	In house: Referenced to Acid Sulfate Soils Laboratory Methods Guidelines. As received samples are tested for pH field and pH fox and assessed for a reaction rating.
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).
Resistivity (1:5)	EA080	SOIL	In house: Calculated from Electrical Conductivity
Corrosion Classification for Steel and Concrete Piles	* EA167	SOIL	In house: Exposure classification is determined according to Australian Standard AS2159-2009.
Asbestos Identification in Soils	EA200	SOIL	AS 4964 Method for the qualitative identification of asbestos in bulk samples Analysis by Polarised Light Microscopy including dispersion staining
Major Anions - Soluble	ED040S	SOIL	In house: Soluble Anions are determined off a 1:5 soil / water extract by ICPAES.
Chloride Soluble By Discrete Analyser	ED045G	SOIL	In house: Referenced to APHA 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 (SnCl ₂) (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 SnCl ₂ 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)
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).



Analytical Methods	Method	Matrix	Method Descriptions
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.
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	SOIL	In-house: Analysis of soils by solvent extraction followed by LC-Electrospray-MS-MS, Negative Mode using MRM using internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to a portion of soil which is then extracted with MTBE and an ion pairing reagent. A portion of extract is exchanged into the analytical solvent mixture, combined with an equal volume reagent water and filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. Samples are 0.45µm filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl ₂)(Cold Vapour generation) AAS) Samples are 0.45µm filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ 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).
Polychlorinated Biphenyls (PCB)	EP066	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample 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	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample 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)
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015 The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS in SIM Mode 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	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM Schedule B(3)
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
Drying only	EN020D	SOIL	In house
Drying at 85 degrees, bagging and labelling (ASS)	EN020PR	SOIL	In house
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.
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).
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.
QuEChERS Extraction of Solids	ORG71	SOIL	In house: Sequential extractions with Acetonitrile/Methanol by shaking. Extraction efficiency aided by the addition of salts under acidic conditions. Where relevant, interferences from co-extracted organics are removed with dispersive clean-up media (dSPE). The extract is either diluted or concentrated and exchanged into the analytical solvent.
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for purging.
Solid Phase Extraction (SPE) for PFAS in water	ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.



EA033a EA033b Brisbane
KLEINFELDER
Right Results. Right Solutions.

Subcon: Forward Lab / Split WO
 Lab / Analysis:
 Organised By / Date:
 Relinquished By / Date:

Client: Kleinfelder Australia Pty Ltd Suite 3, 240 - 244 Pacific Highway Charlestown NSW 2290 Phone: 02 4949 5200	SITE, COC AND CONTACT DATA			
	Site Name:	UON Gosford	Sampler Name:	Jai Roby
	QUOTE NUMBER		Contact Number:	0401499275
	Job No.:	20232407	Contact e-mail:	jrob@kleinfelder.com
	Required TAT:	24 hrs 48 hrs 3 days 5 days 7 days	PM name (if not sampler):	Mal Anrien
Data QA level:	LAB minimum unless specified:		PM e-mail:	MalAnrien@kleinfelder.com

Connote / Courier Laboratory: ALS
 WO No: 5585 Mailland-Rd
 Attached By: [Signature] Method Sheet: Mayfield West Newcastle NSW 2304
 Phone: (02) 4014 2500

CHAIN OF CUSTODY	
Relinquished by (print): Jai Roby (sign): [Signature]	Received by (print): [Signature] (sign): [Signature]
Date / Time: 11/11/22 8:00 AM	Date / Time: 11/11/22 8:00 AM
Temp. (°C): 21°C	Temp. (°C): 21°C
Notes: ice present / no ice seals intact / no seal	Notes: ice present / no ice seals intact / no seal

Send Results to:
 Madriem@kleinfelder.com
 gloustons@kleinfelder.com
 newcastle@kleinfelder.com
 Phone: 02 4949 5200

Sample ID	Lab ID	Sample Point	Sample Type	Date	Start Depth	End Depth	Units	# Containers	Organic Analytes		Metals		Other Analytes					Comments
									S-19	S-27	S-1	Asbestos - EA200G	Chromium Suite - EA033	PFAS - 29 Analytes - EP231X	PH Fox - EA037	Soil Aggregability		
HA02-0.3	1		Soil	10/11/22				2	X		X	X						
HA02-0.6	2							3		X			X					
HA02-1.0	3							1		X								
HA05-0.3	4							2	X			X						
HA05-0.7	5							3		X			X	X				
HA05-1.5	6							1		X								
BH8-0.5	7							2	X		X	X						
BH8-1.0	8							2					X		X	X		
BH8-2.0	9							3		X			X	X	X			
BH8-3.0	10							1					X		X			
BH8-4.0	11							1					X		X		Hold class for	
BH8-5.0	12							2					X		X	X		
BH8-6.0	13							2		X	X		X		X			
BH8-7.0	14							1					X		X			
BH8-8.0	15							1					X		X			
BH8-9.0	16							1					X		X			
BH8-10.0	17							1					X		X			

Environmental Division
 Sydney
 Work Order Reference
ES2240772



Telephone: +61-2-9734 6566

S-19 = TRHC6-C40Y/BTEXN/PAH/COC/OP/WH 8 Metals**
 S-1 = 7 Metals**
 S-27 = TRHC6-C40Y/BTEXN/PAH/Phenols & 8 metals**



Client: Kleinfelder Australia Pty Ltd Suite 3, 240 - 244 Pacific Highway Charlestown NSW 2290 Phone: 02 4949 5200		SITE, COC AND CONTACT DATA				Laboratory: ALS 5/585 Maitland Rd Mayfield West, Newcastle NSW 2304 Phone: (02) 4014 2500												
Site Name: UON Gosford QUOTE NUMBER: Job No.: 20232408 Required TAT: 24 hrs 48 hrs 3 days 5 days 7 days Data QA level: LAB minimum unless specified		Sampler Name: Jai Roby Contact Number: 0401499275 Contact e-mail: jrob@kleinfelder.com PM name (if not sampler): Mal Adison PM e-mail: MalAdison@kleinfelder.com		Send Results to: Medien@kleinfelder.com dkousbrook@kleinfelder.com newcastle@kleinfelder.com Phone: 02 4949 5200														
Relinquished by (print): Jai Roby (sign): <i>[Signature]</i> Date / Time: 11/11/22 8:00am Notes:		Received by (print): <i>[Signature]</i> (sign): <i>[Signature]</i> Date / Time: 11/11/22 8:05 Temp. (°C): 2.1°C Notes: ice present / no ice seals intact / no seal		Relinquished: <i>[Signature]</i> (sign): <i>[Signature]</i> Date / Time: 11/11/22 5:00 Notes:		Received by: <i>[Signature]</i> (sign): <i>[Signature]</i> Date / Time: 11/11/22 2:30 PM Notes: ice present / no ice seals intact / no seal												
Sample ID	Lab ID	Sample Point	Sample Type	Date	Start Depth	End Depth	Units	# Containers	Organic Analytes			Metals			Other Analytes			Comments
									S-19	S-27		S-1			Asbestos - EA200G	Chromium Suite EA033	PFAS - 28 Analytes EP231X	
BH8-11.0	18		Soil	10/11/22				1						X		X		
BH8-12.0	19		Soil	↓				1	X					X		X		
RB05	20		RW	↓				6	X						X			
TB-10/11/22	21		RW	↓				6	X						X			

S-19 = TRH(C6-C40)/BTEXN/PAH/OC/OP/PCB, 8 Metals**
 S-1 = 7 Metals**
 S-27 = TRH(C6-C40)/BTEXN/PAH/Phenols & 8 metals ***



CERTIFICATE OF ANALYSIS

Work Order : ES2240772
Client : KLEINFELDER AUSTRALIA PTY LTD
Contact : J Roby
Address : 95 MITCHELL ROAD
CARDIFF NSW 2285
Telephone : ----
Project : 20232408
Order number : ----
C-O-C number : ----
Sampler : Jai Roby
Site : UON Gosford
Quote number : EN/222
No. of samples received : 21
No. of samples analysed : 21

Page : 1 of 31
Laboratory : Environmental Division Sydney
Contact : Graeme Jablonskas
Address : 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone : +6138549 9609
Date Samples Received : 11-Nov-2022 08:06
Date Analysis Commenced : 14-Nov-2022
Issue Date : 22-Nov-2022 18:42



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
Descriptive 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.

Table with 3 columns: Signatories, Position, Accreditation Category. Lists names like Alana Smylie, Ankit Joshi, Ben Felgendrejeris, Edwandy Fadjjar, Franco Lentini and their respective roles and accreditation locations.



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.

- EP075 (SIM): Where reported, 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.
- 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.
- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- 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.
- Corrosion assessment for Concrete and Steel piles in soil per Australian Standard AS2159-2009 uses a combination of soil and groundwater data (Tables 6.4.2 C & 6.5.2 C). In the absence of groundwater data, assessment has been made against soil criteria only. Refer to AS2159-2009 section 6.4 for further interpretation of corrosion assessment. ALS is not NATA accredited for Corrosion Assessment comments
- EA167: Soil Condition A – High permeability soils (e.g. sands and gravels) which are in groundwater
- EA167: Soil Condition B – Low permeability soils (e.g. silts and clays) or all soils above groundwater
- EG005T: Poor precision was obtained for Copper and Zinc on sample EP2215380 # 027. Confirmed by re-digestion and reanalysis.
- 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: EA037 (Rapid Field and F(ox) screening): pH F(ox) Reaction Rate: 1 - Slight; 2 - Moderate; 3 - Strong; 4 - Extreme
- 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'.
- EA037 ASS Field Screening: NATA accreditation does not cover performance of this service.
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Trace' - Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres



- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
 - EA200 Legend
 - EA200 'Ch' Chrysotile (white asbestos)
 - EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
 - EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2
 - EA200: 'Yes' - Asbestos detected by polarised light microscopy including dispersion staining.
 - EA200: 'No*' - No asbestos found, at the reporting limit of 0.1g/kg, by polarised light microscopy including dispersion staining. Asbestos material was detected and positively identified at concentrations estimated to be below 0.1g/kg.
 - EA200: 'No' - No asbestos found at the reporting limit 0.1g/kg, by polarised light microscopy including dispersion staining.
 - EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.
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Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	HA02_0.3	HA02_0.6	HA02_1.0	HA05_0.3	HA05_0.7
Sampling date / time				10-Nov-2022 00:00	10-Nov-2022 00:00	10-Nov-2022 00:00	10-Nov-2022 00:00	10-Nov-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2240772-001	ES2240772-002	ES2240772-003	ES2240772-004	ES2240772-005	
				Result	Result	Result	Result	Result	
EA033-A: Actual Acidity									
pH KCl (23A)	----	0.1	pH Unit	----	4.3	----	----	5.1	
Titration Actual Acidity (23F)	----	2	mole H+ / t	----	130	----	----	15	
sulfidic - Titration Actual Acidity (s-23F)	----	0.02	% pyrite S	----	0.21	----	----	0.02	
EA033-B: Potential Acidity									
Chromium Reducible Sulfur (22B)	----	0.005	% S	----	0.013	----	----	0.013	
acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	----	<10	----	----	<10	
EA033-D: Retained Acidity									
KCl Extractable Sulfur (23Ce)	----	0.02	% S	----	0.03	----	----	----	
HCl Extractable Sulfur (20Be)	----	0.02	% S	----	0.04	----	----	----	
Net Acid Soluble Sulfur (20Je)	----	0.02	% S	----	<0.02	----	----	----	
acidity - Net Acid Soluble Sulfur (a-20J)	----	10	mole H+ / t	----	<10	----	----	----	
sulfidic - Net Acid Soluble Sulfur (s-20J)	----	0.02	% pyrite S	----	<0.02	----	----	----	
EA033-E: Acid Base Accounting									
ANC Fineness Factor	----	0.5	-	----	1.5	----	----	1.5	
Net Acidity (sulfur units)	----	0.02	% S	----	0.22	----	----	0.04	
Net Acidity (acidity units)	----	10	mole H+ / t	----	140	----	----	24	
Liming Rate	----	1	kg CaCO3/t	----	10	----	----	2	
Net Acidity excluding ANC (sulfur units)	----	0.02	% S	----	0.22	----	----	0.04	
Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	----	140	----	----	24	
Liming Rate excluding ANC	----	1	kg CaCO3/t	----	10	----	----	2	
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%	9.7	17.7	20.6	13.7	10.3	
EA200: AS 4964 - 2004 Identification of Asbestos in Soils									
Asbestos Detected	1332-21-4	0.1	g/kg	No	----	----	No	----	
Asbestos (Trace)	1332-21-4	5	Fibres	No	----	----	No	----	
Asbestos Type	1332-21-4	-	--	-	----	----	-	----	
Sample weight (dry)	----	0.01	g	275	----	----	282	----	
APPROVED IDENTIFIER:	----	-	--	A. SMYLLIE	----	----	A. SMYLLIE	----	
Synthetic Mineral Fibre	----	0.1	-	No	----	----	No	----	
Organic Fibre	----	0.1	-	No	----	----	No	----	
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg	<5	<5	10	<5	<5	
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	HA02_0.3	HA02_0.6	HA02_1.0	HA05_0.3	HA05_0.7
Sampling date / time				10-Nov-2022 00:00	10-Nov-2022 00:00	10-Nov-2022 00:00	10-Nov-2022 00:00	10-Nov-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2240772-001	ES2240772-002	ES2240772-003	ES2240772-004	ES2240772-005	
				Result	Result	Result	Result	Result	
EG005(ED093)T: Total Metals by ICP-AES - Continued									
Chromium	7440-47-3	2	mg/kg	10	21	23	10	4	
Copper	7440-50-8	5	mg/kg	19	<5	<5	28	<5	
Lead	7439-92-1	5	mg/kg	<5	10	14	10	7	
Nickel	7440-02-0	2	mg/kg	34	<2	<2	39	<2	
Zinc	7440-66-6	5	mg/kg	17	<5	<5	27	7	
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	
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	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	----	----	2.71	----	
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	----	----	<0.05	----	
^ Total Chlordane (sum)	----	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	----	----	1.23	----	
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	----	
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	<0.05	----	----	3.94	----	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	HA02_0.3	HA02_0.6	HA02_1.0	HA05_0.3	HA05_0.7
Sampling date / time				10-Nov-2022 00:00	10-Nov-2022 00:00	10-Nov-2022 00:00	10-Nov-2022 00:00	10-Nov-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2240772-001	ES2240772-002	ES2240772-003	ES2240772-004	ES2240772-005	
				Result	Result	Result	Result	Result	
EP068A: Organochlorine Pesticides (OC) - Continued									
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/5 0-2	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	----	
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	----	
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	<1	
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	HA02_0.3	HA02_0.6	HA02_1.0	HA05_0.3	HA05_0.7
Sampling date / time				10-Nov-2022 00:00	10-Nov-2022 00:00	10-Nov-2022 00:00	10-Nov-2022 00:00	10-Nov-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2240772-001	ES2240772-002	ES2240772-003	ES2240772-004	ES2240772-005	
				Result	Result	Result	Result	Result	
EP075(SIM)A: Phenolic Compounds - Continued									
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	
Benzo(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	
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	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	HA02_0.3	HA02_0.6	HA02_1.0	HA05_0.3	HA05_0.7
Sampling date / time				10-Nov-2022 00:00	10-Nov-2022 00:00	10-Nov-2022 00:00	10-Nov-2022 00:00	10-Nov-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2240772-001	ES2240772-002	ES2240772-003	ES2240772-004	ES2240772-005	
				Result	Result	Result	Result	Result	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
^ >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
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
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
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)				375-73-5	0.0002	mg/kg	----	<0.0002	----
Perfluoropentane sulfonic acid (PFPeS)				2706-91-4	0.0002	mg/kg	----	<0.0002	----
Perfluorohexane sulfonic acid (PFHxS)				355-46-4	0.0002	mg/kg	----	<0.0002	----
Perfluoroheptane sulfonic acid (PFHpS)				375-92-8	0.0002	mg/kg	----	<0.0002	----
Perfluorooctane sulfonic acid (PFOS)				1763-23-1	0.0002	mg/kg	----	<0.0002	----
Perfluorodecane sulfonic acid (PFDS)				335-77-3	0.0002	mg/kg	----	<0.0002	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)				375-22-4	0.001	mg/kg	----	<0.001	----
Perfluoropentanoic acid (PFPeA)				2706-90-3	0.0002	mg/kg	----	<0.0002	----
Perfluorohexanoic acid (PFHxA)				307-24-4	0.0002	mg/kg	----	<0.0002	----
Perfluoroheptanoic acid (PFHpA)				375-85-9	0.0002	mg/kg	----	<0.0002	----
Perfluorooctanoic acid (PFOA)				335-67-1	0.0002	mg/kg	----	<0.0002	----
Perfluorononanoic acid (PFNA)				375-95-1	0.0002	mg/kg	----	<0.0002	----
Perfluorodecanoic acid (PFDA)				335-76-2	0.0002	mg/kg	----	<0.0002	----
Perfluoroundecanoic acid (PFUnDA)				2058-94-8	0.0002	mg/kg	----	<0.0002	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	HA02_0.3	HA02_0.6	HA02_1.0	HA05_0.3	HA05_0.7
Sampling date / time				10-Nov-2022 00:00	10-Nov-2022 00:00	10-Nov-2022 00:00	10-Nov-2022 00:00	10-Nov-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2240772-001	ES2240772-002	ES2240772-003	ES2240772-004	ES2240772-005	
				Result	Result	Result	Result	Result	
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	----	<0.0002	----	----	<0.0002	
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	----	<0.0002	----	----	<0.0002	
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	----	<0.0005	----	----	<0.0005	
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	----	<0.0002	----	----	<0.0002	
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	----	<0.0005	----	----	<0.0005	
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	----	<0.0005	----	----	<0.0005	
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	----	<0.0005	----	----	<0.0005	
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	----	<0.0005	----	----	<0.0005	
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	----	<0.0002	----	----	<0.0002	
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	----	<0.0002	----	----	<0.0002	
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	----	<0.0005	----	----	<0.0005	
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	----	<0.0005	----	----	<0.0005	
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	----	<0.0005	----	----	<0.0005	
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	----	<0.0005	----	----	<0.0005	
EP231P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg	----	<0.0002	----	----	<0.0002	
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	----	<0.0002	----	----	<0.0002	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	HA02_0.3	HA02_0.6	HA02_1.0	HA05_0.3	HA05_0.7
Sampling date / time				10-Nov-2022 00:00	10-Nov-2022 00:00	10-Nov-2022 00:00	10-Nov-2022 00:00	10-Nov-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2240772-001	ES2240772-002	ES2240772-003	ES2240772-004	ES2240772-005	
				Result	Result	Result	Result	Result	
EP231P: PFAS Sums - Continued									
Sum of PFAS (WA DER List)	----	0.0002	mg/kg	----	<0.0002	----	----	<0.0002	
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%	79.0	----	----	83.0	----	
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%	102	----	----	110	----	
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%	80.1	----	----	83.1	----	
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%	93.4	81.6	93.1	90.7	94.7	
2-Chlorophenol-D4	93951-73-6	0.5	%	81.3	91.2	96.1	81.3	104	
2,4,6-Tribromophenol	118-79-6	0.5	%	51.4	61.2	55.3	51.4	58.4	
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%	96.2	101	98.9	99.3	99.7	
Anthracene-d10	1719-06-8	0.5	%	95.1	96.8	101	94.4	95.9	
4-Terphenyl-d14	1718-51-0	0.5	%	103	106	109	102	104	
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	0.2	%	74.4	89.8	85.4	76.1	77.8	
Toluene-D8	2037-26-5	0.2	%	91.6	99.3	88.4	92.2	90.0	
4-Bromofluorobenzene	460-00-4	0.2	%	87.8	99.3	95.0	88.7	94.3	
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%	----	98.5	----	----	83.0	
13C8-PFOA	----	0.0002	%	----	108	----	----	112	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)		Sample ID		HA05_1.5	BH8_0.5	BH8_1.0	BH8_2.0	BH8_3.0	
Sampling date / time		10-Nov-2022 00:00		10-Nov-2022 00:00		10-Nov-2022 00:00		10-Nov-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2240772-006	ES2240772-007	ES2240772-008	ES2240772-009	ES2240772-010	
				Result	Result	Result	Result	Result	
EA002: pH 1:5 (Soils)									
pH Value	----	0.1	pH Unit	----	----	7.9	----	----	
EA010: Conductivity (1:5)									
Electrical Conductivity @ 25°C	----	1	µS/cm	----	----	105	----	----	
EA033-A: Actual Acidity									
pH KCl (23A)	----	0.1	pH Unit	----	----	5.7	6.0	8.4	
Titrateable Actual Acidity (23F)	----	2	mole H+ / t	----	----	4	2	<2	
sulfidic - Titrateable 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	----	----	0.013	0.013	0.016	
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	----	----	----	----	0.46	
acidity - Acid Neutralising Capacity (a-19A2)	----	10	mole H+ / t	----	----	----	----	92	
sulfidic - Acid Neutralising Capacity (s-19A2)	----	0.01	% pyrite S	----	----	----	----	0.15	
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	----	----	12	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	----	----	12	10	<10	
Liming Rate excluding ANC	----	1	kg CaCO3/t	----	----	<1	<1	<1	
EA037: Ass Field Screening Analysis									
ø pH (F)	----	0.1	pH Unit	----	----	7.4	7.6	8.2	
ø pH (Fox)	----	0.1	pH Unit	----	----	5.2	5.3	5.7	
ø Reaction Rate	----	1	-	----	----	1	1	1	
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	0.1	%	----	----	12.3	----	----	
Moisture Content	----	1.0	%	5.6	12.2	----	14.0	----	
EA080: Resistivity									
Resistivity at 25°C	----	1	ohm cm	----	----	9520	----	----	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	HA05_1.5	BH8_0.5	BH8_1.0	BH8_2.0	BH8_3.0
Sampling date / time				10-Nov-2022 00:00	10-Nov-2022 00:00	10-Nov-2022 00:00	10-Nov-2022 00:00	10-Nov-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2240772-006	ES2240772-007	ES2240772-008	ES2240772-009	ES2240772-010	
				Result	Result	Result	Result	Result	
EA167: Corrosion Classification (per AS2159-2009)									
∅ Exposure Classification - Concrete Piles Soil Condition A	----	-	-	----	----	Mild	----	----	
∅ Exposure Classification - Concrete Piles Soil Condition B	----	-	-	----	----	Non Aggressive	----	----	
∅ Exposure Classification - Steel Piles Soil Condition A	----	-	-	----	----	Non Aggressive	----	----	
∅ Exposure Classification - Steel Piles Soil Condition B	----	-	-	----	----	Non Aggressive	----	----	
EA200: AS 4964 - 2004 Identification of Asbestos in Soils									
Asbestos Detected	1332-21-4	0.1	g/kg	----	No	----	----	----	
Asbestos (Trace)	1332-21-4	5	Fibres	----	No	----	----	----	
Asbestos Type	1332-21-4	-	--	----	-	----	----	----	
Sample weight (dry)	----	0.01	g	----	296	----	----	----	
APPROVED IDENTIFIER:	----	-	--	----	A. SMYLIE	----	----	----	
Synthetic Mineral Fibre	----	0.1	-	----	No	----	----	----	
Organic Fibre	----	0.1	-	----	No	----	----	----	
ED040S: Soluble Major Anions									
Sulfate as SO4 2-	14808-79-8	10	mg/kg	----	----	90	----	----	
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	10	mg/kg	----	----	20	----	----	
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg	<5	6	----	<5	----	
Cadmium	7440-43-9	1	mg/kg	<1	<1	----	<1	----	
Chromium	7440-47-3	2	mg/kg	4	9	----	4	----	
Copper	7440-50-8	5	mg/kg	<5	12	----	<5	----	
Lead	7439-92-1	5	mg/kg	<5	60	----	8	----	
Nickel	7440-02-0	2	mg/kg	<2	7	----	<2	----	
Zinc	7440-66-6	5	mg/kg	<5	57	----	<5	----	
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg	<0.1	2.1	----	<0.1	----	
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	----	----	----	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	HA05_1.5	BH8_0.5	BH8_1.0	BH8_2.0	BH8_3.0
Sampling date / time				10-Nov-2022 00:00	10-Nov-2022 00:00	10-Nov-2022 00:00	10-Nov-2022 00:00	10-Nov-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2240772-006	ES2240772-007	ES2240772-008	ES2240772-009	ES2240772-010	
				Result	Result	Result	Result	Result	
EP068A: Organochlorine Pesticides (OC) - Continued									
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	----	<0.05	----	----	----	
beta-BHC	319-85-7	0.05	mg/kg	----	<0.05	----	----	----	
gamma-BHC	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	----	1.55	----	----	----	
Heptachlor epoxide	1024-57-3	0.05	mg/kg	----	<0.05	----	----	----	
^ Total Chlordane (sum)	----	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	----	0.68	----	----	----	
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	----	----	----	
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	----	2.23	----	----	----	
^ 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	----	----	----	
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	----	----	----	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	HA05_1.5	BH8_0.5	BH8_1.0	BH8_2.0	BH8_3.0
Sampling date / time				10-Nov-2022 00:00	10-Nov-2022 00:00	10-Nov-2022 00:00	10-Nov-2022 00:00	10-Nov-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2240772-006	ES2240772-007	ES2240772-008	ES2240772-009	ES2240772-010	
				Result	Result	Result	Result	Result	
EP068B: Organophosphorus Pesticides (OP) - Continued									
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	----	----	----	
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									
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	----	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	HA05_1.5	BH8_0.5	BH8_1.0	BH8_2.0	BH8_3.0
Sampling date / time				10-Nov-2022 00:00	10-Nov-2022 00:00	10-Nov-2022 00:00	10-Nov-2022 00:00	10-Nov-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2240772-006	ES2240772-007	ES2240772-008	ES2240772-009	ES2240772-010	
				Result	Result	Result	Result	Result	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
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	----	
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	----	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	HA05_1.5	BH8_0.5	BH8_1.0	BH8_2.0	BH8_3.0
Sampling date / time				10-Nov-2022 00:00	10-Nov-2022 00:00	10-Nov-2022 00:00	10-Nov-2022 00:00	10-Nov-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2240772-006	ES2240772-007	ES2240772-008	ES2240772-009	ES2240772-010	
				Result	Result	Result	Result	Result	
EP080: BTEXN - Continued									
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	----	----	----	<0.0002	----	
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	----	----	----	<0.0002	----	
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	----	----	----	<0.0002	----	
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	----	----	----	<0.0002	----	
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	----	----	----	<0.0002	----	
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	----	----	----	<0.0002	----	
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	----	----	----	<0.001	----	
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	----	----	----	<0.0002	----	
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	----	----	----	<0.0002	----	
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	----	----	----	<0.0002	----	
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	----	----	----	<0.0002	----	
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	----	----	----	<0.0002	----	
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	----	----	----	<0.0002	----	
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	----	----	----	<0.0002	----	
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	----	----	----	<0.0002	----	
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	----	----	----	<0.0002	----	
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	----	----	----	<0.0005	----	
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	----	----	----	<0.0002	----	
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	----	----	----	<0.0005	----	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	HA05_1.5	BH8_0.5	BH8_1.0	BH8_2.0	BH8_3.0
Sampling date / time				10-Nov-2022 00:00	10-Nov-2022 00:00	10-Nov-2022 00:00	10-Nov-2022 00:00	10-Nov-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2240772-006	ES2240772-007	ES2240772-008	ES2240772-009	ES2240772-010	
				Result	Result	Result	Result	Result	
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	----	----	----	<0.0005	----	
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	----	----	----	<0.0005	----	
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	----	----	----	<0.0005	----	
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	----	----	----	<0.0002	----	
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	----	----	----	<0.0002	----	
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	----	----	----	<0.0005	----	
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	----	----	----	<0.0005	----	
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	----	----	----	<0.0005	----	
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	----	----	----	<0.0005	----	
EP231P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg	----	----	----	<0.0002	----	
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	----	----	----	<0.0002	----	
Sum of PFAS (WA DER List)	----	0.0002	mg/kg	----	----	----	<0.0002	----	
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%	----	92.5	----	----	----	
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%	----	119	----	----	----	
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%	----	91.5	----	----	----	
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%	89.9	90.4	----	89.4	----	
2-Chlorophenol-D4	93951-73-6	0.5	%	102	100	----	95.7	----	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	HA05_1.5	BH8_0.5	BH8_1.0	BH8_2.0	BH8_3.0
Sampling date / time				10-Nov-2022 00:00	10-Nov-2022 00:00	10-Nov-2022 00:00	10-Nov-2022 00:00	10-Nov-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2240772-006	ES2240772-007	ES2240772-008	ES2240772-009	ES2240772-010	
				Result	Result	Result	Result	Result	
EP075(SIM)S: Phenolic Compound Surrogates - Continued									
2,4,6-Tribromophenol	118-79-6	0.5	%	49.4	50.1	----	58.1	----	
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%	105	103	----	95.4	----	
Anthracene-d10	1719-06-8	0.5	%	100	98.3	----	92.6	----	
4-Terphenyl-d14	1718-51-0	0.5	%	108	106	----	102	----	
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	0.2	%	74.7	74.9	----	81.0	----	
Toluene-D8	2037-26-5	0.2	%	91.6	87.5	----	88.9	----	
4-Bromofluorobenzene	460-00-4	0.2	%	87.2	85.2	----	88.8	----	
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%	----	----	----	88.0	----	
13C8-PFOA	----	0.0002	%	----	----	----	108	----	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH8_4.0	BH8_5.0	BH8_6.0	BH8_7.0	BH8_8.0
Sampling date / time				10-Nov-2022 00:00	10-Nov-2022 00:00	10-Nov-2022 00:00	10-Nov-2022 00:00	10-Nov-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2240772-011	ES2240772-012	ES2240772-013	ES2240772-014	ES2240772-015	
				Result	Result	Result	Result	Result	
EA002: pH 1:5 (Soils)									
pH Value	----	0.1	pH Unit	----	5.2	----	----	----	
EA010: Conductivity (1:5)									
Electrical Conductivity @ 25°C	----	1	µS/cm	----	22	----	----	----	
EA033-A: Actual Acidity									
pH KCl (23A)	----	0.1	pH Unit	5.5	5.8	4.6	4.6	4.4	
Titrateable Actual Acidity (23F)	----	2	mole H+ / t	6	5	40	33	66	
sulfidic - Titrateable Actual Acidity (s-23F)	----	0.02	% pyrite S	<0.02	<0.02	0.06	0.05	0.11	
EA033-B: Potential Acidity									
Chromium Reducible Sulfur (22B)	----	0.005	% S	0.011	0.017	0.011	0.017	0.011	
acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	<10	11	<10	11	<10	
EA033-D: Retained Acidity									
KCl Extractable Sulfur (23Ce)	----	0.02	% S	----	----	----	----	<0.02	
HCl Extractable Sulfur (20Be)	----	0.02	% S	----	----	----	----	<0.02	
Net Acid Soluble Sulfur (20Je)	----	0.02	% S	----	----	----	----	<0.02	
acidity - Net Acid Soluble Sulfur (a-20J)	----	10	mole H+ / t	----	----	----	----	<10	
sulfidic - Net Acid Soluble Sulfur (s-20J)	----	0.02	% pyrite S	----	----	----	----	<0.02	
EA033-E: Acid Base Accounting									
ANC Fineness Factor	----	0.5	-	1.5	1.5	1.5	1.5	1.5	
Net Acidity (sulfur units)	----	0.02	% S	0.02	0.02	0.08	0.07	0.12	
Net Acidity (acidity units)	----	10	mole H+ / t	13	16	47	43	73	
Liming Rate	----	1	kg CaCO3/t	<1	1	4	3	6	
Net Acidity excluding ANC (sulfur units)	----	0.02	% S	0.02	0.02	0.08	0.07	0.12	
Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	13	16	47	43	73	
Liming Rate excluding ANC	----	1	kg CaCO3/t	<1	1	4	3	6	
EA037: Ass Field Screening Analysis									
ø pH (F)	----	0.1	pH Unit	7.9	6.6	5.3	5.2	5.2	
ø pH (Fox)	----	0.1	pH Unit	5.8	5.3	4.7	4.5	4.4	
ø Reaction Rate	----	1	-	1	1	1	1	1	
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	0.1	%	----	11.3	----	----	----	
Moisture Content	----	1.0	%	----	----	15.2	----	----	
EA080: Resistivity									
Resistivity at 25°C	----	1	ohm cm	----	45400	----	----	----	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH8_4.0	BH8_5.0	BH8_6.0	BH8_7.0	BH8_8.0
Sampling date / time				10-Nov-2022 00:00	10-Nov-2022 00:00	10-Nov-2022 00:00	10-Nov-2022 00:00	10-Nov-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2240772-011	ES2240772-012	ES2240772-013	ES2240772-014	ES2240772-015	
				Result	Result	Result	Result	Result	
EA167: Corrosion Classification (per AS2159-2009)									
∅ Exposure Classification - Concrete Piles Soil Condition A	----	-	-	----	Moderate	----	----	----	
∅ Exposure Classification - Concrete Piles Soil Condition B	----	-	-	----	Mild	----	----	----	
∅ Exposure Classification - Steel Piles Soil Condition A	----	-	-	----	Non Aggressive	----	----	----	
∅ Exposure Classification - Steel Piles Soil Condition B	----	-	-	----	Non Aggressive	----	----	----	
ED040S: Soluble Major Anions									
Sulfate as SO4 2-	14808-79-8	10	mg/kg	----	30	----	----	----	
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	10	mg/kg	----	<10	----	----	----	
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg	----	----	<5	----	----	
Cadmium	7440-43-9	1	mg/kg	----	----	<1	----	----	
Chromium	7440-47-3	2	mg/kg	----	----	9	----	----	
Copper	7440-50-8	5	mg/kg	----	----	<5	----	----	
Lead	7439-92-1	5	mg/kg	----	----	9	----	----	
Nickel	7440-02-0	2	mg/kg	----	----	<2	----	----	
Zinc	7440-66-6	5	mg/kg	----	----	<5	----	----	
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg	----	----	<0.1	----	----	
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	BH8_4.0	BH8_5.0	BH8_6.0	BH8_7.0	BH8_8.0
Sampling date / time				10-Nov-2022 00:00	10-Nov-2022 00:00	10-Nov-2022 00:00	10-Nov-2022 00:00	10-Nov-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2240772-011	ES2240772-012	ES2240772-013	ES2240772-014	ES2240772-015	
				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	----	----	
Acenaphthylene	208-96-8	0.5	mg/kg	----	----	<0.5	----	----	
Acenaphthene	83-32-9	0.5	mg/kg	----	----	<0.5	----	----	
Fluorene	86-73-7	0.5	mg/kg	----	----	<0.5	----	----	
Phenanthrene	85-01-8	0.5	mg/kg	----	----	<0.5	----	----	
Anthracene	120-12-7	0.5	mg/kg	----	----	<0.5	----	----	
Fluoranthene	206-44-0	0.5	mg/kg	----	----	<0.5	----	----	
Pyrene	129-00-0	0.5	mg/kg	----	----	<0.5	----	----	
Benzo(a)anthracene	56-55-3	0.5	mg/kg	----	----	<0.5	----	----	
Chrysene	218-01-9	0.5	mg/kg	----	----	<0.5	----	----	
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	----	----	<0.5	----	----	
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	----	----	<0.5	----	----	
Benzo(a)pyrene	50-32-8	0.5	mg/kg	----	----	<0.5	----	----	
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	----	----	<0.5	----	----	
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	----	----	<0.5	----	----	
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	----	----	<0.5	----	----	
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	----	----	<0.5	----	----	
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	----	----	<0.5	----	----	
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	----	----	0.6	----	----	
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	----	----	1.2	----	----	
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg	----	----	<10	----	----	
C10 - C14 Fraction	----	50	mg/kg	----	----	<50	----	----	
C15 - C28 Fraction	----	100	mg/kg	----	----	<100	----	----	
C29 - C36 Fraction	----	100	mg/kg	----	----	<100	----	----	
^ C10 - C36 Fraction (sum)	----	50	mg/kg	----	----	<50	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg	----	----	<10	----	----	
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	----	----	<10	----	----	
>C10 - C16 Fraction	----	50	mg/kg	----	----	<50	----	----	
>C16 - C34 Fraction	----	100	mg/kg	----	----	<100	----	----	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH8_4.0	BH8_5.0	BH8_6.0	BH8_7.0	BH8_8.0
Sampling date / time				10-Nov-2022 00:00	10-Nov-2022 00:00	10-Nov-2022 00:00	10-Nov-2022 00:00	10-Nov-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2240772-011	ES2240772-012	ES2240772-013	ES2240772-014	ES2240772-015	
				Result	Result	Result	Result	Result	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
>C34 - C40 Fraction	----	100	mg/kg	----	----	<100	----	----	
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	----	----	<50	----	----	
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	----	----	<50	----	----	
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg	----	----	<0.2	----	----	
Toluene	108-88-3	0.5	mg/kg	----	----	<0.5	----	----	
Ethylbenzene	100-41-4	0.5	mg/kg	----	----	<0.5	----	----	
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	----	----	<0.5	----	----	
ortho-Xylene	95-47-6	0.5	mg/kg	----	----	<0.5	----	----	
^ Sum of BTEX	----	0.2	mg/kg	----	----	<0.2	----	----	
^ Total Xylenes	----	0.5	mg/kg	----	----	<0.5	----	----	
Naphthalene	91-20-3	1	mg/kg	----	----	<1	----	----	
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%	----	----	89.7	----	----	
2-Chlorophenol-D4	93951-73-6	0.5	%	----	----	99.0	----	----	
2,4,6-Tribromophenol	118-79-6	0.5	%	----	----	53.8	----	----	
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%	----	----	105	----	----	
Anthracene-d10	1719-06-8	0.5	%	----	----	99.3	----	----	
4-Terphenyl-d14	1718-51-0	0.5	%	----	----	110	----	----	
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	0.2	%	----	----	76.6	----	----	
Toluene-D8	2037-26-5	0.2	%	----	----	93.8	----	----	
4-Bromofluorobenzene	460-00-4	0.2	%	----	----	89.8	----	----	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	BH8_9.0	BH8_10.0	BH8_11.0	BH8_12.0	----
			Sampling date / time	10-Nov-2022 00:00	10-Nov-2022 00:00	10-Nov-2022 00:00	10-Nov-2022 00:00	----
Compound	CAS Number	LOR	Unit	ES2240772-016	ES2240772-017	ES2240772-018	ES2240772-019	-----
				Result	Result	Result	Result	----
EA033-A: Actual Acidity								
pH KCl (23A)	----	0.1	pH Unit	4.5	4.6	4.5	4.5	----
Titrateable Actual Acidity (23F)	----	2	mole H+ / t	53	42	55	52	----
sulfidic - Titrateable Actual Acidity (s-23F)	----	0.02	% pyrite S	0.08	0.07	0.09	0.08	----
EA033-B: Potential Acidity								
Chromium Reducible Sulfur (22B)	----	0.005	% S	0.008	0.007	0.009	0.006	----
acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	<10	<10	<10	<10	----
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	0.09	0.07	0.10	0.09	----
Net Acidity (acidity units)	----	10	mole H+ / t	58	46	60	56	----
Liming Rate	----	1	kg CaCO3/t	4	3	4	4	----
Net Acidity excluding ANC (sulfur units)	----	0.02	% S	0.09	0.07	0.10	0.09	----
Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	58	46	60	56	----
Liming Rate excluding ANC	----	1	kg CaCO3/t	4	3	4	4	----
EA037: Ass Field Screening Analysis								
ø pH (F)	----	0.1	pH Unit	5.2	5.2	5.3	5.8	----
ø pH (Fox)	----	0.1	pH Unit	4.5	4.4	4.4	4.6	----
ø Reaction Rate	----	1	-	1	1	1	1	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	RB05	TB_101122	----	----	----
Sampling date / time				10-Nov-2022 00:00	10-Nov-2022 00:00	----	----	----	
Compound	CAS Number	LOR	Unit	ES2240772-020	ES2240772-021	-----	-----	-----	
				Result	Result	----	----	----	
EG020F: Dissolved Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	----	----	----	
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	----	----	----	
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	----	----	----	
Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	----	----	----	
Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	----	----	----	
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	----	----	----	
Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	----	----	----	
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	----	----	----	
EP066: Polychlorinated Biphenyls (PCB)									
^ Total Polychlorinated biphenyls	----	1	µg/L	<1	<1	----	----	----	
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.5	µg/L	<0.5	<0.5	----	----	----	
Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	<0.5	----	----	----	
beta-BHC	319-85-7	0.5	µg/L	<0.5	<0.5	----	----	----	
gamma-BHC	58-89-9	0.5	µg/L	<0.5	<0.5	----	----	----	
delta-BHC	319-86-8	0.5	µg/L	<0.5	<0.5	----	----	----	
Heptachlor	76-44-8	0.5	µg/L	<0.5	<0.5	----	----	----	
Aldrin	309-00-2	0.5	µg/L	<0.5	<0.5	----	----	----	
Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	<0.5	----	----	----	
trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	<0.5	----	----	----	
alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	<0.5	----	----	----	
cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	<0.5	----	----	----	
Dieldrin	60-57-1	0.5	µg/L	<0.5	<0.5	----	----	----	
4,4'-DDE	72-55-9	0.5	µg/L	<0.5	<0.5	----	----	----	
Endrin	72-20-8	0.5	µg/L	<0.5	<0.5	----	----	----	
beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	<0.5	----	----	----	
4,4'-DDD	72-54-8	0.5	µg/L	<0.5	<0.5	----	----	----	
Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	<0.5	----	----	----	
Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	<0.5	----	----	----	
4,4'-DDT	50-29-3	2.0	µg/L	<2.0	<2.0	----	----	----	
Endrin ketone	53494-70-5	0.5	µg/L	<0.5	<0.5	----	----	----	
Methoxychlor	72-43-5	2.0	µg/L	<2.0	<2.0	----	----	----	
^ Total Chlordane (sum)	----	0.5	µg/L	<0.5	<0.5	----	----	----	



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	RB05	TB_101122	----	----	----
Sampling date / time				10-Nov-2022 00:00	10-Nov-2022 00:00	----	----	----	
Compound	CAS Number	LOR	Unit	ES2240772-020	ES2240772-021	-----	-----	-----	
				Result	Result	----	----	----	
EP068A: Organochlorine Pesticides (OC) - Continued									
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/5 0-2	0.5	µg/L	<0.5	<0.5	----	----	----	
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.5	µg/L	<0.5	<0.5	----	----	----	
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.5	µg/L	<0.5	<0.5	----	----	----	
Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	<0.5	----	----	----	
Monocrotophos	6923-22-4	2.0	µg/L	<2.0	<2.0	----	----	----	
Dimethoate	60-51-5	0.5	µg/L	<0.5	<0.5	----	----	----	
Diazinon	333-41-5	0.5	µg/L	<0.5	<0.5	----	----	----	
Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	<0.5	----	----	----	
Parathion-methyl	298-00-0	2.0	µg/L	<2.0	<2.0	----	----	----	
Malathion	121-75-5	0.5	µg/L	<0.5	<0.5	----	----	----	
Fenthion	55-38-9	0.5	µg/L	<0.5	<0.5	----	----	----	
Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	<0.5	----	----	----	
Parathion	56-38-2	2.0	µg/L	<2.0	<2.0	----	----	----	
Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	<0.5	----	----	----	
Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	<0.5	----	----	----	
Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	<0.5	----	----	----	
Fenamiphos	22224-92-6	0.5	µg/L	<0.5	<0.5	----	----	----	
Prothiofos	34643-46-4	0.5	µg/L	<0.5	<0.5	----	----	----	
Ethion	563-12-2	0.5	µg/L	<0.5	<0.5	----	----	----	
Carbophenothion	786-19-6	0.5	µg/L	<0.5	<0.5	----	----	----	
Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	<0.5	----	----	----	
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	----	----	----	
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	----	----	----	
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	----	----	----	
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	----	----	----	
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	----	----	----	
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	----	----	----	
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	----	----	----	
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	----	----	----	
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	----	----	----	
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	----	----	----	
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	----	----	----	



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	RB05	TB_101122	----	----	----
Sampling date / time				10-Nov-2022 00:00	10-Nov-2022 00:00	----	----	----	
Compound	CAS Number	LOR	Unit	ES2240772-020	ES2240772-021	-----	-----	-----	
				Result	Result	----	----	----	
EP075(SIM)A: Phenolic Compounds - Continued									
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	----	----	----	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	----	----	----	
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	----	----	----	
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	----	----	----	
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	----	----	----	
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	----	----	----	
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	----	----	----	
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	----	----	----	
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	----	----	----	
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	----	----	----	
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	----	----	----	
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L	<1.0	<1.0	----	----	----	
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	----	----	----	
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	----	----	----	
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	----	----	----	
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	----	----	----	
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	----	----	----	
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	----	----	----	
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	----	----	----	
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L	<20	<20	----	----	----	
C10 - C14 Fraction	----	50	µg/L	<50	<50	----	----	----	
C15 - C28 Fraction	----	100	µg/L	<100	<100	----	----	----	
C29 - C36 Fraction	----	50	µg/L	<50	<50	----	----	----	
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	----	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	----	----	----	
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	----	----	----	
>C10 - C16 Fraction	----	100	µg/L	<100	<100	----	----	----	
>C16 - C34 Fraction	----	100	µg/L	<100	<100	----	----	----	
>C34 - C40 Fraction	----	100	µg/L	<100	<100	----	----	----	
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	----	----	----	



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	RB05	TB_101122	----	----	----		
Sampling date / time				10-Nov-2022 00:00	10-Nov-2022 00:00	----	----	----			
Compound	CAS Number	LOR	Unit	ES2240772-020	ES2240772-021	-----	-----	-----			
				Result	Result	----	----	----			
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued											
^ >C10 - C16 Fraction minus Naphthalene (F2)				----	100	µg/L	<100	<100	----	----	----
EP080: BTEXN											
Benzene	71-43-2	1	µg/L	<1	<1	----	----	----			
Toluene	108-88-3	2	µg/L	<2	<2	----	----	----			
Ethylbenzene	100-41-4	2	µg/L	<2	<2	----	----	----			
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	----	----	----			
ortho-Xylene	95-47-6	2	µg/L	<2	<2	----	----	----			
^ Total Xylenes				----	2	µg/L	<2	<2	----	----	----
^ Sum of BTEX				----	1	µg/L	<1	<1	----	----	----
Naphthalene	91-20-3	5	µg/L	<5	<5	----	----	----			
EP231A: Perfluoroalkyl Sulfonic Acids											
Perfluorobutane sulfonic acid (PFBS)				375-73-5	0.02	µg/L	<0.02	<0.02	----	----	----
Perfluoropentane sulfonic acid (PFPeS)				2706-91-4	0.02	µg/L	<0.02	<0.02	----	----	----
Perfluorohexane sulfonic acid (PFHxS)				355-46-4	0.01	µg/L	<0.01	<0.01	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)				375-92-8	0.02	µg/L	<0.02	<0.02	----	----	----
Perfluorooctane sulfonic acid (PFOS)				1763-23-1	0.01	µg/L	<0.01	<0.01	----	----	----
Perfluorodecane sulfonic acid (PFDS)				335-77-3	0.02	µg/L	<0.02	<0.02	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids											
Perfluorobutanoic acid (PFBA)				375-22-4	0.1	µg/L	<0.1	<0.1	----	----	----
Perfluoropentanoic acid (PFPeA)				2706-90-3	0.02	µg/L	<0.02	<0.02	----	----	----
Perfluorohexanoic acid (PFHxA)				307-24-4	0.02	µg/L	<0.02	<0.02	----	----	----
Perfluoroheptanoic acid (PFHpA)				375-85-9	0.02	µg/L	<0.02	<0.02	----	----	----
Perfluorooctanoic acid (PFOA)				335-67-1	0.01	µg/L	<0.01	<0.01	----	----	----
Perfluorononanoic acid (PFNA)				375-95-1	0.02	µg/L	<0.02	<0.02	----	----	----
Perfluorodecanoic acid (PFDA)				335-76-2	0.02	µg/L	<0.02	<0.02	----	----	----
Perfluoroundecanoic acid (PFUnDA)				2058-94-8	0.02	µg/L	<0.02	<0.02	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	RB05	TB_101122	----	----	----
Sampling date / time				10-Nov-2022 00:00	10-Nov-2022 00:00	----	----	----	
Compound	CAS Number	LOR	Unit	ES2240772-020	ES2240772-021	-----	-----	-----	
				Result	Result	----	----	----	
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	----	----	----	
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	----	----	----	
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	----	----	----	
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	----	----	----	
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	----	----	----	
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	----	----	----	
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	----	----	----	
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	----	----	----	
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	----	----	----	
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	----	----	----	
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	----	----	----	
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	----	----	----	
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	----	----	----	
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	----	----	----	
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	----	----	----	
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	<0.01	<0.01	----	----	----	



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	RB05	TB_101122	----	----	----
Sampling date / time				10-Nov-2022 00:00	10-Nov-2022 00:00	----	----	----	
Compound	CAS Number	LOR	Unit	ES2240772-020	ES2240772-021	-----	-----	-----	
				Result	Result	----	----	----	
EP231P: PFAS Sums - Continued									
Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	<0.01	----	----	----	
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	1	%	114	107	----	----	----	
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.5	%	77.4	83.3	----	----	----	
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.5	%	64.1	72.4	----	----	----	
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1.0	%	25.8	25.0	----	----	----	
2-Chlorophenol-D4	93951-73-6	1.0	%	55.0	54.4	----	----	----	
2,4,6-Tribromophenol	118-79-6	1.0	%	64.4	64.8	----	----	----	
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%	78.9	74.8	----	----	----	
Anthracene-d10	1719-06-8	1.0	%	90.6	87.9	----	----	----	
4-Terphenyl-d14	1718-51-0	1.0	%	89.3	87.0	----	----	----	
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	2	%	113	116	----	----	----	
Toluene-D8	2037-26-5	2	%	107	107	----	----	----	
4-Bromofluorobenzene	460-00-4	2	%	108	108	----	----	----	
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%	104	99.2	----	----	----	
13C8-PFOA	----	0.02	%	95.2	95.8	----	----	----	

Analytical Results

Descriptive Results

Sub-Matrix: SOIL

Method: Compound	Sample ID - Sampling date / time	Analytical Results
EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	HA02_0.3 - 10-Nov-2022 00:00	Soil sample.
EA200: Description	HA05_0.3 - 10-Nov-2022 00:00	Soil sample.
EA200: Description	BH8_0.5 - 10-Nov-2022 00:00	Soil sample.



Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	39	149
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	49	147
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	35	143
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2,4,6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	73	133
Toluene-D8	2037-26-5	74	132
4-Bromofluorobenzene	460-00-4	72	130
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	45	134
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	67	111
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	67	111
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	44
2-Chlorophenol-D4	93951-73-6	14	94
2,4,6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	32	112



Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

Inter-Laboratory Testing

Analysis conducted by ALS Brisbane, NATA accreditation no. 825, site no. 818 (Chemistry) 18958 (Biology).

(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) EA037: Ass Field Screening Analysis

Analysis conducted by ALS Newcastle, NATA accreditation no. 825, site no. 1656 (Chemistry) 9854 (Biology).

(SOIL) EA200: AS 4964 - 2004 Identification of Asbestos in Soils

QUALITY CONTROL REPORT

Work Order	: ES2240772	Page	: 1 of 25
Client	: KLEINFELDER AUSTRALIA PTY LTD	Laboratory	: Environmental Division Sydney
Contact	: J Roby	Contact	: Graeme Jablonskas
Address	: 95 MITCHELL ROAD CARDIFF NSW 2285	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +6138549 9609
Project	: 20232408	Date Samples Received	: 11-Nov-2022
Order number	: ----	Date Analysis Commenced	: 14-Nov-2022
C-O-C number	: ----	Issue Date	: 22-Nov-2022
Sampler	: Jai Roby		
Site	: UON Gosford		
Quote number	: EN/222		
No. of samples received	: 21		
No. of samples analysed	: 21		



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
Alana Smylie	Team Leader - Asbestos	Newcastle - Asbestos, Mayfield West, NSW
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Ben Felgendrejeris	Senior Acid Sulfate Soil Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Inorganics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW



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

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: 4713005)									
EP2215380-012	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	53	60	11.5	0% - 20%
		EG005T: Nickel	7440-02-0	2	mg/kg	14	14	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	77	75	3.2	0% - 50%
		EG005T: Lead	7439-92-1	5	mg/kg	25	25	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	450	428	4.8	0% - 20%
EP2215380-027	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	7	12	50.7	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	2	4	68.1	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	86	# 190	75.0	0% - 20%
		EG005T: Lead	7439-92-1	5	mg/kg	9	17	60.1	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	345	# 930	91.7	0% - 20%
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 4713007)									
ES2240772-009	BH8_2.0	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	4	5	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	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	8	9	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
EA002: pH 1:5 (Soils) (QC Lot: 4706273)									
ES2241203-002	Anonymous	EA002: pH Value	----	0.1	pH Unit	4.8	4.6	3.8	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: 4706273) - continued									
ES2240772-008	BH8_1.0	EA002: pH Value	----	0.1	pH Unit	7.9	7.6	3.5	0% - 20%
EA010: Conductivity (1:5) (QC Lot: 4706274)									
ES2241203-002	Anonymous	EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	143	135	5.4	0% - 20%
ES2240772-008	BH8_1.0	EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	105	89	15.9	0% - 20%
EA033-A: Actual Acidity (QC Lot: 4708984)									
EB2233368-001	Anonymous	EA033: sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	0.05	0.06	0.0	No Limit
		EA033: Titratable Actual Acidity (23F)	----	2	mole H+ / t	34	35	2.9	0% - 50%
		EA033: pH KCl (23A)	----	0.1	pH Unit	4.9	4.9	0.0	0% - 20%
ES2240772-002	HA02_0.6	EA033: sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	0.21	0.20	0.0	0% - 50%
		EA033: Titratable Actual Acidity (23F)	----	2	mole H+ / t	130	125	4.0	0% - 20%
		EA033: pH KCl (23A)	----	0.1	pH Unit	4.3	4.3	0.0	0% - 20%
EA033-A: Actual Acidity (QC Lot: 4708985)									
ES2240772-016	BH8_9.0	EA033: sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	0.08	0.08	0.0	No Limit
		EA033: Titratable Actual Acidity (23F)	----	2	mole H+ / t	53	50	7.0	0% - 20%
		EA033: pH KCl (23A)	----	0.1	pH Unit	4.5	4.6	0.0	0% - 20%
EA033-B: Potential Acidity (QC Lot: 4708984)									
EB2233368-001	Anonymous	EA033: Chromium Reducible Sulfur (22B)	----	0.005	% S	0.018	0.020	7.9	No Limit
		EA033: acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	11	12	0.0	No Limit
ES2240772-002	HA02_0.6	EA033: Chromium Reducible Sulfur (22B)	----	0.005	% S	0.013	0.013	0.0	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: 4708985)									
ES2240772-016	BH8_9.0	EA033: Chromium Reducible Sulfur (22B)	----	0.005	% S	0.008	0.006	22.4	No Limit
		EA033: acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	<10	<10	0.0	No Limit
EA033-D: Retained Acidity (QC Lot: 4708984)									
ES2240772-002	HA02_0.6	EA033: sulfidic - Net Acid Soluble Sulfur (s-20J)	----	0.02	% pyrite S	<0.02	<0.02	0.0	No Limit
		EA033: Net Acid Soluble Sulfur (20Je)	----	0.02	% S	<0.02	<0.02	0.0	No Limit
		EA033: KCl Extractable Sulfur (23Ce)	----	0.02	% S	0.03	0.04	0.0	No Limit
		EA033: HCl Extractable Sulfur (20Be)	----	0.02	% S	0.04	0.04	0.0	No Limit
		EA033: acidity - Net Acid Soluble Sulfur (a-20J)	----	10	mole H+ / t	<10	<10	0.0	No Limit
EA037: Ass Field Screening Analysis (QC Lot: 4709005)									
ES2240772-008	BH8_1.0	EA037: pH (F)	----	0.1	pH Unit	7.4	7.4	0.0	0% - 20%
		EA037: pH (Fox)	----	0.1	pH Unit	5.2	5.2	0.0	0% - 20%
ES2240772-018	BH8_11.0	EA037: pH (F)	----	0.1	pH Unit	5.3	5.3	0.0	0% - 20%
		EA037: pH (Fox)	----	0.1	pH Unit	4.4	4.4	0.0	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 4706280)									
ES2241146-001	Anonymous	EA055: Moisture Content	----	0.1	%	23.7	28.6	19.0	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 (%)
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 4713009)									
EP2215380-014	Anonymous	EA055: Moisture Content	----	0.1	%	20.2	18.6	8.1	0% - 20%
ES2240772-001	HA02_0.3	EA055: Moisture Content	----	0.1	%	9.7	10.5	7.8	0% - 50%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 4713010)									
ES2241201-001	Anonymous	EA055: Moisture Content	----	0.1	%	9.2	11.1	19.0	0% - 50%
ED040S: Soluble Major Anions (QC Lot: 4706271)									
ES2241203-002	Anonymous	ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	90	120	35.3	0% - 50%
ED045G: Chloride by Discrete Analyser (QC Lot: 4706272)									
ES2240772-008	BH8_1.0	ED045G: Chloride	16887-00-6	10	mg/kg	20	20	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 4713006)									
EP2215380-012	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP2215380-027	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	0.8	0.8	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 4713008)									
ES2240772-009	BH8_2.0	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 4705239)									
ES2240772-001	HA02_0.3	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 4705238)									
ES2240772-001	HA02_0.3	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	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 sulfite	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: 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: 4705238)									
ES2240772-001	HA02_0.3	EP068: Dichlorvos	62-73-7	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 (%)		
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 4705238) - continued											
ES2240772-001	HA02_0.3	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				
EP075(SIM)A: Phenolic Compounds (QC Lot: 4705237)											
ES2241096-004	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		
		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		
		ES2240772-001	HA02_0.3	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				



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: 4705237) - continued											
ES2240772-001	HA02_0.3	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: 4705237)											
ES2241096-004	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	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): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		ES2240772-001	HA02_0.3	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			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: 4705237) - continued									
ES2240772-001	HA02_0.3	EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 4705236)									
ES2241096-004	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
ES2240772-001	HA02_0.3	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: 4711913)									
ES2240772-001	HA02_0.3	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES2241201-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 4705236)									
ES2241096-004	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
ES2240772-001	HA02_0.3	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: 4711913)									
ES2240772-001	HA02_0.3	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES2241201-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080: BTEXN (QC Lot: 4711913)									
ES2240772-001	HA02_0.3	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
ES2241201-001	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



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 (%)
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 4704676)									
ES2239665-002	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
ES2241039-001	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	0.0011	0.0011	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 4704676)									
ES2239665-002	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
ES2241039-001	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 4704676)									
ES2239665-002	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	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 (%)
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 4704676) - continued									
ES2239665-002	Anonymous	EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
ES2241039-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 4704676)									
ES2239665-002	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
ES2241039-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit



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 (%)	
EG020F: Dissolved Metals by ICP-MS (QC Lot: 4707661)										
ES2241018-001	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0010	<0.0010	0.0	No Limit	
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.010	<0.010	0.0	No Limit	
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.010	<0.010	0.0	No Limit	
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.010	<0.010	0.0	No Limit	
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.010	<0.010	0.0	No Limit	
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.010	<0.010	0.0	No Limit	
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.050	<0.050	0.0	No Limit	
ES2241153-005	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit	
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.026	0.026	0.0	0% - 20%	
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	0.002	0.002	0.0	No Limit	
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.001	0.001	0.0	No Limit	
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.012	0.011	0.0	No Limit	
EG035F: Dissolved Mercury by FIMS (QC Lot: 4707660)										
ES2241153-001	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit	
ES2241162-002	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit	
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 4712786)										
ES2240831-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	30	30	0.0	No Limit	
ES2241100-005	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 4712786)										
ES2240831-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	30	30	0.0	No Limit	
ES2241100-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit	
EP080: BTEXN (QC Lot: 4712786)										
ES2240831-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit	
ES2241100-005	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit	
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 4706218)										



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 (%)
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 4706218) - continued									
ES2240926-019	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 4706218)									
ES2240926-019	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 4706218)									
ES2240926-019	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 4706218)									
ES2240926-019	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit

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 Project : 20232408



Sub-Matrix: **WATER**

				<i>Laboratory Duplicate (DUP) Report</i>					
<i>Laboratory sample ID</i>	<i>Sample ID</i>	<i>Method: Compound</i>	<i>CAS Number</i>	<i>LOR</i>	<i>Unit</i>	<i>Original Result</i>	<i>Duplicate Result</i>	<i>RPD (%)</i>	<i>Acceptable RPD (%)</i>
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 4706218) - continued									
ES2240926-019	Anonymous	EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 4706218)									
ES2240926-019	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	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: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Acceptable Limits (%)	
						LCS	Low	High	
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4713005)									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	121.1 mg/kg	106	88.0	113	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	0.74 mg/kg	130	70.0	130	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	19.6 mg/kg	117	68.0	132	
EG005T: Copper	7440-50-8	5	mg/kg	<5	52.9 mg/kg	111	89.0	111	
EG005T: Lead	7439-92-1	5	mg/kg	<5	60.8 mg/kg	108	82.0	119	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.3 mg/kg	105	80.0	120	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	139.3 mg/kg	104	66.0	133	
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4713007)									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	121.1 mg/kg	107	88.0	113	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	0.74 mg/kg	124	70.0	130	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	19.6 mg/kg	118	68.0	132	
EG005T: Copper	7440-50-8	5	mg/kg	<5	52.9 mg/kg	111	89.0	111	
EG005T: Lead	7439-92-1	5	mg/kg	<5	60.8 mg/kg	104	82.0	119	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.3 mg/kg	106	80.0	120	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	139.3 mg/kg	96.8	66.0	133	
EA002: pH 1:5 (Soils) (QCLot: 4706273)									
EA002: pH Value	----	----	pH Unit	----	4 pH Unit	101	98.8	101	
					7 pH Unit	101	98.8	101	
EA010: Conductivity (1:5) (QCLot: 4706274)									
EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	1412 µS/cm	102	92.0	108	
EA033-A: Actual Acidity (QCLot: 4708984)									
EA033: pH KCl (23A)	----	----	pH Unit	----	4.4 pH Unit	99.7	91.0	107	
EA033: Titratable Actual Acidity (23F)	----	2	mole H+ / t	<2	16 mole H+ / t	115	70.0	124	
EA033: sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	<0.02	----	----	----	----	
EA033-A: Actual Acidity (QCLot: 4708985)									
EA033: pH KCl (23A)	----	----	pH Unit	----	4.4 pH Unit	100	91.0	107	
EA033: Titratable Actual Acidity (23F)	----	2	mole H+ / t	<2	16 mole H+ / t	105	70.0	124	
EA033: sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	<0.02	----	----	----	----	
EA033-B: Potential Acidity (QCLot: 4708984)									
EA033: Chromium Reducible Sulfur (22B)	----	0.005	% S	<0.005	0.246 % S	101	77.0	121	
EA033: acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	<10	----	----	----	----	
EA033-B: Potential Acidity (QCLot: 4708985)									
EA033: Chromium Reducible Sulfur (22B)	----	0.005	% S	<0.005	0.246 % S	105	77.0	121	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
				Result	Spike	Spike Recovery (%)	Acceptable Limits (%)	
					Concentration	LCS	Low	High
EA033-B: Potential Acidity (QCLot: 4708985) - continued								
EA033: acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	<10	----	----	----	----
EA033-C: Acid Neutralising Capacity (QCLot: 4708984)								
EA033: Acid Neutralising Capacity (19A2)	----	0.01	% CaCO3	<0.01	10 % CaCO3	101	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-D: Retained Acidity (QCLot: 4708984)								
EA033: Net Acid Soluble Sulfur (20Je)	----	0.02	% S	<0.02	----	----	----	----
EA033: acidity - Net Acid Soluble Sulfur (a-20J)	----	10	mole H+ / t	<10	----	----	----	----
EA033: sulfidic - Net Acid Soluble Sulfur (s-20J)	----	0.02	% pyrite S	<0.02	----	----	----	----
EA033: KCl Extractable Sulfur (23Ce)	----	0.02	% S	<0.02	0.055 % S	107	70.0	128
EA033: HCl Extractable Sulfur (20Be)	----	0.02	% S	<0.02	0.696 % S	104	70.0	120
ED040S: Soluble Major Anions (QCLot: 4706271)								
ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	<10	750 mg/kg	102	80.0	120
ED045G: Chloride by Discrete Analyser (QCLot: 4706272)								
ED045G: Chloride	16887-00-6	10	mg/kg	<10	250 mg/kg	90.4	75.0	125
				<10	5000 mg/kg	100	79.0	117
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4713006)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.087 mg/kg	100	70.0	125
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4713008)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.087 mg/kg	98.8	70.0	125
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 4705239)								
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	106	62.0	126
EP068A: Organochlorine Pesticides (OC) (QCLot: 4705238)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	82.9	69.0	113
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	89.6	65.0	117
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	95.0	67.0	119
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	96.3	68.0	116
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	86.9	65.0	117
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	86.9	67.0	115
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	90.6	69.0	115
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	94.8	62.0	118
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	92.4	63.0	117
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	98.6	66.0	116
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	93.2	64.0	116
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	92.2	66.0	116
EP068: 4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	95.7	67.0	115
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	88.9	67.0	123
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	97.5	69.0	115



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Acceptable Limits (%)	
					Concentration	LCS	Low	High	
EP068A: Organochlorine Pesticides (OC) (QCLot: 4705238) - continued									
EP068: 4.4'-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	103	69.0	121	
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	94.7	56.0	120	
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	91.5	62.0	124	
EP068: 4.4'-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	96.9	66.0	120	
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	96.4	64.0	122	
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	95.6	54.0	130	
EP068B: Organophosphorus Pesticides (OP) (QCLot: 4705238)									
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	82.4	59.0	119	
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	97.1	62.0	128	
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	90.2	54.0	126	
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	96.9	67.0	119	
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	94.6	70.0	120	
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	93.9	72.0	120	
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	87.2	68.0	120	
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	92.8	68.0	122	
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	93.5	69.0	117	
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	92.5	76.0	118	
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	85.4	64.0	122	
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	96.6	70.0	116	
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	108	69.0	121	
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	97.6	66.0	118	
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	95.6	68.0	124	
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	97.0	62.0	112	
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	97.6	68.0	120	
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	94.7	65.0	127	
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	61.8	41.0	123	
EP075(SIM)A: Phenolic Compounds (QCLot: 4705237)									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	6 mg/kg	97.7	71.0	125	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	6 mg/kg	92.0	72.0	124	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	6 mg/kg	95.0	71.0	123	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	12 mg/kg	95.9	67.0	127	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	6 mg/kg	74.3	54.0	114	
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	6 mg/kg	97.9	68.0	126	
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	6 mg/kg	93.1	66.0	120	
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	6 mg/kg	91.8	70.0	120	
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	6 mg/kg	92.2	70.0	116	
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	6 mg/kg	84.6	54.0	114	
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	6 mg/kg	82.2	60.0	114	
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	12 mg/kg	26.7	10.0	80.0	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)	Acceptable Limits (%)	
						LCS	Low	High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 4705237)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	91.3	77.0	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	103	72.0	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	97.5	73.0	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	100	72.0	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	107	75.0	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	94.7	77.0	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	100.0	73.0	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	98.9	74.0	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	99.2	69.0	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	97.6	75.0	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	98.7	68.0	116
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	98.8	74.0	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	89.9	70.0	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	82.4	61.0	121
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	80.8	62.0	118
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	81.5	63.0	121
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4705236)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	113	75.0	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	111	77.0	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	95.0	71.0	129
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4711913)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	93.6	68.4	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4705236)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	116	77.0	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	102	74.0	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	88.4	63.0	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4711913)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	95.1	68.4	128
EP080: BTEXN (QCLot: 4711913)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	83.8	62.0	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	85.9	67.0	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	90.5	65.0	117
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	90.2	66.0	118
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	90.2	68.0	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	101	63.0	119
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4704676)								



Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Acceptable Limits (%)	
						LCS	Low	High	
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4704676) - continued									
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.00125 mg/kg	74.4	72.0	128	
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	93.6	73.0	123	
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	85.2	67.0	130	
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	86.8	70.0	132	
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	84.8	68.0	136	
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	80.0	59.0	134	
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4704676)									
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	91.7	71.0	135	
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	87.2	69.0	132	
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	88.4	70.0	132	
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	97.6	71.0	131	
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	102	69.0	133	
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	91.2	72.0	129	
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	0.00125 mg/kg	84.8	69.0	133	
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	92.4	64.0	136	
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	96.8	69.0	135	
EP231X: Perfluorotridecanoic acid (PFTriDA)	72629-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	92.0	66.0	139	
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	85.7	69.0	133	
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4704676)									
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	100	67.0	137	
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	0.00312 mg/kg	98.1	71.6	129	
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	92.5	69.8	131	
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	99.2	68.7	130	
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	99.5	65.1	134	
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	96.8	63.0	144	
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	90.8	61.0	139	
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4704676)									
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00125 mg/kg	91.6	62.0	145	
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00125 mg/kg	86.0	64.0	140	
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	0.00125 mg/kg	98.0	65.0	137	
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	0.00125 mg/kg	98.0	69.2	143	

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Acceptable Limits (%)	
						LCS	Low	High	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Acceptable Limits (%)	
					Concentration	LCS	Low	High	
EG020F: Dissolved Metals by ICP-MS (QCLot: 4707661)									
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	94.9	85.0	114	
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	92.3	84.0	110	
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	93.3	85.0	111	
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	93.7	81.0	111	
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	95.5	83.0	111	
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	93.0	82.0	112	
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	92.6	81.0	117	
EG035F: Dissolved Mercury by FIMS (QCLot: 4707660)									
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	95.1	83.0	105	
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 4699582)									
EP066: Total Polychlorinated biphenyls	----	1	µg/L	<1	10 µg/L	90.5	68.9	113	
EP068A: Organochlorine Pesticides (OC) (QCLot: 4699580)									
EP068: alpha-BHC	319-84-6	0.5	µg/L	<0.5	5 µg/L	84.1	64.9	107	
EP068: Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	5 µg/L	80.2	58.3	111	
EP068: beta-BHC	319-85-7	0.5	µg/L	<0.5	5 µg/L	81.0	69.0	117	
EP068: gamma-BHC	58-89-9	0.5	µg/L	<0.5	5 µg/L	85.0	70.0	112	
EP068: delta-BHC	319-86-8	0.5	µg/L	<0.5	5 µg/L	89.7	68.9	110	
EP068: Heptachlor	76-44-8	0.5	µg/L	<0.5	5 µg/L	94.6	65.2	108	
EP068: Aldrin	309-00-2	0.5	µg/L	<0.5	5 µg/L	82.7	65.8	109	
EP068: Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	5 µg/L	79.5	67.1	107	
EP068: trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	5 µg/L	77.5	64.1	110	
EP068: alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	5 µg/L	81.4	66.7	112	
EP068: cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	5 µg/L	79.5	63.2	111	
EP068: Dieldrin	60-57-1	0.5	µg/L	<0.5	5 µg/L	89.4	65.2	113	
EP068: 4,4'-DDE	72-55-9	0.5	µg/L	<0.5	5 µg/L	76.6	66.0	112	
EP068: Endrin	72-20-8	0.5	µg/L	<0.5	5 µg/L	97.0	65.2	113	
EP068: beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	5 µg/L	92.9	67.3	114	
EP068: 4,4'-DDD	72-54-8	0.5	µg/L	<0.5	5 µg/L	78.6	72.0	122	
EP068: Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	5 µg/L	75.0	66.9	109	
EP068: Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	5 µg/L	89.2	65.2	112	
EP068: 4,4'-DDT	50-29-3	2	µg/L	<2.0	5 µg/L	104	65.2	112	
EP068: Endrin ketone	53494-70-5	0.5	µg/L	<0.5	5 µg/L	88.6	63.8	110	
EP068: Methoxychlor	72-43-5	2	µg/L	<2.0	5 µg/L	82.2	61.1	114	
EP068B: Organophosphorus Pesticides (OP) (QCLot: 4699580)									
EP068: Dichlorvos	62-73-7	0.5	µg/L	<0.5	5 µg/L	79.7	65.6	114	
EP068: Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	5 µg/L	94.8	63.7	113	
EP068: Monocrotophos	6923-22-4	2	µg/L	<2.0	5 µg/L	23.7	19.7	48.0	
EP068: Dimethoate	60-51-5	0.5	µg/L	<0.5	5 µg/L	79.7	69.5	110	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Acceptable Limits (%)	
					Concentration	LCS	Low	High	
EP068B: Organophosphorus Pesticides (OP) (QCLot: 4699580) - continued									
EP068: Diazinon	333-41-5	0.5	µg/L	<0.5	5 µg/L	77.9	71.1	110	
EP068: Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	5 µg/L	85.6	77.0	119	
EP068: Parathion-methyl	298-00-0	2	µg/L	<2.0	5 µg/L	88.1	70.0	124	
EP068: Malathion	121-75-5	0.5	µg/L	<0.5	5 µg/L	92.9	68.4	116	
EP068: Fenthion	55-38-9	0.5	µg/L	<0.5	5 µg/L	81.9	68.6	112	
EP068: Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	5 µg/L	82.3	75.0	119	
EP068: Parathion	56-38-2	2	µg/L	<2.0	5 µg/L	83.1	67.0	121	
EP068: Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	5 µg/L	79.3	69.0	121	
EP068: Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	5 µg/L	95.8	71.8	110	
EP068: Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	5 µg/L	83.4	67.5	112	
EP068: Fenamiphos	22224-92-6	0.5	µg/L	<0.5	5 µg/L	90.2	64.1	116	
EP068: Prothiofos	34643-46-4	0.5	µg/L	<0.5	5 µg/L	77.1	67.8	114	
EP068: Ethion	563-12-2	0.5	µg/L	<0.5	5 µg/L	77.0	74.0	120	
EP068: Carbophenothion	786-19-6	0.5	µg/L	<0.5	5 µg/L	89.5	66.2	114	
EP068: Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	5 µg/L	105	51.6	128	
EP075(SIM)A: Phenolic Compounds (QCLot: 4699581)									
EP075(SIM): Phenol	108-95-2	1	µg/L	<1.0	5 µg/L	35.1	24.5	61.9	
EP075(SIM): 2-Chlorophenol	95-57-8	1	µg/L	<1.0	5 µg/L	69.6	52.0	90.0	
EP075(SIM): 2-Methylphenol	95-48-7	1	µg/L	<1.0	5 µg/L	70.8	51.0	91.0	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2	µg/L	<2.0	10 µg/L	62.1	44.0	88.0	
EP075(SIM): 2-Nitrophenol	88-75-5	1	µg/L	<1.0	5 µg/L	66.7	48.0	100	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	1	µg/L	<1.0	5 µg/L	79.3	49.0	99.0	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	1	µg/L	<1.0	5 µg/L	77.1	53.0	105	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	1	µg/L	<1.0	5 µg/L	73.0	57.0	105	
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1	µg/L	<1.0	5 µg/L	69.4	53.0	99.0	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	1	µg/L	<1.0	5 µg/L	65.7	50.0	106	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	1	µg/L	<1.0	5 µg/L	69.2	51.0	105	
EP075(SIM): Pentachlorophenol	87-86-5	2	µg/L	<2.0	10 µg/L	33.3	10.0	95.0	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 4699581)									
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	72.3	50.0	94.0	
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	72.4	63.6	114	
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	73.9	62.2	113	
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	80.6	63.9	115	
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	78.5	62.6	116	
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	66.9	64.3	116	
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	68.2	63.6	118	
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	69.8	63.1	118	
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	69.4	64.1	117	
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	71.9	62.5	116	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
				Result	Spike	Spike Recovery (%)	Acceptable Limits (%)	
					Concentration	LCS	Low	High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 4699581) - continued								
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	76.0	61.7	119
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	75.4	63.0	115
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	66.6	63.3	117
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	66.7	59.9	118
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	67.8	61.2	117
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	68.4	59.1	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4699579)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	84.9	53.7	97.0
EP071: C15 - C28 Fraction	----	100	µg/L	<100	600 µg/L	79.4	63.3	107
EP071: C29 - C36 Fraction	----	50	µg/L	<50	400 µg/L	99.2	58.3	120
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4712786)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	88.3	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4699579)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	500 µg/L	69.0	53.9	95.5
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	700 µg/L	86.0	57.8	110
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	300 µg/L	91.4	50.5	115
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4712786)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	91.8	75.0	127
EP080: BTEXN (QCLot: 4712786)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	85.5	70.0	122
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	82.3	69.0	123
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	83.8	70.0	120
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	82.5	69.0	121
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	85.9	72.0	122
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	85.0	70.0	120
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4706218)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	92.8	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.25 µg/L	92.4	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	81.8	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.25 µg/L	88.2	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	85.8	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.25 µg/L	84.2	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4706218)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	85.2	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	86.8	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	84.4	72.0	129



Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Acceptable Limits (%)	
						LCS	Low	High	
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4706218) - continued									
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	89.4	72.0	130	
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	85.6	71.0	133	
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	91.4	69.0	130	
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	88.0	71.0	129	
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	87.0	69.0	133	
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	84.0	72.0	134	
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	86.4	65.0	144	
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	89.1	71.0	132	
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4706218)									
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	84.6	67.0	137	
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	85.0	68.0	141	
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	82.1	62.6	147	
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	87.9	66.0	145	
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	83.6	57.6	145	
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	91.8	65.0	136	
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	79.2	61.0	135	
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4706218)									
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.25 µg/L	84.6	63.0	143	
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.25 µg/L	86.0	64.0	140	
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.25 µg/L	89.8	67.0	138	
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.25 µg/L	79.6	71.4	144	

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	Spike Recovery(%) MS	Acceptable Limits (%)	
						Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4713005)							
EP2215380-012	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	92.2	70.0	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	84.5	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	88.3	68.0	132
		EG005T: Copper	7440-50-8	250 mg/kg	104	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	96.1	70.0	130



Sub-Matrix: SOIL

				Matrix Spike (MS) Report			
				Spike Concentration	SpikeRecovery(%) MS	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4713005) - continued							
EP2215380-012	Anonymous	EG005T: Nickel	7440-02-0	50 mg/kg	98.7	70.0	130
		EG005T: Zinc	7440-66-6	250 mg/kg	106	66.0	133
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4713007)							
ES2240772-009	BH8_2.0	EG005T: Arsenic	7440-38-2	50 mg/kg	94.3	70.0	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	84.9	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	97.5	68.0	132
		EG005T: Copper	7440-50-8	250 mg/kg	97.9	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	97.7	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	96.5	70.0	130
		EG005T: Zinc	7440-66-6	250 mg/kg	97.2	66.0	133
ED045G: Chloride by Discrete Analyser (QCLot: 4706272)							
ES2240772-008	BH8_1.0	ED045G: Chloride	16887-00-6	250 mg/kg	105	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4713006)							
EP2215380-012	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	97.6	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4713008)							
ES2240772-009	BH8_2.0	EG035T: Mercury	7439-97-6	5 mg/kg	102	70.0	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 4705239)							
ES2240772-001	HA02_0.3	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	105	70.0	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 4705238)							
ES2240772-001	HA02_0.3	EP068: gamma-BHC	58-89-9	0.5 mg/kg	99.8	70.0	130
		EP068: Heptachlor	76-44-8	0.5 mg/kg	90.4	70.0	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	93.5	70.0	130
		EP068: Dieldrin	60-57-1	0.5 mg/kg	97.8	70.0	130
		EP068: Endrin	72-20-8	2 mg/kg	84.7	70.0	130
		EP068: 4,4'-DDT	50-29-3	2 mg/kg	82.3	70.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 4705238)							
ES2240772-001	HA02_0.3	EP068: Diazinon	333-41-5	0.5 mg/kg	85.0	70.0	130
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	92.3	70.0	130
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	96.7	70.0	130
		EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	99.4	70.0	130
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	88.3	70.0	130
EP075(SIM)A: Phenolic Compounds (QCLot: 4705237)							
ES2240772-001	HA02_0.3	EP075(SIM): Phenol	108-95-2	10 mg/kg	96.6	70.0	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	91.4	70.0	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	87.3	60.0	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	84.0	70.0	130



Sub-Matrix: SOIL

				Matrix Spike (MS) Report				
				Spike Concentration	SpikeRecovery(%) MS	Acceptable Limits (%)		
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
EP075(SIM)A: Phenolic Compounds (QCLot: 4705237) - continued								
ES2240772-001	HA02_0.3	EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	48.8	20.0	130	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 4705237)								
ES2240772-001	HA02_0.3	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	103	70.0	130	
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	97.9	70.0	130	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4705236)								
ES2240772-001	HA02_0.3	EP071: C10 - C14 Fraction	----	480 mg/kg	114	73.0	137	
		EP071: C15 - C28 Fraction	----	3100 mg/kg	116	53.0	131	
		EP071: C29 - C36 Fraction	----	2060 mg/kg	117	52.0	132	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4711913)								
ES2240772-001	HA02_0.3	EP080: C6 - C9 Fraction	----	32.5 mg/kg	94.2	70.0	130	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4705236)								
ES2240772-001	HA02_0.3	EP071: >C10 - C16 Fraction	----	860 mg/kg	119	73.0	137	
		EP071: >C16 - C34 Fraction	----	4320 mg/kg	115	53.0	131	
		EP071: >C34 - C40 Fraction	----	890 mg/kg	116	52.0	132	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4711913)								
ES2240772-001	HA02_0.3	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	95.3	70.0	130	
EP080: BTEXN (QCLot: 4711913)								
ES2240772-001	HA02_0.3	EP080: Benzene	71-43-2	2.5 mg/kg	79.3	70.0	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	86.3	70.0	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	85.1	70.0	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	84.9	70.0	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	88.3	70.0	130	
	EP080: Naphthalene	91-20-3	2.5 mg/kg	94.1	70.0	130		
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4704676)								
ES2239665-002	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.00125 mg/kg	86.8	72.0	128	
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.00125 mg/kg	113	73.0	123	
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00125 mg/kg	103	67.0	130	
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.00125 mg/kg	100	70.0	132	
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00125 mg/kg	96.4	68.0	136	
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.00125 mg/kg	89.2	59.0	134	
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4704676)								
ES2239665-002	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	98.1	71.0	135	
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	97.6	69.0	132	
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	94.4	70.0	132	
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	103	71.0	131	



Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4704676) - continued							
ES2239665-002	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	113	69.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.00125 mg/kg	94.8	72.0	129
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.00125 mg/kg	99.6	69.0	133
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.00125 mg/kg	100	64.0	136
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.00125 mg/kg	105	69.0	135
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.00125 mg/kg	108	66.0	139
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.00312 mg/kg	95.0	69.0	133
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4704676)							
ES2239665-002	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.00125 mg/kg	94.8	67.0	137
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.00312 mg/kg	109	71.6	129
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.00312 mg/kg	102	69.8	131
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.00312 mg/kg	107	68.7	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.00312 mg/kg	102	65.1	134
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.00125 mg/kg	101	63.0	144
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.00125 mg/kg	94.0	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4704676)							
ES2239665-002	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00125 mg/kg	84.4	62.0	145
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00125 mg/kg	87.6	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.00125 mg/kg	120	65.0	137
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.00125 mg/kg	123	69.2	143

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG020F: Dissolved Metals by ICP-MS (QCLot: 4707661)							
ES2240772-021	TB_101122	EG020A-F: Arsenic	7440-38-2	1 mg/L	88.8	70.0	130
		EG020A-F: Cadmium	7440-43-9	0.25 mg/L	88.8	70.0	130
		EG020A-F: Chromium	7440-47-3	1 mg/L	88.8	70.0	130
		EG020A-F: Copper	7440-50-8	1 mg/L	89.5	70.0	130
		EG020A-F: Lead	7439-92-1	1 mg/L	89.0	70.0	130
		EG020A-F: Nickel	7440-02-0	1 mg/L	89.8	70.0	130
		EG020A-F: Zinc	7440-66-6	1 mg/L	89.5	70.0	130
EG035F: Dissolved Mercury by FIMS (QCLot: 4707660)							
ES2240772-020	RB05	EG035F: Mercury	7439-97-6	0.01 mg/L	93.8	70.0	130

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 Work Order : ES2240772
 Client : KLEINFELDER AUSTRALIA PTY LTD
 Project : 20232408



Sub-Matrix: WATER

				Matrix Spike (MS) Report				
				Spike	SpikeRecovery(%)	Acceptable Limits (%)		
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4712786)								
ES2240831-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	117	70.0	130	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4712786)								
ES2240831-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	118	70.0	130	
EP080: BTEXN (QCLot: 4712786)								
ES2240831-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	108	70.0	130	
		EP080: Toluene	108-88-3	25 µg/L	111	70.0	130	
		EP080: Ethylbenzene	100-41-4	25 µg/L	116	70.0	130	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	114	70.0	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	25 µg/L	114	70.0	130	
	EP080: Naphthalene	91-20-3	25 µg/L	112	70.0	130		

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: ES2240772	Page	: 1 of 15
Client	: KLEINFELDER AUSTRALIA PTY LTD	Laboratory	: Environmental Division Sydney
Contact	: J Roby	Telephone	: +6138549 9609
Project	: 20232408	Date Samples Received	: 11-Nov-2022
Site	: UON Gosford	Issue Date	: 22-Nov-2022
Sampler	: Jai Roby	No. of samples received	: 21
Order number	: ----	No. of samples analysed	: 21

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** Laboratory Control outliers occur.
- **NO** Matrix Spike outliers occur.
- Duplicate outliers exist - please see following pages for full details.
- Surrogate recovery outliers exist for all regular sample matrices - please see following pages for full details.

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

- Quality Control Sample Frequency Outliers exist - please see following pages for full details.



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	EP2215380--027	Anonymous	Copper	7440-50-8	75.0 %	0% - 20%	RPD exceeds LOR based limits
EG005(ED093)T: Total Metals by ICP-AES	EP2215380--027	Anonymous	Zinc	7440-66-6	91.7 %	0% - 20%	RPD exceeds LOR based limits

Regular Sample Surrogates

Sub-Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Samples Submitted							
EP068T: Organophosphorus Pesticide Surrogate	ES2240772-020	RB05	DEF	78-48-8	64.1 %	66.5-111 %	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
EA002: pH 1:5 (Soils)							
Soil Glass Jar - Unpreserved							
BH8_1.0,	BH8_5.0	----	----	----	17-Nov-2022	16-Nov-2022	1

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)					
PAH/Phenols (GC/MS - SIM)	0	2	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	1	19	5.26	10.00	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	0	2	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	0	2	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	7	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
PAH/Phenols (GC/MS - SIM)	0	2	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	19	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	0	2	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	0	2	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	7	0.00	5.00	NEPM 2013 B3 & ALS QC Standard



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			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA002: pH 1:5 (Soils)							
Soil Glass Jar - Unpreserved (EA002) BH8_1.0, BH8_5.0	10-Nov-2022	16-Nov-2022	17-Nov-2022	✓	17-Nov-2022	16-Nov-2022	*
EA010: Conductivity (1:5)							
Soil Glass Jar - Unpreserved (EA010) BH8_1.0, BH8_5.0	10-Nov-2022	16-Nov-2022	17-Nov-2022	✓	17-Nov-2022	14-Dec-2022	✓
EA033-A: Actual Acidity							
Snap Lock Bag - frozen (EA033) HA02_0.6, BH8_1.0, BH8_3.0, BH8_5.0, BH8_7.0, BH8_9.0, BH8_11.0 HA05_0.7, BH8_2.0, BH8_4.0, BH8_6.0, BH8_8.0, BH8_10.0, BH8_12.0	10-Nov-2022	18-Nov-2022	10-Nov-2023	✓	18-Nov-2022	16-Feb-2023	✓
EA033-B: Potential Acidity							
Snap Lock Bag - frozen (EA033) HA02_0.6, BH8_1.0, BH8_3.0, BH8_5.0, BH8_7.0, BH8_9.0, BH8_11.0 HA05_0.7, BH8_2.0, BH8_4.0, BH8_6.0, BH8_8.0, BH8_10.0, BH8_12.0	10-Nov-2022	18-Nov-2022	10-Nov-2023	✓	18-Nov-2022	16-Feb-2023	✓
EA033-C: Acid Neutralising Capacity							
Snap Lock Bag - frozen (EA033) HA02_0.6, BH8_1.0, BH8_3.0, BH8_5.0, BH8_7.0, BH8_9.0, BH8_11.0 HA05_0.7, BH8_2.0, BH8_4.0, BH8_6.0, BH8_8.0, BH8_10.0, BH8_12.0	10-Nov-2022	18-Nov-2022	10-Nov-2023	✓	18-Nov-2022	16-Feb-2023	✓



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) HA02_0.6, BH8_1.0, BH8_3.0, BH8_5.0, BH8_7.0, BH8_9.0, BH8_11.0, HA05_0.7, BH8_2.0, BH8_4.0, BH8_6.0, BH8_8.0, BH8_10.0, BH8_12.0	10-Nov-2022	18-Nov-2022	10-Nov-2023	✓	18-Nov-2022	16-Feb-2023	✓	
EA033-E: Acid Base Accounting								
Snap Lock Bag - frozen (EA033) HA02_0.6, BH8_1.0, BH8_3.0, BH8_5.0, BH8_7.0, BH8_9.0, BH8_11.0, HA05_0.7, BH8_2.0, BH8_4.0, BH8_6.0, BH8_8.0, BH8_10.0, BH8_12.0	10-Nov-2022	18-Nov-2022	10-Nov-2023	✓	18-Nov-2022	16-Feb-2023	✓	
EA037: Ass Field Screening Analysis								
Snap Lock Bag - frozen (EA037) BH8_1.0, BH8_3.0, BH8_5.0, BH8_7.0, BH8_9.0, BH8_11.0, BH8_2.0, BH8_4.0, BH8_6.0, BH8_8.0, BH8_10.0, BH8_12.0	10-Nov-2022	18-Nov-2022	09-May-2023	✓	18-Nov-2022	09-May-2023	✓	
EA055: Moisture Content (Dried @ 105-110°C)								
Soil Glass Jar - Unpreserved (EA055) BH8_1.0, BH8_5.0	10-Nov-2022	----	----	----	16-Nov-2022	24-Nov-2022	✓	
Soil Glass Jar - Unpreserved (EA055) HA02_0.3, HA02_1.0, HA05_0.7, BH8_0.5, BH8_6.0, HA02_0.6, HA05_0.3, HA05_1.5, BH8_2.0	10-Nov-2022	----	----	----	18-Nov-2022	24-Nov-2022	✓	
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200) HA02_0.3, BH8_0.5, HA05_0.3	10-Nov-2022	----	----	----	14-Nov-2022	09-May-2023	✓	
ED040S: Soluble Major Anions								
Soil Glass Jar - Unpreserved (ED040S) BH8_1.0, BH8_5.0	10-Nov-2022	16-Nov-2022	08-Dec-2022	✓	17-Nov-2022	14-Dec-2022	✓	



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	
ED045G: Chloride by Discrete Analyser								
Soil Glass Jar - Unpreserved (ED045G) BH8_1.0, BH8_5.0	10-Nov-2022	16-Nov-2022	08-Dec-2022	✓	17-Nov-2022	14-Dec-2022	✓	
EG005(ED093)T: Total Metals by ICP-AES								
Soil Glass Jar - Unpreserved (EG005T) HA02_0.3, HA02_1.0, HA05_0.7, BH8_0.5, BH8_6.0 HA02_0.6, HA05_0.3, HA05_1.5, BH8_2.0	10-Nov-2022	18-Nov-2022	09-May-2023	✓	21-Nov-2022	09-May-2023	✓	
EG035T: Total Recoverable Mercury by FIMS								
Soil Glass Jar - Unpreserved (EG035T) HA02_0.3, HA02_1.0, HA05_0.7, BH8_0.5, BH8_6.0 HA02_0.6, HA05_0.3, HA05_1.5, BH8_2.0	10-Nov-2022	18-Nov-2022	08-Dec-2022	✓	21-Nov-2022	08-Dec-2022	✓	
EP066: Polychlorinated Biphenyls (PCB)								
Soil Glass Jar - Unpreserved (EP066) HA02_0.3, BH8_0.5 HA05_0.3	10-Nov-2022	18-Nov-2022	24-Nov-2022	✓	21-Nov-2022	28-Dec-2022	✓	
EP068A: Organochlorine Pesticides (OC)								
Soil Glass Jar - Unpreserved (EP068) HA02_0.3, BH8_0.5 HA05_0.3	10-Nov-2022	18-Nov-2022	24-Nov-2022	✓	21-Nov-2022	28-Dec-2022	✓	
EP068B: Organophosphorus Pesticides (OP)								
Soil Glass Jar - Unpreserved (EP068) HA02_0.3, BH8_0.5 HA05_0.3	10-Nov-2022	18-Nov-2022	24-Nov-2022	✓	21-Nov-2022	28-Dec-2022	✓	
EP075(SIM)A: Phenolic Compounds								
Soil Glass Jar - Unpreserved (EP075(SIM)) HA02_0.3, HA02_1.0, HA05_0.7, BH8_0.5, BH8_6.0 HA02_0.6, HA05_0.3, HA05_1.5, BH8_2.0	10-Nov-2022	18-Nov-2022	24-Nov-2022	✓	18-Nov-2022	28-Dec-2022	✓	



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))								
HA02_0.3, HA02_1.0, HA05_0.7, BH8_0.5, BH8_6.0	HA02_0.6, HA05_0.3, HA05_1.5, BH8_2.0	10-Nov-2022	18-Nov-2022	24-Nov-2022	✓	18-Nov-2022	28-Dec-2022	✓
EP080/071: Total Petroleum Hydrocarbons								
Soil Glass Jar - Unpreserved (EP080)								
HA02_0.3, HA02_1.0, HA05_0.7, BH8_0.5, BH8_6.0	HA02_0.6, HA05_0.3, HA05_1.5, BH8_2.0	10-Nov-2022	18-Nov-2022	24-Nov-2022	✓	19-Nov-2022	24-Nov-2022	✓
Soil Glass Jar - Unpreserved (EP071)								
HA02_0.3, HA02_1.0, HA05_0.7, BH8_0.5, BH8_6.0	HA02_0.6, HA05_0.3, HA05_1.5, BH8_2.0	10-Nov-2022	18-Nov-2022	24-Nov-2022	✓	21-Nov-2022	28-Dec-2022	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
Soil Glass Jar - Unpreserved (EP080)								
HA02_0.3, HA02_1.0, HA05_0.7, BH8_0.5, BH8_6.0	HA02_0.6, HA05_0.3, HA05_1.5, BH8_2.0	10-Nov-2022	18-Nov-2022	24-Nov-2022	✓	19-Nov-2022	24-Nov-2022	✓
Soil Glass Jar - Unpreserved (EP071)								
HA02_0.3, HA02_1.0, HA05_0.7, BH8_0.5, BH8_6.0	HA02_0.6, HA05_0.3, HA05_1.5, BH8_2.0	10-Nov-2022	18-Nov-2022	24-Nov-2022	✓	21-Nov-2022	28-Dec-2022	✓
EP080: BTEXN								
Soil Glass Jar - Unpreserved (EP080)								
HA02_0.3, HA02_1.0, HA05_0.7, BH8_0.5, BH8_6.0	HA02_0.6, HA05_0.3, HA05_1.5, BH8_2.0	10-Nov-2022	18-Nov-2022	24-Nov-2022	✓	19-Nov-2022	24-Nov-2022	✓



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	
EP231A: Perfluoroalkyl Sulfonic Acids								
HDPE Soil Jar (EP231X) HA02_0.6, BH8_2.0	HA05_0.7,	10-Nov-2022	16-Nov-2022	09-May-2023	✓	17-Nov-2022	26-Dec-2022	✓
EP231B: Perfluoroalkyl Carboxylic Acids								
HDPE Soil Jar (EP231X) HA02_0.6, BH8_2.0	HA05_0.7,	10-Nov-2022	16-Nov-2022	09-May-2023	✓	17-Nov-2022	26-Dec-2022	✓
EP231C: Perfluoroalkyl Sulfonamides								
HDPE Soil Jar (EP231X) HA02_0.6, BH8_2.0	HA05_0.7,	10-Nov-2022	16-Nov-2022	09-May-2023	✓	17-Nov-2022	26-Dec-2022	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
HDPE Soil Jar (EP231X) HA02_0.6, BH8_2.0	HA05_0.7,	10-Nov-2022	16-Nov-2022	09-May-2023	✓	17-Nov-2022	26-Dec-2022	✓
EP231P: PFAS Sums								
HDPE Soil Jar (EP231X) HA02_0.6, BH8_2.0	HA05_0.7,	10-Nov-2022	16-Nov-2022	09-May-2023	✓	17-Nov-2022	26-Dec-2022	✓

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	
EG020F: Dissolved Metals by ICP-MS								
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F) RB05,	TB_101122	10-Nov-2022	----	----	----	17-Nov-2022	09-May-2023	✓
EG035F: Dissolved Mercury by FIMS								
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F) RB05,	TB_101122	10-Nov-2022	----	----	----	17-Nov-2022	08-Dec-2022	✓
EP066: Polychlorinated Biphenyls (PCB)								
Amber Glass Bottle - Unpreserved (EP066) RB05,	TB_101122	10-Nov-2022	16-Nov-2022	17-Nov-2022	✓	17-Nov-2022	26-Dec-2022	✓
EP068A: Organochlorine Pesticides (OC)								
Amber Glass Bottle - Unpreserved (EP068) RB05,	TB_101122	10-Nov-2022	16-Nov-2022	17-Nov-2022	✓	17-Nov-2022	26-Dec-2022	✓
EP068B: Organophosphorus Pesticides (OP)								
Amber Glass Bottle - Unpreserved (EP068) RB05,	TB_101122	10-Nov-2022	16-Nov-2022	17-Nov-2022	✓	17-Nov-2022	26-Dec-2022	✓
EP075(SIM)A: Phenolic Compounds								
Amber Glass Bottle - Unpreserved (EP075(SIM)) RB05,	TB_101122	10-Nov-2022	16-Nov-2022	17-Nov-2022	✓	17-Nov-2022	26-Dec-2022	✓



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
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM)) RB05, TB_101122	10-Nov-2022	16-Nov-2022	17-Nov-2022	✓	17-Nov-2022	26-Dec-2022	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071) RB05, TB_101122	10-Nov-2022	16-Nov-2022	17-Nov-2022	✓	17-Nov-2022	26-Dec-2022	✓
Amber VOC Vial - Sulfuric Acid (EP080) RB05, TB_101122	10-Nov-2022	21-Nov-2022	24-Nov-2022	✓	21-Nov-2022	24-Nov-2022	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071) RB05, TB_101122	10-Nov-2022	16-Nov-2022	17-Nov-2022	✓	17-Nov-2022	26-Dec-2022	✓
Amber VOC Vial - Sulfuric Acid (EP080) RB05, TB_101122	10-Nov-2022	21-Nov-2022	24-Nov-2022	✓	21-Nov-2022	24-Nov-2022	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080) RB05, TB_101122	10-Nov-2022	21-Nov-2022	24-Nov-2022	✓	21-Nov-2022	24-Nov-2022	✓
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X) RB05, TB_101122	10-Nov-2022	17-Nov-2022	09-May-2023	✓	18-Nov-2022	09-May-2023	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X) RB05, TB_101122	10-Nov-2022	17-Nov-2022	09-May-2023	✓	18-Nov-2022	09-May-2023	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X) RB05, TB_101122	10-Nov-2022	17-Nov-2022	09-May-2023	✓	18-Nov-2022	09-May-2023	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X) RB05, TB_101122	10-Nov-2022	17-Nov-2022	09-May-2023	✓	18-Nov-2022	09-May-2023	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X) RB05, TB_101122	10-Nov-2022	17-Nov-2022	09-May-2023	✓	18-Nov-2022	09-May-2023	✓



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	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
Analytical Methods							
Laboratory Duplicates (DUP)							
ASS Field Screening Analysis	EA037	2	12	16.67	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Chloride Soluble By Discrete Analyser	ED045G	1	6	16.67	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Chromium Suite for Acid Sulphate Soils	EA033	3	24	12.50	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Electrical Conductivity (1:5)	EA010	2	17	11.76	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Major Anions - Soluble	ED040S	1	6	16.67	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055	4	36	11.11	10.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	2	15	13.33	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	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	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	7	14.29	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	3	23	13.04	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	3	23	13.04	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	2	15	13.33	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Chloride Soluble By Discrete Analyser	ED045G	2	6	33.33	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Chromium Suite for Acid Sulphate Soils	EA033	2	24	8.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Electrical Conductivity (1:5)	EA010	1	17	5.88	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Major Anions - Soluble	ED040S	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	15	6.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	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	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	7	14.29	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	23	8.70	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	23	8.70	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	1	15	6.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Chloride Soluble By Discrete Analyser	ED045G	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Chromium Suite for Acid Sulphate Soils	EA033	2	24	8.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Electrical Conductivity (1:5)	EA010	1	17	5.88	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Major Anions - Soluble	ED040S	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	15	6.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	16	6.25	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							
Pesticides by GCMS	EP068	1	9	11.11	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	7	14.29	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	23	8.70	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	23	8.70	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	1	15	6.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Chloride Soluble By Discrete Analyser	ED045G	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	15	6.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	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	7	14.29	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	23	8.70	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	23	8.70	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	1	15	6.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard

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)							
Dissolved Mercury by FIMS	EG035F	2	13	15.38	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	2	0.00	10.00	✗	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	19	5.26	10.00	✗	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	2	0.00	10.00	✗	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	2	0.00	10.00	✗	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	7	0.00	10.00	✗	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Dissolved Mercury by FIMS	EG035F	1	13	7.69	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	2	50.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	2	50.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	2	50.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	7	14.29	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Dissolved Mercury by FIMS	EG035F	1	13	7.69	5.00	✓	NEPM 2013 B3 & ALS QC Standard



Matrix: **WATER** Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
Analytical Methods							
Method Blanks (MB) - Continued							
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	2	50.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	19	5.26	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	2	50.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	2	50.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	7	14.29	5.00	✔	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Dissolved Mercury by FIMS	EG035F	1	13	7.69	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	2	0.00	5.00	✖	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	19	0.00	5.00	✖	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	2	0.00	5.00	✖	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	2	0.00	5.00	✖	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	7	0.00	5.00	✖	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	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 (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).
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).
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.
ASS Field Screening Analysis	* EA037	SOIL	In house: Referenced to Acid Sulfate Soils Laboratory Methods Guidelines. As received samples are tested for pH field and pH fox and assessed for a reaction rating.
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).
Resistivity (1:5)	EA080	SOIL	In house: Calculated from Electrical Conductivity
Corrosion Classification for Steel and Concrete Piles	* EA167	SOIL	In house: Exposure classification is determined according to Australian Standard AS2159-2009.
Asbestos Identification in Soils	EA200	SOIL	AS 4964 Method for the qualitative identification of asbestos in bulk samples Analysis by Polarised Light Microscopy including dispersion staining
Major Anions - Soluble	ED040S	SOIL	In house: Soluble Anions are determined off a 1:5 soil / water extract by ICPAES.
Chloride Soluble By Discrete Analyser	ED045G	SOIL	In house: Referenced to APHA 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 (SnCl ₂) (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 SnCl ₂ 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)
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).



Analytical Methods	Method	Matrix	Method Descriptions
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.
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	SOIL	In-house: Analysis of soils by solvent extraction followed by LC-Electrospray-MS-MS, Negative Mode using MRM using internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to a portion of soil which is then extracted with MTBE and an ion pairing reagent. A portion of extract is exchanged into the analytical solvent mixture, combined with an equal volume reagent water and filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. Samples are 0.45µm filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl ₂)(Cold Vapour generation) AAS) Samples are 0.45µm filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ 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).
Polychlorinated Biphenyls (PCB)	EP066	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample 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	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample 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)
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015 The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS in SIM Mode 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	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM Schedule B(3)
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
Drying only	EN020D	SOIL	In house
Drying at 85 degrees, bagging and labelling (ASS)	EN020PR	SOIL	In house
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.
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).
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, Na ₂ SO ₄ 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.
QuEChERS Extraction of Solids	ORG71	SOIL	In house: Sequential extractions with Acetonitrile/Methanol by shaking. Extraction efficiency aided by the addition of salts under acidic conditions. Where relevant, interferences from co-extracted organics are removed with dispersive clean-up media (dSPE). The extract is either diluted or concentrated and exchanged into the analytical solvent.
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for purging.
Solid Phase Extraction (SPE) for PFAS in water	ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.





Client:		SITE, COC AND CONTACT DATA										Laboratory:							
Kleinfelder Australia Pty Ltd Suite 3, 240-244 Pacific Hwy Charlestown, NSW 2290 Phone: 02 4949 5200		Site Name:	UoN Gosford GME Nov 2022				Sample Name:	Megan Ferguson			ALS								
QUOTE NUMBER		20232408				Contact Number:	0455 981 953			5/585 Maitland Rd Mayfield West, Newcastle NSW 2304 Phone: (02) 4014 2500									
Job No:		20232408				Contact e mail:	mferguson@kleinfelder.com			Send Results to:									
Required TAT:		24 hrs 48 hrs 3 days 5 days 7 days				PK name (if not sampler):	Phil Band			mferguson@kleinfelder.com, jroby@kleinfelder.com, pband@kleinfelder.com									
Data QA level:		LAB minimum unless specified:				EDO Format:	KLF_EFWEDD			Suite 3, 240-244 Pacific Hwy Charlestown, NSW 2290 newcastle@kleinfelder.com Phone: 02 4949 5200									
CHAIN OF CUSTODY																			
Relinquished by (print):		Megan Ferguson		Received by (print):		[Signature]		Relinquished:		[Signature]		Received by:							
(sign):		[Signature]		(sign):		23-11-22		(sign):		23-11-22		(sign):							
Date / Time:		23/11/2022 12:17		Date / Time:		12:18		Date / Time:		5:40		Date / Time:							
Temp. (°C):		20		Temp. (°C):		20		Temp. (°C):		23/11/22		Temp. (°C):							
Notes:				Notes:		ice present / no ice seals intact / no seal		Notes:		ice present / no ice seals intact / no seal		Notes:							
Sample ID	Lab ID	Sample Point	Sample Type	Date	Start Depth	End Depth	Units	# Containers	Organic Analytes				Metals		Other Analytes			Comments	
									TRH (C6-C40) / ETEXN	PAH / OC / OP / PCB					8 metals (S-19)	7 metals (S-1)	EC & pH		PFAS (28 analytes, standard level)
1 BH1			WG	23/11/2022				7	X	X			X	X	X	X	X		
2 BH7			WG	23/11/2022				7	X	X			X	X	X	X	X		
3 BH8			WG	23/11/2022				7	X	X			X	X	X	X	X		
4 QC01			WG	23/11/2022				6	X	X			X	X		X	X		
5 QC01A			WG	23/11/2022				6	X	X			X	X		X	X		Please forward to Eurofins
6 RB01			WQ	23/11/2022				6	X	X			X	X		X	X		
TB 231122			WQ	23/11/2022				6	X	X			X	X		X	X		

Environmental Division
Sydney
Work Order Reference
ES2242356



W-03 Metals (NEPM 15) - As, Ba, Be, B, Cd, Cr, Co, Cu, Fe, Pb, Mn, Hg, Ni, Se, V, Zn
NT14 - Extended water suite B

Telephone : +61-2-8784 6655





CERTIFICATE OF ANALYSIS

Work Order : ES2242356
Client : KLEINFELDER AUSTRALIA PTY LTD
Contact : Megan Ferguson
Address : 95 MITCHELL ROAD
CARDIFF NSW 2285
Telephone : ----
Project : 20232408
Order number : ----
C-O-C number : ----
Sampler : Megan Ferguson
Site : UoN Gosford GME Nov 2022
Quote number : EN/222
No. of samples received : 6
No. of samples analysed : 6

Page : 1 of 15
Laboratory : Environmental Division Sydney
Contact : Graeme Jablonskas
Address : 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone : +6138549 9609
Date Samples Received : 23-Nov-2022 12:18
Date Analysis Commenced : 23-Nov-2022
Issue Date : 30-Nov-2022 16:43



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.

Table with 3 columns: Signatories, Position, Accreditation Category. Rows include Ankit Joshi (Senior Chemist - Inorganics), Edwandy Fadjjar (Organic Coordinator), Franco Lentini (LCMS Coordinator), and Neil Martin (Team Leader - Chemistry).



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.

- EP075 (SIM): Where reported, 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.
- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the 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.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	BH1	BH7	BH8	QC01	RB01
Sampling date / time				23-Nov-2022 00:00	23-Nov-2022 00:00	23-Nov-2022 00:00	23-Nov-2022 00:00	23-Nov-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2242356-001	ES2242356-002	ES2242356-003	ES2242356-004	ES2242356-005	
				Result	Result	Result	Result	Result	
EA005: pH									
pH Value	----	0.01	pH Unit	5.80	5.48	5.83	----	----	
EA010P: Conductivity by PC Titrator									
Electrical Conductivity @ 25°C	----	1	µS/cm	429	308	317	----	----	
EG020F: Dissolved Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	
Chromium	7440-47-3	0.001	mg/L	<0.001	0.001	<0.001	<0.001	<0.001	
Copper	7440-50-8	0.001	mg/L	<0.001	0.007	<0.001	<0.001	<0.001	
Nickel	7440-02-0	0.001	mg/L	0.004	0.018	0.003	0.010	<0.001	
Lead	7439-92-1	0.001	mg/L	<0.001	0.001	<0.001	<0.001	<0.001	
Zinc	7440-66-6	0.005	mg/L	0.015	0.074	0.024	0.022	<0.005	
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	
EP066: Polychlorinated Biphenyls (PCB)									
^ Total Polychlorinated biphenyls	----	1	µg/L	<1	<1	<1	<1	<1	
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	
Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	
beta-BHC	319-85-7	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	
gamma-BHC	58-89-9	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	
delta-BHC	319-86-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	
Heptachlor	76-44-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	
Aldrin	309-00-2	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	
Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	
trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	
alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	
cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	
Dieldrin	60-57-1	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	
4,4'-DDE	72-55-9	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	
Endrin	72-20-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	
beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	
4,4'-DDD	72-54-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	
Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	
Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	BH1	BH7	BH8	QC01	RB01
Sampling date / time				23-Nov-2022 00:00	23-Nov-2022 00:00	23-Nov-2022 00:00	23-Nov-2022 00:00	23-Nov-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2242356-001	ES2242356-002	ES2242356-003	ES2242356-004	ES2242356-005	
				Result	Result	Result	Result	Result	
EP068A: Organochlorine Pesticides (OC) - Continued									
4,4'-DDT	50-29-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0	
Endrin ketone	53494-70-5	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	
Methoxychlor	72-43-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0	
^ Total Chlordane (sum)	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/5 0-2	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	
Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	
Monocrotophos	6923-22-4	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0	
Dimethoate	60-51-5	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	
Diazinon	333-41-5	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	
Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	
Parathion-methyl	298-00-0	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0	
Malathion	121-75-5	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	
Fenthion	55-38-9	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	
Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	
Parathion	56-38-2	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0	
Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	
Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	
Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	
Fenamiphos	22224-92-6	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	
Prothiofos	34643-46-4	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	
Ethion	563-12-2	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	
Carbophenothion	786-19-6	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	
Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	1.0	µg/L	<1.0	10.4	<1.0	10.2	<1.0	
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	BH1	BH7	BH8	QC01	RB01
Sampling date / time					23-Nov-2022 00:00	23-Nov-2022 00:00	23-Nov-2022 00:00	23-Nov-2022 00:00	23-Nov-2022 00:00
Compound	CAS Number	LOR	Unit		ES2242356-001	ES2242356-002	ES2242356-003	ES2242356-004	ES2242356-005
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	10.4	<0.5	10.2	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L	<20	140	<20	130	<20	<20
C10 - C14 Fraction	----	50	µg/L	<50	440	<50	460	<50	<50
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	440	<50	460	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L	<20	150	<20	160	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	110	<20	120	<20	<20
>C10 - C16 Fraction	----	100	µg/L	<100	450	<100	470	<100	<100
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	450	<100	470	<100	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	430	<100	450	<100	<100
EP080: BTEXN									
Benzene	71-43-2	1	µg/L	<1	8	<1	8	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	29	<2	30	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	4	<2	4	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2	<2
^ Total Xylenes	----	2	µg/L	<2	4	<2	4	<2	<2



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	BH1	BH7	BH8	QC01	RB01
Sampling date / time				23-Nov-2022 00:00	23-Nov-2022 00:00	23-Nov-2022 00:00	23-Nov-2022 00:00	23-Nov-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2242356-001	ES2242356-002	ES2242356-003	ES2242356-004	ES2242356-005	
				Result	Result	Result	Result	Result	
EP080: BTEXN - Continued									
^ Sum of BTEX	----	1	µg/L	<1	41	<1	42	<1	
Naphthalene	91-20-3	5	µg/L	<5	19	<5	20	<5	
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	0.05	<0.01	<0.01	
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	BH1	BH7	BH8	QC01	RB01
Sampling date / time				23-Nov-2022 00:00	23-Nov-2022 00:00	23-Nov-2022 00:00	23-Nov-2022 00:00	23-Nov-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2242356-001	ES2242356-002	ES2242356-003	ES2242356-004	ES2242356-005	
				Result	Result	Result	Result	Result	
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.05	<0.01	<0.01	
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	<0.01	<0.01	0.05	<0.01	<0.01	
Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	<0.01	0.05	<0.01	<0.01	
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	1	%	101	111	96.2	108	107	
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.5	%	83.8	92.3	80.4	87.8	104	
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.5	%	102	106	84.7	101	112	
EP075(SIM)S: Phenolic Compound Surrogates									



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	BH1	BH7	BH8	QC01	RB01
Sampling date / time				23-Nov-2022 00:00	23-Nov-2022 00:00	23-Nov-2022 00:00	23-Nov-2022 00:00	23-Nov-2022 00:00	
Compound	CAS Number	LOR	Unit	ES2242356-001	ES2242356-002	ES2242356-003	ES2242356-004	ES2242356-005	
				Result	Result	Result	Result	Result	
EP075(SIM)S: Phenolic Compound Surrogates - Continued									
Phenol-d6	13127-88-3	1.0	%	36.8	35.0	32.5	36.8	34.1	
2-Chlorophenol-D4	93951-73-6	1.0	%	73.5	77.0	64.0	80.2	41.9	
2,4,6-Tribromophenol	118-79-6	1.0	%	107	116	86.7	114	27.9	
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%	92.7	93.4	80.7	99.2	103	
Anthracene-d10	1719-06-8	1.0	%	112	112	97.4	111	106	
4-Terphenyl-d14	1718-51-0	1.0	%	111	110	98.7	109	107	
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	2	%	130	112	119	120	130	
Toluene-D8	2037-26-5	2	%	116	113	114	109	109	
4-Bromofluorobenzene	460-00-4	2	%	121	119	125	119	117	
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%	98.8	106	99.4	98.7	96.9	
13C8-PFOA	----	0.02	%	97.5	101	95.6	98.2	94.0	



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)		Sample ID		TB_231122	----	----	----	----
		Sampling date / time		23-Nov-2022 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	ES2242356-006	-----	-----	-----	-----
				Result	----	----	----	----
EG020F: Dissolved Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	<0.001	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	----	----	----	----
Chromium	7440-47-3	0.001	mg/L	<0.001	----	----	----	----
Copper	7440-50-8	0.001	mg/L	<0.001	----	----	----	----
Nickel	7440-02-0	0.001	mg/L	<0.001	----	----	----	----
Lead	7439-92-1	0.001	mg/L	<0.001	----	----	----	----
Zinc	7440-66-6	0.005	mg/L	<0.005	----	----	----	----
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	----	----	----	----
EP066: Polychlorinated Biphenyls (PCB)								
^ Total Polychlorinated biphenyls	----	1	µg/L	<1	----	----	----	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.5	µg/L	<0.5	----	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	----	----	----	----
beta-BHC	319-85-7	0.5	µg/L	<0.5	----	----	----	----
gamma-BHC	58-89-9	0.5	µg/L	<0.5	----	----	----	----
delta-BHC	319-86-8	0.5	µg/L	<0.5	----	----	----	----
Heptachlor	76-44-8	0.5	µg/L	<0.5	----	----	----	----
Aldrin	309-00-2	0.5	µg/L	<0.5	----	----	----	----
Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	----	----	----	----
trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	----	----	----	----
alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	----	----	----	----
cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	----	----	----	----
Dieldrin	60-57-1	0.5	µg/L	<0.5	----	----	----	----
4,4'-DDE	72-55-9	0.5	µg/L	<0.5	----	----	----	----
Endrin	72-20-8	0.5	µg/L	<0.5	----	----	----	----
beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	----	----	----	----
4,4'-DDD	72-54-8	0.5	µg/L	<0.5	----	----	----	----
Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	----	----	----	----
Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	----	----	----	----
4,4'-DDT	50-29-3	2.0	µg/L	<2.0	----	----	----	----
Endrin ketone	53494-70-5	0.5	µg/L	<0.5	----	----	----	----
Methoxychlor	72-43-5	2.0	µg/L	<2.0	----	----	----	----
^ Total Chlordane (sum)	----	0.5	µg/L	<0.5	----	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)		Sample ID	TB_231122		----	----	----	----
Sampling date / time		23-Nov-2022 00:00		----	----	----	----	
Compound	CAS Number	LOR	Unit	ES2242356-006	-----	-----	-----	-----
				Result	----	----	----	----
EP068A: Organochlorine Pesticides (OC) - Continued								
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/5 0-2	0.5	µg/L	<0.5	----	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.5	µg/L	<0.5	----	----	----	----
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.5	µg/L	<0.5	----	----	----	----
Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	----	----	----	----
Monocrotophos	6923-22-4	2.0	µg/L	<2.0	----	----	----	----
Dimethoate	60-51-5	0.5	µg/L	<0.5	----	----	----	----
Diazinon	333-41-5	0.5	µg/L	<0.5	----	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	----	----	----	----
Parathion-methyl	298-00-0	2.0	µg/L	<2.0	----	----	----	----
Malathion	121-75-5	0.5	µg/L	<0.5	----	----	----	----
Fenthion	55-38-9	0.5	µg/L	<0.5	----	----	----	----
Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	----	----	----	----
Parathion	56-38-2	2.0	µg/L	<2.0	----	----	----	----
Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	----	----	----	----
Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	----	----	----	----
Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	----	----	----	----
Fenamiphos	22224-92-6	0.5	µg/L	<0.5	----	----	----	----
Prothiofos	34643-46-4	0.5	µg/L	<0.5	----	----	----	----
Ethion	563-12-2	0.5	µg/L	<0.5	----	----	----	----
Carbophenothion	786-19-6	0.5	µg/L	<0.5	----	----	----	----
Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1.0	µg/L	<1.0	----	----	----	----
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	----	----	----	----
Acenaphthene	83-32-9	1.0	µg/L	<1.0	----	----	----	----
Fluorene	86-73-7	1.0	µg/L	<1.0	----	----	----	----
Phenanthrene	85-01-8	1.0	µg/L	<1.0	----	----	----	----
Anthracene	120-12-7	1.0	µg/L	<1.0	----	----	----	----
Fluoranthene	206-44-0	1.0	µg/L	<1.0	----	----	----	----
Pyrene	129-00-0	1.0	µg/L	<1.0	----	----	----	----
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	----	----	----	----
Chrysene	218-01-9	1.0	µg/L	<1.0	----	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L	<1.0	----	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)		Sample ID	TB_231122		----	----	----	----
Sampling date / time		23-Nov-2022 00:00		----	----	----	----	
Compound	CAS Number	LOR	Unit	ES2242356-006	-----	-----	-----	-----
				Result	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L	<1.0	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L	<1.0	----	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	----	----	----	----
C10 - C14 Fraction	----	50	µg/L	<50	----	----	----	----
C15 - C28 Fraction	----	100	µg/L	<100	----	----	----	----
C29 - C36 Fraction	----	50	µg/L	<50	----	----	----	----
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	----	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	----	----	----	----
>C10 - C16 Fraction	----	100	µg/L	<100	----	----	----	----
>C16 - C34 Fraction	----	100	µg/L	<100	----	----	----	----
>C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	----	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	----	----	----	----
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	----	----	----	----
Toluene	108-88-3	2	µg/L	<2	----	----	----	----
Ethylbenzene	100-41-4	2	µg/L	<2	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L	<2	----	----	----	----
^ Total Xylenes	----	2	µg/L	<2	----	----	----	----
^ Sum of BTEX	----	1	µg/L	<1	----	----	----	----
Naphthalene	91-20-3	5	µg/L	<5	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids								



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	TB_231122	----	----	----	----
Sampling date / time			23-Nov-2022 00:00	----	----	----	----	
Compound	CAS Number	LOR	Unit	ES2242356-006	-----	-----	-----	-----
				Result	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids - Continued								
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	----	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	----	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	----	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	----	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	----	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	----	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	----	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	----	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides								
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	----	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	----	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)		Sample ID	TB_231122					
		Sampling date / time	23-Nov-2022 00:00					
Compound	CAS Number	LOR	Unit	ES2242356-006	-----	-----	-----	-----
				Result	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued								
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	----	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	----	----	----	----
EP231P: PFAS Sums								
Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	<0.01	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	1	%	81.9	----	----	----	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.5	%	71.3	----	----	----	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.5	%	79.1	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	1.0	%	26.0	----	----	----	----
2-Chlorophenol-D4	93951-73-6	1.0	%	31.7	----	----	----	----
2,4,6-Tribromophenol	118-79-6	1.0	%	18.5	----	----	----	----
EP075(SIM)T: PAH Surrogates								



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	TB_231122	----	----	----	----
Sampling date / time				23-Nov-2022 00:00	----	----	----	----	
Compound	CAS Number	LOR	Unit	ES2242356-006	-----	-----	-----	-----	
				Result	----	----	----	----	
EP075(SIM)T: PAH Surrogates - Continued									
2-Fluorobiphenyl	321-60-8	1.0	%	78.4	----	----	----	----	
Anthracene-d10	1719-06-8	1.0	%	86.8	----	----	----	----	
4-Terphenyl-d14	1718-51-0	1.0	%	84.8	----	----	----	----	
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	2	%	119	----	----	----	----	
Toluene-D8	2037-26-5	2	%	107	----	----	----	----	
4-Bromofluorobenzene	460-00-4	2	%	121	----	----	----	----	
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%	101	----	----	----	----	
13C8-PFOA	----	0.02	%	98.8	----	----	----	----	



Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	45	134
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	67	111
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	67	111
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	44
2-Chlorophenol-D4	93951-73-6	14	94
2,4,6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	32	112
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

Inter-Laboratory Testing

Analysis conducted by ALS Newcastle - Water, NATA accreditation no. 825, site no. 1656 (Chemistry) 9854 (Biology).

(WATER) EA005: pH



QUALITY CONTROL REPORT

Work Order	: ES2242356	Page	: 1 of 11
Client	: KLEINFELDER AUSTRALIA PTY LTD	Laboratory	: Environmental Division Sydney
Contact	: Megan Ferguson	Contact	: Graeme Jablonskas
Address	: 95 MITCHELL ROAD CARDIFF NSW 2285	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +6138549 9609
Project	: 20232408	Date Samples Received	: 23-Nov-2022
Order number	: ----	Date Analysis Commenced	: 23-Nov-2022
C-O-C number	: ----	Issue Date	: 30-Nov-2022
Sampler	: Megan Ferguson		
Site	: UoN Gosford GME Nov 2022		
Quote number	: EN/222		
No. of samples received	: 6		
No. of samples analysed	: 6		



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.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW
Neil Martin	Team Leader - Chemistry	Chemistry, Newcastle West, NSW



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

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 (%)
EA005: pH (QC Lot: 4721130)									
WN2214532-002	Anonymous	EA005: pH Value	----	0.01	pH Unit	9.15	9.16	0.1	0% - 20%
WN2214741-002	Anonymous	EA005: pH Value	----	0.01	pH Unit	6.21	6.20	0.2	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 4727452)									
ES2242334-001	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	620	625	0.9	0% - 20%
ES2242400-001	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	4600	4560	0.9	0% - 20%
ES2242414-013	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	2270	2260	0.5	0% - 20%
ES2242416-004	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	1010	1010	0.2	0% - 20%
ES2242420-008	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	8690	8700	0.1	0% - 20%
ES2242466-001	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	<1	0.0	No Limit
EG020F: Dissolved Metals by ICP-MS (QC Lot: 4724522)									
ES2242297-001	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.001	0.001	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
ES2242436-001	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.013	0.013	0.0	0% - 50%
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	0.047	0.047	0.0	0% - 20%
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.009	0.009	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit



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 (%)	
EG035F: Dissolved Mercury by FIMS (QC Lot: 4724523)										
ES2242356-001	BH1	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit	
ES2242405-007	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit	
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 4730822)										
ES2242356-001	BH1	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit	
ES2242436-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 4730822)										
ES2242356-001	BH1	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit	
ES2242436-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit	
EP080: BTEXN (QC Lot: 4730822)										
ES2242356-001	BH1	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
ES2242436-001	Anonymous	EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit	
		EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit			
EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit			
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 4724367)										
ES2242316-005	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	<0.01	0.0	No Limit	
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit	
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit	
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit	
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit	
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit	
ES2242316-006	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	<0.01	0.0	No Limit	
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit	
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit	
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit	
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit	
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit	
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 4724367)										
ES2242316-005	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit	
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit	



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 (%)
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 4724367) - continued									
ES2242316-005	Anonymous	EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
ES2242316-006	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 4724367)									
ES2242316-005	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
ES2242316-006	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit



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 (%)
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 4724367) - continued									
ES2242316-006	Anonymous	EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 4724367)									
ES2242316-005	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
ES2242316-006	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 4724367)									
ES2242316-005	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit
ES2242316-006	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	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: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Acceptable Limits (%)	
						LCS	Low	High	
EA005: pH (QCLot: 4721130)									
EA005: pH Value	----	----	pH Unit	----	7.6 pH Unit	99.6	98.5	102	
EA010P: Conductivity by PC Titrator (QCLot: 4727452)									
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	220 µS/cm	97.4	89.9	110	
				<1	2100 µS/cm	99.1	90.2	111	
				<1	58301 µS/cm	99.2	93.3	106	
EG020F: Dissolved Metals by ICP-MS (QCLot: 4724522)									
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	95.1	85.0	114	
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	94.2	84.0	110	
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	94.4	85.0	111	
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	94.2	81.0	111	
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	94.0	83.0	111	
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	92.1	82.0	112	
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	94.7	81.0	117	
EG035F: Dissolved Mercury by FIMS (QCLot: 4724523)									
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	96.4	83.0	105	
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 4723746)									
EP066: Total Polychlorinated biphenyls	----	1	µg/L	<1	10 µg/L	89.9	68.9	113	
EP068A: Organochlorine Pesticides (OC) (QCLot: 4723744)									
EP068: alpha-BHC	319-84-6	0.5	µg/L	<0.5	5 µg/L	89.7	64.9	107	
EP068: Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	5 µg/L	85.8	58.3	111	
EP068: beta-BHC	319-85-7	0.5	µg/L	<0.5	5 µg/L	100	69.0	117	
EP068: gamma-BHC	58-89-9	0.5	µg/L	<0.5	5 µg/L	91.5	70.0	112	
EP068: delta-BHC	319-86-8	0.5	µg/L	<0.5	5 µg/L	107	68.9	110	
EP068: Heptachlor	76-44-8	0.5	µg/L	<0.5	5 µg/L	88.3	65.2	108	
EP068: Aldrin	309-00-2	0.5	µg/L	<0.5	5 µg/L	94.8	65.8	109	
EP068: Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	5 µg/L	97.7	67.1	107	
EP068: trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	5 µg/L	96.4	64.1	110	
EP068: alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	5 µg/L	80.9	66.7	112	
EP068: cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	5 µg/L	97.1	63.2	111	
EP068: Dieldrin	60-57-1	0.5	µg/L	<0.5	5 µg/L	97.9	65.2	113	
EP068: 4,4'-DDE	72-55-9	0.5	µg/L	<0.5	5 µg/L	106	66.0	112	
EP068: Endrin	72-20-8	0.5	µg/L	<0.5	5 µg/L	86.4	65.2	113	
EP068: beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	5 µg/L	102	67.3	114	
EP068: 4,4'-DDD	72-54-8	0.5	µg/L	<0.5	5 µg/L	104	72.0	122	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Acceptable Limits (%)	
						LCS	Low	High	
EP068A: Organochlorine Pesticides (OC) (QCLot: 4723744) - continued									
EP068: Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	5 µg/L	93.7	66.9	109	
EP068: Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	5 µg/L	96.8	65.2	112	
EP068: 4,4'-DDT	50-29-3	2	µg/L	<2.0	5 µg/L	91.8	65.2	112	
EP068: Endrin ketone	53494-70-5	0.5	µg/L	<0.5	5 µg/L	104	63.8	110	
EP068: Methoxychlor	72-43-5	2	µg/L	<2.0	5 µg/L	89.5	61.1	114	
EP068B: Organophosphorus Pesticides (OP) (QCLot: 4723744)									
EP068: Dichlorvos	62-73-7	0.5	µg/L	<0.5	5 µg/L	90.4	65.6	114	
EP068: Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	5 µg/L	91.4	63.7	113	
EP068: Monocrotophos	6923-22-4	2	µg/L	<2.0	5 µg/L	24.2	19.7	48.0	
EP068: Dimethoate	60-51-5	0.5	µg/L	<0.5	5 µg/L	92.5	69.5	110	
EP068: Diazinon	333-41-5	0.5	µg/L	<0.5	5 µg/L	102	71.1	110	
EP068: Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	5 µg/L	95.5	77.0	119	
EP068: Parathion-methyl	298-00-0	2	µg/L	<2.0	5 µg/L	89.5	70.0	124	
EP068: Malathion	121-75-5	0.5	µg/L	<0.5	5 µg/L	101	68.4	116	
EP068: Fenthion	55-38-9	0.5	µg/L	<0.5	5 µg/L	96.0	68.6	112	
EP068: Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	5 µg/L	96.6	75.0	119	
EP068: Parathion	56-38-2	2	µg/L	<2.0	5 µg/L	83.1	67.0	121	
EP068: Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	5 µg/L	93.9	69.0	121	
EP068: Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	5 µg/L	94.6	71.8	110	
EP068: Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	5 µg/L	99.0	67.5	112	
EP068: Fenamiphos	22224-92-6	0.5	µg/L	<0.5	5 µg/L	81.5	64.1	116	
EP068: Prothiofos	34643-46-4	0.5	µg/L	<0.5	5 µg/L	100	67.8	114	
EP068: Ethion	563-12-2	0.5	µg/L	<0.5	5 µg/L	94.6	74.0	120	
EP068: Carbophenothion	786-19-6	0.5	µg/L	<0.5	5 µg/L	99.3	66.2	114	
EP068: Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	5 µg/L	85.0	51.6	128	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 4723745)									
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	65.4	50.0	94.0	
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	67.5	63.6	114	
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	63.6	62.2	113	
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	69.1	63.9	115	
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	67.3	62.6	116	
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	65.6	64.3	116	
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	69.6	63.6	118	
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	71.6	63.1	118	
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	67.9	64.1	117	
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	68.9	62.5	116	
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2	1	µg/L	<1.0	5 µg/L	67.6	61.7	119	
	205-82-3								
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	71.8	63.0	115	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Acceptable Limits (%)	
					Concentration	LCS	Low	High	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 4723745) - continued									
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	69.5	63.3	117	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	71.7	59.9	118	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	72.9	61.2	117	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	69.5	59.1	118	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4723743)									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	59.6	53.7	97.0	
EP071: C15 - C28 Fraction	----	100	µg/L	<100	600 µg/L	74.0	63.3	107	
EP071: C29 - C36 Fraction	----	50	µg/L	<50	400 µg/L	80.3	58.3	120	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4730822)									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	84.9	75.0	127	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4723743)									
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	500 µg/L	62.7	53.9	95.5	
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	700 µg/L	81.3	57.8	110	
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	300 µg/L	82.5	50.5	115	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4730822)									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	84.3	75.0	127	
EP080: BTEXN (QCLot: 4730822)									
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	88.5	70.0	122	
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	93.9	69.0	123	
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	92.4	70.0	120	
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	92.2	69.0	121	
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	94.5	72.0	122	
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	93.7	70.0	120	
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4724367)									
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	94.0	72.0	130	
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.25 µg/L	119	71.0	127	
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	108	68.0	131	
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.25 µg/L	111	69.0	134	
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	108	65.0	140	
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.25 µg/L	104	53.0	142	
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4724367)									
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	107	73.0	129	
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	119	72.0	129	
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	125	72.0	129	
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	123	72.0	130	
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	113	71.0	133	
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	115	69.0	130	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)	Acceptable Limits (%)	
						LCS	Low	High
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4724367) - continued								
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	102	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	112	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	122	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	104	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	127	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4724367)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	126	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	101	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	102	62.6	147
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	122	66.0	145
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	113	57.6	145
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	116	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	119	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4724367)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.25 µg/L	109	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.25 µg/L	106	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.25 µg/L	119	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.25 µg/L	87.8	71.4	144

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

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike Concentration	Spike Recovery (%)	Acceptable Limits (%)	
				MS	Low	High	
EG020F: Dissolved Metals by ICP-MS (QCLot: 4724522)							
ES2242297-002	Anonymous	EG020A-F: Arsenic	7440-38-2	1 mg/L	94.4	70.0	130
		EG020A-F: Cadmium	7440-43-9	0.25 mg/L	95.6	70.0	130
		EG020A-F: Chromium	7440-47-3	1 mg/L	96.2	70.0	130
		EG020A-F: Copper	7440-50-8	1 mg/L	95.9	70.0	130
		EG020A-F: Lead	7439-92-1	1 mg/L	98.5	70.0	130
		EG020A-F: Nickel	7440-02-0	1 mg/L	92.3	70.0	130
		EG020A-F: Zinc	7440-66-6	1 mg/L	96.8	70.0	130



Sub-Matrix: WATER

				Matrix Spike (MS) Report					
				Spike	SpikeRecovery(%)	Acceptable Limits (%)			
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High		
EG035F: Dissolved Mercury by FIMS (QCLot: 4724523)									
ES2242297-003	Anonymous	EG035F: Mercury	7439-97-6	0.01 mg/L	91.8	70.0	130		
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4730822)									
ES2242356-001	BH1	EP080: C6 - C9 Fraction	----	325 µg/L	96.2	70.0	130		
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4730822)									
ES2242356-001	BH1	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	95.8	70.0	130		
EP080: BTEXN (QCLot: 4730822)									
ES2242356-001	BH1	EP080: Benzene	71-43-2	25 µg/L	92.7	70.0	130		
		EP080: Toluene	108-88-3	25 µg/L	99.5	70.0	130		
		EP080: Ethylbenzene	100-41-4	25 µg/L	99.5	70.0	130		
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	98.9	70.0	130		
			106-42-3						
		EP080: ortho-Xylene	95-47-6	25 µg/L	98.6	70.0	130		
	EP080: Naphthalene	91-20-3	25 µg/L	95.6	70.0	130			
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4724367)									
ES2242316-006	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.25 µg/L	85.1	72.0	130		
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.25 µg/L	90.4	71.0	127		
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.25 µg/L	80.5	68.0	131		
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.25 µg/L	83.6	69.0	134		
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.25 µg/L	77.4	65.0	140		
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.25 µg/L	78.2	53.0	142		
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4724367)									
ES2242316-006	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	80.8	73.0	129		
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	88.4	72.0	129		
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	96.9	72.0	129		
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	89.6	72.0	130		
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	78.3	71.0	133		
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	82.4	69.0	130		
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	80.6	71.0	129		
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	77.2	69.0	133		
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	98.6	72.0	134		
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	74.6	65.0	144		
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.625 µg/L	89.3	71.0	132		
		EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4724367)							
		ES2242316-006	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	98.4	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8			0.625 µg/L	90.5	68.0	141		
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2			0.625 µg/L	80.3	62.6	147		



Sub-Matrix: WATER

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4724367) - continued							
ES2242316-006	Anonymous	EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	103	66.0	145
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	101	57.6	145
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	85.3	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	87.9	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4724367)							
ES2242316-006	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.25 µg/L	78.7	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.25 µg/L	84.9	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.25 µg/L	80.1	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.25 µg/L	77.4	71.4	144

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: ES2242356	Page	: 1 of 8
Client	: KLEINFELDER AUSTRALIA PTY LTD	Laboratory	: Environmental Division Sydney
Contact	: Megan Ferguson	Telephone	: +6138549 9609
Project	: 20232408	Date Samples Received	: 23-Nov-2022
Site	: UoN Gosford GME Nov 2022	Issue Date	: 30-Nov-2022
Sampler	: Megan Ferguson	No. of samples received	: 6
Order number	: ----	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.
- **NO** Matrix Spike outliers occur.
- Surrogate recovery outliers exist for all regular sample matrices - please see following pages for full details.

Outliers : Analysis Holding Time Compliance

- **NO** Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- Quality Control Sample Frequency Outliers exist - please see following pages for full details.



Regular Sample Surrogates

Sub-Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Samples Submitted							
EP068T: Organophosphorus Pesticide Surrogate	ES2242356-005	RB01	DEF	78-48-8	112 %	66.5-111 %	Recovery greater than upper data quality objective

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type Method	Count		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)					
PAH/Phenols (GC/MS - SIM)	0	11	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	0	8	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	0	8	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	16	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
PAH/Phenols (GC/MS - SIM)	0	11	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	0	8	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	0	8	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	16	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

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: **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	
EA005: pH								
Clear Plastic Bottle - Natural (REGIONAL LAB) (EA005) BH1, BH8	BH7,	23-Nov-2022	----	----	----	23-Nov-2022	23-Nov-2022	✓
EA010P: Conductivity by PC Titrator								
Clear Plastic Bottle - Natural (EA010-P) BH1, BH8	BH7,	23-Nov-2022	----	----	----	25-Nov-2022	21-Dec-2022	✓



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	
EG020F: Dissolved Metals by ICP-MS								
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F) BH1, BH8, RB01, BH7, QC01, TB_231122	23-Nov-2022	----	----	----	24-Nov-2022	22-May-2023	✓	
EG035F: Dissolved Mercury by FIMS								
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F) BH1, BH8, RB01, BH7, QC01, TB_231122	23-Nov-2022	----	----	----	25-Nov-2022	21-Dec-2022	✓	
EP066: Polychlorinated Biphenyls (PCB)								
Amber Glass Bottle - Unpreserved (EP066) BH1, BH8, RB01, BH7, QC01, TB_231122	23-Nov-2022	24-Nov-2022	30-Nov-2022	✓	29-Nov-2022	03-Jan-2023	✓	
EP068A: Organochlorine Pesticides (OC)								
Amber Glass Bottle - Unpreserved (EP068) BH1, BH8, RB01, BH7, QC01, TB_231122	23-Nov-2022	24-Nov-2022	30-Nov-2022	✓	29-Nov-2022	03-Jan-2023	✓	
EP068B: Organophosphorus Pesticides (OP)								
Amber Glass Bottle - Unpreserved (EP068) BH1, BH8, RB01, BH7, QC01, TB_231122	23-Nov-2022	24-Nov-2022	30-Nov-2022	✓	29-Nov-2022	03-Jan-2023	✓	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP075(SIM)) BH1, BH8, RB01, BH7, QC01, TB_231122	23-Nov-2022	24-Nov-2022	30-Nov-2022	✓	29-Nov-2022	03-Jan-2023	✓	
EP080/071: Total Petroleum Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP071) BH1, BH8, RB01, BH7, QC01, TB_231122	23-Nov-2022	24-Nov-2022	30-Nov-2022	✓	29-Nov-2022	03-Jan-2023	✓	
Amber VOC Vial - Sulfuric Acid (EP080) BH1, BH8, RB01, BH7, QC01, TB_231122	23-Nov-2022	29-Nov-2022	07-Dec-2022	✓	29-Nov-2022	07-Dec-2022	✓	



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	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
Amber Glass Bottle - Unpreserved (EP071)								
BH1, BH8, RB01,	BH7, QC01, TB_231122	23-Nov-2022	24-Nov-2022	30-Nov-2022	✓	29-Nov-2022	03-Jan-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080)								
BH1, BH8, RB01,	BH7, QC01, TB_231122	23-Nov-2022	29-Nov-2022	07-Dec-2022	✓	29-Nov-2022	07-Dec-2022	✓
EP080: BTEXN								
Amber VOC Vial - Sulfuric Acid (EP080)								
BH1, BH8, RB01,	BH7, QC01, TB_231122	23-Nov-2022	29-Nov-2022	07-Dec-2022	✓	29-Nov-2022	07-Dec-2022	✓
EP231A: Perfluoroalkyl Sulfonic Acids								
HDPE (no PTFE) (EP231X)								
BH1, BH8, RB01,	BH7, QC01, TB_231122	23-Nov-2022	24-Nov-2022	22-May-2023	✓	25-Nov-2022	22-May-2023	✓
EP231B: Perfluoroalkyl Carboxylic Acids								
HDPE (no PTFE) (EP231X)								
BH1, BH8, RB01,	BH7, QC01, TB_231122	23-Nov-2022	24-Nov-2022	22-May-2023	✓	25-Nov-2022	22-May-2023	✓
EP231C: Perfluoroalkyl Sulfonamides								
HDPE (no PTFE) (EP231X)								
BH1, BH8, RB01,	BH7, QC01, TB_231122	23-Nov-2022	24-Nov-2022	22-May-2023	✓	25-Nov-2022	22-May-2023	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
HDPE (no PTFE) (EP231X)								
BH1, BH8, RB01,	BH7, QC01, TB_231122	23-Nov-2022	24-Nov-2022	22-May-2023	✓	25-Nov-2022	22-May-2023	✓
EP231P: PFAS Sums								
HDPE (no PTFE) (EP231X)								
BH1, BH8, RB01,	BH7, QC01, TB_231122	23-Nov-2022	24-Nov-2022	22-May-2023	✓	25-Nov-2022	22-May-2023	✓



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	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
Analytical Methods							
Laboratory Duplicates (DUP)							
Conductivity by Auto Titrator	EA010-P	6	59	10.17	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	2	20	10.00	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	20	10.00	10.00	✔	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	11	0.00	10.00	✘	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	20	10.00	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	8	0.00	10.00	✘	NEPM 2013 B3 & ALS QC Standard
pH	EA005	2	20	10.00	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	8	0.00	10.00	✘	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	16	0.00	10.00	✘	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	10.00	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Conductivity by Auto Titrator	EA010-P	5	59	8.47	8.33	✔	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	11	9.09	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	8	12.50	5.00	✔	NEPM 2013 B3 & ALS QC Standard
pH	EA005	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	8	12.50	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	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Conductivity by Auto Titrator	EA010-P	1	59	1.69	1.67	✔	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	11	9.09	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	8	12.50	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	8	12.50	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	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Dissolved Mercury by FIMS	EG035F	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	11	0.00	5.00	✘	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard



Matrix: **WATER**

Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reular	Actual	Expected	Evaluation	
Matrix Spikes (MS) - Continued							
Pesticides by GCMS	EP068	0	8	0.00	5.00	✖	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	8	0.00	5.00	✖	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	16	0.00	5.00	✖	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	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	EA005	WATER	In house: Referenced to APHA 4500 H+ B. pH of water samples is determined by ISE either manually or by automated pH meter. This method is compliant with NEPM Schedule B(3)
Conductivity by Auto Titrator	EA010-P	WATER	In house: Referenced to APHA 2510 B. This procedure determines conductivity by automated ISE. This method is compliant with NEPM Schedule B(3)
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. Samples are 0.45µm filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl ₂)(Cold Vapour generation) AAS) Samples are 0.45µm filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ 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).
Polychlorinated Biphenyls (PCB)	EP066	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample 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	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample 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)
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015 The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS in SIM Mode 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	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM Schedule B(3)
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.



<i>Preparation Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for purging.
Solid Phase Extraction (SPE) for PFAS in water	ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

Eurofins Environment Testing Australia Pty Ltd

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Melbourne 6 Monterey Road Dandenong South VIC 3175 Tel: +61 3 8564 5000 NATA# 1261 Site# 1254	Geelong 19/8 Lewalan Street Grovedale VIC 3216 Tel: +61 3 8564 5000 NATA# 1261 Site# 1254	Sydney 179 Magowar Road Girraween NSW 2145 Tel: +61 2 9900 8400 NATA# 1261 Site# 18217	Canberra Unit 1,2 Dacre Street Mitchell ACT 2911 Tel: +61 2 6113 8091	Brisbane 1/21 Smallwood Place Murarie QLD 4172 Tel: +61 7 3902 4600 NATA# 1261 Site# 20794	Newcastle 4/52 Industrial Drive Mayfield East NSW 2304 PO Box 60 Wickham 2293 Tel: +61 2 4968 8448 NATA# 1261 Site# 25079
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Sample Receipt Advice

Company name:	Kleinfelder Aust Pty Ltd (NEWCASTLE)
Contact name:	Jai Roby
Project name:	UON GOSFORD
Project ID:	20232402
Turnaround time:	5 Day
Date/Time received	Oct 20, 2022 2:45 PM
Eurofins reference	934801

Sample Information

- ✓ A detailed list of analytes logged into our LIMS, is included in the attached summary table.
- ✓ All samples have been received as described on the above COC.
- ✓ COC has been completed correctly.
- ✓ Attempt to chill was evident.
- ✓ Appropriately preserved sample containers have been used.
- ✓ All samples were received in good condition.
- ✓ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
- ✓ Appropriate sample containers have been used.
- ✓ Sample containers for volatile analysis received with zero headspace.
- ✗ Split sample sent to requested external lab.
- ✗ Some samples have been subcontracted.
- N/A Custody Seals intact (if used).

Notes

Contact

If you have any questions with respect to these samples, please contact your Analytical Services Manager:

Andrew Black on phone : (+61) 2 9900 8490 or by email: AndrewBlack@eurofins.com

Results will be delivered electronically via email to Jai Roby - jrobey@kleinfelder.com.

Note: A copy of these results will also be delivered to the general Kleinfelder Aust Pty Ltd (NEWCASTLE) email address.



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Tel: 0800 856 450
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web: www.eurofins.com.au
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Company Name: Kleinfelder Aust Pty Ltd (NEWCASTLE)
Address: Suite 3, 240-244 Pacific Hwy
Charlestown
NSW 2290
Project Name: UON GOSFORD
Project ID: 20232402

Order No.:
Report #: 934801
Phone: 02 4949 5200
Fax:

Received: Oct 20, 2022 2:45 PM
Due: Oct 27, 2022
Priority: 5 Day
Contact Name: Jai Roby

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Moisture Set	Per- and Polyfluoroalkyl Substances (PFASs)	Suite B10C: M8/BTEX/TRH/PAH/Phenol/OC/POPP/PCB
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X
External Laboratory								
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID			
1	QC01A	Oct 18, 2022		Soil	S22-Oc0052278	X	X	X
Test Counts						1	1	1

Kleinfelder Australia Pty Ltd (NEWC)
Suite 3, 240-244 Pacific Hwy
Charlestown
NSW 2290



NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing
NATA is a signatory to the ILAC Mutual Recognition
Arrangement for the mutual recognition of the
equivalence of testing, medical testing, calibration,
inspection, proficiency testing scheme providers and
reference materials producers reports and certificates.

Attention: Jai Roby

Report 934801-S
Project name UON GOSFORD
Project ID 20232402
Received Date Oct 20, 2022

Client Sample ID			QC01A
Sample Matrix			Soil
Eurofins Sample No.			S22- Oc0052278
Date Sampled			Oct 18, 2022
Test/Reference	LOR	Unit	
Total Recoverable Hydrocarbons			
TRH C6-C9	20	mg/kg	< 20
TRH C10-C14	20	mg/kg	< 20
TRH C15-C28	50	mg/kg	< 50
TRH C29-C36	50	mg/kg	< 50
TRH C10-C36 (Total)	50	mg/kg	< 50
Naphthalene ^{N02}	0.5	mg/kg	< 0.5
TRH C6-C10	20	mg/kg	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20
TRH >C10-C16	50	mg/kg	< 50
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50
TRH >C16-C34	100	mg/kg	< 100
TRH >C34-C40	100	mg/kg	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100
BTEX			
Benzene	0.1	mg/kg	< 0.1
Toluene	0.1	mg/kg	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2
o-Xylene	0.1	mg/kg	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3
4-Bromofluorobenzene (surr.)	1	%	112
Polycyclic Aromatic Hydrocarbons			
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2
Acenaphthene	0.5	mg/kg	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5
Anthracene	0.5	mg/kg	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	< 0.5
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5
Chrysene	0.5	mg/kg	< 0.5
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5

Client Sample ID			QC01A
Sample Matrix			Soil
Eurofins Sample No.			S22- Oc0052278
Date Sampled			Oct 18, 2022
Test/Reference	LOR	Unit	
Polycyclic Aromatic Hydrocarbons			
Fluoranthene	0.5	mg/kg	< 0.5
Fluorene	0.5	mg/kg	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5
Naphthalene	0.5	mg/kg	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5
Pyrene	0.5	mg/kg	< 0.5
Total PAH*	0.5	mg/kg	< 0.5
2-Fluorobiphenyl (surr.)	1	%	109
p-Terphenyl-d14 (surr.)	1	%	99
Organochlorine Pesticides			
Chlordanes - Total	0.1	mg/kg	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05
a-HCH	0.05	mg/kg	< 0.05
Aldrin	0.05	mg/kg	10
b-HCH	0.05	mg/kg	< 0.05
d-HCH	0.05	mg/kg	< 0.05
Dieldrin	0.05	mg/kg	3.8
Endosulfan I	0.05	mg/kg	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05
Endrin	0.05	mg/kg	2.8
Endrin aldehyde	0.05	mg/kg	< 0.05
Endrin ketone	0.05	mg/kg	0.21
g-HCH (Lindane)	0.05	mg/kg	< 0.05
Heptachlor	0.05	mg/kg	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05
Toxaphene	0.5	mg/kg	< 0.5
Aldrin and Dieldrin (Total)*	0.05	mg/kg	13.8
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	16.6
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	2.8
Dibutylchloroendate (surr.)	1	%	108
Tetrachloro-m-xylene (surr.)	1	%	105
Organophosphorus Pesticides			
Azinphos-methyl	0.2	mg/kg	< 0.2
Bolstar	0.2	mg/kg	< 0.2
Chlorfenvinphos	0.2	mg/kg	< 0.2
Chlorpyrifos	0.2	mg/kg	< 0.2
Chlorpyrifos-methyl	0.2	mg/kg	< 0.2
Coumaphos	2	mg/kg	< 2
Demeton-S	0.2	mg/kg	< 0.2
Demeton-O	0.2	mg/kg	< 0.2
Diazinon	0.2	mg/kg	< 0.2
Dichlorvos	0.2	mg/kg	< 0.2
Dimethoate	0.2	mg/kg	< 0.2

Client Sample ID			QC01A
Sample Matrix			Soil
Eurofins Sample No.			S22- Oc0052278
Date Sampled			Oct 18, 2022
Test/Reference	LOR	Unit	
Organophosphorus Pesticides			
Disulfoton	0.2	mg/kg	< 0.2
EPN	0.2	mg/kg	< 0.2
Ethion	0.2	mg/kg	< 0.2
Ethoprop	0.2	mg/kg	< 0.2
Ethyl parathion	0.2	mg/kg	< 0.2
Fenitrothion	0.2	mg/kg	< 0.2
Fensulfothion	0.2	mg/kg	< 0.2
Fenthion	0.2	mg/kg	< 0.2
Malathion	0.2	mg/kg	< 0.2
Merphos	0.2	mg/kg	< 0.2
Methyl parathion	0.2	mg/kg	< 0.2
Mevinphos	0.2	mg/kg	< 0.2
Monocrotophos	2	mg/kg	< 2
Naled	0.2	mg/kg	< 0.2
Omethoate	2	mg/kg	< 2
Phorate	0.2	mg/kg	< 0.2
Pirimiphos-methyl	0.2	mg/kg	< 0.2
Pyrazophos	0.2	mg/kg	< 0.2
Ronnel	0.2	mg/kg	< 0.2
Terbufos	0.2	mg/kg	< 0.2
Tetrachlorvinphos	0.2	mg/kg	< 0.2
Tokuthion	0.2	mg/kg	< 0.2
Trichloronate	0.2	mg/kg	< 0.2
Triphenylphosphate (surr.)	1	%	95
Polychlorinated Biphenyls			
Aroclor-1016	0.1	mg/kg	< 0.1
Aroclor-1221	0.1	mg/kg	< 0.1
Aroclor-1232	0.1	mg/kg	< 0.1
Aroclor-1242	0.1	mg/kg	< 0.1
Aroclor-1248	0.1	mg/kg	< 0.1
Aroclor-1254	0.1	mg/kg	< 0.1
Aroclor-1260	0.1	mg/kg	< 0.1
Total PCB*	0.1	mg/kg	< 0.1
Dibutylchloroendate (surr.)	1	%	108
Tetrachloro-m-xylene (surr.)	1	%	105
Phenols (Halogenated)			
2-Chlorophenol	0.5	mg/kg	< 0.5
2,4-Dichlorophenol	0.5	mg/kg	< 0.5
2,4,5-Trichlorophenol	1	mg/kg	< 1
2,4,6-Trichlorophenol	1	mg/kg	< 1
2,6-Dichlorophenol	0.5	mg/kg	< 0.5
4-Chloro-3-methylphenol	1	mg/kg	< 1
Pentachlorophenol	1	mg/kg	< 1
Tetrachlorophenols - Total	10	mg/kg	< 10
Total Halogenated Phenol*	1	mg/kg	< 1

Client Sample ID			QC01A
Sample Matrix			Soil
Eurofins Sample No.			S22- Oc0052278
Date Sampled			Oct 18, 2022
Test/Reference	LOR	Unit	
Phenols (non-Halogenated)			
2-Cyclohexyl-4.6-dinitrophenol	20	mg/kg	< 20
2-Methyl-4.6-dinitrophenol	5	mg/kg	< 5
2-Nitrophenol	1	mg/kg	< 1
2.4-Dimethylphenol	0.5	mg/kg	< 0.5
2.4-Dinitrophenol	5	mg/kg	< 5
2-Methylphenol (o-Cresol)	0.2	mg/kg	< 0.2
3&4-Methylphenol (m&p-Cresol)	0.4	mg/kg	< 0.4
Total cresols*	0.5	mg/kg	< 0.5
4-Nitrophenol	5	mg/kg	< 5
Dinoseb	20	mg/kg	< 20
Phenol	0.5	mg/kg	< 0.5
Phenol-d6 (surr.)	1	%	89
Total Non-Halogenated Phenol*	20	mg/kg	< 20
Heavy Metals			
Arsenic	2	mg/kg	5.1
Cadmium	0.4	mg/kg	< 0.4
Chromium	5	mg/kg	< 5
Copper	5	mg/kg	< 5
Lead	5	mg/kg	9.2
Mercury	0.1	mg/kg	< 0.1
Nickel	5	mg/kg	< 5
Zinc	5	mg/kg	18
% Moisture			
% Moisture	1	%	4.2
Perfluoroalkyl carboxylic acids (PFCAs)			
Perfluorobutanoic acid (PFBA) ^{N11}	5	ug/kg	< 5
Perfluoropentanoic acid (PFPeA) ^{N11}	5	ug/kg	< 5
Perfluorohexanoic acid (PFHxA) ^{N11}	5	ug/kg	< 5
Perfluoroheptanoic acid (PFHpA) ^{N11}	5	ug/kg	< 5
Perfluorooctanoic acid (PFOA) ^{N11}	5	ug/kg	< 5
Perfluorononanoic acid (PFNA) ^{N11}	5	ug/kg	< 5
Perfluorodecanoic acid (PFDA) ^{N11}	5	ug/kg	< 5
Perfluoroundecanoic acid (PFUnDA) ^{N11}	5	ug/kg	< 5
Perfluorododecanoic acid (PFDoDA) ^{N11}	5	ug/kg	< 5
Perfluorotridecanoic acid (PFTTrDA) ^{N15}	5	ug/kg	< 5
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	5	ug/kg	< 5
13C4-PFBA (surr.)	1	%	125
13C5-PFPeA (surr.)	1	%	110
13C5-PFHxA (surr.)	1	%	119
13C4-PFHpA (surr.)	1	%	123
13C8-PFOA (surr.)	1	%	123
13C5-PFNA (surr.)	1	%	133
13C6-PFDA (surr.)	1	%	111
13C2-PFUnDA (surr.)	1	%	121
13C2-PFDoDA (surr.)	1	%	131
13C2-PFTeDA (surr.)	1	%	125

Client Sample ID			QC01A
Sample Matrix			Soil
Eurofins Sample No.			S22- Oc0052278
Date Sampled			Oct 18, 2022
Test/Reference	LOR	Unit	
Perfluoroalkyl sulfonamido substances			
Perfluorooctane sulfonamide (FOSA) ^{N11}	5	ug/kg	< 5
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	5	ug/kg	< 5
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	5	ug/kg	< 5
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	5	ug/kg	< 5
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	5	ug/kg	< 5
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	10	ug/kg	< 10
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	10	ug/kg	< 10
13C8-FOSA (surr.)	1	%	95
D3-N-MeFOSA (surr.)	1	%	133
D5-N-EtFOSA (surr.)	1	%	127
D7-N-MeFOSE (surr.)	1	%	141
D9-N-EtFOSE (surr.)	1	%	82
D5-N-EtFOSAA (surr.)	1	%	161
D3-N-MeFOSAA (surr.)	1	%	199
Perfluoroalkyl sulfonic acids (PFASs)			
Perfluorobutanesulfonic acid (PFBS) ^{N11}	5	ug/kg	< 5
Perfluorononanesulfonic acid (PFNS) ^{N15}	5	ug/kg	< 5
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	5	ug/kg	< 5
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	5	ug/kg	< 5
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	5	ug/kg	< 5
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	5	ug/kg	< 5
Perfluorooctanesulfonic acid (PFOS) ^{N11}	5	ug/kg	< 5
Perfluorodecanesulfonic acid (PFDS) ^{N15}	5	ug/kg	< 5
13C3-PFBS (surr.)	1	%	137
18O2-PFHxS (surr.)	1	%	139
13C8-PFOS (surr.)	1	%	92
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)			
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	5	ug/kg	< 5
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) ^{N11}	10	ug/kg	< 10
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	5	ug/kg	< 5
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	5	ug/kg	< 5
13C2-4:2 FTSA (surr.)	1	%	99
13C2-6:2 FTSA (surr.)	1	%	107
13C2-8:2 FTSA (surr.)	1	%	177
13C2-10:2 FTSA (surr.)	1	%	^{Q09} INT
PFASs Summations			
Sum (PFHxS + PFOS)*	5	ug/kg	< 5
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	< 5
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	< 5
Sum of WA DWER PFAS (n=10)*	10	ug/kg	< 10
Sum of PFASs (n=30)*	50	ug/kg	< 50

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Oct 26, 2022	14 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Oct 26, 2022	14 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Oct 26, 2022	14 Days
BTEX - Method: LTM-ORG-2010 BTEX and Volatile TRH	Sydney	Oct 26, 2022	14 Days
Polycyclic Aromatic Hydrocarbons - Method: LTM-ORG-2130 PAH and Phenols in Soil and Water	Sydney	Oct 26, 2022	14 Days
Organochlorine Pesticides - Method: LTM-ORG-2220 OCP & PCB in Soil and Water	Sydney	Oct 26, 2022	14 Days
Organophosphorus Pesticides - Method: LTM-ORG-2200 Organophosphorus Pesticides by GC-MS	Sydney	Oct 26, 2022	14 Days
Polychlorinated Biphenyls - Method: LTM-ORG-2220 OCP & PCB in Soil and Water	Sydney	Oct 26, 2022	28 Days
Phenols (Halogenated) - Method: LTM-ORG-2130 PAH and Phenols in Soil and Water	Sydney	Oct 26, 2022	14 Days
Phenols (non-Halogenated) - Method: LTM-ORG-2130 PAH and Phenols in Soil and Water	Sydney	Oct 26, 2022	14 Days
Metals M8 - Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS	Sydney	Oct 26, 2022	28 Days
% Moisture - Method: LTM-GEN-7080 Moisture	Sydney	Oct 25, 2022	14 Days
Per- and Polyfluoroalkyl Substances (PFASs)			
Perfluoroalkyl carboxylic acids (PFCAs) - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Oct 29, 2022	28 Days
Perfluoroalkyl sulfonamido substances - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Oct 29, 2022	28 Days
Perfluoroalkyl sulfonic acids (PFSA)s - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Oct 29, 2022	28 Days
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs) - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Oct 29, 2022	28 Days

Company Name:	Kleinfelder Aust Pty Ltd (NEWCASTLE)	Order No.:		Received:	Oct 20, 2022 2:45 PM
Address:	Suite 3, 240-244 Pacific Hwy Charlestown NSW 2290	Report #:	934801	Due:	Oct 27, 2022
Project Name:	UON GOSFORD	Phone:	02 4949 5200	Priority:	5 Day
Project ID:	20232402	Fax:		Contact Name:	Jai Roby
Eurofins Analytical Services Manager : Andrew Black					

Sample Detail						Moisture Set	Per- and Polyfluoroalkyl Substances (PFASs)	Suite B10C: M8/BTEX/TRH/PAH/Phenol/OC/POPP/PCB
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X
External Laboratory								
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID			
1	QC01A	Oct 18, 2022		Soil	S22-Oc0052278	X	X	X
Test Counts						1	1	1

Internal Quality Control Review and Glossary

General

- Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
- All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
- All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
- Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
- Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
- SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
- Samples were analysed on an 'as received' basis.
- Information identified on this report with blue colour, indicates data provided by customer that may have an impact on the results.
- This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

Units

mg/kg: milligrams per kilogram	mg/L: milligrams per litre	µg/L: micrograms per litre
ppm: parts per million	ppb: parts per billion	%: Percentage
org/100 mL: Organisms per 100 millilitres	NTU: Nephelometric Turbidity Units	MPN/100 mL: Most Probable Number of organisms per 100 millilitres

Terms

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	Tributyltin oxide (<i>bis</i> -tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment however free tributyltin was measured and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should be used as a guide only and may be different when site specific Sampling Analysis and Quality Plan (SAQP) have been implemented

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR: No Limit

Results between 10-20 times the LOR: RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

NOTE: pH duplicates are reported as a range not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.4 where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

- Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
- Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
- pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
- Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
- For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
- Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total*	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g,h,i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a,h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Organochlorine Pesticides							
Chlordanes - Total	mg/kg	< 0.1			0.1	Pass	
4,4'-DDD	mg/kg	< 0.05			0.05	Pass	
4,4'-DDE	mg/kg	< 0.05			0.05	Pass	
4,4'-DDT	mg/kg	< 0.05			0.05	Pass	
a-HCH	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
b-HCH	mg/kg	< 0.05			0.05	Pass	
d-HCH	mg/kg	< 0.05			0.05	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Endosulfan I	mg/kg	< 0.05			0.05	Pass	
Endosulfan II	mg/kg	< 0.05			0.05	Pass	
Endosulfan sulphate	mg/kg	< 0.05			0.05	Pass	
Endrin	mg/kg	< 0.05			0.05	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endrin aldehyde	mg/kg	< 0.05			0.05	Pass	
Endrin ketone	mg/kg	< 0.05			0.05	Pass	
g-HCH (Lindane)	mg/kg	< 0.05			0.05	Pass	
Heptachlor	mg/kg	< 0.05			0.05	Pass	
Heptachlor epoxide	mg/kg	< 0.05			0.05	Pass	
Hexachlorobenzene	mg/kg	< 0.05			0.05	Pass	
Methoxychlor	mg/kg	< 0.05			0.05	Pass	
Toxaphene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Organophosphorus Pesticides							
Azinphos-methyl	mg/kg	< 0.2			0.2	Pass	
Bolstar	mg/kg	< 0.2			0.2	Pass	
Chlorfenvinphos	mg/kg	< 0.2			0.2	Pass	
Chlorpyrifos	mg/kg	< 0.2			0.2	Pass	
Chlorpyrifos-methyl	mg/kg	< 0.2			0.2	Pass	
Coumaphos	mg/kg	< 2			2	Pass	
Demeton-S	mg/kg	< 0.2			0.2	Pass	
Demeton-O	mg/kg	< 0.2			0.2	Pass	
Diazinon	mg/kg	< 0.2			0.2	Pass	
Dichlorvos	mg/kg	< 0.2			0.2	Pass	
Dimethoate	mg/kg	< 0.2			0.2	Pass	
Disulfoton	mg/kg	< 0.2			0.2	Pass	
EPN	mg/kg	< 0.2			0.2	Pass	
Ethion	mg/kg	< 0.2			0.2	Pass	
Ethoprop	mg/kg	< 0.2			0.2	Pass	
Ethyl parathion	mg/kg	< 0.2			0.2	Pass	
Fenitrothion	mg/kg	< 0.2			0.2	Pass	
Fensulfothion	mg/kg	< 0.2			0.2	Pass	
Fenthion	mg/kg	< 0.2			0.2	Pass	
Malathion	mg/kg	< 0.2			0.2	Pass	
Merphos	mg/kg	< 0.2			0.2	Pass	
Methyl parathion	mg/kg	< 0.2			0.2	Pass	
Mevinphos	mg/kg	< 0.2			0.2	Pass	
Monocrotophos	mg/kg	< 2			2	Pass	
Naled	mg/kg	< 0.2			0.2	Pass	
Omethoate	mg/kg	< 2			2	Pass	
Phorate	mg/kg	< 0.2			0.2	Pass	
Pirimiphos-methyl	mg/kg	< 0.2			0.2	Pass	
Pyrazophos	mg/kg	< 0.2			0.2	Pass	
Ronnel	mg/kg	< 0.2			0.2	Pass	
Terbufos	mg/kg	< 0.2			0.2	Pass	
Tetrachlorvinphos	mg/kg	< 0.2			0.2	Pass	
Tokuthion	mg/kg	< 0.2			0.2	Pass	
Trichloronate	mg/kg	< 0.2			0.2	Pass	
Method Blank							
Polychlorinated Biphenyls							
Aroclor-1016	mg/kg	< 0.1			0.1	Pass	
Aroclor-1221	mg/kg	< 0.1			0.1	Pass	
Aroclor-1232	mg/kg	< 0.1			0.1	Pass	
Aroclor-1242	mg/kg	< 0.1			0.1	Pass	
Aroclor-1248	mg/kg	< 0.1			0.1	Pass	
Aroclor-1254	mg/kg	< 0.1			0.1	Pass	
Aroclor-1260	mg/kg	< 0.1			0.1	Pass	
Total PCB*	mg/kg	< 0.1			0.1	Pass	

Test	Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
Method Blank						
Phenols (Halogenated)						
2-Chlorophenol	mg/kg	< 0.5		0.5	Pass	
2.4-Dichlorophenol	mg/kg	< 0.5		0.5	Pass	
2.4.5-Trichlorophenol	mg/kg	< 1		1	Pass	
2.4.6-Trichlorophenol	mg/kg	< 1		1	Pass	
2.6-Dichlorophenol	mg/kg	< 0.5		0.5	Pass	
4-Chloro-3-methylphenol	mg/kg	< 1		1	Pass	
Pentachlorophenol	mg/kg	< 1		1	Pass	
Tetrachlorophenols - Total	mg/kg	< 10		10	Pass	
Method Blank						
Phenols (non-Halogenated)						
2-Cyclohexyl-4.6-dinitrophenol	mg/kg	< 20		20	Pass	
2-Methyl-4.6-dinitrophenol	mg/kg	< 5		5	Pass	
2-Nitrophenol	mg/kg	< 1		1	Pass	
2.4-Dimethylphenol	mg/kg	< 0.5		0.5	Pass	
2.4-Dinitrophenol	mg/kg	< 5		5	Pass	
2-Methylphenol (o-Cresol)	mg/kg	< 0.2		0.2	Pass	
3&4-Methylphenol (m&p-Cresol)	mg/kg	< 0.4		0.4	Pass	
4-Nitrophenol	mg/kg	< 5		5	Pass	
Dinoseb	mg/kg	< 20		20	Pass	
Phenol	mg/kg	< 0.5		0.5	Pass	
Method Blank						
Heavy Metals						
Arsenic	mg/kg	< 2		2	Pass	
Cadmium	mg/kg	< 0.4		0.4	Pass	
Chromium	mg/kg	< 5		5	Pass	
Copper	mg/kg	< 5		5	Pass	
Lead	mg/kg	< 5		5	Pass	
Mercury	mg/kg	< 0.1		0.1	Pass	
Nickel	mg/kg	< 5		5	Pass	
Zinc	mg/kg	< 5		5	Pass	
Method Blank						
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA)	ug/kg	< 5		5	Pass	
Perfluoropentanoic acid (PFPeA)	ug/kg	< 5		5	Pass	
Perfluorohexanoic acid (PFHxA)	ug/kg	< 5		5	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/kg	< 5		5	Pass	
Perfluorooctanoic acid (PFOA)	ug/kg	< 5		5	Pass	
Perfluorononanoic acid (PFNA)	ug/kg	< 5		5	Pass	
Perfluorodecanoic acid (PFDA)	ug/kg	< 5		5	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/kg	< 5		5	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/kg	< 5		5	Pass	
Perfluorotridecanoic acid (PFTrDA)	ug/kg	< 5		5	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/kg	< 5		5	Pass	
Method Blank						
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA)	ug/kg	< 5		5	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/kg	< 5		5	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/kg	< 5		5	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	ug/kg	< 5		5	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	ug/kg	< 5		5	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/kg	< 10		10	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/kg	< 10		10	Pass	

Test	Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
Method Blank						
Perfluoroalkyl sulfonic acids (PFSA's)						
Perfluorobutanesulfonic acid (PFBS)	ug/kg	< 5		5	Pass	
Perfluorononanesulfonic acid (PFNS)	ug/kg	< 5		5	Pass	
Perfluoropropanesulfonic acid (PFPrS)	ug/kg	< 5		5	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/kg	< 5		5	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/kg	< 5		5	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/kg	< 5		5	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/kg	< 5		5	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/kg	< 5		5	Pass	
Method Blank						
n:2 Fluorotelomer sulfonic acids (n:2 FTSA's)						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/kg	< 5		5	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	ug/kg	< 10		10	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/kg	< 5		5	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/kg	< 5		5	Pass	
LCS - % Recovery						
Total Recoverable Hydrocarbons						
TRH C6-C9	%	95		70-130	Pass	
TRH C10-C14	%	83		70-130	Pass	
Naphthalene	%	106		70-130	Pass	
TRH C6-C10	%	112		70-130	Pass	
TRH >C10-C16	%	93		70-130	Pass	
LCS - % Recovery						
BTEX						
Benzene	%	123		70-130	Pass	
Toluene	%	107		70-130	Pass	
Ethylbenzene	%	123		70-130	Pass	
m&p-Xylenes	%	124		70-130	Pass	
o-Xylene	%	123		70-130	Pass	
Xylenes - Total*	%	124		70-130	Pass	
LCS - % Recovery						
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	%	76		70-130	Pass	
Acenaphthylene	%	76		70-130	Pass	
Anthracene	%	85		70-130	Pass	
Benz(a)anthracene	%	97		70-130	Pass	
Benzo(a)pyrene	%	75		70-130	Pass	
Benzo(b&j)fluoranthene	%	86		70-130	Pass	
Benzo(g,h,i)perylene	%	80		70-130	Pass	
Benzo(k)fluoranthene	%	86		70-130	Pass	
Chrysene	%	89		70-130	Pass	
Dibenz(a,h)anthracene	%	72		70-130	Pass	
Fluoranthene	%	86		70-130	Pass	
Fluorene	%	81		70-130	Pass	
Indeno(1,2,3-cd)pyrene	%	74		70-130	Pass	
Naphthalene	%	77		70-130	Pass	
Phenanthrene	%	72		70-130	Pass	
Pyrene	%	86		70-130	Pass	
LCS - % Recovery						
Organochlorine Pesticides						
Chlordanes - Total	%	104		70-130	Pass	
4,4'-DDD	%	90		70-130	Pass	
4,4'-DDE	%	96		70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
4.4'-DDT	%	95			70-130	Pass	
a-HCH	%	90			70-130	Pass	
Aldrin	%	93			70-130	Pass	
b-HCH	%	87			70-130	Pass	
d-HCH	%	90			70-130	Pass	
Dieldrin	%	96			70-130	Pass	
Endosulfan I	%	89			70-130	Pass	
Endosulfan II	%	89			70-130	Pass	
Endosulfan sulphate	%	74			70-130	Pass	
Endrin	%	84			70-130	Pass	
Endrin aldehyde	%	73			70-130	Pass	
Endrin ketone	%	88			70-130	Pass	
g-HCH (Lindane)	%	97			70-130	Pass	
Heptachlor	%	127			70-130	Pass	
Heptachlor epoxide	%	102			70-130	Pass	
Hexachlorobenzene	%	99			70-130	Pass	
Methoxychlor	%	130			70-130	Pass	
LCS - % Recovery							
Organophosphorus Pesticides							
Diazinon	%	85			70-130	Pass	
Dimethoate	%	72			70-130	Pass	
Ethion	%	125			70-130	Pass	
Fenitrothion	%	126			70-130	Pass	
Methyl parathion	%	105			70-130	Pass	
Mevinphos	%	78			70-130	Pass	
LCS - % Recovery							
Polychlorinated Biphenyls							
Aroclor-1016	%	103			70-130	Pass	
Aroclor-1260	%	100			70-130	Pass	
LCS - % Recovery							
Phenols (Halogenated)							
2-Chlorophenol	%	77			25-140	Pass	
2.4-Dichlorophenol	%	74			25-140	Pass	
2.4.5-Trichlorophenol	%	71			25-140	Pass	
2.4.6-Trichlorophenol	%	79			25-140	Pass	
2.6-Dichlorophenol	%	74			25-140	Pass	
4-Chloro-3-methylphenol	%	77			25-140	Pass	
Tetrachlorophenols - Total	%	71			25-140	Pass	
LCS - % Recovery							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	%	74			25-140	Pass	
2-Methyl-4.6-dinitrophenol	%	86			25-140	Pass	
2-Nitrophenol	%	97			25-140	Pass	
2.4-Dimethylphenol	%	75			25-140	Pass	
2.4-Dinitrophenol	%	78			25-140	Pass	
2-Methylphenol (o-Cresol)	%	74			25-140	Pass	
3&4-Methylphenol (m&p-Cresol)	%	80			25-140	Pass	
4-Nitrophenol	%	71			25-140	Pass	
Dinoseb	%	99			25-140	Pass	
Phenol	%	78			25-140	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	88			80-120	Pass	
Cadmium	%	86			80-120	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code	
Chromium	%	87			80-120	Pass		
Copper	%	86			80-120	Pass		
Lead	%	86			80-120	Pass		
Mercury	%	84			80-120	Pass		
Nickel	%	86			80-120	Pass		
Zinc	%	84			80-120	Pass		
LCS - % Recovery								
Perfluoroalkyl carboxylic acids (PFCAs)								
Perfluorobutanoic acid (PFBA)	%	93			50-150	Pass		
Perfluoropentanoic acid (PFPeA)	%	100			50-150	Pass		
Perfluorohexanoic acid (PFHxA)	%	98			50-150	Pass		
Perfluoroheptanoic acid (PFHpA)	%	87			50-150	Pass		
Perfluorooctanoic acid (PFOA)	%	88			50-150	Pass		
Perfluorononanoic acid (PFNA)	%	94			50-150	Pass		
Perfluorodecanoic acid (PFDA)	%	97			50-150	Pass		
Perfluoroundecanoic acid (PFUnDA)	%	114			50-150	Pass		
Perfluorododecanoic acid (PFDoDA)	%	91			50-150	Pass		
Perfluorotridecanoic acid (PFTrDA)	%	95			50-150	Pass		
Perfluorotetradecanoic acid (PFTeDA)	%	100			50-150	Pass		
LCS - % Recovery								
Perfluoroalkyl sulfonamido substances								
Perfluorooctane sulfonamide (FOSA)	%	89			50-150	Pass		
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	110			50-150	Pass		
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	108			50-150	Pass		
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	124			50-150	Pass		
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	102			50-150	Pass		
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	108			50-150	Pass		
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	106			50-150	Pass		
LCS - % Recovery								
Perfluoroalkyl sulfonic acids (PFSA)								
Perfluorobutanesulfonic acid (PFBS)	%	98			50-150	Pass		
Perfluorononanesulfonic acid (PFNS)	%	98			50-150	Pass		
Perfluoropropanesulfonic acid (PFPrS)	%	98			50-150	Pass		
Perfluoropentanesulfonic acid (PFPeS)	%	89			50-150	Pass		
Perfluorohexanesulfonic acid (PFHxS)	%	90			50-150	Pass		
Perfluoroheptanesulfonic acid (PFHpS)	%	95			50-150	Pass		
Perfluorooctanesulfonic acid (PFOS)	%	106			50-150	Pass		
Perfluorodecanesulfonic acid (PFDS)	%	91			50-150	Pass		
LCS - % Recovery								
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)								
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	108			50-150	Pass		
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	%	112			50-150	Pass		
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	%	95			50-150	Pass		
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	%	111			50-150	Pass		
Test	Lab Sample ID	QA Source	Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery								
Total Recoverable Hydrocarbons				Result 1				
TRH C6-C9	S22-Oc0053600	NCP	%	89		70-130	Pass	
TRH C10-C14	S22-Oc0055127	NCP	%	82		70-130	Pass	
Naphthalene	S22-Oc0053600	NCP	%	77		70-130	Pass	
TRH C6-C10	S22-Oc0053600	NCP	%	88		70-130	Pass	
TRH >C10-C16	S22-Oc0055127	NCP	%	93		70-130	Pass	
Spike - % Recovery								

Test	Lab Sample ID	QA Source	Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
BTEX				Result 1				
Benzene	S22-Oc0053600	NCP	%	105		70-130	Pass	
Toluene	S22-Oc0053600	NCP	%	93		70-130	Pass	
Ethylbenzene	S22-Oc0053600	NCP	%	93		70-130	Pass	
m&p-Xylenes	S22-Oc0053600	NCP	%	95		70-130	Pass	
o-Xylene	S22-Oc0053600	NCP	%	95		70-130	Pass	
Xylenes - Total*	S22-Oc0053600	NCP	%	95		70-130	Pass	
Spike - % Recovery								
Polycyclic Aromatic Hydrocarbons				Result 1				
Acenaphthene	S22-Oc0051410	NCP	%	78		70-130	Pass	
Acenaphthylene	S22-Oc0051410	NCP	%	77		70-130	Pass	
Anthracene	S22-Oc0051410	NCP	%	77		70-130	Pass	
Benz(a)anthracene	S22-Oc0055125	NCP	%	76		70-130	Pass	
Benzo(a)pyrene	S22-Oc0051410	NCP	%	75		70-130	Pass	
Benzo(b&j)fluoranthene	S22-Oc0043874	NCP	%	76		70-130	Pass	
Benzo(k)fluoranthene	S22-Oc0051410	NCP	%	94		70-130	Pass	
Chrysene	S22-Oc0051410	NCP	%	90		70-130	Pass	
Dibenz(a,h)anthracene	S22-Oc0051410	NCP	%	71		70-130	Pass	
Fluoranthene	S22-Oc0051410	NCP	%	81		70-130	Pass	
Fluorene	S22-Oc0051410	NCP	%	80		70-130	Pass	
Indeno(1,2,3-cd)pyrene	S22-Oc0051410	NCP	%	72		70-130	Pass	
Naphthalene	S22-Oc0051410	NCP	%	80		70-130	Pass	
Phenanthrene	S22-Oc0051410	NCP	%	71		70-130	Pass	
Pyrene	S22-Oc0051410	NCP	%	81		70-130	Pass	
Spike - % Recovery								
Organochlorine Pesticides				Result 1				
Chlordanes - Total	S22-Oc0051410	NCP	%	103		70-130	Pass	
4,4'-DDD	S22-Oc0051410	NCP	%	91		70-130	Pass	
4,4'-DDE	S22-Oc0051410	NCP	%	92		70-130	Pass	
4,4'-DDT	S22-Oc0051410	NCP	%	87		70-130	Pass	
a-HCH	S22-Oc0051410	NCP	%	91		70-130	Pass	
Aldrin	S22-Oc0051410	NCP	%	95		70-130	Pass	
b-HCH	S22-Oc0051410	NCP	%	86		70-130	Pass	
d-HCH	S22-Oc0051410	NCP	%	90		70-130	Pass	
Dieldrin	S22-Oc0051410	NCP	%	97		70-130	Pass	
Endosulfan I	S22-Oc0051410	NCP	%	89		70-130	Pass	
Endosulfan II	S22-Oc0051410	NCP	%	87		70-130	Pass	
Endosulfan sulphate	S22-Oc0051410	NCP	%	71		70-130	Pass	
Endrin	S22-Oc0051410	NCP	%	82		70-130	Pass	
Endrin ketone	S22-Oc0051410	NCP	%	86		70-130	Pass	
g-HCH (Lindane)	S22-Oc0051410	NCP	%	98		70-130	Pass	
Heptachlor	S22-Oc0051410	NCP	%	126		70-130	Pass	
Heptachlor epoxide	S22-Oc0051410	NCP	%	101		70-130	Pass	
Hexachlorobenzene	S22-Oc0051410	NCP	%	98		70-130	Pass	
Methoxychlor	S22-Oc0051410	NCP	%	119		70-130	Pass	
Spike - % Recovery								
Organophosphorus Pesticides				Result 1				
Diazinon	S22-Oc0051410	NCP	%	79		70-130	Pass	
Ethion	S22-Oc0051410	NCP	%	103		70-130	Pass	
Fenitrothion	S22-Oc0051410	NCP	%	129		70-130	Pass	
Methyl parathion	S22-Oc0047126	NCP	%	123		70-130	Pass	
Mevinphos	S22-Oc0055125	NCP	%	70		70-130	Pass	
Spike - % Recovery								
Polychlorinated Biphenyls				Result 1				

Test	Lab Sample ID	QA Source	Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
Aroclor-1016	S22-Oc0051410	NCP	%	103		70-130	Pass	
Aroclor-1260	S22-Oc0051410	NCP	%	88		70-130	Pass	
Spike - % Recovery								
Phenols (Halogenated)				Result 1				
2-Chlorophenol	S22-Oc0051410	NCP	%	78		30-130	Pass	
2,4-Dichlorophenol	S22-Oc0051410	NCP	%	74		30-130	Pass	
2,4,5-Trichlorophenol	S22-Oc0051410	NCP	%	77		30-130	Pass	
2,4,6-Trichlorophenol	S22-Oc0051410	NCP	%	76		30-130	Pass	
2,6-Dichlorophenol	S22-Oc0051410	NCP	%	76		30-130	Pass	
4-Chloro-3-methylphenol	S22-Oc0051410	NCP	%	75		30-130	Pass	
Tetrachlorophenols - Total	S22-Oc0051410	NCP	%	79		30-130	Pass	
Spike - % Recovery								
Phenols (non-Halogenated)				Result 1				
2-Methyl-4,6-dinitrophenol	S22-Oc0051410	NCP	%	81		30-130	Pass	
2-Nitrophenol	S22-Oc0051410	NCP	%	104		30-130	Pass	
2,4-Dimethylphenol	S22-Oc0051410	NCP	%	77		30-130	Pass	
2,4-Dinitrophenol	S22-Oc0051410	NCP	%	76		70-130	Pass	
2-Methylphenol (o-Cresol)	S22-Oc0051410	NCP	%	73		30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	S22-Oc0051410	NCP	%	81		30-130	Pass	
4-Nitrophenol	S22-Oc0051410	NCP	%	73		30-130	Pass	
Dinoseb	S22-Oc0051410	NCP	%	95		30-130	Pass	
Phenol	S22-Oc0051410	NCP	%	78		30-130	Pass	
Spike - % Recovery								
Heavy Metals				Result 1				
Arsenic	S22-Oc0052431	NCP	%	99		75-125	Pass	
Cadmium	S22-Oc0052431	NCP	%	94		75-125	Pass	
Chromium	S22-Oc0054519	NCP	%	100		75-125	Pass	
Copper	S22-Oc0052431	NCP	%	77		75-125	Pass	
Lead	S22-Oc0052431	NCP	%	79		75-125	Pass	
Mercury	S22-Oc0052431	NCP	%	95		75-125	Pass	
Nickel	S22-Oc0052431	NCP	%	107		75-125	Pass	
Zinc	S22-Oc0052431	NCP	%	83		75-125	Pass	
Spike - % Recovery								
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1				
Perfluorobutanoic acid (PFBA)	S22-Oc0052299	NCP	%	103		50-150	Pass	
Perfluoropentanoic acid (PFPeA)	S22-Oc0052299	NCP	%	97		50-150	Pass	
Perfluorohexanoic acid (PFHxA)	S22-Oc0052299	NCP	%	100		50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	S22-Oc0052299	NCP	%	77		50-150	Pass	
Perfluorooctanoic acid (PFOA)	S22-Oc0052299	NCP	%	106		50-150	Pass	
Perfluorononanoic acid (PFNA)	S22-Oc0052299	NCP	%	103		50-150	Pass	
Perfluorodecanoic acid (PFDA)	S22-Oc0052299	NCP	%	95		50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	S22-Oc0052299	NCP	%	105		50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	S22-Oc0052299	NCP	%	90		50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	S22-Oc0052299	NCP	%	92		50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	S22-Oc0052299	NCP	%	101		50-150	Pass	
Spike - % Recovery								
Perfluoroalkyl sulfonamido substances				Result 1				
Perfluorooctane sulfonamide (FOSA)	S22-Oc0052299	NCP	%	76		50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	S22-Oc0052299	NCP	%	111		50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	S22-Oc0052299	NCP	%	103		50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	S22-Oc0052299	NCP	%	119			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	S22-Oc0052299	NCP	%	102			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	S22-Oc0052299	NCP	%	108			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	S22-Oc0052299	NCP	%	120			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonic acids (PFSA's)				Result 1					
Perfluorobutanesulfonic acid (PFBS)	S22-Oc0052299	NCP	%	85			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	B22-Oc0062207	NCP	%	122			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	S22-Oc0052299	NCP	%	123			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	S22-Oc0052299	NCP	%	114			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	B22-Oc0062207	NCP	%	95			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	B22-Oc0062207	NCP	%	103			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	B22-Oc0062207	NCP	%	110			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	B22-Oc0062207	NCP	%	108			50-150	Pass	
Spike - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSA's)				Result 1					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	S22-Oc0052299	NCP	%	94			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	S22-Oc0052299	NCP	%	116			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	S22-Oc0052299	NCP	%	106			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	S22-Oc0052299	NCP	%	99			50-150	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH C6-C9	S22-Oc0052028	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	S22-Oc0055126	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	S22-Oc0055126	NCP	mg/kg	720	1300	56	30%	Fail	Q02
TRH C29-C36	S22-Oc0055126	NCP	mg/kg	110	210	60	30%	Fail	Q15
Naphthalene	S22-Oc0052028	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	S22-Oc0052028	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH >C10-C16	S22-Oc0055126	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	S22-Oc0055126	NCP	mg/kg	790	1400	59	30%	Fail	Q02
TRH >C34-C40	S22-Oc0055126	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S22-Oc0052028	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S22-Oc0052028	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S22-Oc0052028	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S22-Oc0052028	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	S22-Oc0052028	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total*	S22-Oc0052028	NCP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	

Duplicate								
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD		
Acenaphthene	S22-Oc0052278	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Acenaphthylene	S22-Oc0052278	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Anthracene	S22-Oc0052278	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benz(a)anthracene	S22-Oc0052278	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(a)pyrene	S22-Oc0052278	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(b&j)fluoranthene	S22-Oc0052278	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(g,h,i)perylene	S22-Oc0052278	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(k)fluoranthene	S22-Oc0052278	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Chrysene	S22-Oc0052278	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Dibenz(a,h)anthracene	S22-Oc0052278	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Fluoranthene	S22-Oc0052278	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Fluorene	S22-Oc0052278	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Indeno(1,2,3-cd)pyrene	S22-Oc0052278	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Naphthalene	S22-Oc0052278	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Phenanthrene	S22-Oc0052278	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Pyrene	S22-Oc0052278	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Duplicate								
Organochlorine Pesticides				Result 1	Result 2	RPD		
Chlordanes - Total	S22-Oc0052278	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
4,4'-DDD	S22-Oc0052278	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
4,4'-DDE	S22-Oc0052278	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
4,4'-DDT	S22-Oc0052278	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
a-HCH	S22-Oc0052278	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Aldrin	S22-Oc0052278	CP	mg/kg	10	11	1.9	30%	Pass
b-HCH	S22-Oc0052278	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
d-HCH	S22-Oc0052278	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Dieldrin	S22-Oc0052278	CP	mg/kg	3.8	2.9	27	30%	Pass
Endosulfan I	S22-Oc0052278	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endosulfan II	S22-Oc0052278	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endosulfan sulphate	S22-Oc0052278	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endrin	S22-Oc0052278	CP	mg/kg	2.8	2.0	31	30%	Fail
Endrin aldehyde	S22-Oc0052278	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endrin ketone	S22-Oc0052278	CP	mg/kg	0.21	0.22	1.9	30%	Pass
g-HCH (Lindane)	S22-Oc0052278	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Heptachlor	S22-Oc0052278	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Heptachlor epoxide	S22-Oc0052278	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Hexachlorobenzene	S22-Oc0052278	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Methoxychlor	S22-Oc0052278	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Toxaphene	S22-Oc0052278	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Duplicate								
Organophosphorus Pesticides				Result 1	Result 2	RPD		
Azinphos-methyl	S22-Oc0052278	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Bolstar	S22-Oc0052278	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Chlorfenvinphos	S22-Oc0052278	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Chlorpyrifos	S22-Oc0052278	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Chlorpyrifos-methyl	S22-Oc0052278	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Coumaphos	S22-Oc0052278	CP	mg/kg	< 2	< 2	<1	30%	Pass
Demeton-S	S22-Oc0052278	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Demeton-O	S22-Oc0052278	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Diazinon	S22-Oc0052278	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Dichlorvos	S22-Oc0052278	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Dimethoate	S22-Oc0052278	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Disulfoton	S22-Oc0052278	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
EPN	S22-Oc0052278	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass

Duplicate								
Organophosphorus Pesticides				Result 1	Result 2	RPD		
Ethion	S22-Oc0052278	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Ethoprop	S22-Oc0052278	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Ethyl parathion	S22-Oc0052278	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Fenitrothion	S22-Oc0052278	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Fensulfothion	S22-Oc0052278	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Fenthion	S22-Oc0052278	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Malathion	S22-Oc0052278	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Merphos	S22-Oc0052278	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Methyl parathion	S22-Oc0052278	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Mevinphos	S22-Oc0052278	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Monocrotophos	S22-Oc0052278	CP	mg/kg	< 2	< 2	<1	30%	Pass
Naled	S22-Oc0052278	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Omethoate	S22-Oc0052278	CP	mg/kg	< 2	< 2	<1	30%	Pass
Phorate	S22-Oc0052278	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Pirimiphos-methyl	S22-Oc0052278	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Pyrazophos	S22-Oc0052278	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Ronnel	S22-Oc0052278	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Terbufos	S22-Oc0052278	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Tetrachlorvinphos	S22-Oc0052278	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Tokuthion	S22-Oc0052278	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Trichloronate	S22-Oc0052278	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Duplicate								
Polychlorinated Biphenyls				Result 1	Result 2	RPD		
Aroclor-1016	S22-Oc0052278	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Aroclor-1221	S22-Oc0052278	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Aroclor-1232	S22-Oc0052278	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Aroclor-1242	S22-Oc0052278	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Aroclor-1248	S22-Oc0052278	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Aroclor-1254	S22-Oc0052278	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Aroclor-1260	S22-Oc0052278	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Total PCB*	S22-Oc0052278	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Duplicate								
Phenols (Halogenated)				Result 1	Result 2	RPD		
2-Chlorophenol	S22-Oc0052278	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
2,4-Dichlorophenol	S22-Oc0052278	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
2,4,5-Trichlorophenol	S22-Oc0052278	CP	mg/kg	< 1	< 1	<1	30%	Pass
2,4,6-Trichlorophenol	S22-Oc0052278	CP	mg/kg	< 1	< 1	<1	30%	Pass
2,6-Dichlorophenol	S22-Oc0052278	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
4-Chloro-3-methylphenol	S22-Oc0052278	CP	mg/kg	< 1	< 1	<1	30%	Pass
Pentachlorophenol	S22-Oc0052278	CP	mg/kg	< 1	< 1	<1	30%	Pass
Tetrachlorophenols - Total	S22-Oc0052278	CP	mg/kg	< 10	< 10	<1	30%	Pass
Duplicate								
Phenols (non-Halogenated)				Result 1	Result 2	RPD		
2-Cyclohexyl-4,6-dinitrophenol	S22-Oc0052278	CP	mg/kg	< 20	< 20	<1	30%	Pass
2-Methyl-4,6-dinitrophenol	S22-Oc0052278	CP	mg/kg	< 5	< 5	<1	30%	Pass
2-Nitrophenol	S22-Oc0052278	CP	mg/kg	< 1	< 1	<1	30%	Pass
2,4-Dimethylphenol	S22-Oc0052278	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
2,4-Dinitrophenol	S22-Oc0052278	CP	mg/kg	< 5	< 5	<1	30%	Pass
2-Methylphenol (o-Cresol)	S22-Oc0052278	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
3&4-Methylphenol (m&p-Cresol)	S22-Oc0052278	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass
4-Nitrophenol	S22-Oc0052278	CP	mg/kg	< 5	< 5	<1	30%	Pass
Dinoseb	S22-Oc0052278	CP	mg/kg	< 20	< 20	<1	30%	Pass
Phenol	S22-Oc0052278	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass

Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Arsenic	S22-Oc0051408	NCP	mg/kg	4.1	3.7	8.9	30%	Pass
Cadmium	S22-Oc0051408	NCP	mg/kg	< 0.4	< 0.4	<1	30%	Pass
Chromium	S22-Oc0051408	NCP	mg/kg	11	10	9.5	30%	Pass
Copper	S22-Oc0051408	NCP	mg/kg	7.1	7.3	2.9	30%	Pass
Lead	S22-Oc0051408	NCP	mg/kg	15	15	<1	30%	Pass
Mercury	S22-Oc0051408	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Nickel	S22-Oc0051408	NCP	mg/kg	7.1	6.8	4.7	30%	Pass
Zinc	S22-Oc0051408	NCP	mg/kg	45	47	4.7	30%	Pass
Duplicate								
% Moisture				Result 1	Result 2	RPD		
% Moisture	S22-Oc0052430	NCP	%	14	14	3.2	30%	Pass
Duplicate								
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD		
Perfluorobutanoic acid (PFBA)	S22-Oc0052185	NCP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluoropentanoic acid (PFPeA)	S22-Oc0052185	NCP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorohexanoic acid (PFHxA)	S22-Oc0052185	NCP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluoroheptanoic acid (PFHpA)	S22-Oc0052185	NCP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorooctanoic acid (PFOA)	S22-Oc0052185	NCP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorononanoic acid (PFNA)	S22-Oc0052185	NCP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorodecanoic acid (PFDA)	S22-Oc0052185	NCP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluoroundecanoic acid (PFUnDA)	S22-Oc0052185	NCP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorododecanoic acid (PFDoDA)	S22-Oc0052185	NCP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorotridecanoic acid (PFTrDA)	S22-Oc0052185	NCP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorotetradecanoic acid (PFTeDA)	S22-Oc0052185	NCP	ug/kg	< 5	< 5	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD		
Perfluorooctane sulfonamide (FOSA)	S22-Oc0052185	NCP	ug/kg	< 5	< 5	<1	30%	Pass
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	S22-Oc0052185	NCP	ug/kg	< 5	< 5	<1	30%	Pass
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	S22-Oc0052185	NCP	ug/kg	< 5	< 5	<1	30%	Pass
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	S22-Oc0052185	NCP	ug/kg	< 5	< 5	<1	30%	Pass
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	S22-Oc0052185	NCP	ug/kg	< 5	< 5	<1	30%	Pass
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	S22-Oc0052185	NCP	ug/kg	< 10	< 10	<1	30%	Pass
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	S22-Oc0052185	NCP	ug/kg	< 10	< 10	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1	Result 2	RPD		
Perfluorobutanesulfonic acid (PFBS)	S22-Oc0052185	NCP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorononanesulfonic acid (PFNS)	S22-Oc0052185	NCP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluoropropanesulfonic acid (PFPrS)	S22-Oc0052185	NCP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluoropentanesulfonic acid (PFPeS)	S22-Oc0052185	NCP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorohexanesulfonic acid (PFHxS)	S22-Oc0052185	NCP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluoroheptanesulfonic acid (PFHpS)	S22-Oc0052185	NCP	ug/kg	< 5	< 5	<1	30%	Pass

Duplicate								
Perfluoroalkyl sulfonic acids (PFSA)				Result 1	Result 2	RPD		
Perfluorooctanesulfonic acid (PFOS)	S22-Oc0052185	NCP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorodecanesulfonic acid (PFDS)	S22-Oc0052185	NCP	ug/kg	< 5	< 5	<1	30%	Pass
Duplicate								
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)				Result 1	Result 2	RPD		
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	S22-Oc0052185	NCP	ug/kg	< 5	< 5	<1	30%	Pass
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	S22-Oc0052185	NCP	ug/kg	< 10	< 10	<1	30%	Pass
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	S22-Oc0052185	NCP	ug/kg	< 5	< 5	<1	30%	Pass
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	S22-Oc0052185	NCP	ug/kg	< 5	< 5	<1	30%	Pass

Comments
Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
N11	Isotope dilution is used for calibration of each native compound for which an exact labelled analogue is available (Isotope Dilution Quantitation). The isotopically labelled analogues allow identification and recovery correction of the concentration of the associated native PFAS compounds.
N15	Where the native PFAS compound does not have labelled analogue then the quantification is made using the Extracted Internal Standard Analyte with the closest retention time to the analyte and no recovery correction has been made (Internal Standard Quantitation).
Q02	The duplicate %RPD is outside the recommended acceptance criteria. Further analysis indicates sample heterogeneity as the cause
Q09	The Surrogate recovery is outside of the recommended acceptance criteria due to matrix interference. Acceptance criteria were met for all other QC
Q15	The RPD reported passes Eurofins Environment Testing's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.

Authorised by:

Bonnie Pu	Analytical Services Manager
Gabriele Cordero	Senior Analyst-Metal
Jonathon Angell	Senior Analyst-PFAS
Raymond Siu	Senior Analyst-Volatile
Roopesh Rangarajan	Senior Analyst-Organic



Glenn Jackson
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please [click here](#).

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Eurofins Environment Testing Australia Pty Ltd

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Sample Receipt Advice

Company name:	Kleinfelder Aust Pty Ltd (NEWCASTLE)
Contact name:	Jai Roby
Project name:	UON GOSFORD
Project ID:	20232402
Turnaround time:	5 Day
Date/Time received	Oct 26, 2022 2:45 PM
Eurofins reference	936273

Sample Information

- ✓ A detailed list of analytes logged into our LIMS, is included in the attached summary table.
- ✓ All samples have been received as described on the above COC.
- ✓ COC has been completed correctly.
- ✓ Attempt to chill was evident.
- ✓ Appropriately preserved sample containers have been used.
- ✓ All samples were received in good condition.
- ✓ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
- ✓ Appropriate sample containers have been used.
- ✓ Sample containers for volatile analysis received with zero headspace.
- ✗ Split sample sent to requested external lab.
- ✗ Some samples have been subcontracted.
- N/A Custody Seals intact (if used).

Notes

Contact

If you have any questions with respect to these samples, please contact your Analytical Services Manager:

Andrew Black on phone : (+61) 2 9900 8490 or by email: AndrewBlack@eurofins.com

Results will be delivered electronically via email to Jai Roby - jrobey@kleinfelder.com.

Note: A copy of these results will also be delivered to the general Kleinfelder Aust Pty Ltd (NEWCASTLE) email address.



Melbourne
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IANZ# 1290

web: www.eurofins.com.au
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Company Name: Kleinfelder Aust Pty Ltd (NEWCASTLE)
Address: Suite 3, 240-244 Pacific Hwy
Charlestown
NSW 2290

Project Name: UON GOSFORD
Project ID: 20232402

Order No.:
Report #: 936273
Phone: 02 4949 5200
Fax:

Received: Oct 26, 2022 2:45 PM
Due: Nov 2, 2022
Priority: 5 Day
Contact Name: Jai Roby

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Eurofins Suite B15	Moisture Set	Eurofins Suite B7A	Per- and Polyfluoroalkyl Substances (PFASs)
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	
Brisbane Laboratory - NATA # 1261 Site # 20794									X
External Laboratory									
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID				
1	QC02A	Oct 21, 2022		Soil	S22-Oc0064528	X	X	X	X
Test Counts						1	1	1	1

Kleinfelder Australia Pty Ltd (NEWC)
 Suite 3, 240-244 Pacific Hwy
 Charlestown
 NSW 2290



NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing
 NATA is a signatory to the ILAC Mutual Recognition
 Arrangement for the mutual recognition of the
 equivalence of testing, medical testing, calibration,
 inspection, proficiency testing scheme providers and
 reference materials producers reports and certificates.

Attention: Jai Roby

Report 936273-S
 Project name UON GOSFORD
 Project ID 20232402
 Received Date Oct 26, 2022

Client Sample ID			G01 QC02A
Sample Matrix			Soil
Eurofins Sample No.			S22- Oc0064528
Date Sampled			Oct 21, 2022
Test/Reference	LOR	Unit	
Total Recoverable Hydrocarbons			
TRH C6-C9	20	mg/kg	< 20
TRH C10-C14	20	mg/kg	< 20
TRH C15-C28	50	mg/kg	< 50
TRH C29-C36	50	mg/kg	62
TRH C10-C36 (Total)	50	mg/kg	62
Naphthalene ^{N02}	0.5	mg/kg	< 0.5
TRH C6-C10	20	mg/kg	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20
TRH >C10-C16	50	mg/kg	< 50
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50
TRH >C16-C34	100	mg/kg	< 100
TRH >C34-C40	100	mg/kg	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100
BTEX			
Benzene	0.1	mg/kg	< 0.1
Toluene	0.1	mg/kg	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2
o-Xylene	0.1	mg/kg	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3
4-Bromofluorobenzene (surr.)	1	%	96
Polycyclic Aromatic Hydrocarbons			
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.7
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2
Acenaphthene	0.5	mg/kg	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5
Anthracene	0.5	mg/kg	< 0.5
Benz(a)anthracene	0.5	mg/kg	0.6
Benzo(a)pyrene	0.5	mg/kg	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	< 0.5
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	0.6
Chrysene	0.5	mg/kg	0.8
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5

Client Sample ID			G01 QC02A
Sample Matrix			Soil
Eurofins Sample No.			S22- Oc0064528
Date Sampled			Oct 21, 2022
Test/Reference	LOR	Unit	
Polycyclic Aromatic Hydrocarbons			
Fluoranthene	0.5	mg/kg	1.2
Fluorene	0.5	mg/kg	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5
Naphthalene	0.5	mg/kg	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5
Pyrene	0.5	mg/kg	1.1
Total PAH*	0.5	mg/kg	4.3
2-Fluorobiphenyl (surr.)	1	%	97
p-Terphenyl-d14 (surr.)	1	%	116
Organochlorine Pesticides			
Chlordanes - Total	0.1	mg/kg	< 1
4.4'-DDD	0.05	mg/kg	< 0.5
4.4'-DDE	0.05	mg/kg	< 0.5
4.4'-DDT	0.05	mg/kg	< 0.5
a-HCH	0.05	mg/kg	< 0.5
Aldrin	0.05	mg/kg	< 0.5
b-HCH	0.05	mg/kg	< 0.5
d-HCH	0.05	mg/kg	< 0.5
Dieldrin	0.05	mg/kg	< 0.5
Endosulfan I	0.05	mg/kg	< 0.5
Endosulfan II	0.05	mg/kg	< 0.5
Endosulfan sulphate	0.05	mg/kg	< 0.5
Endrin	0.05	mg/kg	< 0.5
Endrin aldehyde	0.05	mg/kg	< 0.5
Endrin ketone	0.05	mg/kg	< 0.5
g-HCH (Lindane)	0.05	mg/kg	< 0.5
Heptachlor	0.05	mg/kg	< 0.5
Heptachlor epoxide	0.05	mg/kg	< 0.5
Hexachlorobenzene	0.05	mg/kg	< 0.5
Methoxychlor	0.05	mg/kg	< 0.5
Toxaphene	0.5	mg/kg	< 10
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.5
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.5
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 1
Dibutylchloroendate (surr.)	1	%	70
Tetrachloro-m-xylene (surr.)	1	%	96
Organophosphorus Pesticides			
Azinphos-methyl	0.2	mg/kg	< 0.2
Bolstar	0.2	mg/kg	< 0.2
Chlorfenvinphos	0.2	mg/kg	< 0.2
Chlorpyrifos	0.2	mg/kg	< 0.2
Chlorpyrifos-methyl	0.2	mg/kg	< 0.2
Coumaphos	2	mg/kg	< 2
Demeton-S	0.2	mg/kg	< 0.2
Demeton-O	0.2	mg/kg	< 0.2
Diazinon	0.2	mg/kg	< 0.2
Dichlorvos	0.2	mg/kg	< 0.2
Dimethoate	0.2	mg/kg	< 0.2

Client Sample ID			G01 QC02A
Sample Matrix			Soil
Eurofins Sample No.			S22- Oc0064528
Date Sampled			Oct 21, 2022
Test/Reference	LOR	Unit	
Organophosphorus Pesticides			
Disulfoton	0.2	mg/kg	< 0.2
EPN	0.2	mg/kg	< 0.2
Ethion	0.2	mg/kg	< 0.2
Ethoprop	0.2	mg/kg	< 0.2
Ethyl parathion	0.2	mg/kg	< 0.2
Fenitrothion	0.2	mg/kg	< 0.2
Fensulfothion	0.2	mg/kg	< 0.2
Fenthion	0.2	mg/kg	< 0.2
Malathion	0.2	mg/kg	< 0.2
Merphos	0.2	mg/kg	< 0.2
Methyl parathion	0.2	mg/kg	< 0.2
Mevinphos	0.2	mg/kg	< 0.2
Monocrotophos	2	mg/kg	< 2
Naled	0.2	mg/kg	< 0.2
Omethoate	2	mg/kg	< 2
Phorate	0.2	mg/kg	< 0.2
Pirimiphos-methyl	0.2	mg/kg	< 0.2
Pyrazophos	0.2	mg/kg	< 0.2
Ronnel	0.2	mg/kg	< 0.2
Terbufos	0.2	mg/kg	< 0.2
Tetrachlorvinphos	0.2	mg/kg	< 0.2
Tokuthion	0.2	mg/kg	< 0.2
Trichloronate	0.2	mg/kg	< 0.2
Triphenylphosphate (surr.)	1	%	80
Polychlorinated Biphenyls			
Aroclor-1016	0.1	mg/kg	< 1
Aroclor-1221	0.1	mg/kg	< 1
Aroclor-1232	0.1	mg/kg	< 1
Aroclor-1242	0.1	mg/kg	< 1
Aroclor-1248	0.1	mg/kg	< 1
Aroclor-1254	0.1	mg/kg	< 1
Aroclor-1260	0.1	mg/kg	< 1
Total PCB*	0.1	mg/kg	< 1
Dibutylchloroendate (surr.)	1	%	70
Tetrachloro-m-xylene (surr.)	1	%	96
Phenols (Halogenated)			
2-Chlorophenol	0.5	mg/kg	< 0.5
2,4-Dichlorophenol	0.5	mg/kg	< 0.5
2,4,5-Trichlorophenol	1	mg/kg	< 1
2,4,6-Trichlorophenol	1	mg/kg	< 1
2,6-Dichlorophenol	0.5	mg/kg	< 0.5
4-Chloro-3-methylphenol	1	mg/kg	1.1
Pentachlorophenol	1	mg/kg	< 1
Tetrachlorophenols - Total	10	mg/kg	< 10
Total Halogenated Phenol*	1	mg/kg	1.1

Client Sample ID			G01 QC02A
Sample Matrix			Soil
Eurofins Sample No.			S22- Oc0064528
Date Sampled			Oct 21, 2022
Test/Reference	LOR	Unit	
Phenols (non-Halogenated)			
2-Cyclohexyl-4.6-dinitrophenol	20	mg/kg	< 20
2-Methyl-4.6-dinitrophenol	5	mg/kg	< 5
2-Nitrophenol	1	mg/kg	< 1
2.4-Dimethylphenol	0.5	mg/kg	< 0.5
2.4-Dinitrophenol	5	mg/kg	< 5
2-Methylphenol (o-Cresol)	0.2	mg/kg	< 0.2
3&4-Methylphenol (m&p-Cresol)	0.4	mg/kg	< 0.4
Total cresols*	0.5	mg/kg	< 0.5
4-Nitrophenol	5	mg/kg	< 5
Dinoseb	20	mg/kg	< 20
Phenol	0.5	mg/kg	< 0.5
Phenol-d6 (surr.)	1	%	87
Total Non-Halogenated Phenol*	20	mg/kg	< 20
Heavy Metals			
Arsenic	2	mg/kg	2.1
Cadmium	0.4	mg/kg	< 0.4
Chromium	5	mg/kg	32
Copper	5	mg/kg	32
Lead	5	mg/kg	84
Mercury	0.1	mg/kg	0.1
Nickel	5	mg/kg	32
Zinc	5	mg/kg	120
% Moisture			
% Moisture	1	%	11
Perfluoroalkyl carboxylic acids (PFCAs)			
Perfluorobutanoic acid (PFBA) ^{N11}	5	ug/kg	< 5
Perfluoropentanoic acid (PFPeA) ^{N11}	5	ug/kg	< 5
Perfluorohexanoic acid (PFHxA) ^{N11}	5	ug/kg	< 5
Perfluoroheptanoic acid (PFHpA) ^{N11}	5	ug/kg	< 5
Perfluorooctanoic acid (PFOA) ^{N11}	5	ug/kg	< 5
Perfluorononanoic acid (PFNA) ^{N11}	5	ug/kg	< 5
Perfluorodecanoic acid (PFDA) ^{N11}	5	ug/kg	< 5
Perfluoroundecanoic acid (PFUnDA) ^{N11}	5	ug/kg	< 5
Perfluorododecanoic acid (PFDoDA) ^{N11}	5	ug/kg	< 5
Perfluorotridecanoic acid (PFTTrDA) ^{N15}	5	ug/kg	< 5
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	5	ug/kg	< 5
13C4-PFBA (surr.)	1	%	126
13C5-PFPeA (surr.)	1	%	127
13C5-PFHxA (surr.)	1	%	122
13C4-PFHpA (surr.)	1	%	102
13C8-PFOA (surr.)	1	%	106
13C5-PFNA (surr.)	1	%	110
13C6-PFDA (surr.)	1	%	134
13C2-PFUnDA (surr.)	1	%	143
13C2-PFDoDA (surr.)	1	%	146
13C2-PFTeDA (surr.)	1	%	107

Client Sample ID			G01 QC02A
Sample Matrix			Soil
Eurofins Sample No.			S22- Oc0064528
Date Sampled			Oct 21, 2022
Test/Reference	LOR	Unit	
Perfluoroalkyl sulfonamido substances			
Perfluorooctane sulfonamide (FOSA) ^{N11}	5	ug/kg	< 5
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	5	ug/kg	< 5
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	5	ug/kg	< 5
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	5	ug/kg	< 5
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	5	ug/kg	< 5
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	10	ug/kg	< 10
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	10	ug/kg	< 10
13C8-FOSA (surr.)	1	%	106
D3-N-MeFOSA (surr.)	1	%	94
D5-N-EtFOSA (surr.)	1	%	92
D7-N-MeFOSE (surr.)	1	%	98
D9-N-EtFOSE (surr.)	1	%	88
D5-N-EtFOSAA (surr.)	1	%	136
D3-N-MeFOSAA (surr.)	1	%	149
Perfluoroalkyl sulfonic acids (PFASs)			
Perfluorobutanesulfonic acid (PFBS) ^{N11}	5	ug/kg	< 5
Perfluorononanesulfonic acid (PFNS) ^{N15}	5	ug/kg	< 5
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	5	ug/kg	< 5
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	5	ug/kg	< 5
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	5	ug/kg	< 5
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	5	ug/kg	< 5
Perfluorooctanesulfonic acid (PFOS) ^{N11}	5	ug/kg	< 5
Perfluorodecanesulfonic acid (PFDS) ^{N15}	5	ug/kg	< 5
13C3-PFBS (surr.)	1	%	137
18O2-PFHxS (surr.)	1	%	125
13C8-PFOS (surr.)	1	%	126
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)			
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	5	ug/kg	< 5
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) ^{N11}	10	ug/kg	< 10
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	5	ug/kg	< 5
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	5	ug/kg	< 5
13C2-4:2 FTSA (surr.)	1	%	121
13C2-6:2 FTSA (surr.)	1	%	143
13C2-8:2 FTSA (surr.)	1	%	197
13C2-10:2 FTSA (surr.)	1	%	130
PFASs Summations			
Sum (PFHxS + PFOS)*	5	ug/kg	< 5
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	< 5
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	< 5
Sum of WA DWER PFAS (n=10)*	10	ug/kg	< 10
Sum of PFASs (n=30)*	50	ug/kg	< 50

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Nov 02, 2022	14 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Nov 02, 2022	14 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Nov 02, 2022	14 Days
BTEX - Method: LTM-ORG-2010 BTEX and Volatile TRH	Sydney	Nov 02, 2022	14 Days
Polycyclic Aromatic Hydrocarbons - Method: LTM-ORG-2130 PAH and Phenols in Soil and Water	Sydney	Nov 02, 2022	14 Days
Phenols (Halogenated) - Method: LTM-ORG-2130 PAH and Phenols in Soil and Water	Sydney	Nov 02, 2022	14 Days
Phenols (non-Halogenated) - Method: LTM-ORG-2130 PAH and Phenols in Soil and Water	Sydney	Nov 02, 2022	14 Days
Metals M8 - Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS	Sydney	Nov 02, 2022	28 Days
Eurofins Suite B15			
Organochlorine Pesticides - Method: LTM-ORG-2220 OCP & PCB in Soil and Water	Sydney	Nov 02, 2022	14 Days
Organophosphorus Pesticides - Method: LTM-ORG-2200 Organophosphorus Pesticides by GC-MS	Sydney	Nov 02, 2022	14 Days
Polychlorinated Biphenyls - Method: LTM-ORG-2220 OCP & PCB in Soil and Water	Sydney	Nov 02, 2022	28 Days
% Moisture - Method: LTM-GEN-7080 Moisture	Sydney	Oct 30, 2022	14 Days
Per- and Polyfluoroalkyl Substances (PFASs)			
Perfluoroalkyl carboxylic acids (PFCAs) - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Nov 03, 2022	28 Days
Perfluoroalkyl sulfonamido substances - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Nov 03, 2022	28 Days
Perfluoroalkyl sulfonic acids (PFSAs) - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Nov 03, 2022	28 Days
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs) - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Nov 03, 2022	28 Days

Company Name:	Kleinfelder Aust Pty Ltd (NEWCASTLE)	Order No.:		Received:	Oct 26, 2022 2:45 PM
Address:	Suite 3, 240-244 Pacific Hwy Charlestown NSW 2290	Report #:	936273	Due:	Nov 2, 2022
Project Name:	UON GOSFORD	Phone:	02 4949 5200	Priority:	5 Day
Project ID:	20232402	Fax:		Contact Name:	Jai Roby

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Eurofins Suite B15	Moisture Set	Eurofins Suite B7A	Per- and Polyfluoroalkyl Substances (PFASs)
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	
Brisbane Laboratory - NATA # 1261 Site # 20794									X
External Laboratory									
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID				
1	QC02A	Oct 21, 2022		Soil	S22-Oc0064528	X	X	X	X
Test Counts						1	1	1	1

Internal Quality Control Review and Glossary

General

- Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
- All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
- All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
- Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
- Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
- SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
- Samples were analysed on an 'as received' basis.
- Information identified on this report with blue colour, indicates data provided by customer that may have an impact on the results.
- This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

Units

mg/kg: milligrams per kilogram	mg/L: milligrams per litre	µg/L: micrograms per litre
ppm: parts per million	ppb: parts per billion	%: Percentage
org/100 mL: Organisms per 100 millilitres	NTU: Nephelometric Turbidity Units	MPN/100 mL: Most Probable Number of organisms per 100 millilitres

Terms

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	Tributyltin oxide (<i>bis</i> -tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment however free tributyltin was measured and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should be used as a guide only and may be different when site specific Sampling Analysis and Quality Plan (SAQP) have been implemented

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR: No Limit

Results between 10-20 times the LOR: RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

NOTE: pH duplicates are reported as a range not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.4 where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

- Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
- Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
- pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
- Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
- For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
- Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g,h,i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a,h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Organochlorine Pesticides							
Chlordanes - Total	mg/kg	< 0.1			0.1	Pass	
4,4'-DDD	mg/kg	< 0.05			0.05	Pass	
4,4'-DDE	mg/kg	< 0.05			0.05	Pass	
4,4'-DDT	mg/kg	< 0.05			0.05	Pass	
a-HCH	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
b-HCH	mg/kg	< 0.05			0.05	Pass	
d-HCH	mg/kg	< 0.05			0.05	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Endosulfan I	mg/kg	< 0.05			0.05	Pass	
Endosulfan II	mg/kg	< 0.05			0.05	Pass	
Endosulfan sulphate	mg/kg	< 0.05			0.05	Pass	
Endrin	mg/kg	< 0.05			0.05	Pass	
Endrin aldehyde	mg/kg	< 0.05			0.05	Pass	
Endrin ketone	mg/kg	< 0.05			0.05	Pass	
g-HCH (Lindane)	mg/kg	< 0.05			0.05	Pass	
Heptachlor	mg/kg	< 0.05			0.05	Pass	
Heptachlor epoxide	mg/kg	< 0.05			0.05	Pass	
Hexachlorobenzene	mg/kg	< 0.05			0.05	Pass	
Methoxychlor	mg/kg	< 0.05			0.05	Pass	
Toxaphene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Organophosphorus Pesticides							
Azinphos-methyl	mg/kg	< 0.2			0.2	Pass	
Bolstar	mg/kg	< 0.2			0.2	Pass	
Chlorfenvinphos	mg/kg	< 0.2			0.2	Pass	
Chlorpyrifos	mg/kg	< 0.2			0.2	Pass	
Chlorpyrifos-methyl	mg/kg	< 0.2			0.2	Pass	
Coumaphos	mg/kg	< 2			2	Pass	
Demeton-S	mg/kg	< 0.2			0.2	Pass	
Demeton-O	mg/kg	< 0.2			0.2	Pass	
Diazinon	mg/kg	< 0.2			0.2	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Dichlorvos	mg/kg	< 0.2			0.2	Pass	
Dimethoate	mg/kg	< 0.2			0.2	Pass	
Disulfoton	mg/kg	< 0.2			0.2	Pass	
EPN	mg/kg	< 0.2			0.2	Pass	
Ethion	mg/kg	< 0.2			0.2	Pass	
Ethoprop	mg/kg	< 0.2			0.2	Pass	
Ethyl parathion	mg/kg	< 0.2			0.2	Pass	
Fenitrothion	mg/kg	< 0.2			0.2	Pass	
Fensulfothion	mg/kg	< 0.2			0.2	Pass	
Fenthion	mg/kg	< 0.2			0.2	Pass	
Malathion	mg/kg	< 0.2			0.2	Pass	
Merphos	mg/kg	< 0.2			0.2	Pass	
Methyl parathion	mg/kg	< 0.2			0.2	Pass	
Mevinphos	mg/kg	< 0.2			0.2	Pass	
Monocrotophos	mg/kg	< 2			2	Pass	
Naled	mg/kg	< 0.2			0.2	Pass	
Omethoate	mg/kg	< 2			2	Pass	
Phorate	mg/kg	< 0.2			0.2	Pass	
Pirimiphos-methyl	mg/kg	< 0.2			0.2	Pass	
Pyrazophos	mg/kg	< 0.2			0.2	Pass	
Ronnel	mg/kg	< 0.2			0.2	Pass	
Terbufos	mg/kg	< 0.2			0.2	Pass	
Tetrachlorvinphos	mg/kg	< 0.2			0.2	Pass	
Tokuthion	mg/kg	< 0.2			0.2	Pass	
Trichloronate	mg/kg	< 0.2			0.2	Pass	
Method Blank							
Polychlorinated Biphenyls							
Aroclor-1016	mg/kg	< 0.1			0.1	Pass	
Aroclor-1221	mg/kg	< 0.1			0.1	Pass	
Aroclor-1232	mg/kg	< 0.1			0.1	Pass	
Aroclor-1242	mg/kg	< 0.1			0.1	Pass	
Aroclor-1248	mg/kg	< 0.1			0.1	Pass	
Aroclor-1254	mg/kg	< 0.1			0.1	Pass	
Aroclor-1260	mg/kg	< 0.1			0.1	Pass	
Total PCB*	mg/kg	< 0.1			0.1	Pass	
Method Blank							
Phenols (Halogenated)							
2-Chlorophenol	mg/kg	< 0.5			0.5	Pass	
2,4-Dichlorophenol	mg/kg	< 0.5			0.5	Pass	
2,4,5-Trichlorophenol	mg/kg	< 1			1	Pass	
2,4,6-Trichlorophenol	mg/kg	< 1			1	Pass	
2,6-Dichlorophenol	mg/kg	< 0.5			0.5	Pass	
4-Chloro-3-methylphenol	mg/kg	< 1			1	Pass	
Pentachlorophenol	mg/kg	< 1			1	Pass	
Tetrachlorophenols - Total	mg/kg	< 10			10	Pass	
Method Blank							
Phenols (non-Halogenated)							
2-Cyclohexyl-4,6-dinitrophenol	mg/kg	< 20			20	Pass	
2-Methyl-4,6-dinitrophenol	mg/kg	< 5			5	Pass	
2-Nitrophenol	mg/kg	< 1			1	Pass	
2,4-Dimethylphenol	mg/kg	< 0.5			0.5	Pass	
2,4-Dinitrophenol	mg/kg	< 5			5	Pass	
2-Methylphenol (o-Cresol)	mg/kg	< 0.2			0.2	Pass	
3&4-Methylphenol (m&p-Cresol)	mg/kg	< 0.4			0.4	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code	
4-Nitrophenol	mg/kg	< 5			5	Pass		
Dinoseb	mg/kg	< 20			20	Pass		
Phenol	mg/kg	< 0.5			0.5	Pass		
Total Non-Halogenated Phenol*	mg/kg	< 0			20	Pass		
LCS - % Recovery								
Polycyclic Aromatic Hydrocarbons								
Anthracene	%	70			70-130	Pass		
Benzo(k)fluoranthene	%	72			70-130	Pass		
Phenanthrene	%	72			70-130	Pass		
LCS - % Recovery								
Organochlorine Pesticides								
4,4'-DDD	%	70			70-130	Pass		
4,4'-DDT	%	75			70-130	Pass		
Dieldrin	%	70			70-130	Pass		
Endosulfan I	%	73			70-130	Pass		
Endrin	%	72			70-130	Pass		
Endrin aldehyde	%	81			70-130	Pass		
LCS - % Recovery								
Organophosphorus Pesticides								
Diazinon	%	86			70-130	Pass		
Dimethoate	%	73			70-130	Pass		
Ethion	%	81			70-130	Pass		
Fenitrothion	%	77			70-130	Pass		
Methyl parathion	%	84			70-130	Pass		
Mevinphos	%	78			70-130	Pass		
LCS - % Recovery								
Polychlorinated Biphenyls								
Aroclor-1016	%	81			70-130	Pass		
LCS - % Recovery								
Phenols (Halogenated)								
2-Chlorophenol	%	74			25-140	Pass		
2,4-Dichlorophenol	%	72			25-140	Pass		
2,4,6-Trichlorophenol	%	71			25-140	Pass		
2,6-Dichlorophenol	%	72			25-140	Pass		
4-Chloro-3-methylphenol	%	72			25-140	Pass		
LCS - % Recovery								
Phenols (non-Halogenated)								
2-Nitrophenol	%	71			25-140	Pass		
2,4-Dimethylphenol	%	73			25-140	Pass		
2-Methylphenol (o-Cresol)	%	74			25-140	Pass		
3&4-Methylphenol (m&p-Cresol)	%	77			25-140	Pass		
Phenol	%	75			25-140	Pass		
Test	Lab Sample ID	QA Source	Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery								
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1				
Perfluorobutanoic acid (PFBA)	S22-Oc0064528	CP	%	86		50-150	Pass	
Perfluoropentanoic acid (PFPeA)	S22-Oc0064528	CP	%	86		50-150	Pass	
Perfluorohexanoic acid (PFHxA)	S22-Oc0064528	CP	%	90		50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	S22-Oc0064528	CP	%	85		50-150	Pass	
Perfluorooctanoic acid (PFOA)	S22-Oc0064528	CP	%	94		50-150	Pass	
Perfluorononanoic acid (PFNA)	S22-Oc0064528	CP	%	96		50-150	Pass	
Perfluorodecanoic acid (PFDA)	S22-Oc0064528	CP	%	93		50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluoroundecanoic acid (PFUnDA)	S22-Oc0064528	CP	%	94			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	S22-Oc0064528	CP	%	90			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	S22-Oc0064528	CP	%	123			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	S22-Oc0064528	CP	%	97			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonamido substances				Result 1					
Perfluorooctane sulfonamide (FOSA)	S22-Oc0064528	CP	%	88			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	S22-Oc0064528	CP	%	95			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	S22-Oc0064528	CP	%	93			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	S22-Oc0064528	CP	%	124			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	S22-Oc0064528	CP	%	87			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	S22-Oc0064528	CP	%	88			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	S22-Oc0064528	CP	%	83			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonic acids (PFSA's)				Result 1					
Perfluorobutanesulfonic acid (PFBS)	S22-Oc0064528	CP	%	81			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	S22-Oc0064528	CP	%	87			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	S22-Oc0064528	CP	%	82			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	S22-Oc0064528	CP	%	74			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	S22-Oc0064528	CP	%	81			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	S22-Oc0064528	CP	%	87			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	S22-Oc0064528	CP	%	79			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	S22-Oc0064528	CP	%	87			50-150	Pass	
Spike - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSA's)				Result 1					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	S22-Oc0064528	CP	%	88			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	S22-Oc0064528	CP	%	87			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	S22-Oc0064528	CP	%	86			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	S22-Oc0064528	CP	%	89			50-150	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH C6-C9	N22-Oc0056933	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	S22-Oc0063945	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	S22-Oc0063945	NCP	mg/kg	< 50	< 50	<1	30%	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1	Result 2	RPD	Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH C29-C36	S22-Oc0063945	NCP	mg/kg	66	< 50	50	30%	Fail	Q15
Naphthalene	N22-Oc0056933	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	N22-Oc0056933	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH >C10-C16	S22-Oc0063945	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	S22-Oc0063945	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	S22-Oc0063945	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	N22-Oc0056933	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	N22-Oc0056933	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	N22-Oc0056933	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	N22-Oc0056933	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	N22-Oc0056933	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total*	N22-Oc0056933	NCP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	S22-No0003469	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	S22-No0003469	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	S22-No0003469	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	S22-No0003469	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	S22-No0003469	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	S22-No0003469	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g,h,i)perylene	S22-No0003469	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	S22-No0003469	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	S22-No0003469	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a,h)anthracene	S22-No0003469	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	S22-No0003469	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	S22-No0003469	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1,2,3-cd)pyrene	S22-No0003469	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	S22-No0003469	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	S22-No0003469	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	S22-No0003469	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	S22-No0003469	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4,4'-DDD	S22-No0003469	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4,4'-DDE	S22-No0003469	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4,4'-DDT	S22-No0003469	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-HCH	S22-No0003469	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	S22-No0003469	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-HCH	S22-No0003469	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-HCH	S22-No0003469	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	S22-No0003469	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan I	S22-No0003469	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	S22-No0003469	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	S22-No0003469	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	S22-No0003469	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin aldehyde	S22-No0003469	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin ketone	S22-No0003469	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
g-HCH (Lindane)	S22-No0003469	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor	S22-No0003469	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor epoxide	S22-No0003469	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	

Duplicate								
Organochlorine Pesticides				Result 1	Result 2	RPD		
Hexachlorobenzene	S22-No0003469	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Methoxychlor	S22-No0003469	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Toxaphene	S22-No0003469	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Duplicate								
Organophosphorus Pesticides				Result 1	Result 2	RPD		
Azinphos-methyl	S22-No0003469	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Bolstar	S22-No0003469	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Chlorfenvinphos	S22-No0003469	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Chlorpyrifos	S22-No0003469	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Chlorpyrifos-methyl	S22-No0003469	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Coumaphos	S22-No0003469	NCP	mg/kg	< 2	< 2	<1	30%	Pass
Demeton-S	S22-No0003469	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Demeton-O	S22-No0003469	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Diazinon	S22-No0003469	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Dichlorvos	S22-No0003469	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Dimethoate	S22-No0003469	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Disulfoton	S22-No0003469	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
EPN	S22-No0003469	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Ethion	S22-No0003469	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Ethoprop	S22-No0003469	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Ethyl parathion	S22-No0003469	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Fenitrothion	S22-No0003469	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Fensulfotthion	S22-No0003469	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Fenthion	S22-No0003469	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Malathion	S22-No0003469	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Merphos	S22-No0003469	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Methyl parathion	S22-No0003469	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Mevinphos	S22-No0003469	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Monocrotophos	S22-No0003469	NCP	mg/kg	< 2	< 2	<1	30%	Pass
Naled	S22-No0003469	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Omethoate	S22-No0003469	NCP	mg/kg	< 2	< 2	<1	30%	Pass
Phorate	S22-No0003469	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Pirimiphos-methyl	S22-No0003469	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Pyrazophos	S22-No0003469	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Ronnel	S22-No0003469	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Terbufos	S22-No0003469	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Tetrachlorvinphos	S22-No0003469	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Tokuthion	S22-No0003469	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Trichloronate	S22-No0003469	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Duplicate								
Polychlorinated Biphenyls				Result 1	Result 2	RPD		
Aroclor-1016	S22-No0003469	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Aroclor-1221	S22-No0003469	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Aroclor-1232	S22-No0003469	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Aroclor-1242	S22-No0003469	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Aroclor-1248	S22-No0003469	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Aroclor-1254	S22-No0003469	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Aroclor-1260	S22-No0003469	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Total PCB*	S22-No0003469	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass

Duplicate										
Phenols (Halogenated)					Result 1	Result 2	RPD			
2-Chlorophenol	S22-Oc0048361	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass		
2,4-Dichlorophenol	S22-Oc0048361	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass		
2,4,5-Trichlorophenol	S22-Oc0048361	NCP	mg/kg	< 1	< 1	<1	30%	Pass		
2,4,6-Trichlorophenol	S22-Oc0048361	NCP	mg/kg	< 1	< 1	<1	30%	Pass		
2,6-Dichlorophenol	S22-Oc0048361	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass		
4-Chloro-3-methylphenol	S22-Oc0048361	NCP	mg/kg	< 1	< 1	<1	30%	Pass		
Pentachlorophenol	S22-Oc0048361	NCP	mg/kg	< 1	< 1	<1	30%	Pass		
Tetrachlorophenols - Total	S22-Oc0048361	NCP	mg/kg	< 10	< 10	<1	30%	Pass		
Duplicate										
Phenols (non-Halogenated)					Result 1	Result 2	RPD			
2-Cyclohexyl-4,6-dinitrophenol	S22-Oc0048361	NCP	mg/kg	< 20	< 20	<1	30%	Pass		
2-Methyl-4,6-dinitrophenol	S22-Oc0048361	NCP	mg/kg	< 5	< 5	<1	30%	Pass		
2-Nitrophenol	S22-Oc0048361	NCP	mg/kg	< 1	< 1	<1	30%	Pass		
2,4-Dimethylphenol	S22-Oc0048361	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass		
2,4-Dinitrophenol	S22-Oc0048361	NCP	mg/kg	< 5	< 5	<1	30%	Pass		
2-Methylphenol (o-Cresol)	S22-Oc0048361	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass		
3&4-Methylphenol (m&p-Cresol)	S22-Oc0048361	NCP	mg/kg	< 0.4	< 0.4	<1	30%	Pass		
4-Nitrophenol	S22-Oc0048361	NCP	mg/kg	< 5	< 5	<1	30%	Pass		
Dinoseb	S22-Oc0048361	NCP	mg/kg	< 20	< 20	<1	30%	Pass		
Phenol	S22-Oc0048361	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass		
Duplicate										
Heavy Metals					Result 1	Result 2	RPD			
Arsenic	S22-Oc0063945	NCP	mg/kg	5.0	6.9	32	30%	Fail	Q15	
Cadmium	S22-Oc0063945	NCP	mg/kg	< 0.4	< 0.4	<1	30%	Pass		
Chromium	S22-Oc0063945	NCP	mg/kg	12	18	39	30%	Fail	Q15	
Copper	S22-Oc0063945	NCP	mg/kg	18	20	13	30%	Pass		
Lead	S22-Oc0063945	NCP	mg/kg	15	19	28	30%	Pass		
Mercury	S22-Oc0063945	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass		
Nickel	S22-Oc0063945	NCP	mg/kg	9.2	13	33	30%	Fail	Q15	
Zinc	S22-Oc0063945	NCP	mg/kg	43	50	14	30%	Pass		
Duplicate										
% Moisture	S22-Oc0064544	NCP	%	22	21	2.4	30%	Pass		
Duplicate										
Perfluoroalkyl carboxylic acids (PFCAs)					Result 1	Result 2	RPD			
Perfluorobutanoic acid (PFBA)	S22-Oc0064533	NCP	ug/kg	65	65	<1	30%	Pass		
Perfluoropentanoic acid (PFPeA)	S22-Oc0064533	NCP	ug/kg	72	72	<1	30%	Pass		
Perfluorohexanoic acid (PFHxA)	S22-Oc0064533	NCP	ug/kg	340	340	2.1	30%	Pass		
Perfluoroheptanoic acid (PFHpA)	S22-Oc0064533	NCP	ug/kg	61	67	8.3	30%	Pass		
Perfluorooctanoic acid (PFOA)	S22-Oc0064533	NCP	ug/kg	160	180	11	30%	Pass		
Perfluorononanoic acid (PFNA)	S22-Oc0064533	NCP	ug/kg	< 5	< 5	<1	30%	Pass		
Perfluorodecanoic acid (PFDA)	S22-Oc0064533	NCP	ug/kg	< 5	< 5	<1	30%	Pass		
Perfluoroundecanoic acid (PFUnDA)	S22-Oc0064533	NCP	ug/kg	< 5	< 5	<1	30%	Pass		
Perfluorododecanoic acid (PFDoDA)	S22-Oc0064533	NCP	ug/kg	< 5	< 5	<1	30%	Pass		
Perfluorotridecanoic acid (PFTrDA)	S22-Oc0064533	NCP	ug/kg	< 5	< 5	<1	30%	Pass		
Perfluorotetradecanoic acid (PFTeDA)	S22-Oc0064533	NCP	ug/kg	< 5	< 5	<1	30%	Pass		

Duplicate								
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD		
Perfluorooctane sulfonamide (FOSA)	S22-Oc0064533	NCP	ug/kg	6.4	7.4	15	30%	Pass
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	S22-Oc0064533	NCP	ug/kg	< 5	< 5	<1	30%	Pass
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	S22-Oc0064533	NCP	ug/kg	< 5	< 5	<1	30%	Pass
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	S22-Oc0064533	NCP	ug/kg	< 5	< 5	<1	30%	Pass
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	S22-Oc0064533	NCP	ug/kg	< 5	< 5	<1	30%	Pass
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	S22-Oc0064533	NCP	ug/kg	< 10	< 10	<1	30%	Pass
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	S22-Oc0064533	NCP	ug/kg	< 10	< 10	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonic acids (PFSA)				Result 1	Result 2	RPD		
Perfluorobutanesulfonic acid (PFBS)	S22-Oc0064533	NCP	ug/kg	100	120	15	30%	Pass
Perfluorononanesulfonic acid (PFNS)	S22-Oc0064533	NCP	ug/kg	< 100	18	8.6	30%	Pass
Perfluoropropanesulfonic acid (PFPrS)	S22-Oc0064533	NCP	ug/kg	41	44	6.1	30%	Pass
Perfluoropentanesulfonic acid (PFPeS)	S22-Oc0064533	NCP	ug/kg	93	110	18	30%	Pass
Perfluorohexanesulfonic acid (PFHxS)	S22-Oc0064533	NCP	ug/kg	2600	810	9.8	30%	Pass
Perfluoroheptanesulfonic acid (PFHpS)	S22-Oc0064533	NCP	ug/kg	240	72	17	30%	Pass
Perfluorooctanesulfonic acid (PFOS)	S22-Oc0064533	NCP	ug/kg	8300	5800	21	30%	Pass
Perfluorodecanesulfonic acid (PFDS)	S22-Oc0064533	NCP	ug/kg	< 100	< 5	<1	30%	Pass
Duplicate								
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)				Result 1	Result 2	RPD		
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	S22-Oc0064533	NCP	ug/kg	< 5	< 5	<1	30%	Pass
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	S22-Oc0064533	NCP	ug/kg	< 10	< 10	<1	30%	Pass
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	S22-Oc0064533	NCP	ug/kg	5.5	6.1	10	30%	Pass
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	S22-Oc0064533	NCP	ug/kg	< 5	< 5	<1	30%	Pass

Comments
Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
G01	The LORs have been raised due to matrix interference
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
N11	Isotope dilution is used for calibration of each native compound for which an exact labelled analogue is available (Isotope Dilution Quantitation). The isotopically labelled analogues allow identification and recovery correction of the concentration of the associated native PFAS compounds.
N15	Where the native PFAS compound does not have labelled analogue then the quantification is made using the Extracted Internal Standard Analyte with the closest retention time to the analyte and no recovery correction has been made (Internal Standard Quantitation).
Q15	The RPD reported passes Eurofins Environment Testing's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.

Authorised by:

Bonnie Pu	Analytical Services Manager
Raymond Siu	Senior Analyst-Volatile
Roopesh Rangarajan	Senior Analyst-Organic
Gabriele Cordero	Senior Analyst-Metal
Jonathon Angell	Senior Analyst-PFAS



Glenn Jackson
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please [click here](#).

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Christchurch 7675
Tel: 0800 856 450
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Sample Receipt Advice

Company name: Kleinfelder Aust Pty Ltd (NEWCASTLE)
Contact name: M Ferguson
Project name: UON GOSFORD GME NOV 2022
Project ID: 20232408
Turnaround time: 5 Day
Date/Time received: Nov 24, 2022 4:15 PM
Eurofins reference: 944396

Sample Information

- ✓ A detailed list of analytes logged into our LIMS, is included in the attached summary table.
- ✓ All samples have been received as described on the above COC.
- ✓ COC has been completed correctly.
- ✓ Attempt to chill was evident.
- ✓ Appropriately preserved sample containers have been used.
- ✓ All samples were received in good condition.
- ✓ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
- ✓ Appropriate sample containers have been used.
- ✓ Sample containers for volatile analysis received with zero headspace.
- ✗ Split sample sent to requested external lab.
- ✗ Some samples have been subcontracted.
- N/A Custody Seals intact (if used).

Notes

Contact

If you have any questions with respect to these samples, please contact your Analytical Services Manager:

Andrew Black on phone : (+61) 2 9900 8490 or by email: AndrewBlack@eurofins.com

Results will be delivered electronically via email to M Ferguson - mferguson@kleinfelder.com.

Note: A copy of these results will also be delivered to the general Kleinfelder Aust Pty Ltd (NEWCASTLE) email address.



Melbourne
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web: www.eurofins.com.au
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Company Name: Kleinfelder Aust Pty Ltd (NEWCASTLE)
Address: Suite 3, 240-244 Pacific Hwy
Charlestown
NSW 2290

Project Name: UON GOSFORD GME NOV 2022
Project ID: 20232408

Order No.:
Report #: 944396
Phone: 02 4949 5200
Fax:

Received: Nov 24, 2022 4:15 PM
Due: Dec 1, 2022
Priority: 5 Day
Contact Name: M Ferguson

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Polycyclic Aromatic Hydrocarbons	Metals M8 filtered	Eurofins Suite B15	Eurofins Suite B1	Per- and Polyfluoroalkyl Substances (PFASs)
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X
External Laboratory										
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID					
1	QC01A	Nov 23, 2022		Water	S22-No0060141	X	X	X	X	X
Test Counts						1	1	1	1	1

Kleinfelder Australia Pty Ltd (NEWC)
 Suite 3, 240-244 Pacific Hwy
 Charlestown
 NSW 2290



NATA Accredited
 Accreditation Number 1261
 Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing
 NATA is a signatory to the ILAC Mutual Recognition
 Arrangement for the mutual recognition of the
 equivalence of testing, medical testing, calibration,
 inspection, proficiency testing scheme providers and
 reference materials producers reports and certificates.

Attention: **M Ferguson**

Report **944396-W**
 Project name **UON GOSFORD GME NOV 2022**
 Project ID **20232408**
 Received Date **Nov 24, 2022**

Client Sample ID			QC01A
Sample Matrix			Water
Eurofins Sample No.			S22- No0060141
Date Sampled			Nov 23, 2022
Test/Reference	LOR	Unit	
Total Recoverable Hydrocarbons			
TRH C6-C9	0.02	mg/L	0.20
TRH C10-C14	0.05	mg/L	0.52
TRH C15-C28	0.1	mg/L	0.4
TRH C29-C36	0.1	mg/L	< 0.1
TRH C10-C36 (Total)	0.1	mg/L	0.92
Naphthalene ^{N02}	0.01	mg/L	0.03
TRH C6-C10	0.02	mg/L	0.28
TRH C6-C10 less BTEX (F1) ^{N04}	0.02	mg/L	0.21
TRH >C10-C16	0.05	mg/L	0.59
TRH >C10-C16 less Naphthalene (F2) ^{N01}	0.05	mg/L	0.56
TRH >C16-C34	0.1	mg/L	0.3
TRH >C34-C40	0.1	mg/L	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	0.89
BTEX			
Benzene	0.001	mg/L	0.011
Toluene	0.001	mg/L	< 0.001
Ethylbenzene	0.001	mg/L	0.047
m&p-Xylenes	0.002	mg/L	0.007
o-Xylene	0.001	mg/L	0.002
Xylenes - Total*	0.003	mg/L	0.009
4-Bromofluorobenzene (surr.)	1	%	102
Polycyclic Aromatic Hydrocarbons			
Acenaphthene	0.001	mg/L	0.001
Acenaphthylene	0.001	mg/L	< 0.001
Anthracene	0.001	mg/L	< 0.001
Benz(a)anthracene	0.001	mg/L	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001
Benzo(b&j)fluoranthene ^{N07}	0.001	mg/L	< 0.001
Benzo(g,h,i)perylene	0.001	mg/L	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001
Chrysene	0.001	mg/L	< 0.001
Dibenz(a,h)anthracene	0.001	mg/L	< 0.001
Fluoranthene	0.001	mg/L	< 0.001
Fluorene	0.001	mg/L	< 0.001
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001

Client Sample ID			QC01A
Sample Matrix			Water
Eurofins Sample No.			S22- No0060141
Date Sampled			Nov 23, 2022
Test/Reference	LOR	Unit	
Polycyclic Aromatic Hydrocarbons			
Naphthalene	0.001	mg/L	0.015
Phenanthrene	0.001	mg/L	< 0.001
Pyrene	0.001	mg/L	< 0.001
Total PAH*	0.001	mg/L	0.016
2-Fluorobiphenyl (surr.)	1	%	117
p-Terphenyl-d14 (surr.)	1	%	^{Q09} INT
Organochlorine Pesticides			
Chlordanes - Total	0.002	mg/L	< 0.002
4,4'-DDD	0.0002	mg/L	< 0.0002
4,4'-DDE	0.0002	mg/L	< 0.0002
4,4'-DDT	0.0002	mg/L	< 0.0002
a-HCH	0.0002	mg/L	< 0.0002
Aldrin	0.0002	mg/L	< 0.0002
b-HCH	0.0002	mg/L	< 0.0002
d-HCH	0.0002	mg/L	< 0.0002
Dieldrin	0.0002	mg/L	< 0.0002
Endosulfan I	0.0002	mg/L	< 0.0002
Endosulfan II	0.0002	mg/L	< 0.0002
Endosulfan sulphate	0.0002	mg/L	< 0.0002
Endrin	0.0002	mg/L	< 0.0002
Endrin aldehyde	0.0002	mg/L	< 0.0002
Endrin ketone	0.0002	mg/L	< 0.0002
g-HCH (Lindane)	0.0002	mg/L	< 0.0002
Heptachlor	0.0002	mg/L	< 0.0002
Heptachlor epoxide	0.0002	mg/L	< 0.0002
Hexachlorobenzene	0.0002	mg/L	< 0.0002
Methoxychlor	0.0002	mg/L	< 0.0002
Toxaphene	0.005	mg/L	< 0.005
Aldrin and Dieldrin (Total)*	0.0002	mg/L	< 0.0002
DDT + DDE + DDD (Total)*	0.0002	mg/L	< 0.0002
Vic EPA IWRG 621 OCP (Total)*	0.002	mg/L	< 0.002
Vic EPA IWRG 621 Other OCP (Total)*	0.002	mg/L	< 0.002
Dibutylchloroendate (surr.)	1	%	^{Q09} INT
Tetrachloro-m-xylene (surr.)	1	%	^{Q09} INT
Organophosphorus Pesticides			
Azinphos-methyl	0.002	mg/L	< 0.002
Bolstar	0.002	mg/L	< 0.002
Chlorfenvinphos	0.02	mg/L	< 0.02
Chlorpyrifos	0.002	mg/L	< 0.002
Chlorpyrifos-methyl	0.002	mg/L	< 0.002
Coumaphos	0.02	mg/L	< 0.02
Demeton-S	0.002	mg/L	< 0.002
Demeton-O	0.002	mg/L	< 0.002
Diazinon	0.002	mg/L	< 0.002
Dichlorvos	0.002	mg/L	< 0.002
Dimethoate	0.002	mg/L	< 0.002
Disulfoton	0.002	mg/L	< 0.002
EPN	0.002	mg/L	< 0.002
Ethion	0.002	mg/L	< 0.002

Client Sample ID			QC01A
Sample Matrix			Water
Eurofins Sample No.			S22- No0060141
Date Sampled			Nov 23, 2022
Test/Reference	LOR	Unit	
Organophosphorus Pesticides			
Ethoprop	0.002	mg/L	< 0.002
Ethyl parathion	0.002	mg/L	< 0.002
Fenitrothion	0.002	mg/L	< 0.002
Fensulfothion	0.002	mg/L	< 0.002
Fenthion	0.002	mg/L	< 0.002
Malathion	0.002	mg/L	< 0.002
Merphos	0.002	mg/L	< 0.002
Methyl parathion	0.002	mg/L	< 0.002
Mevinphos	0.002	mg/L	< 0.002
Monocrotophos	0.002	mg/L	< 0.002
Naled	0.002	mg/L	< 0.002
Omethoate	0.02	mg/L	< 0.02
Phorate	0.002	mg/L	< 0.002
Pirimiphos-methyl	0.02	mg/L	< 0.02
Pyrazophos	0.002	mg/L	< 0.002
Ronnel	0.002	mg/L	< 0.002
Terbufos	0.002	mg/L	< 0.002
Tetrachlorvinphos	0.002	mg/L	< 0.002
Tokuthion	0.002	mg/L	< 0.002
Trichloronate	0.002	mg/L	< 0.002
Triphenylphosphate (surr.)	1	%	^{Q09} INT
Polychlorinated Biphenyls			
Aroclor-1016	0.005	mg/L	< 0.005
Aroclor-1221	0.005	mg/L	< 0.005
Aroclor-1232	0.005	mg/L	< 0.005
Aroclor-1242	0.005	mg/L	< 0.005
Aroclor-1248	0.005	mg/L	< 0.005
Aroclor-1254	0.005	mg/L	< 0.005
Aroclor-1260	0.005	mg/L	< 0.005
Total PCB*	0.005	mg/L	< 0.005
Dibutylchloroendate (surr.)	1	%	^{Q09} INT
Tetrachloro-m-xylene (surr.)	1	%	^{Q09} INT
Heavy Metals			
Arsenic (filtered)	0.001	mg/L	< 0.001
Cadmium (filtered)	0.0002	mg/L	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001
Copper (filtered)	0.001	mg/L	0.003
Lead (filtered)	0.001	mg/L	< 0.001
Mercury (filtered)	0.0001	mg/L	< 0.0001
Nickel (filtered)	0.001	mg/L	0.021
Zinc (filtered)	0.005	mg/L	0.053
Perfluoroalkyl carboxylic acids (PFCAs)			
Perfluorobutanoic acid (PFBA) ^{N11}	0.05	ug/L	< 0.05
Perfluoropentanoic acid (PFPeA) ^{N11}	0.01	ug/L	< 0.01
Perfluorohexanoic acid (PFHxA) ^{N11}	0.01	ug/L	< 0.01
Perfluoroheptanoic acid (PFHpA) ^{N11}	0.01	ug/L	< 0.01
Perfluorooctanoic acid (PFOA) ^{N11}	0.01	ug/L	< 0.01
Perfluorononanoic acid (PFNA) ^{N11}	0.01	ug/L	< 0.01
Perfluorodecanoic acid (PFDA) ^{N11}	0.01	ug/L	< 0.01

Client Sample ID			QC01A
Sample Matrix			Water
Eurofins Sample No.			S22- No0060141
Date Sampled			Nov 23, 2022
Test/Reference	LOR	Unit	
Perfluoroalkyl carboxylic acids (PFCAs)			
Perfluoroundecanoic acid (PFUnDA) ^{N11}	0.01	ug/L	< 0.01
Perfluorododecanoic acid (PFDoDA) ^{N11}	0.01	ug/L	< 0.01
Perfluorotridecanoic acid (PFTrDA) ^{N15}	0.01	ug/L	< 0.01
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	0.01	ug/L	< 0.01
13C4-PFBA (surr.)	1	%	104
13C5-PFPeA (surr.)	1	%	117
13C5-PFHxA (surr.)	1	%	151
13C4-PFHpA (surr.)	1	%	153
13C8-PFOA (surr.)	1	%	154
13C5-PFNA (surr.)	1	%	160
13C6-PFDA (surr.)	1	%	170
13C2-PFUnDA (surr.)	1	%	167
13C2-PFDoDA (surr.)	1	%	185
13C2-PFTeDA (surr.)	1	%	INT
Perfluoroalkyl sulfonamido substances			
Perfluorooctane sulfonamide (FOSA) ^{N11}	0.05	ug/L	< 0.05
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	0.05	ug/L	< 0.05
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	0.05	ug/L	< 0.05
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	0.05	ug/L	< 0.05
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	0.05	ug/L	< 0.05
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	0.05	ug/L	< 0.05
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	0.05	ug/L	< 0.05
13C8-FOSA (surr.)	1	%	91
D3-N-MeFOSA (surr.)	1	%	88
D5-N-EtFOSA (surr.)	1	%	84
D7-N-MeFOSE (surr.)	1	%	82
D9-N-EtFOSE (surr.)	1	%	99
D5-N-EtFOSAA (surr.)	1	%	INT
D3-N-MeFOSAA (surr.)	1	%	INT
Perfluoroalkyl sulfonic acids (PFSA)			
Perfluorobutanesulfonic acid (PFBS) ^{N11}	0.01	ug/L	< 0.01
Perfluorononanesulfonic acid (PFNS) ^{N15}	0.01	ug/L	< 0.01
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	0.01	ug/L	< 0.01
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	0.01	ug/L	< 0.01
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	0.01	ug/L	< 0.01
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	0.01	ug/L	< 0.01
Perfluorooctanesulfonic acid (PFOS) ^{N11}	0.01	ug/L	^{N09} 0.01
Perfluorodecanesulfonic acid (PFDS) ^{N15}	0.01	ug/L	< 0.01
13C3-PFBS (surr.)	1	%	142
18O2-PFHxS (surr.)	1	%	136
13C8-PFOS (surr.)	1	%	136

Client Sample ID			QC01A
Sample Matrix			Water
Eurofins Sample No.			S22- No0060141
Date Sampled			Nov 23, 2022
Test/Reference	LOR	Unit	
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)			
1H,1H,2H,2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	0.01	ug/L	< 0.01
1H,1H,2H,2H-perfluorooctanesulfonic acid(6:2 FTSA) ^{N11}	0.05	ug/L	< 0.05
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	0.01	ug/L	< 0.01
1H,1H,2H,2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	0.01	ug/L	< 0.01
13C2-4:2 FTSA (surr.)	1	%	INT
13C2-6:2 FTSA (surr.)	1	%	INT
13C2-8:2 FTSA (surr.)	1	%	INT
13C2-10:2 FTSA (surr.)	1	%	INT
PFASs Summations			
Sum (PFHxS + PFOS)*	0.01	ug/L	0.01
Sum of US EPA PFAS (PFOS + PFOA)*	0.01	ug/L	0.01
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.01	ug/L	0.01
Sum of WA DWER PFAS (n=10)*	0.05	ug/L	< 0.05
Sum of PFASs (n=30)*	0.1	ug/L	< 0.1

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Eurofins Suite B1			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Nov 25, 2022	7 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Nov 25, 2022	7 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Nov 25, 2022	7 Days
BTEX - Method: LTM-ORG-2010 BTEX and Volatile TRH	Sydney	Nov 25, 2022	14 Days
Polycyclic Aromatic Hydrocarbons - Method: LTM-ORG-2130 PAH and Phenols in Soil and Water	Sydney	Nov 25, 2022	7 Days
Metals M8 filtered - Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS	Sydney	Nov 25, 2022	28 Days
Eurofins Suite B15			
Organochlorine Pesticides - Method: LTM-ORG-2220 OCP & PCB in Soil and Water	Sydney	Nov 25, 2022	7 Days
Organophosphorus Pesticides - Method: LTM-ORG-2200 Organophosphorus Pesticides by GC-MS	Sydney	Nov 25, 2022	7 Days
Polychlorinated Biphenyls - Method: LTM-ORG-2220 OCP & PCB in Soil and Water	Sydney	Nov 25, 2022	7 Days
Per- and Polyfluoroalkyl Substances (PFASs)			
Perfluoroalkyl carboxylic acids (PFCAs) - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Sydney	Nov 25, 2022	28 Days
Perfluoroalkyl sulfonamido substances - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Sydney	Nov 25, 2022	28 Days
Perfluoroalkyl sulfonic acids (PFASs) - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Sydney	Nov 25, 2022	28 Days
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs) - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Sydney	Nov 25, 2022	28 Days
PFASs Summations - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Sydney	Nov 24, 2022	

Company Name: Kleinfelder Aust Pty Ltd (NEWCASTLE)
Address: Suite 3, 240-244 Pacific Hwy
Charlestown
NSW 2290

Order No.:
Report #: 944396
Phone: 02 4949 5200
Fax:

Received: Nov 24, 2022 4:15 PM
Due: Dec 1, 2022
Priority: 5 Day
Contact Name: M Ferguson

Project Name: UON GOSFORD GME NOV 2022
Project ID: 20232408

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Polycyclic Aromatic Hydrocarbons	Metals M8 filtered	Eurofins Suite B15	Eurofins Suite B1	Per- and Polyfluoroalkyl Substances (PFASs)
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X
External Laboratory										
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID					
1	QC01A	Nov 23, 2022		Water	S22-No0060141	X	X	X	X	X
Test Counts						1	1	1	1	1

Internal Quality Control Review and Glossary

General

- Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
- All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
- All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
- Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
- Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
- SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
- Samples were analysed on an 'as received' basis.
- Information identified on this report with blue colour, indicates data provided by customer that may have an impact on the results.
- This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

Units

mg/kg: milligrams per kilogram	mg/L: milligrams per litre	µg/L: micrograms per litre
ppm: parts per million	ppb: parts per billion	%: Percentage
org/100 mL: Organisms per 100 millilitres	NTU: Nephelometric Turbidity Units	MPN/100 mL: Most Probable Number of organisms per 100 millilitres
CFU: Colony forming unit		

Terms

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	Tributyltin oxide (<i>bis</i> -tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment however free tributyltin was measured and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should be used as a guide only and may be different when site specific Sampling Analysis and Quality Plan (SAQP) have been implemented

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR: No Limit

Results between 10-20 times the LOR: RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

NOTE: pH duplicates are reported as a range not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.4 where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

- Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
- Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
- pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
- Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
- For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
- Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons							
TRH C6-C9	mg/L	< 0.02			0.02	Pass	
TRH C10-C14	mg/L	< 0.05			0.05	Pass	
TRH C15-C28	mg/L	< 0.1			0.1	Pass	
TRH C29-C36	mg/L	< 0.1			0.1	Pass	
Naphthalene	mg/L	< 0.01			0.01	Pass	
TRH C6-C10	mg/L	< 0.02			0.02	Pass	
TRH >C10-C16	mg/L	< 0.05			0.05	Pass	
TRH >C16-C34	mg/L	< 0.1			0.1	Pass	
TRH >C34-C40	mg/L	< 0.1			0.1	Pass	
Method Blank							
BTEX							
Benzene	mg/L	< 0.001			0.001	Pass	
Toluene	mg/L	< 0.001			0.001	Pass	
Ethylbenzene	mg/L	< 0.001			0.001	Pass	
m&p-Xylenes	mg/L	< 0.002			0.002	Pass	
o-Xylene	mg/L	< 0.001			0.001	Pass	
Xylenes - Total*	mg/L	< 0.003			0.003	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/L	< 0.001			0.001	Pass	
Acenaphthylene	mg/L	< 0.001			0.001	Pass	
Anthracene	mg/L	< 0.001			0.001	Pass	
Benz(a)anthracene	mg/L	< 0.001			0.001	Pass	
Benzo(a)pyrene	mg/L	< 0.001			0.001	Pass	
Benzo(b&j)fluoranthene	mg/L	< 0.001			0.001	Pass	
Benzo(g,h,i)perylene	mg/L	< 0.001			0.001	Pass	
Benzo(k)fluoranthene	mg/L	< 0.001			0.001	Pass	
Chrysene	mg/L	< 0.001			0.001	Pass	
Dibenz(a,h)anthracene	mg/L	< 0.001			0.001	Pass	
Fluoranthene	mg/L	< 0.001			0.001	Pass	
Fluorene	mg/L	< 0.001			0.001	Pass	
Indeno(1,2,3-cd)pyrene	mg/L	< 0.001			0.001	Pass	
Naphthalene	mg/L	< 0.001			0.001	Pass	
Phenanthrene	mg/L	< 0.001			0.001	Pass	
Pyrene	mg/L	< 0.001			0.001	Pass	
Method Blank							
Organochlorine Pesticides							
Chlordanes - Total	mg/L	< 0.002			0.002	Pass	
4,4'-DDD	mg/L	< 0.0002			0.0002	Pass	
4,4'-DDE	mg/L	< 0.0002			0.0002	Pass	
4,4'-DDT	mg/L	< 0.0002			0.0002	Pass	
a-HCH	mg/L	< 0.0002			0.0002	Pass	
Aldrin	mg/L	< 0.0002			0.0002	Pass	
b-HCH	mg/L	< 0.0002			0.0002	Pass	
d-HCH	mg/L	< 0.0002			0.0002	Pass	
Dieldrin	mg/L	< 0.0002			0.0002	Pass	
Endosulfan I	mg/L	< 0.0002			0.0002	Pass	
Endosulfan II	mg/L	< 0.0002			0.0002	Pass	
Endosulfan sulphate	mg/L	< 0.0002			0.0002	Pass	
Endrin	mg/L	< 0.0002			0.0002	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endrin aldehyde	mg/L	< 0.0002			0.0002	Pass	
Endrin ketone	mg/L	< 0.0002			0.0002	Pass	
g-HCH (Lindane)	mg/L	< 0.0002			0.0002	Pass	
Heptachlor	mg/L	< 0.0002			0.0002	Pass	
Heptachlor epoxide	mg/L	< 0.0002			0.0002	Pass	
Hexachlorobenzene	mg/L	< 0.0002			0.0002	Pass	
Methoxychlor	mg/L	< 0.0002			0.0002	Pass	
Toxaphene	mg/L	< 0.005			0.005	Pass	
Method Blank							
Organophosphorus Pesticides							
Azinphos-methyl	mg/L	< 0.002			0.002	Pass	
Bolstar	mg/L	< 0.002			0.002	Pass	
Chlorfenvinphos	mg/L	< 0.02			0.02	Pass	
Chlorpyrifos	mg/L	< 0.002			0.002	Pass	
Chlorpyrifos-methyl	mg/L	< 0.002			0.002	Pass	
Coumaphos	mg/L	< 0.02			0.02	Pass	
Demeton-S	mg/L	< 0.002			0.002	Pass	
Demeton-O	mg/L	< 0.002			0.002	Pass	
Diazinon	mg/L	< 0.002			0.002	Pass	
Dichlorvos	mg/L	< 0.002			0.002	Pass	
Dimethoate	mg/L	< 0.002			0.002	Pass	
Disulfoton	mg/L	< 0.002			0.002	Pass	
EPN	mg/L	< 0.002			0.002	Pass	
Ethion	mg/L	< 0.002			0.002	Pass	
Ethoprop	mg/L	< 0.002			0.002	Pass	
Ethyl parathion	mg/L	< 0.002			0.002	Pass	
Fenitrothion	mg/L	< 0.002			0.002	Pass	
Fensulfothion	mg/L	< 0.002			0.002	Pass	
Fenthion	mg/L	< 0.002			0.002	Pass	
Malathion	mg/L	< 0.002			0.002	Pass	
Merphos	mg/L	< 0.002			0.002	Pass	
Methyl parathion	mg/L	< 0.002			0.002	Pass	
Mevinphos	mg/L	< 0.002			0.002	Pass	
Monocrotophos	mg/L	< 0.002			0.002	Pass	
Naled	mg/L	< 0.002			0.002	Pass	
Omethoate	mg/L	< 0.02			0.02	Pass	
Phorate	mg/L	< 0.002			0.002	Pass	
Pirimiphos-methyl	mg/L	< 0.02			0.02	Pass	
Pyrazophos	mg/L	< 0.002			0.002	Pass	
Ronnel	mg/L	< 0.002			0.002	Pass	
Terbufos	mg/L	< 0.002			0.002	Pass	
Tetrachlorvinphos	mg/L	< 0.002			0.002	Pass	
Tokuthion	mg/L	< 0.002			0.002	Pass	
Trichloronate	mg/L	< 0.002			0.002	Pass	
Method Blank							
Polychlorinated Biphenyls							
Aroclor-1016	mg/L	< 0.005			0.005	Pass	
Aroclor-1221	mg/L	< 0.005			0.005	Pass	
Aroclor-1232	mg/L	< 0.005			0.005	Pass	
Aroclor-1242	mg/L	< 0.005			0.005	Pass	
Aroclor-1248	mg/L	< 0.005			0.005	Pass	
Aroclor-1254	mg/L	< 0.005			0.005	Pass	
Aroclor-1260	mg/L	< 0.005			0.005	Pass	
Total PCB*	mg/L	< 0.005			0.005	Pass	

Test	Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
Method Blank						
Heavy Metals						
Arsenic (filtered)	mg/L	< 0.001		0.001	Pass	
Cadmium (filtered)	mg/L	< 0.0002		0.0002	Pass	
Chromium (filtered)	mg/L	< 0.001		0.001	Pass	
Copper (filtered)	mg/L	< 0.001		0.001	Pass	
Lead (filtered)	mg/L	< 0.001		0.001	Pass	
Mercury (filtered)	mg/L	< 0.0001		0.0001	Pass	
Nickel (filtered)	mg/L	< 0.001		0.001	Pass	
Zinc (filtered)	mg/L	< 0.005		0.005	Pass	
Method Blank						
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA)	ug/L	< 0.05		0.05	Pass	
Perfluoropentanoic acid (PFPeA)	ug/L	< 0.01		0.01	Pass	
Perfluorohexanoic acid (PFHxA)	ug/L	< 0.01		0.01	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/L	< 0.01		0.01	Pass	
Perfluorooctanoic acid (PFOA)	ug/L	< 0.01		0.01	Pass	
Perfluorononanoic acid (PFNA)	ug/L	< 0.01		0.01	Pass	
Perfluorodecanoic acid (PFDA)	ug/L	< 0.01		0.01	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/L	< 0.01		0.01	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/L	< 0.01		0.01	Pass	
Perfluorotridecanoic acid (PFTrDA)	ug/L	< 0.01		0.01	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/L	< 0.01		0.01	Pass	
Method Blank						
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA)	ug/L	< 0.05		0.05	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/L	< 0.05		0.05	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/L	< 0.05		0.05	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	ug/L	< 0.05		0.05	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	ug/L	< 0.05		0.05	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/L	< 0.05		0.05	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/L	< 0.05		0.05	Pass	
Method Blank						
Perfluoroalkyl sulfonic acids (PFSAs)						
Perfluorobutanesulfonic acid (PFBS)	ug/L	< 0.01		0.01	Pass	
Perfluorononanesulfonic acid (PFNS)	ug/L	< 0.01		0.01	Pass	
Perfluoropropanesulfonic acid (PFPrS)	ug/L	< 0.01		0.01	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/L	< 0.01		0.01	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/L	< 0.01		0.01	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/L	< 0.01		0.01	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/L	< 0.01		0.01	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/L	< 0.01		0.01	Pass	
Method Blank						
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/L	< 0.01		0.01	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	ug/L	< 0.05		0.05	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/L	< 0.01		0.01	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/L	< 0.01		0.01	Pass	
LCS - % Recovery						
Total Recoverable Hydrocarbons						
TRH C6-C9	%	99		70-130	Pass	
TRH C10-C14	%	123		70-130	Pass	
Naphthalene	%	121		70-130	Pass	
TRH C6-C10	%	103		70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
TRH >C10-C16	%	115			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	99			70-130	Pass	
Toluene	%	102			70-130	Pass	
Ethylbenzene	%	117			70-130	Pass	
m&p-Xylenes	%	123			70-130	Pass	
o-Xylene	%	125			70-130	Pass	
Xylenes - Total*	%	123			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	79			70-130	Pass	
Acenaphthylene	%	81			70-130	Pass	
Anthracene	%	75			70-130	Pass	
Benz(a)anthracene	%	83			70-130	Pass	
Benzo(a)pyrene	%	81			70-130	Pass	
Benzo(b&j)fluoranthene	%	80			70-130	Pass	
Benzo(g,h,i)perylene	%	91			70-130	Pass	
Benzo(k)fluoranthene	%	84			70-130	Pass	
Chrysene	%	78			70-130	Pass	
Dibenz(a,h)anthracene	%	87			70-130	Pass	
Fluoranthene	%	90			70-130	Pass	
Fluorene	%	85			70-130	Pass	
Indeno(1,2,3-cd)pyrene	%	87			70-130	Pass	
Naphthalene	%	80			70-130	Pass	
Phenanthrene	%	82			70-130	Pass	
Pyrene	%	90			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
Chlordanes - Total	%	77			70-130	Pass	
4,4'-DDD	%	82			70-130	Pass	
4,4'-DDE	%	76			70-130	Pass	
4,4'-DDT	%	77			70-130	Pass	
a-HCH	%	80			70-130	Pass	
Aldrin	%	83			70-130	Pass	
b-HCH	%	76			70-130	Pass	
d-HCH	%	80			70-130	Pass	
Dieldrin	%	85			70-130	Pass	
Endosulfan I	%	80			70-130	Pass	
Endosulfan II	%	74			70-130	Pass	
Endosulfan sulphate	%	83			70-130	Pass	
Endrin	%	87			70-130	Pass	
Endrin aldehyde	%	76			70-130	Pass	
Endrin ketone	%	81			70-130	Pass	
g-HCH (Lindane)	%	81			70-130	Pass	
Heptachlor	%	84			70-130	Pass	
Heptachlor epoxide	%	81			70-130	Pass	
Hexachlorobenzene	%	73			70-130	Pass	
Methoxychlor	%	82			70-130	Pass	
LCS - % Recovery							
Organophosphorus Pesticides							
Diazinon	%	78			70-130	Pass	
Dimethoate	%	71			70-130	Pass	
Ethion	%	82			70-130	Pass	

Test	Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
Fenitrothion	%	83		70-130	Pass	
Methyl parathion	%	93		70-130	Pass	
Mevinphos	%	89		70-130	Pass	
LCS - % Recovery						
Polychlorinated Biphenyls						
Aroclor-1016	%	83		70-130	Pass	
Aroclor-1260	%	73		70-130	Pass	
LCS - % Recovery						
Heavy Metals						
Arsenic (filtered)	%	98		80-120	Pass	
Cadmium (filtered)	%	93		80-120	Pass	
Chromium (filtered)	%	98		80-120	Pass	
Copper (filtered)	%	95		80-120	Pass	
Lead (filtered)	%	93		80-120	Pass	
Mercury (filtered)	%	104		80-120	Pass	
Nickel (filtered)	%	96		80-120	Pass	
Zinc (filtered)	%	109		80-120	Pass	
LCS - % Recovery						
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA)	%	97		50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	99		50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	96		50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	101		50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	100		50-150	Pass	
Perfluorononanoic acid (PFNA)	%	96		50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	103		50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	104		50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	103		50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	%	150		50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	106		50-150	Pass	
LCS - % Recovery						
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA)	%	100		50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	93		50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	95		50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	101		50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	101		50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	98		50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	102		50-150	Pass	
LCS - % Recovery						
Perfluoroalkyl sulfonic acids (PFSAs)						
Perfluorobutanesulfonic acid (PFBS)	%	94		50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	%	93		50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	%	92		50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	97		50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	94		50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	100		50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	96		50-150	Pass	
LCS - % Recovery						
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	92		50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	%	105		50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	%	104		50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	%	98		50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery								
Total Recoverable Hydrocarbons				Result 1				
TRH C10-C14	S22-No0051521	NCP	%	107		70-130	Pass	
TRH >C10-C16	S22-No0051521	NCP	%	100		70-130	Pass	
Spike - % Recovery								
Polycyclic Aromatic Hydrocarbons				Result 1				
Acenaphthene	S22-No0057064	NCP	%	78		70-130	Pass	
Acenaphthylene	S22-No0057064	NCP	%	82		70-130	Pass	
Anthracene	S22-No0057064	NCP	%	78		70-130	Pass	
Benzo(a)anthracene	S22-No0057064	NCP	%	80		70-130	Pass	
Benzo(a)pyrene	S22-No0057064	NCP	%	77		70-130	Pass	
Benzo(b&i)fluoranthene	S22-No0057064	NCP	%	76		70-130	Pass	
Benzo(g,h,i)perylene	S22-No0057064	NCP	%	83		70-130	Pass	
Benzo(k)fluoranthene	S22-No0057064	NCP	%	75		70-130	Pass	
Chrysene	S22-No0057064	NCP	%	74		70-130	Pass	
Dibenz(a,h)anthracene	S22-No0057064	NCP	%	79		70-130	Pass	
Fluoranthene	S22-No0057064	NCP	%	87		70-130	Pass	
Fluorene	S22-No0057064	NCP	%	84		70-130	Pass	
Indeno(1,2,3-cd)pyrene	S22-No0057064	NCP	%	77		70-130	Pass	
Phenanthrene	S22-No0057064	NCP	%	80		70-130	Pass	
Pyrene	S22-No0057064	NCP	%	87		70-130	Pass	
Spike - % Recovery								
Organochlorine Pesticides				Result 1				
Chlordanes - Total	S22-No0057064	NCP	%	74		70-130	Pass	
4,4'-DDD	S22-No0056063	NCP	%	72		70-130	Pass	
4,4'-DDE	S22-No0057064	NCP	%	72		70-130	Pass	
4,4'-DDT	S22-No0057064	NCP	%	76		70-130	Pass	
a-HCH	S22-No0057064	NCP	%	75		70-130	Pass	
Aldrin	S22-No0057064	NCP	%	78		70-130	Pass	
b-HCH	S22-No0057064	NCP	%	71		70-130	Pass	
d-HCH	S22-No0056063	NCP	%	70		70-130	Pass	
Dieldrin	S22-No0056063	NCP	%	74		70-130	Pass	
Endosulfan I	S22-No0056063	NCP	%	72		70-130	Pass	
Endosulfan II	S22-No0056063	NCP	%	71		70-130	Pass	
Endrin	S22-No0056063	NCP	%	73		70-130	Pass	
Endrin ketone	S22-No0056063	NCP	%	71		70-130	Pass	
g-HCH (Lindane)	S22-No0057064	NCP	%	72		70-130	Pass	
Heptachlor	S22-No0056063	NCP	%	71		70-130	Pass	
Heptachlor epoxide	S22-No0056063	NCP	%	71		70-130	Pass	
Hexachlorobenzene	S22-No0057064	NCP	%	71		70-130	Pass	
Methoxychlor	S22-No0056063	NCP	%	75		70-130	Pass	
Spike - % Recovery								
Polychlorinated Biphenyls				Result 1				
Aroclor-1016	S22-No0057064	NCP	%	79		70-130	Pass	
Aroclor-1260	S22-No0057064	NCP	%	70		70-130	Pass	
Spike - % Recovery								
Heavy Metals				Result 1				
Arsenic (filtered)	S22-No0049328	NCP	%	93		75-125	Pass	
Cadmium (filtered)	S22-No0049328	NCP	%	93		75-125	Pass	
Chromium (filtered)	S22-No0049328	NCP	%	91		75-125	Pass	
Copper (filtered)	S22-No0049328	NCP	%	86		75-125	Pass	
Lead (filtered)	S22-No0049328	NCP	%	88		75-125	Pass	
Mercury (filtered)	S22-No0049328	NCP	%	104		75-125	Pass	
Nickel (filtered)	S22-No0049328	NCP	%	86		75-125	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
Zinc (filtered)	S22-No0049328	NCP	%	84		75-125	Pass	
Spike - % Recovery								
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1				
Perfluorobutanoic acid (PFBA)	S22-No0051472	NCP	%	89		50-150	Pass	
Perfluoropentanoic acid (PFPeA)	S22-No0051472	NCP	%	91		50-150	Pass	
Perfluorohexanoic acid (PFHxA)	S22-No0051472	NCP	%	92		50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	S22-No0051472	NCP	%	95		50-150	Pass	
Perfluorooctanoic acid (PFOA)	S22-No0051472	NCP	%	96		50-150	Pass	
Perfluorononanoic acid (PFNA)	S22-No0051472	NCP	%	93		50-150	Pass	
Perfluorodecanoic acid (PFDA)	S22-No0051472	NCP	%	94		50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	S22-No0051472	NCP	%	84		50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	S22-No0051472	NCP	%	96		50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	S22-No0051472	NCP	%	107		50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	S22-No0051472	NCP	%	93		50-150	Pass	
Spike - % Recovery								
Perfluoroalkyl sulfonamido substances				Result 1				
Perfluorooctane sulfonamide (FOSA)	S22-No0051472	NCP	%	90		50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	S22-No0051472	NCP	%	88		50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	S22-No0051472	NCP	%	90		50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	S22-No0051472	NCP	%	87		50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	S22-No0051472	NCP	%	91		50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	S22-No0051472	NCP	%	92		50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	S22-No0051472	NCP	%	91		50-150	Pass	
Spike - % Recovery								
Perfluoroalkyl sulfonic acids (PFSA)				Result 1				
Perfluorobutanesulfonic acid (PFBS)	S22-No0051472	NCP	%	98		50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	S22-No0051472	NCP	%	92		50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	S22-No0051472	NCP	%	92		50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	S22-No0051472	NCP	%	97		50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	S22-No0051472	NCP	%	94		50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	S22-No0051472	NCP	%	91		50-150	Pass	
Spike - % Recovery								
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)				Result 1				
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	S22-No0051472	NCP	%	90		50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	S22-No0051472	NCP	%	94		50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	S22-No0051472	NCP	%	83		50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	S22-No0051472	NCP	%	88		50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1	Result 2	RPD	Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH C6-C9	N22-No0040511	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
TRH C10-C14	S22-No0057033	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH C15-C28	S22-No0057033	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH C29-C36	S22-No0057033	NCP	mg/L	0.1	< 0.1	21	30%	Pass	
Naphthalene	N22-No0040511	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
TRH C6-C10	N22-No0040511	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
TRH >C10-C16	S22-No0057033	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH >C16-C34	S22-No0057033	NCP	mg/L	0.1	< 0.1	54	30%	Fail	Q15
TRH >C34-C40	S22-No0057033	NCP	mg/L	0.1	< 0.1	12	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	N22-No0040511	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Toluene	N22-No0040511	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Ethylbenzene	N22-No0040511	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
m&p-Xylenes	N22-No0040511	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
o-Xylene	N22-No0040511	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Xylenes - Total*	N22-No0040511	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	S22-No0063752	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Acenaphthylene	S22-No0063752	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Anthracene	S22-No0063752	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benz(a)anthracene	S22-No0063752	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(a)pyrene	S22-No0063752	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(b&j)fluoranthene	S22-No0063752	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(g,h,i)perylene	S22-No0063752	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(k)fluoranthene	S22-No0063752	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Chrysene	S22-No0063752	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Dibenz(a,h)anthracene	S22-No0063752	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Fluoranthene	S22-No0063752	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Fluorene	S22-No0063752	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Indeno(1,2,3-cd)pyrene	S22-No0063752	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Naphthalene	S22-No0063752	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Phenanthrene	S22-No0063752	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Pyrene	S22-No0063752	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	S22-No0063752	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
4,4'-DDD	S22-No0063752	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
4,4'-DDE	S22-No0063752	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
4,4'-DDT	S22-No0063752	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
a-HCH	S22-No0063752	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Aldrin	S22-No0063752	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
b-HCH	S22-No0063752	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
d-HCH	S22-No0063752	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Dieldrin	S22-No0063752	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Endosulfan I	S22-No0063752	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Endosulfan II	S22-No0063752	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Endosulfan sulphate	S22-No0063752	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Endrin	S22-No0063752	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Endrin aldehyde	S22-No0063752	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Endrin ketone	S22-No0063752	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	

Duplicate								
Organochlorine Pesticides				Result 1	Result 2	RPD		
g-HCH (Lindane)	S22-No0063752	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
Heptachlor	S22-No0063752	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
Heptachlor epoxide	S22-No0063752	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
Hexachlorobenzene	S22-No0063752	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
Methoxychlor	S22-No0063752	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
Toxaphene	S22-No0063752	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Duplicate								
Organophosphorus Pesticides				Result 1	Result 2	RPD		
Azinphos-methyl	S22-No0058540	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Bolstar	S22-No0058540	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Chlorfenvinphos	S22-No0058540	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass
Chlorpyrifos	S22-No0058540	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Chlorpyrifos-methyl	S22-No0058540	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Coumaphos	S22-No0058540	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass
Demeton-S	S22-No0058540	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Demeton-O	S22-No0058540	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Diazinon	S22-No0058540	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Dichlorvos	S22-No0058540	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Dimethoate	S22-No0058540	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Disulfoton	S22-No0058540	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
EPN	S22-No0058540	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Ethion	S22-No0058540	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Ethoprop	S22-No0058540	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Ethyl parathion	S22-No0058540	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Fenitrothion	S22-No0058540	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Fensulfotthion	S22-No0058540	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Fenthion	S22-No0058540	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Malathion	S22-No0058540	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Merphos	S22-No0058540	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Methyl parathion	S22-No0058540	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Mevinphos	S22-No0058540	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Monocrotophos	S22-No0058540	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Naled	S22-No0058540	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Omethoate	S22-No0058540	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass
Phorate	S22-No0058540	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Pirimiphos-methyl	S22-No0058540	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass
Pyrazophos	S22-No0058540	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Ronnel	S22-No0058540	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Terbufos	S22-No0058540	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Tetrachlorvinphos	S22-No0058540	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Tokuthion	S22-No0058540	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Trichloronate	S22-No0058540	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Duplicate								
Polychlorinated Biphenyls				Result 1	Result 2	RPD		
Aroclor-1016	S22-No0063752	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Aroclor-1221	S22-No0063752	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Aroclor-1232	S22-No0063752	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Aroclor-1242	S22-No0063752	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Aroclor-1248	S22-No0063752	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Aroclor-1254	S22-No0063752	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Aroclor-1260	S22-No0063752	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Total PCB*	S22-No0063752	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass

Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Arsenic (filtered)	W22-No0040157	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Cadmium (filtered)	W22-No0040157	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
Chromium (filtered)	W22-No0040157	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Copper (filtered)	W22-No0040157	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Lead (filtered)	W22-No0040157	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Mercury (filtered)	W22-No0040157	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Nickel (filtered)	W22-No0040157	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Zinc (filtered)	W22-No0040157	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Duplicate								
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD		
Perfluorobutanoic acid (PFBA)	S22-No0055502	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
Perfluoropentanoic acid (PFPeA)	S22-No0055502	NCP	ug/L	0.04	0.04	1.9	30%	Pass
Perfluorohexanoic acid (PFHxA)	S22-No0055502	NCP	ug/L	0.08	0.07	1.7	30%	Pass
Perfluoroheptanoic acid (PFHpA)	S22-No0055502	NCP	ug/L	0.01	0.02	3.5	30%	Pass
Perfluorooctanoic acid (PFOA)	S22-No0055502	NCP	ug/L	0.02	0.02	<1	30%	Pass
Perfluorononanoic acid (PFNA)	S22-No0055502	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorodecanoic acid (PFDA)	S22-No0055502	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoroundecanoic acid (PFUnDA)	S22-No0055502	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorododecanoic acid (PFDoDA)	S22-No0055502	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorotridecanoic acid (PFTrDA)	S22-No0055502	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorotetradecanoic acid (PFTeDA)	S22-No0055502	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD		
Perfluorooctane sulfonamide (FOSA)	S22-No0055502	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	S22-No0055502	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	S22-No0055502	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	S22-No0055502	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	S22-No0055502	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	S22-No0055502	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	S22-No0055502	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1	Result 2	RPD		
Perfluorobutanesulfonic acid (PFBS)	S22-No0055502	NCP	ug/L	0.04	0.04	<1	30%	Pass
Perfluorononanesulfonic acid (PFNS)	S22-No0055502	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoropropanesulfonic acid (PFPrS)	S22-No0055502	NCP	ug/L	0.04	0.05	18	30%	Pass
Perfluoropentanesulfonic acid (PFPeS)	S22-No0055502	NCP	ug/L	0.04	0.04	<1	30%	Pass
Perfluoroheptanesulfonic acid (PFHpS)	S22-No0055502	NCP	ug/L	0.03	0.03	11	30%	Pass
Perfluorooctanesulfonic acid (PFOS)	S22-No0055502	NCP	ug/L	0.63	0.53	18	30%	Pass
Perfluorodecanesulfonic acid (PFDS)	S22-No0055502	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass

Duplicate								
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)				Result 1	Result 2	RPD		
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	S22-No0055502	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	S22-No0055502	NCP	ug/L	0.10	0.10	4.4	30%	Pass
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	S22-No0055502	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	S22-No0055502	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass

Comments
Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
N09	Quantification of linear and branched isomers has been conducted as a single total response using the relative response factor for the corresponding linear/branched standard.
N11	Isotope dilution is used for calibration of each native compound for which an exact labelled analogue is available (Isotope Dilution Quantitation). The isotopically labelled analogues allow identification and recovery correction of the concentration of the associated native PFAS compounds.
N15	Where the native PFAS compound does not have labelled analogue then the quantification is made using the Extracted Internal Standard Analyte with the closest retention time to the analyte and no recovery correction has been made (Internal Standard Quantitation).
Q09	The Surrogate recovery is outside of the recommended acceptance criteria due to matrix interference. Acceptance criteria were met for all other QC
Q15	The RPD reported passes Eurofins Environment Testing's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.

Authorised by:

Andrew Black	Analytical Services Manager
Charl Du Preez	Senior Analyst-Metal
Roopesh Rangarajan	Senior Analyst-Organic
Roopesh Rangarajan	Senior Analyst-Volatile



Glenn Jackson
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please [click here](#).

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APPENDIX H: DATA VALIDATION





1 DATA VALIDATION

1.1 INTRODUCTION

This appendix describes the Data Quality Indicators (DQIs) developed for the DSI to assess the achievement of the DQOs as outlined in **Section 4**. The data set included 40 primary soil samples and 3 groundwater samples. A summary of the DQIs used to assess the suitability of the data for the assessment is presented in **Table 1.1**.

1.2 DATA QUALITY OBJECTIVES

To ensure that data collected for this assessment is of adequate type and reliability, the seven-step DQO approach, endorsed in the NSW DEC *Guidelines for the NSW Site Auditor Scheme 3rd Edition* (NSW EPA, 2017), were adopted. The DQOs have set Quality Assurance and Quality Control (QAQC) parameters which govern the field and laboratory programs to ensure data of appropriate representativeness and reliability were used to assess the environmental condition of the Site and enable appropriate decision making on the project.

1.3 DATA QUALITY INDICATORS

Project DQIs have been established to set acceptance limits on project, field and laboratory data collected as part of this investigation. The DQIs comprise six parameters including sensitivity, precision, accuracy, representativeness, comparability and completeness (SPARCC). Acceptance criteria for the DQIs is summarised in **Table 1.1**.

Table 1.1: Data Quality Indicators

QA/QC objective	Data quality indicator (DQI)	Acceptance Criteria
Overall Project		
Successful completion of project	Conduct an investigation in accordance with key relevant guidance, including the ASC NEPM 2013, in order to achieve the objective set out in Section 1.1 .	Achievement of 95% of the data achieving the data quality indicators as set out in this table.
Suitable environmental consultant	The environmental consultant will maintain QA Systems certified to AS/NZS ISO 9001:2015.	-
Adequate sample collection density	Ensure that samples are appropriately representative of on-Site environmental media to achieve the stated goals of the organisation and enable appropriate decision making.	The sampling strategy has been developed based on historical information available for the Site, and the objective of the investigation.
Field and Laboratory Activities		
Suitable field personnel	Ensure all field activities are completed in accordance with key relevant guidelines, standards and procedures to ensure samples collected are representative of the true nature of environmental media at the Site.	All Kleinfelder field personnel conducting sampling were trained in the requirements of the sampling program. All Kleinfelder field personnel have relevant tertiary qualifications and have demonstrated competence in Kleinfelder procedures for



QA/QC objective	Data quality indicator (DQI)	Acceptance Criteria
		sampling (consistent with NEPM 2013 and AS4482.1 - 1999).
Calibration of field instruments	All field equipment used are in good working order and appropriately calibrated to ensure readings are an accurate representation of Site conditions.	All field instruments were 100% calibrated prior to use, with the relevant calibration certificates presented in Appendix I .
Minimisation of cross contamination	Rinsate blanks	Less than the laboratory LOR.
Transportation	Field Blanks	Less than the laboratory LOR.
Repeatability and Replication of the field methodology and laboratory analysis	Inter- and Intra-laboratory field duplicates	Relative Percent Difference (RPD) less than 50%.
Laboratory method accuracy	Samples are analysed in accordance with the correct analytical methods outlined in key relevant guidelines and standards to ensure analytical results are an accurate representation of levels of contaminants contained in samples.	All samples were forwarded to a NATA accredited laboratory and all laboratories held accreditation for the laboratory methods used.
Repeatability and Replication of the laboratory analysis	Laboratory duplicates	RPDs less than: <ul style="list-style-type: none"> • 0% - 20% for high level laboratory duplicates (i.e. >20 x LOR). • 0% - 50% for medium level laboratory duplicates (i.e. 10 to 20 x LOR). • No acceptable limit for low level laboratory duplicates (i.e. <10 x LOR).
	Matrix Spikes	Recoveries between 70 – 130% of the theoretical recovery.
	Method Blanks	Less than the laboratory LOR
	Laboratory control samples (LCS)	Recoveries between 70 – 130%.
	Surrogate Spikes	Recoveries for surrogates are test dependent based on USEPA Method SW846. Control limits are dynamic and vary for tests but are to be within the criteria prescribed in USEPA Method SW846.



2 DATA EVALUATION

2.1 FIELD

2.1.1 Field Staff

Samples were collected by suitably qualified and experienced Kleinfelder environmental scientists. All sampling was undertaken in accordance with Kleinfelder Standard Operating Procedures (SOPs) for each task of the field program.

2.1.2 Sampling Methodologies

The adopted sampling methodologies are described in **Section 5** of this DSI report. Sampling methodologies were all undertaken in accordance with Kleinfelder SOPs and key relevant guidelines such as the CRC CARE 2011 and ASC NEPM 2013.

Sample locations and density were chosen based on professional judgement using knowledge of the Site and Site contamination obtained in previous environmental investigations with considerations to the overall objectives of the investigation. Sample locations were chosen to target discrete locations which were identified to provide valuable data to the assessment, but also to ensure that adequate spatial distribution was achieved. Sample locations are presented in **Figure 1 (Appendix A)**.

2.1.3 Sample Handling and Preservation

Sample numbers, preservation and analytical requirements were recorded on the Chain of Custody (COC) documentation, which accompanied the samples to the laboratory. Signed copies of the COCs are provided with the laboratory reports in **Appendix G**.

All samples were placed in a chilled esky with crushed ice between sampling and analysis. The sample receipt temperature was recorded by the laboratory on the COC and Sample Receipt Notification (SRN), provided with the laboratory reports in **Appendix G**. Most sample batches were received within the required sample preservation range (<4°C). Two of the six batches were received by the laboratory at a temperature of 11.7°C, though ice was present and an attempt to chill was evident. Review of the SRNs for each workorder indicated that all samples were received preserved in appropriate sample containers. All samples were extracted and analysed within the recommended holding times, with the exception of the following:

- ES2237206 (soil): pH 3 days overdue.
- ES2237391 (soil): pH 1 day overdue, ASS Field Screening Analysis 6 days overdue.
- ES2237973 (soil): pH 1 day overdue, ASS Field Screening Analysis 9 days overdue.
- ES2240772 (soil): pH 1 day overdue.

This is not expected to affect the quality of the data as:

- pH has an extremely short holding time, however, the samples were chilled appropriately and transported under chain of custody conditions to the laboratory as quickly as possible.
- The samples requiring ASS Field Screening Analysis were submitted to Newcastle ALS within an appropriate time. The holding time breach is a result of transportation from ALS Newcastle to the ALS laboratory in Sydney where such analysis is carried out.

2.1.4 Calibration

Photoionization Detectors (PID), Water Quality Meters and Interface Probes were used to record in-field measurements during field works. All equipment was calibrated prior to use. Calibration records are provided in **Appendix I**.



2.1.5 Intra- and Inter-Laboratory Duplicates

Intra- and Inter-laboratory duplicate samples provide information regarding the accuracy of the sampling technique, sample preparation within the laboratory, sample analysis and sample heterogeneity. The purpose of an intra-laboratory duplicate is to estimate the variability of a given characteristic or contaminant associated with a population and to verify the repeatability of the sampling technique. The purpose of the inter-laboratory duplicates is to assess the accuracy of the primary laboratory data.

The intra- and inter-laboratory duplicate samples were obtained from identical discrete samples by placing equal aliquots of the environmental media into both primary and duplicate containers. Intra- and inter-laboratory duplicates were labelled so as to conceal their relationship to the primary sample from the laboratory in accordance with SOPs. A QAQC register was maintained during the project to record duplicate sample pairings.

Variation in intra-and inter-laboratory duplicate results is commonly observed due to sample heterogeneity (for solid samples) and / or low reported concentrations close to the limit of reporting (LOR). The overall precision of intra- and inter-laboratory duplicate is assessed by their Relative Percent Difference (RPD) and whether it meets the DQI of 50%.

The RPD is given by the following:

$$RPD = \frac{(C1 - C2)}{\frac{C1 + C2}{2}} \times 100$$

Where C1 = primary sample result and C2 = duplicate sample result.

NEPM 2013 provides prescribed intra- and inter-laboratory duplicate frequencies of 1 intra- and inter-laboratory duplicate to be collected per 20 primary samples, i.e. 5% of the data set. Intra- and Inter-laboratory duplicate sample results, their corresponding primary sample and RPDs are presented in **Table T11 – T17, Appendix C**. A summary of the duplicate frequency is summarised in **Table 2.1**.

Table 2.1: Intra- and Inter-Laboratory Duplicate Summary

Environmental Media	Primary Samples	Rate of Intra-Laboratory Duplicates	Rate of Inter-Laboratory Duplicates
Soil	40	2 (5%)	2 (5%)
Groundwater	3	1 (33.3%)	1 (33.3%)

Notes: **Bold** indicates rate of duplicate analysis less than 5%.

The soil RPDs are presented in **Tables T11 – T17 (Appendix C)**. The soil sample RPDs met the DQI of 50% with the exception of:

Samples HA01_0.3_18102022 and QC01_18102022 for the following analytes:

Metals

- Lead 55%.

Samples HA01_0.3_18102022 and QC01A_18102022 for the following analytes:

Metals

- Nickel 86%.

OCP



- Endrin 193%;
- Endrin ketone 123%; and
- Dieldrin 58%.

Samples BH6_0.5_21102022 and QC02_21102022 for the following analytes:

Metals

- Lead 58%.

Samples BH6_0.5_21102022 and QC02_21102022 for the following analytes:

Metals

- Arsenic 96%;
- Chromium 67%;
- Lead 86%;
- Mercury 67%; and
- Zinc 51%.

PAH

- Benzo(a)pyrene 67%;
- Total PAH 63%;
- Benzo(a)pyrene TEQ 82%; and
- Benzo(a)pyrene TEQ (Half LOR) 73%.

Phenols

- 4-Chloro-3-methylphenol 75%.

The groundwater RPDs are presented in **Tables T35 – T40 (Appendix C)**. The groundwater sample RPDs met the DQI of 50% with the exception of:

Samples BH7_23112022 and QC01_23112022 for the following analytes:

Metals

- Copper 150%;
- Nickel 57%; and
- Zinc 108%.

Samples BH7_23112022 and QC01A_23112022 for the following analytes:

BTEXN

- Meta- & para- Xylene 55%; and
- Total Xylenes 77%.

TPH

- C15 – C28 120%; and
- C10 – C36 sum 71%.

TRH

- C6 – C10 60%;
- C6 – C10 minus BTEX (F1) 63%;
- >C16 – C34 100%; and
- >C10 – C40 (sum) 66%.

Metals

- Copper 80%.



RPDs that exceeded the 50% criteria are generally within 10 times the laboratory LOR and considered to be acceptable based on the following equally acceptable guidelines:

- Results <10 times the LOR: no limit
- Results between 10-20 times the LOR: RPD must lie between 0-50%
- Results >20 times the LOR: RPD must lie between 0-30%

In general, the majority of RPD exceedances were due to at least one result being at or below the laboratory LOR, which leads to exaggerated RPD calculations. Therefore, this is not expected to affect the quality of the data.

2.1.6 Rinsate Blanks

When sampling equipment was used, nitrile gloves were worn and changed between samples. All non-dedicated equipment was decontaminated between sample locations using an appropriate surface-active cleaning agent (e.g. Liquinox) consistent with the requirements of the NEPM 2013. Rinsate samples were subsequently collected by pouring laboratory prepared deionised water over a piece of non-dedicated equipment and collecting the “rinse” water into sample containers. Six rinsates were collected over the sampling period where non-dedicated sampling equipment was used.

Analytical results for the rinsate samples are provided in **Tables T18 – T24 and T35 – T40, Appendix C**. Concentrations of BTEXN/TRH/TPH, metals, PAH, PCBs, OCP/OPP, PFAS and Phenols were all below the LOR.

2.1.7 Trip Blanks

Trip blanks were submitted to the laboratory to assess the potential loss of volatiles and potential cross contamination of samples in the esky during transport to the laboratory.

Analytical results for the trip blank samples are provided in **Tables T18 – T24 and T35 – T40, Appendix C**. Concentrations of all CoPCs were below the LOR for all trip blanks.

2.2 LABORATORY QA/QC

2.2.1 Laboratories

Samples were submitted to ALS Environmental (Smithfield, NSW) as the primary laboratory and Eurofins Environmental Testing (Lane Cove, NSW) which are both NATA accredited laboratories under ISO/IEC 17025:2017. ALS NATA accreditation number is 825 and Eurofins is 1261.

2.2.2 Analytical Methods

The laboratory analytical methods are provided on the laboratory certificates in **Appendix G**. Analytical procedures were completed in accordance with US EPA Method 537.1. The laboratory LORs were sufficiently low enough to assess against the adopted assessment criteria outlined in **Section 6** of this report.

2.2.3 Method Blanks

Method blanks (laboratory or control blanks) consists of specific solutions to each individual analytical method and are prepared and analysed by laboratories in the same manner as regular samples. The preparation and analysis of method blanks are to determine whether the laboratory method may introduce contamination to samples (i.e. from glassware, reagents and instruments).



Laboratory blanks are typically analysed at a frequency of 1 in 20, with a minimum of one analysed per batch. Review of laboratory Quality Control (QC) and Quality Control Interpretive (QCI) reports indicated that the frequency of laboratory blanks met the required frequency and that the results for all method blanks were below the laboratory LOR, meeting the DQI requirements.

2.2.4 Laboratory Duplicates

Laboratory duplicate samples are prepped in the laboratory by splitting a field sample and analysing it as two independent samples. The analysis of laboratory duplicate samples provides an indication of the analytical precision and may be influenced by sample heterogeneity. The laboratory duplicate RPDs are used to assess laboratory precision as outlined in **Section 1.3**.

Laboratory duplicates are analysed at a frequency of 1 in 20, with a minimum of one analysed per batch, when the batch size exceeds five samples. A review of the laboratory QC and QCI reports indicated that the frequency of duplicate analyses met the required frequency, with the exception of the following:

- ES2237391 (soil): PAH/Phenols, PFAS, Pesticides, PCB and TRH – Semivolatile Fraction – actual rate 0% expected rate 10%.
- ES2237552 (soil): Major Anions – Soluble – actual rate 8.33% expected rate 10%. PAH/Phenols, Pesticides, PCB and TRH – Semivolatile Fraction – actual rate 0% expected rate 10%.
- ES2237973 (soil): PAH/Phenols, PFAS, Pesticides, PCB and TRH – Semivolatile Fraction – actual rate 0% expected rate 10%.
- ES2240772 (soil): PAH/Phenols, Pesticides, PCB and TRH – Semivolatile Fraction – actual rate 0% expected rate 10%. PFAS – actual rate 5.26% expected rate 10%.
- ES2242356 (water): PAH/Phenols, Pesticides, PFAS and TRH – Semivolatile Fraction – actual rate 0% expected rate 10%

This is not expected to affect the quality of the data as:

- No laboratory duplicate sample outliers were identified for other analyses (Volatiles/BTEX) which is completed by the same analytical method (liquid chromatography mass spectrometry).
- Where laboratory duplicate frequency met the required frequency no method blank outliers were observed in the data set.

No method blank outliers were identified in the project data set and noting the above, it is considered that the data is acceptably precise.

2.2.5 Laboratory Control Samples

Laboratory control samples are prepared within the laboratory by spiking an aliquot of an appropriate clean matrix reagent with known concentrations of specific analytes. The laboratory control spikes are then analysed and the results are used to assess the laboratory performance on sample preparation and analysis procedure (i.e. method accuracy). Accuracy is assessed by the calculation of the percent recovery, given by:

$$\% \text{ recovery} = \frac{c - a}{b} \times 100$$

Where: a = concentration of the un-spiked sample aliquot, b = nominal (theoretical) concentration increase from the spike, c = measured concentration of the spiked aliquot sample.

Laboratory control samples are typically analysed at a frequency of 1 in 20, with a minimum of one analysed per batch. A review of the laboratory QC and QCI reports indicated that recovery limits met the DQI, with the exception of the following:

- ES2237206 – pH 1:5 (soil): result – 101%, acceptance limit 99.2-100%.



This is not considered to impact the analytical results given that the laboratory control sample was just outside the upper limit. Therefore, it is considered that the data is acceptably accurate.

2.2.6 Matrix Spikes

A matrix is the component or substrate (e.g. water or soil) that contains the analyte (contaminant) of interest. A matrix spike is an aliquot of sample spiked with a known concentration of target analyte. A matrix spike documents the effect of the matrix on method performance.

The sample is analysed and the amount of spike recovered is measured to assess the effects of the sample matrix on the accuracy and precision of the analytes. Accuracy is assessed by the recover calculation above (refer to **Section 2.2.5**).

Review of the laboratory QC and QCI reports indicated that the recoveries of matrix spikes met the required DQIs, with the exception of the following:

- ES2237206 (soil): TRH – PFAS not determined due to background level greater than or equal to 4x spike level.

This is not expected to impact on the quality of the data given that the majority of the laboratory matrix spike recoveries were within the acceptable limits for the laboratory. The outlier identified indicates a difference in preparation and extraction methods and heterogeneity of the sampled media. Therefore, it is considered the data is acceptably accurate.



3 DATA VALIDATION

The overall assessment of the quality of the data with respect to the DQIs is summarised in **Table 3.1**.

Table 3.1: QAQC Performance

DQI	Description	Compliance
Sensitivity	Sensitivity is whether the field and laboratory methods are sensitive enough to quantify the parameters of concern, provide an accurate comparison to key relevant guidelines and allow for accurate decision making on the project.	The sampling was conducted by Kleinfelder in accordance with the documented SOPs. Samples were analysed by NATA accredited laboratories with approved methods. All LORs were sufficiently low enough to assess against the assessment criteria.
Precision	Precision is a quantitative measure of the variability (or reproducibility) of data.	All work was conducted in accordance with Kleinfelder's SOPs. Precision or variability of the data was assessed by determining RPDs between the original and duplicate samples analysed. Based on the results discussed, Kleinfelder considers that the data is acceptably accurate.
Accuracy	Accuracy is a quantitative measure of the closeness of the reported to the true value.	All work was conducted in accordance with Kleinfelder's SOPs. Accuracy of the data was mainly assessed through review of the laboratory QA/QC results. Based on the results discussed Kleinfelder considers that the data is acceptably accurate.
Representativeness	Representativeness is the confidence (expressed quantitatively) that data are representative of each media present on the Site.	Based on the sampling and analytical regime undertaken, the results obtained are considered to be representative of the conditions at the locations tested.
Comparability	Comparability is the confidence (expressed quantitatively) that data may be considered to be equivalent for each sampling and analytical event.	In order to assess the comparability, field sampling procedures, analytical procedures and reporting units must be known and similar to established protocols, as was the case during this project. Qualitatively, data subjected to strict QA/QC procedures will be deemed more reliable and therefore, more comparable, than other data. The sampling was conducted by Kleinfelder personnel in accordance with documents SOPs. Each analyte was analysed by the same analytical laboratory using identical methods and laboratory LORs were consistent over each laboratory batch. Additionally, a check laboratory was used to assess variability. Based on the above, the data obtained is considered to be suitably comparable.



DQI	Description	Compliance
Completeness	Completeness is a measure of the amount of usable data (expressed as a %) from a data collection activity.	<p>Valid chemical data are values that have been identified as acceptable. The project goal for completeness is 95%, which also includes checking that all entries in the data tables are correct, properly entered and that any typographical errors are corrected.</p> <p>All samples collected and analysed complied with the DQIs and DQOs except where discussed and are considered to be reliable. As such, the data obtained is considered to be sufficiently quantitative and complete for the purposes of this project (i.e. >95%).</p>

3.1 QUALITY STATEMENT

Based on a review of the results for the Kleinfelder and laboratory QA/QC program adopted, the overall data quality is considered to be suitably reliable and representative of soil and groundwater conditions at the Site.



APPENDIX I: CALIBRATION CERTIFICATES



EQUIPMENT CERTIFICATION REPORT

PGN9003871 WATER QUALITY METER – MULTIFUNCTION

Plant Number: 1082473

SENSOR	CONCENTRATION	SPAN 1	SPAN 2	TRACEABILITY	PASS
pH	pH 4.00	4.00 pH		# 371300	<input checked="" type="checkbox"/>
	pH 7.00	7.00 pH		# 384001	<input checked="" type="checkbox"/>
Conductivity	12.88 mS/cm @ 25°C	12.88 mS/cm		# 381242	<input checked="" type="checkbox"/>
Dissolved Oxygen	Sodium Sulphite / Air	0.0% in Sodium Sulphite	% Saturation in Air	# 11897	<input checked="" type="checkbox"/>
ORP	240mV @ 25°C	240mV	Zobell Part A	# 375760	<input checked="" type="checkbox"/>
			Zobell Part B	# 374424	

Battery Status <u>100</u> %	Temperature <u>18.3</u> °C
	Electrodes Cleaned and Checked

Note: Calibration solution traceability information is available upon request.

Please clean/decontaminate instrument and accessories before returning. A minimum 'Cleaning Fee' \$55.00 (Inc GST) may apply if instrument is returned contaminated.

Checked By: Jacob Arnott Date: 08/11/22 Signed: [Signature]

Accessories List:

User's Manual & USB	pH Sensor	Conductivity Sensor
Dissolved Oxygen Sensor with Wetting Cap	Redox (ORP) Sensor with Wetting Cap	Flow Cell 500ml
Comm Cable	Testing Cap	Storage Cap



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EQUIPMENT CERTIFICATION REPORT

PGN9003827 GAS DETECTOR - PID

Plant Number: 234966

SENSOR	CONCENTRATION	SPAN 1	SPAN 2	TRACEABILITY	PASS
PID Isobutylene	100ppm	0	100ppm	Lot # <u>210043</u>	<input checked="" type="checkbox"/>

Data Cleared

Battery Status <u>100</u> (%)	Temperature <u>17.8</u> °C
Electrical Test & Tag (AS/NZS 3760)	Inlet Filter Checked/Changed

Note: Calibration traceability information is available upon request.

Please clean/decontaminate instrument and accessories before returning. A minimum 'Cleaning Fee' \$55.00 (Inc GST) may apply if instrument is returned contaminated.

Checked By: Jacob Amott Date: 08/11/22 Signed: [Signature]

Accessories List:

User's Manual	Charger / Comms Adaptor	Wall Charger
2x Spare Air Filters	1x Spare Rechargeable Battery	Carry Transit Case
	Calibration Report	



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