

Detailed Site Investigation Report

Project

Site Redevelopment 1 Kenneth Road and 265 Condamine Street Manly Vale NSW

> Prepared for Co-ordinate Projects Pty Ltd

> > Date 17/12/2021

Report No 14144-ER-1-1 Rev 1

geotechnical & environmental solutions

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Document Control

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Executive Summary

Alliance Geotechnical Pty Ltd (Alliance) was engaged by Co-ordinate Projects Pty Ltd to undertake a stage 2 detailed site investigation (DSI) at 1 Kenneth Road & 265 Condamine Street, Manly Vale NSW (refer **Figure 1**, with the 'site' boundaries outlined in **Figure 2**).

At the commencement of the project, Alliance had the following project appreciation:

- The site is currently owned by Co-ordinate Projects Pty Ltd;
- The site is currently not occupied, and has been the subject of demolition works to remove aboveground structures, while ground floor slabs and subsurface infrastructure are still present on site;
- The site is proposed for redevelopment, including removal of the concrete slab, and construction of a multi-storey mixed-use building, with basement and lower ground floor parking across the site, commercial land uses on the ground floor, and high density residential above. The redevelopment will also comprise a basement car park. In the context of NEPC (2013a), this is considered to be a land use scenario¹ comprising a mixture of:
 - Residential with minimal opportunities for soil access including dwellings with fully and permanently paved yard space such as high-rise buildings and flats; and
 - o Commercial / industrial such as shops, offices, factories and industrial sites.
- The proposed land use scenario assumes a reticulated potable water supply will be available at the site;
- A geotechnical assessment for the site was prepared by Crozier Geotechnical Consultants, dated August 2020 (Crozier, 2020), and inferred that extremely weathered sandstone is likely to be encountered onsite between 1.0 to 2.0m bgl;
- A preliminary site investigation (PSI) of the site was reported in Alliance (2020). The PSI identified a number of potential land contamination risks at the site, and further assessment of those risks was recommended;
- Alliance 2020 recommended that a SafeWork NSW dangerous goods search (Schedule 11) and Northern Beaches Council Section 10.7 planning certificate be obtained for the site, as well as a hazardous materials survey (HMS) & post demolition detailed site investigation;
- It is understood from the client that the structures onsite have been demolished, and a slab remains across the footprint, and so a HMS is no longer required by the client; and
- This DSI is required to assist the client to address development consent decision making processes set out in State Environmental Planning Policy (SEPP) No. 55 and assist the client to address recommendations in Alliance (2020).

The objectives of this project were to:

¹ Adopted from Section 2.2 of NEPC (2013a) and Section 3 of NEPC (2013f)

- Assess the potential for land contamination to be present in the areas of environmental concern (AEC) identified in the preliminary site investigation (PSI) prepared for the site;
- Assess whether identified potential land contamination would present an unacceptable human health or ecological exposure risk, based on the proposed land use scenario;
- Assess whether the site is suitable, in the context of land contamination, for the proposed land use scenario; and
- Provide recommendations for further investigations, and management or remediation of land contamination (if warranted).

The following scope of works was undertaken address the project objectives:

- A desktop review of previous reports;
- Preparation of a sampling and analysis quality plan;
- Intrusive investigations on site;
- Laboratory analysis; and
- Assessment of data and reporting.

The nominated scope of works was undertaken with reference to relevant sections of NEPC (2013), NSW EPA (2020b), HEPA (2020) and WA DOH (2009).

A number of areas of environmental concern (AEC) and contaminants of potential concern (COPC) associated with potential land contaminating activities undertaken at the site, have been identified as part of this project. The AEC, land contaminating activity and COPC are presented in the table below. The locations of the identified AEC are presented in **Figure 3**.

ID	AEC	Land Contaminating Activity (Source)	COPC
AEC01	1 Kenneth Road Footprint (~550m ² and ~1.0m thick)	Uncontrolled filling, uncontrolled demolition, termite treatment, historic commercial / light industrial use of the site (potential engineering and metal fabrication)	Petroleum hydrocarbons, polycyclic aromatic hydrocarbons, pesticides, polychlorinated biphenyl, PFAS, metals, asbestos, anthropogenic materials, VOCs
AEC02	265 Condamine Street Footprint (~900m ² and ~1.0m thick)	Uncontrolled filling, termite treatment, historic commercial / light industrial use of the site (potential metal fabrication)	Petroleum hydrocarbons, polycyclic aromatic hydrocarbons, pesticides, polychlorinated biphenyl, PFAS, metals, asbestos, anthropogenic materials, VOCs
AEC03	1 Kenneth Road Underground pit (~10m ² and ~2.0m deep)	Spills / leaks from pit	Petroleum hydrocarbons, VOCs

Based on the assessment undertaken by Alliance of site history information, fieldwork observations and data, and laboratory analytical data, in the context of the proposed land use scenario and objectives of this project, Alliance has made the following conclusions:

- Detected concentrations of contaminants of potential concern, would not present an unacceptable human health exposure risk, to future commercial / industrial workers and residents, in the context of the proposed development (which includes basement excavation works across the site);
- There are matters that have been identified that need to be addressed, specifically:
 - Characterisation of soils in the immediate vicinity of the pit associated with the former press equipment on the Kenneth Road portion of the site. Data collected during this project does not suggest a potential for significant or gross soil contamination to be associated with the pit, and the matter can be addressed following demolition of the pit structure and basement excavation works;
 - The potential for vertical migration of trichloroethene (TCE) into deeper soils and/or groundwater on the Condamine Street portion of the site. The concentrations detected in shallow fill soils on site were less than the adopted screening criterion, however there is potential for TCE contamination to be present in deeper soils and/or groundwater. This can be addressed after demolition and removal of the concrete slab, but prior to excavation of soils for the basement;
- The site can be made suitable for the proposed combined land use scenario:
 - Residential with minimal opportunities for soil access including dwellings with fully and permanently paved yard space such as high-rise buildings and flats; and
 - o Commercial / industrial such as shops, offices, factories, and industrial sites.

subject to removal of localised chromium and asbestos impacted fill soils in the Kenneth Road portion of the site, addressing the identified matters, and managing unacceptable contamination risks that may be identified in relation to those matters.

• Specific assumptions that apply to the adopted land use scenarios, are presented in **Section 6** of this report.

Based on those conclusions, Alliance makes the following recommendations:

- Addressing the matters that have been identified, should be undertaken by a suitably experienced environmental consultant;
- A suitably experienced environmental consultant should be engaged to verify that the chromium and asbestos impacted fill soils are removed from site during basement excavation and construction works;
- A waste classification for the soils to be excavated during site redevelopment works, needs to be prepared, prior to offsite disposal.

This report must be read in conjunction with the *Important Information About This Report* statements at the front of this report.

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- APPENDIX B Laboratory Documentation
- APPENDIX C Data Quality Indicator (DQI) Assessment
- APPENDIX D Calibration Records
- APPENDIX E SafeWork Records and Land Titles
- APPENDIX F Council Planning Certificates

1 Introduction

1.1 Background

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- The site is proposed for redevelopment, including removal of the concrete slab, and construction of a
 multi-storey mixed-use building, with basement and lower ground floor parking across the site,
 commercial land uses on the ground floor, and high density residential above. The redevelopment
 will also comprise a basement car park. In the context of NEPC (2013a), this is considered to be a
 land use scenario² comprising a mixture of:
 - Residential with minimal opportunities for soil access including dwellings with fully and permanently paved yard space such as high-rise buildings and flats; and
 - o Commercial / industrial such as shops, offices, factories and industrial sites.
- The proposed land use scenario assumes a reticulated potable water supply will be available at the site;
- A geotechnical assessment for the site was prepared by Crozier Geotechnical Consultants, dated August 2020 (Crozier, 2020), and inferred that extremely weathered sandstone is likely to be encountered onsite between 1.0 to 2.0m bgl;
- A preliminary site investigation (PSI) of the site was reported in Alliance (2020). The PSI identified a number of potential land contamination risks at the site, and further assessment of those risks was recommended;
- Alliance 2020 recommended that a SafeWork NSW dangerous goods search (Schedule 11) and Northern Beaches Council Section 10.7 planning certificate be obtained for the site, as well as a hazardous materials survey (HMS) & post demolition detailed site investigation;
- It is understood from the client that the structures onsite have been demolished, and a slab remains across the footprint, and so a HMS is no longer required by the client; and

² Adopted from Section 2.2 of NEPC (2013a) and Section 3 of NEPC (2013f)

• This DSI is required to assist the client to address development consent decision making processes set out in State Environmental Planning Policy (SEPP) No. 55 and assist the client to address recommendations in Alliance (2020).

1.2 Objectives

The objectives of this project were to:

- Assess the potential for land contamination to be present in the areas of environmental concern (AEC) identified in the preliminary site investigation (PSI) prepared for the site;
- Assess whether identified potential land contamination would present an unacceptable human health or ecological exposure risk, based on the proposed land use scenario;
- Assess whether the site is suitable, in the context of land contamination, for the proposed land use scenario; and
- Provide recommendations for further investigations, and management or remediation of land contamination (if warranted).

1.3 Scope of Work

The following scope of works was undertaken address the project objectives:

- A desktop review of previous reports;
- Preparation of a sampling and analysis quality plan;
- Intrusive investigations on site;
- Laboratory analysis; and
- Assessment of data and reporting.

The nominated scope of works was undertaken with reference to relevant sections of NEPC (2013), NSW EPA (2020b), HEPA (2020) and WA DOH (2009).

2 Site Identification

2.1 Site Details

Site identification details are presented in Table 2.1.

Cadastral Identification	Lot C DP39108 & Lot 3 DP975150
Geographic Coordinates (Google Earth)	339472.17 m and 6260129.36 m
Site Area	Approximately 1,560m ²
Local Government Authority	Northern Beaches Council
Current Zoning	B2 – Local Centre

2.2 Site Layout

The layout of the site is present in Figure 2. The layout plan also includes locations on site of:

- Site access points;
- Current buildings / structures; and
- Nearby streets.

3 Site Environmental Setting

3.1 Geology

The Department of Mineral Resources Geological Survey of NSW Sydney 1:100,000 Geological Series Sheet 9130 (Edition 1) 1983, indicated that the site is likely to be underlain by Hawkesbury Sandstone, comprising medium to coarse grained quartz sandstone, very minor shale and laminite lenses.

3.2 Site Topography and Elevation

A review of google earth indicated that:

- the topography of the site is generally flat with some minor south-west facing slopes; and
- the surface of the site was located at an elevation of approximately 11m Australian Height Datum (AHD) in the east and 22m AHD in the west.

3.3 Acid Sulfate Soils

A review of the NSW Department of Land and Water Conservation's Acid Sulfate Soil Risk Map for Sydney Heads (Edition 2, 1997), indicated that:

- the site is located in a map class description of 'no known occurrence' where acid sulfate soils are not known or expected to occur in these environments; and
- land management activities are not likely to be affected by acid sulfate soil materials.

Further assessment of acid sulfate soils, in the context of this project is considered not warranted.

3.4 Hydrogeology and Hydrology

A review of maps held on file by Alliance, indicated that surface water bodies located on or near the site included:

- Man-made stormwater channel approximately 300m south-east; and
- Manly Creek, located approximately 900m to the north-east.

Based on the location of the identified surface water bodies and the site surface topography, the inferred groundwater flow direction at the site is considered likely to be towards the south-east.

Based on site surface topography and site elevation, the inferred surface water flow direction at the site is considered likely to be towards the south-east.

A search of <u>https://www.environment.nsw.gov.au/eSpade2WebApp</u> was undertaken by Alliance and information considered relevant and related to the hydrogeological landscape for the locality of the site is presented in **Table 3.4**, however the available data was limited for the site.

 Table 3.4 Site Locality Hydrogeological Landscape

Aquifer Types	Confined to semi-confined bedrock aquifer within Hawkesbury Sandstone

Water-bearing Zones	Groundwater is likely to be present in discontinuities (joints, faults, weathered
	bedding plans of parting, etc.) in the rock mass. Intermittenity water-bearing
	zones may also be present at the interface between fill and less permeable
	natural soils.

A search of https://realtimedata.waternsw.com.au/water.stm indicated that:

- there are five (5) registered groundwater features located within a 500m radius of the site; and
- authorised uses of these monitoring wells predominantly include monitoring.

Information presented in records obtained for these registered groundwater monitoring wells, indicated that:

- boreholes were drilled to depths of between 5m and 20m below ground level;
- the geology encountered during drilling (using rotary methods) included CLAY & SAND.
- depth to standing water level in those wells was not reported.

The monitoring wells were located in an inferred downgradient location of the site.

A copy of the online search record is presented in Appendix B.

4 **Previous Contamination Assessments**

A copy of:

- Crozier 2020, 'Report on Geotechnical Assessment, 1 Kenneth Road and 265 Condamine Street, Manly Vale NSW' dated August 2020, ref: 2020-133.
- Alliance 2020, 'Preliminary Site Investigation, 1 Kenneth Road and 265 Condamine Street, Manly Vale NSW' dated 2 September 2020, ref: 11416-ER-1-1 Rev 2.

was provided to Alliance for review.

4.1 Crozier (2020)

This assessment had been compiled to provide preliminary information for submission with a development application (DA) to Northern Beaches Council. Reference to the Warringah Council – Local Environmental Plan 2011, identified that the site is situated on land classified as 'Class A - Slope <5° (Landslip Risk Map – Sheet LSR_008) and is not affected by acid sulfate soils hazards.

The geotechnical assessment comprised:

- Detailed geotechnical inspection of the entire site and adjacent land, by a Senior Engineering Geologist.
- Review of Crozier Geotechnical Consultants database of previous investigations undertaken in the vicinity of the site.
- A photographic record of site conditions

Crozier (2020) reported that the development excavation was likely to encounter shallow fill and natural soils overlying extremely weathered, extremely low strength bedrock with low strength bedrock at \leq 2.0m depth. The bedrock is expected to contain numerous weathered horizons in its upper portions and will likely become consistently of medium strength below approximately 3.00-3.50m depth in the excavation.

The proposed works will involve an excavation of up to approximately 7.5m depth below the existing ground surface levels. Based on the assumed site conditions this excavation will require support prior to bulk excavation where deeper basement excavations are not present in adjacent properties or where insufficient space exists for the creation of safe batter slopes. It is envisaged geotechnical investigation will be required prior to issue of the construction certificate to allow structural detail design and confirm the preliminary findings of this report.

4.2 Alliance (2020)

The objectives of this investigation were to:

- Assess the potential for contamination to be present on the site as a result of past and current land use activities.
- Consider the potential risk posed to human health and the environment from potential contamination (soil and groundwater), with due regard to the possible land use scenario.
- Provide recommendations for further investigation, where warranted.

Alliance Geotechnical undertook the following scope of works to address the project objective:

- A review of available historical records within and adjacent to the proposed project area to identify areas and sources of potential contamination.
- A visual inspection and walkover of the proposed project area to identify areas of potential environmental concern.
- A review of publicly accessible government databases relating to contaminated land, hydrogeology, topography, geology, and soil for the project area and surrounds.
- Development of a conceptual site model (CSM) for identify potential source pathway –receptors linkages to identify possible risks to end users of the site.
- Preparation of a PSI report with reference to EPA (2020b).

Based on AG's assessment of the desktop review information and site walkover, in the context of the proposed future development at the site, the following conclusions were made:

- A review of available historical records indicates that the site has been used historically for various commercial-light industrial purposes, including metal fabrication and printing. Demolition activities have occurred at various periods on different site allotments, with evidence stemming from the early 1980s.
- Surrounding areas consisted predominantly of commercial land use in the east, north and west, and residential in the south.
- The site and neighbouring properties were largely free of statutory notices and licensing agreements issued under the *Contaminated Land Management Act 1997* and *Protection of the Environment Operations Act 1997*. The site was not included on the list of NSW Contaminated Sites notified to the EPA.
- AG consider that soil contamination is likely to be present onsite given long-term historical use of the site for commercial-light industrial purposes. Possible groundwater contamination is also likely due possible use of solvent, inks and dyes, and PFAS containing compounds.
- A conceptual site model (CSM) has been developed for the site in association with future development at the site. Based on available records and observations, the CSM identifies potential contamination sources and associated contaminants of potential concern and presents relevant exposure pathways and receptor linkages to potential sources.

AG considered that any contamination present is unlikely to preclude redevelopment of the site, and the site can be made suitable for the proposed use, subject to the implementation of the following recommendations:

- A search of the SafeWork NSW dangerous goods database and Council records pertaining to relevant development approvals associated with historical commercial-light industrial activities.
- If not yet conducted, a hazardous materials survey (HMS) should be completed by a suitably qualified and experienced consultant prior to commencement of any demolition works to identify any hazardous materials that may be present within existing structures.
- A detailed site investigation (DSI) should be completed post-demolition to identify possible risks
 posed to end users of the site from any contamination that may be present. This investigation should
 include a program of soil sampling and groundwater assessment, and depending on findings,
 potential soil gas (vapour). The finding of this investigation can be utilised to derive a method of
 management should any risk to end users be identified.

 AG recommended that (if required) the HMS can be carried out post-DA approval, prior to demolition, and that the DSI be carried out post-DA approval and post-demolition. These items can be incorporated within any development consent conditions, to be executed prior to construction stage. Due to current access constraints associated with partial basement and building structures at the site, the collection of soil and groundwater data at pertinent locations is likely to be impeded by these current constraints. Demolition of existing structures prior to detailed investigation will aid characterisation of both soil and groundwater, and any subsequent contaminated land management (CLM) decision making required.

5 Data Gap Assessment

Based on a desktop review of previous reports referred to in **Section 4** and the development of the conceptual site model (CSM) presented in these previous reports, as well as Alliance's understanding that the structures onsite have been removed Alliance has assessed that that the following data gaps, in the context of site contamination characterisation and management, are present and need to be addressed prior to drawing conclusions regarding suitability of the site for the proposed land use scenario. With the exception of the data gaps discussed in **Sections 5.2** to **5.6**, Alliance considers that the remainder of the site has been appropriately assessed within the objectives and scope of the previous contamination assessments.

5.1 Work Health and Safety Regulation 2017

Alliance (2020) did not include aa SafeWork NSW Schedule 11 hazardous chemicals (dangerous goods)³ search for the site. A search was undertaken for this project, and the search did not locate any records pertaining to the site, indicating that no licensable quantities of commercial or industrial materials were registered to be stored onsite within underground or aboveground storage tanks.

Alliance considers that further assessment of the storage of licensable quantities of Schedule 11 hazardous chemicals (dangerous goods), within the context and objectives of this project, is considered not warranted.

A copy of the search record is presented in Appendix G.

5.2 Environmental Planning and Assessment (EP & A) Act 1979

Alliance (2020) did not include a review of Section 10.7 planning certificates for either 1 Kenneth Road or the 265 Condamine Street portions of the site. A copy of the planning certificates issued under section 10.7(2) & (5) of the EP&A Act were obtained for these properties. Within the meaning of the CLM Act, the site was not:

- significantly contaminated land;
- subject to a management order;
- the subject of an approved voluntary management proposal;
- subject to an ongoing maintenance order; or
- the subject of a site audit statement.

A copy of the certificates is presented in Appendix F.

³ Under the Work Health and Safety Regulation 2017

5.3 Historical Land Titles

Alliance (2020) did not include review of land title ownership records for Lot C in DP39108 (the 1 Kenneth Road portion of the site). A review was undertaken of historical land title ownership records of Lot C and information obtained during that review, indicated that registered proprietors of the subject Lots since 1930's, have included:

- Harold Stuart Greenwell (chemist) between 1930 and 1941;
- Gerald Frederick Inder (contractor) between 1941 and 1941;
- An engineering company (Leermont Engineering Company Pty. Limited) between 1941 and 1949;
- Alfred Edward Leer (engineer) between 1949 and 1961;
- An investment company (Manly Vale Enterprises Pty Limited) between 1961 and 1984;
- A diving equipment company (T. D. Preece & Co. Pty Limited) between 1984 and 2017;
- An investment company (Stacks Managed Investments Limited) between 2017 and 2019; and
- An investment company (Co-Ordinated Projects Pty Limited) between 2019 and present.

There were no leases or easements reported for the Lot.

The review of historical land titles indicated potential land contaminating activities have been undertaken on the site, specifically:

- Engineering activities (potentially including manufacturing or machinery activities) on the Kenneth Road portion of the site, between 1941 and 1961; and
- Commercial / light industrial land uses associated with metal fabrication between 1984 and 2017.

Further assessment of these land contaminating activities, in the context of other historical evidence reviewed during this project, is considered warranted.

A copy of the historical land title search record is presented in Appendix E.

5.4 Per and Poly-Fluoroalkyl Substances (PFAS)

Per and Poly-Fluoroalkyl Substances (PFAS) are a group of chemicals that are manufactured for their unique properties. There are numerous PFASs that may be present in the environment. Perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA) are two major PFASs, that were originally found as components in products used to provide stain resistance or as firefighting foams. Some PFASs have been recognised as highly persistent, potentially bio-accumulative and toxic, and have been detected in the environment, wildlife, people and food. When considering potential for PFAS to be present on a site, Section 6 of HEPA (2020) advises that consideration should be given to identifying the presence of:

• Major primary sources of PFAS, including major commercial, industrial and government facilities, infrastructure and activities that historically or currently use or store PFAS containing products, nothing

that all PFAS formulations should be considered, such as surfactants used in chrome plating or firefighting, hydraulic fluids and lubricants, and wastes and liquid wastes;

- Other primary sources where PFAS is or has been used, such as firefighting training facilities, foam deluge system installations, metal plating works, car washes, and electricity generation and distribution facilities;
- Secondary sources where diffuse PFAS inputs are or have been received, such as landfills, wastewater treatment facilities, liquid waste treatment facilities, and bio-solids stockpiles.

Along with the guidance in Section 6 of HEPA (2020), Alliance has also adapted the PFAS decision matrix presented in EnRisk (2016), to facilitate a preliminary screening of the potential for PFAS to be present on site. That screening process is presented in **Table 5.4**.

Table 5.4 PFAS Screening Process		
Preliminary PFAS Screening Questions	Evidence	
Is there evidence of major commercial, industrial and government facilities, infrastructure and activities that historically or currently use or store PFAS containing products?	No	
Is there evidence of fuel ⁴ fires on the site?	No	
Is there evidence of foam deluge systems, metal plating works, car washes, or electricity generation / distribution on the site?	No	
Is there evidence of landfill, wastewater treatment, liquid waste treatment, bio-solid stockpiles or paper mill wastes on site?	No	
Is there evidence of fire training occurring at the site?	No	
Is there evidence of fire training occurring up gradient or adjacent to the site?	No	
Is there evidence of the presence of an airport or fire station, up-gradient of, or adjacent to, the site?	No	

The results of the screening questions do not indicate the site is likely to be a major primary source of PFAS. While site history does not necessarily suggest other primary or secondary sources PFAS related activities have been undertaken on the site, on the basis that site history does suggest manufacturing activities have been undertaken on the site, a conservative approach will be adopted and further preliminary screening for PFAS, initially in soils, is considered appropriate.

5.5 Chemical Control Orders

Chemical control orders (CCO) are created under Part 3, Division 5 of the Environmentally Hazardous Chemicals Act 1985, and are used to selectively and specifically control particular chemicals, or chemical wastes, to limit their potential or actual impact on the environment. Alliance has adopted the matrix presented in **Table 5.5** (which is based on the NSW EPA CCO available at the time of this project), to facilitate a preliminary screening of the potential for those control order chemicals to be present on site.

Table 5.5 Chemical Control Order Preliminary Screening

⁴ Fuels could include solvents, petrol, diesel and kerosene

Preliminary CCO Screening Questions	Assessment
Were aluminium smelter wastes used or stored on site? ⁵	No
Were dioxin contaminated wastes generated or stored on site? ⁶	No
Were organotin wastes generated or stored on site? ⁷	No
Were polychlorinated biphenyls (PCB) used or stored on site? ⁸	No
Were scheduled chemicals ⁹ used, or wastes stored, on site? ¹⁰	Yes

The historical records review and observations made during the site walkover, identified the following potential sources of CCO related chemicals for the site:

• Historical termite treatment of buildings.

Based on the results of the preliminary CCO screening questions above, further assessment of CCO related land contamination risks at the site (specifically organochlorine pesticides), is considered warranted.

5.6 General

Alliance (2020) identified printing as a potential historical land contaminating activity. During desktop review of Alliance (2020), it was considered unclear as to the basis for nominating printing as a potential land contaminating activity. Subsequent review of additional site history information, including the land title records referred to in **Section 5.3** of this report, site walkover over photos presented in Alliance (2020) and limited observations made on site since demolition of above ground structures on the site, did not suggest the undertaking of printing at the site. Alliance has subsequently considered that the reference to a 'press' and an associated pit in the immediate vicinity of the press in Alliance 2020, is not a reference to a 'printing press', but rather a hydraulic press used as part of a manufacturing process undertake on the 1 Kenneth Road portion of the site. Based on Alliance's experience, it is considered plausible that the pit may have been used to house hydraulic fluids and other components associated with the operation of such a press.

⁵ SPCC 1986, 'Chemical Control Order in Relation to Aluminium Smelter Wastes Containing Fluoride and/or Cyanide' dated 21 March 1986

⁶ NSW EPA 1986, 'Chemical Control Order in Relation to Dioxin-Contaminated Waste Materials' dated 14 March 1986

⁷ NSW EPA 1989, 'Chemical Control Order in Relation to Organotin Wastes' dated 11 March 1989

⁸ NSW EPA 1997, 'Polychlorinated Biphenyl Chemical Control Order' dated 20 June 1997

⁹ Primarily organochlorine pesticide (OCP) compounds, with some industrial by-products

¹⁰ NSW EPA 2004, 'Chemical Control Order in Relation to Scheduled Chemical Wastes

6 Conceptual Site Model

6.1 Preamble

A conceptual site model (CSM) is a representation of site related information regarding contamination sources, receptors and exposure pathways between those sources and receptors. The initial CSM is constructed from the information obtained during the PSI and it can be used to identify data gaps and inform a decision on whether a detailed site investigation (DSI) is required.

The CSM identifies complete and potential pathways between the known or potential source(s) and the receptors. Where a pathway between a source and a receptor is incomplete, the exposure to chemical substances via that pathway cannot occur, but the potential for that pathway to be completed (for example, by abstraction of groundwater or a change in land use) should be considered in the assessment.

6.2 Land Use

6.2.1 Adopted Land use Scenario

For the purpose of this project, Alliance understands that the proposed land use scenario for the site includes a mixture of:

- Residential with minimal opportunities for soil access including dwellings with fully and permanently paved yard space such as high-rise buildings and flats (above ground floor); and
- Commercial / industrial such as shops, offices, factories and industrial sites (ground floor).

6.2.2 Assumptions for Adopted Land Use Scenario

Section 3 of NEPC (2013i) advises that the residential with minimal access to soil land use scenario includes high-density residential, not including a private garden. This land use scenario assumes typical residential unit blocks, consisting of multistorey buildings where living areas are on the ground floor (constructed on a ground level slab or above subsurface structures including basement car parks or storage areas).

Occupants of the buildings would have access to yard spaces that are largely covered by permanent paving, with some small areas of landscaping or lawns. Opportunities for direct access to soil by residents of these buildings are therefore minimal but there may be some potential for residents to inhale, ingest or come into direct dermal contact with dust (particulates) derived from the soil on the site.

The scenario does not include landscaped/playground (including sandpit) areas used for recreation within a high-density development. These are considered a 'public open space' land use scenario.

Section 3 of NEPC (2013i) advises that the commercial/industrial land use scenario, which assumes typical commercial or light industrial properties, consisting of single or multistorey buildings where work areas are on the ground floor (constructed on a ground level slab) or above subsurface structures (such as basement car parks or storage areas).

The dominant users of commercial / industrial sites are adult employees who are largely involved in officebased or light industrial activities.

The outdoor areas of the commercial/industrial facilities are largely covered by hardstand, with some limited areas of landscaping or lawns and facilities. Opportunities for direct access to soil by employees using these facilities are likely to be minimal, but there may be potential for employees to inhale, ingest or come into direct dermal contact with dust particulates derived from the soil on the site.

The land use scenario does not include more sensitive uses that may be permitted under relevant commercial or industrial zonings. These more sensitive uses include childcare, educational facilities, caretaker residences and hotels and hostels, etc. Information on uses permitted under local council zoning schemes for commercial/industrial land use can be obtained from local council planning zones/schemes. Should these more sensitive uses be permitted, then 'residential with accessible soil', 'residential with minimal access to soil', or 'public open space' land use scenarios should be considered.

6.3 Sources of Contamination

A number of potential land contaminating activities have been identified for the site, based on the site history review and site walkover observations. These include:

- Uncontrolled filling;
- Press and associated pit / sump;
- Uncontrolled demolition;
- Termite treatment; and
- Historic commercial / light industrial use of the site for engineering and metal fabrication.

Table J1 in Appendix J of AS 4482.1-2005 and Appendix A in DUAP (1998) provides guidance on chemicals associated with land uses activities. That guidance provides a basis for deciding on contaminants of potential concern (COPC) for each relevant land use activity. Information on COPC adopted for this project is presented in Section 0 of this report.

6.4 Receptors

6.4.1 Identified Receptors

Based on the adopted land use scenario in Section 6.2, receptors at the site may include residents (high density), commercial / industrial workers and ecological (terrestrial and/or aquatic) ecosystems.

6.4.2 Assumptions for Identified Receptors

The human receptors at a residential with minimal access to soils site, would typically include adults, children and infants who spend the majority of their time indoors within the residential properties, with some limited use of communal outdoor areas on site. The residents that are considered to be most susceptible to health risks associated with soil contaminants are the residents of ground floor units, due to the greatest potential for outdoor soil to be tracked indoors and vapour intrusion occurring with residences immediately overlying contaminated soil.

The receptors at a commercial/industrial site are predominantly adult employees, who are largely involved in office-based or light indoor industrial activities. The employees who are most susceptible to health risks associated with volatile soil contaminants are the employees who work in offices on the ground floor, as the greatest potential for vapour intrusion occurs with workspaces immediately overlying contaminated soil.

Employees may make use of outdoor areas of a commercial/industrial premises for activities such as meal breaks. Opportunities for direct access to soil by employees using these facilities are likely to be minimal, but there may be potential for employees to inhale, ingest or come into direct dermal contact with dust particulates derived from the soil on the site.

6.5 Exposure Pathways

6.5.1 Human Health

6.5.1.1 Dermal Contact / Ingestion / Dust Inhalation

Site history information and observations made during the site walkover, indicated a potential for contaminants to be present in soils at the site, which could present a dermal contact, ingestion or dust inhalation risk to human health.

The proposed land use scenario is likely to include minimal unsealed and open space areas, where a pathway between identified receptors and direct contact, ingestion and dust inhalation contaminant sources, may be complete.

Further assessment of dermal contact, dust inhalation and ingestion risk, however, is considered warranted.

6.5.1.2 Vapour Intrusion / Inhalation

A vapour intrusion / inhalation exposure risk to human health can be present when a vapour source (either primary or secondary¹¹) is present.

Site history information and observations made during the site walkover and review of Alliance (2020), did not indicate a potential for a primary source of vapour to be present on the site.

¹¹ Primary sources typically include underground storage tanks. Secondary sources typically include significantly contaminated soil or groundwater.

An underground pit in the south-west of the 1 Kenneth Road portion of the site was present. On the basis that this pit is associated with a manufacturing press, it is considered that the pit may have contained a sump and other components associated with hydraulic fluids use to operate the press. Hydraulic fluids are typically mineral oil based, with generally low volatility due to their longer carbon chains. On that basis, hydraulic fluid in the pit or adjacent soils (if present) is unlikely to present a primary or secondary source of vapour risk.

Further assessment of vapour intrusion / inhalation risks associated with the underground pit is considered not warranted.

Site history information and observations made during the site walkover, indicated a potential for a historical uncontrolled filling to be present at the site. However, Alliance notes that the activity of transporting, placement and spreading of uncontrolled fill soils would typically include significant disturbance of those soils, that can result in the volatilisation of those contaminants that could normally present a vapour intrusion / inhalation risk (e.g. light fraction petroleum hydrocarbons, naphthalene and chlorinated hydrocarbons); and

On that basis, Alliance considers that the potential for contaminants to be present in the uncontrolled filling, at concentrations which could present a vapour intrusion / inhalation risk, would be low.

Further assessment of vapour intrusion / inhalation risks associated with the uncontrolled filling, is considered not warranted.

6.5.1.3 Asbestos

Bonded asbestos containing material (ACM) is comprised of asbestos bound in a matrix (including cement or resin), which is in sound condition, although possibly broken or fragmented.

Fibrous asbestos (FA) comprises friable asbestos material and includes severely weathered cement sheeting, insulation products and woven asbestos material. This type of friable asbestos is defined here as asbestos material that is in a degraded condition such that it can be broken or crumbled by hand pressure. This material is typically unbonded or was previously bonded and is now significantly degraded (crumbling).

Asbestos fines (AF) include free fibres, small fibre bundles and small fragments of ACM¹² that would pass through a 7mm x 7mm aperture sieve.

FA and AF are considered to be 'friable' asbestos, which is material that is in a powder form or that can be crumbled, pulverised or reduced to powder by hand pressure when dry.

Asbestos poses a risk to human health when asbestos fibres are made airborne and inhaled. The assessment of sites contaminated with asbestos in soil should aim to describe the nature and quantity of asbestos in soil in sufficient detail to enable a risk management plan to be developed for the proposed land use scenario.

¹² For bonded ACM fragments to pass through a 7mm x 7mm sieve implies a substantial degree of damage which increases the potential for fibre release.

Site history information and observations made during the site walkover, indicated a potential for ACM, FA and/or AF to be present in soils at the site.

The proposed land use scenario is likely to include unsealed and open space areas, where a pathway between identified receptors and asbestos in soils, may be complete.

Further assessment of asbestos exposure risk is considered warranted.

6.5.2 Management Limits for Petroleum Hydrocarbons

Section 2.9 of NEPC (2013a) states that there are a number of policy considerations which reflect the nature and properties of petroleum hydrocarbons:

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

Section 2.9 of NEPC (2013a) notes that:

- CCME (2008) includes management limits to avoid or minimise these potential effects. Application of
 management limits requires consideration of site-specific factors such as depth of building basements
 and services, and depth to groundwater, to determine the maximum depth to which the limits should
 apply.
- management limits may have less relevance at operating industrial sites (including mine sites) which have no or limited sensitive receptors in the area of potential impact.
- the presence of site total petroleum hydrocarbon (TPH) contamination at the levels of the management limits does not imply that there is no need for administrative notification or controls in accordance with jurisdiction requirements.

Site history information and walkover observations indicated a potential for these policy considerations to be associated with relevant identified areas of environmental concern (AEC) at the site, in the context of the proposed future land use scenario. On that basis, further assessment of petroleum hydrocarbons in soils in the context of those policy considerations, is considered warranted.

6.5.3 Hazardous Ground Gases

NSW EPA (2020a) provides advice on ground gases that if present in the pore space of soils and rocks and can adversely impact human health and safety or the integrity of structures. The ground gases that are generally of concern in this context are:

- Bulk ground gases, including methane, carbon dioxide, carbon monoxide, hydrogen, hydrogen sulphide, and petroleum vapours; and
- Trace ground gases including radon, volatile organic compounds and mercury vapour.

Alliance has reviewed site history information review and site walkover observations in the context of sources and origins of hazardous ground gases in Table 1 and Table 2 of NSW EPA (2020a). Based on that review, Alliance considers that further assessment of hazardous ground gases in the context of this project, is considered not warranted.

6.5.4 Aesthetics

Aesthetic issues generally relate to the presence of low-concern or non-hazardous inert foreign material (refuse) in soil or fill resulting from human activity. Sites that are assessed as being acceptable from a human health and environmental perspective may still contain foreign material¹³. Sites may have some soil discolouration from relatively inert chemical waste (e.g. ferric metals) or residual odour (e.g. natural sulfur odour).

Assessment should be undertaken in the context of the sensitivity of the proposed land use scenario (e.g. higher expectations apply to residential properties with gardens compared with industrial settings). General assessment considerations should include:

- That chemically discoloured soils or large quantities of various types of inert refuse, particularly if unsightly, may cause ongoing concern to site users;
- The depth of the materials, including chemical residues, in relation to the final surface of the site;
- The need for, and practicality of, any long-term management of foreign material;
- The presence of small quantities of non-hazardous material and low odour residue (e.g. weak petroleum odours) that will decrease over time should not be a cause of concern in most circumstances
- Sites with large quantities of well-covered known inert material that present no health hazard such as brick fragments and cement wastes, are usually of low concern for non-sensitive and sensitive land uses; and
- Caution should be used when assessing sensitive land uses, such as residential, when large quantities of various fill types and demolition rubble are present.

Alliance has adapted guidance in Section 3.6.2 and Section 3.6.3 of NEPC (2013a) to facilitate a preliminary assessment of potential aesthetic risks, identified during review of site history information and site walkover observations. The results of the preliminary assessment are presented in Table 6.5.4, and they are used to assess whether the need for further assessment to be undertaken, has been triggered.

¹³ Geotechnical issues related to the presence of fill should be treated separately to assessment of site contamination.

Table 6.5.4 Preliminary Aesthetics Screening

Preliminary Aesthetics Screening Question	Assessment
Is there potential for highly malodorous soils or extracted groundwater (e.g. strong residual petroleum hydrocarbon odours, hydrogen sulphide in soil or extracted groundwater, organosulfur compounds) to be present on site?	No
Is there hydrocarbon sheen on surface waters at site?	No
Is there potential for discoloured chemical deposits or soil staining with chemical waste other than of a very minor nature, to be present in site soils;	No
Is there potential for large monolithic deposits of otherwise low risk material, e.g. gypsum as powder or plasterboard or cement kiln dust, to be present in site soils;	No
Is there potential for putrescible refuse including material that may generate hazardous levels of methane such as a deep fill profile of green waste or large quantities of timber waste, to be present in site soils?	No
Is there potential for residue from animal burial (e.g. former abattoir sites) to be present in site soils.	No
Is there potential for large quantities of non-hazardous inert material to be present in site soils?	Yes
Is there potential for high odour residue material to be present in site soils?	No
Is there potential for large quantities of various fill types and demolition rubble to be present in site soils proposed for residential land use?	No

Site history information and observations made during the site walkover, and considered during the aesthetics risk assessment, indicated the following potential aesthetics risks for the site:

• Use of building and demolition rubble to create a level pad on the site;

Further assessment of aesthetic risks is considered warranted.

6.5.5 Terrestrial Ecosystems

Site history information and observations made during the site walkover, indicated a potential for contaminants, which may present a risk to terrestrial ecosystems, may be present on site.

Section 3.4.2 of NEPC (2013a) states that:

- a pragmatic risk-based approach should be taken when assessing ecological risk in residential and commercial / industrial land use settings;
- in existing residential and urban development sites, there are often practical considerations that enable soil properties to be improved by addition of ameliorants with a persistent modifying effect or by the common practice of backfilling or top dressing with clean soil;
- in other cases, all of the site soils will be removed during site development works or relocated for the formation of new landforms;
- sites may also be backfilled with clean soil/fill and the fate of any excavated contaminated soil should be considered in process; and

 commercial and industrial sites may have large building structures and extensive areas covered with concrete, other pavement or hardstand materials and may have limited environmental values requiring consideration while in operational use.

Alliance has considered the potential for sensitive ecological receptors to be present at the site, in the context of site history information, site walkover observations and the proposed land use scenario.

Alliance notes that:

- There was no evidence of flora or fauna observed at the site due to the present of hardstand materials across the site (concrete slab);
- The proposed land use scenario will include extensive soil excavation and removal across the site and covering the majority of the site with hardstand pavements and building footprints;
- Mammals are unlikely to access the site following construction of proposed buildings and hardstand areas;
- Invertebrates potentially present at the site (including soil fauna, earthworms and insects) are likely to be removed during bulk excavation works and/or significantly disturbed during proposed building construction works;
- It is unlikely that birds will be present onsite following development, due to the widespread presence of building footprints and hardstand materials;
- It is unlikely that reptiles will be present onsite following development, due to the widespread presence of building footprints and hardstand materials.

On the basis that, further assessment of terrestrial ecosystem risks is considered not warranted.

6.5.6 Groundwater

Section 2.2 of NSW DEC (2007) provides guidance on the need for the potential for groundwater contamination to be assessed, for the purposes of evaluating whether it may pose an unacceptable risk to human health and/or the environment.

Section 3.2 of NEPC (2013h) provides guidance on the environmental values (that are conducive to public benefit, welfare, safety or health) and that require protection from the effects of pollution, waste discharge and deposits. These values include:

- Ecosystem protection;
- Aquaculture and human consumers of food;
- Agricultural water (irrigation and stock water);
- Recreation and aesthetics;
- Drinking water; and

• Industrial water.

Each of these values is considered in sub-sections 6.5.6.1 to 6.5.6.6.

6.5.6.1 Aquatic Ecosystem Protection

In the context of aquatic ecosystems, ANZG (2018) defines level of protection is the degree of protection afforded to a water body based upon its ecosystem condition (current or desired health status of an ecosystem relative to the human degree of disturbance). Selecting a level of protection should consider:

- Maintaining the existing ecosystem condition, or
- Enhancing a modified ecosystem by targeting the most appropriate level of condition.

ANZG (2018) recognises three categories of current or desired ecosystems:

- High conservation or ecological value systems
- Slightly to moderately disturbed ecosystems; and
- Highly disturbed ecosystems.

Alliance has undertaken an assessment of the likely nearest aquatic ecosystem to the site (refer Section 3.4) and considers that is it a marine system. Following review of site-specific attributes, and in the context of guidance provided in ANZG (2018)¹⁴, Alliance considers that the nearest aquatic ecosystem is:

• a highly disturbed system, on the basis that the aquatic ecosystem is measurably degraded and of lower ecological value.

Groundwater at the site is considered likely to discharge to the nearest downgradient surface water body identified for the site (refer Section 3.4). That surface water body is considered likely to be polluted and be of a quality that is not consistent with natural background water quality.

The shallowest groundwater at the site is likely to be transient perched groundwater present at the soilbedrock interface, after heavy rains. Data on natural background water quality for transient groundwater is generally not available. Subsequently, comparison of site specific shallow transient groundwater data against background quality is therefore not practical.

Based on this, Alliance considers that further assessment of aquatic ecosystem protection as a groundwater value, is not warranted.

6.5.6.2 Aquaculture and Human Consumers of Food

Groundwater at the site is considered likely to discharge to the nearest surface water body identified for the site (refer Section 3.4).

¹⁴ https://www.waterquality.gov.au/anz-guidelines/resources/key-concepts/level-of-protection

The nearest surface water body to the site is located approximately 300m south-east of the site. Alliance considers it unlikely that occupants of the site would frequent that surface water body for the collection and consumption of aquatic based foods, at a rate that the intake would present an unacceptable risk to human health.

The nearest surface water body identified for the site (refer Section 3.4) appears to be a manmade urban runoff drain and is likely to be ephemeral and shallow in nature, underlain by hardstand materials. Alliance considers it unlikely that the surface water body would contain an aquatic food source suitable for human consumption.

Based on this, Alliance considers that further assessment of aquaculture and human consumers of food as a groundwater value, is not warranted.

6.5.6.3 Agricultural (Irrigation and Stock Water)

The groundwater bore search in Section 3.4 did not identify any registered groundwater bores within a 500m radius of the site, that were authorised for irrigation or stock watering purposes.

The shallowest groundwater at the site is likely to be transient perched groundwater generally present at the soil-bedrock interface, after heavy rain events, and therefore, unlikely to be a reliable groundwater abstraction source for irrigation and stock watering purposes.

Urban/commercial development on the site and urban/commercial development on land down gradient of the site, is considered likely to prevent agricultural land use activities from being undertaken, which would mitigate the potential for abstraction of groundwater for irrigation and stock watering.

Based on this, Alliance considers that further assessment of agricultural water as a groundwater value, is not warranted.

6.5.6.4 Recreation and Aesthetics

Section 3.4 of this report did not identify licensed recreational water abstraction bores within a 500m radius of the site.

The current land use scenario for the site includes a reticulated drinking water system. Urban / commercial development surrounding the site is also considered likely to include a reticulated drinking water system. Alliance considers use of reticulated water as a recreational water source (e.g. filling up swimming pools or ponds on site) is considered a more plausible scenario.

On that basis, installation of groundwater wells on site for the purpose of groundwater abstraction and use as a recreational water source (e.g. filling up swimming pools or ponds on site) is considered unlikely.

Groundwater at the site is considered likely to discharge to the nearest surface water body identified for the site (refer Section 3.4).

The nearest surface water body identified for the site (refer Section 3.4) appears to be an urban runoff drain line, is likely to be ephemeral and shallow in nature, and has limited access to the general public. Alliance considers it is unlikely that the surface water body would be used for:

• sports in which the user comes into frequent direct contact with water, either as part of the activity or accidentally, for example, swimming or surfing (primary contact);

- sports that generally have less-frequent body contact with the water, for example, boating or fishing (secondary contact); or
- visual passive recreational use, for example, pleasant places to be near or to look at (no body contact).

Based on this, Alliance considers that further assessment of recreation and aesthetics as a groundwater value, is not warranted.

6.5.6.5 Drinking Water

The groundwater bore search in Section 3.4 did not identify any registered groundwater bores within a 500m radius of the site, that were authorised for drinking water purposes.

The shallowest groundwater at the site is likely to be transient perched groundwater generally present at the soil-bedrock interface, after heavy rain events, and therefore, unlikely to be a reliable groundwater abstraction source for drinking water purposes.

The future land use scenario for the site includes a reticulated drinking water system. Urban / commercial development surrounding the site is also considered likely to include a reticulated drinking water system. Alliance considers use of reticulated water as a drinking water source onsite is a more plausible scenario.

Installation of rainwater collection tanks on site (for use as a secondary source of drinking water is also considered a more plausible scenario).

On that basis, further assessment of drinking water as a groundwater value, is considered not warranted.

6.5.6.6 Industrial Use

The groundwater bore search in Section 3.4 did not identify any registered groundwater bores within a 500m radius of the site, that were authorised for industrial purposes.

The shallowest groundwater at the site is likely to be transient perched groundwater generally present at the soil-bedrock interface, after heavy rain events, and therefore, unlikely to be a reliable groundwater abstraction source for industrial purposes.

Urban / residential development on the site and urban / residential development on land down gradient of the site, is considered likely to prevent industrial land use activities from being undertaken, which would mitigate the potential for abstraction of groundwater for industrial purposes.

The future land use scenario for the site includes a reticulated drinking water system. Urban / residential development surrounding the site is also considered likely to include a reticulated drinking water system.

Based on this, Alliance considers that further assessment of industrial water as a groundwater value, is not warranted.

6.6 Source, Pathway and Receptor Links

Based on:

- The identified sources of contamination associated with the locations of where potential land contaminating activities have been undertaken at the site (areas of environmental concern or AEC);
- The identified contaminants of potential concern (COPC) associated with those land contaminating activities;
- The receptors identified for the site, based on the proposed land use scenario; and
- The exposure pathways between the identified sources and receptors that have been assessed as being potentially or actually complete,

a conceptual site model (CSM) that identifies plausible south-pathway-receptor linkages for the site, is presented Table 6.6.

The locations of the AEC are presented in Figure 3.

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Table 6.6 Source, Pathway and Receptor Links

ID	AEC	Land Contaminating Activity (Source)	COPC	Exposure Pathway	Receptor
AEC01	1 Kenneth Road Footprint (~550m ² and ~1.0m thick)	Uncontrolled filling, uncontrolled demolition, termite treatment, historic commercial / light industrial use of the site (potential engineering and metal fabrication)	Petroleum hydrocarbons, polycyclic aromatic hydrocarbons, pesticides, polychlorinated biphenyl, PFAS, metals, asbestos, anthropogenic materials, VOCs	Dermal contact Soil Ingestion Dust inhalation Inhalation (asbestos) Management limits Aesthetics	Residents Commercial / industrial workers
AEC02	265 Condamine Street Footprint (~900m ² and ~1.0m thick)	Uncontrolled filling, termite treatment, historic commercial / light industrial use of the site (potential metal fabrication)	Petroleum hydrocarbons, polycyclic aromatic hydrocarbons, pesticides, polychlorinated biphenyl, PFAS, metals, asbestos, anthropogenic materials, VOCs	Dermal contact Soil Ingestion Dust inhalation Inhalation (asbestos) Management limits Aesthetics	Residents Commercial / industrial workers
AEC03	1 Kenneth Road Underground pit (~10m ² and ~2.0m deep)	Spills / leaks from pit	Petroleum hydrocarbons, VOCs	Dermal contact Soil Ingestion Dust inhalation Inhalation (asbestos) Management limits Aesthetics	Residents Commercial / industrial workers

7 Data Quality Objectives

7.1 Step 1: State the problem

The reason the project is being undertaken, is set out in **Section 1.1** of this report.

The objective of this project is set out in **Section 1.2** of this report.

The project team and technical support experts identified for the project include the Alliance project director, Alliance project manager, Alliance field staff and Alliance's subcontractors.

The design and undertaking of this project will be constrained by the client's financial and time budgets.

The regulatory authorities associated with this project include NSW EPA, the local planning authority, and SafeWork NSW.

7.2 Step 2: Identify the decision / goal of the study

The decisions that need to be made during this project, to address the project objectives, include:

- Is the data collected for the project, suitable for assessing land contamination exposure risks?
- Do the detected concentrations of contaminants of potential concern identified in the CSM, present an unacceptable exposure risk to the receptors identified in the CSM, based on the proposed land use scenario?
- Is the site suitable, in the context of land contamination, for the proposed land use scenario?

7.3 Step 3: Identify the information inputs

The information inputs required to make the decisions for the project set out in **Section 7.2**, include:

- Data obtained during the site history review and site walkover;
- Identification of sample media that needs to be collected, as set out in Section 7.7;
- Parameters that will be measured in each relevant sample, as set out in Section 7.7;
- The analytical methods required for each identified COPC, so that assessment can be made relative to adopted site criteria. These are set out in **Section 7.7** of this report; and

• The site criteria for the media of concern. These criteria are set out in **Table 7.3** and will be adopted based on the proposed land use scenario¹⁵, identified receptors, and site-specific soil and groundwater conditions (where relevant).

Exposure Pathway	Land Use Scenario ¹⁶	Criteria Reference
Human health dermal contact / ingestion / dust inhalation	HIL B - Residential with minimal opportunities for soil access HIL D - Commercial / industrial	Table 1A(1) in NEPC (2013a) Table B4 in Friebel, E & Nadebaum P (2011) Table 2 in HEPA (2020)
Human health inhalation/intrusion	HSL B / Residential B HSL D / Commercial / Industrial D	Table 1A(2) in NEPC (2013a) Table 1A(3) in NEPC (2013a) ¹⁷ Table 1A(4) in NEPC (2013a) Table 1A(5) in NEPC (2013a)
Human health (asbestos)	Residential B Commercial / Industrial D	Table 7 in NEPC (2013a) ¹⁸
Human health (aesthetics)	All	Characteristics and processes in Section 3.6.2 and 3.6.3 in NEPC (2013a)
Management Limits (petroleum hydrocarbons)	Residential, parkland and public open space Commercial / industrial	Table 1B(7) in NEPC (2013a)

Table 7.3 Adopted Tier 1 Site Assessment Screening Criteria

7.4 Step 4: Define the boundaries of the study

The spatial extent of the project will be limited to:

- The boundaries of the site as set out in Section 2 and Figure 2; and
- Physical constraints or infrastructure on site or on land adjacent to the site, that prevents safe and reasonable access for project team members and/or typical and readily available equipment used for projects of this nature. Alliance notes that the ground floor concrete slabs will be present on site during the undertaking of this DSI, which will constrain practical intrusive investigation methods to borehole drilling. Alliance notes that there is a potential for sub surface infrastructure to be present on the site (specifically pits associated with former industrial machinery). On the basis that this infrastructure (if present) will be removed during demolition and removal of existing concrete slabs and associated footings, it is not the intent of this intrusive investigation to target soils adjacent to or beneath that

¹⁵ The land use scenarios in Section 2.2 of NEPC (2013a) will be considered when adopting human health assessment criteria. The land use scenarios in Section 2.5 of NEPC (2013a) will be considered when adopting ecological assessment criteria.

¹⁶ Consideration will be given to soil type, soil texture, soil depth, groundwater depth and appropriate species protection levels.

¹⁷ Secondary school buildings should be assessed using the Residential A / Residential B HILs for vapour intrusion purposes.

¹⁸ A depth of up to 10cm below ground level is adopted to define 'surface soil'.

infrastructure. It is considered by Alliance that collecting contamination assessment data following the exposing and removal of that infrastructure, is an appropriate methodology.

The scale of the decisions required (as set out in **Section 7.2**) will be based on the boundaries of the site set out in **Section 2** and **Figure 2**.

The vertical and lateral extents of investigation will be limited to the distribution of contamination assessed in the CSM (refer **Section 6.6**), based on the CSM, which are likely to be:

- The inferred vertical extent of each identified AEC, likely to be to the base of fill material in those AEC, to ~1m below the base of belowground infrastructure; and
- The inferred lateral boundaries of each identified AEC.

The time and budget constraints of this project will be as per those set out in the contract (and any subsequent variations to that contract) between the client and Alliance.

The temporal boundaries of the project will include:

- Availability of project team members (including subcontractors and subconsultants) to collect and assess relevant project data;
- The availability of site access to undertake fieldwork; and
- Meteorological conditions including heat, cold, wind, rain and snow, which may constrain undertaking of fieldwork, or may affect the quality of the data being collected.

7.5 Step 5: Develop the analytical approach

7.5.1 Field Duplicates and Triplicates

A minimum of one set of field duplicates and triplicates will be collected for each set of 20 samples collected (an equivalent of 5%), excluding asbestos samples.

Where PFAS is a contaminant of concern, a minimum of one set of field duplicates and triplicates will be collected for each set of 10 samples collected (an equivalent of 10%).

Field duplicate and triplicate samples will be collected by splitting one bulk sample across three separate sample containers. Soil samples will not be homogenised, particularly where volatile or semi volatile COPC are being considered.

Analysis of the duplicate samples and triplicate samples will be scheduled based on at least one of the analytes that the relevant parent sample is being analysed for.

The relative percent difference (RPD) of the detected concentrations in the parent and duplicate, and the parent and triplicate, will be calculated, and the result compared to the relevant data quality indicator (DQI), as set out in **Section 7.5.6**.
7.5.2 Trip Spikes and Trip Blanks

One trip spike and one trip blank will be used for each day of sampling¹⁹.

A minimum of one trip spike and one trip blank will be scheduled for BTEX analysis, during the project, provided the sample preservation, handling, transport and storage procedures used are the same for each day of sampling undertaken.

7.5.3 Equipment Rinsate Blanks

One rinsate blank will be used for each day of sampling²⁰.

A minimum of one rinsate blank will be scheduled for analysis for at least one of the COPC, during the project, provided sample collection and equipment decontamination procedures are the same for each day of sampling.

Analysis of the rinsate blank will be based on at least one of the analytes that the parent sample is being analysed for (excluding asbestos).

7.5.4 Field Blanks

One field blank will be used for each day of sampling²¹.

A minimum of field blank will be scheduled for PFAS analysis, during the project, provided the sample collection procedures used are the same for each day of sampling undertaken.

7.5.5 Analytical Laboratory Quality Assurance and Quality Control

The primary analytical laboratory will:

- be NATA accredited for the methods used; and
- use a quality assurance and quality control (QA/QC) program that will typically include analysis of method blanks, matrix spikes, surrogate spikes, laboratory control samples and laboratory duplicates.

The primary analytical laboratory will report on whether the analytical results of the QA/QC program are within the criteria set out in the laboratory's adopted data quality objectives.

7.5.6 Data Quality Indicators

¹⁹ When samples are being collected on that day, that will be analysed for BTEX and/or TRH C₆-C₁₀.

²⁰ Only where non-disposable sampling equipment is being used on that day.

²¹ When samples are being collected on that day, that will be analysed for PFAS.

A set of data quality indicators (DQI) will be adopted for assessing the completeness, comparability, representativeness, precision and bias (accuracy) of data collected during fieldwork, the analytical data produced by the laboratory. Each of these DQI, and associated target criteria are set out in **Table 7.5.6**.

Table 7.5.6.	Data	Quality	Indicators	and	Target	Criteria

Completeness						
Field Considerations	Target Criteria	Laboratory Considerations	Target Criteria			
Experienced sampling team used	Yes	Complete sample receipt advice and chain of custody attached	Yes			
Sampling devices and equipment set out in sampling plan were used (refer Section 7.7).	Yes	Critical samples identified in sampling plan, analysed	Yes			
Critical locations in sampling plan, sampled (refer Section 7.7).	Yes	Analysis undertaken addresses COPC in sampling plan (refer Section 7.7)	Yes			
Critical samples in sampling plan, collected (refer Section 7.7).	Yes	Analytical methods reported in laboratory documentation and appropriate limit of reporting used	Yes			
Completed field and calibration logs attached	Yes	Sample holding times met (refer Section 7.7)	Yes			
Completed chain of custody attached	Yes					

Comparability					
Field Considerations	Target Criteria	Laboratory Considerations	Target Criteria		
Same sampling team used for all work.	Yes	Same laboratory used for all analysis (refer Section 7.7).	Yes		
Weather conditions suitable for sampling.	Yes	Comparable methods if different laboratories used Refer Section 7.7).	Yes		
Same sample types collected and preserved in same way (refer Section 7.7).	Yes	Comparable limits of reporting if different laboratories used.	Yes		
Relevant samples stored in insulated containers and chilled (refer Section 7.7).	Yes	Comparable units of measure if different laboratories have been used (refer Section 7.7).	Yes		

Representativeness					
Field Considerations	Target Criteria	Laboratory Considerations	Target Criteria		
Media identified in sampling plan, sampled (refer Section 7.7).	Yes	Samples identified in sampling plan, analysed.	Yes		
Samples required by sampling plan, collected (refer Section 7.7).	Yes				

Precision			
Field Considerations	Target Criteria	Laboratory Considerations	Target Criteria
Minimum 5% duplicates and triplicates collected and analysed (refer Section 7.5).	Yes	All laboratory duplicate RPDs within laboratory acceptance criteria (refer Section 7.5).	Yes
Minimum 10% duplicates and triplicates collected and analysed where PFAS is a contaminant of concern (refer Section 7.5 .	Yes		
RPD unlimited where detected concentrations are <10 times the limit of reporting.	Yes		
RPD within 50% where detected concentrations are 10-20 times the limit of reporting.	Yes		
RPD within 30% where detected concentrations are >20 times the limit of reporting.	Yes		

Bias (Accuracy)						
Field Considerations	Target Criteria	Laboratory Considerations	Target Criteria			
Trip blank analyte results less than limit of reporting (refer Section 7.5).	Yes	Laboratory method blank results within laboratory acceptance limits (refer Section 7.5).	Yes			
Trip spike analyte results less between 60% and 140% (refer Section 7.5).	Yes	Laboratory control sample results within laboratory acceptance limits (refer Section 7.5).	Yes			
Rinsate blank analyte results less than limit of reporting (refer Section 7.5).	Yes	Laboratory spike sample results within laboratory acceptance limits.	Yes			
Field (PFAS) blank analyte results less than limit of reporting (refer Section 7.5).	Yes					

7.5.7 If / Then Statements

If the field and laboratory analytical dataset meets the DQI target assessment criteria, then the data may be considered adequately complete, comparable, representative, precise and unbiased, for the purpose of addressing the decisions / goals of this project as set out in **Section 7.2**.

If the field and laboratory analytical dataset does not meet the DQI target assessment criteria, then additional data may need to be collected to address gaps identified in the data.

If the field and laboratory analytical results are within the adopted land contamination assessment criteria (refer **Section 7.3**), then it may be assessed that identified land contamination at the site does not present an unacceptable human health and/or ecological exposure risk.

If the field and laboratory analytical results are outside adopted land contamination assessment criteria (refer **Section 7.3**), then it may be assessed that identified land contamination at the site presents an unacceptable human health and/or ecological exposure risk, or that supplementary site specific qualitative / quantitative risk assessment may be required.

7.6 Step 6: Performance and Acceptance Criteria

7.6.1 If / Then Decisions

There are two types of decision error:

- Sampling errors these occur when the sampling program does not adequately detect variability of a contaminant from point to point across a site. That is, the samples collected are not representative of site conditions (e.g. an appropriate number of representative samples have not been collected from each stratum to account for estimated variability in that contaminant); and
- Measurement errors these occur during sample collection, preparation, analysis and reduction of data.

During land contamination assessment, these errors can result in either:

- a Type I error, where land contamination human health and/or ecological exposure risks are considered to be acceptable, when they are not acceptable; or
- a Type II error, where land contamination human health and/or ecological exposure risks are considered to be unacceptable, when they are acceptable.

For decision rules to be sound, they should be designed to mitigate risk of decision errors occurring. The risk of decision error on this project will be mitigated by:

- Ensuring fieldwork is undertaken by suitably experienced field staff and sub-contractors, with reference to the DQO adopted for this project;
- Ensuring laboratory analysis is undertaken by NATA accredited laboratories; and
- Ensuring assessment of field and laboratory analytical data is undertaken by suitably experienced environmental consultants and/or outsourcing assessment to technical experts (if warranted).

7.7 Step 7: Develop the plan for obtaining data

7.7.1 Sampling Point Densities and Locations

Table A in NSW EPA (1995) provides guidance on minimum sampling point densities required for characterising a site, based on detecting circular hot spots, by using a systematic sampling pattern. Application of sampling densities in Table A can be appropriate when:

- There is little knowledge about the probable locations of the contamination;
- The distribution of the contamination is expected to be random (e.g. landfill sites); or
- The distribution of the contamination is expected to be fairly homogenous (e.g. agricultural lands).

Section 3.1 of NSW EPA (1995) advises that judgemental or stratified sampling methods can be used if there is sufficient information about the probable distribution of the contamination.

Section 6.2.1 in NEPC (2013b) advises that judgemental sampling and the selection of samples (number, location, timing, etc) should be based on knowledge of the site and professional judgement. In these instances, sampling would be expected to be localised to known or potentially contaminated areas identified from knowledge of the site either from the site history or an earlier phase of laned contamination assessment. Judgemental sampling can be used to investigate sub-surface contamination issues in site assessment.

Section 4.1 and Table 1 of WA DOH (2009) provides guidance on asbestos in soil sampling densities (in-situ and stockpiles), relative to the likelihood of asbestos being present on the site, based on assessment of site history. However, as the site is covered by hardstand materials including concrete slabs, use of an excavator to dig test pits (preferred method set out in WA DOH (2009) for asbestos in soil assessment) is not considered feasible, and so alternative methods need to be adopted, still using density guidance provided in WA DOH (2009).

Section 5.3 of HEPA (2020) requires site specific PFAS related sampling to take into account:

- the features of the surrounding land;
- that some environmental media act as temporary or permanent PFAS sinks, for example, PFAS concentrations in sediments in surface water bodies (including drainage lines) are important to consider when assessing contaminant transport via wastewater and surface water pathways; and
- other known or potential sources of PFAS contamination.

The scope of this project has included collection of data that provides an understanding of:

- site history;
- the locations of potentially contaminated areas;
- the identified COPC;
- laydown mechanisms for COPC in each AEC;

- the likely lateral and vertical extent of potential contamination in each AEC; and
- constraints on site which may restrict the use of certain sampling techniques (including presence of concrete slabs and potential subsurface infrastructure).

On that basis, it is considered reasonable to adopt a systematic grid based, using the sampling point densities set out in **Table 7.7.1** and **Figure 4**.

ID	AEC	Sampling Point ID	Method	Target Depth (m bgl)
AEC01	1 Kenneth Road Footprint (~550m² and ~1.0m thick)	BH01-BH05	Borehole (push tube)	1.5m, 0.3m into natural, or practical refusal
AEC02	265 Condamine Street Footprint (~900m ² and ~1.0m thick)	BH06-BH11	Borehole (push tube)	1.5m, 0.3m into natural, or practical refusal
AEC03	1 Kenneth Road Underground pit (~10m ² and ~2.0m deep)	BH05	Borehole (push tube)	2.5m, 0.3m into natural, or practical refusal

Table 7.7.1 Sampling Point Densities and Locations

7.7.2 Sampling Methods

7.7.2.1 Soils

Soil samples will be collected from each relevant sampling point, at the surface, and at regular intervals thereafter, or where there is a change in lithology, or where there is visual/olfactory evidence of potential contamination.

On the basis that:

- guidance in WA DOH (2009) recommends the use of test pits or test trenches for quantitative assessment of asbestos in soils; and
- site features (concrete slabs) are constraining the intrusive investigation methodology to drilled boreholes using push tube augers,

the sampling method for assessing potential asbestos in soils will be preliminary in nature and qualitative only (sampling for presence / absence of asbestos), and that quantitative assessment of asbestos in soils (with reference to relevant guidance in WA DOH (2009) may be required at a later stage.

Samples will be submitted to a NATA accredited laboratory for analysis.

7.7.2.2 Groundwater

Alliance notes that:

• intrusive groundwater assessment is not proposed in this investigation; and

• the need for intrusive groundwater assessment will be considered subject to the findings of this DSI, should the post DSI conceptual site model identify a potential source-pathway-receptor linkage that has not been addressed in this DSI.

7.7.3 Decontamination

Non-disposable sampling equipment will be decontaminated between sampling points to mitigate potential for cross contamination of samples. Decontamination will include the following procedure:

- Washing off the non-disposable sampling equipment with a solution of potable water and phosphate free detergent (e.g. Decon 90), noting that Decon 90 will not be used on equipment used for collection of samples that will be analysed for PFAS compounds;
- Rinsing the washed equipment with distilled or de-ionised water; and
- Air drying of the rinsed equipment.

7.7.4 Headspace Screening

When COPC identified for the site include volatiles (e.g. BTEX, TRH or VOC), collected soil samples will be subjected to headspace screening for ionisable volatile organic compounds, using a calibrated photoionisation detector (PID) fitted with a 10.6 eV lamp. A sub sample from each collected sample will be placed in a zip lock bag, sealed, and shaken. Each zip lock bag will then be pierced with the tip of a PID, and the results recorded on the relevant sampling point borehole or test pit log.

7.7.5 Sample Identification, Handling, Storage and Transport

Soil samples will be identified using the relevant Alliance project number, the sampling point identification number and the sampling depth interval (e.g. BH01/0.0-0.2 or TP05/0.5-0.7), and date the sample was collected.

Surface water samples will be identified using the relevant Alliance project number, the sampling point identification number (e.g. SW01) and date the sample was collected.

Samples will be placed in laboratory prepared containers (containing preservatives as appropriate), bulk sample bags and zip lock bags. Soil, water and vapour samples will be stored in insulated containers with ice.

Where PFAS is a contaminant of concern, samples will be placed in polypropylene of HDPE containers (and not glass containers with lined lids) and stored in separate insulated containers to those containing non PFAS samples.

Where PFAS is a contaminant of concern, insulated containers will be chilled using double bagged ice, and not reusable freezer blocks or gel packs.

Samples will be transported to the relevant analytical laboratory by Alliance or a third-party courier, using chain of custody (COC) documentation.

7.7.6 Selection of Laboratory

The analytical laboratories used for this project will reputable industry recognised environmental laboratories, that are NATA accredited for the analytical methods used.

7.7.7 Scheduling of Laboratory Analysis

Collected samples will be scheduled for laboratory analysis based on:

- The COPC identified for the AEC the sample was collected from;
- Observations made of the sample when collected (including staining, odour, presence of anthropogenic materials, and presence of potential asbestos containing materials);
- The results of sample headspace screening (if applicable); and
- The need for specific qualitative or quantitative data to inform assessment of risk associated with other laboratory analytical data (e.g. pH, cation exchange capacity, clay content, organic carbon content).

The laboratory analytical schedule (including upper limiting sample quantities) adopted for this project, is set out in **Table 7.7.7**.

ID	AEC	Sampling Point ID								
			ткн / втех	РАН	оср	PCB	Metals (8)	Asbestos (0.01%)	PFAS (long suite)	VOCs
AEC01 and AEC03	1 Kenneth Road Footprint (~550m ² and ~1.0m thick)	BH01-BH05	5	10	5	5	10	5	5	5
AEC02	265 Condamine Street Footprint (~900m ² and ~1.0m thick)	BH06-BH11	6	12	6	6	12	6	6	6
and AEC03 AEC02	Footprint (~550m ² and ~1.0m thick) 265 Condamine Street Footprint (~900m ² and ~1.0m thick)	BH06-BH11	5	10	6	5	10	5	5	

Table 7.7.7 Schedule of Laboratory Analysis

7.7.8 Analytical Methods, Limits of Reporting and Holding Times

The analytical methods, limits of reporting and sample holding times adopted for this project, are set out in **Table 7.7.8**.

Analyte	Method	Limit of Reporting (mg/kg)	Limit of Reporting (µg/L)	Holding Time
BTEX and TRH C ₆ -C ₁₀	USEPA 5030, 8260B and 8020	0.2-0.5	1-2 and 50	14 days
TRH C ₁₀ -C ₄₀	USEPA 8015B & C	20-100	50-500	14 days
VOC	USEPA 8260	0.1-0.5	-	14 days
PAH	USEPA 8270	0.1-0.2	0.5-10	14 days
PCB	USEPA 8270	0.2	-	14 days
OCP	USEPA 8081	0.2	-	14 days
Metals (Hg and Cr ^{vi})	USEPA 8015B & C	0.05-2	0.1-5	6 months (28 days)
PFAS Extended Suite	In house based on USEPA 537 V1.1	5µg/kg	0.01-0.05	14 days (soils), 28 days (waters)
Asbestos ID	AS4926	Absence / presence	-	No limit

Table 7.7.8 Analytical Methods, Limits of Reporting and Holding Times

8 Fieldwork

8.1 Soils

8.1.1 Sampling

Soil sampling works were undertaken on 19 November 2021 by suitably experienced Alliance environmental consultants (Jacob Walker with assistance from Anya Palaversich).

These works included:

- Undertaking a survey of each sampling point by a service locating contractor for buried metallic services;
- Drilling of 11 soil bores (BH01 to BH11) using a track mounted drilling rig fitted with push tubes.

Soil samples were collected at each sampling point, at the surface and at regular intervals thereafter, or at depths where visual or olfactory evidence of contamination was encountered.

Samples were collected directly from the push tube liner, using a fresh pair of nitrile gloves.

A grid-based walkover of the surface of the site, was undertaken for the purpose of assessing the presence of visible asbestos in surface soils.

Samples were placed in suitable laboratory prepared containers and labelled. Samples collected for PFAS assessment, were placed in PFAS specific containers provided by the laboratory.

Boreholes were backfilled with excess drill cuttings and clean sand, and the core replaced.

Duplicate and triplicate samples were collected by splitting the primary sample across three sample containers (without homogenising, to avoid loss of volatiles).

Rinsate samples were collected following decontamination of re-usable sampling equipment, by pouring deionised water across the equipment and collecting the runoff in laboratory prepared sample containers.

A trip spike, trip blank and field blank were used for each day of fieldwork.

Samples were placed in insulated containers with ice. Samples collected for PFAS analysis were stored in separate insulated containers used for other samples, with ice.

Sampling point locations were confirmed on a site plan. The sampling point location plan is presented in **Figure 4.**



Image 8.1.1.1 View of 265 Condamine Street portion of the site

Image 8.1.1.2 View of drill rig at 1 Kenneth Road portion of the site



8.1.2 Site Specific Geology

Observations made of the soils encountered during intrusive investigation works on site, were recorded on relevant field logs. A copy of those logs is presented in **Appendix A**.

A summary of those observations, in the context of subsurface conditions at the site, is presented in Table 8.1.2. Table 8.1.2. Site Specific Geology

Unit	Description	Depth (m bgs)
Pavement	Concrete	0.0-0.2
Fill	Clayey SAND/Sandy CLAY, fine to coarse grained, brown, with trace fibrous fabric (only in BH03), very dense, moist	0.2-0.7
Natural	SAND w/ trace clay, pale brown/yellow, very dense, moist	0.7-1.0
Rock	SANDSTONE, , weathered	1.0-1.5

Image 8.1.2.1 View of borehole BH05 soil stratigraphy



Image 8.1.2.2 View of borehole BH03 soil stratigraphy



8.1.3 Soil Staining and Odours

Visual evidence of staining was not observed in the soil samples collected.

Olfactory evidence of odours was not detected in the soil samples collected.

8.1.4 Headspace Screening

Sample headspace screening was undertaken, by placing a sub sample from each relevant sample at each relevant sampling point, in a zip lock bag, sealing it, shaking it, then piercing the bag with the tip of the PID and the results recorded on the relevant field log. The results of the headspace screening are presented in the logs in **Appendix A**.

The results of the headspace screening indicated the potential for ionisable volatile organic compounds (VOC) to be present in the samples screened was generally low.

A copy of the calibration certificate for the PID is presented in **Appendix D**.

8.1.5 Asbestos Containing Materials and Fibrous Asbestos

Evidence of visual asbestos in surface soils was not observed during a grid-based walkover of the site, due to the site being covered by hardstand materials.

10L bulk soil samples were not able to be collected due to soil access constraints posed by the concrete slab across the site and the use of boreholes instead of test pits.

Visual evidence of potential asbestos containing materials (ACM) was encountered:

• At sampling points BH03 (0.5m), in the form of fibrous fabric.

A sample of this potential ACM was collected as FRAG01.

9 Laboratory Analysis

The collected samples were transported to the analytical laboratory using chain of custody (COC) protocols. A selection of those samples were scheduled for laboratory analysis, taking into consideration the laboratory analytical schedule presented in **Table 7.7.7**, observations made in the field, and the results of field and headspace screening.

A copy of the COC, sample receipts and certificates of analysis, is presented in Appendix B.

The relevant laboratory analytical results were tabulated and presented in the attached Table LR1 and Table LR2, to allow comparison with assessment criteria adopted for this project.

10 Data Quality Indicator (DQI) Assessment

In order to assess the quality of the field and laboratory analytical data collected for this project, that data was compared against the data quality indicators (DQI) established for this project (refer **Section 7.5.6**).

The results of that comparison is presented in **Appendix C**.

The DQI comparison results indicate that the field and laboratory data are adequately complete, comparable, representative, precise and unbiased (accurate), with in the context and objectives of this project.

11 Site Characterisation Discussion

11.1 Exposure Pathways

11.1.1 Human Health

11.1.1.1 Dermal Contact / Ingestion / Dust Inhalation

The detected concentrations of the relevant COPC in the soil samples analysed, were less than the adopted human health dermal contact, ingestion and dust inhalation assessment criteria, with the exception of:

• a concentration of chromium in sample BH03/1.4-1.6 (1,100mg/kg), which indicates a potential for an exceedance of the criterion of 500mg/kg.

It is noted that the concentration of chromium detected in the soil sample analysed, is for total chromium, whereas the adopted screening criterion is for hexavalent chromium (which only forms part of total chromium). Based on the detected concentrations of chromium in soils collected and analysed from the Kenneth Road portion of the site, including other samples collected from BH03 and analysed, the chromium concentration detected at BH03/1.4-1.6 would appear to be associated with the metal observed in the fill soils at that depth, rather than associated with former commercial / light industrial activities being undertaken on that portion of the site;

Alliance notes that speciation analysis of chromium valences can be undertaken to understand proportion of trivalent and hexavalent chromium in a sample, however project time and budget constraints, and client direction, constrained speciation from being undertaken.

Consequently, Alliance undertook a qualitative risk assessment of the elevated detection of chromium. Based on level survey data for the site, the detected concentration of chromium in soil is located at a nominal reduced level of 15m Australian Height Datum (AHD). The proposed development for the site includes basement excavation works to a nominal reduced level of 9m AHD. Given the nature and extent of the basement excavation, Alliance considers the soils containing the elevated concentration of chromium would be removed from site, and not present an unacceptable risk of exposure to identified site receptors. On that basis, further assessment of the elevated chromium concentration in soil in the context of this project, is considered not warranted. However, it is noted that the elevated concentration of chromium may influence waste classification of those fill soils, in the context of offsite disposal of basement excavation materials.

Concentrations of trichloroethene (also known as trichloroethylene or TCE) were detected in soil samples BH10-0.1-0.3 (0.6 mg/kg) & BH11-0.1-0.3 (0.9 mg/kg), collected towards the south-east corner of the site. While the potential for TCE to have been present in the fill soil prior to placement is plausible, the historical commercial / light industrial use of this portion of the site does not preclude the TCE being detected as a result of leaks or spills of solvent (containing TCE) during site activities. A preliminary review of recent (post demolition) aerial photography of the portion of the site where BH10 is located, suggests significant staining on the surface of the concrete. It is plausible that this staining may be related to degreasing of plant or equipment, using a TCE based solvent.

The concentration of TCE in fill soils in samples collected from the remaining four boreholes on this portion of the site, were less than the laboratory limit of reporting, indicating TCE is not widespread in fill soils across this portion of the site. Alliance understands that Tier 1 screening criteria for TCE in soil (as opposed to soil vapour) have not been published in Australia. Consequently, Alliance considered regional screening levels (RSLs) published online by United States Environmental Protection Agency (USEPA) at https://www.epa.gov/risk/regional-screening-levels-rsls. Alliance accessed the online RSLs on 15 December 2021 for the purpose of adopting a RSL as a Tier 1 screening criterion for this project, assuming a target cancer risk (TR) of 10⁻⁶ and a target hazard quotient (THQ) of 1.0 (both of which are considered adequately conservative) and both a residential and industrial land use scenario (given the mixed use of the proposed development). The adopted RSL published as at November 2021 for TCE was 0.94mg/kg in soil for residential and 6mg/kg for commercial. Based on these screening criterion, the detections of TCE in the samples from shallow fill soils, are unlikely to present an unacceptable risk to receptors identified for the site.

The laboratory analytical results for the two samples containing detectable concentrations of TCE, did not indicate a potential for measurable degradation of the TCE in soil into its anaerobic daughter products (cis-1,2-dichloroethene, trans-1,2-dichloroethene and vinyl chloride, each of which were reported at less than the laboratory limit of reporting in the samples analysed).

Field screening for odours and headspace screening for volatiles did not indicate a potential for TCE contamination to be present in deeper soils at sampling points BH10 and BH11. However, project time and budget constraints, and client direction, constrained analysis of deeper samples at these two locations to assist with assessing potential for vertical migration of the TCE into deeper fill soils and/or the underlying sandstone. The potential for TCE to be present in deeper soils, or to have migrated into groundwater underlying the site, cannot not be precluded, and warrants further assessment.

It is noted that a data gap exists with respect to soils in the immediate vicinity of the pit associated with a historical press on the Kenneth Road portion of the site (AEC03). The data obtained from BH05 did not indicate a likelihood for widespread or gross contamination associated with the pit, however, it is considered reasonable that further assessment of AEC03 be undertaken, following demolition and removal of the pit structure.

11.1.1.2 Fibrous Asbestos / Asbestos Fines & Asbestos Containing Materials

Evidence of visible asbestos in surface soils was not observed during fieldwork, due to the site surface being covered with hardstand materials.

A piece of fabric, suspected of containing asbestos, was encountered during sampling, specifically within fill materials at BH03. Laboratory analysis of the fabric confirmed the presence of asbestos.

Asbestos was identified by laboratory analysis, in the sample of suspected fibrous asbestos (FA).

The fabric encountered was considered to be friable, on the basis that the material was visibly similar to a woven fabric, and the asbestos did not appear to be bound in a secure matrix.

The sampling point where the asbestos was detected, is presented graphically in Figure 5.

Alliance undertook a qualitative risk assessment of the detected asbestos. Based on level survey data for the site, the detected asbestos is located at a nominal reduced level of 15m Australian Height Datum (AHD). The proposed development for the site includes basement excavation works to a nominal reduced level of 9m AHD. Given the nature and extent of the basement excavation, Alliance considers the soils containing the asbestos would be removed from site, and not present an unacceptable risk of exposure to identified site receptors. It is considered likely that a similar scenario regarding asbestos in soils would apply across the balance of the site, given the depth of fill material encountered in each of the 11 boreholes drilled, and the proposed depth of basement excavation across the site.

However, it is noted that the detection of asbestos may influence waste classification of those fill soils, in the context of offsite disposal of basement excavation materials.

Further assessment of ACM and fibrous asbestos / asbestos fines in soil human health exposure risks is considered not warranted.

11.1.2 Management Limits for Petroleum Hydrocarbons

The detected concentrations of the relevant COPC in the soil samples analysed, were less than the adopted management limits for petroleum hydrocarbon assessment criteria.

11.1.3 Aesthetics

Visual and olfactory observations made of soils encountered during fieldwork, indicated the presence of some localised concrete gravels, tile fragments and metal fragments in fill soils. Section 3.6.3 of NEPC (2013a) advises that:

- Small quantities of non-hazardous inert material should not be a cause of concern or limit the use of the site in most circumstances;
- Sites with large quantities of well-covered known inert materials that present no health hazard such as brick fragments and concrete wastes (for example, broken cement blocks) are usually of low concern for both non-sensitive and sensitive land uses.

Further assessment of aesthetic risks is considered not warranted.

12 Revised Conceptual Site Model

Consistent with guidance provided in Section 4.2 of NEPC (2013b), the conceptual site model (CSM) presented in **Section 6.6** has reviewed to reflect the data collected during this project, and subsequent assessment of that data against the screening criteria adopted for this project.

An updated CSM is presented in **Table** Error! Reference source not found.. The locations of the AEC c onsidered in the CSM, are presented in **Figure 3**.

Table 12	Revised	Conceptual	Site Model
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ID	AEC	Land Contaminating Activity (Source)	COPC	Exposure Pathway	Receptor	Outcome
AEC01	1 Kenneth Road Footprint (~550m ² and ~1.0m thick)	Uncontrolled filling, uncontrolled demolition, termite treatment, historic commercial / light industrial use of the site (potential engineering and metal fabrication)	Petroleum hydrocarbons, polycyclic aromatic hydrocarbons, pesticides, polychlorinated biphenyl, PFAS, metals, asbestos, anthropogenic materials, VOCs	Dermal contact Soil Ingestion Dust inhalation Inhalation (asbestos) Management limits Aesthetics	Residents Commercial / industrial workers	The field and laboratory analytical data for site soils were generally less than or equal the adopted Tier 1 screening criteria, Soils containing an elevated concentration of chromium and a detection of asbestos, are expected to be removed from site during basement excavation works.
AEC02	265 Condamine Street Footprint (~900m ² and ~1.0m thick)	Uncontrolled filling, termite treatment, historic commercial / light industrial use of the site (potential metal fabrication)	Petroleum hydrocarbons, polycyclic aromatic hydrocarbons, pesticides, polychlorinated biphenyl, PFAS, metals, asbestos, anthropogenic materials, VOCs	Dermal contact Soil Ingestion Dust inhalation Inhalation (asbestos) Management limits Aesthetics	Residents Commercial / industrial workers	The field and laboratory analytical data for site soils were less than or equal the adopted Tier 1 screening criteria. However, a data gap related to the detection of TCE in soils in the south- eastern portion of the site, warrants further assessment.
AEC03	1 Kenneth Road Underground pit (~10m ² and ~2.0m deep)	Spills / leaks from pit	Petroleum hydrocarbons, VOCs	Dermal contact Soil Ingestion Dust inhalation Inhalation (asbestos) Management limits Aesthetics	Residents Commercial / industrial workers	A data gap exists in AEC03 (pit associated with former press machinery) which requires further assessment, following demolition and removal of the pit structure.

13 Duty to Report Contamination

Section 1.3 of NSW EPA (2020b) states that contaminated land consultants should take reasonable steps to draw the client's attention to its potential duty to report contamination under section 60 of the Contaminated Land Management Act 1997.

Section 2 in NSW EPA (2015) includes guidance on how to address reporting obligations under section 60 of the Contaminated Land Management Act 1997, including those parties required to notify EPA as soon as practical after they become aware of contamination. Those parties include:

- Anyone whose activities have contaminated land; or
- An owner of land that has been contaminated.

Alliance understands that the client is:

- not the occupier of the land, and as a consequence, is unlikely to have undertaken activities on the site that have contaminated the land, or
- not the owner of the land that may have been contaminated

On that basis, further assessment of the duty to report in the context of the guidance provided in NSW EPA (2015) is considered not warranted.

However, if the client was to become the owner and/or occupier of the land that the site is located on, and

- the client undertakes activities on the site that contaminates the land; or
- the client is the owner of the land that may have been contaminated;

then NSW EPA (2015) includes guidance on when the client should seek further advice about site contamination and its obligations regarding the duty to report. Additional information on the client's duty to report can be found at www.epa.nsw.gov.au.

14 Conclusions and Recommendations

Based on the assessment undertaken by Alliance of site history information, fieldwork observations and data, and laboratory analytical data, in the context of the proposed land use scenario and objectives of this project, Alliance has made the following conclusions:

- Detected concentrations of contaminants of potential concern, would not present an unacceptable human health exposure risk, to future commercial / industrial workers and residents, in the context of the proposed development (which includes basement excavation works across the site);
- There are matters that have been identified that need to be addressed, specifically:
 - Characterisation of soils in the immediate vicinity of the pit associated with the former press equipment on the Kenneth Road portion of the site. Data collected during this project does not suggest a potential for significant or gross soil contamination to be associated with the pit, and the matter can be addressed following demolition of the pit structure and basement excavation works;
 - The potential for vertical migration of trichloroethene (TCE) into deeper soils and/or groundwater on the Condamine Street portion of the site. The concentrations detected in shallow fill soils on site were less than the adopted screening criterion, however there is potential for TCE contamination to be present in deeper soils and/or groundwater. This can be addressed after demolition and removal of the concrete slab, but prior to excavation of soils for the basement;
- The site can be made suitable for the proposed combined land use scenario:
 - Residential with minimal opportunities for soil access including dwellings with fully and permanently paved yard space such as high-rise buildings and flats; and
 - o Commercial / industrial such as shops, offices, factories, and industrial sites.

subject to removal of localised chromium and asbestos impacted fill soils in the Kenneth Road portion of the site, addressing the identified matters, and managing unacceptable contamination risks that may be identified in relation to those matters.

• Specific assumptions that apply to the adopted land use scenarios, are presented in **Section 6** of this report.

Based on those conclusions, Alliance makes the following recommendations:

- Addressing the matters that have been identified, should be undertaken by a suitably experienced environmental consultant;
- A suitably experienced environmental consultant should be engaged to verify that the chromium and asbestos impacted fill soils are removed from site during basement excavation and construction works;
- A waste classification for the soils to be excavated during site redevelopment works, needs to be prepared, prior to offsite disposal.

This report must be read in conjunction with the *Important Information About This Report* statements at the front of this report.

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FIGURES



Figure Date:	15 November 2021	
Report Number:	14144-ER-1-1	



Scale: 10 m		Site Layout	
	Client Name:	Co-ordinate Projects Pty Ltd	
alliance	Project Name:	Detailed Site Investigation	
	Project Location:	1 Kenneth Road & 265 Condamine Street, Manly Vale NSW	

Figure Number:	2	
Figure Date:	15 November 2021	
Report Number:	14144-ER-1-1	





Scale: 10 m		Areas of Environmental Concern	
	Client Name:	Co-ordinate Projects Pty Ltd	
ollionce	Project Name:	Detailed Site Investigation	
	Project Location:	1 Kenneth Road & 265 Condamine Street, Manly Vale NSW	
C 1 002 Day 1 0 (10/01/2021)			

Figure Number:	3	
Figure Date:	15 November 2021	
Report Number:	14144-ER-1-1	



Scale: 10 m		Sampling Point Layout Plan	
	Client Name:	Co-ordinate Projects Pty Ltd	
ollionce	Project Name:	Detailed Site Investigation	
	Project Location:	1 Kenneth Road & 265 Condamine Street, Manly Vale NSW	

16-1-003 Rev 1.0 (18/01/2021)

Figure Number:	4	
Figure Date:	15 November 2021	
Report Number:	14144-ER-1-1	



	Client Name:	Co-ordinate Projects Pty Ltd	
ollionce	Project Name:	Detailed Site Investigation	
	Project Location:	1 Kenneth Road & 265 Condamine Street, Manly Vale NSW	

Figure Number:	5	
Figure Date:	9 December 2021	
Report Number:	14144-ER-1-1	IN IN



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Client Name:	Co-ordinate Projects Pty Ltd	
Project Name:	Detailed Site Investigation	
Project Location:	1 Kenneth Road & 265 Condamine Street, Manly Vale NSW	

Figure Number:	6	
Figure Date:	9 December 2021	
Report Number:	14144-ER-1-1	IN IN

TABLES

able LR1 Kenneth I oil Result	Road & 265 Condamine Street, Manly Vale NSW s & Adopted Site Criteria													San Ref Date Si	rple ID 8H01-0 erence S21-No empled 29/11,	0.5-0.7 BH01- 62499 S21-N /2021 19/11	1.4-1.6 B 662500 Si /2021 1	102-0.1-0.3 BH02-1 1-No62501 S21-No 9/11/2021 19/11/	0-1.2 BH02-1.4-1. 2502 S21-No6250 021 19/11/2021	6 BH03-0.1-0.3 3 521-No62504 19/11/2021	BH03-1.4-1.6 \$21-No62505 19/11/2021	FRAG01 BH03-1.5 21-No62523 S21-No62 19/11/2021 19/11/2	2.1 BH04-0.1-0.3 506 521-No62507 21 19/11/2021	8H04-1.0-1.2 521-No62508 19/11/2021	BH04-2.2-2.4 521-No62509 19/11/2021	8H04-2.7-2.9 321-No62510 29/11/2021	8H05-0.1-0.3 8H 321-No62511 521 19/11/2021 15	105-1.5-1.7 BH06-0.1- 1-No62512 S21-No62 9/11/2021 19/11/20	1.3 BH06-1.0-1.2 13 S21-No62514 1 19/11/2021	8H07-0.1-0.3 521-No62515 19/11/2021	BH08-0.1-0.3 521-No62516 19/11/2021	BH09-0.1-0.2 521-No62517 19/11/2021	BH10-0.1-0.3 BH11 S21-No62518 S21-1 19/11/2021 19/:	1-0.1-0.3 BH1 No62519 S21- /11/2021 19
4144-ER-1	4		S Dir	creaning Lavels for act Contact (mg/kg) - CRC Care 2011	Inhalation Intrusion HS NEPC 201	n /Vapour SLs (mg/kg) - H3 (SAND)	Inhalation / Vap HSLs (mg/kg) (CL/	pour Intrusion) - NEPC 2013 AY)	Management Li Fractions F1 - F4 i NEPC :	mits for TPH 1 soil (mg/Kg) - 1013	ESLs for TPH P BTEX and Benzo 2013 / CRC	actions F1 - F4, a(pyrene - NEPC Care 2020	Health Investigation Levels for Soil Contaminants - NEPC 2013	Sample	Matrix So	a 5	lic	Soli Sol	Sell	Soll	Soll	Fragment Soli	Soll	Soil	Sall	Soll	Soll	Soli Soli	Soli	Soll	Soll	Soil	Soll	Sol
Group	Ansiyte	Unita	POL	- B Residential (High Density)	HSLASHS High density 0 m to <1 m	SLB - Low - v Residential 1 m to <2 m	HSLA&HSLB demaity Re 0 m to ≺1 m	5 - Low - High esidential 1 m to <2 m	Residential, Parki Open S Coarse Soli Textur	Fine Soll Texture	Urban Residentia So Coarse Soll Texture	and Public Open ce Fine Soil Texture	Residential B	Data Set Dat Minimum Maai	a Set Inun																			
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	Zinc, Zn Acensphthens Acensphthylens	mgikg mgikg mgikg	5.0 0.5 0.5						-	-			60,000 - -	<5 23 <0.5 < <0.5 <	00 17 0.5 <0 0.5 <0	10 < 1.5 <1 1.5 <1	5 0.5 0.5	38 9 < 0.5 < 0. < 0.5 < 0.	<5 5 <0.5 5 <0.5	92 < 0.5 < 0.5	3300 < 0.5 < 0.5	- <5 - <0.5 - <0.5	140 < 0.5 < 0.5	< 5 < 0.5 < 0.5	130 < 0.5 < 0.5	< 5 < 0.5 < 0.5	1500 < 0.5 < 0.5	330 15 <0.5 <0.5 <0.5 <0.5	40 < 0.5 < 0.5	290 < 0.5 < 0.5	19 < 0.5 < 0.5	< 5 < 0.5 < 0.5	9.7 < 0.5 < 0.5	15 < 0.5 < 0.5
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	Disenzo(ah)anthracene Fluoranthene Fluorene	mgikg mgikg mgikg	0.5							-		-		<0.5 < <0.5 2 <0.5 <	0.5 < 0 2 2 0.5 < 0	1.5 <1 t <1 1.5 <1	0.5 0.5 0.5	<0.5 <0. <0.5 <0. <0.5 <0.	5 <0.5 5 <0.5 5 <0.5	<0.5 <0.5 <0.5	<0.5 <0.5 <0.5	- <0.5 - <0.5 - <0.5	<0.5 <0.5 <0.5	<0.5 <0.5 <0.5	<0.5 <0.5 <0.5	< 0.5 < 0.5 < 0.5	<0.5 <0.5 <0.5	<0.5 <0.5 <0.5 <0.5 <0.5 <0.5	<0.5 <0.5 <0.5	<0.5 2.2 <0.5	<0.5 <0.5 <0.5	<0.5 <0.5 <0.5	<0.5 < <0.5 < <0.5 <	< 0.5 < 0.5 < 0.5
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	TRH C10-014 TRH C15-028 TRH C29-036 TRH C29-036 TRH C5-0	mgikg mgikg mgikg	50 50 20						-	-				<20 < <50 7 <50 2 <20 <	20 < 2 20 9 10 < 5 20 < 2	0 50 20		< 50 - < 50 - < 20 -			730 210 < 20			< 50 < 50 < 20			<20 52 <50 <20	· <50 · <50 · <50		<20 82 <50 <20	< 50 < 50 < 20	< 50 < 50 < 20	<20 140 <50 <20	< 50 < 50 < 20
TRH	Naphthalene TRH >C19-C16 (F2) TRH >C19-C16 (F2) - Naphthalene	mgikg mgikg mgikg	0.5 50 50	2,200 4,200	3 110	NL - 240	5 280 -	NL NL	- 1,000 -	1,000 -	- 120 -	- 120 -	-	<0.5 < <50 < <50 <	0.5 <0 50 <3 50 <3	1.5 50 50	-	< 0.5 - < 50 - < 50 -	-		<0.5 <50 <50			<0.5 < 50 < 50	-	-	< 0.5 < 50 < 50	- <0.5 - <50 - <50	-	<0.5 <50 <50	< 0.5 < 50 < 50	<0.5 <50 <50	<0.5 < <50 < <50 <	< 0.5 < 50 < 50
	TRH C10-C49 Total (F bands) TRH >C16-C34 (F3) TRH >C34-C40 (F4)	mgikg mgikg mgikg	100 100 100	5,800 8,100					- 2,500 10,000	- 3,500 10,000	- 300 2,890	1,300 5,600		<100 11 <100 11 <100 4	10 14 10 14 10 < 1	10 10 00		< 100 - < 100 - < 100 -	-		1710 1300 410			< 100 < 100 < 100	-	-	120 120 < 100	- <100 - <100 - <100	-	120 120 < 100	< 100 < 100 < 100	<100 <100 <100	250 < 250 < < 100 <	<100 <100 <100
	TRH CE-C10 TRH CE-C10 minus BTEX (F1) Benzene	mgikg mgikg	20 20 0.1	5,600 - 140	45	- 70 0.5	50 0.7	90 1	-	-	-	-		<20 < <20 < <0.1 <	20 <3 20 <3	20	-	< 20 - < 20 -	-		<20 <20			< 20 < 20 ·	-	-	< 20 < 20 ·	· <20 · <20		< 20 < 20 -	< 20 < 20	< 20 < 20 -	< 20 < 20	< 20 < 20 -
BTEX	mlp-xylene o-xylene Toluene	mpikg mpikg mpikg	0.2 0.1 0.1	21,000			400	· · · · · · · · · · · · · · · · · · ·		-	85			<0.2 < <0.1 < <0.1 <	0.2 - 0.1 -		-		-						-	-			-				-	
	Total Xylenea 4.4 - DDD 4.4 - DDE	mgikg mgikg mgikg	0.3 0.05 0.05	17,000	40	60	110	310	-	•	105	45	-	<0.3 <0 <0.05 <0 <0.05 <0	145 <0. 145 <0.	05	-	<0.05 · · · · · · · · · · · · · · · · · · ·	-		< 0.05 < 0.05	· · ·		< 0.05 < 0.05	-	-	< 0.05 < 0.05	<0.05 < 0.05	-	< 0.05 < 0.05	< 0.05 < 0.05	< 0.05 < 0.05	< 0.05 < < 0.05 <	<0.05 <0.05
	4.4 - DDT a - BNC Aldrin e Dialdúr (hatr)	mgikg mgikg	0.05							-			· · · · · · · · · · · · · · · · · · ·	<0.05 <0 <0.05 <0 <0.05 <0	145 <0. 145 <0. 145 <0.	05	-	<0.05 - <0.05 - <0.05 -	-		< 0.05 < 0.05 < 0.05			< 0.05 < 0.05 < 0.05	-	-	< 0.05 < 0.05 < 0.05	- <0.05 - <0.05 - <0.05	-	< 0.05 < 0.05 < 0.05	< 0.05 < 0.05 < 0.05	< 0.05 < 0.05 < 0.05	< 0.05 < < 0.05 < < 0.05 <	<0.05 <0.05 <0.05
	b - BHC	mgikg mgikg mgikg	0.05							-			- - - - -	<0.05 <0 <0.1 <0 <0.05 <0	145 <0. 145 <0. 145 <0.	.05 0.1 .05		<0.05 - <0.1 - <0.05 -			<0.05 <0.1 <0.05			<0.05 <0.1 <0.05			<0.05 <0.1 <0.05	- <0.05 - <0.1 - <0.05		<0.05 <0.1 <0.05	<0.05 <0.1 <0.05	<0.05 <0.1 <0.05	<0.05 < <0.1 4 <0.05 <	<0.05 <0.1 <0.05
	DDT + DDE + DDD (total) Dieldrin Endosulfan 1	mgikg mgikg mgikg	0.05						-			-	033	<0.05 <0 <0.05 <0 <0.05 <0	145 <0. 145 <0. 145 <0.	05 05 05		<0.05 - <0.05 - <0.05 -	-		< 0.05 < 0.05 < 0.05			< 0.05 < 0.05 < 0.05	-	-	<0.05 <0.05 <0.05	- <0.05 - <0.05 - <0.05		< 0.05 < 0.05 < 0.05	< 0.05 < 0.05 < 0.05	< 0.05 < 0.05 < 0.05	< 0.05 < < 0.05 < < 0.05 <	<0.05 <0.05 <0.05
OCP	Endosultan 2 Endosultan sulphate Endris Matematik	mgikg mgikg mgikg	0.05						-	-			- - 20	<0.05 <0 <0.05 <0 <0.05 <0 <0.05 <0	145 <0. 145 <0. 145 <0.	05 05 05	-	<0.05 - <0.05 - <0.05 -	-		<0.05 <0.05 <0.05			<0.05 <0.05 <0.05	-	-	<0.05 <0.05 <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
	Endrin Neterijoe Endrin Ketone 98HC (Lindene) Neptachlor	mgikg mgikg mgikg	0.05							-				<0.05 <0 <0.05 <0 <0.05 <0	145 < 0. 145 < 0. 145 < 0.	05 05 05	-	<0.05 - <0.05 - <0.05 -			< 0.05 < 0.05 < 0.05 < 0.05			< 0.05 < 0.05 < 0.05 < 0.05		-	<0.05 <0.05 <0.05	- <0.05 - <0.05 - <0.05		< 0.05 < 0.05 < 0.05	< 0.05 < 0.05 < 0.05 < 0.05	< 0.05 < 0.05 < 0.05	<0.05 < <0.05 < <0.05 <	<0.05 <0.05 <0.05
	Heptachior e poxide Hexachiorobenzene Methoxychior	mgikg mgikg mgikg	0.05 0.05 0.05						-	-			- 15 500	<0.05 <0 <0.05 <0 <0.05 <0	145 <0. 145 <0. 145 <0.	05 05 05	-	< 0.05 - < 0.05 - < 0.05 -			< 0.05 < 0.05 < 0.05			< 0.05 < 0.05 < 0.05	-	-	< 0.05 < 0.05 < 0.05	- <0.05 - <0.05 - <0.05		< 0.05 < 0.05 < 0.05	< 0.05 < 0.05 < 0.05	< 0.05 < 0.05 < 0.05	< 0.05 < < 0.05 < < 0.05 <	<0.05 <0.05 <0.05
	Toxaphene Vic EPA IWRG 621 OCP Stotal) Vic EPA IWRG 621 Other OCP (total)	mgikg mgikg	1.0 0.1 0.1							-		-	-	<0.5 < <0.1 < <0.1 <	0.5 <0 0.1 <0 0.1 <0	1.5 1.1	-	<0.5 - <0.1 - <0.1 -	-		<0.5 <0.1 <0.1			<0.5 <0.1 <0.1	-	-	<0.5 <0.1 <0.1	- <0.5 - <0.1 - <0.1	-	<0.5 <0.1 <0.1	<0.5 <0.1 <0.1	<0.5 <0.1 <0.1	<0.5 < <0.1 < <0.1 <	< 0.5 < 0.1 < 0.1
	Apra + sets Enossumen Perfluorobutanoix add (PPBA) Perfluorodecanoix add (PPDA) Perfluorodecanoix add (PPDA) Perfluorodecanoix add (PPDA)	mgikg mgikg mgikg	0.005										-		.005 < 0.0 .005 < 0.0	005		<0.005 · · · · · · · · · · · · · · · · · ·			< 0.005 < 0.005 < 0.005					-	< 0.005 < 0.005 < 0.005	<0.005 <0.005 <0.005		< 0.005 < 0.005 < 0.005	< 0.005 < 0.005 < 0.005	< 0.005 < 0.005 < 0.005	< 0.005 <1 < 0.005 <1 < 0.005 <1	0.005
	Perflsoroheptanoic acid (PPNpA) Perflsorohexanoic acid (PPNxA) Perflsorononanoic acid (PPNA)	mgikg mgikg mgikg	0.005						-	-			• •	<0.005 <0 <0.005 <0 <0.005 <0	005 < 0.0 005 < 0.0 005 < 0.0	005	-	< 0.005 - < 0.005 - < 0.005 -			< 0.005 < 0.005 < 0.005					-	< 0.005 < 0.005 < 0.005	- <0.005 - <0.005 - <0.005		< 0.005 < 0.005 < 0.005	< 0.005 < 0.005 < 0.005	< 0.005 < 0.005 < 0.005	< 0.005 <1 < 0.005 <1 < 0.005 <1	0.005
	Perfluorooctanoic acid (PF0A) Perfluoropentanoic acid (PFPAA) Perfluorotetradecanoic acid (PFFeDA) Perfluorotetradecanoic acid (PFFeDA)	mgikg mgikg mgikg	0.005	20				-		-			· · ·	<0.005 <0 <0.005 <0 <0.005 <0 <0.005 <0	.005 < 0.0 .005 < 0.0 .005 < 0.0	005		<0.005 - <0.005 - <0.005 -			< 0.005 < 0.005 < 0.005			-	-	-	< 0.005 < 0.005 < 0.005	- <0.005 - <0.005 - <0.005		< 0.005 < 0.005 < 0.005	< 0.005 < 0.005 < 0.005	< 0.005 < 0.005 < 0.005	<0.005 <1 <0.005 <1 <0.005 <1	0.005
	Perfluoroundecanoic acid (PFUnDA) Perfluoroundecanoic acid (PFUnDA) 2(N-ethylperfluoro-1-octane auffonamido)-ethanol (N-EEFOSE) 2(N-methylperfluoro-1-octane auffonamido)-ethanol (N-MeFOSE)	mgikg mgikg mgikg	0.005							-				<0.005 <0 <0.005 <0 <0.005 <0	.005 < 0.0 .005 < 0.0 .005 < 0.0	005		<0.005 - <0.005 - <0.005 -			< 0.005 < 0.005 < 0.005					-	< 0.005 < 0.005 < 0.005 < 0.005	- <0.005 - <0.005 - <0.005		<0.005 <0.005 <0.005	< 0.005 < 0.005 < 0.005	< 0.005 < 0.005 < 0.005	<0.005 <1 <0.005 <1 <0.005 <1	0.005
PFAS	N-sthylperfluoro-1-octane sulfonamide (N-EtFOSA) N-sthyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	mgikg mgikg mgikg	0.005						-	-		-	-	<0.005 <0 <0.01 <0 <0.005 <0	.005 <0.0 101 <0. .005 <0.0	005		<0.005 - <0.01 - <0.005 -			< 0.005 < 0.01 < 0.005				-	-	< 0.005 < 0.01 < 0.005	- <0.005 - <0.01 - <0.005		<0.005 <0.01 <0.005	<0.005 <0.01 <0.005	< 0.005 < 0.01 < 0.005	<0.005 <1 <0.01 < <0.005 <1	0.005
	N-methyl-partiluorooctaneaulfonamidoacetic acid (N-MetFOSAA) Perfluorooctaneaulfonamide (FOSA) Perfluorobutaneaulfonic acid (PFBS) Partiluorobutaneaucifonic acid (PFBS)	mgikg mgikg mgikg	0.01						-	-		-		<0.01 <0 <0.005 <0 <0.005 <0 <0.005 <0	101 < 0. 005 < 0.1 005 < 0.1 005 < 0.1	01 005 005 005		<0.01 - <0.005 - <0.005 -	-		< 0.01 < 0.005 < 0.005					-	< 0.01 < 0.005 < 0.005	- <0.001 - <0.005 - <0.005		< 0.01 < 0.005 < 0.005	<0.01 <0.005 <0.005	< 0.01 < 0.005 < 0.005	<0.01 < <0.005 <1 <0.005 <1	0.01 0.005 0.005
	Perfluorobeptanesulforic acid (PFNpS) Perfluorobeptanesulforic acid (PFNpS) Perfluorobexanesulforic acid (PFNS)	mg/kg mg/kg mg/kg	0.005							-				<0.005 <0 <0.005 <0 <0.005 <0	.005 < 0.0 .005 < 0.0 .005 < 0.0	005		<0.005 - <0.005 - <0.005 -			< 0.005 < 0.005 < 0.005					-	< 0.005 < 0.005 < 0.005 < 0.005	- <0.005 - <0.005 - <0.005		<0.005 <0.005 <0.005	< 0.005 < 0.005 < 0.005	< 0.005 < 0.005 < 0.005	<0.005 <1 <0.005 <1 <0.005 <1	0.005
	Perfluorooctanesulfonic acid (PFOS) Perfluoropentanesulfonic acid (PFPeS) Perfluoropropanesulfonic acid (PFPrS)	mgikg mgikg mgikg	0.005						-	-		-	-	<0.005 <0 <0.005 <0 <0.005 <0	.005 < 0.0 .005 < 0.0 .005 < 0.0	005		< 0.005 - < 0.005 - < 0.005 -	-		< 0.005 < 0.005 < 0.005					-	< 0.005 < 0.005 < 0.005	- <0.005 - <0.005 - <0.005		<0.005 <0.005 <0.005	< 0.005 < 0.005 < 0.005	< 0.005 < 0.005 < 0.005	<0.005 <1 <0.005 <1 <0.005 <1	0.005 0.005 0.005
	Sum (PFHxS + PFOS)" Sum of enHealth PFAS (PFHxS + PFOS + PFOA)" Sum of IFFASs (n=30)" Sum of IIF FAB EFAS (IFFOS + PFOA)"	mgikg mgikg mgikg	0.005											<0.005 <0 <0.005 <0 <0.05 <0 <0.05 <0	005 < 0.0 005 < 0.0 145 < 0.0	005		<0.005 - <0.005 - <0.005 -	-		< 0.005 < 0.005 < 0.05		-		-	-	< 0.005 < 0.005 < 0.05	- <0.005 - <0.005 - <0.005		<0.005 <0.005 <0.05	< 0.005 < 0.005 < 0.05	< 0.005 < 0.005 < 0.05	<0.005 <1 <0.005 <1 <0.05 <1	0.005
	Sum of WA DWER PFAS (n=10)* Aroclor-1016 Aroclor-1221	mgikg mgikg mgikg	0.01						-	-		-		<0.01 <0 <0.1 < <0.1 <	101 < 0 0.1 < 0 0.1 < 0	01	-	<0.01 - <0.1 - <0.1 -			<0.01 <0.1 <0.1			<0.1 <0.1		-	<0.01 <0.1 <0.1	- <0.01 - <0.1 - <0.1		<0.01 <0.1 <0.1	<0.01 <0.1 <0.1	<0.01 <0.1 <0.1	<0.01 < <0.1 < <0.1 <	<0.1 < 0.1 < 0.1
PCB	Aroclor-1232 Aroclor-1242 Aroclor-1248	mgikg mgikg	0.1 0.1 0.1							-		-		<0.1 < <0.1 < <0.1 <	0.1 <0 0.1 <0 0.1 <0	0.1 0.1	-	<0.1 - <0.1 - <0.1 -	-		<0.1 <0.1 <0.1			<0.1 <0.1 <0.1	-	-	<0.1 <0.1 <0.1	- <0.1 - <0.1 - <0.1	-	<0.1 <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
	Aroclor-1254 Aroclor-1250 Total PCB* 1.1.27Etrachtemethana	mgikg mgikg mgikg	0.1 0.1 0.1 0.5										-	<0.1 < <0.1 < <0.1 <	81 <0 81 <0 81 <0 81 <0	0.1 0.1 0.5		<0.1	-		<0.1 <0.1 <0.1			<0.1 <0.1 <0.1	-	-	<0.1 <0.1 <0.1	- <0.1 - <0.1 - <0.1		<0.1 <0.1 <0.1	<0.1 <0.1 <0.5	<0.1 <0.1 <0.1	<0.1 < <0.1 < <0.1 <	<0.1 <0.1 <0.1
	1.1.1-Trichloroethane 1.1.2.3-Tetrachloroethane 1.1.2-Trichloroethane	mgikg mgikg mgikg	0.5				-		-	-		-	· · · · · · · · · · · · · · · · · · ·	<0.5 < <0.5 < <0.5 <	0.5 < 0 0.5 < 0 0.5 < 0	1.5 1.5		< 0.5 - < 0.5 - < 0.5 -	-		<0.5 <0.5 <0.5			<0.5 <0.5 <0.5	-	-	<0.5 <0.5 <0.5	- <0.5 - <0.5 - <0.5	-	<0.5 <0.5 <0.5	<0.5 <0.5 <0.5	<0.5 <0.5 <0.5	<0.5 < <0.5 < <0.5 <	< 0.5 < 0.5 < 0.5
	1.1-Dichloroethane 1.1-Dichloroethene 1.2.3-Trichloropropane	mgikg mgikg	0.5							-		-		<0.5 < <0.5 < <0.5 <	0.5 <0 0.5 <0 0.5 <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 <0.5 <0.5	<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-Chinesyloarcese 1.2-Okhoroberzene 1.2-Okhoro	mgikg mgikg mgikg	0.5						-	-				<0.5 < <0.5 < <0.5 <	05 <0 05 <0 05 <0 05 <0	1.5 1.5 1.5		<0.5 - <0.5 - <0.5 -			<0.5 <0.5 <0.5			<0.5 <0.5 <0.5			<0.5 <0.5 <0.5	- <0.5 - <0.5 - <0.5		<0.5 <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-Dichloropropane 1.3-5-Trime®ytberzene 1.3-Dichlorobenzene	mgikg mgikg mgikg	0.5 0.5 0.5						-	-			-	<0.5 < <0.5 < <0.5 <	0.5 <0 0.5 <0 0.5 <0	1.5 1.5	-	< 0.5 - < 0.5 - < 0.5 -			<0.5 <0.5 <0.5			<0.5 <0.5 <0.5	-	-	<0.5 <0.5 <0.5	- <0.5 - <0.5 - <0.5		<0.5 <0.5 <0.5	< 0.5 < 0.5 < 0.5	<0.5 <0.5 <0.5	< 0.5 + < 0.5 + < 0.5 +	< 0.5 < 0.5 < 0.5
	1.3-Dichloropropane 1.4-Dichlorobenzene 2-Butanone (MEK)	mgikg mgikg mgikg	0.5 0.5 0.5							-		-		<0.5 < <0.5 < <0.5 <	0.5 <0 0.5 <0 0.5 <0	1.5 1.5	-	< 0.5 - < 0.5 - < 0.5 -	-		<0.5 <0.5 <0.5			<0.5 <0.5 <0.5	-	-	<0.5 <0.5 <0.5	- <0.5 - <0.5 - <0.5	-	<0.5 <0.5 <0.5	< 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-Propanone (Acstone) 4-Chicrotolusene 4-Methyl-2-pentanone (MIBK) Allvi -/brukin	mgikg mgikg mgikg	0.5											<0.5 < <0.5 < <0.5 <	0.5 <0 0.5 <0 0.5 <0 0.5 <0	1.5		<0.5 - <0.5 - <0.5 -			<0.5 <0.5 <0.5			<0.5 <0.5 <0.5		-	<0.5 <0.5 <0.5	- <0.5 - <0.5 - <0.5		<0.5 <0.5 <0.5	<0.5	<0.5 <0.5 <0.5	<0.5 < <0.5 < <0.5 <	<0.5 <0.5 <0.5
	Brozene Bromobenzene Bromochloromethane	mpikg mpikg mpikg	0.1 0.5 0.5	140 - -	0.5	0.5	0.7	1	-	-	50	65		<0.1 < <0.5 < <0.5 <	0.1 < 0 0.5 < 0 0.5 < 0	0.1 0.5	-	<0.1 - <0.5 - <0.5 -	-		<0.1 <0.5 <0.5			<0.1 <0.5 <0.5	-	-	<0.1 <0.5 <0.5	- <0.1 - <0.5 - <0.5		<0.1 <0.5 <0.5	< 0.1 < 0.5 < 0.5	<0.1 <0.5 <0.5	<0.1 < <0.5 < <0.5 <	< 0.1 < 0.5 < 0.5
	Brom odichloromethane Brom oform Brom ome thane	mgikg mgikg mgikg	0.5 0.5 0.5							-		-		<0.5 < <0.5 < <0.5 <	0.5 <0 0.5 <0 0.5 <0	1.5 1.5	-	< 0.5 - < 0.5 - < 0.5 -	-		<0.5 <0.5 <0.5			<0.5 <0.5 <0.5	-	-	<0.5 <0.5 <0.5	- <0.5 - <0.5 - <0.5		<0.5 <0.5 <0.5	< 0.5 < 0.5 < 0.5	<0.5 <0.5 <0.5	< 0.5 < < 0.5 < < 0.5 <	< 0.5 < 0.5 < 0.5
voc	Carbon disutités Carbon Tetrachloride Chlorobenzene	mgikg mgikg mgikg mgikg	0.5			· ·								<0.5 < <0.5 < <0.5 <	05 <0 05 <0 05 <0	1.5		<0.5 - <0.5 - <0.5 -			<0.5 <0.5 <0.5			<0.5 <0.5 <0.5	-	-	<0.5 <0.5 <0.5	- <0.5 - <0.5 - <0.5		<0.5 <0.5 <0.5	<0.5 <0.5 <0.5	<0.5 <0.5 <0.5	<0.5 < <0.5 < <0.5 <	<0.5 <0.5 <0.5
	Chloroform Chloromethane cis-1.2-Dichloroethene	mpikg mpikg mpikg	0.5 0.5 0.5						-	-			-	<0.5 < <0.5 < <0.5 <	0.5 <0 0.5 <0 0.5 <0	1.5 1.5	-	< 0.5 - < 0.5 - < 0.5 -	-		<0.5 <0.5 <0.5			<0.5 <0.5 <0.5	-	-	<0.5 <0.5 <0.5	- <0.5 - <0.5 - <0.5		<0.5 <0.5 <0.5	<0.5 <0.5 <0.5	<0.5 <0.5 <0.5	<0.5 < <0.5 < <0.5 <	< 0.5 < 0.5 < 0.5
	cls-1.3-Dichloropropans Dibromochloromethane Dibromomethane	mpikg mpikg mpikg	0.5							-				<0.5 < <0.5 < <0.5 <	0.5 < 0 0.5 < 0 0.5 < 0	1.5 1.5	T	< 0.5 - < 0.5 - < 0.5 -	-		<0.5 <0.5 <0.5		-	<0.5 <0.5 <0.5			<0.5 <0.5 <0.5	- <0.5 - <0.5 - <0.5		<0.5 <0.5 <0.5	<0.5 <0.5 <0.5	<0.5 <0.5 <0.5	<0.5 <	<0.5 <0.5 <0.5
	Unine use Millorene en anne Ethy be raze ne lodomethane Mooproy L'extra en (Cumene)	mgikg mgikg mgikg	0.1 0.5 0.5	5,900	55	NL	NL	NL			70	125		<0.1 < <0.5 < <0.5 <	01 <0 05 <0 05 <0	1.1 1.5 1.5		<0.1 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0			<0.1 <0.5 <0.5		-	<0.1 <0.5 <0.5	-		<0.1 <0.5 <0.5	- <0.5 - <0.1 - <0.5 - <0.5	-	<0.5 <0.5 <0.5	<0.1 <0.5 <0.5	<0.1 <0.5 <0.5	<0.1 < <0.5 <	<0.1 <0.5 <0.5
	m&p-Xylenes Methylene Chloride o-Xylene	mgikg mgikg mgikg	0.2 0.5 0.1						-	•				<0.2 < <0.5 < <0.1 <	0.2 < 0 0.5 < 0 0.1 < 0	1.2 1.5 1.1		< 0.2 - < 0.5 - < 0.1 -			<0.2 <0.5 <0.1			<0.2 <0.5 <0.1	-	-	<0.2 <0.5 <0.1	- <0.2 - <0.5 - <0.1		<0.2 <0.5 <0.1	<0.2 <0.5 <0.1	<0.2 <0.5 <0.1	<0.2 <0.5 <0.1	<0.2 <0.5 <0.1
	Styrene Tetrachioroethene Toluene Toluene	mgikg mgikg mgikg	0.5	21,000	160		400	NL			85	105		<0.5 < <0.5 < <0.1 <	0.5 <0 0.5 <0 0.1 <0	1.5 1.5 1.1		<0.5			<0.5 <0.5 <0.1			<0.5 <0.5 <0.1			<0.5 <0.5 <0.1	<0.5 - <0.5 - <0.1		<0.5 <0.5 <0.1	<0.5 <0.5 <0.1	<0.5 <0.5 <0.1	<0.5 < <0.5 < <0.1 <	<0.5 <0.5 <0.1
	trans-1.2-Dichloroethens trans-1.2-Dichloropropens Trichloroethens	mgikg mgikg mgikg	0.5						-				-	<0.5 < <0.5 < <0.5 <	05 <0 05 <0 05 <0 09 <0	1.5 1.5 1.5		<0.5			<0.5 <0.5 <0.5			<0.5 <0.5 <0.5			<0.5 <0.5 <0.5	- <0.5 - <0.5 - <0.5		<0.5 <0.5 <0.5 <0.5	<0.5 <0.5 <0.5 <0.5	<0.5 <0.5 <0.5	<0.5 < <0.5 < 0.6	<0.5 <0.5 0.9
	Trichlorofluoromethane Vic EPA IWRG 621 CHC (Total)' Vic EPA IWRG 621 Other CHC (Total)'	mgikg mgikg mgikg	0.5 0.5 0.5							-		-	-	<0.5 < <0.5 0 <0.5 0	0> 20 0> 0> 0 0> 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 <0.5 <0.5	<0.5 <0.5 <0.5	<0.5 <0.5 <0.5	< 0.5 4 0.6 0.6	<0.5 0.9 0.9
Asbestos	Vinyl chloride Xylanas - Total Asbestos (absence)presence)	mgikg mgikg %w/w	0.5 0.3 0.01%	17,000 Detected	40	60 -	110	310	-	-	105	45		<0.5 < <0.3 <	0.5 <0 0.3 <0 - N	15 13 D		< 0.5 · · · · · · · · · · · · · · · · · · ·			<0.5 <0.3 ND	Detected -		<0.5 <0.3 ND	-		<0.5 <0.3 ND	- <0.5 - <0.3 - ND		< 0.5 < 0.3 ND	< 0.5 < 0.3 ND	<0.5 <0.3 ND	< 0.5 < < 0.3 < ND	<0.5 <0.3 ND
	Highlighted concentration exceeds the adopted alite criteria - Screening Highlighted concentration exceeds the adopted size criteria - Inhalation / Vapour i	Levels for D ntrusion HSLs (Nrect Contact (mg/kg) - NEPC	t (mg/kg) - CRC Care 3 2013 (SAND)	011																													

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KH11.0 5.0 7	DUP01	DUR02	DUP01A	DUP024											
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14		< 5		4											
6.3		10		425											
< 0.1		<0.1		0.2 - 2											
6.6 < 0.5	< 0.5	< 5	- 0.5	237											
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Table LR2 1 Kenneth Ro	ad & 265 Condamine Street, Manly Vale NSW		Sample ID Reference	BH05-0.1-0.3 S21-No62511	DUP01 S21-No62521		BH05-0.1-0.3 S21-No62511	DUP01A ES2143965001	1	BH09-0.1-0.2 S21-No62517	DUP02 S21-No62528		BH09-0.1-0.2 S21-No62517	DUP02A ES2143088001	
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RPD Table 14144-ER-1-1			Date Sampled Sample Matrix	19/11/2021 Soil	19/11/2021 Soil		19/11/2021 Soil	19/11/2021 Soil		19/11/2021 Soil	19/11/2021 Soil		19/11/2021 Soil	19/11/2021 Soil	
Group	Analyte Arsenic	Units mg/kg	LOR 2	3.3		RPD (%)	3.3	-	RPD (%)	< 2	< 2	RPD (%) #VALUE!	< 2	<5	RPD (%) #VALUE!
	Cadmium Chromium	mg/kg	0.4	1.6		-	1.6			< 0.4	< 0.4	#VALUE!	< 0.4	<1	#VALUE!
Metals	Copper	mg/kg	5	13	-		13	-		< 5	< 5	#VALUE!	< 5	18	#VALUE!
	Mercury	mg/kg	0.1	< 0.1			< 0.1	-	1	< 0.1	< 0.1	#VALUE!	< 0.1	0.2	#VALUE!
	Nickel Zinc	mg/kg mg/kg	5 5	< 5 1500			< 5 1500	-		< 5 < 5	< 5 < 5	#VALUE!	< 5 < 5	<2 237	#VALUE!
	Perfluorobutanoic acid (PFBA) Perfluorodecanoic acid (PEDA)	ug/kg	0.005	< 0.005	< 0.005	#VALUE!	< 0.005	-		< 0.005	< 0.005	#VALUE! #VALUE!	< 0.005	· ·	
	Perfluorododecanoic acid (PFDoDA)	ug/kg	0.005	< 0.005	< 0.005	#VALUE!	< 0.005	-		< 0.005	< 0.005	#VALUE!	< 0.005	-	-
	Perfluoroheptanoic acid (PFHpA) Perfluorohexanoic acid (PFHxA)	ug/kg ug/kg	0.005	< 0.005	< 0.005	#VALUE!	< 0.005	-	-	< 0.005	< 0.005	#VALUE!	< 0.005		-
	Perfluorononanoic acid (PFNA)	ug/kg	0.005	< 0.005	< 0.005	#VALUE!	< 0.005	-		< 0.005	< 0.005	#VALUE!	< 0.005		-
	Perfluorooctanoic acid (PFOA) Perfluoropentanoic acid (PFPeA)	ug/kg ug/kg	0.005	< 0.005	< 0.005	#VALUE!	< 0.005			< 0.005	< 0.005	#VALUE!	< 0.005	-	-
	Perfluorotetradecanoic acid (PFTeDA)	ug/kg	0.005	< 0.005	< 0.005	#VALUE!	< 0.005			< 0.005	< 0.005	#VALUE!	< 0.005		-
	Perfluoroundecanoic acid (PFUnDA)	ug/kg ug/kg	0.005	< 0.005	< 0.005	#VALUE!	< 0.005	-		< 0.005	< 0.005	#VALUE!	< 0.005	-	-
	2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	ug/kg	0.005	< 0.005	< 0.005	#VALUE!	< 0.005	-	-	< 0.005	< 0.005	#VALUE!	< 0.005		-
	N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/kg	0.005	< 0.005	< 0.005	#VALUE!	< 0.005	-		< 0.005	< 0.005	#VALUE!	< 0.005	-	-
PFAS	N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/kg ug/kg	0.01	< 0.01	< 0.01	#VALUE!	< 0.01	-	-	< 0.01	< 0.01	#VALUE!	< 0.01		-
	N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/kg	0.01	< 0.01	< 0.01	#VALUE!	< 0.01	-		< 0.01	< 0.01	#VALUE!	< 0.01		-
	Perfluorooctane sultonamide (FOSA) Perfluorobutanesulfonic acid (PFBS)	ug/kg ug/kg	0.005	< 0.005	< 0.005	#VALUE!	< 0.005			< 0.005	< 0.005	#VALUE!	< 0.005	-	-
	Perfluorodecanesulfonic acid (PFDS)	ug/kg	0.005	< 0.005	< 0.005	#VALUE!	< 0.005			< 0.005	< 0.005	#VALUE!	< 0.005		-
	Perfluorohexanesulfonic acid (PFHpS)	ug/kg ug/kg	0.005	< 0.005	< 0.005	#VALUE!	< 0.005	-	-	< 0.005	< 0.005	#VALUE!	< 0.005	-	-
	Perfluorononanesulfonic acid (PFNS)	ug/kg	0.005	< 0.005	< 0.005	#VALUE!	< 0.005	-	-	< 0.005	< 0.005	#VALUE!	< 0.005		-
	Perfluoropentanesulfonic acid (PFPeS)	ug/kg	0.005	< 0.005	< 0.005	#VALUE!	< 0.005	-	-	< 0.005	< 0.005	#VALUE!	< 0.005	-	-
	Perfluoropropanesulfonic acid (PFPrS) Sum (PFHxS + PFOS)*	ug/kg	0.005	< 0.005	< 0.005	#VALUE!	< 0.005	-	-	< 0.005	< 0.005	#VALUE!	< 0.005	<u> </u>	+ -
	Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	ug/kg	0.005	< 0.005	< 0.005	#VALUE!	< 0.005	-	-	< 0.005	< 0.005	#VALUE!	< 0.005	-	-
	Sum of PFASs (n=30)* Sum of US EPA PFAS (PFOS + PFOA)*	ug/kg ug/kg	0.05	< 0.05	< 0.05	#VALUE! #VALUE!	< 0.05	-	-	< 0.05	< 0.05	#VALUE! #VALUE!	< 0.05	-	-
-	Sum of WA DWER PFAS (n=10)*	ug/kg	0.01	< 0.01	< 0.01	#VALUE!	< 0.01		-	< 0.01	< 0.01	#VALUE!	< 0.01		-
	4.4'-DDD 4.4'-DDE	mg/kg mg/kg	0.05	< 0.05		-	< 0.05			< 0.05	< 0.05	#VALUE!	< 0.05	< 0.05	#VALUE!
	4.4'-DDT a-BHC	mg/kg mg/kg	0.05	< 0.05		-	< 0.05	-		< 0.05	< 0.05	#VALUE! #VALUE!	< 0.05 < 0.05	< 0.05	#VALUE! #VALUE!
	Aldrin Aldrin and Dieldrin (Total)*	mg/kg	0.05	< 0.05	-		< 0.05	-	-	< 0.05	< 0.05	#VALUE!	< 0.05	< 0.05	#VALUE!
	b-BHC	mg/kg	0.05	< 0.05		-	< 0.05			< 0.05	< 0.05	#VALUE!	< 0.05	< 0.05	#VALUE!
	d-BHC	mg/kg	0.1	< 0.05			< 0.1			< 0.1	< 0.1	#VALUE!	< 0.1	< 0.1	#VALUE!
	DDT + DDE + DDD (Total)* Dieldrin	mg/kg mg/kg	0.05	< 0.05			< 0.05	-		< 0.05	< 0.05	#VALUE!	< 0.05	< 0.05	#VALUE!
OCP	Endosulfan I Endosulfan II	mg/kg ma/ka	0.05	< 0.05			< 0.05	-		< 0.05	< 0.05	#VALUE! #VALUE!	< 0.05	< 0.05	#VALUE!
	Endosulfan sulphate	mg/kg	0.05	< 0.05	-	-	< 0.05	-	-	< 0.1	< 0.05	#VALUE!	< 0.1	< 0.05	#VALUE!
	Endrin aldehyde	mg/kg	0.05	< 0.05		-	< 0.05			< 0.1	< 0.05	#VALUE!	< 0.1	< 0.05	#VALUE!
	g-BHC (Lindane)	mg/kg mg/kg	0.05	< 0.05			< 0.05	-		< 0.05	< 0.05	#VALUE!	< 0.05	< 0.05	#VALUE! #VALUE!
	Heptachlor Heptachlor epoxide	mg/kg mg/kg	0.05	< 0.05		-	< 0.05	-		< 0.05	< 0.05	#VALUE! #VALUE!	< 0.05	< 0.05	#VALUE! #VALUE!
	Hexachlorobenzene Methoxychlor	mg/kg mg/kg	0.05	< 0.05	- : -		< 0.05			< 0.05	< 0.05	#VALUE! #VALUE!	< 0.05	< 0.05	#VALUE!
	Toxaphene Vic EPA IWPG 621 OCP (Total)*	mg/kg	1	< 0.5	-	-	< 0.5	-	-	< 0.5	< 0.5	#VALUE!	< 0.5	< 0.5	#VALUE!
	Vic EPA IWRG 621 Other OCP (Total)*	mg/kg	0.1	< 0.1	-		< 0.1	-		< 0.1	< 0.1	#VALUE!	< 0.1	< 0.1	#VALUE!
	Aroclor-1016 Aroclor-1221	mg/kg mg/kg	0.1	< 0.1			< 0.1 < 0.1		-	< 0.1 < 0.1	< 0.1 < 0.1	#VALUE!	< 0.1 < 0.1	-	-
	Aroclor-1232	mg/kg	0.1	< 0.1		-	< 0.1	-	-	< 0.1	< 0.1	#VALUE!	< 0.1		-
PCB	Aroclor-1242 Aroclor-1248	mg/kg mg/kg	0.1	< 0.1			< 0.1			< 0.1	< 0.1	#VALUE!	< 0.1		-
	Aroclor-1254	mg/kg	0.1	< 0.1		-	< 0.1		-	< 0.1	< 0.1	#VALUE! #VALUE!	< 0.1	<u> </u>	
	Total PCB*	mg/kg	0.1	< 0.1	-	-	< 0.1	-	-	< 0.1	< 0.1	#VALUE!	< 0.1	< 0.1	#VALUE!
	TRH C10-C36 Total TRH C10-C14	mg/kg mg/kg	50 20	52 < 20	< 50 < 20	#VALUE! #VALUE!	52 < 20	<100 <50	#VALUE! #VALUE!	< 50 < 20	-		< 50 < 20	-	-
	TRH C15-C28 TRH C29-C36	mg/kg mg/kg	50 50	52 < 50	< 50 < 50	#VALUE! #VALUE!	52 < 50	<100 <100	#VALUE! #VALUE!	< 50 < 50	-	-	< 50 < 50		<u> </u>
	TRH C6-C9 Naphthalene	mg/kg mg/ka	20 0.5	< 20 < 0.5	< 20 < 0.5	#VALUE! #VALUE!	< 20	<10	#VALUE! #VALUE!	< 20	-	-	< 20		-
TRH	TRH >C10-C16 (F2) TRH >C10-C16 (F2) - Naphthalene	mg/kg	50 50	< 50	< 50	#VALUE!	< 50	<50 <50	#VALUE!	< 50	-	-	< 50		-
	TRH C10-C40 Total (F bands) TPH >C16-C34 (F3)	mg/kg	100	120	< 100	#VALUE!	120	<50	#VALUE!	< 100	-	-	< 100		
	TRH >C34-C40 (F4)	mg/kg	100	< 100	< 100	#VALUE!	< 100	<100	#VALUE!	< 100	-	-	< 100		-
-	TRH C6-C10 TRH C6-C10 minus BTEX (F1)	mg/kg	20	< 20	< 20	#VALUE!	< 20	<10	#VALUE!	< 20	-		< 20	-	-
	Acenaphthene Acenaphthylene	mg/kg mg/kg	0.5	< 0.5	< 0.5	#VALUE! #VALUE!	< 0.5	<0.5 <0.5	#VALUE! #VALUE!	< 0.5	-		< 0.5		-
	Anthracene Benzo(a)anthracene	mg/kg mg/kg	0.5	< 0.5	< 0.5	#VALUE! #VALUE!	< 0.5	<0.5 <0.5	#VALUE!	< 0.5 < 0.5	-	-	< 0.5	-	-
	Benzo(a)pyrene Carcinogenic PAHs, BaP TEQ <lor=0< th=""><th>mg/kg TEQ (mg/ka)</th><th>0.5</th><th>< 0.5</th><th>< 0.5 < 0.5</th><th>#VALUE! #VALUE!</th><th>< 0.5 < 0.5</th><th><0.5 <0.5</th><th>#VALUE! #VALUE!</th><th>< 0.5 < 0.5</th><th>-</th><th>-</th><th>< 0.5</th><th></th><th>-</th></lor=0<>	mg/kg TEQ (mg/ka)	0.5	< 0.5	< 0.5 < 0.5	#VALUE! #VALUE!	< 0.5 < 0.5	<0.5 <0.5	#VALUE! #VALUE!	< 0.5 < 0.5	-	-	< 0.5		-
	Carcinogenic PAHs, BaP TEQ <lor=lor Carcinogenic PAHs, BaP TEQ <lor=lor 2<="" th=""><th>TEQ (mg/kg) TEQ (mg/kg)</th><th>0.5</th><th>0.6</th><th>0.6</th><th>0</th><th>0.6</th><th>0.6</th><th>0</th><th>0.6</th><th>-</th><th>-</th><th>0.6</th><th>-</th><th>-</th></lor=lor></lor=lor 	TEQ (mg/kg) TEQ (mg/kg)	0.5	0.6	0.6	0	0.6	0.6	0	0.6	-	-	0.6	-	-
	Benzo(b&j)fluoranthene Benzo(dpi)perviene	mg/kg	0.5	< 0.5	< 0.5	#VALUE!	< 0.5	<0.5	#VALUE!	< 0.5	-	-	< 0.5	- :	-
PAH	Benzo(k)fluoranthene	mg/kg	0.5	< 0.5	< 0.5	#VALUE!	< 0.5	<0.5	#VALUE!	< 0.5	-		< 0.5	<u> </u>	<u> </u>
	Dibenzo(ah)anthracene	mg/kg mg/kg	0.5	< 0.5	< 0.5 < 0.5	#VALUE! #VALUE!	< 0.5 < 0.5	<0.5 <0.5	#VALUE! #VALUE!	< 0.5 < 0.5	-	-	< 0.5 < 0.5		-
	Fluoranthene Fluorene	mg/kg mg/kg	0.5	< 0.5 < 0.5	< 0.5 < 0.5	#VALUE! #VALUE!	< 0.5 < 0.5	<0.5 <0.5	#VALUE! #VALUE!	< 0.5 < 0.5	-	-	< 0.5 < 0.5	<u> </u>	<u> </u>
	Indeno(1,2,3-cd)pyrene Naphthalene	mg/kg mg/kg	0.5	< 0.5	< 0.5 < 0.5	#VALUE!	< 0.5	<0.5 <0.5	#VALUE!	< 0.5 < 0.5	-	-	< 0.5		-
	Phenanthrene Pyrene	mg/kg	0.5	< 0.5	< 0.5	#VALUE!	< 0.5	<0.5	#VALUE!	< 0.5	-	-	< 0.5	- :	-
	Total PAH (18)	mg/kg	0.5	< 0.5	< 0.5	#VALUE!	< 0.5	<0.5	#VALUE!	< 0.5	-	-	< 0.5	<u> </u>	-
	Ethylbenzene	mg/kg	0.1	< 0.1	< 0.1	#VALUE!	< 0.1	<0.2	#VALUE!	< 0.1	-	-	< 0.1		1
BTEX	o-xylene	mg/kg	0.2	< 0.2	< 0.2	#VALUE!	< 0.2	<0.5	#VALUE!	< 0.2	-	-	< 0.2	<u> </u>	<u> </u>
	Total Xylenes	mg/kg mg/kg	0.1	< 0.1 < 0.3	< 0.1 < 0.3	#VALUE! #VALUE!	< 0.1 <0.3	<0.5 <0.5	#VALUE! #VALUE!	< 0.1 < 0.3	-	-	< 0.1 < 0.3		-

RPD exceeding criteria RPD not exceeding criteria #VALUE Primary, Duplicate or Triplicate less than LOR and/or not analysed

APPENDIX A – Logs



Client: Co-ordinate Projects Pty Ltd

Alliance Geotechnical Pty Ltd T: 1800 288 188

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E:

W: www.allgeo.com.au

BH No: BH01 Sheet: 1 of 1 Job No: 14144

Started: 19/11/2021 Finished: 19/11/2021 Project: Detailed Site Investigation Location: 1 Kenneth Road & 265 Condamine Street, Manly Vale & Street Refer to Figure 4 Borehole Size: 0.5 mm Rig Type: Geoprobe 6 Series Hole Coordinates E, N Driller: Stratacore Logged: JW/AP RL Surface: m Contractor: Bearing: ---Checked: CAC Classification Symbol Consistency/ Density Index Samples Graphic Log Condition Material Description Tests Additional Observations Method Water Remarks RL Depth (m) (m) FILL: SAND and crushed concrete: grey, orange with black gravels, dry. No potential ACM, odours or 00 0.0-0.2m PID: staining noted. Push tube 1.2ppm FILL: SAND: orange/black/red/white, moist with some tile fragments noted. М No potential ACM, odours or staining noted. _ 0.5 0.5-0.7m PID: 1.5ppm 1.0 No potential ACM, odours or staining noted. SC Clayey SAND: grey/pale brown, becoming weathered sandstone, white/red/orange, Μ moist. 1.4-1.6m PID: 1.5 0.9ppm 2.0 Target depth. Borehole BH01 terminated at 2m 1. NON CORED BOREHOLE 14144.GPJ GINT STD AUSTRALIA.GDT 15/12/21 2<u>.5</u> 3.0



Alliance Geotechnical Pty Ltd

T: 1800 288 188 E: office@allgeo.com.au

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BH No: BH02 Sheet: 1 of 1 Job No: 14144

Client: Co-ordinate Projects Pty Ltd Started: 19/11/2021 Finished: 19/11/2021 Project: Detailed Site Investigation Location: 1 Kenneth Road & 265 Condamine Street, Manly Vale & Street Refer to Figure 4 Borehole Size: 0.5 mm Rig Type: Geoprobe 6 Series Hole Coordinates E, N Driller: Stratacore Logged: JW/AP RL Surface: m Contractor: Bearing: ---Checked: CAC Classification Symbol Consistency/ Density Index Samples Graphic Log Conditio Material Description Tests Additional Observations Method Water Remarks RL Depth (m) (m) CONCRETE. 00 FILL: Clayey SAND: light brown with orange and red mottling and weathered sandstone (white and red), moist. М No potential ACM, odours or Push Tube staining noted. 0.1-0.3m PID: 2.3ppm 0.5 1.0 1.0-1.2m PID: 1.9ppm No potential ACM, odours or staining noted. SC Clayey SAND: pale brown, becoming Sandy CLAY, pale brown/orange/red , moist. М 1.4-1.6m PID: 1.5 3.2ppm 2.0 1. NON CORED BOREHOLE 14144.GPJ GINT STD AUSTRALIA.GDT 15/12/21 Target depth. Borehole BH02 terminated at 2.1m 2<u>.5</u> 3.0



Alliance Geotechnical Pty Ltd

T: 1800 288 188 E: office@allgeo.com.au

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BH No: BH03 Sheet: 1 of 1 Job No: 14144

Client: Co-ordinate Projects Pty Ltd Started: 19/11/2021 Finished: 19/11/2021 Project: Detailed Site Investigation Location: 1 Kenneth Road & 265 Condamine Street, Manly Vale & Street Refer to Figure 4 Borehole Size: 0.5 mm Rig Type: Geoprobe 6 Series Hole Coordinates E, N Driller: Stratacore Logged: JW/AP RL Surface: m Contractor: Bearing: ---Checked: CAC Classification Symbol Consistency/ Density Index Samples Graphic Log Condition Material Description Tests Additional Observations Method Water Remarks RL Depth (m) (m) CONCRETE. 00 ۳. FILL: Clayey SAND: pale brown, yellow, moist. No potential ACM, odours or Push Tube Μ staining noted. 0.1-0.3m PID: 4.2ppm 0.5 1.0 FILL: Clayey SAND: dark brown/red, poorly compacted, moist with oxidized metal. М No potential ACM, odours or 1.4-1.6m / FRAG01 / PID: staining noted. 1.5 7.2ppm No potential ACM, odours or staining noted. WEATHERED SANDSTONE: brown/yellow/white with weathered with clay, moist. М 2.0 1.9-2.1m PID: 3.4ppm 1. NON CORED BOREHOLE 14144.GPJ GINT STD AUSTRALIA.GDT 15/12/21 2<u>.5</u> 3.0

Refusal on sandstone. Target depth. Borehole BH03 terminated at 3.2m



Alliance Geotechnical Pty Ltd

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BH No: BH04 Sheet: 1 of 1 Job No: 14144

Client: Co-ordinate Projects Pty Ltd Started: 19/11/2021 Finished: 19/11/2021 Project: Detailed Site Investigation Location: 1 Kenneth Road & 265 Condamine Street, Manly Vale & Street Refer to Figure 4 Borehole Size: 0.5 mm Rig Type: Geoprobe 6 Series Hole Coordinates E, N Driller: Stratacore Logged: JW/AP RL Surface: m Contractor: Bearing: ---Checked: CAC Classification Symbol Consistency/ Density Index Samples Graphic Log Condition Material Description Tests Additional Observations Method Water Remarks RL Depth (m) (m) CONCRETE. 00 P., FILL: Clayey SAND: brown/white/grey, weathered sandstone, moist. М No potential ACM, odours or Push Tube staining noted. 0.1-0.3m PID: 4.8ppm 0.5 1.0 1.0-1.2m PID: 2.2ppm 1.5 2.0 1. NON CORED BOREHOLE 14144.GPJ GINT STD AUSTRALIA.GDT 15/12/21 No potential ACM, odours or staining noted. FILL: Clayey SAND: black/grey, weathered sandstone, moist. М 2.2-2.4m PID: 3.4ppm 2<u>.5</u> Sandy CLAY: brown, pale brown, with yellow sand, moist. М No potential ACM, odours or staining noted. 2.7-2.9m PID: 3.3ppm 3.0 Target depth. Borehole BH04 terminated at 3m



Client: Co-ordinate Projects Pty Ltd

Project: Detailed Site Investigation

Location: 1 Kenneth Road & 265 Condamine Street, Manly Vale & Soldation: Refer to Figure 4

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BH No: BH05 Sheet: 1 of 1 Job No: 14144

Started: 19/11/2021

Finished: 19/11/2021

Borehole Size: 0.5 mm

Rig	g Ty	pe: G	eoprol	be 6 S	eries	Hole Coordinates E, N	Driller: Stratacon	re		Logged: JW/AP
RL	. Su	rface:	m			Contractor:	Bearing:			Checked: CAC
Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture Condition	Consistency/ Density Index	Additional Observations
HOLE 14144.GPJ GINT STD AUSTRALIA.GDT 15/12/21 Push Tube CC 1			(- - SC	CONCRETE. FILL: Sandy CLAY: brown, pale brown, with yellow sand, moist. FILL: Sandy CLAY: brown, pale brown, with yellow sand, moist. Clayey SAND: white with red and brown mottling, weathered sandstone at base, moist.	0.1-0.3m / DUP01 / DUP01A / PID: 1.5ppm 1.5-1.7m PID: 2.2ppm 2.5-2.7m PID: 1.3ppm	- M		No potential ACM, odours or staining noted. Poor sample recovery, potentially due to cobbles or voids beneath the slab.
I. NON CORED BORE			3.0			Target depth. Borehole BH05 terminated at 3m				



Client: Co-ordinate Projects Pty Ltd

Project: Detailed Site Investigation

ç

Rig Type: Geoprobe 6 Series

RL Surface: m

Location: 1 Kenneth Road & 265 Condamine Street, Manly Vale & Street Refer to Figure 4

Contractor:

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BH No: BH06 Sheet: 1 of 1 Job No: 14144

Started: 19/11/2021

Finished: 19/11/2021 Borehole Size: 0.5 mm Hole Coordinates E, N Driller: Stratacore Logged: JW/AP Bearing: ---Checked: CAC r ∕>¥

	Method	Water	RL (m)	Depth (m)	Graphic Log	Classificati Symbol	Material Description	Samples Tests Remarks	Moisture Conditio	Consisten Density Inc	Additional Observations
	Push Tube CC					-	CONCRETE. FILL: SAND: pale brown/yellow, with shell fragments and gravel (roadbase).	0.1-0.3m PID: 1.5ppm	M		No potential ACM, odours or staining noted.
				0. <u>5</u> -							
				1.0		CL-CH	Sandy CLAY and weathered SANDSTONE: orange/red, moist.	1.0-1.2m PID:	м		No potential ACM, odours or staining noted.
_							Refusal on sandstone. Target depth. Borehole BH06 terminated at 1 2m	1.4ppm			
				- 1.5							
				-							
				_							
15/12/21				2 <u>.0</u> _							
TRALIA.GDT				_							
SINT STD AUS				2 <u>.5</u>							
14144.GPJ 0				_							
BOREHOLE											
. NON CORED				-							
← L			I						I		



1. NON CORED BOREHOLE 14144.GPJ GINT STD AUSTRALIA.GDT 15/12/21

3.0

Client: Co-ordinate Projects Pty Ltd

Alliance Geotechnical Pty Ltd

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BH No: BH07 Sheet: 1 of 1 Job No: 14144

Started: 19/11/2021

Finished: 19/11/2021 Project: Detailed Site Investigation Location: 1 Kenneth Road & 265 Condamine Street, Manly Vale & Street Refer to Figure 4 Borehole Size: 0.5 mm Rig Type: Geoprobe 6 Series Hole Coordinates E, N Driller: Stratacore Logged: JW/AP RL Surface: m Contractor: Bearing: ---Checked: CAC Classification Symbol Consistency/ Density Index Samples Graphic Log Condition Material Description Tests Additional Observations Method Water Remarks RL Depth (m) (m) CONCRETE. 00 Push Tube М SC Clayey SAND: brown/grey, becoming SAND, yellow/brown/red, with shell fragment, 0.1-0.3m PID: No potential ACM, odours or moist staining noted. 0.9ppm 0.5 Refusal on sandstone. Target depth. Borehole BH07 terminated at 0.5m 1.0 1.<u>5</u> 2<u>.0</u> 2<u>.5</u>



Alliance Geotechnical Pty Ltd

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BH No: BH08 Sheet: 1 of 1 Job No: 14144

Client: Co-ordinate Projects Pty Ltd Started: 19/11/2021 Finished: 19/11/2021 Project: Detailed Site Investigation Location: 1 Kenneth Road & 265 Condamine Street, Manly Vale & Street Refer to Figure 4 Borehole Size: 0.5 mm Rig Type: Geoprobe 6 Series Hole Coordinates E, N Driller: Stratacore Logged: JW/AP RL Surface: m Contractor: Bearing: ---Checked: CAC Classification Symbol Consistency/ Density Index Samples Graphic Log Condition Additional Observations Material Description Tests Method Water Remarks RL Depth (m) (m) 00 CONCRETE. P 4 No potential ACM, odours or SP SAND: coarse grained, brown, with clay, moist. М Push Tube staining noted. 0.1-0.3m PID: 3.2ppm 0.5 Refusal on sandstone. Target depth. Borehole BH08 terminated at 0.9m 1.0 1.<u>5</u> 2<u>.0</u> 1. NON CORED BOREHOLE 14144.GPJ GINT STD AUSTRALIA.GDT 15/12/21 2<u>.5</u> 3.0



Client: Co-ordinate Projects Pty Ltd

Project: Detailed Site Investigation

Location: 1 Kenneth Road & 265 Condamine Street, Manly Vale & Soldation: Refer to Figure 4

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BH No: BH09 Sheet: 1 of 1 Job No: 14144

Started: 19/11/2021 Finished: 19/11/2021 Borehole Size: 0.5 mm

Rig	ј Тур	be: G	eoprot	be 6 S	eries	Hole Coordinates E, N	Dril	ler: Strataco	re		Logged: JW/AP
RL	Surf	face:	m			Contractor:	Bea	aring:			Checked: CAC
Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description		Samples Tests Remarks	Moisture Condition	Consistency/ Density Index	Additional Observations
00				P. 6.4	-	CONCRETE.			-		
Tube			-		SC	Clayey SAND: pale brown/orange, becoming weathered sandstone, moist.		0.1-0.2m / DUP02 /	М		No potential ACM, odours or staining noted.
hsh						Refusal on sandstone. Target depth. Borehole BH09 terminated at 0.2m	Π	UUP02A / PID: 4.2ppm			
ш			-								
			-								
			0 <u>.5</u>								
			-								
			_								
			_								
			1.0								
			1.0								
			-								
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			_								
			1 <u>.5</u>								
			-								
			-								
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E: office@allgeo.com.au W: www.allgeo.com.au BH No: BH10 Sheet: 1 of 1 Job No: 14144

Client: Co-ordinate Projects Pty Ltd Started: 19/11/2021 Finished: 19/11/2021 Project: Detailed Site Investigation Location: 1 Kenneth Road & 265 Condamine Street, Manly Vale & Street Refer to Figure 4 Borehole Size: 0.5 mm Rig Type: Geoprobe 6 Series Hole Coordinates E, N Driller: Stratacore Logged: JW/AP RL Surface: m Contractor: Bearing: ---Checked: CAC Classification Symbol Consistency/ Density Index Samples Graphic Log Conditior Material Description Tests Additional Observations Method Water Remarks RL Depth (m) (m) CONCRETE. 00 Ρ. No potential ACM, odours or FILL: Clayey SAND: brown, moist. М Push Tube staining noted. 0.1-0.3m PID: 6.2ppm 0.5 SANDSTONE: red, weathered, moist. Μ No potential ACM, odours or staining noted. 0.7-0.9m PID: 2.2ppm Refusal on sandstone. Target depth. Borehole BH10 terminated at 0.9m 1.0 1.<u>5</u> 2<u>.0</u> 2<u>.5</u> 3.0

1. NON CORED BOREHOLE 14144.GPJ GINT STD AUSTRALIA.GDT 15/12/21



Client: Co-ordinate Projects Pty Ltd

Project: Detailed Site Investigation

Location: 1 Kenneth Road & 265 Condamine Street, Manly Vale AND VA

Rig Type: Geoprobe 6 Series Hole Coordinates E, N Driller: Stratacore Logged: JW/AP RL Surface: m Contractor: Bearing: ---Checked: CAC Classification Symbol Consistency/ Density Index Samples Graphic Log Conditior Material Description Tests Additional Observations Method Water Remarks RL Depth (m) (m) CONCRETE. 00 Ρ. FILL: Clayey SAND: brown, moist. No potential ACM, odours or Push Tube Μ staining noted. 0.1-0.3m PID: 5.8ppm 0.5 No potential ACM, odours or staining noted. SANDSTONE: red, weathered, moist. М -0.5-0.7m PID: 5.2ppm 1.0 Refusal on sandstone. Target depth. Borehole BH11 terminated at 1m 1.<u>5</u> 2<u>.0</u> 2<u>.5</u> 3.0

BH No: BH11 Sheet: 1 of 1

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Job No: 14144

Started: 19/11/2021 Finished: 19/11/2021

1. NON CORED BOREHOLE 14144.GPJ GINT STD AUSTRALIA.GDT 15/12/21

APPENDIX B – Laboratory Documentation

Address Contact Name Phone Ne Special Directions	WELDER ROAD, SI NSW									Wieliay							
Contact Name Phone Ne Special Directions			Project	Name		MAN	١٢٧	ALE		EDU For (ESdat EQuIS Custom	a) t	-	Handed	over by			
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			900 3:8(ətə əsə4)		3H 8			A) SOT	X3) SA				oitself. Piastic	, Plastic nber Glai	1514 AO 1908 2A3 190H 10 a 190H 10 a	C3 Day*	
Quote ID Ne			ष्ट्र नाग्रहाः			_		SBBS	bb				ג20שך 11 B	אלמהו א אלאלאל אלאלאל	r Jino v Parkov	Cother (
Ne	ıt Sample ID	Sampled Date/Time M (dd/mm/yy hh:mm)	atrix (Solid (S) Water (W))				_	SA						500	ngl Gð 1912	Sample Comr Goods Hi	nents / Dan azard Warn
BHO	1-0.0-0.2	19/11/21	s									×	×		××		
2 BHO	1-0.5-0.7	12/11/61	s	×	×	X	×	×	×	×	1773		×		××		
BHO	1-1.4-1.6	19/11/21	s		×	×							×		××		
4 BHO	2-0.1-0.3	19/11/21	s	×	×	×	×	×	×	×			×		××		
5 BHO	2-1.0-1.2	19/11/21	s		×	×							×		××		
6 BHO	2-1.4-1.6	12/11/21	s		×	×							×		××		
7 BHO	3-0.1-0.3	19/11/21	s		×	×							×		××		
8 8H0	3-1.4-1.6	12/11/61	s	×	X	×	×	×	×	×			×		××		
BHO	3-1.9-2.1	12/11/61	s		×	×							×		××		
10 BHO	4-0.1-0.3	19/11/21	s		×	×							×		××		
11 BHO	4-1.0-1.2	12/11/21	s	×	X	×	×	×	×	×			×		××		
12 BHO	4-2.2-2.4	12/11/61	s		×	×							×		××		
13 BHO	4-2.7-2.9	12/11/21	s		X	×							×		××		
14 BHO	5-0.1-0.3	12/11/61	s	×	×	×	×	×	×	×			×		××		
15 BHO	5-1.5-1.7	19/11/21	S		X	×							×		××		
16 BHO:	5-2.5-2.7	19/11/21	s									×	×		××		
17 BHO	5-0.1-0.3	12/11/61	s	×	X	Ŷ	×	×	×	×			×		××		
18 BHO	5-1.0-1.2	12/11/21	s		X	×							×		××		
19 BHO?	7-0.1-0.3	19/11/21	s	×	X	∧ ¥	X	×	×	×			×		××		
20 BHO	3-0.1-0.3	12/11/61	s	×	X	× ×	X	×	×	×			×		××		
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uthmission of samples to the la	Received By	centance of Fumfi	Y is i mot Stand	D BNE	MEL P	ER ADL Itions unle	I NTL D	RV Sign	ature V conv of E	urofins mat	Standard Te	Date	tions is available on	e n request.	.]	Report Ne	

rtor 2 053009_R7 Modified by: Dr. R Symons Approved by: T. Lakoland Approved on: 17 Augus

MAXIMUM MAXIMUM <t< th=""><th>Jacomo</th><th>ALLIANCE GEOTEC</th><th></th><th>Drojac</th><th>Na una</th><th></th><th>-</th><th>14144</th><th></th><th></th><th>P</th><th>bject</th><th></th><th>Walkei</th><th></th><th>Sampler(s)</th><th></th><th>Anva</th><th>Palaver</th><th>sich</th></t<>	Jacomo	ALLIANCE GEOTEC		Drojac	Na una		-	14144			P	bject		Walkei		Sampler(s)		Anva	Palaver	sich
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Montoline Interaction Interacti	Phone Ne	042406661	5	26 Iso T' Viceqs and 3 Ti J S Ioe					SESENC	ULLE)						Ŭ	ontainers	S.	Turnaroun quirements @	d Time (TA tault will be 5 day
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ge 2a1 2 QS3009_R7 Modified by: Dr.R.Symons Approved by: T. Lakelane Approved ox: 17 August 2017

RE: Attention: Eurofins Sample Receipt Advice - Report 844355 : Site MANLY VALE (14144)

Jacob Walker <jacob.walker@allgeo.com.au>

Wed 12/1/2021 3:58 PM

To: #AU04_Enviro_Sample_NSW <EnviroSampleNSW@eurofins.com>

Cc: Andrew Black < Andrew Black@eurofins.com>

EXTERNAL EMAIL*

Hey, the DUP02 on the right, the darker soil, is meant to be DUP01A. Can you please forward this to ALS?

Thanks!

Regards, Jacob Walker Environmental Consultant Mobile: 0424 066 612 | Email: jacob.walker@allgeo.com.au



Office Phone:1800 288 188Admin Email:admin@allgeo.com.auWebsite:allgeo.com.auOffice & Lab:8-10 Welder Road, Seven Hills NSW 2147Postal Address:PO Box 275, Seven Hills NSW 1730



Our office administration will be closed from December 23rd and will reopen on January 4th. We will still be servicing some projects over this period that have pre-arranged in advance.



For urgent unexpected geotechnical or environmental enquiries, please phone 1800 288 188.

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From: #AU04_Enviro_Sample_NSW <EnviroSampleNSW@eurofins.com>
Sent: Wednesday, 1 December 2021 3:44 PM
To: Jacob Walker <jacob.walker@allgeo.com.au>
Cc: Andrew Black <AndrewBlack@eurofins.com>
Subject: Re: Attention: Eurofins Sample Receipt Advice - Report 844355 : Site MANLY VALE (14144)

Good day Jacob,

Apologies for getting back to you so late. Please find attached the pictures of DUP01, and the duplicate DUP02. Please let us know which one is DUP01A and should be sent to ALS.

Kind regards,

Mickael Ros

Sample Receipt Officer

Eurofins | Environment Testing

Unit F3, Parkview Building

16 Mars Road

LANE COVE WEST NSW 2066

AUSTRALIA

From: Jacob Walker <jacob.walker@allgeo.com.au>
Sent: Friday, November 26, 2021 6:43 AM
To: #AU04_Enviro_Sample_NSW <<u>EnviroSampleNSW@eurofins.com</u>>
Cc: Andrew Black <<u>AndrewBlack@eurofins.com</u>>
Subject: Re: Attention: Eurofins Sample Receipt Advice - Report 844355 : Site MANLY VALE (14144)

EXTERNAL EMAIL*

Hey Team,

Could you please send through photos of both the DUP02s, I have a feeling one was mislabelled and I should be able to work it out from the soil type.

Much appreciated! Jacob

Regards, Jacob Walker Environmental Consultant Mobile: 0424 066 612 | Email: jacob.walker@allgeo.com.au



Office Phone:1800 288 188Admin Email:admin@allgeo.com.auWebsite:allgeo.com.auOffice & Lab:8-10 Welder Road, Seven Hills NSW 2147Postal Address:PO Box 275, Seven Hills NSW 1730

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From: EnviroSampleNSW@eurofins.com <EnviroSampleNSW@eurofins.com>

Sent: Friday, 26 November 2021, 3:08 am
To: Jacob Walker
Cc: enviro; Anya Palaversich
Subject: Attention: Eurofins Sample Receipt Advice - Report 844355 : Site MANLY VALE (14144)

Dear Valued Client,

Please find attached a Sample Receipt Advice (SRA), a Summary Sheet and a scanned copy of your Chain-of-Custody (COC). It is important that you check this documentation to ensure that the details are correct such as the Client Job Number, Turn Around Time, any comments in the Notes section and sample numbers as well as the requested analysis. If there are any irregularities then please contact your Eurofins Analytical Services Manager as soon as possible to make certain that they get changed.

Kind regards, Mickael Ros Sample Receipt

Eurofins | Environmental Testing Unit F3, Parkview Building 16 Mars Road LANE COVE WEST NSW 2066 AUSTRALIA Phone: +61 02 9900 8421 Email: EnviroSampleNSW@eurofins.com Website: [http://]environment.eurofins.com.au

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Alliance Geotechnical 10 Welder Road Seven Hills NSW 2147

Attention:

Jacob Walker

Report	
Project name	
Project ID	
Received Date	

844355-W MANLY VALE 14144 Nov 19, 2021

Client Sample ID			RINSATE-01	PFAS BLANK
Sample Matrix			Water	Water
Eurofins Sample No.			S21-No62522	S21-No62524
Date Sampled			Nov 19, 2021	Nov 19, 2021
Test/Reference	LOR	Unit		
Heavy Metals	•			
Arsenic	0.001	mg/L	< 0.001	-
Cadmium	0.0002	mg/L	< 0.0002	-
Chromium	0.001	mg/L	< 0.001	-
Copper	0.001	mg/L	< 0.001	-
Lead	0.001	mg/L	< 0.001	-
Mercury	0.0001	mg/L	< 0.0001	-
Nickel	0.001	mg/L	< 0.001	-
Zinc	0.005	mg/L	< 0.005	-
Perfluoroalkyl carboxylic acids (PFCAs)				
Perfluorobutanoic acid (PFBA) ^{N11}	0.05	ug/L	< 0.05	< 0.05
Perfluoropentanoic acid (PFPeA) ^{N11}	0.01	ug/L	< 0.01	< 0.01
Perfluorohexanoic acid (PFHxA) ^{N11}	0.01	ug/L	< 0.01	< 0.01
Perfluoroheptanoic acid (PFHpA) ^{N11}	0.01	ug/L	< 0.01	< 0.01
Perfluorooctanoic acid (PFOA) ^{N11}	0.01	ug/L	< 0.01	< 0.01
Perfluorononanoic acid (PFNA) ^{N11}	0.01	ug/L	< 0.01	< 0.01
Perfluorodecanoic acid (PFDA) ^{N11}	0.01	ug/L	< 0.01	< 0.01
Perfluoroundecanoic acid (PFUnDA) ^{N11}	0.01	ug/L	< 0.01	< 0.01
Perfluorododecanoic acid (PFDoDA) ^{N11}	0.01	ug/L	< 0.01	< 0.01
Perfluorotridecanoic acid (PFTrDA) ^{N15}	0.01	ug/L	< 0.01	< 0.01
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	0.01	ug/L	< 0.01	< 0.01
13C4-PFBA (surr.)	1	%	92	88
13C5-PFPeA (surr.)	1	%	88	92
13C5-PFHxA (surr.)	1	%	53	55
13C4-PFHpA (surr.)	1	%	62	55
13C8-PFOA (surr.)	1	%	69	59
13C5-PFNA (surr.)	1	%	83	83
13C6-PFDA (surr.)	1	%	72	70
13C2-PFUnDA (surr.)	1	%	85	91
13C2-PFDoDA (surr.)	1	%	101	112
13C2-PFTeDA (surr.)	1	%	41	72



NATA

NATA Accredited Accreditation Number 1261 Site Number 20794

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.



Client Sample ID			RINSATE-01	PFAS BLANK
Sample Matrix			Water	Water
Eurofins Sample No.			S21-No62522	S21-No62524
Date Sampled			Nov 19, 2021	Nov 19, 2021
Test/Reference	LOR	Unit		
Perfluoroalkyl sulfonamido substances				
Perfluorooctane sulfonamide (FOSA) ^{N11}	0.05	ug/L	< 0.05	< 0.05
N-methylperfluoro-1-octane sulfonamide (N-				
	0.05	ug/L	< 0.05	< 0.05
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	0.05	ug/L	< 0.05	< 0.05
(N-MeFOSE) ^{N11}	0.05	ug/L	< 0.05	< 0.05
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N- EtFOSE) ^{N11}	0.05	ug/L	< 0.05	< 0.05
N-ethyl-perfluorooctanesulfonamidoacetic acid (N- EtFOSAA) ^{N11}	0.05	ug/L	< 0.05	< 0.05
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	0.05	ug/L	< 0.05	< 0.05
13C8-FOSA (surr.)	1	%	71	70
D3-N-MeFOSA (surr.)	1	%	21	28
D5-N-EtFOSA (surr.)	1	%	30	40
D7-N-MeFOSE (surr.)	1	%	22	29
D9-N-EtFOSE (surr.)	1	%	19	24
D5-N-EtFOSAA (surr.)	1	%	196	186
D3-N-MeFOSAA (surr.)	1	%	Q09INT	Q09INT
Perfluoroalkyl sulfonic acids (PFSAs)				
Perfluorobutanesulfonic acid (PFBS) ^{N11}	0.01	ug/L	< 0.01	< 0.01
Perfluorononanesulfonic acid (PFNS) ^{N15}	0.01	ug/L	< 0.01	< 0.01
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	0.01	ug/L	< 0.01	< 0.01
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	0.01	ug/L	< 0.01	< 0.01
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	0.01	ug/L	< 0.01	< 0.01
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	0.01	ug/L	< 0.01	< 0.01
Perfluorooctanesulfonic acid (PFOS) ^{N11}	0.01	ug/L	< 0.01	< 0.01
Perfluorodecanesulfonic acid (PFDS) ^{N15}	0.01	ug/L	< 0.01	< 0.01
13C3-PFBS (surr.)	1	%	89	76
18O2-PFHxS (surr.)	1	%	78	76
13C8-PFOS (surr.)	1	%	98	88
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)		1		
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	0.01	ug/L	< 0.01	< 0.01
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA) ^{N11}	0.05	ug/L	< 0.05	< 0.05
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	0.01	ug/L	< 0.01	< 0.01
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	0.01	ug/L	< 0.01	< 0.01
13C2-4:2 FTSA (surr.)	1	%	49	49
13C2-6:2 FTSA (surr.)	1	%	36	29
13C2-8:2 FTSA (surr.)	1	%	33	33
13C2-10:2 FTSA (surr.)	1	%	64	73
PFASs Summations				
Sum (PFHxS + PFOS)*	0.01	ug/L	< 0.01	< 0.01
Sum of US EPA PFAS (PFOS + PFOA)*	0.01	ug/L	< 0.01	< 0.01
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.01	ug/L	< 0.01	< 0.01
Sum of WA DWER PFAS (n=10)*	0.05	ug/L	< 0.05	< 0.05
Sum of PFASs (n=30)*	0.1	ug/L	< 0.1	< 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
Metals M8	Brisbane	Nov 25, 2021	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Per- and Polyfluoroalkyl Substances (PFASs)			
Perfluoroalkyl carboxylic acids (PFCAs)	Brisbane	Nov 29, 2021	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonamido substances	Brisbane	Nov 29, 2021	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonic acids (PFSAs)	Brisbane	Nov 29, 2021	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)	Brisbane	Nov 29, 2021	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			

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web: w email:	ww.eurofins.com.au	s.com	ironment	Testing	Melbourne 6 Monterey Road Dandenong South VIC 3 Phone : +61 3 8564 5000 NATA # 1261 Site # 1254	S L 175 1 D L 4 F N	Sydney Jnit F3, E 6 Mars I ane Cov Phone : + IATA # 1	Building Road ve West -61 2 99 I261 Sit	F NSW 2 900 8400 ae # 182	Bi 1/ 066 Pf 0 N/ 17	risbane 21 Sma urarrie hone : + ATA # ^	allwood QLD 4 61 7 39 1261 Sit	Place 172 902 4600 e # 2079	N 4 N 94 P N	ewcasti /52 Indu layfield I O Box 6 hone : + IATA # 1	le strial D East NS 0 Wick 61 2 49 261 Sit	rive SW 2304 ham 229 968 844 968 844	4 V 93 F 8 N 79	Perth 6-48 Bai Velshpoc Phone : + IATA # 2	nksia Road ol WA 6106 61 8 6253 4444 2377 Site # 2370	Auckland 35 O'Rorke Road Penrose, Auckland 1061 Phone : +64 9 526 45 51 IANZ # 1327	Christchurch 43 Detroit Drive Rolleston, Christchurch 7675 Phone : 0800 856 450 IANZ # 1290
Co Ad	ompany Name: Idress:	Alliance Geo 10 Welder R Seven Hills NSW 2147	otechnical oad				Oi Re Pi Fa	rder N eport hone: ax:	No.: #:	8 1 0	34435 800 2 92 967	5 288 18 75 188	38 38						Recei Due: Priori Conta	ved: ty: ict Name:	Nov 19, 2021 6:20 Nov 26, 2021 5 Day Jacob Walker	PM
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		Sa	Imple Detail			Asbestos - AS4964	Asbestos Absence /Presence	HOLD	Polycyclic Aromatic Hydrocarbons	Metals M8	Metals M8	Suite B13: OCP/PCB	Volatile Organics	Moisture Set	Total Recoverable Hydrocarbons	Eurofins Suite B4	BTEXN and Volatile TRH	Per- and Polyfluoroalkyl Substances (PFASs)	BTEX			
Melk	oourne Laborat	ory - NATA # 12	en Site # 125	54																		
Syd	ney Laboratory	- NATA # 1261	Site # 18217			Х	X	Х	Х		Х	Х	Х	х	X	Х	Х		х			
Bris	bane Laborator	ry - NATA # 126	1 Site # 2079	4						Х								X				
Мау	field Laborator	y - NATA # 1261	Site # 25079																			
Pert	h Laboratory -	NATA # 2377 Si	te # 2370																	-		
Exte	ernal Laboratory	y	1	1																-		
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID																	
1	BH01-0.5-0.7	Nov 19, 2021		Soil	S21-No62499	Х			x		х	x	x	Х	x			X		1		
2	BH01-1.4-1.6	Nov 19, 2021		Soil	S21-No62500				х		Х			Х						1		
3	BH02-0.1-0.3	Nov 19, 2021		Soil	S21-No62501	Х			х		Х	X	х	Х	Х			X]		
4	BH02-1.0-1.2	Nov 19, 2021		Soil	S21-No62502				Х		Х			Х								
5	BH02-1.4-1.6	Nov 19, 2021		Soil	S21-No62503				Х		Х			Х								
6	BH03-0.1-0.3	Nov 19, 2021		Soil	S21-No62504				Х		Х			Х								
7	BH03-1.4-1.6	Nov 19, 2021		Soil	S21-No62505	Х			х		х	х	х	Х	х			X				
8	BH03-1.9-2.1	Nov 19, 2021		Soil	S21-No62506				х		х			Х								
9	BH04-0.1-0.3	Nov 19, 2021		Soil	S21-No62507				Х		Х			Х]		

Project Name Batteries Mainteres Market Walk Primate Market Walk Primate Market Walk Primate Walk Primate Wa	📫 eurofi			Eurofins Environme ABN: 50 005 085 521	ent Te	sting	Austra	ilia Pty	Ltd								E	Eurofin ABN: 91	os ARL Pty Ltd	Eurofins Environmen NZBN: 9429046024954	t Testing NZ Limited
Company Name: Address: Alliance Gestechnical Divession Same Hills Same Hills Same Hills NW 2147 Order No: Betto: Same Hills NW 2147 Contents: Betto: Divession Same Hills NW 2147 Reservession Same Hills NW 2147 Reservession Same Hills NW 2147 Nov 18, 2021 620 PM. Divession Same Hills NW 2147 Project Name: Nov 2147 MANLY VALE Horject Name: NW 2147 Nov 19, 2021 620 PM. Divession Same Hills NW 2147 Nov 19, 2021 620 PM. Divession NW 2147 Nov 19, 2021 620 PM. Divession NW 2147 Reservession NW 2147 Nov 19, 2021 620 PM. Divession NW 2147 Nov 19, 2021 620 P	web: www.eurofins.com.au email: EnviroSales@eurofin:	Env s.com	ironment Testing	Melbourne 6 Monterey Road Dandenong South VIC 3 Phone : +61 3 8564 500 NATA # 1261 Site # 125	U 175 1 0 L 4 F	Sydney Jnit F3, 6 Mars ane Co Phone : NATA #	Building Road ve West +61 2 99 1261 Si	g F t NSW 2 900 840 te # 182	8 1/ 2066 P 0 N 17	risbane /21 Sma lurarrie hone : - ATA # ⁻	e allwood QLD 4 ⊧61 7 39 1261 Sit	Place 172 902 460 te # 207	4 N 0 F 94 F N	lewcast /52 Indu /ayfield PO Box 6 Phone : -	ile Istrial D East NS 50 Wick +61 2 49 1261 Sit	rive SW 230 ham 22 968 844 te # 250	04 V 293 F 48 N 079	Perth 6-48 Ba Velshpo Phone : - NATA # 2	inksia Road ol WA 6106 +61 8 6253 4444 2377 Site # 2370	Auckland 35 O'Rorke Road Penrose, Auckland 1061 Phone : +64 9 526 45 51 IANZ # 1327	Christchurch 43 Detroit Drive Rolleston, Christchurch 7675 Phone : 0800 856 450 IANZ # 1290
Project Dir MANLY YALE Project Dir 11144	Company Name: Address:	Alliance Geo 10 Welder R Seven Hills NSW 2147	otechnical toad			O R P F	rder I eport hone: ax:	No.: : #: :	8 1 (34435 1800 2 02 967	5 288 18 75 188	38 38						Recei Due: Priori Conta	ived: ity: act Name:	Nov 19, 2021 6:20 Nov 26, 2021 5 Day Jacob Walker	PM
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12 BH04-2.7-2.9 Nov 19, 2021 Soil S21-No62510 X	11 BH04-2.2-2.4	Nov 19, 2021	Soil	S21-No62509				X		X			X						4		
13 BH05-0.1-0.3 Nov 19, 2021 Soil S21-No62511 X	12 BH04-2.7-2.9	Nov 19, 2021	Soil	S21-No62510				X		X			X						4		
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Pert	h Laboratory - I	NATA # 2377 Si	ite # 2370																			
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21	BH11-0.1-0.3	Nov 19, 2021	s	Soil	S21-No62519	Х			Х		Х	X	Х	Х	X			X				
22	BH11-0.5-0.7	Nov 19, 2021	S	Soil	S21-No62520				X		Х			Х						4		
23	DUP01	Nov 19, 2021	S	Soil	S21-No62521									Х		Х		X		4		
24	RINSATE-01	Nov 19, 2021	V	Vater	S21-No62522					X								X				
25	FRAG01	Nov 19, 2021	E N	Building Aaterials	S21-No62523		x													-		
26	PFAS BLANK	Nov 19, 2021	V	Vater	S21-No62524				-						-			X		4		
27	TRIP SPIKE	Nov 19, 2021	s	Soil	S21-No62525			<u> </u>	<u> </u>										Х	4		
28	TRIP BLANK	Nov 19, 2021	S	Soil	S21-No62527												Х			4		
29	DUP02	Nov 19, 2021	s	Soil	S21-No62528						X	X		Х				X		4		
30	BH01-0.0-0.2	Nov 19, 2021	S	Soil	S21-No62529			Х]		

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web: www.eurofins.com.au email: EnviroSales@eurofins.	Environment Testing		Melbourne 6 Monterey Road Dandenong South VIC 3175 Phone : +61 3 8564 5000 NATA # 1261 Site # 1254		Sydney Unit F3, Building F 175 16 Mars Road Lane Cove West NSW 206 Phone : +61 2 9900 8400 NATA # 1261 Site # 18217				Brisbane 1/21 Smallwood Place Murarrie QLD 4172 66 Phone : +61 7 3902 4600 NATA # 1261 Site # 20794 7			0 F 94 F	Newcastle 4/52 Industrial Drive Mayfield East NSW 2304 PO Box 60 Wickham 2293 Phone : +61 2 4968 8448 NATA # 1261 Site # 25079			4 4 93 P 8 N 79	Perth 46-48 Banksia Road Welshpool WA 6106 Phone : +61 8 6253 4444 NATA # 2377 Site # 2370		Auckland 35 O'Rorke Road Penrose, Auckland 1061 Phone : +64 9 526 45 51 IANZ # 1327	Christchurch 43 Detroit Drive Rolleston, Christchurch 7679 Phone : 0800 856 450 IANZ # 1290	
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31 BH05-2.5-2.7	Nov 19, 2021		Soil	S21-No62530			X												-		
32 BH10-0.7-0.9	NOV 19, 2021		501	S21-N062531			X	00	0.1	01	40	44	0.1	44							
lest Counts					11	1	3	22	24	24	12	11	24	11	1	1	14	1			



Internal Quality Control Review and Glossary

General

- 1. 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.
- 2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
- 3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
- 4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
- 5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
- 6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
- 7. Samples were analysed on an 'as received' basis.
- 8. Information identified on this report with blue colour, indicates data provided by customer, that may have an impact on the results.
- 9. 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

onits		
mg/kg: milligrams per kilogram mg/L: millig	rams per litre	ug/L: micrograms per litre
ppm: Parts per million ppb: Parts	per billion	%: Percentage
org/100mL: Organisms per 100 millilitres NTU: Nephr	elometric Turbidity Units	MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - 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.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
сос	Chain of Custody
SRA	Sample Receipt Advice
QSM	US Department of Defense Quality Systems Manual Version
СР	Client Parent - QC was performed on samples pertaining to this report
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.
TEQ	Toxic Equivalency Quotient
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% Phenols & 50-150% PFASs..

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

- 1. 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.
- 2. 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.
- 3. 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.
- 4. Recovery Data (Spikes & Surrogates) where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
- 5. For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
- 6. 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										
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)	uq/L	< 0.01		0.01	Pass					
Perfluorotetradecanoic acid (PFTeDA)	ua/L	< 0.01		0.01	Pass					
Method Blank	Ŭ									
Perfluoroalkvl sulfonamido substances										
Perfluorooctane sulfonamide (FOSA)	uq/L	< 0.05		0.05	Pass					
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ua/L	< 0.05		0.05	Pass					
N-ethylperfluoro-1-octane sulfonamide (N-EtEOSA)	ua/l	< 0.05		0.05	Pass					
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N- MeFOSE)	ua/l	< 0.05		0.05	Pass					
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtEOSE)	<u>ua/l</u>	< 0.05		0.05	Pass					
N-ethyl-perfluorooctapesulfonamidoacetic acid (N-EtEOSAA)	ug/L	< 0.05		0.05	Pass					
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeEOSAA)	ug/L	< 0.00		0.05	Pass					
Method Blank	ug/L	<u> </u>		0.00	1 400					
Perfluoroalkyl sulfonic acids (PESAs)										
Perfluorobutanesulfonic acid (PEBS)	ua/l	< 0.01		0.01	Pass					
Perfluoroponanesulfonic acid (PENS)	ug/L	< 0.01		0.01	Pass					
Perfluoropropapesulfonic acid (PEPrS)	ug/L	< 0.01		0.01	Pass					
Perfluoropentanesulfonic acid (PEPeS)	ug/L	< 0.01		0.01	Pass					
Porfluorobevanesulfenie acid (PEHxS)	ug/L	< 0.01		0.01	Pass					
Porfluorohoptanocultonic acid (PEHpS)	ug/L	< 0.01		0.01	Pass					
Perflueroostonooulfonio acid (PEOS)	ug/L	< 0.01		0.01	Pass					
Perfluorodocariesulionic acid (PFOS)	ug/L	< 0.01		0.01	Pass					
Method Blank	ug/L	< 0.01		0.01	Pass					
method Blank		 		1						
n:2 Fluorotelomer sulfonic acids (n:2 Fl SAS)		.0.01		0.01	Dees					
1H.1H.2H.2H-periluoronexanesulfonic 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-perfluorodecanesultonic acid (8:2 FTSA)	ug/L	< 0.01		0.01	Pass					
1H.1H.2H.2H-perfluorododecanesultonic acid (10:2 FTSA)	ug/L	< 0.01		0.01	Pass					
LUS - % Recovery		1		1						
Perfluoroalkyl carboxylic acids (PFCAS)	0/	4.40		50.450	Deer					
	%	140		50-150	Pass					
	%	96		50-150	Pass					
Perfluorohexanoic acid (PFHXA)	%	144		50-150	Pass					
Perfluoroheptanoic acid (PFHpA)	%	85		50-150	Pass					
	%	96		50-150	Pass					
Perfluorononanoic acid (PENA)	%	96		50-150	Pass					
Perfluorodecanoic acid (PFDA)	%	90		50-150	Pass					
Perfluoroundecanoic acid (PFUnDA)	%	113		50-150	Pass					
Perriuorododecanoic acid (PFDoDA)	%	132		50-150	Pass					
Perfluorotridecanoic acid (PF I rDA)	%	111		50-150	Pass					
Pertluorotetradecanoic acid (PFTeDA)	%	94		50-150	Pass					



Test			Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code		
LCS - % Recovery				I	1 1	1				
Perfluoroalkyl sulfonamido substa	nces									
Perfluorooctane sulfonamide (FOSA)		%	63		50-150	Pass			
N-methylperfluoro-1-octane sulfonan	nide (N-MeFOSA)		%	138		50-150	Pass			
N-ethylperfluoro-1-octane sulfonamic	de (N-EtFOSA)		%	78		50-150	Pass			
2-(N-methylperfluoro-1-octane sulfor MeFOSE)	namido)-ethanol (N	-	%	90		50-150	Pass			
2-(N-ethylperfluoro-1-octane sulfona	mido)-ethanol (N-E	tFOSE)	%	121		50-150	Pass			
N-ethyl-perfluorooctanesulfonamidoa	acetic acid (N-EtFC	DSAA)	%	146		50-150	Pass			
N-methyl-perfluorooctanesulfonamid	loacetic acid (N-Me	FOSAA)	%	106		50-150	Pass			
LCS - % Recovery										
Perfluoroalkyl sulfonic acids (PFS)	As)									
Perfluorobutanesulfonic acid (PFBS)			%	91		50-150	Pass			
Perfluorononanesulfonic acid (PFNS	5)		%	95		50-150	Pass			
Perfluoropropanesulfonic acid (PFPr	·S)		%	114		50-150	Pass			
Perfluoropentanesulfonic acid (PFPe	eS)		%	71		50-150	Pass			
Perfluorohexanesulfonic acid (PFHx	S)		%	87		50-150	Pass			
Perfluoroheptanesulfonic acid (PFH	oS)		%	92		50-150	Pass			
Perfluorooctanesulfonic acid (PFOS))		%	70		50-150	Pass			
Perfluorodecanesulfonic acid (PFDS	;)		%	70		50-150	Pass			
LCS - % Recovery	,			•						
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)										
1H.1H.2H.2H-perfluorohexanesulfon	ic acid (4:2 FTSA)		%	133		50-150	Pass			
1H.1H.2H.2H-perfluorooctanesulfoni	ic acid (6:2 FTSA)		%	99		50-150	Pass			
1H.1H.2H.2H-perfluorodecanesulfon		%	77		50-150	Pass				
1H.1H.2H.2H-perfluorododecanesul	SA)	%	118		50-150	Pass				
Test Lab Sample ID QA Source										
Test	Lab Sample ID	QA Source	Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code		
Test Spike - % Recovery	Lab Sample ID	QA Source	Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code		
Test Spike - % Recovery Perfluoroalkyl carboxylic acids (PF	Lab Sample ID CAs)	QA Source	Units	Result 1 Result 1		Acceptance Limits	Pass Limits	Qualifying Code		
Test Spike - % Recovery Perfluoroalkyl carboxylic acids (PF Perfluorobutanoic acid (PFBA)	Lab Sample ID CAs) S21-No62384	QA Source	Units %	Result 1 Result 1 109		Acceptance Limits 50-150	Pass Limits Pass	Qualifying Code		
Test Spike - % Recovery Perfluoroalkyl carboxylic acids (PF Perfluorobutanoic acid (PFBA) Perfluoropentanoic acid (PFPeA)	Lab Sample ID CAs) S21-No62384 S21-No62384	QA Source NCP NCP	Units % %	Result 1 Result 1 109 103		Acceptance Limits 50-150 50-150	Pass Limits Pass Pass	Qualifying Code		
Test Spike - % Recovery Perfluoroalkyl carboxylic acids (PF Perfluorobutanoic acid (PFBA) Perfluoropentanoic acid (PFPeA) Perfluorohexanoic acid (PFHxA)	Lab Sample ID CAs) S21-No62384 S21-No62384 S21-No62384	QA Source	Units % % %	Result 1 Result 1 109 103 142		Acceptance Limits 50-150 50-150 50-150	Pass Limits Pass Pass Pass	Qualifying Code		
Test Spike - % Recovery Perfluoroalkyl carboxylic acids (PF Perfluorobutanoic acid (PFBA) Perfluoropentanoic acid (PFPeA) Perfluorohexanoic acid (PFHxA) Perfluoroheptanoic acid (PFHpA)	Lab Sample ID CAs) S21-No62384 S21-No62384 S21-No62384 S21-No62384	QA Source	Units % % % %	Result 1 Result 1 109 103 142 91		Acceptance Limits 50-150 50-150 50-150 50-150	Pass Limits Pass Pass Pass Pass	Qualifying Code		
Test Spike - % Recovery Perfluoroalkyl carboxylic acids (PF Perfluorobutanoic acid (PFBA) Perfluoropentanoic acid (PFPeA) Perfluorohexanoic acid (PFHxA) Perfluoroheptanoic acid (PFHpA) Perfluorooctanoic acid (PFOA)	Lab Sample ID CAs) S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384	QA Source	Units % % % % %	Result 1 Result 1 109 103 142 91 106		Acceptance Limits 50-150 50-150 50-150 50-150 50-150	Pass Limits Pass Pass Pass Pass Pass	Qualifying Code		
Test Spike - % Recovery Perfluoroalkyl carboxylic acids (PF Perfluorobutanoic acid (PFBA) Perfluoropentanoic acid (PFPeA) Perfluorohexanoic acid (PFHxA) Perfluoroheptanoic acid (PFHpA) Perfluorooctanoic acid (PFOA) Perfluorononanoic acid (PFNA)	Sample ID CAs) S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384	QA Source	Units % % % % % %	Result 1 Result 1 109 103 142 91 106 103		Acceptance Limits 50-150 50-150 50-150 50-150 50-150 50-150	Pass Limits Pass Pass Pass Pass Pass Pass	Qualifying Code		
Test Spike - % Recovery Perfluoroalkyl carboxylic acids (PF Perfluorobutanoic acid (PFBA) Perfluoropentanoic acid (PFPeA) Perfluoroheptanoic acid (PFHA) Perfluorooctanoic acid (PFHA) Perfluorononanoic acid (PFNA) Perfluorononanoic acid (PFNA) Perfluorodecanoic acid (PFDA)	Lab Sample ID CAs) S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384	QA Source NCP NCP NCP NCP NCP NCP NCP	Units % % % % % % % %	Result 1 Result 1 109 103 142 91 106 103 100		Acceptance Limits 50-150 50-150 50-150 50-150 50-150 50-150 50-150	Pass Limits Pass Pass Pass Pass Pass Pass	Qualifying Code		
Test Spike - % Recovery Perfluoroalkyl carboxylic acids (PF Perfluorobutanoic acid (PFBA) Perfluoropentanoic acid (PFPeA) Perfluorohexanoic acid (PFHxA) Perfluoroheptanoic acid (PFHA) Perfluorooctanoic acid (PFOA) Perfluorononanoic acid (PFDA) Perfluoroundecanoic acid (PFUnDA)	Lab Sample ID CAs) S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384	QA Source	Units % % % % % % %	Result 1 Result 1 109 103 142 91 106 103 100 121		Acceptance Limits 50-150 50-150 50-150 50-150 50-150 50-150 50-150 50-150	Pass Limits Pass Pass Pass Pass Pass Pass	Qualifying Code		
Test Spike - % Recovery Perfluoroalkyl carboxylic acids (PF Perfluorobutanoic acid (PFBA) Perfluoropentanoic acid (PFPeA) Perfluorohexanoic acid (PFHxA) Perfluoroheptanoic acid (PFHA) Perfluorooctanoic acid (PFOA) Perfluorononanoic acid (PFDA) Perfluoroundecanoic acid (PFUnDA) Perfluorododecanoic acid (PFDoDA)	Lab Sample ID CAs) S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384	QA Source	Units % % % % % % % % % % % % % % % % % %	Result 1 Result 1 109 103 142 91 106 103 100 121 122		Acceptance Limits 50-150 50-150 50-150 50-150 50-150 50-150 50-150 50-150 50-150	Pass Pass Pass Pass Pass Pass Pass Pass	Qualifying Code		
Test Spike - % Recovery Perfluoroalkyl carboxylic acids (PF Perfluorobutanoic acid (PFBA) Perfluoropentanoic acid (PFPeA) Perfluorohexanoic acid (PFHxA) Perfluoroheptanoic acid (PFHA) Perfluorooctanoic acid (PFOA) Perfluorononanoic acid (PFOA) Perfluoroundecanoic acid (PFDA) Perfluoroundecanoic acid (PFUnDA) Perfluorododecanoic acid (PFDoDA) Perfluorotridecanoic acid (PFTrDA)	Lab Sample ID CAs) S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384	QA Source	Units % % % % % % % % % % % % % % % % % %	Result 1 Result 1 109 103 142 91 106 103 100 121 122 118		Acceptance Limits 50-150 50-150 50-150 50-150 50-150 50-150 50-150 50-150 50-150	Pass Pass Pass Pass Pass Pass Pass Pass	Qualifying Code		
Test Spike - % Recovery Perfluoroalkyl carboxylic acids (PF Perfluorobutanoic acid (PFBA) Perfluoropentanoic acid (PFPeA) Perfluorohexanoic acid (PFHxA) Perfluoroheptanoic acid (PFHA) Perfluorooctanoic acid (PFOA) Perfluorononanoic acid (PFOA) Perfluoroundecanoic acid (PFDA) Perfluoroundecanoic acid (PFUnDA) Perfluorotetradecanoic acid (PFTrDA) Perfluorotetradecanoic acid (PFTeDA)	Lab Sample ID CAs) S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384	QA Source	Units % % % % % % % % % % % % % % % % % %	Result 1 Result 1 109 103 142 91 106 103 100 121 122 118 87		Acceptance Limits 50-150 50-150 50-150 50-150 50-150 50-150 50-150 50-150 50-150 50-150 50-150	Pass Pass Pass Pass Pass Pass Pass Pass	Qualifying Code		
Test Spike - % Recovery Perfluoroalkyl carboxylic acids (PF Perfluorobutanoic acid (PFBA) Perfluoropentanoic acid (PFPeA) Perfluoroheptanoic acid (PFHA) Perfluoroheptanoic acid (PFHA) Perfluorooctanoic acid (PFOA) Perfluorononanoic acid (PFOA) Perfluorodecanoic acid (PFDA) Perfluoroundecanoic acid (PFDA) Perfluorododecanoic acid (PFUnDA) Perfluorotridecanoic acid (PFTrDA) Perfluorotetradecanoic acid (PFTeDA) Spike - % Recovery	Lab Sample ID CAs) S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384	QA Source	Units % % % % % % % % % % % % % % % % % % %	Result 1 Result 1 109 103 142 91 106 103 100 121 122 118 87		Acceptance Limits 50-150 50-150 50-150 50-150 50-150 50-150 50-150 50-150 50-150 50-150	Pass Pass Pass Pass Pass Pass Pass Pass	Qualifying Code		
Test Spike - % Recovery Perfluoroalkyl carboxylic acids (PF Perfluorobutanoic acid (PFBA) Perfluoropentanoic acid (PFPeA) Perfluoroheptanoic acid (PFHA) Perfluoroheptanoic acid (PFHA) Perfluorooctanoic acid (PFOA) Perfluorononanoic acid (PFOA) Perfluorodecanoic acid (PFDA) Perfluorodecanoic acid (PFDA) Perfluorodecanoic acid (PFDA) Perfluorodecanoic acid (PFDA) Perfluorotridecanoic acid (PFTrDA) Perfluorotridecanoic acid (PFTrDA) Perfluorotetradecanoic acid (PFTrDA) Perfluorotetradecanoic acid (PFTrDA) Spike - % Recovery Perfluoroalkyl sulfonamido substa	Lab Sample ID CAs) S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384	QA Source	Units % % % % % % % % % % % % % % % % % % %	Result 1 109 103 142 91 106 103 100 121 122 118 87 Result 1		Acceptance Limits 50-150 50-150 50-150 50-150 50-150 50-150 50-150 50-150 50-150 50-150	Pass Pass Pass Pass Pass Pass Pass Pass	Qualifying Code		
Test Spike - % Recovery Perfluoroalkyl carboxylic acids (PF Perfluorobutanoic acid (PFBA) Perfluoropentanoic acid (PFPeA) Perfluorohexanoic acid (PFHA) Perfluorohexanoic acid (PFHA) Perfluorooctanoic acid (PFOA) Perfluorononanoic acid (PFOA) Perfluorodecanoic acid (PFDA) Perfluorodecanoic acid (PFDA) Perfluorodecanoic acid (PFDA) Perfluorodecanoic acid (PFDA) Perfluorodecanoic acid (PFTDA) Perfluorotridecanoic acid (PFTrDA) Perfluorotridecanoic acid (PFTrDA) Perfluorotetradecanoic acid (PFTrDA) Spike - % Recovery Perfluoroalkyl sulfonamido substa Perfluorooctane sulfonamide (FOSA)	Lab Sample ID CAs) S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384	QA Source	Units % % % % % % % % % % % % % % % % % %	Result 1 Result 1 109 103 142 91 106 103 100 121 122 118 87 Result 1 64		Acceptance Limits 50-150 50-150 50-150 50-150 50-150 50-150 50-150 50-150 50-150 50-150 50-150	Pass Pass Pass Pass Pass Pass Pass Pass	Qualifying Code		
Test Spike - % Recovery Perfluoroalkyl carboxylic acids (PF Perfluorobutanoic acid (PFBA) Perfluoropentanoic acid (PFPeA) Perfluorohexanoic acid (PFHA) Perfluorohexanoic acid (PFHA) Perfluorooctanoic acid (PFOA) Perfluorononanoic acid (PFOA) Perfluorodecanoic acid (PFDA) Perfluorodecanoic acid (PFDA) Perfluorodecanoic acid (PFDA) Perfluorodecanoic acid (PFDA) Perfluorodecanoic acid (PFTDA) Perfluorotridecanoic acid (PFTrDA) Perfluorotridecanoic acid (PFTrDA) Perfluorotetradecanoic acid (PFTeDA) Spike - % Recovery Perfluorooctane sulfonamide (FOSA) N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	Lab Sample ID CAs) S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384	QA Source	Units % % % % % % % % % % % % % % % % % % %	Result 1 109 103 142 91 106 103 100 121 122 118 87 Result 1 64 129		Acceptance Limits 50-150 50-150 50-150 50-150 50-150 50-150 50-150 50-150 50-150 50-150 50-150 50-150	Pass Pass Pass Pass Pass Pass Pass Pass	Qualifying Code		
Test Spike - % Recovery Perfluoroalkyl carboxylic acids (PF Perfluorobutanoic acid (PFBA) Perfluoropentanoic acid (PFPeA) Perfluorohexanoic acid (PFHAA) Perfluoroheptanoic acid (PFHAA) Perfluorooctanoic acid (PFOA) Perfluorooctanoic acid (PFOA) Perfluoroundecanoic acid (PFDA) Perfluoroundecanoic acid (PFDA) Perfluorododecanoic acid (PFUnDA) Perfluorododecanoic acid (PFTeDA) Perfluorotetradecanoic acid (PFTeDA) Spike - % Recovery Perfluorooctane sulfonamide (FOSA) N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	Lab Sample ID CAs) S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384	QA Source	Units % % % % % % % % % % % % % % % % % % %	Result 1 109 103 142 91 106 103 121 122 118 87 Result 1 64 129 65		Acceptance Limits 50-150 50-150 50-150 50-150 50-150 50-150 50-150 50-150 50-150 50-150 50-150 50-150 50-150 50-150	Pass Pass Pass Pass Pass Pass Pass Pass	Qualifying Code		
Test Spike - % Recovery Perfluoroalkyl carboxylic acids (PF Perfluorobutanoic acid (PFBA) Perfluoropentanoic acid (PFPeA) Perfluoroheptanoic acid (PFHAA) Perfluoroheptanoic acid (PFHAA) Perfluorooctanoic acid (PFOA) Perfluorootanoic acid (PFOA) Perfluorodecanoic acid (PFDA) Perfluorodecanoic acid (PFDA) Perfluorodecanoic acid (PFDA) Perfluorodecanoic acid (PFDA) Perfluorodecanoic acid (PFTDA) Perfluorotridecanoic acid (PFTrDA) Perfluorotridecanoic acid (PFTrDA) Perfluorotetradecanoic acid (PFTeDA) Spike - % Recovery Perfluorootane sulfonamide (FOSA) N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) 2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	Lab Sample ID CAs) S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384 S21-No62384	QA Source	Units % % % % % % % % % % % % % % % % % % %	Result 1 109 103 142 91 106 103 121 122 118 87 Result 1 64 129 65 134		Acceptance Limits 50-150 50-150 50-150 50-150 50-150 50-150 50-150 50-150 50-150 50-150 50-150 50-150 50-150 50-150 50-150 50-150	Pass Pass Pass Pass Pass Pass Pass Pass	Qualifying Code		



Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code		
N-ethyl- perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	S21-No62384	NCP	%	94			50-150	Pass			
N-methyl- perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	S21-No62384	NCP	%	112			50-150	Pass			
Spike - % Recovery							,				
Perfluoroalkyl sulfonic acids (PFS)	As)			Result 1							
Perfluorobutanesulfonic acid (PFBS)	S21-No62384	NCP	%	96			50-150	Pass			
Perfluorononanesulfonic acid (PFNS)	S21-No62384	NCP	%	84			50-150	Pass			
Perfluoropropanesulfonic acid (PFPrS)	S21-No62384	NCP	%	102			50-150	Pass			
Perfluoropentanesulfonic acid (PFPeS)	S21-No62384	NCP	%	77			50-150	Pass			
Perfluorohexanesulfonic acid (PFHxS)	S21-No62384	NCP	%	100			50-150	Pass			
Perfluoroheptanesulfonic acid (PFHpS)	S21-No62384	NCP	%	87			50-150	Pass			
Perfluorooctanesulfonic acid (PFOS)	S21-No62384	NCP	%	70			50-150	Pass			
Perfluorodecanesulfonic acid (PFDS)	S21-No62384	NCP	%	55			50-150	Pass			
Spike - % Recovery											
n:2 Fluorotelomer sulfonic acids (r	n:2 FTSAs)			Result 1							
1H.1H.2H.2H- perfluorohexanesulfonic acid (4:2 FTSA)	S21-No62384	NCP	%	130			50-150	Pass			
1H.1H.2H.2H- perfluorooctanesulfonic acid (6:2 FTSA)	S21-No62384	NCP	%	111			50-150	Pass			
1H.1H.2H.2H- perfluorodecanesulfonic acid (8:2 FTSA)	S21-No62384	NCP	%	70			50-150	Pass			
1H.1H.2H.2H- perfluorododecanesulfonic acid	S21-No62384	NCP	%	128			50-150	Pass			
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance	Pass Limits	Qualifying Code		
Duplicate	L										
Perfluoroalkyl carboxylic acids (PF	CAs)			Result 1	Result 2	RPD					
Perfluorobutanoic acid (PFBA)	S21-No62385	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass			
Perfluoropentanoic acid (PFPeA)	S21-No62385	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass			
Perfluorohexanoic acid (PFHxA)	S21-No62385	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass			
Perfluoroheptanoic acid (PFHpA)	S21-No62385	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass			
Perfluorooctanoic acid (PFOA)	S21-No62385	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass			
Perfluorononanoic acid (PFNA)	S21-No62385	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass			
Perfluorodecanoic acid (PFDA)	S21-No62385	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass			
Perfluoroundecanoic acid (PFUnDA)	S21-No62385	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass			
Perfluorododecanoic acid (PFDoDA)	S21-No62385	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass			
Perfluorotridecanoic acid (PFTrDA)	S21-No62385	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass			
Perfluorotetradecanoic acid (PFTeDA)	S21-No62385	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass			



Duplicate											
Perfluoroalkyl sulfonamido substa	nces			Result 1	Result 2	RPD					
Perfluorooctane sulfonamide (FOSA)	S21-No62385	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass			
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	S21-No62385	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass			
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	S21-No62385	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass			
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	S21-No62385	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass			
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	S21-No62385	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass			
N-ethyl- perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	S21-No62385	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass			
N-methyl- perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	S21-No62385	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass			
Duplicate				·				-			
Perfluoroalkyl sulfonic acids (PFS)	As)			Result 1	Result 2	RPD					
Perfluorobutanesulfonic acid (PFBS)	S21-No62385	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass			
Perfluorononanesulfonic acid (PFNS)	S21-No62385	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass			
Perfluoropropanesulfonic acid (PFPrS)	S21-No62385	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass			
Perfluoropentanesulfonic acid (PFPeS)	S21-No62385	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass			
Perfluorohexanesulfonic acid (PFHxS)	S21-No62385	NCP	ug/L	0.02	0.02	8.0	30%	Pass			
Perfluoroheptanesulfonic acid (PFHpS)	S21-No62385	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass			
Perfluorooctanesulfonic acid (PFOS)	S21-No62385	NCP	ug/L	0.08	0.08	1.0	30%	Pass			
Perfluorodecanesulfonic acid (PFDS)	S21-No62385	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass			
Duplicate				i	i			1			
n:2 Fluorotelomer sulfonic acids (r	n:2 FTSAs)			Result 1	Result 2	RPD					
1H.1H.2H.2H- perfluorohexanesulfonic acid (4:2 FTSA)	S21-No62385	NCP	ua/L	< 0.01	< 0.01	<1	30%	Pass			
1H.1H.2H.2H- perfluorooctanesulfonic acid (6:2 FTSA)	S21-No62385	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass			
1H.1H.2H.2H- perfluorodecanesulfonic acid (8:2 FTSA)	S21-No62385	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass			
1H.1H.2H.2H- perfluorododecanesulfonic acid (10:2 FTSA)	S21-No62385	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
- 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.

 N11
 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

Authorised by:

Emma Beesley Steven Trout Sarah McCallion Analytical Services Manager Senior Analyst-Metal (QLD) Senior Analyst-PFAS (QLD)

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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Alliance Geotechnical 10 Welder Road Seven Hills NSW 2147

Attention:

Jacob Walker

Report Project name Project ID Received Date

844355-S MANLY VALE 14144 Nov 19, 2021

Client Sample ID			BH01-0.5-0.7	BH01-1.4-1.6	BH02-0.1-0.3	BH02-1.0-1.2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-No62499	S21-No62500	S21-No62501	S21-No62502
Date Sampled			Nov 19, 2021	Nov 19, 2021	Nov 19, 2021	Nov 19, 2021
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH C6-C9	20	mg/kg	< 20	-	< 20	-
TRH C10-C14	20	mg/kg	< 20	-	< 20	-
TRH C15-C28	50	mg/kg	90	-	< 50	-
TRH C29-C36	50	mg/kg	< 50	-	< 50	-
TRH C10-C36 (Total)	50	mg/kg	90	-	< 50	-
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	-	< 0.5	-
TRH C6-C10	20	mg/kg	< 20	-	< 20	-
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	-	< 20	-
TRH >C10-C16	50	mg/kg	< 50	-	< 50	-
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	-	< 50	-
TRH >C16-C34	100	mg/kg	140	-	< 100	-
TRH >C34-C40	100	mg/kg	< 100	-	< 100	-
TRH >C10-C40 (total)*	100	mg/kg	140	-	< 100	-
Volatile Organics						
1.1-Dichloroethane	0.5	mg/kg	< 0.5	-	< 0.5	-
1.1-Dichloroethene	0.5	mg/kg	< 0.5	-	< 0.5	-
1.1.1-Trichloroethane	0.5	mg/kg	< 0.5	-	< 0.5	-
1.1.1.2-Tetrachloroethane	0.5	mg/kg	< 0.5	-	< 0.5	-
1.1.2-Trichloroethane	0.5	mg/kg	< 0.5	-	< 0.5	-
1.1.2.2-Tetrachloroethane	0.5	mg/kg	< 0.5	-	< 0.5	-
1.2-Dibromoethane	0.5	mg/kg	< 0.5	-	< 0.5	-
1.2-Dichlorobenzene	0.5	mg/kg	< 0.5	-	< 0.5	-
1.2-Dichloroethane	0.5	mg/kg	< 0.5	-	< 0.5	-
1.2-Dichloropropane	0.5	mg/kg	< 0.5	-	< 0.5	-
1.2.3-Trichloropropane	0.5	mg/kg	< 0.5	-	< 0.5	-
1.2.4-Trimethylbenzene	0.5	mg/kg	< 0.5	-	< 0.5	-
1.3-Dichlorobenzene	0.5	mg/kg	< 0.5	-	< 0.5	-
1.3-Dichloropropane	0.5	mg/kg	< 0.5	-	< 0.5	-
1.3.5-Trimethylbenzene	0.5	mg/kg	< 0.5	-	< 0.5	-
1.4-Dichlorobenzene	0.5	mg/kg	< 0.5	-	< 0.5	-
2-Butanone (MEK)	0.5	mg/kg	< 0.5	-	< 0.5	-
2-Propanone (Acetone)	0.5	mg/kg	< 0.5	-	< 0.5	-
4-Chlorotoluene	0.5	mg/kg	< 0.5	-	< 0.5	-
4-Methyl-2-pentanone (MIBK)	0.5	mg/kg	< 0.5	-	< 0.5	-
Allyl chloride	0.5	mg/kg	< 0.5	-	< 0.5	-





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.



Client Sample ID			BH01-0.5-0.7	BH01-1.4-1.6	BH02-0.1-0.3	BH02-1.0-1.2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-No62499	S21-No62500	S21-No62501	S21-No62502
Date Sampled			Nov 19, 2021	Nov 19, 2021	Nov 19, 2021	Nov 19, 2021
Test/Reference	LOR	Unit				, i
Volatile Organics	Lon	Onit				
Benzene	0.1	ma/ka	< 0.1		< 0.1	
Bromohenzene	0.1	mg/kg	< 0.1	_	< 0.1	_
Bromochloromethane	0.5	mg/kg	< 0.5	_	< 0.5	_
Bromodichloromethane	0.5	mg/kg	< 0.5		< 0.5	
Bromoform	0.5	mg/kg	< 0.5		< 0.5	
Bromomethane	0.5	mg/kg	< 0.5	_	< 0.5	_
Carbon disulfide	0.5	mg/kg	< 0.5	_	< 0.5	_
Carbon Tetrachloride	0.5	mg/kg	< 0.5		< 0.5	
Chlorobonzono	0.5	mg/kg	< 0.5	-	< 0.5	
Chloroethane	0.5	mg/kg	< 0.5		< 0.5	
Chloroform	0.5	mg/kg	< 0.5	-	< 0.5	-
Chloromothana	0.5	mg/kg	< 0.5	-	< 0.5	-
	0.5	mg/kg	< 0.5	-	< 0.5	-
cis-1.2-Dichloropropage	0.5	mg/kg	< 0.5	-	< 0.5	-
Cis-1.3-Dichloropropene	0.5	mg/kg	< 0.5	-	< 0.5	-
Dibromochioromethane	0.5	mg/kg	< 0.5	-	< 0.5	-
Diblomomethane	0.5	mg/kg	< 0.5	-	< 0.5	-
	0.5	mg/kg	< 0.5	-	< 0.5	-
	0.1	mg/kg	< 0.1	-	< 0.1	-
	0.5	mg/kg	< 0.5	-	< 0.5	-
	0.5	mg/kg	< 0.5	-	< 0.5	-
Mathedage Oblacida	0.2	mg/kg	< 0.2	-	< 0.2	-
	0.5	mg/kg	< 0.5	-	< 0.5	-
o-Xylene	0.1	mg/kg	< 0.1	-	< 0.1	-
Styrene	0.5	mg/kg	< 0.5	-	< 0.5	-
	0.5	mg/kg	< 0.5	-	< 0.5	-
	0.1	mg/kg	< 0.1	-	< 0.1	-
trans-1.2-Dichloroethene	0.5	mg/kg	< 0.5	-	< 0.5	-
trans-1.3-Dichloropropene	0.5	mg/kg	< 0.5	-	< 0.5	-
Trichloroethene	0.5	mg/kg	< 0.5	-	< 0.5	-
Trichlorofluoromethane	0.5	mg/kg	< 0.5	-	< 0.5	-
Vinyl chloride	0.5	mg/kg	< 0.5	-	< 0.5	-
Xylenes - Total*	0.3	mg/kg	< 0.3	-	< 0.3	-
Total MAH*	0.5	mg/kg	< 0.5	-	< 0.5	-
Vic EPA IWRG 621 CHC (Total)*	0.5	mg/kg	< 0.5	-	< 0.5	-
Vic EPA IWRG 621 Other CHC (Total)*	0.5	mg/kg	< 0.5	-	< 0.5	-
4-Bromofluorobenzene (surr.)	1	%	105	-	97	-
Toluene-d8 (surr.)	1	%	115	-	100	-
Polycyclic Aromatic Hydrocarbons	1	r				
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	1.9	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	2.1	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	2.4	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	1.3	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	1.4	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	1.4	< 0.5	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	0.8	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	1.3	< 0.5	< 0.5	< 0.5



Client Sample ID			BH01-0.5-0.7	BH01-1.4-1.6	BH02-0.1-0.3	BH02-1.0-1.2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-No62499	S21-No62500	S21-No62501	S21-No62502
Date Sampled			Nov 19, 2021	Nov 19, 2021	Nov 19, 2021	Nov 19, 2021
	LOR	Unit			,	
Polycyclic Aromatic Hydrocarbons	LOIN	Onit				
Chrysene	0.5	ma/ka	1.0	< 0.5	< 0.5	< 0.5
Dibenz(a b)anthracene	0.5	mg/kg	- 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	2.0	< 0.5	< 0.5	< 0.5
Fluorene	0.5	ma/ka	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1,2,3-cd)pyrene	0.5	ma/ka	0.6	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	ma/ka	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	ma/ka	0.6	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	2.1	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	12.5	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	74	86	97	94
p-Terphenyl-d14 (surr.)	1	%	75	93	102	96
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	-	< 0.1	-
4.4'-DDD	0.05	mg/kg	< 0.05	-	< 0.05	-
4.4'-DDE	0.05	mg/kg	< 0.05	-	< 0.05	-
4.4'-DDT	0.05	mg/kg	< 0.05	-	< 0.05	-
a-HCH	0.05	mg/kg	< 0.05	-	< 0.05	-
Aldrin	0.05	mg/kg	< 0.05	-	< 0.05	-
b-HCH	0.05	mg/kg	< 0.05	-	< 0.05	-
d-HCH	0.05	mg/kg	< 0.05	-	< 0.05	-
Dieldrin	0.05	mg/kg	< 0.05	-	< 0.05	-
Endosulfan I	0.05	mg/kg	< 0.05	-	< 0.05	-
Endosulfan II	0.05	mg/kg	< 0.05	-	< 0.05	-
Endosulfan sulphate	0.05	mg/kg	< 0.05	-	< 0.05	-
Endrin	0.05	mg/kg	< 0.05	-	< 0.05	-
Endrin aldehyde	0.05	mg/kg	< 0.05	-	< 0.05	-
Endrin ketone	0.05	mg/kg	< 0.05	-	< 0.05	-
g-HCH (Lindane)	0.05	mg/kg	< 0.05	-	< 0.05	-
Heptachlor	0.05	mg/kg	< 0.05	-	< 0.05	-
Heptachlor epoxide	0.05	mg/kg	< 0.05	-	< 0.05	-
Hexachlorobenzene	0.05	mg/kg	< 0.05	-	< 0.05	-
Methoxychlor	0.05	mg/kg	< 0.05	-	< 0.05	-
Toxaphene	0.5	mg/kg	< 0.5	-	< 0.5	-
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	-	< 0.05	-
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	-	< 0.05	-
	0.1	mg/kg	< 0.1	-	< 0.1	-
Vic EPA IWRG 621 Other OCP (Total)"	0.1	mg/kg	< 0.1	-	< 0.1	-
Dibutyichiorendate (surr.)	1	%	72	-	112	-
Pelvebleringtod Pinhonylo	I	70	/ 6	-	102	-
	0.4		.0.4		.0.1	
	0.1	mg/kg	< 0.1	-	< 0.1	-
Arodor 1222	0.1	mg/kg	< 0.1	-	< 0.1	-
Aroclor 1242	0.1	mg/kg	< 0.1	-	< 0.1	-
Aroclor-1248	0.1	mg/kg	< 0.1	-	< 0.1	-
Aroclor-1254	0.1	mg/kg	< 0.1	-	< 0.1	-
Aroclor-1260	0.1	ma/ka	< 0.1		< 0.1	
Total PCB*	0.1	ma/ka	< 0.1	_	< 0.1	-
Dibutylchlorendate (surr.)	1	%	72	-	112	-
Tetrachloro-m-xylene (surr.)	1	%	78	-	102	-



Client Sample ID			BH01-0.5-0.7	BH01-1.4-1.6	BH02-0.1-0.3	BH02-1.0-1.2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No			S21-No62499	S21-No62500	S21-No62501	S21-No62502
Data Sampled			Nev 10, 2021	New 10, 2021	New 10, 2021	Nev 10, 2021
			NOV 19, 2021	NOV 19, 2021	NOV 19, 2021	NOV 19, 2021
	LOR	Unit				
Heavy Metals	-					
Arsenic	2	mg/kg	2.1	<2	2.4	< 2
Charmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Corpor	5	mg/kg	16	5.0	13	< 5
Lood	5	mg/kg	32	< 5	23	< 5
Moreury	0.1	mg/kg	<u> </u>	< 0.1	- 0 1	< 0.1
Nickel	5	mg/kg	< 5	< 5	< 5	< 5
Zinc	5	mg/kg	170	< 5	38	90
	5	тіу/ку	170		50	3.0
% Moisture	1	0/	0.1	14	9.6	12
Perfluoroalkyl carboxylic acids (PECAs)	I	70	5.1	14	3.0	12
Perfluerebutencie acid (PERA) ^{N1}	5	ua/ka	- 5		5	
Perfluoropentanoic acid (PEPeA) ^{N11}	5	ug/kg	< 5		< 5	-
Perfluorobevanoic acid (PEHvA) ^{N11}	5	ug/kg	< 5		< 5	-
Perfluorohentanoic acid ($PEHnA$) ^{N11}	5	ug/kg	< 5		< 5	_
Perfluorooctanoic acid (PEOA) ^{N11}	5	ug/kg	< 5	_	< 5	_
Perfluoroponanoic acid (PENA) ^{N11}	5		< 5	_	< 5	_
Perfluorodecanoic acid (PFDA) ^{N11}	5	ug/kg	< 5	-	< 5	-
Perfluoroundecanoic acid (PFUnDA) ^{N11}	5	ug/ka	< 5	-	< 5	-
Perfluorododecanoic acid (PFDoDA) ^{N11}	5	ug/kg	< 5	-	< 5	-
Perfluorotridecanoic acid (PFTrDA) ^{N15}	5	ug/kg	< 5	-	< 5	-
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	5	ug/kg	< 5	-	< 5	-
13C4-PFBA (surr.)	1	%	95	-	96	-
13C5-PFPeA (surr.)	1	%	102	-	99	-
13C5-PFHxA (surr.)	1	%	94	-	82	-
13C4-PFHpA (surr.)	1	%	94	-	109	-
13C8-PFOA (surr.)	1	%	115	-	107	-
13C5-PFNA (surr.)	1	%	110	-	112	-
13C6-PFDA (surr.)	1	%	127	-	105	-
13C2-PFUnDA (surr.)	1	%	121	-	112	-
13C2-PFDoDA (surr.)	1	%	133	-	110	-
13C2-PFTeDA (surr.)	1	%	110	-	116	-
Perfluoroalkyl sulfonamido substances		1				
Perfluorooctane sulfonamide (FOSA) ^{N11}	5	ug/kg	< 5	-	< 5	-
N-methylperfluoro-1-octane sulfonamide (N- MeFOSA) ^{N11}	5	ug/kg	< 5	-	< 5	-
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	5	ug/kg	< 5	-	< 5	-
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE) ^{N11}	5	ug/kg	< 5	-	< 5	-
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N- EtFOSE) ^{N11}	5	ug/kg	< 5	-	< 5	-
N-ethyl-perfluorooctanesulfonamidoacetic acid (N- EtFOSAA) ^{N11}	10	ug/kg	< 10	-	< 10	-
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	10	ug/kg	< 10	-	< 10	-
13C8-FOSA (surr.)	1	%	108	-	108	-
D3-N-MeFOSA (surr.)	1	%	87	-	99	-
D5-N-EtFOSA (surr.)	1	%	90	-	98	-
D7-N-MeFOSE (surr.)	1	%	102	-	114	-
D9-N-EtFOSE (surr.)	1	%	73	-	94	-
D5-N-EtFOSAA (surr.)	1	%	92	-	111	-
D3-N-MeFOSAA (surr.)	1	%	94	-	102	-


Client Sample ID			BH01-0.5-0.7	BH01-1.4-1.6	BH02-0.1-0.3	BH02-1.0-1.2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-No62499	S21-No62500	S21-No62501	S21-No62502
Date Sampled			Nov 19, 2021	Nov 19, 2021	Nov 19, 2021	Nov 19, 2021
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonic acids (PFSAs)						
Perfluorobutanesulfonic acid (PFBS) ^{N11}	5	ug/kg	< 5	-	< 5	-
Perfluorononanesulfonic acid (PFNS) ^{N15}	5	ug/kg	< 5	-	< 5	-
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	5	ug/kg	< 5	-	< 5	-
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	5	ug/kg	< 5	-	< 5	-
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	5	ug/kg	< 5	-	< 5	-
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	5	ug/kg	< 5	-	< 5	-
Perfluorooctanesulfonic acid (PFOS) ^{N11}	5	ug/kg	< 5	-	< 5	-
Perfluorodecanesulfonic acid (PFDS) ^{N15}	5	ug/kg	< 5	-	< 5	-
13C3-PFBS (surr.)	1	%	101	-	101	-
18O2-PFHxS (surr.)	1	%	109	-	106	-
13C8-PFOS (surr.)	1	%	92	-	115	-
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	5	ug/kg	< 5	-	< 5	-
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA) ^{N11}	10	ug/kg	< 10	-	< 10	-
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	5	ug/kg	< 5	-	< 5	-
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	5	ug/kg	< 5	-	< 5	-
13C2-4:2 FTSA (surr.)	1	%	83	-	97	-
13C2-6:2 FTSA (surr.)	1	%	87	-	119	-
13C2-8:2 FTSA (surr.)	1	%	81	-	115	-
13C2-10:2 FTSA (surr.)	1	%	91	-	116	-
PFASs Summations						
Sum (PFHxS + PFOS)*	5	ug/kg	< 5	-	< 5	-
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	< 5	-	< 5	-
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	< 5	-	< 5	-
Sum of WA DWER PFAS (n=10)*	10	ug/kg	< 10	-	< 10	-
Sum of PFASs (n=30)*	50	ug/kg	< 50	-	< 50	-

Client Sample ID			BH02-1.4-1.6	BH03-0.1-0.3	BH03-1.4-1.6	BH03-1.9-2.1
			501	5011	5011	5011
Eurofins Sample No.			S21-No62503	S21-No62504	S21-No62505	S21-No62506
Date Sampled			Nov 19, 2021	Nov 19, 2021	Nov 19, 2021	Nov 19, 2021
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	-	-	730	-
TRH C29-C36	50	mg/kg	-	-	210	-
TRH C10-C36 (Total)	50	mg/kg	-	-	940	-
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	-	-	1300	-
TRH >C34-C40	100	mg/kg	-	-	410	-
TRH >C10-C40 (total)*	100	mg/kg	-	-	1710	-



Client Sample ID			BH02-1.4-1.6	BH03-0.1-0.3	BH03-1.4-1.6	BH03-1.9-2.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-No62503	S21-No62504	S21-No62505	S21-No62506
Date Sampled			Nov 19, 2021	Nov 19, 2021	Nov 19, 2021	Nov 19, 2021
Test/Reference	LOR	Unit				
Volatile Organics	LOIN	Onit				
1 1-Dichloroethane	0.5	ma/ka	_	_	< 0.5	_
1 1-Dichloroethene	0.5	mg/kg	_	_	< 0.5	_
1 1 1-Trichloroethane	0.5	ma/ka	_	_	< 0.5	_
1 1 1 2-Tetrachloroethane	0.5	ma/ka	_	_	< 0.5	_
1 1 2-Trichloroethane	0.5	ma/ka	_	_	< 0.5	_
1 1 2 2-Tetrachloroethane	0.5	ma/ka	_	-	< 0.5	-
1 2-Dibromoethane	0.5	ma/ka	_	-	< 0.5	-
1.2-Dichlorobenzene	0.5	ma/ka	_	-	< 0.5	-
1 2-Dichloroethane	0.5	ma/ka	_	-	< 0.5	-
1 2-Dichloropropane	0.5	ma/ka	_	-	< 0.5	_
1.2.3-Trichloropropane	0.5	ma/ka	_	-	< 0.5	-
1.2.4-Trimethylbenzene	0.5	ma/ka	_	-	< 0.5	-
1.3-Dichlorobenzene	0.5	ma/ka	_	-	< 0.5	-
1.3-Dichloropropane	0.5	ma/ka	_	-	< 0.5	-
1.3.5-Trimethylbenzene	0.5	ma/ka	_	-	< 0.5	-
1.4-Dichlorobenzene	0.5	ma/ka	-	-	< 0.5	-
2-Butanone (MEK)	0.5	ma/ka	_	-	< 0.5	-
2-Propanone (Acetone)	0.5	ma/ka	_	-	< 0.5	-
4-Chlorotoluene	0.5	ma/ka	_	-	< 0.5	-
4-Methyl-2-pentanone (MIBK)	0.5	ma/ka	-	-	< 0.5	-
Allyl chloride	0.5	ma/ka	-	-	< 0.5	-
Benzene	0.1	mg/kg	-	-	< 0.1	-
Bromobenzene	0.5	mg/kg	-	-	< 0.5	-
Bromochloromethane	0.5	mg/kg	-	-	< 0.5	-
Bromodichloromethane	0.5	mg/kg	-	-	< 0.5	-
Bromoform	0.5	mg/kg	-	-	< 0.5	-
Bromomethane	0.5	mg/kg	-	-	< 0.5	-
Carbon disulfide	0.5	mg/kg	-	-	< 0.5	-
Carbon Tetrachloride	0.5	mg/kg	-	-	< 0.5	-
Chlorobenzene	0.5	mg/kg	-	-	< 0.5	-
Chloroethane	0.5	mg/kg	-	-	< 0.5	-
Chloroform	0.5	mg/kg	-	-	< 0.5	-
Chloromethane	0.5	mg/kg	-	-	< 0.5	-
cis-1.2-Dichloroethene	0.5	mg/kg	-	-	< 0.5	-
cis-1.3-Dichloropropene	0.5	mg/kg	-	-	< 0.5	-
Dibromochloromethane	0.5	mg/kg	-	-	< 0.5	-
Dibromomethane	0.5	mg/kg	-	-	< 0.5	-
Dichlorodifluoromethane	0.5	mg/kg	-	-	< 0.5	-
Ethylbenzene	0.1	mg/kg	-	-	< 0.1	-
Iodomethane	0.5	mg/kg	-	-	< 0.5	-
Isopropyl benzene (Cumene)	0.5	mg/kg	-	-	< 0.5	-
m&p-Xylenes	0.2	mg/kg	-	-	< 0.2	-
Methylene Chloride	0.5	mg/kg	-	-	< 0.5	-
o-Xylene	0.1	mg/kg	-	-	< 0.1	-
Styrene	0.5	mg/kg	-	-	< 0.5	-
Tetrachloroethene	0.5	mg/kg	-	-	< 0.5	-
Toluene	0.1	mg/kg	-	-	< 0.1	-
trans-1.2-Dichloroethene	0.5	mg/kg	-	-	< 0.5	-
trans-1.3-Dichloropropene	0.5	mg/kg	-	-	< 0.5	-



Client Sample ID			BH02-1.4-1.6	BH03-0.1-0.3	BH03-1.4-1.6	BH03-1.9-2.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-No62503	S21-No62504	S21-No62505	S21-No62506
Date Sampled			Nov 19, 2021	Nov 19, 2021	Nov 19, 2021	Nov 19, 2021
Test/Deference		1.1	1407 13, 2021	1407 13, 2021	100 13, 2021	100 13, 2021
Veletile Organice	LUR	Unit				
	0.5				0.5	
	0.5	mg/kg	-	-	< 0.5	-
	0.5	mg/kg	-	-	< 0.5	-
	0.5	mg/kg	-	-	< 0.5	-
	0.3	mg/kg	-	-	< 0.3	-
	0.5	mg/kg	-	-	< 0.5	-
	0.5	mg/kg	-	-	< 0.5	-
VIC EPA IWRG 621 Other CHC (Total)"	0.5	mg/kg	-	-	< 0.5	-
4-Bromotiuorobenzene (surr.)	1	%	-	-	94	-
Polyanelia Arametia Hydrogenhane	1	%	-	-	98	-
	0.5		0.5	0.5	0.5	0.5
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) ^	0.5	mg/kg	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g.n.i)perviene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluorantnene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dependence	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Prienantmene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total DAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2 Eluorohinhonyl (aurr.)	0.5	0/	< 0.5	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (sun.)	1	% 0/	98	02	01	93
P-Terphenyl-d14 (sull.)	I	70	110	92	01	100
Chlordonoo Totol	0.1	maller			.01	
	0.1	mg/kg	-	-	< 0.1	-
4.4-DDD	0.05	mg/kg	-	-	< 0.05	-
	0.05	mg/kg	-	-	< 0.05	-
	0.05	mg/kg	-	-	< 0.05	-
	0.05	mg/kg	-	-	< 0.05	-
	0.05	mg/kg	-	-	< 0.05	-
	0.05	mg/kg	-	-		-
Dieldrin	0.05	ma/ka	-	-	< 0.00	-
	0.05	ma/ka	-	-	< 0.05	
Endosulfan II	0.05	ma/ka	-	-	< 0.00	-
	0.05	ma/ka	-	-	< 0.05	
Endrin	0.05	ma/ka	-		< 0.05	
Endrin aldehyde	0.05	ma/ka	-	-	< 0.05	
Endrin ketone	0.05	ma/ka	_	_	< 0.05	-
g-HCH (Lindane)	0.05	ma/ka	-	-	< 0.05	-
<u> </u>	0.00		1	1		1



Client Sample ID			BH02-1.4-1.6	BH03-0.1-0.3	BH03-1.4-1.6	BH03-1.9-2.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-No62503	S21-No62504	S21-No62505	S21-No62506
Date Sampled			Nov 19, 2021	Nov 19, 2021	Nov 19, 2021	Nov 19, 2021
Test/Deference		llait	100 13, 2021	100 13, 2021	100 13, 2021	100 13, 2021
Organachlarina Pastiaidas	LUK	Unit				
	0.05				.0.05	
Heptachior	0.05	mg/kg	-	-	< 0.05	-
	0.05	mg/kg	-	-	< 0.05	-
Hexachlorobenzene	0.05	mg/kg	-	-	< 0.05	-
	0.05	mg/kg	-	-	< 0.05	-
I oxapnene	0.5	mg/kg	-	-	< 0.5	-
	0.05	mg/kg	-	-	< 0.05	-
	0.05	mg/kg	-	-	< 0.05	-
	0.1	mg/kg	-	-	< 0.1	-
Vic EPA IWRG 621 Other OCP (Total)"	0.1	mg/kg	-	-	< 0.1	-
Dibutyichlorendate (surr.)	1	%	-	-	109	-
l etrachloro-m-xylene (surr.)	1	%	-	-	69	-
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	-
Dibutylchlorendate (surr.)	1	%	-	-	109	-
Tetrachloro-m-xylene (surr.)	1	%	-	-	69	-
Heavy Metals	1	1				
Arsenic	2	mg/kg	4.2	2.1	33	9.0
Cadmium	0.4	mg/kg	< 0.4	< 0.4	4.3	< 0.4
Chromium	5	mg/kg	24	12	1100	35
Copper	5	mg/kg	< 5	23	3200	< 5
Lead	5	mg/kg	< 5	43	820	7.0
Mercury	0.1	mg/kg	< 0.1	< 0.1	0.5	< 0.1
Nickel	5	mg/kg	< 5	< 5	640	< 5
Zinc	5	mg/kg	< 5	92	3300	< 5
% Moisture	1	%	14	13	17	14
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 (PFTrDA) ^{N15}	5	ug/kg	-	-	< 5	-
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	5	ug/kg	-	-	< 5	-
13C4-PFBA (surr.)	1	%	-	-	92	-
13C5-PFPeA (surr.)	1	%	-	-	105	-
13C5-PFHxA (surr.)	1	%	-		112	
13C4-PFHpA (surr.)	1	%	-	-	124	-



Client Sample ID			BH02-1.4-1.6	BH03-0.1-0.3	BH03-1.4-1.6	BH03-1.9-2.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-No62503	S21-No62504	S21-No62505	S21-No62506
Date Sampled			Nov 19, 2021	Nov 19, 2021	Nov 19, 2021	Nov 19, 2021
	LOR	Unit	,	,		
Perfluoroalkyl carboxylic acids (PECAs)	LOIN	Onit				
	1	%	_		136	
13C5-PENA (surr.)	1	%	_	_	130	_
13C6-PEDA (surr.)	1	%	_	_	127	_
13C2-PELIDDA (surr.)	1	/0 %	_	_	118	_
13C2-PEDoDA (surr.)	1	%	_	_	103	_
13C2-PFTeDA (surr.)	1	%	_	-	89	_
Perfluoroalkyl sulfonamido substances		70			00	
Perfluorooctane sulfonamide (FOSA) ^{N11}	5	ua/ka	_	_	< 5	_
N-methylperfluoro-1-octane sulfonamide (N-	0	ug/itg				
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) ^(N) 2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-	5	ug/kg	-	-	< 5	-
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	%	-	-	102	-
D3-N-MeFOSA (surr.)	1	%	-	-	84	-
D5-N-EtFOSA (surr.)	1	%	-	-	82	-
D7-N-MeFOSE (surr.)	1	%	-	-	78	-
D9-N-EtFOSE (surr.)	1	%	-	-	85	-
D5-N-EtFOSAA (surr.)	1	%	-	-	92	-
D3-N-MeFOSAA (surr.)	1	%	-	-	87	-
Perfluoroalkyl sulfonic acids (PFSAs)						
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	%	-	-	120	-
18O2-PFHxS (surr.)	1	%	-	-	104	-
13C8-PFOS (surr.)	1	%	-	-	116	-
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)		•				
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	5	ua/ka	_	_	< 5	<u> </u>
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2	10		_	<u> </u>	< 10	_
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2	5				~ 5	
1H.1H.2H.2H.Perfluorododecanesulfonic acid (10:2	5	<u>uy/ку</u> "	-	-	< 0	
	5	ug/kg	-	-	< 5	-
1302-4.2 FTSA (SUIT.)	1	<u>%</u>	-	-	145	-
1302-0.2 FTSA (SUIL)	1	0/	-	-	104	-
13C2-10:2 FTSA (suit.)	1	/0 0/	-	-	120	-
1302-10.2 F 13A (Sull.)		/0	-	-	130	-



Client Sample ID Sample Matrix			BH02-1.4-1.6 Soil	BH03-0.1-0.3 Soil	BH03-1.4-1.6 Soil	BH03-1.9-2.1 Soil
Eurofins Sample No.			S21-No62503	S21-No62504	S21-No62505	S21-No62506
Date Sampled			Nov 19, 2021	Nov 19, 2021	Nov 19, 2021	Nov 19, 2021
Test/Reference	LOR	Unit				
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	-

Client Sample ID			BH04-0.1-0.3	BH04-1.0-1.2	BH04-2.2-2.4	BH04-2.7-2.9
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-No62507	S21-No62508	S21-No62509	S21-No62510
Date Sampled			Nov 19, 2021	Nov 19, 2021	Nov 19, 2021	Nov 19, 2021
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons	-0.1	U.I.I.				
TRH C6-C9	20	ma/ka	-	< 20	_	-
TRH C10-C14	20	ma/ka	-	< 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	-	-
Volatile Organics						
1.1-Dichloroethane	0.5	mg/kg	-	< 0.5	-	-
1.1-Dichloroethene	0.5	mg/kg	-	< 0.5	-	-
1.1.1-Trichloroethane	0.5	mg/kg	-	< 0.5	-	-
1.1.1.2-Tetrachloroethane	0.5	mg/kg	-	< 0.5	-	-
1.1.2-Trichloroethane	0.5	mg/kg	-	< 0.5	-	-
1.1.2.2-Tetrachloroethane	0.5	mg/kg	-	< 0.5	-	-
1.2-Dibromoethane	0.5	mg/kg	-	< 0.5	-	-
1.2-Dichlorobenzene	0.5	mg/kg	-	< 0.5	-	-
1.2-Dichloroethane	0.5	mg/kg	-	< 0.5	-	-
1.2-Dichloropropane	0.5	mg/kg	-	< 0.5	-	-
1.2.3-Trichloropropane	0.5	mg/kg	-	< 0.5	-	-
1.2.4-Trimethylbenzene	0.5	mg/kg	-	< 0.5	-	-
1.3-Dichlorobenzene	0.5	mg/kg	-	< 0.5	-	-
1.3-Dichloropropane	0.5	mg/kg	-	< 0.5	-	-
1.3.5-Trimethylbenzene	0.5	mg/kg	-	< 0.5	-	-
1.4-Dichlorobenzene	0.5	mg/kg	-	< 0.5	-	-
2-Butanone (MEK)	0.5	mg/kg	-	< 0.5	-	-
2-Propanone (Acetone)	0.5	mg/kg	-	< 0.5	-	-
4-Chlorotoluene	0.5	mg/kg	-	< 0.5	-	-
4-Methyl-2-pentanone (MIBK)	0.5	mg/kg	-	< 0.5	-	-
Allyl chloride	0.5	mg/kg	-	< 0.5	-	-
Benzene	0.1	mg/kg	-	< 0.1	-	-



Client Sample ID			BH04-0.1-0.3	BH04-1.0-1.2	BH04-2.2-2.4	BH04-2.7-2.9
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-No62507	S21-No62508	S21-No62509	S21-No62510
Date Sampled			Nov 19, 2021	Nov 19, 2021	Nov 19, 2021	Nov 19, 2021
Tast/Deference		1.1	1407 13, 2021	100 13, 2021	100 13, 2021	100 13, 2021
Veletile Organice	LUR	Unit				
	0.5			0.5		
Bromobenzene	0.5	mg/kg	-	< 0.5	-	-
Bromochloromethane	0.5	mg/kg	-	< 0.5	-	-
Bromodicniorometnane	0.5	mg/kg	-	< 0.5	-	-
Bromotorm	0.5	mg/kg	-	< 0.5	-	-
Bromometnane	0.5	mg/kg	-	< 0.5	-	-
Carbon disulide	0.5	mg/kg	-	< 0.5	-	-
Chlerchenzene	0.5	mg/kg	-	< 0.5	-	-
Chlorobenzene	0.5	mg/kg	-	< 0.5	-	-
Chloroferra	0.5	mg/kg	-	< 0.5	-	-
Chloromethana	0.5	mg/kg	-	< 0.5	-	-
chioromethane	0.5	mg/kg	-	< 0.5	-	-
cis-1.2-Dichloropene	0.5	mg/kg	-	< 0.5	-	-
Cis-1.3-Dichloropropene	0.5	mg/kg	-	< 0.5	-	-
Dibromochioromethane	0.5	mg/kg	-	< 0.5	-	-
Diblomothematic	0.5	mg/kg	-	< 0.5	-	-
Ethylhonzono	0.5	mg/kg	-	< 0.5	-	-
	0.1	mg/kg	-	< 0.1	-	-
	0.5	mg/kg	-	< 0.5	-	-
	0.5	mg/kg	-	< 0.3	-	-
Mathylana Chlorida	0.2	mg/kg	-	< 0.2	-	-
	0.5	mg/kg		< 0.5		-
Styrepe	0.1	mg/kg		< 0.1		-
Tetrachloroethene	0.5	mg/kg	_	< 0.5		
	0.5	mg/kg	_	< 0.5		
trans-1 2-Dichloroethene	0.1	mg/kg	_	< 0.1	_	_
trans-1 3-Dichloropropene	0.5	mg/kg	_	< 0.5	_	_
Trichloroethene	0.5	ma/ka	_	< 0.5	_	_
Trichlorofluoromethane	0.5	ma/ka	_	< 0.5	_	_
Vinyl chloride	0.5	ma/ka	_	< 0.5	-	_
Xylenes - Total*	0.3	ma/ka	_	< 0.3	-	_
Total MAH*	0.5	ma/ka	_	< 0.5	-	-
Vic EPA IWRG 621 CHC (Total)*	0.5	ma/ka	_	< 0.5	-	-
Vic EPA IWRG 621 Other CHC (Total)*	0.5	ma/ka	_	< 0.5	-	-
4-Bromofluorobenzene (surr.)	1	%	-	103	-	-
Toluene-d8 (surr.)	1	%	-	103	-	-
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	ma/ka	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	ma/ka	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	ma/ka	1.2	1.2	1.2	1.2
Acenaphthene	0.5	ma/ka	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	ma/ka	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	ma/ka	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	ma/ka	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	ma/ka	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/ka	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/ka	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5



Client Sample ID			BH04-0.1-0.3	BH04-1.0-1.2	BH04-2.2-2.4	BH04-2.7-2.9
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-No62507	S21-No62508	S21-No62509	S21-No62510
Date Sampled			Nov 19, 2021	Nov 19, 2021	Nov 19, 2021	Nov 19, 2021
	LOP	Lloit				
Polycyclic Aromatic Hydrocarbons	LOK	Unit				
Dibenz(a b)anthracene	0.5	ma/ka	< 0.5	< 0.5	< 0.5	< 0.5
	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Eluoropo	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrepe	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Nanhthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	ma/ka	< 0.5	< 0.5	< 0.5	< 0.5
2-Eluorobinhenyl (surr.)	1	//////////////////////////////////////	88	82	76	108
n-Ternhenyl-d14 (surr.)	1	/0 %	101	92	82	129
Organochlorine Pesticides	•	70	101	52	02	120
Chlordanos Total	0.1	ma/ka		< 0.1		
	0.05	mg/kg	-	< 0.05	-	-
4.4-DDE	0.05	mg/kg		< 0.05		-
4.4-DDL	0.05	mg/kg		< 0.05		
	0.05	mg/kg		< 0.05		
	0.05	mg/kg		< 0.05		
	0.05	mg/kg		< 0.05		
	0.05	mg/kg		< 0.05		
Dieldrin	0.05	mg/kg	_	< 0.05		-
Endosulfan I	0.05	ma/ka	_	< 0.05	_	_
Endosulfan II	0.05	ma/ka	_	< 0.05	_	_
	0.05	ma/ka	_	< 0.05	_	_
Endrin	0.05	ma/ka	_	< 0.05	_	_
Endrin aldebyde	0.05	ma/ka	_	< 0.05	_	_
Endrin ketone	0.05	ma/ka	_	< 0.05	_	_
g-HCH (Lindane)	0.05	ma/ka	_	< 0.05	-	_
Heptachlor	0.05	ma/ka	_	< 0.05	-	-
Heptachlor epoxide	0.05	ma/ka	_	< 0.05	-	-
Hexachlorobenzene	0.05	ma/ka	_	< 0.05	-	-
Methoxychlor	0.05	ma/ka	-	< 0.05	-	-
Toxaphene	0.5	ma/ka	-	< 0.5	-	-
Aldrin and Dieldrin (Total)*	0.05	ma/ka	-	< 0.05	-	-
DDT + DDE + DDD (Total)*	0.05	mg/kg	-	< 0.05	-	-
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	-	< 0.1	-	-
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	-	< 0.1	-	-
Dibutylchlorendate (surr.)	1	%	-	119	-	-
Tetrachloro-m-xylene (surr.)	1	%	-	78	-	-
Polychlorinated Biphenyls						
Aroclor-1016	0.1	ma/ka	-	< 0.1	-	-
Aroclor-1221	0.1	ma/ka	-	< 0.1	-	-
Aroclor-1232	0.1	mg/ka	-	< 0.1	-	-
Aroclor-1242	0.1	mg/ka	-	< 0.1	-	-
Aroclor-1248	0.1	ma/ka	-	< 0.1	-	-
Aroclor-1254	0.1	ma/ka	-	< 0.1	-	-
Aroclor-1260	0.1	ma/ka	-	< 0.1	-	-
Total PCB*	0.1	mg/ka	-	< 0.1	-	-
Dibutylchlorendate (surr.)	1	%	-	119	-	-
Tetrachloro-m-xylene (surr.)	1	%	-	78	-	-



Client Sample ID Sample Matrix Eurofins Sample No. Date Sampled			BH04-0.1-0.3 Soil S21-No62507 Nov 19, 2021	BH04-1.0-1.2 Soil S21-No62508 Nov 19, 2021	BH04-2.2-2.4 Soil S21-No62509 Nov 19, 2021	BH04-2.7-2.9 Soil S21-No62510 Nov 19, 2021
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic	2	mg/kg	2.8	< 2	< 2	< 2
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	15	9.3	< 5	6.7
Copper	5	mg/kg	46	< 5	7.0	< 5
Lead	5	mg/kg	58	5.3	100	5.1
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	5.9	< 5	< 5	< 5
Zinc	5	mg/kg	140	< 5	130	< 5
% Moisture	1	%	14	8.9	8.0	16

		1		1		1
Client Sample ID			BH05-0.1-0.3	BH05-1.5-1.7	BH06-0.1-0.3	BH06-1.0-1.2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-No62511	S21-No62512	S21-No62513	S21-No62514
Date Sampled			Nov 19, 2021	Nov 19, 2021	Nov 19, 2021	Nov 19, 2021
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH C6-C9	20	mg/kg	< 20	-	< 20	-
TRH C10-C14	20	mg/kg	< 20	-	< 20	-
TRH C15-C28	50	mg/kg	52	-	< 50	-
TRH C29-C36	50	mg/kg	< 50	-	< 50	-
TRH C10-C36 (Total)	50	mg/kg	52	-	< 50	-
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	-	< 0.5	-
TRH C6-C10	20	mg/kg	< 20	-	< 20	-
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	-	< 20	-
TRH >C10-C16	50	mg/kg	< 50	-	< 50	-
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	-	< 50	-
TRH >C16-C34	100	mg/kg	120	-	< 100	-
TRH >C34-C40	100	mg/kg	< 100	-	< 100	-
TRH >C10-C40 (total)*	100	mg/kg	120	-	< 100	-
Volatile Organics						
1.1-Dichloroethane	0.5	mg/kg	< 0.5	-	< 0.5	-
1.1-Dichloroethene	0.5	mg/kg	< 0.5	-	< 0.5	-
1.1.1-Trichloroethane	0.5	mg/kg	< 0.5	-	< 0.5	-
1.1.1.2-Tetrachloroethane	0.5	mg/kg	< 0.5	-	< 0.5	-
1.1.2-Trichloroethane	0.5	mg/kg	< 0.5	-	< 0.5	-
1.1.2.2-Tetrachloroethane	0.5	mg/kg	< 0.5	-	< 0.5	-
1.2-Dibromoethane	0.5	mg/kg	< 0.5	-	< 0.5	-
1.2-Dichlorobenzene	0.5	mg/kg	< 0.5	-	< 0.5	-
1.2-Dichloroethane	0.5	mg/kg	< 0.5	-	< 0.5	-
1.2-Dichloropropane	0.5	mg/kg	< 0.5	-	< 0.5	-
1.2.3-Trichloropropane	0.5	mg/kg	< 0.5	-	< 0.5	-
1.2.4-Trimethylbenzene	0.5	mg/kg	< 0.5	-	< 0.5	-
1.3-Dichlorobenzene	0.5	mg/kg	< 0.5	-	< 0.5	-
1.3-Dichloropropane	0.5	mg/kg	< 0.5	-	< 0.5	-
1.3.5-Trimethylbenzene	0.5	mg/kg	< 0.5	-	< 0.5	-
1.4-Dichlorobenzene	0.5	mg/kg	< 0.5	-	< 0.5	-
2-Butanone (MEK)	0.5	mg/kg	< 0.5	-	< 0.5	-



Client Sample ID			BH05-0.1-0.3	BH05-1.5-1.7	BH06-0.1-0.3	BH06-1.0-1.2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-No62511	S21-No62512	S21-No62513	S21-No62514
Date Sampled			Nov 19, 2021	Nov 19, 2021	Nov 19, 2021	Nov 19, 2021
Test/Reference	LOR	Unit				
Volatile Organics		U.I.I.				
2-Propanone (Acetone)	0.5	ma/ka	< 0.5	-	< 0.5	-
4-Chlorotoluene	0.5	ma/ka	< 0.5	-	< 0.5	-
4-Methyl-2-pentanone (MIBK)	0.5	ma/ka	< 0.5	-	< 0.5	-
Allyl chloride	0.5	ma/ka	< 0.5	-	< 0.5	-
Benzene	0.1	ma/ka	< 0.1	-	< 0.1	-
Bromobenzene	0.5	mg/kg	< 0.5	-	< 0.5	-
Bromochloromethane	0.5	mg/kg	< 0.5	-	< 0.5	-
Bromodichloromethane	0.5	mg/kg	< 0.5	-	< 0.5	-
Bromoform	0.5	mg/kg	< 0.5	-	< 0.5	-
Bromomethane	0.5	mg/kg	< 0.5	-	< 0.5	-
Carbon disulfide	0.5	mg/kg	< 0.5	-	< 0.5	-
Carbon Tetrachloride	0.5	mg/kg	< 0.5	-	< 0.5	-
Chlorobenzene	0.5	mg/kg	< 0.5	-	< 0.5	-
Chloroethane	0.5	mg/kg	< 0.5	-	< 0.5	-
Chloroform	0.5	mg/kg	< 0.5	-	< 0.5	-
Chloromethane	0.5	mg/kg	< 0.5	-	< 0.5	-
cis-1.2-Dichloroethene	0.5	mg/kg	< 0.5	-	< 0.5	-
cis-1.3-Dichloropropene	0.5	mg/kg	< 0.5	-	< 0.5	-
Dibromochloromethane	0.5	mg/kg	< 0.5	-	< 0.5	-
Dibromomethane	0.5	mg/kg	< 0.5	-	< 0.5	-
Dichlorodifluoromethane	0.5	mg/kg	< 0.5	-	< 0.5	-
Ethylbenzene	0.1	mg/kg	< 0.1	-	< 0.1	-
Iodomethane	0.5	mg/kg	< 0.5	-	< 0.5	-
Isopropyl benzene (Cumene)	0.5	mg/kg	< 0.5	-	< 0.5	-
m&p-Xylenes	0.2	mg/kg	< 0.2	-	< 0.2	-
Methylene Chloride	0.5	mg/kg	< 0.5	-	< 0.5	-
o-Xylene	0.1	mg/kg	< 0.1	-	< 0.1	-
Styrene	0.5	mg/kg	< 0.5	-	< 0.5	-
Tetrachloroethene	0.5	mg/kg	< 0.5	-	< 0.5	-
Toluene	0.1	mg/kg	< 0.1	-	< 0.1	-
trans-1.2-Dichloroethene	0.5	mg/kg	< 0.5	-	< 0.5	-
trans-1.3-Dichloropropene	0.5	mg/kg	< 0.5	-	< 0.5	-
Trichloroethene	0.5	mg/kg	< 0.5	-	< 0.5	-
Trichlorofluoromethane	0.5	mg/kg	< 0.5	-	< 0.5	-
Vinyl chloride	0.5	mg/kg	< 0.5	-	< 0.5	-
Xylenes - Total*	0.3	mg/kg	< 0.3	-	< 0.3	-
Total MAH*	0.5	mg/kg	< 0.5	-	< 0.5	-
Vic EPA IWRG 621 CHC (Total)*	0.5	mg/kg	< 0.5	-	< 0.5	-
Vic EPA IWRG 621 Other CHC (Total)*	0.5	mg/kg	< 0.5	-	< 0.5	-
4-Bromofluorobenzene (surr.)	1	%	96	-	98	-
l oluene-að (surr.)	1	%	100	-	99	-
	<u> </u>					
Benzo(a)pyrene IEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene IEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	0.6
Benzo(a)pyrene IEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	1.2
Acenaphthulana	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Denz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5



Client Sample ID			BH05-0.1-0.3	BH05-1.5-1.7	BH06-0.1-0.3	BH06-1.0-1.2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-No62511	S21-No62512	S21-No62513	S21-No62514
Date Sampled			Nov 19, 2021	Nov 19, 2021	Nov 19, 2021	Nov 19, 2021
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons	Lon	Onit				
Benzo(a)pyrene	0.5	ma/ka	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b&i)fluoranthene ^{N07}	0.5	ma/ka	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a,h,i)pervlene	0.5	ma/ka	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	ma/ka	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	ma/ka	< 0.5	< 0.5	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	86	81	86	95
p-Terphenyl-d14 (surr.)	1	%	95	84	92	115
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	-	< 0.1	-
4.4'-DDD	0.05	mg/kg	< 0.05	-	< 0.05	-
4.4'-DDE	0.05	mg/kg	< 0.05	-	< 0.05	-
4.4'-DDT	0.05	mg/kg	< 0.05	-	< 0.05	-
а-НСН	0.05	mg/kg	< 0.05	-	< 0.05	-
Aldrin	0.05	mg/kg	< 0.05	-	< 0.05	-
b-HCH	0.05	mg/kg	< 0.05	-	< 0.05	-
d-HCH	0.05	mg/kg	< 0.05	-	< 0.05	-
Dieldrin	0.05	mg/kg	< 0.05	-	< 0.05	-
Endosulfan I	0.05	mg/kg	< 0.05	-	< 0.05	-
Endosulfan II	0.05	mg/kg	< 0.05	-	< 0.05	-
Endosulfan sulphate	0.05	mg/kg	< 0.05	-	< 0.05	-
Endrin	0.05	mg/kg	< 0.05	-	< 0.05	-
Endrin aldehyde	0.05	mg/kg	< 0.05	-	< 0.05	-
Endrin ketone	0.05	mg/kg	< 0.05	-	< 0.05	-
g-HCH (Lindane)	0.05	mg/kg	< 0.05	-	< 0.05	-
Heptachlor	0.05	mg/kg	< 0.05	-	< 0.05	-
Heptachlor epoxide	0.05	mg/kg	< 0.05	-	< 0.05	-
Hexachlorobenzene	0.05	mg/kg	< 0.05	-	< 0.05	-
Methoxychlor	0.05	mg/kg	< 0.05	-	< 0.05	-
Toxaphene	0.5	mg/kg	< 0.5	-	< 0.5	-
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	-	< 0.05	-
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	-	< 0.05	-
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	-	< 0.1	-
VIC EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	-	< 0.1	-
	1	<u>%</u>	128	-	86	-
Peluchlorineted Binhenula	1	%	82	-	65	-
	~ 1					
Arocior-1016	0.1	mg/kg	< 0.1	-	< 0.1	-
Arocior-1221	0.1	mg/kg	< 0.1	-	< 0.1	-
Aroolor 1242	0.1	mg/Kg	< 0.1	-	< 0.1	-
Arodor 1242	0.1	mg/kg	< 0.1	-	< 0.1	-
AIUCIUI-1248	0.1	mg/kg	< 0.1	-	< 0.1	-



Client Sample ID			BH05-0.1-0.3	BH05-1.5-1.7	BH06-0.1-0.3	BH06-1.0-1.2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-No62511	S21-No62512	S21-No62513	S21-No62514
Date Sampled			Nov 19. 2021	Nov 19, 2021	Nov 19, 2021	Nov 19. 2021
Test/Reference		Unit	,			
Polychlorinated Binhenvis	LOIN	Onit				
Aroclor-1254	0.1	ma/ka	< 0.1		< 0.1	
Aroclor-1260	0.1	mg/kg	< 0.1		< 0.1	
Total PCB*	0.1	ma/ka	< 0.1	_	< 0.1	_
Dibuty/chlorendate (surr.)	1	<u>%</u>	128	_	86	_
Tetrachloro-m-xylene (surr.)	1	%	82	-	85	-
Heavy Metals		,,				
Arsenic	2	ma/ka	3.3	3.5	15	9.8
Cadmium	0.4	ma/ka	1.6	< 0.4	< 0.4	< 0.4
Chromium	5	ma/ka	19	26	< 5	36
Copper	5	mg/kg	13	39	7.7	8.8
Lead	5	mg/kg	56	270	< 5	20
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	< 5	< 5	6.5	< 5
Zinc	5	mg/kg	1500	330	15	40
% Moisture	1	%	14	16	8.2	14
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA) ^{N11}	5	ug/kg	< 5	-	< 5	-
Perfluoropentanoic acid (PFPeA) ^{N11}	5	ug/kg	< 5	-	< 5	-
Perfluorohexanoic acid (PFHxA) ^{N11}	5	ug/kg	< 5	-	< 5	-
Perfluoroheptanoic acid (PFHpA) ^{N11}	5	ug/kg	< 5	-	< 5	-
Perfluorooctanoic acid (PFOA) ^{N11}	5	ug/kg	< 5	-	< 5	-
Perfluorononanoic acid (PFNA) ^{N11}	5	ug/kg	< 5	-	< 5	-
Perfluorodecanoic acid (PFDA) ^{N11}	5	ug/kg	< 5	-	< 5	-
Perfluoroundecanoic acid (PFUnDA) ^{N11}	5	ug/kg	< 5	-	< 5	-
Perfluorododecanoic acid (PFDoDA) ^{N11}	5	ug/kg	< 5	-	< 5	-
Perfluorotridecanoic acid (PFTrDA) ^{N15}	5	ug/kg	< 5	-	< 5	-
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	5	ug/kg	< 5	-	< 5	-
13C4-PFBA (surr.)	1	%	94	-	85	-
13C5-PFPeA (surr.)	1	%	97	-	95	-
13C5-PFHxA (surr.)	1	%	94	-	80	-
13C4-PFHpA (surr.)	1	%	110	-	106	-
13C8-PFOA (surr.)	1	%	118	-	104	-
13C5-PFNA (surr.)	1	%	110	-	103	-
13C6-PFDA (surr.)	1	%	121	-	110	-
13C2-PFUNDA (surr.)	1	%	118	-	109	-
13C2-PFD0DA (suit.)	1	70 0/	100	-	107	-
Perfluoroalkul sulfonamido substances	I	/0	103	-	100	-
Perfluorooctane sulfonamide (EOSA) ^{N11}	5	ug/kg	~ 5		< 5	
N-methylperfluoro-1-octane sulfonamide (N-	5	ug/kg	~ 5	-	~ 5	_
MeFOSA) ^{N11}	5	ug/kg	< 5	-	< 5	-
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	5	ug/kg	< 5	-	< 5	-
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE) ^{N11}	5	ug/kg	< 5	-	< 5	-
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE) ^{N11}	5	ug/kg	< 5	-	< 5	-
N-ethyl-perfluorooctanesulfonamidoacetic acid (N- EtFOSAA) ^{N11}	10	ug/kg	< 10	-	< 10	-
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	10	ug/kg	< 10	-	< 10	-



			BH05-0.1-0.3	BH05-1.5-1.7	BH06-0.1-0.3	BH06-1.0-1.2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-No62511	S21-No62512	S21-No62513	S21-No62514
Date Sampled			Nov 19, 2021	Nov 19, 2021	Nov 19, 2021	Nov 19, 2021
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonamido substances						
13C8-FOSA (surr.)	1	%	111	-	94	-
D3-N-MeFOSA (surr.)	1	%	101	-	94	-
D5-N-EtFOSA (surr.)	1	%	106	-	88	-
D7-N-MeFOSE (surr.)	1	%	109	-	112	-
D9-N-EtFOSE (surr.)	1	%	111	-	96	-
D5-N-EtFOSAA (surr.)	1	%	106	-	99	-
D3-N-MeFOSAA (surr.)	1	%	101	-	92	-
Perfluoroalkyl sulfonic acids (PFSAs)						
Perfluorobutanesulfonic acid (PFBS) ^{N11}	5	ug/kg	< 5	-	< 5	-
Perfluorononanesulfonic acid (PFNS) ^{N15}	5	ug/kg	< 5	-	< 5	-
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	5	ug/kg	< 5	-	< 5	-
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	5	ug/kg	< 5	-	< 5	-
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	5	ug/kg	< 5	-	< 5	-
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	5	ug/kg	< 5	-	< 5	-
Perfluorooctanesulfonic acid (PFOS) ^{N11}	5	ug/kg	< 5	-	< 5	-
Perfluorodecanesulfonic acid (PFDS) ^{N15}	5	ug/kg	< 5	-	< 5	-
13C3-PFBS (surr.)	1	%	110	-	90	-
18O2-PFHxS (surr.)	1	%	113	-	96	-
13C8-PFOS (surr.)	1	%	118	-	108	-
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	5	ug/kg	< 5	-	< 5	-
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA) ^{N11}	10	ug/kg	< 10	-	< 10	-
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	5	ug/kg	< 5	_	< 5	_
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	5	ug/kg	< 5	_	< 5	_
13C2-4:2 FTSA (surr.)	1	%	90	-	93	-
13C2-6:2 FTSA (surr.)	1	%	102	-	75	-
13C2-8:2 FTSA (surr.)	1	%	122	-	110	-
13C2-10:2 FTSA (surr.)	1	%	119	-	113	-
PFASs Summations						
Sum (PFHxS + PFOS)*	5	ug/kg	< 5	-	< 5	-
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	< 5	-	< 5	
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	< 5	-	< 5	
Sum of WA DWER PFAS (n=10)*	10	ug/kg	< 10	-	< 10	-
Sum of PFASs (n=30)*	50	ug/kg	< 50	-	< 50	-



Client Sample ID			BH07-0.1-0.3	BH08-0.1-0.3	BH09-0.1-0.2	BH10-0.1-0.3
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-No62515	S21-No62516	S21-No62517	S21-No62518
Date Sampled			Nov 19, 2021	Nov 19, 2021	Nov 19, 2021	Nov 19, 2021
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons		0				
	20	ma/ka	< 20	< 20	< 20	< 20
TRH C10-C14	20	ma/ka	< 20	< 20	< 20	< 20
TRH C15-C28	50	ma/ka	82	< 50	< 50	140
TRH C29-C36	50	ma/ka	< 50	< 50	< 50	< 50
TRH C10-C36 (Total)	50	ma/ka	82	< 50	< 50	140
Naphthalene ^{N02}	0.5	ma/ka	< 0.5	< 0.5	< 0.5	< 0.5
TRH C6-C10	20	ma/ka	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (E1) ^{N04}	20	ma/ka	< 20	< 20	< 20	< 20
TBH >C10-C16	50	ma/ka	< 50	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	ma/ka	< 50	< 50	< 50	< 50
TRH >C16-C34	100	ma/ka	120	< 100	< 100	250
TRH >C34-C40	100	ma/ka	< 100	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	ma/ka	120	< 100	< 100	250
Volatile Organics						
1.1-Dichloroethane	0.5	ma/ka	< 0.5	< 0.5	< 0.5	< 0.5
1.1-Dichloroethene	0.5	ma/ka	< 0.5	< 0.5	< 0.5	< 0.5
1.1.1-Trichloroethane	0.5	ma/ka	< 0.5	< 0.5	< 0.5	< 0.5
1.1.1.2-Tetrachloroethane	0.5	ma/ka	< 0.5	< 0.5	< 0.5	< 0.5
1.1.2-Trichloroethane	0.5	ma/ka	< 0.5	< 0.5	< 0.5	< 0.5
1.1.2.2-Tetrachloroethane	0.5	ma/ka	< 0.5	< 0.5	< 0.5	< 0.5
1.2-Dibromoethane	0.5	ma/ka	< 0.5	< 0.5	< 0.5	< 0.5
1.2-Dichlorobenzene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.2-Dichloroethane	0.5	ma/ka	< 0.5	< 0.5	< 0.5	< 0.5
1.2-Dichloropropane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.2.3-Trichloropropane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.2.4-Trimethylbenzene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.3-Dichlorobenzene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.3-Dichloropropane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.3.5-Trimethylbenzene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.4-Dichlorobenzene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Butanone (MEK)	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Propanone (Acetone)	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
4-Chlorotoluene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
4-Methyl-2-pentanone (MIBK)	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Allyl chloride	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Bromobenzene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Bromochloromethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Bromoform	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Bromomethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Carbon disulfide	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Carbon Tetrachloride	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chlorobenzene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chloroethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chloroform	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chloromethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
cis-1.2-Dichloroethene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
cis-1.3-Dichloropropene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5



Client Sample ID			BH07-0.1-0.3	BH08-0.1-0.3	BH09-0.1-0.2	BH10-0.1-0.3
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-No62515	S21-No62516	S21-No62517	S21-No62518
Date Sampled			Nov 19, 2021	Nov 19, 2021	Nov 19, 2021	Nov 19, 2021
Test/Reference	LOR	Unit				· ·
Volatile Organics		C				
Dibromochloromethane	0.5	ma/ka	< 0.5	< 0.5	< 0.5	< 0.5
Dibromomethane	0.5	ma/ka	< 0.5	< 0.5	< 0.5	< 0.5
Dichlorodifluoromethane	0.5	ma/ka	< 0.5	< 0.5	< 0.5	< 0.5
Ethylbenzene	0.1	ma/ka	< 0.1	< 0.1	< 0.1	< 0.1
lodomethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Isopropyl benzene (Cumene)	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Methylene Chloride	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Styrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
trans-1.2-Dichloroethene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
trans-1.3-Dichloropropene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	0.6
Trichlorofluoromethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Vinyl chloride	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
Total MAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Vic EPA IWRG 621 CHC (Total)*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	0.6
Vic EPA IWRG 621 Other CHC (Total)*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	0.6
4-Bromofluorobenzene (surr.)	1	%	101	95	96	102
Toluene-d8 (surr.)	1	%	105	98	106	100
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	1.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	1.8	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	2.0	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	1.3	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	1.1	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	0.9	< 0.5	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	0.6	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	1.2	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	1.0	< 0.5	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	2.2	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	0.6	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	0.7	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	2.1	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	11.7	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	72	79	105	80
p-Terphenyl-d14 (surr.)	1	%	76	78	117	77



Client Sample ID			BH07-0.1-0.3	BH08-0.1-0.3	BH09-0.1-0.2	BH10-0.1-0.3
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-No62515	S21-No62516	S21-No62517	S21-No62518
Date Sampled			Nov 19, 2021	Nov 19, 2021	Nov 19, 2021	Nov 19, 2021
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Chlordanes - Total	0.1	ma/ka	< 0.1	< 0.1	< 0.1	< 0.1
4.4'-DDD	0.05	ma/ka	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
а-НСН	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
b-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
d-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.1	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.1	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
g-HCH (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Toxaphene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Dibutylchlorendate (surr.)	1	%	74	88	81	101
Tetrachloro-m-xylene (surr.)	1	%	72	79	106	75
Polychlorinated Biphenyls						
Aroclor-1016	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1221	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1232	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Arocior-1242	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1248	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Arodor 1254	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
AIOCIOI-1200	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Dibuty/chlorendate (surr.)	1	111g/kg	74	88	81	101
Tetrachloro-m-xylene (surr.)	1	/0 %	74	79	106	75
Heavy Metals	1	70	12	10	100	10
Arsenic	2	ma/ka	3.1	17	< 2	£2
Cadmium	0.4	ma/ka	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	ma/ka	7.0	< 5	9.1	6.8
Copper	5	ma/ka	45	< 5	< 5	7.6
Lead	5	ma/ka	690	7.8	10.0	14
Mercury	0.1	mg/ka	0.2	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	< 5	< 5	< 5	< 5
Zinc	5	mg/kg	290	19	< 5	9.7
% Moisture	1	%	10	9.0	15	16



Client Sample ID			BH07-0.1-0.3	BH08-0.1-0.3	BH09-0.1-0.2	BH10-0.1-0.3
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-No62515	S21-No62516	S21-No62517	S21-No62518
Date Sampled			Nov 19, 2021	Nov 19, 2021	Nov 19, 2021	Nov 19, 2021
Test/Reference	IOP	Linit			,	
Perfluoroalkyl carboxylic acids (PECAs)	LOK	Unit				
	F					
Perfluorobutanoic acid (PFBA)***	5	ug/kg	< 5	< 5	< 5	< 5
	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoronexanoic acid (PFHxA)	5	ug/kg	< 5	< 5	< 5	< 5
	5 5	ug/kg	< 5	< 5	< 5	< 5
	5 5	ug/kg	< 5	< 5	< 5	< 5
Periluorononanoic acid (PENA) ^{M1}	5	ug/kg	< 5	< 5	< 5	< 5
Periluorodecanoic acid (PFDA) ^{M1}	5 5	ug/kg	< 5	< 5	< 5	< 5
Perfluorodindecanoic acid (PFOnDA)	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorododecanoic acid (PFD0DA)	5	ug/kg	< 5	< 5	< 5	< 5
Perflueretetredeegneie geid (PETeDA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
	1	0/. 0/	< 5	< 5	< 5	< 0
13C5 PEPoA (surr.)	1	- 70 - 0/.	90	97	93	90
13C5 PEHvA (surr.)	1	/0 0/.	109	109	95	103
13C4 PEHpA (surr.)	1	/0 0/.	122	103	105	100
13C4 -FTTIPA (suit.)	1	/0 0/.	123	124	103	109
13C5 PENA (surr.)	1	/0 0/.	133	115	110	115
13C6 PEDA (surr.)	1	/0 0/.	129	174	114	122
13C0-FFDA (suit.)	1	/0 0/.	139	124	114	119
13C2 PEDoDA (surr.)	1	/0 0/.	00	120	109	100
13C2-PET_ADA (surr.)	1	70 9/	99	104	112	110
Perfluoroalkyl sulfonamido substances	I	70	33	103	112	110
Perfluereestane sulfenamide (EOSA) ^{N11}	Б	ug/kg	- 5	- 5	5	< 5
N-methylperfluoro-1-octane sulfonamide (N-	5	ug/kg	< 5	~ 5	< 5	
MeFOSA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N- EtFOSE) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
N-ethyl-perfluorooctanesulfonamidoacetic acid (N- EtFOSAA) ^{N11}	10	ua/ka	< 10	< 10	< 10	< 10
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	10	ua/ka	< 10	< 10	< 10	< 10
13C8-EQSA (surr.)	1	%	103	94	109	101
D3-N-MeFOSA (surr.)	1	%	94	98	103	93
D5-N-EtFOSA (surr.)	1	%	100	95	97	91
D7-N-MeFOSE (surr.)	1	%	92	114	118	103
D9-N-EtFOSE (surr.)	1	%	96	88	97	96
D5-N-EtFOSAA (surr.)	1	%	100	105	102	105
D3-N-MeFOSAA (surr.)	1	%	101	107	100	97
Perfluoroalkyl sulfonic acids (PFSAs)		,,				
Perfluorobutanesulfonic acid (PEBS) ^{N11}	5	ua/ka	< 5	< 5	< 5	< 5
Perfluorononanesulfonic acid (PFNS) ^{N15}	5		< 5	< 5	< 5	< 5
Perfluoropropanesulfonic acid (PEPrS) ^{N15}	5	ua/ka	< 5	< 5	< 5	< 5
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	5	ua/ka	< 5	< 5	< 5	< 5
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	5	ug/ka	< 5	< 5	< 5	< 5
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	5	ug/ka	< 5	< 5	< 5	< 5
Perfluorooctanesulfonic acid (PFOS) ^{N11}	5	ug/ka	< 5	< 5	< 5	< 5
Perfluorodecanesulfonic acid (PFDS) ^{N15}	5	ug/ka	< 5	< 5	< 5	< 5
13C3-PFBS (surr.)	1	%	114	108	117	105



Client Sample ID			BH07-0.1-0.3	BH08-0.1-0.3	BH09-0.1-0.2	BH10-0.1-0.3
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-No62515	S21-No62516	S21-No62517	S21-No62518
Date Sampled			Nov 19, 2021	Nov 19, 2021	Nov 19, 2021	Nov 19, 2021
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonic acids (PFSAs)						
18O2-PFHxS (surr.)	1	%	116	106	103	107
13C8-PFOS (surr.)	1	%	118	115	118	127
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA) ^{N11}	10	ug/kg	< 10	< 10	< 10	< 10
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
13C2-4:2 FTSA (surr.)	1	%	146	121	124	135
13C2-6:2 FTSA (surr.)	1	%	120	111	103	118
13C2-8:2 FTSA (surr.)	1	%	188	115	132	137
13C2-10:2 FTSA (surr.)	1	%	130	120	107	126
PFASs Summations						
Sum (PFHxS + PFOS)*	5	ug/kg	< 5	< 5	< 5	< 5
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	< 5	< 5	< 5	< 5
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	< 5	< 5	< 5	< 5
Sum of WA DWER PFAS (n=10)*	10	ug/kg	< 10	< 10	< 10	< 10
Sum of PFASs (n=30)*	50	ug/kg	< 50	< 50	< 50	< 50

Client Sample ID			BH11-0.1-0.3	BH11-0.5-0.7	DUP01	TRIP SPIKE
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-No62519	S21-No62520	S21-No62521	S21-No62525
Date Sampled			Nov 19, 2021	Nov 19, 2021	Nov 19, 2021	Nov 19, 2021
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH C6-C9	20	mg/kg	< 20	-	< 20	-
TRH C10-C14	20	mg/kg	< 20	-	< 20	-
TRH C15-C28	50	mg/kg	< 50	-	< 50	-
TRH C29-C36	50	mg/kg	< 50	-	< 50	-
TRH C10-C36 (Total)	50	mg/kg	< 50	-	< 50	-
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	-	< 0.5	-
TRH C6-C10	20	mg/kg	< 20	-	< 20	-
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	-	< 20	-
TRH >C10-C16	50	mg/kg	< 50	-	< 50	-
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	-	< 50	-
TRH >C16-C34	100	mg/kg	< 100	-	< 100	-
TRH >C34-C40	100	mg/kg	< 100	-	< 100	-
TRH >C10-C40 (total)*	100	mg/kg	< 100	-	< 100	-
Volatile Organics						
1.1-Dichloroethane	0.5	mg/kg	< 0.5	-	-	-
1.1-Dichloroethene	0.5	mg/kg	< 0.5	-	-	-
1.1.1-Trichloroethane	0.5	mg/kg	< 0.5	-	-	-
1.1.1.2-Tetrachloroethane	0.5	mg/kg	< 0.5	-	-	-
1.1.2-Trichloroethane	0.5	mg/kg	< 0.5	-	-	-
1.1.2.2-Tetrachloroethane	0.5	mg/kg	< 0.5	-	-	-
1.2-Dibromoethane	0.5	mg/kg	< 0.5	-	-	-



Sample Natrix Soil Soil Soil Soil Soil Eurofins Sample No. Los Aspector Los Aspector Soil Nov19, 2021	Client Sample ID			BH11-0.1-0.3	BH11-0.5-0.7	DUP01	TRIP SPIKE
Eurorins Sample No. S21-Ne62519 S21-Ne62520 S21-Ne62521 S21-Ne62521 S21-Ne62521 Date Sampled LOR Unit Nov 19, 2021 Nov 19, 2021 Nov 19, 2021 Test/Reference LOR Unit Image: Simpled Simple	Sample Matrix			Soil	Soil	Soil	Soil
Date Sampled LOR Nov 19, 2021 Nov 19, 2021 Nov 19, 2021 Nov 19, 2021 Test/Reterince LOR Unit Nov 19, 2021 Nov 19, 2021 12-Dickhorebrane 0.5 mg/kg < 0.5	Eurofins Sample No.			S21-No62519	S21-No62520	S21-No62521	S21-No62525
TestReference LOR Unit Unit Valatio Organics	Date Sampled			Nov 19, 2021	Nov 19, 2021	Nov 19, 2021	Nov 19, 2021
Teamsenance Dom 12-Dichlorobarzene 0.5 mg/kg < 0.5	Test/Poforonco		Unit				
Data Solution Description Description Description 1.2-Dicklorophane 0.5 mg/kg < 0.5	Volatile Organics	LOK	Unit				
1.2.Dehlorodanizatio 0.5 mg/g <0.5		0.5		.05			
1.2-Dethiorgopan 0.5 mg/q <0.5	1.2-Dichloroptenzene	0.5	mg/kg	< 0.5	-	-	-
1.2.b.Thridhforprigane 0.5 mg/kg < 0.5	1.2-Dichloropropopo	0.5	mg/kg	< 0.5	-	-	-
1.2.5.1100000000000000000000000000000000	1.2-Dichloropropane	0.5	mg/kg	< 0.5	-	-	-
1.2.4.1.mean yuburdune 0.3 mg/kg 0.5 - - - 1.3.Dichloropropane 0.5 mg/kg 0.5 - - - 1.3.Dichloropropane 0.5 mg/kg 0.5 - - - 1.4.Dichloropenzene 0.5 mg/kg 0.5 - - - 2.4.Dichloropenzene 0.5 mg/kg 0.5 - - - 2.4.Dichloropenzene 0.5 mg/kg 0.5 - - - 2.4.Dichloropenzene 0.5 mg/kg 0.5 - - - 4.Chlorobluene 0.5 mg/kg 0.5 - - - Allyl chloride 0.5 mg/kg <0.5	1.2.4 Trimethylhonzono	0.5	mg/kg	< 0.5	-	-	-
1-3-Dichiorgropane 0.5 mg/kg 1.3-Dichiorgropane 0.5 mg/kg <0.5		0.5	mg/kg	< 0.5	-	-	-
1-3-Dital 0.5 mg/g 0.5 - - 1.4-Ditaloroberzene 0.5 mg/g 0.5 - - 2.4-Ditaloroberzene 0.5 mg/g 0.5 - - 2.4-Ditaloroberzene 0.5 mg/g 0.5 - - 2.4-Ditaloroberzene 0.5 mg/g 0.5 - - 4-Chirotoluene 0.5 mg/g 0.5 - - Alvichiorde 0.5 mg/g 0.5 - - Bromochirormethane 0.5 mg/g 0.5 - - Carbon disulfie 0.5 mg/g 0.5 - - C		0.5	mg/kg	< 0.5	-	-	-
1.3.D+Timeny betave 0.3 mg/kg - - 1.4.D-bichiorobenzene 0.5 mg/kg <0.5	1.3-5 Trimethylhonzono	0.5	mg/kg	< 0.5	-	-	-
1.4-UDAINDODE/ENE 0.5 mg/kg - 2-Butanene (MEK) 0.5 mg/kg <0.5	1.3.5-Thinethyldenzene	0.5	mg/kg	< 0.5	-	-	-
2-Broganone (Acetore) 0.5 mg/kg <0.5		0.5	mg/kg	< 0.5	-	-	-
2/- Optimized 0.03 mg/kg 4-Metryl-2-pentanone (MIBK) 0.5 mg/kg <0.5	2-Butanone (MER)	0.5	mg/kg	< 0.5	-	-	-
**C-INOUQUENE 0.05 mg/kg <0.05 mg/kg <0.05 · <	2-Flopanolie (Acetolie)	0.5	mg/kg	< 0.5	-	-	-
4-metry/2-perturbation 0.3 mig/kg < 0.5 -	4-Chiorotoluene	0.5	mg/kg	< 0.5	-	-	-
Any fundación 0.5 mg/kg < 0.5 -	4-Methyl-2-pentanone (MIBK)	0.5	mg/kg	< 0.5	-	-	-
Baltarine 0.1 Ingrkg < 0.1 -	Allyl chloride	0.5	mg/kg	< 0.5	-	-	-
Biomobilizative 0.3 Ing/kg < 0.5 - </td <td>Bramahanzana</td> <td>0.1</td> <td>mg/kg</td> <td>< 0.1</td> <td>-</td> <td>-</td> <td>-</td>	Bramahanzana	0.1	mg/kg	< 0.1	-	-	-
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Bromobenzene	0.5	mg/kg	< 0.5	-	-	-
Bromoducino/one mane 0.5 mg/kg < 0.5 - - - Bromoform 0.5 mg/kg < 0.5	Bromocniorometnane	0.5	mg/kg	< 0.5	-	-	-
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Bromodichioromethane	0.5	mg/kg	< 0.5	-	-	-
Biomonetitatie 0.5 mg/kg < 0.5 - - - Carbon disulfide 0.5 mg/kg < 0.5	Bromomothana	0.5	mg/kg	< 0.5	-	-	-
Calibol diskuite 0.5 Ing/kg < 0.5 -<		0.5	mg/kg	< 0.5	-	-	-
Calibolin Tetradminition 0.5 Img/kg < 0.5 -	Carbon disulide	0.5	mg/kg	< 0.5	-	-	-
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $		0.5	mg/kg	< 0.5	-	-	-
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Chloroothana	0.5	mg/kg	< 0.5	-	-	-
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Chloroform	0.5	mg/kg	< 0.5	-	-	-
Chilomethane 0.3 Ing/kg -	Chloromothana	0.5	mg/kg	< 0.5	-	-	-
Clish 1.2-Dick Indivergence 0.5 mg/kg < 0.5 -		0.5	mg/kg	< 0.5	-	-	-
Observation O.S Ing/kg < 0.5 -		0.5	mg/kg	< 0.5	-	-	-
Dibinotindumentative 0.5 mg/kg < 0.5 - - - Dibromomethane 0.5 mg/kg < 0.5	Dibromochloromothano	0.5	mg/kg	< 0.5	-	-	-
Dickloridinger 0.5 mg/kg < 0.5 - - - - Dichlorodifluoromethane 0.5 mg/kg < 0.5	Dibromomethane	0.5	mg/kg	< 0.5	-	-	-
Dicknowneniane 0.3 mg/kg < 0.3	Diblomothematic	0.5	mg/kg	< 0.5	-	-	-
Litrybelizerie 0.1 mg/kg < 0.1 r <thr> Delto reade 0.5< <</thr>	Ethylbonzono	0.5	mg/kg	< 0.5	-	-	-
Induction Imp/kg <		0.1	mg/kg	< 0.1	-	-	-
Isopropy/ Delizene (Summer) 0.5 Img/kg < 0.5 Img/kg < 0.5 Img/kg < 0.2 m&p/kylenes 0.2 mg/kg < 0.5		0.5	mg/kg	< 0.5			
Mathylenes 0.2 Mg/kg < 0.2 Mg/kg < 0.2 Mg/kg < 0.2 Methylenes Methylene Chloride 0.5 mg/kg < 0.5	m&p-Xylenes	0.3	mg/kg	< 0.3			
o-Xylene 0.1 mg/kg < 0.5	Methylene Chloride	0.2	mg/kg	< 0.2	_	_	_
Oxymete O.1 Ing/kg C.1 <		0.5	mg/kg	< 0.5			
Orycene 0.3 mg/kg < 0.5 mg/kg < 0.5 - <td>Styrepe</td> <td>0.1</td> <td>mg/kg</td> <td>< 0.1</td> <td>_</td> <td>_</td> <td>_</td>	Styrepe	0.1	mg/kg	< 0.1	_	_	_
Tetrachloroethene 0.3 mg/kg < 0.5 e <the< th=""> e<!--</td--><td>Tetrachloroethene</td><td>0.5</td><td>mg/kg</td><td>< 0.5</td><td>_</td><td>_</td><td></td></the<>	Tetrachloroethene	0.5	mg/kg	< 0.5	_	_	
Indexide 0.1 Ing/kg < 0.5 Ing/kg < 0.5 Ing/kg < 0.5 .		0.5	ma/ka	< 0.5	-	-	-
Italis*1.2*Dichlorobenene 0.3 ing/kg < 0.5	trans_1 2-Dichloroethene	0.1	mg/kg	< 0.1			
Trichloroethene 0.5 mg/kg 0.9 -	trans-1 3-Dichloropropene	0.5	ma/ka	< 0.5		-	-
Trichlorofluoromethane 0.5 mg/kg 0.5 - <th< td=""><td>Trichloroethene</td><td>0.5</td><td>ma/ka</td><td><u> </u></td><td>-</td><td>-</td><td>_</td></th<>	Trichloroethene	0.5	ma/ka	<u> </u>	-	-	_
Non-on-on-on-on-on-on-on-on-on-on-on-on-o	Trichlorofluoromethane	0.5	ma/ka	< 0.5	-	-	_
Xylenes - Total* 0.3 mg/kg < 0.3 - </td <td>Vinyl chloride</td> <td>0.5</td> <td>ma/ka</td> <td>~ 0.5</td> <td>-</td> <td>-</td> <td>_</td>	Vinyl chloride	0.5	ma/ka	~ 0.5	-	-	_
Total MAH* 0.5 mg/kg < 0.5 -	Xvlenes - Total*	0.0	ma/ka	< 0.3	-	-	_
Vic EPA IWRG 621 CHC (Total)* 0.5 mg/kg 0.9 -	Total MAH*	0.5	ma/ka	< 0.5	-	-	_
Vic EPA IWRG 621 Other CHC (Total)* 0.5 mg/kg 0.9 - <td>Vic EPA IWRG 621 CHC (Total)*</td> <td>0.5</td> <td>ma/ka</td> <td>0.9</td> <td>-</td> <td>-</td> <td>-</td>	Vic EPA IWRG 621 CHC (Total)*	0.5	ma/ka	0.9	-	-	-
	Vic EPA IWRG 621 Other CHC (Total)*	0.5	ma/ka	0.9	-	-	-



Client Sample ID			BH11-0.1-0.3	BH11-0.5-0.7	DUP01	TRIP SPIKE
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-No62519	S21-No62520	S21-No62521	S21-No62525
Date Sampled			Nov 19, 2021	Nov 19, 2021	Nov 19, 2021	Nov 19, 2021
Test/Poforonco		Lloit				
Velatile Organics	LOR	Unit				
4 Dremediuse hannen a (aum.)	4	0/	00			
4-Bromonuorobenzene (surr.)	1	% 0/	92	-	-	-
Pelvovelia Aremetia Hudroserbana	1	%	101	-	-	-
	0.5		0.5	0.5	0.5	
Benzo(a)pyrene TEQ (lower bound) ^	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
	0.5	mg/кg	0.6	0.6	0.6	-
Access to the second se	0.5	mg/kg	1.2	1.2	1.2	-
Acenaphthelese	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Acenaphtnylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benzo(b&j)fluorantnene ⁽¹⁰⁾	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
2-Fluorobiphenyl (surr.)	1	%	86	93	78	-
p-lerphenyl-d14 (surr.)	1	%	86	105	89	-
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	< 0.05	-	-	-
b-HCH	0.05	mg/kg	< 0.05	-	-	-
d-HCH	0.05	mg/kg	< 0.05	-	-	-
	0.05	mg/kg	< 0.05	-	-	-
	0.05	mg/kg	< 0.05	-	-	-
	0.05	mg/kg	< 0.05	-	-	-
Endosulfan sulphate	0.05	mg/kg	< 0.05	-	-	-
	0.05	mg/kg	< 0.05	-	-	-
Endrin aldehyde	0.05	mg/kg	< 0.05	-	-	-
	0.05	mg/kg	< 0.05	-	-	-
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	-	-	-
	0.05	mg/kg	< 0.05	-	-	-
	0.5	mg/kg	< 0.5	-	-	-
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	-	-	-
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	-	-	-



Client Sample ID			BH11-0.1-0.3	BH11-0.5-0.7	DUP01	TRIP SPIKE
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-No62519	S21-No62520	S21-No62521	S21-No62525
Date Sampled			Nov 19, 2021	Nov 19, 2021	Nov 19, 2021	Nov 19, 2021
Test/Reference	LOR	Unit				
Organochlorine Pesticides	-					
Vic EPA IWRG 621 OCP (Total)*	0.1	ma/ka	< 0.1	-	-	-
Vic EPA IWRG 621 Other OCP (Total)*	0.1	ma/ka	< 0.1	-	-	-
Dibutylchlorendate (surr.)	1	%	108	-	-	-
Tetrachloro-m-xylene (surr.)	1	%	88	-	-	-
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	-	-	-
Dibutylchlorendate (surr.)	1	%	108	-	-	-
Tetrachloro-m-xylene (surr.)	1	%	88	-	-	-
Heavy Metals						
Arsenic	2	mg/kg	45	2.2	-	-
Cadmium	0.4	mg/kg	< 0.4	< 0.4	-	-
Chromium	5	mg/kg	6.6	14	-	-
Copper	5	mg/kg	12	< 5	-	-
Lead	5	mg/kg	6.7	6.3	-	-
Mercury	0.1	mg/kg	< 0.1	< 0.1	-	-
Nickel	5	mg/kg	22	< 5	-	-
Zinc	5	mg/kg	15	6.6	-	-
% Moisture	1	%	21	15	14	-
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA) ^{N11}	5	ug/kg	< 5	-	< 5	-
Perfluoropentanoic acid (PFPeA) ^{N11}	5	ug/kg	< 5	-	< 5	-
Perfluorohexanoic acid (PFHxA) ^{N11}	5	ug/kg	< 5	-	< 5	-
Perfluoroheptanoic acid (PFHpA) ^{N11}	5	ug/kg	< 5	-	< 5	-
Perfluorooctanoic acid (PFOA) ^{N11}	5	ug/kg	< 5	-	< 5	-
Perfluorononanoic acid (PFNA) ^{N11}	5	ug/kg	< 5	-	< 5	-
Perfluorodecanoic acid (PFDA) ^{N11}	5	ug/kg	< 5	-	< 5	-
Perfluoroundecanoic acid (PFUnDA) ^{N11}	5	ug/kg	< 5	-	< 5	-
Perfluorododecanoic acid (PFDoDA) ^{N11}	5	ug/kg	< 5	-	< 5	-
Perfluorotridecanoic acid (PFTrDA) ^{N15}	5	ug/kg	< 5	-	< 5	-
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	5	ug/kg	< 5	-	< 5	-
13C4-PFBA (surr.)	1	%	99	-	89	-
13C5-PFPeA (surr.)	1	%	95	-	95	-
13C5-PFHxA (surr.)	1	%	100	-	92	-
13C4-PFHpA (surr.)	1	%	104	-	102	-
13C8-PFOA (surr.)	1	%	115	-	93	-
13C5-PFNA (surr.)	1	%	114	-	111	-
13C6-PFDA (surr.)	1	%	122	-	114	-
13C2-PFUnDA (surr.)	1	%	134	-	119	-
13C2-PFDoDA (surr.)	1	%	123	-	130	-
13C2-PFTeDA (surr.)	1	%	103	-	102	-



Client Sample ID			BH11-0.1-0.3	BH11-0.5-0.7	DUP01	TRIP SPIKE
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-No62519	S21-No62520	S21-No62521	S21-No62525
Date Sampled			Nov 19, 2021	Nov 19, 2021	Nov 19, 2021	Nov 19, 2021
Test/Reference	LOR	Unit				· ·
Perfluoroalkyl sulfonamido substances	-0.1	0				
Perfluorooctane sulfonamide (EQSA) ^{N11}	5	ua/ka	< 5	-	< 5	_
N-methylperfluoro-1-octane sulfonamide (N-		ugnig				
MeFOSA) ^{N11}	5	ug/kg	< 5	-	< 5	-
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	5	ug/kg	< 5	-	< 5	-
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE) ^{N11}	5	ug/kg	< 5	-	< 5	-
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N- EtFOSE) ^{N11}	5	ug/kg	< 5	-	< 5	-
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)^{N1}	10	ug/kg	< 10	-	< 10	-
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)^{\text{N11}}	10	ug/kg	< 10	-	< 10	-
13C8-FOSA (surr.)	1	%	101	-	96	-
D3-N-MeFOSA (surr.)	1	%	89	-	90	-
D5-N-EtFOSA (surr.)	1	%	87	-	82	-
D7-N-MeFOSE (surr.)	1	%	99	-	98	-
D9-N-EtFOSE (surr.)	1	%	79	-	75	-
D5-N-EtFOSAA (surr.)	1	%	80	-	88	-
D3-N-MeFOSAA (surr.)	1	%	93	-	97	-
Perfluoroalkyl sulfonic acids (PFSAs)						
Perfluorobutanesulfonic acid (PFBS) ^{N11}	5	ug/kg	< 5	-	< 5	-
Perfluorononanesulfonic acid (PFNS) ^{N15}	5	ug/kg	< 5	-	< 5	-
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	5	ug/kg	< 5	-	< 5	-
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	5	ug/kg	< 5	-	< 5	-
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	5	ug/kg	< 5	-	< 5	-
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	5	ug/kg	< 5	-	< 5	-
Perfluorooctanesulfonic acid (PFOS) ^{N11}	5	ug/kg	< 5	-	< 5	-
Perfluorodecanesulfonic acid (PFDS) ^{N15}	5	ug/kg	< 5	-	< 5	-
13C3-PFBS (surr.)	1	%	109	-	104	-
18O2-PFHxS (surr.)	1	%	100	-	90	-
13C8-PFOS (surr.)	1	%	80	-	84	-
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	5	ug/kg	< 5	-	< 5	-
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA) ^{N11}	10	ug/kg	< 10	-	< 10	-
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	5	ug/kg	< 5	-	< 5	-
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	5	ug/kg	< 5	-	< 5	-
13C2-4:2 FTSA (surr.)	1	%	98	-	76	-
13C2-6:2 FTSA (surr.)	1	%	90	-	80	-
13C2-8:2 FTSA (surr.)	1	%	82	-	76	-
13C2-10:2 FTSA (surr.)	1	%	92	-	88	-
PFASs Summations						
Sum (PFHxS + PFOS)*	5	ug/kg	< 5	-	< 5	-
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	< 5	-	< 5	-
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	< 5	-	< 5	-
Sum of WA DWER PFAS (n=10)*	10	ug/kg	< 10	-	< 10	-
Sum of PFASs (n=30)*	50	ug/kg	< 50	-	< 50	-



Client Sample ID Sample Matrix			BH11-0.1-0.3 Soil	BH11-0.5-0.7 Soil	DUP01 Soil	TRIP SPIKE Soil
Eurofins Sample No.			S21-No62519	S21-No62520	S21-No62521	S21-No62525
Date Sampled			Nov 19, 2021	Nov 19, 2021	Nov 19, 2021	Nov 19, 2021
Test/Reference	LOR	Unit				
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	%	-	-	97	-
BTEX						
Benzene	1	%	-	-	-	92
Ethylbenzene	1	%	-	-	-	83
m&p-Xylenes	1	%	-	-	-	82
o-Xylene	1	%	-	-	-	82
Toluene	1	%	-	-	-	87
Xylenes - Total	1	%	-	-	-	82
4-Bromofluorobenzene (surr.)	1	%	-	-	-	82

Client Sample ID			TRIP BLANK	DUP02
Sample Matrix			Soil	Soil
Eurofins Sample No.			S21-No62527	S21-No62528
Date Sampled			Nov 19, 2021	Nov 19, 2021
Test/Reference	LOR	Unit		
Total Recoverable Hydrocarbons				
TRH C6-C9	20	mg/kg	< 20	-
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	-
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	-	< 0.05
b-HCH	0.05	mg/kg	-	< 0.05
d-HCH	0.05	mg/kg	-	< 0.05
Dieldrin	0.05	mg/kg	-	< 0.05
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	-	< 0.05
Endrin aldehyde	0.05	mg/kg	-	< 0.05
Endrin ketone	0.05	mg/kg	-	< 0.05
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



Client Sample ID			TRIP BLANK	DUP02
Sample Matrix			Soil	Soil
Eurofins Sample No.			S21-No62527	S21-No62528
Date Sampled			Nov 19, 2021	Nov 19, 2021
	LOR	Unit		
Organochlorine Pesticides	LOIN	Onit		
Aldrin and Dioldrin (Total)*	0.05	ma/ka		< 0.05
	0.05	mg/kg	-	< 0.05
Vic EPA IWPG 621 OCP (Total)*	0.05	mg/kg	_	< 0.05
Vic EPA IWRG 621 Other OCP (Total)*	0.1	ma/ka	_	< 0.1
Dibuty/chlorendate (surr.)	1	//////////////////////////////////////	_	108
Tetrachloro-m-xylene (surr.)	1	%	_	92
Polychlorinated Biphenyls		,,,		
Aroclor-1016	0.1	ma/ka	_	< 0.1
Aroclor-1221	0.1	ma/ka	_	< 0.1
Aroclor-1232	0.1	ma/ka	_	< 0.1
Aroclor-1242	0.1	ma/ka	_	< 0.1
Aroclor-1248	0.1	ma/ka	-	< 0.1
Aroclor-1254	0.1	ma/ka	-	< 0.1
Aroclor-1260	0.1	ma/ka	-	< 0.1
Total PCB*	0.1	ma/ka	-	< 0.1
Dibutylchlorendate (surr.)	1	%	-	108
Tetrachloro-m-xylene (surr.)	1	%	-	92
Heavy Metals				
Arsenic	2	ma/ka	-	< 2
Cadmium	0.4	ma/ka	-	< 0.4
Chromium	5	mg/kg	-	< 5
Copper	5	mg/kg	-	< 5
Lead	5	mg/kg	-	10
Mercury	0.1	mg/kg	-	< 0.1
Nickel	5	mg/kg	-	< 5
Zinc	5	mg/kg	-	< 5
% 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 (PFTrDA) ^{N15}	5	ug/kg	-	< 5
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	5	ug/kg	-	< 5
13C4-PFBA (surr.)	1	%	-	95
13C5-PFPeA (surr.)	1	%	-	98
13C5-PFHxA (surr.)	1	%	-	97
13C4-PFHpA (surr.)	1	%	-	96
13C8-PFOA (surr.)	1	%	-	95
13C5-PFNA (surr.)	1	%	-	112
13C6-PFDA (surr.)	1	%	-	136
13C2-PFUnDA (surr.)	1	%	-	128
13C2-PFDoDA (surr.)	1	<u>%</u>	-	139
13C2-PFTeDA (surr.)	1	%	-	104



Client Sample ID			TRIP BLANK	DUP02
Sample Matrix			Soil	Soil
Eurofins Sample No.			S21-No62527	S21-No62528
Date Sampled			Nov 19, 2021	Nov 19, 2021
Test/Reference	LOR	Unit		
Perfluoroalkyl sulfonamido substances				
Perfluorooctane sulfonamide (FOSA) ^{N11}	5	ua/ka	-	< 5
N-methylperfluoro-1-octane sulfonamide (N-				
MeFOŚA) ^{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	%	-	101
D3-N-MeFOSA (surr.)	1	%	-	99
D5-N-EtFOSA (surr.)	1	%	-	80
D7-N-MeFOSE (surr.)	1	%	-	102
D9-N-EtFOSE (surr.)	1	%	-	77
D5-N-EtFOSAA (surr.)	1	%	-	103
D3-N-MeFOSAA (surr.)	1	%	-	97
Perfluoroalkyl sulfonic acids (PFSAs)				
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	%	-	97
18O2-PFHxS (surr.)	1	%	-	98
13C8-PFOS (surr.)	1	%	-	91
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)				
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	%	-	93
13C2-6:2 FTSA (surr.)	1	%	-	84
13C2-8:2 FTSA (surr.)	1	%	-	78
13C2-10:2 FTSA (surr.)	1	%	-	94
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



Client Sample ID Sample Matrix Eurofins Sample No. Date Sampled			TRIP BLANK Soil S21-No62527 Nov 19, 2021	DUP02 Soil S21-No62528 Nov 19, 2021
Test/Reference	LOR	Unit		
втех				
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	%	92	-



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	Sydney	Dec 01, 2021	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Nov 26, 2021	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons	Sydney	Dec 01, 2021	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Sydney	Dec 01, 2021	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Eurofins Suite B4			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Nov 26, 2021	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Polycyclic Aromatic Hydrocarbons	Sydney	Nov 26, 2021	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Volatile Organics	Sydney	Nov 26, 2021	7 Days
- Method: LTM-ORG-2150 VOCs in Soils Liquid and other Aqueous Matrices			
Metals M8	Sydney	Nov 26, 2021	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Organochlorine Pesticides	Sydney	Nov 26, 2021	14 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
Polychlorinated Biphenyls	Sydney	Nov 26, 2021	28 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
% Moisture	Sydney	Nov 25, 2021	14 Days
- Method: LTM-GEN-7080 Moisture			
Per- and Polyfluoroalkyl Substances (PFASs)			
Perfluoroalkyl carboxylic acids (PFCAs)	Brisbane	Dec 01, 2021	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonamido substances	Brisbane	Dec 01, 2021	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonic acids (PFSAs)	Brisbane	Dec 02, 2021	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)	Brisbane	Dec 02, 2021	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			

	eurofi	ns			Eurofins Environmer ABN: 50 005 085 521	nt Te	sting A	Austra	lia Pty	Ltd								E A	BN: 91 (s ARL Pty Ltd 05 0159 898	Eurofins Environmen NZBN: 9429046024954	t Testing NZ Limited
web: www email: Er	w.eurofins.com.au	Env	ironment	Testing	Melbourne Sydney Brisbane Newcastle 6 Monterey Road Unit F3, Building F 1/21 Smallwood Place 4/52 Indust Dandenong South VIC 3175 16 Mars Road Murarrie QLD 4172 Mayfield E: Phone : +61 3 8564 5000 Lane Cove West NSW 2066 Phone : +61 7 3902 4600 PO Box 60 NATA # 1261 Site # 1254 Phone : +61 2 9900 8400 NATA # 1261 Site # 20794 Phone : +6				le strial D East NS 0 Wickl 61 2 49 261 Sit	rive SW 2304 ham 229 968 844 se # 250	93 P 8 N 79	erth 6-48 Bai /elshpoo hone : + ATA # 2	nksia Road ol WA 6106 61 8 6253 4444 2377 Site # 2370	Auckland 35 O'Rorke Road Penrose, Auckland 1061 Phone : +64 9 526 45 51 IANZ # 1327	Christchurch 43 Detroit Drive Rolleston, Christchurch 7675 Phone : 0800 856 450 IANZ # 1290							
Corr Add	npany Name: ress:	Alliance Geo 10 Welder R Seven Hills NSW 2147	otechnical oad				O Re Pl Fa	rder N eport hone: ax:	No.: #:	8 1 0	34435 800 2 92 967	5 288 18 75 188	38 38						Recei Due: Priori Conta	ived: ty: act Name:	Nov 19, 2021 6:20 Nov 26, 2021 5 Day Jacob Walker	PM
Proj Proj	ect Name: ect ID:	MANLY VAL 14144	E															Eu	rofins	Analytical S	ervices Manager : A	ndrew Black
		Sa	Imple Detail			Asbestos - AS4964	Asbestos Absence /Presence	HOLD	Polycyclic Aromatic Hydrocarbons	Metals M8	Metals M8	Suite B13: OCP/PCB	Volatile Organics	Moisture Set	Total Recoverable Hydrocarbons	Eurofins Suite B4	BTEXN and Volatile TRH	Per- and Polyfluoroalkyl Substances (PFASs)	BTEX			
Melbo	ourne Laborate	ory - NATA # 12	en Site # 125	4																		
Sydne	ey Laboratory	- NATA # 1261	Site # 18217			Х	Х	Х	Х		Х	Х	Х	х	Х	х	х		Х	-		
Brisba	ane Laborator	y - NATA # 126	1 Site # 20794	4						х								x				
Mayfie	eld Laboratory	/ - NATA # 1261	Site # 25079																			
Perth	Laboratory - I	NATA # 2377 Si	te # 2370																	_		
Extern No	nal Laboratory Sample ID	Sample Date	Sampling	Matrix	LAB ID															-		
1 F	BH01-0.5-0.7	Nov 19, 2021		Soil	S21-No62499	Х			x		х	x	x	х	x			x		-		
2 6	BH01-1.4-1.6	Nov 19. 2021		Soil	S21-No62500				X		X			X						1		
3 6	BH02-0.1-0.3	Nov 19, 2021		Soil	S21-No62501	Х			x		Х	x	х	Х	x			X		1		
4 E	BH02-1.0-1.2	Nov 19, 2021		Soil	S21-No62502				х		Х			Х						1		
5 E	BH02-1.4-1.6	Nov 19, 2021		Soil	S21-No62503				Х		Х			Х						1		
6 E	BH03-0.1-0.3	Nov 19, 2021		Soil	S21-No62504				Х		Х			Х]		
7 E	BH03-1.4-1.6	Nov 19, 2021		Soil	S21-No62505	Х			Х		Х	Х	Х	Х	Х			X				
8 E	BH03-1.9-2.1	Nov 19, 2021		Soil	S21-No62506				Х		Х			Х								
9 E	BH04-0.1-0.3	Nov 19, 2021		Soil	S21-No62507				Х		Х			Х								

🚯 eurofi	nc		Eurofins Environmer ABN: 50 005 085 521	nt Te	sting A	Austra	lia Pty	Ltd								E	BN: 91	s ARL Pty Ltd 05 0159 898	Eurofins Environmen NZBN: 9429046024954	t Testing NZ Limited
web: www.eurofins.com.au email: EnviroSales@eurofins	Environr	nent Testing	Melbourne 6 Monterey Road Dandenong South VIC 31 Phone : +61 3 8564 5000 NATA # 1261 Site # 1254	S U 75 1 L P N	ydney Init F3, E 6 Mars I ane Cov hone : + IATA # 1	ney I F3, Building F 7 fars Road 1 o Cove West NSW 2066 6 ne : +61 2 9900 8400 1 A # 1261 Site # 18217 1		8 1/ 066 Pl 0 N 17	risbane 21 Sma lurarrie hone : + ATA # 2	allwood QLD 4 61 7 39 1261 Sit	Place 172 902 460 te # 207	N 4 0 P 94 P N	lewcast /52 Indu /ayfield PO Box 6 Phone : - IATA # 2	le Istrial Di East NS 60 Wickl ⊧61 2 49 1261 Sit	rive SW 230 ham 22 968 844 e # 250	4 V 93 P 8 N 079	erth 6-48 Ba /elshpoo hone : + IATA # 2	nksia Road ol WA 6106 -61 8 6253 4444 2377 Site # 2370	Auckland 35 O'Rorke Road Penrose, Auckland 1061 Phone : +64 9 526 45 51 IANZ # 1327	Christchurch 43 Detroit Drive Rolleston, Christchurch 7675 Phone : 0800 856 450 IANZ # 1290
Company Name: Address:	Alliance Geotechni 10 Welder Road Seven Hills NSW 2147	cal			O Re Pl Fa	rder I eport hone: ax:	No.: #:	8 1 0	34435 1800 2 02 967	5 288 18 75 188	38 38						Recei Due: Priori Conta	ived: ty: act Name:	Nov 19, 2021 6:20 Nov 26, 2021 5 Day Jacob Walker	PM
Project Name: Project ID:	MANLY VALE 14144															Eu	rofins	Analytical S	ervices Manager : Aı	ndrew Black
	Sample I	Detail		Asbestos - AS4964	Asbestos Absence /Presence	HOLD	Polycyclic Aromatic Hydrocarbons	Metals M8	Metals M8	Suite B13: OCP/PCB	Volatile Organics	Moisture Set	Total Recoverable Hydrocarbons	Eurofins Suite B4	BTEXN and Volatile TRH	Per- and Polyfluoroalkyl Substances (PFASs)	BTEX			
Melbourne Laborato	ory - NATA # 1261 Site	e # 1254																-		
Sydney Laboratory	- NATA # 1261 Site #	18217		Х	X	х	Х		Х	X	х	х	X	х	х		Х			
Brisbane Laborator	y - NATA # 1261 Site	# 20794						Х								X				
Mayfield Laboratory	- NATA # 1261 Site #	# 25079																		
Perth Laboratory - N	NATA # 2377 Site # 23	370																		
External Laboratory																				
10 BH04-1.0-1.2	Nov 19, 2021	Soil	S21-No62508	Х			Х		Х	Х	Х	Х	X					_		
11 BH04-2.2-2.4	Nov 19, 2021	Soil	S21-No62509				Х		Х			Х								
12 BH04-2.7-2.9	Nov 19, 2021	Soil	S21-No62510				Х		Х			Х						_		
13 BH05-0.1-0.3	Nov 19, 2021	Soil	S21-No62511	Х			Х		Х	Х	Х	Х	X			X		_		
14 BH05-1.5-1.7	Nov 19, 2021	Soil	S21-No62512				Х		Х			Х								
15 BH06-0.1-0.3	Nov 19, 2021	Soil	S21-No62513	Х			Х		Х	Х	Х	Х	X			X				
16 BH06-1.0-1.2	Nov 19, 2021	Soil	S21-No62514				Х		Х			Х								
17 BH07-0.1-0.3	Nov 19, 2021	Soil	S21-No62515	Х			Х		Х	X	Х	Х	X			X				
18 BH08-0.1-0.3	Nov 19, 2021	Soil	S21-No62516	Х			Х		Х	Х	Х	Х	X			X				
19 BH09-0.1-0.2	Nov 19, 2021	Soil	S21-No62517	Х			Х		Х	Х	Х	Х	X			X				
20 BH10-0.1-0.3	Nov 19, 2021	Soil	S21-No62518	Х			Х		Х	Х	Х	Х	X			X				

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web: w email:	www.eurofins.com.au EnviroSales@eurofins	Env	ironment T	esting	Melbourne 6 Monterey Road Dandenong South VIC 3' Phone : +61 3 8564 5000 NATA # 1261 Site # 1254	S U 175 1) L 4 P N	ydney Init F3, I 6 Mars ane Cov hone : - IATA # 1	Building Road ve West ⊧61 2 99 1261 Sit	F t NSW 2 900 840 te # 182	8 1/ 066 PI 0 N 17	risbane 21 Sma urarrie hone : + ATA # 1	allwood QLD 4 61 7 39 1261 Sit	Place 172 902 460 te # 207	N 4 N 0 P 94 P N	ewcast /52 Indu layfield O Box 6 hone : + IATA # 1	ile Istrial D East NS 60 Wickl +61 2 49 1261 Sit	rive SW 2304 ham 229 968 844 te # 250	93 P 8 N 979	erth 6-48 Ba /elshpoo hone : + ATA # 2	nksia Road ol WA 6106 ⊧61 8 6253 4444 2377 Site # 2370	Auckland 35 O'Rorke Road Penrose, Auckland 1061 Phone : +64 9 526 45 51 IANZ # 1327	Christchurch 43 Detroit Drive Rolleston, Christchurch 7675 Phone : 0800 856 450 IANZ # 1290
Co Ad	ompany Name: Idress:	Alliance Geo 10 Welder R Seven Hills NSW 2147	otechnical Road				O Ri Pi Fa	rder I eport hone: ax:	No.: #:	8 1 0	34435 800 2 92 967	5 288 18 75 188	38 38						Recei Due: Priori Conta	ived: ity: act Name:	Nov 19, 2021 6:20 Nov 26, 2021 5 Day Jacob Walker	PM
Pro Pro	oject Name: oject ID:	MANLY VAL 14144	-E															Eu	rofins	a Analytical S	ervices Manager : Ar	ndrew Black
		Sa	ample Detail			Asbestos - AS4964	Asbestos Absence /Presence	HOLD	Polycyclic Aromatic Hydrocarbons	Metals M8	Metals M8	Suite B13: OCP/PCB	Volatile Organics	Moisture Set	Total Recoverable Hydrocarbons	Eurofins Suite B4	BTEXN and Volatile TRH	Per- and Polyfluoroalkyl Substances (PFASs)	BTEX			
Mell	bourne Laborate	ory - NATA # 12	261 Site # 1254																	1		
Syd	ney Laboratory	- NATA # 1261	Site # 18217			Х	Х	Х	Х		х	Х	Х	х	Х	Х	Х		Х]		
Bris	bane Laborator	y - NATA # 126	1 Site # 20794							Х								X]		
Мау	field Laboratory	/ - NATA # 1261	1 Site # 25079]		
Pert	h Laboratory - I	NATA # 2377 Si	ite # 2370																			
Exte	ernal Laboratory	/																				
21	BH11-0.1-0.3	Nov 19, 2021	s	Soil	S21-No62519	Х			Х		Х	X	Х	Х	X			X				
22	BH11-0.5-0.7	Nov 19, 2021	S	Soil	S21-No62520				X		Х			Х						4		
23	DUP01	Nov 19, 2021	S	Soil	S21-No62521									Х		Х		X		4		
24	RINSATE-01	Nov 19, 2021	V	Vater	S21-No62522					X								X				
25	FRAG01	Nov 19, 2021	E N	Building Aaterials	S21-No62523		x													-		
26	PFAS BLANK	Nov 19, 2021	V	Vater	S21-No62524				-						-			X		4		
27	TRIP SPIKE	Nov 19, 2021	s	Soil	S21-No62525			<u> </u>	<u> </u>										Х	4		
28	TRIP BLANK	Nov 19, 2021	S	Soil	S21-No62527												Х			4		
29	DUP02	Nov 19, 2021	S	Soil	S21-No62528						X	X		Х				X		4		
30	BH01-0.0-0.2	Nov 19, 2021	S	Soil	S21-No62529			Х]		

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web: www.eurofins.com.au email: EnviroSales@eurofins.	com	ironment ⁻	Testing	Melbourne 6 Monterey Road Dandenong South VIC 3 Phone : +61 3 8564 500 NATA # 1261 Site # 125	U 175 1 0 L 4 F	ydney Jnit F3, I 6 Mars ane Co Phone : IATA #	Building Road ve West +61 2 99 1261 Sit	F NSW 2 900 840 te # 182	8 1, 2066 P 10 N 217	/21 Sma /21 Sma lurarrie hone : - ATA #	e allwood QLD 4 +61 7 39 1261 Si	Place 172 902 460 te # 207	0 F 94 F	lewcast /52 Indu /ayfield PO Box 6 Phone : + IATA # 1	le Istrial D East NS 60 Wick F61 2 49 1261 Sit	rive SW 2304 ham 229 968 844 968 844	4 4 93 P 8 N 79	Perth 6-48 Bar Velshpoo Phone : + IATA # 2	nksia Road ol WA 6106 61 8 6253 4444 2377 Site # 2370	Auckland 35 O'Rorke Road Penrose, Auckland 1061 Phone : +64 9 526 45 51 IANZ # 1327	Christchurch 43 Detroit Drive Rolleston, Christchurch 7679 Phone : 0800 856 450 IANZ # 1290
Company Name: Address:	Alliance Geo 10 Welder R Seven Hills NSW 2147	otechnical Road				O R P F	order I eport hone: ax:	No.: #:	8	34435 1800 2 02 96	5 288 18 75 188	38 38						Recei Due: Priori Conta	ved: ty: ict Name:	Nov 19, 2021 6:20 Nov 26, 2021 5 Day Jacob Walker	PM
Project Name: Project ID:	MANLY VAL 14144	.E															_				
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	Sa	ample Detail			sbestos - AS4964	sbestos Absence /Presence		olycyclic Aromatic Hydrocarbons	Aetals M8	Aetals M8	uite B13: OCP/PCB	olatile Organics	Aoisture Set	otal Recoverable Hydrocarbons	urofins Suite B4	STEXN and Volatile TRH	er- and Polyfluoroalkyl Substances (PFASs)	STEX			
Melbourne Laborato	ory - NATA # 12	261 Site # 1254	1				_												-		
Sydney Laboratory -	NATA # 1261	Site # 18217			X	X	X	X		X	X	X	Х	X	X	X		X			
Brisbane Laboratory	/ - NATA # 126	1 Site # 20794							X								X				
Mayfield Laboratory	- NATA # 1261	Site # 25079																	-		
Perth Laboratory - N	IATA # 2377 Si	te # 2370																	-		
External Laboratory		I I	• "																-		
31 BH05-2.5-2.7	Nov 19, 2021		Soil	S21-No62530			X												-		
32 BH10-0.7-0.9	NOV 19, 2021		501	S21-N062531			X	00	0.1	01	40	44	0.1	44							
lest Counts					11	1	3	22	24	24	12	11	24	11	1	1	14	1			



Internal Quality Control Review and Glossary

General

- 1. 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.
- 2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
- 3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
- 4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
- 5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
- 6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
- 7. Samples were analysed on an 'as received' basis.
- 8. Information identified on this report with blue colour, indicates data provided by customer, that may have an impact on the results.
- 9. 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

onits		
mg/kg: milligrams per kilogram	mg/L: milligrams per litre	ug/L: micrograms per litre
ppm: Parts per million	ppb: Parts per billion	%: Percentage
org/100mL: Organisms per 100 millilitres	NTU: Nephelometric Turbidity Units	MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - 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.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
сос	Chain of Custody
SRA	Sample Receipt Advice
QSM	US Department of Defense Quality Systems Manual Version
СР	Client Parent - QC was performed on samples pertaining to this report
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.
TEQ	Toxic Equivalency Quotient
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% Phenols & 50-150% PFASs..

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

- 1. 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.
- 2. 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.
- 3. 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.
- 4. Recovery Data (Spikes & Surrogates) where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
- 5. For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
- 6. 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		A	cceptance 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							
Volatile Organics							
1.1-Dichloroethane	mg/kg	< 0.5			0.5	Pass	
1.1-Dichloroethene	mg/kg	< 0.5			0.5	Pass	
1.1.1-Trichloroethane	mg/kg	< 0.5			0.5	Pass	
1.1.1.2-Tetrachloroethane	mg/kg	< 0.5			0.5	Pass	
1.1.2-Trichloroethane	mg/kg	< 0.5			0.5	Pass	
1.1.2.2-Tetrachloroethane	mg/kg	< 0.5			0.5	Pass	
1.2-Dibromoethane	mg/kg	< 0.5			0.5	Pass	
1.2-Dichlorobenzene	mg/kg	< 0.5			0.5	Pass	
1.2-Dichloroethane	mg/kg	< 0.5			0.5	Pass	
1.2-Dichloropropane	mg/kg	< 0.5			0.5	Pass	
1.2.3-Trichloropropane	mg/kg	< 0.5			0.5	Pass	
1.2.4-Trimethylbenzene	mg/kg	< 0.5			0.5	Pass	
1.3-Dichlorobenzene	mg/kg	< 0.5			0.5	Pass	
1.3-Dichloropropane	mg/kg	< 0.5			0.5	Pass	
1.3.5-Trimethylbenzene	mg/kg	< 0.5			0.5	Pass	
1.4-Dichlorobenzene	mg/kg	< 0.5			0.5	Pass	
2-Butanone (MEK)	mg/kg	< 0.5			0.5	Pass	
2-Propanone (Acetone)	mg/kg	< 0.5			0.5	Pass	
4-Chlorotoluene	mg/kg	< 0.5			0.5	Pass	
4-Methyl-2-pentanone (MIBK)	mg/kg	< 0.5			0.5	Pass	
Allyl chloride	mg/kg	< 0.5			0.5	Pass	
Benzene	mg/kg	< 0.1			0.1	Pass	
Bromobenzene	mg/kg	< 0.5			0.5	Pass	
Bromochloromethane	mg/kg	< 0.5			0.5	Pass	
Bromodichloromethane	mg/kg	< 0.5			0.5	Pass	
Bromoform	mg/kg	< 0.5			0.5	Pass	
Bromomethane	mg/kg	< 0.5			0.5	Pass	
Carbon disulfide	mg/kg	< 0.5			0.5	Pass	
Carbon Tetrachloride	mg/kg	< 0.5			0.5	Pass	
Chlorobenzene	mg/kg	< 0.5			0.5	Pass	
Chloroethane	mg/kg	< 0.5			0.5	Pass	
Chloroform	mg/kg	< 0.5			0.5	Pass	
Chloromethane	mg/kg	< 0.5			0.5	Pass	
cis-1.2-Dichloroethene	mg/kg	< 0.5			0.5	Pass	
cis-1.3-Dichloropropene	mg/kg	< 0.5			0.5	Pass	
Dibromochloromethane	mg/kg	< 0.5			0.5	Pass	
Dibromomethane	mg/kg	< 0.5			0.5	Pass	
Dichlorodifluoromethane	mg/kg	< 0.5			0.5	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	



Test	Units	Result 1	Acceptance Limits	Pass Limits	Qualifying Code
lodomethane	mg/kg	< 0.5	0.5	Pass	
Isopropyl benzene (Cumene)	mg/kg	< 0.5	0.5	Pass	
m&p-Xylenes	mg/kg	< 0.2	0.2	Pass	
Methylene Chloride	mg/kg	< 0.5	0.5	Pass	
o-Xylene	mg/kg	< 0.1	0.1	Pass	
Styrene	mg/kg	< 0.5	0.5	Pass	
Tetrachloroethene	mg/kg	< 0.5	0.5	Pass	
Toluene	mg/kg	< 0.1	0.1	Pass	
trans-1.2-Dichloroethene	mg/kg	< 0.5	0.5	Pass	
trans-1.3-Dichloropropene	mg/kg	< 0.5	0.5	Pass	
Trichloroethene	mg/kg	< 0.5	0.5	Pass	
Trichlorofluoromethane	mg/kg	< 0.5	0.5	Pass	
Vinyl chloride	mg/kg	< 0.5	0.5	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	
	mg/kg	< 0.05	0.05	Pass	
	mg/kg	< 0.05	0.05	Pass	
Endosulfan sulphate	mg/kg	< 0.05	0.05	Pass	
	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	
Hexacniorobenzene	mg/kg	< 0.05	0.05	Pass	
Methoxychlor	mg/kg	< 0.05	0.05	Pass	<u> </u>



Test	Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
Toxaphene	mg/kg	< 0.5		0.5	Pass	
Method Blank		1			-	
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		1		I		
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			r	1		
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			r	I		
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	
Method Blank						
Perfluoroalkyl sulfonic acids (PFSAs)						
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						



Test	Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)						
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	%	112		70-130	Pass	
TRH C10-C14	%	93		70-130	Pass	
Naphthalene	%	129		70-130	Pass	
TRH C6-C10	%	111		70-130	Pass	
TRH >C10-C16	%	92		70-130	Pass	
LCS - % Recovery						
Volatile Organics						
1.1-Dichloroethene	%	83		70-130	Pass	
1.1.1-Trichloroethane	%	89		70-130	Pass	
1.2-Dichlorobenzene	%	112		70-130	Pass	
1.2-Dichloroethane	%	106		70-130	Pass	
Benzene	%	105		70-130	Pass	
Ethylbenzene	%	107		70-130	Pass	
m&n-Xylenes	%	112		70-130	Pass	
o-Xvlene	%	109		70-130	Pass	
Toluene	%	105		70-130	Pass	
Trichloroethene	%	03		70-130	Pass	
Xylenes - Total*	70 %	111		70-130	Pass	
	70	1 111		10 130	1 435	
Polycyclic Aromatic Hydrocarbons						
	%	85		70-130	Pass	
Acenaphthylene	70 9/	86		70-130	Dass	
Anthracene	70 0/2	76		70-130	Dass	
Antiliacene Bonz(a)anthracono	/0 0/.	82		70-130	Pass	
Bonzo(a)pyropo	/0 0/.	02		70-130	Pass	
Benzo(A)pyrene	/0 0/.	93		70-130	Pass	
Benzo(a bi)perdene	70	92		70-130	Pass	
Benzo(k)fluoronthono	70	00		70-130	Pass	
Chrysono	70	99		70-130	Pass	
Dihen-(a h)enthreene	70	07		70-130	Pass	
	% 0/	00 75		70-130	Pass	
	% 0/	75		70-130	Pass	
	% 0/	94		70-130	Pass	
Indeno(1.2.3-cd)pyrene	% 0/	93		70-130	Pass	
Raphthalene Research	%	95		70-130	Pass	
Prienanthrene	%	82		70-130	Pass	
Pyrene	%	/5		70-130	Pass	
LCS - % Recovery		1		I	[
	0/	440		70.400	Dees	
	%	113		70-130	Pass	
	%	114		70-130	Pass	
	%	/4	<u> </u>	70-130	Pass	
	%	/3		70-130	Pass	
a-HCH	%	82		70-130	Pass	
Aldrin	%	72		70-130	Pass	
D-HCH	%	91		70-130	Pass	
d-HCH	%	91		70-130	Pass	
Dieldrin	%	104		70-130	Pass	


Test	Units	Result 1	Acceptance Limits	Pass Limits	Qualifying Code
Endosulfan I	%	99	70-130	Pass	
Endosulfan II	%	117	70-130	Pass	
Endosulfan sulphate	%	125	70-130	Pass	
Endrin	%	77	70-130	Pass	
Endrin aldehyde	%	120	70-130	Pass	
Endrin ketone	%	124	70-130	Pass	
g-HCH (Lindane)	%	93	70-130	Pass	
Heptachlor	%	115	70-130	Pass	
Heptachlor epoxide	%	97	70-130	Pass	
Hexachlorobenzene	%	71	70-130	Pass	
Methoxychlor	%	111	70-130	Pass	
LCS - % Recovery					
Polychlorinated Biphenyls					
Aroclor-1016	%	80	70-130	Pass	
Aroclor-1260	%	81	70-130	Pass	
LCS - % Recovery					
Heavy Metals					
Arsenic	%	99	80-120	Pass	
Cadmium	%	100	80-120	Pass	
Chromium	%	98	80-120	Pass	
Copper	%	98	80-120	Pass	
Lead	%	100	80-120	Pass	
Mercury	%	98	80-120	Pass	
Nickel	%	98	80-120	Pass	
Zinc	%	95	80-120	Pass	
LCS - % Recovery			 •		
Perfluoroalkyl carboxylic acids (PFCAs)					
Perfluorobutanoic acid (PFBA)	%	101	50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	99	50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	106	50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	98	50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	91	50-150	Pass	
Perfluorononanoic acid (PFNA)	%	113	50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	98	50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	95	50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	120	50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	%	104	50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	114	50-150	Pass	
LCS - % Recovery					
Perfluoroalkyl sulfonamido substances					
Perfluorooctane sulfonamide (FOSA)	%	99	50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	101	50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	127	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)	%	83	50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	90	50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	102	50-150	Pass	
LCS - % Recovery					
Perfluoroalkyl sulfonic acids (PFSAs)					
Perfluorobutanesulfonic acid (PFBS)	%	88	50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	%	96	50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	%	103	50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	83	50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	85	50-150	Pass	



Test			Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
Perfluoroheptanesulfonic acid (PFH	oS)		%	98		50-150	Pass	
Perfluorooctanesulfonic acid (PEOS)			%	99		50-150	Pass	
Perfluorodecanesulfonic acid (PFDS	5)		%	83		50-150	Pass	
LCS - % Recovery	/					1		
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)							
1H.1H.2H.2H-perfluorohexanesulfor	nic acid (4:2 FTSA)		%	82		50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfon	ic acid (6:2 FTSA)		%	104		50-150	Pass	
1H 1H 2H 2H-perfluorodecanesulfor	nic acid (8:2 FTSA)		%	100		50-150	Pass	
1H 1H 2H 2H-perfluorododecanesul	fonic acid (10:2 FT	SA)	%	111		50-150	Pass	
							Pass	Qualifying
Test	Lab Sample ID	Source	Units	Result 1		Limits	Limits	Code
Spike - % Recovery				T	1 1	1	r	
Total Recoverable Hydrocarbons	1			Result 1				
TRH C6-C9	S21-No60075	NCP	%	86		70-130	Pass	
TRH C10-C14	S21-No60735	NCP	%	96		70-130	Pass	
Naphthalene	S21-No60075	NCP	%	86		70-130	Pass	
TRH C6-C10	S21-No60075	NCP	%	86		70-130	Pass	
TRH >C10-C16	S21-No60735	NCP	%	113		70-130	Pass	
Spike - % Recovery								
Volatile Organics				Result 1				
Benzene	S21-No60075	NCP	%	94		70-130	Pass	
Ethylbenzene	S21-No60075	NCP	%	94		70-130	Pass	
m&p-Xylenes	S21-No60075	NCP	%	95		70-130	Pass	
o-Xvlene	S21-No60075	NCP	%	97		70-130	Pass	
Toluene	S21-No60075	NCP	%	95		70-130	Pass	
Xvlenes - Total*	S21-No60075	NCP	%	96		70-130	Pass	
Spike - % Recovery	0211000010		,,,			1 10 100	1 400	
Heavy Metals				Result 1				
Arsenic	S21-No62499	СР	%	97		75-125	Pass	
Cadmium	S21-No62499	СР	%	90		75-125	Pass	
Chromium	S21-No62499	CP	%	98		75-125	Pass	
Mercury	S21-No62499	CP	%	93		75-125	Pass	
Nickel	S21-No62499	CP	%	90		75-125	Pass	
Spike - % Recovery	02111002100	0.	,,,			10.20	1 400	
Polycyclic Aromatic Hydrocarbons	3			Result 1				
Acenaphthene	S21-No59778	NCP	%	75		70-130	Pass	
Acenaphthylene	S21-No59778	NCP	%	73		70-130	Pass	
Anthracene	S21-No59778	NCP	%	76		70-130	Pass	
Benz(a)anthracene	S21-No59778	NCP	%	74		70-130	Pass	
Benzo(a)pyrene	S21-No59778	NCP	%	108		70-130	Pass	
Benzo(a h i)pervlene	S21-No59778	NCP	%	87		70-130	Pass	
Benzo(k)fluoranthene	S21-No59778	NCP	%	74		70-130	Pass	
Chrysene	S21-No59778	NCP	%	80		70-130	Pass	
Dibenz(a b)anthracene	S21-No59778	NCP	70 0/_	76		70-130	Dass	
Elucranthono	S21-N059778		/0 0/.	82		70-130	Pass	
Fluorance	S21-N059778		/0	70		70-130	Pass	
	S21-N059778		70	19		70-130	Pass Dasa	
Naphthalana	S21-NU09//0	NOP	-70 0/	71		70 100	Pass Doco	
Departhrop	S21-N059//8		-70 07	01		70-130	Pass	
Durana	521-N059//8		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	01		70-130	Pass	
	521-N059778	NCP	%	82		70-130	Pass	
Spike - % Recovery				Deput				
		NOD	0/			70.400	Dess	
	521-N013951	NCP	%	8/		70-130	Pass	
Orgonophloring Pacticides				Bocult 4		1		
organochiorine Pesticides				Result	1	1		



Test	Lab Sample ID	QA Source	Units	Result 1	Acceptance Limits	Pass Limits	Qualifying Code
Chlordanes - Total	S21-No57359	NCP	%	78	70-130	Pass	
4.4'-DDD	S21-No57359	NCP	%	107	70-130	Pass	
a-HCH	S21-No57359	NCP	%	92	70-130	Pass	
Aldrin	S21-No57359	NCP	%	76	70-130	Pass	
b-HCH	S21-No57359	NCP	%	83	70-130	Pass	
d-HCH	S21-No57359	NCP	%	86	70-130	Pass	
Dieldrin	S21-No57359	NCP	%	126	70-130	Pass	
Endrin	S21-No57359	NCP	%	74	70-130	Pass	
g-HCH (Lindane)	S21-No57359	NCP	%	105	70-130	Pass	
Hexachlorobenzene	S21-No57359	NCP	%	94	70-130	Pass	
Spike - % Recovery							
Polychlorinated Biphenyls				Result 1			
Aroclor-1016	S21-No57359	NCP	%	99	70-130	Pass	
Aroclor-1260	S21-No57359	NCP	%	97	70-130	Pass	
Spike - % Recovery							
Heavy Metals				Result 1			
Arsenic	S21-No62519	CP	%	100	75-125	Pass	
Cadmium	S21-No62519	CP	%	91	75-125	Pass	
Chromium	S21-No62519	CP	%	94	75-125	Pass	
Copper	S21-No62519	CP	%	97	75-125	Pass	
Lead	S21-No62519	CP	%	106	75-125	Pass	
Mercury	S21-No62519	CP	%	99	75-125	Pass	
Nickel	S21-No62519	CP	%	94	75-125	Pass	
Zinc	S21-No62519	CP	%	112	75-125	Pass	
Spike - % Recovery							
Perfluoroalkyl carboxylic acids (PF	CAs)			Result 1			
Perfluorobutanoic acid (PFBA)	S21-No62528	CP	%	88	50-150	Pass	
Perfluoropentanoic acid (PFPeA)	S21-No62528	CP	%	97	50-150	Pass	
Perfluorohexanoic acid (PFHxA)	S21-No62528	CP	%	99	50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	S21-No62528	CP	%	93	50-150	Pass	
Perfluorooctanoic acid (PFOA)	S21-No62528	CP	%	90	50-150	Pass	
Perfluorononanoic acid (PFNA)	S21-No62528	CP	%	79	50-150	Pass	
Perfluorodecanoic acid (PFDA)	S21-No62528	CP	%	86	50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	S21-No62528	СР	%	88	50-150	Pass	
Perfluorododecanoic acid	001 No60500	CD	0/	05	50 150	Deee	
(PFD0DA)	521-IN002528		% 0/	95	50-150	Pass	
Perfluorotetradecanoic acid	321-11002320	67	70	13	50-150	F d55	
(PFTeDA)	S21-No62528	CP	%	97	50-150	Pass	
Spike - % Recovery				1	 1		
Perfluoroalkyl sulfonamido substa	nces			Result 1			
Perfluorooctane sulfonamide (FOSA)	S21-No62528	СР	%	89	50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	S21-No62528	СР	%	97	50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	S21-No62528	СР	%	98	50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	S21-No62528	СР	%	99	50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	S21-No62528	СР	%	114	50-150	Pass	
N-ethyl- perfluorooctanesulfonamidoacetic	004 11 00500		~				
acid (N-EtFOSAA)	S21-No62528	CP	%	84	50-150	Pass	
N-methyl- perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	S21-No62528	СР	%	85	50-150	Pass	



Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery							T		
Perfluoroalkyl sulfonic acids (PFS)	As)			Result 1					
Perfluorobutanesulfonic acid (PFBS)	S21-No62528	СР	%	79			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	S21-No62528	СР	%	99			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	S21-No62528	СР	%	74			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	S21-No62528	СР	%	79			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	S21-No62528	СР	%	84			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	S21-No62528	СР	%	99			50-150	Pass	
Perfluorooctanesulfonic acid	S21-No62528	CP	%	83			50-150	Pass	
Perfluorodecanesulfonic acid	S21-No62528	CP	0/	03			50-150	Pass	
Snike - % Recovery	321-11002320		70	35			00-100	1 855	
n:2 Eluorotelomer sulfonic acids (r	1:2 FTSAs)			Result 1					
1H.1H.2H.2H- perfluorohexanesulfonic acid (4:2 FTSA)	S21-No62528	СР	%	90			50-150	Pass	
1H.1H.2H.2H- perfluorooctanesulfonic acid (6:2 FTSA)	S21-No62528	СР	%	78			50-150	Pass	
1H.1H.2H.2H- perfluorodecanesulfonic acid (8:2 FTSA)	S21-No62528	СР	%	89			50-150	Pass	
1H.1H.2H.2H- perfluorododecanesulfonic acid (10:2 FTSA)	S21-No62528	СР	%	108			50-150	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Test Duplicate	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Test Duplicate Total Recoverable Hydrocarbons	Lab Sample ID	QA Source	Units	Result 1 Result 1	Result 2	RPD	Acceptance Limits	Pass Limits	Qualifying Code
Test Duplicate Total Recoverable Hydrocarbons TRH C6-C9	Lab Sample ID S21-No45326	QA Source	Units mg/kg	Result 1 Result 1 < 20	Result 2 < 20	RPD <1	Acceptance Limits	Pass Limits Pass	Qualifying Code
Test Duplicate Total Recoverable Hydrocarbons TRH C6-C9 TRH C10-C14	Lab Sample ID S21-No45326 S21-No60724	QA Source NCP NCP	Units mg/kg mg/kg	Result 1 Result 1 < 20 < 20	Result 2 < 20 < 20	RPD <1 <1	Acceptance Limits	Pass Limits Pass Pass	Qualifying Code
Test Duplicate Total Recoverable Hydrocarbons TRH C6-C9 TRH C10-C14 TRH C15-C28	Lab Sample ID S21-No45326 S21-No60724 S21-No60724	QA Source NCP NCP NCP	Units mg/kg mg/kg mg/kg	Result 1 Result 1 < 20 < 20 < 50	Result 2 < 20 < 20 < 50	RPD <1 <1 <1	Acceptance Limits	Pass Limits Pass Pass Pass	Qualifying Code
Test Duplicate Total Recoverable Hydrocarbons TRH C6-C9 TRH C10-C14 TRH C15-C28 TRH C29-C36	Lab Sample ID S21-No45326 S21-No60724 S21-No60724 S21-No60724	QA Source NCP NCP NCP NCP	Units mg/kg mg/kg mg/kg	Result 1 Result 1 < 20 < 20 < 50 < 50	Result 2 < 20 < 20 < 50 < 50	RPD <1 <1 <1 <1 <1 <1	Acceptance Limits 30% 30% 30% 30%	Pass Limits Pass Pass Pass Pass	Qualifying Code
Test Duplicate Total Recoverable Hydrocarbons TRH C6-C9 TRH C10-C14 TRH C15-C28 TRH C29-C36 Naphthalene	Lab Sample ID S21-No45326 S21-No60724 S21-No60724 S21-No60724 S21-No60724	QA Source NCP NCP NCP NCP NCP	Units mg/kg mg/kg mg/kg mg/kg	Result 1 < 20 < 20 < 50 < 50 < 0.5	Result 2 < 20 < 20 < 50 < 50 < 0.5	RPD <1 <1 <1 <1 <1 <1 <1 <1	Acceptance Limits 30% 30% 30% 30% 30%	Pass Limits Pass Pass Pass Pass Pass	Qualifying Code
Test Duplicate Total Recoverable Hydrocarbons TRH C6-C9 TRH C10-C14 TRH C15-C28 TRH C29-C36 Naphthalene TRH C6-C10	Lab Sample ID S21-No45326 S21-No60724 S21-No60724 S21-No60724 S21-No45326 S21-No45326	QA Source NCP NCP NCP NCP NCP NCP	Units mg/kg mg/kg mg/kg mg/kg mg/kg	Result 1 < 20 < 20 < 50 < 50 < 0.5 < 20	Result 2 < 20 < 20 < 50 < 50 < 0.5 < 20	RPD <1 <1 <1 <1 <1 <1 <1 <1 <1 <1	Acceptance Limits 30% 30% 30% 30% 30% 30%	Pass Limits Pass Pass Pass Pass Pass Pass	Qualifying Code
Test Duplicate Total Recoverable Hydrocarbons TRH C6-C9 TRH C10-C14 TRH C15-C28 TRH C29-C36 Naphthalene TRH C6-C10 TRH >C10-C16	Lab Sample ID S21-No45326 S21-No60724 S21-No60724 S21-No60724 S21-No45326 S21-No45326 S21-No45326	QA Source	Units mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg	Result 1 < 20 < 20 < 50 < 50 < 0.5 < 20 < 50 < 50 < 50	Result 2 < 20 < 20 < 50 < 50 < 0.5 < 20 < 50	RPD <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1	Acceptance Limits 30% 30% 30% 30% 30% 30% 30%	Pass Pass Pass Pass Pass Pass Pass Pass	Qualifying Code
Test Duplicate Total Recoverable Hydrocarbons TRH C6-C9 TRH C10-C14 TRH C15-C28 TRH C29-C36 Naphthalene TRH C6-C10 TRH >C10-C16 TRH >C10-C16 TRH >C10-C34	Lab Sample ID S21-No45326 S21-No60724 S21-No60724 S21-No60724 S21-No45326 S21-No45326 S21-No60724 S21-No60724	QA Source	Units mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg	Result 1 < 20 < 20 < 50 < 50 < 0.5 < 20 < 50 < 100	Result 2 < 20 < 20 < 50 < 50 < 0.5 < 20 < 50 < 50 < 100	RPD <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1	Acceptance Limits 30% 30% 30% 30% 30% 30% 30% 30%	Pass Pass Pass Pass Pass Pass Pass Pass	Qualifying Code
Test Duplicate Total Recoverable Hydrocarbons TRH C6-C9 TRH C10-C14 TRH C15-C28 TRH C29-C36 Naphthalene TRH C6-C10 TRH >C10-C16 TRH >C10-C16 TRH >C16-C34 TRH >C34-C40	Lab Sample ID S21-No45326 S21-No60724 S21-No60724 S21-No60724 S21-No45326 S21-No45326 S21-No60724 S21-No60724 S21-No60724	QA Source	Units mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg	Result 1 < 20 < 20 < 50 < 50 < 0.5 < 20 < 50 < 100 < 100	Result 2 < 20 < 20 < 50 < 50 < 0.5 < 20 < 50 < 50 < 100 < 100	RPD <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1	Acceptance Limits 30% 30% 30% 30% 30% 30% 30% 30% 30%	Pass Pass Pass Pass Pass Pass Pass Pass	Qualifying Code
TestDuplicateTotal Recoverable HydrocarbonsTRH C6-C9TRH C10-C14TRH C10-C14TRH C15-C28TRH C29-C36NaphthaleneTRH C29-C36NaphthaleneTRH C6-C10TRH >C10-C16TRH >C10-C16TRH >C16-C34TRH >C34-C40Duplicate	Lab Sample ID S21-No45326 S21-No60724 S21-No60724 S21-No45326 S21-No45326 S21-No60724 S21-No60724 S21-No60724 S21-No60724	QA Source	Units mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg	Result 1 < 20 < 20 < 50 < 50 < 0.5 < 20 < 50 < 100 < 100	Result 2 < 20 < 20 < 50 < 50 < 0.5 < 20 < 50 < 50 < 100 < 100	RPD <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1	Acceptance Limits 30% 30% 30% 30% 30% 30% 30% 30% 30%	Pass Pass Pass Pass Pass Pass Pass Pass	Qualifying Code
TestDuplicateTotal Recoverable HydrocarbonsTRH C6-C9TRH C10-C14TRH C10-C14TRH C15-C28TRH C29-C36NaphthaleneTRH C29-C36NaphthaleneTRH C6-C10TRH >C10-C16TRH >C10-C16TRH >C16-C34TRH >C34-C40DuplicateVolatile Organics4.4 Bicklemethere	Lab Sample ID S21-No45326 S21-No60724 S21-No60724 S21-No60724 S21-No45326 S21-No45326 S21-No60724 S21-No60724 S21-No60724 S21-No60724 S21-No60724	QA Source	Units mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg	Result 1 < 20 < 20 < 50 < 50 < 0.5 < 20 < 50 < 100 < 100 Result 1	Result 2 < 20 < 20 < 50 < 50 < 0.5 < 20 < 50 < 100 < 100 Result 2	RPD <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1	Acceptance Limits 30% 30% 30% 30% 30% 30% 30% 30% 30%	Pass Pass Pass Pass Pass Pass Pass Pass	Qualifying Code
TestDuplicateTotal Recoverable HydrocarbonsTRH C6-C9TRH C10-C14TRH C10-C14TRH C15-C28TRH C29-C36NaphthaleneTRH C29-C36NaphthaleneTRH C6-C10TRH >C10-C16TRH >C10-C16TRH >C16-C34TRH >C34-C40DuplicateVolatile Organics1.1-Dichloroethane1.1-Dichloroethane4.4 Dickloroethane	Lab Sample ID S21-No45326 S21-No60724 S21-No60724 S21-No60724 S21-No45326 S21-No45326 S21-No60724 S21-No60724 S21-No60724 S21-No60724 S21-No60724	QA Source	Units mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg	Result 1 < 20 < 20 < 50 < 50 < 0.5 < 20 < 50 < 100 < 100 Result 1 < 0.5	Result 2 < 20 < 20 < 50 < 50 < 0.5 < 20 < 50 < 100 < 100 Result 2 < 0.5	RPD <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1	Acceptance Limits 30% 30% 30% 30% 30% 30% 30% 30% 30% 30%	Pass Pass Pass Pass Pass Pass Pass Pass	Qualifying Code
TestDuplicateTotal Recoverable HydrocarbonsTRH C6-C9TRH C10-C14TRH C10-C14TRH C15-C28TRH C29-C36NaphthaleneTRH C6-C10TRH >C10-C16TRH >C10-C16TRH >C16-C34TRH >C34-C40DuplicateVolatile Organics1.1-Dichloroethane1.1-Dichloroethane	Lab Sample ID S21-No45326 S21-No60724 S21-No60724 S21-No60724 S21-No45326 S21-No45326 S21-No60724 S21-No60724 S21-No60724 S21-No60724 S21-No60724 S21-No45326	QA Source	Units mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg	Result 1 Result 1 20 20 50 50 50 50 50 50 100 Result 1 0.5 0.5 0.5	Result 2 < 20 < 20 < 50 < 50 < 0.5 < 20 < 50 < 100 < 100 < 100 Result 2 < 0.5 < 0.5	RPD <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1	Acceptance Limits 30% 30% 30% 30% 30% 30% 30% 30% 30% 30%	Pass Pass Pass Pass Pass Pass Pass Pass	Qualifying Code
TestDuplicateTotal Recoverable HydrocarbonsTRH C6-C9TRH C10-C14TRH C15-C28TRH C29-C36NaphthaleneTRH C6-C10TRH >C10-C16TRH >C10-C16TRH >C16-C34TRH >C34-C40DuplicateVolatile Organics1.1-Dichloroethane1.1-Dichloroethane1.1-Trichloroethane4.4.4.2 Tatmathamathamathamathamathamathamathama	Lab Sample ID S21-No45326 S21-No60724 S21-No60724 S21-No60724 S21-No45326 S21-No60724 S21-No60724 S21-No60724 S21-No60724 S21-No60724 S21-No45326	QA Source	Units mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg	Result 1 Result 1 20 20 50 50 50 50 50 50 50 50 50 60.5 80.5 60.5 60.5	Result 2 < 20 < 20 < 50 < 50 < 0.5 < 20 < 50 < 100 < 100 < 100 Result 2 < 0.5 < 0.5 < 0.5	RPD <1	Acceptance Limits 30% 30% 30% 30% 30% 30% 30% 30% 30% 30%	Pass Pass Pass Pass Pass Pass Pass Pass	Qualifying Code
TestDuplicateTotal Recoverable HydrocarbonsTRH C6-C9TRH C10-C14TRH C15-C28TRH C29-C36NaphthaleneTRH C6-C10TRH >C10-C16TRH >C10-C16TRH >C16-C34TRH >C34-C40DuplicateVolatile Organics1.1-Dichloroethane1.1-Dichloroethane1.1.2-Tetrachloroethane4.4.2 Trichloroethane	Lab Sample ID S21-No45326 S21-No60724 S21-No60724 S21-No60724 S21-No45326 S21-No60724 S21-No60724 S21-No60724 S21-No60724 S21-No60724 S21-No45326	QA Source	Units mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg	Result 1 < 20 < 20 < 50 < 50 < 0.5 < 20 < 50 < 100 < 100 Result 1 < 0.5 <	Result 2 < 20 < 50 < 50 < 50 < 0.5 < 20 < 50 < 100 < 100 < 100 Result 2 < 0.5 < 0.5 < 0.5 < 0.5 < 0.5	RPD <1	Acceptance Limits 30% 30% 30% 30% 30% 30% 30% 30% 30% 30%	Pass Pass Pass Pass Pass Pass Pass Pass	Qualifying Code
TestDuplicateTotal Recoverable HydrocarbonsTRH C6-C9TRH C10-C14TRH C10-C14TRH C29-C36NaphthaleneTRH C29-C36NaphthaleneTRH C6-C10TRH >C10-C16TRH >C10-C16TRH >C34-C40DuplicateVolatile Organics1.1-Dichloroethane1.1.Dichloroethane1.1.1-Trichloroethane1.1.2-Tetrachloroethane1.1.2-Trichloroethane1.1.2-Trichloroethane	Lab Sample ID S21-No45326 S21-No60724 S21-No60724 S21-No60724 S21-No45326 S21-No45326 S21-No60724 S21-No60724 S21-No60724 S21-No45326	QA Source	Units mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg	Result 1 20 20 20 50 </td <td>Result 2 < 20 < 50 < 50 < 50 < 0.5 < 20 < 50 < 100 < 100 < 100 Result 2 < 0.5 < 0.5 < 0.5 < 0.5 < 0.5</td> <td>RPD <1</td> <1	Result 2 < 20 < 50 < 50 < 50 < 0.5 < 20 < 50 < 100 < 100 < 100 Result 2 < 0.5 < 0.5 < 0.5 < 0.5 < 0.5	RPD <1	Acceptance Limits 30% 30% 30% 30% 30% 30% 30% 30% 30% 30%	Pass Pass Pass Pass Pass Pass Pass Pass	Qualifying Code
TestDuplicateTotal Recoverable HydrocarbonsTRH C6-C9TRH C10-C14TRH C10-C14TRH C29-C36NaphthaleneTRH C6-C10TRH >C10-C16TRH >C10-C16TRH >C10-C16TRH >C34-C40DuplicateVolatile Organics1.1-Dichloroethane1.1-Dichloroethane1.1.1-Trichloroethane1.1.2-Tetrachloroethane1.1.2-Tetrachloroethane1.1.2-Tetrachloroethane1.1.2-Tetrachloroethane1.1.2-Tetrachloroethane	Lab Sample ID S21-No45326 S21-No60724 S21-No60724 S21-No60724 S21-No45326 S21-No45326 S21-No60724 S21-No60724 S21-No60724 S21-No60724 S21-No45326	QA Source	Units mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg	Result 1 Result 1 20 20 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 60.5 50 60.5 60.5 60.5 60.5 60.5 60.5 60.5 60.5 60.5 60.5 60.5 60.5 60.5 60.5 60.5 60.5	Result 2 < 20 < 20 < 50 < 50 < 0.5 < 20 < 50 < 100 < 100 < 100 Result 2 < 0.5 < 0.5 < 0.5 < 0.5 < 0.5 < 0.5 < 0.5	RPD <1	Acceptance Limits 30% 30% 30% 30% 30% 30% 30% 30% 30% 30%	Pass Pass Pass Pass Pass Pass Pass Pass	Qualifying Code
TestDuplicateTotal Recoverable HydrocarbonsTRH C6-C9TRH C10-C14TRH C10-C14TRH C15-C28TRH C29-C36NaphthaleneTRH C6-C10TRH >C10-C16TRH >C10-C16TRH >C16-C34TRH >C34-C40DuplicateVolatile Organics1.1-Dichloroethane1.1.1-Trichloroethane1.1.2-Tetrachloroethane1.1.2-Tetrachloroethane1.1.2-Tetrachloroethane1.1.2-Tetrachloroethane1.1.2-Dibloromoethane1.2-Dibloromoethane1.2-Dibloromoethane1.2-Dibloromoethane1.2-Dibloromoethane	Lab Sample ID S21-No45326 S21-No60724 S21-No60724 S21-No60724 S21-No45326 S21-No45326 S21-No60724 S21-No60724 S21-No60724 S21-No45326	QA Source	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	Result 1 Result 1 20 20 50 <	Result 2 < 20 < 50 < 50 < 50 < 0.5 < 20 < 50 < 100 < 100 < 100 < 100 Result 2 < 0.5 < 0.5 < 0.5 < 0.5 < 0.5 < 0.5 < 0.5 < 0.5	RPD <1	Acceptance Limits 30% 30% 30% 30% 30% 30% 30% 30% 30% 30%	Pass Pass Pass Pass Pass Pass Pass Pass	Qualifying Code
TestDuplicateTotal Recoverable HydrocarbonsTRH C6-C9TRH C10-C14TRH C15-C28TRH C29-C36NaphthaleneTRH C6-C10TRH >C10-C16TRH >C10-C34TRH >C34-C40DuplicateVolatile Organics1.1-Dichloroethane1.1.1-Trichloroethane1.1.2-Tetrachloroethane1.1.2-Tetrachloroethane1.1.2-Tetrachloroethane1.1.2-Diblorooethane1.2-Dichloroethane1.2-Dibromoethane1.2-Dichloroethane1.2-Dichloroethane1.2-Dichloroethane1.2-Dichloroethane1.2-Dichloroethane1.2-Dichloroethane1.2-Dichloroethane1.2-Dichloroethane	Lab Sample ID S21-No45326 S21-No60724 S21-No60724 S21-No60724 S21-No45326 S21-No45326 S21-No60724 S21-No60724 S21-No60724 S21-No45326	QA Source	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	Result 1 Result 1 20 20 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 60.5 50 60.5	Result 2 < 20 < 20 < 50 < 50 < 0.5 < 20 < 50 < 100 < 100 < 100 Result 2 < 0.5 < 0.5 < 0.5 < 0.5 < 0.5 < 0.5 < 0.5 < 0.5 < 0.5 < 0.5	RPD <1	Acceptance Limits 30% 30% 30% 30% 30% 30% 30% 30% 30% 30%	Pass Pass Pass Pass Pass Pass Pass Pass	Qualifying Code
TestDuplicateTotal Recoverable HydrocarbonsTRH C6-C9TRH C10-C14TRH C10-C14TRH C15-C28TRH C29-C36NaphthaleneTRH C6-C10TRH >C10-C16TRH >C16-C34TRH >C34-C40DuplicateVolatile Organics1.1-Dichloroethane1.1.1.2-Tetrachloroethane1.1.2-Tetrachloroethane1.1.2-Tetrachloroethane1.1.2-Tetrachloroethane1.2-Diblorooethane1.2-Dichloroethane1.2-Dichloroethane1.2-Dichloroethane1.2-Dichloroethane1.2-Dichloroethane1.2-Dichloroethane1.2-Dichloroethane1.2-Dichloroethane1.2-Dichloroethane1.2-Dichloroethane1.2-Dichloroethane1.2-Dichloroethane1.2-Dichloroethane	Lab Sample ID S21-No45326 S21-No60724 S21-No60724 S21-No60724 S21-No45326 S21-No45326 S21-No60724 S21-No60724 S21-No60724 S21-No60724 S21-No45326	QA Source	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	Result 1 20 20 20 50 </td <td>Result 2 < 20 < 50 < 50 < 50 < 0.5 < 20 < 50 < 100 < 100 < 100 Result 2 < 0.5 < 0.5</td> <td>RPD <1</td> <1	Result 2 < 20 < 50 < 50 < 50 < 0.5 < 20 < 50 < 100 < 100 < 100 Result 2 < 0.5 < 0.5	RPD <1	Acceptance Limits 30% 30% 30% 30% 30% 30% 30% 30% 30% 30%	Pass Pass Pass Pass Pass Pass Pass Pass	Qualifying Code
TestDuplicateTotal Recoverable HydrocarbonsTRH C6-C9TRH C10-C14TRH C10-C14TRH C29-C36NaphthaleneTRH C6-C10TRH >C10-C16TRH >C10-C16TRH >C16-C34TRH >C34-C40DuplicateVolatile Organics1.1-Dichloroethane1.1.1-Trichloroethane1.1.2-Tetrachloroethane1.1.2-Tetrachloroethane1.1.2-Tetrachloroethane1.2-Dichloroethane	Lab Sample ID S21-No45326 S21-No60724 S21-No60724 S21-No60724 S21-No45326 S21-No45326 S21-No60724 S21-No60724 S21-No60724 S21-No60724 S21-No45326	QA Source	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	Result 1 < 20	Result 2 < 20 < 50 < 50 < 0.5 < 20 < 50 < 100 < 100 < 100 < 100 Result 2 < 0.5 < 0.5	RPD <1	Acceptance Limits 30% 30% 30% 30% 30% 30% 30% 30% 30% 30%	Pass Pass Pass Pass Pass Pass Pass Pass	Qualifying Code
TestDuplicateTotal Recoverable HydrocarbonsTRH C6-C9TRH C10-C14TRH C10-C14TRH C15-C28TRH C29-C36NaphthaleneTRH C6-C10TRH >C10-C16TRH >C10-C16TRH >C16-C34TRH >C34-C40DuplicateVolatile Organics1.1-Dichloroethane1.1.1-Trichloroethane1.1.2-Tetrachloroethane1.1.2-Tetrachloroethane1.1.2-Tetrachloroethane1.2-Dichloroethane1.2-Dichloroethane1.2-Dichloroethane1.2-Dichloroethane1.2-Dichloroethane1.2-Dichloroethane1.2-Dichloroethane1.2-Dichloroethane1.2-Dichloroethane1.2-Dichloroethane1.2-Dichloroethane1.2-Dichloroethane1.2-Trichloroethane1.2-Dichloroethane1.2-Dichloroethane1.2-Dichloroethane1.2-Dichloropropane1.2.3-Trichloropropane1.2.4-Trimethylbenzene	Lab Sample ID S21-No45326 S21-No60724 S21-No60724 S21-No60724 S21-No45326 S21-No45326 S21-No60724 S21-No60724 S21-No60724 S21-No60724 S21-No45326	QA Source	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	Result 1 < 20	Result 2 < 20 < 50 < 50 < 0.5 < 20 < 50 < 0.5 < 100 < 100 < 100 < 100 Result 2 < 0.5 < 0.5	RPD <1	Acceptance Limits 30% 30% 30% 30% 30% 30% 30% 30% 30% 30%	Pass Pass Pass Pass Pass Pass Pass Pass	Qualifying Code



Volatile Organics Result 1 Result 2 RPD Image: Constraint 1 1.3-Dichloropropane S21-No45326 NCP mg/kg < 0.5 < 0.5 < 1 30% Pass 1.3.5-Trimethylbenzene S21-No45326 NCP mg/kg < 0.5 < 0.5 < 1 30% Pass 1.4-Dichlorobenzene S21-No45326 NCP mg/kg < 0.5 < 0.5 < 1 30% Pass 2-Butanone (MEK) S21-No45326 NCP mg/kg < 0.5 < 0.5 < 1 30% Pass 2-Propanone (Acetone) S21-No45326 NCP mg/kg < 0.5 < 0.5 < 1 30% Pass
1.3-Dichloropropane S21-No45326 NCP mg/kg < 0.5 < 0.5 < 1 30% Pass 1.3.5-Trimethylbenzene S21-No45326 NCP mg/kg < 0.5
1.3.5-Trimethylbenzene S21-No45326 NCP mg/kg < 0.5 < 0.5 < 1 30% Pass 1.4-Dichlorobenzene S21-No45326 NCP mg/kg < 0.5
1.4-Dichlorobenzene S21-No45326 NCP mg/kg < 0.5 < 0.5 <1 30% Pass 2-Butanone (MEK) S21-No45326 NCP mg/kg < 0.5
2-Butanone (MEK) S21-No45326 NCP mg/kg < 0.5 < 0.5 <1 30% Pass 2-Propanone (Acetone) S21-No45326 NCP mg/kg < 0.5
2-Propanone (Acetone) S21-No45326 NCP mg/kg < 0.5 < 0.5 < 1 30% Pass
4-Chlorotoluene S21-No45326 NCP mg/kg < 0.5 < 0.5 <1 30% Pass
4-Methyl-2-pentanone (MIBK) S21-No45326 NCP mg/kg < 0.5 < 0.5 < 1 30% Pass
Allyl chloride S21-No45326 NCP mg/kg < 0.5 < 1 30% Pass
Benzene S21-No45326 NCP mg/kg < 0.1 < 1 30% Pass
Bromobenzene S21-No45326 NCP mg/kg < 0.5 < 0.5 < 1 30% Pass
Bromochloromethane S21-No45326 NCP mg/kg < 0.5 < 0.5 < 1 30% Pass
Bromodichloromethane S21-No45326 NCP mg/kg < 0.5 < 0.5 < 1 30% Pass
Bromoform S21-No45326 NCP mg/kg < 0.5 < 0.5 <1 30% Pass
Bromomethane S21-No45326 NCP mg/kg < 0.5 < 0.5 < 1 30% Pass
Carbon disulfide S21-No45326 NCP mg/kg < 0.5 < 0.5 < 1 30% Pass
Carbon Tetrachloride S21-No45326 NCP mg/kg < 0.5 < 0.5 < 1 30% Pass
Chlorobenzene S21-No45326 NCP mg/kg < 0.5 < 0.5 < 1 30% Pass
Chloroethane S21-No45326 NCP mg/kg < 0.5 < 0.5 < 1 30% Pass
Chloroform S21-No45326 NCP mg/kg < 0.5 < 0.5 < 1 30% Pass
Chloromethane S21-No45326 NCP mg/kg < 0.5 < 0.5 < 1 30% Pass
cis-1.2-Dichloroethene S21-No45326 NCP mg/kg < 0.5 < 0.5 < 1 30% Pass
cis-1.3-Dichloropropene S21-No45326 NCP mg/kg < 0.5 < 0.5 < 1 30% Pass
Dibromochloromethane S21-No45326 NCP mg/kg < 0.5 < 0.5 <1 30% Pass
Dibromomethane S21-No45326 NCP mg/kg < 0.5 < 0.5 < 1 30% Pass
Dichlorodifluoromethane S21-No45326 NCP mg/kg < 0.5 < 0.5 < 1 30% Pass
Ethylbenzene S21-No45326 NCP mg/kg < 0.1 < 0.1 <1 30% Pass
Iodomethane S21-No45326 NCP mg/kg < 0.5 < 0.5 <1 30% Pass
Isopropyl benzene (Cumene) S21-No45326 NCP mg/kg < 0.5 < 0.5 < 1 30% Pass
m&p-Xylenes S21-No45326 NCP mg/kg < 0.2 < 0.2 <1 30% Pass
Methylene Chloride S21-No45326 NCP mg/kg < 0.5 < 0.5 < 1 30% Pass
o-Xylene S21-No45326 NCP mg/kg < 0.1 < 0.1 <1 30% Pass
Styrene S21-No45326 NCP mg/kg < 0.5 < 0.5 < 1 30% Pass
Tetrachloroethene S21-No45326 NCP mg/kg < 0.5 < 0.5 < 1 30% Pass
Toluene S21-No45326 NCP mg/kg < 0.1 < 0.1 <1 30% Pass
trans-1.2-Dichloroethene S21-No45326 NCP mg/kg < 0.5 < 0.5 < 1 30% Pass
trans-1.3-Dichloropropene S21-No45326 NCP mg/kg < 0.5 < 0.5 < 1 30% Pass
Trichloroethene S21-No45326 NCP mg/kg < 0.5 < 0.5 < 1 30% Pass
Trichlorofluoromethane S21-No45326 NCP mg/kg < 0.5 < 0.5 < 1 30% Pass
Vinyl chloride S21-No45326 NCP mg/kg < 0.5 < 0.5 < 1 30% Pass
Xylenes - Total* S21-No45326 NCP mg/kg < 0.3 < 1 30% Pass
Duplicate
Polycyclic Aromatic Hydrocarbons Result 1 Result 2 RPD
Acenaphthene S21-No65269 NCP mg/kg < 0.5 < 0.5 < 1 30% Pass
Acenaphthylene S21-No65269 NCP mg/kg < 0.5 < 0.5 < 1 30% Pass
Anthracene S21-No65269 NCP mg/kg < 0.5 < 0.5 < 1 30% Pass
Benz(a)anthracene S21-No65269 NCP mg/kg < 0.5 < 0.5 < 1 30% Pass
Benzo(a)pyrene S21-No65269 NCP mg/kg < 0.5 < 0.5 < 1 30% Pass
Benzo(b&j)fluoranthene S21-No65269 NCP mg/kg < 0.5 < 0.5 < 1 30% Pass
Benzo(g.h.i)perylene S21-No65269 NCP mg/kg < 0.5 < 0.5 < 1 30% Pass
Benzo(k)fluoranthene S21-No65269 NCP mg/kg < 0.5 < 0.5 < 1 30% Pass
Chrysene S21-No65269 NCP mg/kg < 0.5 < 0.5 < 1 30% Pass
Dibenz(a.h)anthracene S21-No65269 NCP mg/kg < 0.5 < 0.5 < 1 30% Pass
Fluoranthene S21-No65269 NCP mg/kg < 0.5 < 0.5 < 1 30% Pass
Fluorene S21-No65269 NCP mg/kg < 0.5 < 1 30% Pass



Duplicate									
Polycyclic Aromatic Hydrocarbons	6			Result 1	Result 2	RPD			
Indeno(1.2.3-cd)pyrene	S21-No65269	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	S21-No65269	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	S21-No65269	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	S21-No65269	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	S21-No65269	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4.4'-DDD	S21-No65269	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDE	S21-No65269	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDT	S21-No65269	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-HCH	S21-No65269	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	S21-No65269	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-HCH	S21-No65269	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-HCH	S21-No65269	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	S21-No65269	NCP	mg/kg	0.11	0.20	65	30%	Fail	Q15
Endosulfan I	S21-No65269	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	S21-No65269	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	S21-No65269	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	S21-No65269	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin aldehyde	S21-No65269	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin ketone	S21-No65269	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
g-HCH (Lindane)	S21-No65269	NCP	ma/ka	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor	S21-No65269	NCP	ma/ka	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor epoxide	S21-No65269	NCP	ma/ka	< 0.05	< 0.05	<1	30%	Pass	
Hexachlorobenzene	S21-No65269	NCP	ma/ka	< 0.05	< 0.05	<1	30%	Pass	
Methoxychlor	S21-No65269	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Toxaphene	S21-No61011	NCP	mg/kg	< 10	< 10	<1	30%	Pass	
Duplicate	1								
Polychlorinated Biphenyls				Result 1	Result 2	RPD			
Aroclor-1016	S21-No65269	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1221	S21-No65269	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1232	S21-No65269	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1242	S21-No65269	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1248	S21-No65269	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1254	S21-No65269	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1260	S21-No65269	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Total PCB*	S21-No65269	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Duplicate	•								
				Result 1	Result 2	RPD			
% Moisture	S21-No62501	CP	%	9.6	11	15	30%	Pass	
Duplicate	•		•		•				
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S21-No62508	CP	mg/kg	< 2	2.1	30	30%	Pass	
Cadmium	S21-No62508	СР	ma/ka	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S21-No62508	СР	ma/ka	9.3	11	15	30%	Pass	
Copper	S21-No62508	CP	mg/ka	< 5	< 5	<1	30%	Pass	
Lead	S21-No62508	CP	mg/ka	5.3	7.2	30	30%	Pass	
Mercury	S21-No62508	CP	mg/ka	< 0.1	< 0.1	<1	30%	Pass	
Nickel	S21-No62508	CP	mg/ka	< 5	< 5	<1	30%	Pass	
Zinc	S21-No62508	СР	mg/ka	< 5	< 5	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	S21-No62511	СР	%	14	14	3.0	30%	Pass	



Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S21-No62514	CP	mg/kg	9.8	9.6	1.0	30%	Pass	
Cadmium	S21-No62514	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S21-No62514	СР	mg/kg	36	36	2.0	30%	Pass	
Copper	S21-No62514	СР	mg/kg	8.8	8.7	2.0	30%	Pass	
Lead	S21-No62514	CP	mg/kg	20	20	1.0	30%	Pass	
Mercury	S21-No62514	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	S21-No62514	СР	mg/kg	< 5	< 5	<1	30%	Pass	
Zinc	S21-No62514	CP	mg/kg	40	41	2.0	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S21-No62518	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Cadmium	S21-No62518	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S21-No62518	СР	mg/kg	6.8	6.5	5.0	30%	Pass	
Copper	S21-No62518	СР	mg/kg	7.6	< 5	160	30%	Fail	Q15
Lead	S21-No62518	CP	mg/kg	14	5.5	86	30%	Fail	Q15
Mercury	S21-No62518	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	S21-No62518	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Zinc	S21-No62518	CP	mg/kg	9.7	< 5	110	30%	Fail	Q15
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	S21-No62521	CP	%	14	13	10	30%	Pass	
Duplicate									
Perfluoroalkyl carboxylic acids (PF	CAs)			Result 1	Result 2	RPD			
Perfluorobutanoic acid (PFBA)	S21-No62521	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropentanoic acid (PFPeA)	S21-No62521	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorohexanoic acid (PFHxA)	S21-No62521	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroheptanoic acid (PFHpA)	S21-No62521	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorooctanoic acid (PFOA)	S21-No62521	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorononanoic acid (PFNA)	S21-No62521	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorodecanoic acid (PFDA)	S21-No62521	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroundecanoic acid (PFUnDA)	S21-No62521	СР	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorododecanoic acid (PFDoDA)	S21-No62521	СР	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorotridecanoic acid (PFTrDA)	S21-No62521	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorotetradecanoic acid (PFTeDA)	S21-No62521	СР	ug/kg	< 5	< 5	<1	30%	Pass	
Duplicate									
Perfluoroalkyl sulfonamido substa	nces			Result 1	Result 2	RPD			
Perfluorooctane sulfonamide (FOSA)	S21-No62521	СР	ug/kg	< 5	< 5	<1	30%	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	S21-No62521	СР	ug/kg	< 5	< 5	<1	30%	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	S21-No62521	СР	ug/kg	< 5	< 5	<1	30%	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	S21-No62521	СР	ug/kg	< 5	< 5	<1	30%	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	S21-No62521	СР	ug/kg	< 5	< 5	<1	30%	Pass	
N-ethyl- perfluorooctanesulfonamidoacetic									
acid (N-EtFOSAA)	S21-No62521	CP	ug/kg	< 10	< 10	<1	30%	Pass	
N-methyl- perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	S21-No62521	СР	ug/kg	< 10	< 10	<1	30%	Pass	



Duplicate									
Perfluoroalkyl sulfonic acids (PFS	As)			Result 1	Result 2	RPD			
Perfluorobutanesulfonic acid (PFBS)	S21-No62521	СР	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorononanesulfonic acid (PFNS)	S21-No62521	СР	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropropanesulfonic acid (PFPrS)	S21-No62521	СР	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropentanesulfonic acid (PFPeS)	S21-No62521	СР	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorohexanesulfonic acid (PFHxS)	S21-No62521	СР	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	S21-No62521	СР	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorooctanesulfonic acid (PFOS)	S21-No62521	СР	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorodecanesulfonic acid (PFDS)	S21-No62521	СР	ug/kg	< 5	< 5	<1	30%	Pass	
Duplicate				-					
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)			Result 1	Result 2	RPD			
1H.1H.2H.2H- perfluorohexanesulfonic acid (4:2 FTSA)	S21-No62521	СР	ug/kg	< 5	< 5	<1	30%	Pass	
1H.1H.2H.2H- perfluorooctanesulfonic acid (6:2 FTSA)	S21-No62521	СР	ug/kg	< 10	< 10	<1	30%	Pass	
1H.1H.2H.2H- perfluorodecanesulfonic acid (8:2 FTSA)	S21-No62521	СР	ug/kg	< 5	< 5	<1	30%	Pass	
1H.1H.2H.2H- perfluorododecanesulfonic acid (10:2 FTSA)	S21-No62521	СР	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
oouo	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).

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:

Emma Beesley	Analytical Services Manager
Andrew Sullivan	Senior Analyst-Organic (NSW)
John Nguyen	Senior Analyst-Metal (NSW)
Roopesh Rangarajan	Senior Analyst-Volatile (NSW)
Sarah McCallion	Senior Analyst-PFAS (QLD)

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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Certificate of Analysis

Environment Testing

Alliance Geotechnical 10 Welder Road **Seven Hills NSW 2147**



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:	Jacob Walker
Report	844355-AID
Project Name	MANLY VALE
Project ID	14144
Received Date	Nov 19, 2021
Date Reported	Dec 03, 2021
Methodology:	
Asbestos Fibre Identification	Conducted in accordance with the Australian Standard AS 4964 – 2004: Method for the Qualitative Identification of Asbestos in Bulk Samples and in-house Method LTM-ASB-8020 by polarised light microscopy (PLM) and dispersion staining (DS) techniques. NOTE: Positive Trace Analysis results indicate the sample contains detectable respirable fibres.
Unknown Mineral Fibres	Mineral fibres of unknown type, as determined by PLM with DS, may require another analytical technique, such as Electron Microscopy, to confirm unequivocal identity. NOTE: While Actinolite, Anthophyllite and Tremolite asbestos may be detected by PLM with DS, due to variability in the optical properties of these materials, AS4964 requires that these are reported as UMF unless confirmed by an independent technique.
Subsampling Soil Samples	The whole sample submitted is first dried and then passed through a 10mm sieve followed by a 2mm sieve. All fibrous matter greater than 10mm, greater than 2mm as well as the material passing through the 2mm sieve are retained and analysed for the presence of asbestos. If the sub 2mm fraction is greater than approximately 30 to 60g then a sub-sampling routine based on ISO 3082:2009(E) is employed. <i>NOTE: Depending on the nature and size of the soil sample, the sub-2 mm residue material may need to be sub-sampled for trace analysis, in accordance with AS 4964-2004.</i>
Bonded asbestos- containing material (ACM)	The material is first examined and any fibres isolated for identification by PLM and DS. Where required, interfering matrices may be removed by disintegration using a range of heat, chemical or physical treatments, possibly in combination. The resultant material is then further examined in accordance with AS 4964 - 2004. <i>NOTE:</i> Even after disintegration it may be difficult to detect the presence of asbestos in some asbestos-containing bulk materials using PLM and DS. This is due to the low grade or small length or diameter of the asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials. Vinyl/asbestos floor tiles, some asbestos-containing sealants and mastics, asbestos-containing epoxy resins and some ore samples are examples of these types of material, which are difficult to analyse.
Limit of Reporting	The performance limitation of the AS 4964 (2004) method for non-homogeneous samples is around 0.1 g/kg (equivalent to 0.01% (w/w)). Where no asbestos is found by PLM and DS, including Trace Analysis, this is considered to be at the nominal reporting limit of 0.01% (w/w). The NEPM screening level of 0.001% (w/w) is intended as an on-site determination, not a laboratory Limit of Reporting (LOR), per se. Examination of a large sample size (e.g. 500 mL) may improve the likelihood of detecting asbestos, particularly AF, to aid assessment against the NEPM criteria. Gravimetric determinations to this level of accuracy are outside of AS 4964 and hence NATA Accreditation does not cover the performance of this service (non-NATA results shown with an asterisk). NOTE: NATA News March 2014, p.7, states in relation to AS 4964: "This is a qualitative method with a nominal reporting limit of 0.01% " and that currently in Australia "there is no validated method available for the quantification of asbestos". This report is consistent with the analytical procedures and reporting recommendations in the NEPM and the WA DoH.



Project Name	MANLY VALE
Project ID	14144
Date Sampled	Nov 19, 2021
Report	844355-AID

Client Sample ID	Eurofins Sample No.	Date Sampled	Sample Description	Result
BH01-0.5-0.7	21-No62499	Nov 19, 2021	Approximate Sample 94g Sample consisted of: Brown coarse-grained sandy soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.
BH02-0.1-0.3	21-No62501	Nov 19, 2021	Approximate Sample 102g Sample consisted of: Brown coarse-grained sandy soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.
BH03-1.4-1.6	21-No62505	Nov 19, 2021	Approximate Sample 41g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.
BH04-1.0-1.2	21-No62508	Nov 19, 2021	Approximate Sample 123g Sample consisted of: Brown coarse-grained sandy soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.
BH05-0.1-0.3	21-No62511	Nov 19, 2021	Approximate Sample 72g Sample consisted of: Brown coarse-grained sandy soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.
BH06-0.1-0.3	21-No62513	Nov 19, 2021	Approximate Sample 107g Sample consisted of: Brown coarse-grained sandy soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.
BH07-0.1-0.3	21-No62515	Nov 19, 2021	Approximate Sample 64g Sample consisted of: Brown coarse-grained sandy soil, sand stone and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.
BH08-0.1-0.3	21-No62516	Nov 19, 2021	Approximate Sample 109g Sample consisted of: Red coarse-grained sandy soil and sand stone	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.



Client Sample ID	Eurofins Sample No.	Date Sampled	Sample Description	Result
BH09-0.1-0.2	21-No62517	Nov 19, 2021	Approximate Sample 88g Sample consisted of: Brown coarse-grained sandy soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.
BH10-0.1-0.3	21-No62518	Nov 19, 2021	Approximate Sample 107g Sample consisted of: Brown coarse-grained sandy soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.
BH11-0.1-0.3	21-No62519	Nov 19, 2021	Approximate Sample 95g Sample consisted of: Brown coarse-grained sandy soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.
FRAG01	21-No62523	Nov 19, 2021	Approximate Sample 4g / 20x15x4mm Sample consisted of: Brown woven insulation like material	Chrysotile asbestos detected.



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

Asbestos - LTM-ASB-8020 Asbestos - LTM-ASB-8020

Testing Site	Extracted	Holding Time
Sydney	Nov 25, 2021	Indefinite
Sydney	Nov 25, 2021	Indefinite

	eurofi	ns			Eurofins Environmer ABN: 50 005 085 521	nent Testing Australia Pty Ltd												E A	BN: 91 (s ARL Pty Ltd 05 0159 898	Eurofins Environment Testing NZ Limited NZBN: 9429046024954		
web: www email: Er	w.eurofins.com.au	Env	ironment	Testing	Melbourne 6 Monterey Road Dandenong South VIC 31 Phone : +61 3 8564 5000 NATA # 1261 Site # 1254	5 75 1 P N	Sydney Init F3, E 6 Mars I ane Cov Phone : H IATA # 2	Building Road ve West ⊧61 2 99 1261 Sit	F NSW 2 900 840 te # 182	8 1/ 066 Pl 0 N 17	risbane 21 Sma urarrie hone : - ATA # 1	allwood QLD 4 ² ⊧61 7 39 1261 Sit	Place 172 902 4600 e # 2079	N 4, 0 P 94 P N	ewcastl /52 Indus layfield E O Box 6 hone : + ATA # 1	le strial D East NS 0 Wickl 61 2 49 261 Sit	Perth Drive 46-48 Banksia Road NSW 2304 Welshpool WA 6106 ckham 2293 Phone : +61 8 6253 4444 4968 8448 NATA # 2377 Site # 2370 Site # 25079				Auckland 35 O'Rorke Road Penrose, Auckland 1061 Phone : +64 9 526 45 51 IANZ # 1327	Christchurch 43 Detroit Drive Rolleston, Christchurch 7675 Phone : 0800 856 450 IANZ # 1290	
Corr Add	npany Name: ress:	Alliance Geo 10 Welder R Seven Hills NSW 2147	otechnical oad				O Re Pl Fa	Order No.: Report #: Phone: Fax:			844355 1800 288 188 02 9675 1888								Recei Due: Priori Conta	ived: ty: act Name:	Nov 19, 2021 6:20 Nov 26, 2021 5 Day Jacob Walker	PM	
Proj Proj	ect Name: ect ID:	MANLY VAL 14144	E															Eu	rofins	Analytical S	ervices Manager : A	ndrew Black	
Sample Detail							Asbestos Absence /Presence	HOLD	Polycyclic Aromatic Hydrocarbons	Metals M8	Metals M8	Suite B13: OCP/PCB	Volatile Organics	Moisture Set	Total Recoverable Hydrocarbons	Eurofins Suite B4	BTEXN and Volatile TRH	Per- and Polyfluoroalkyl Substances (PFASs)	BTEX				
Melbo	ourne Laborate	ory - NATA # 12	en Site # 125	4																			
Sydne	ey Laboratory	- NATA # 1261	Site # 18217			Х	Х	Х	Х		Х	Х	Х	х	Х	х	х		Х	-			
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Mayfie	eld Laboratory	/ - NATA # 1261	Site # 25079																				
Perth	Laboratory - I	NATA # 2377 Si	te # 2370																	_			
Extern No	nal Laboratory Sample ID	Sample Date	Sampling	Matrix	LAB ID															-			
1 F	BH01-0.5-0.7	Nov 19, 2021		Soil	S21-No62499	Х			x		х	x	x	х	x			x		-			
2 6	BH01-1.4-1.6	Nov 19. 2021		Soil	S21-No62500				X		X			X						1			
3 6	BH02-0.1-0.3	Nov 19, 2021		Soil	S21-No62501	Х			x		Х	x	х	Х	x			X		1			
4 E	BH02-1.0-1.2	Nov 19, 2021		Soil	S21-No62502				х		Х			Х						1			
5 E	BH02-1.4-1.6	Nov 19, 2021		Soil	S21-No62503				Х		Х			Х						1			
6 E	BH03-0.1-0.3	Nov 19, 2021		Soil	S21-No62504				Х		Х			Х]			
7 E	BH03-1.4-1.6	Nov 19, 2021		Soil	S21-No62505	Х			Х		Х	Х	Х	Х	Х			X					
8 E	BH03-1.9-2.1	Nov 19, 2021		Soil	S21-No62506				Х		Х			Х									
9 E	BH04-0.1-0.3	Nov 19, 2021		Soil	S21-No62507				Х		Х			Х									

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web: www.eurofins.com.au email: EnviroSales@eurofins.com			Melbourne 6 Monterey Road Dandenong South VIC 3 Phone : +61 3 8564 5000 NATA # 1261 Site # 1254	Sydney Unit F3, Building F 175 16 Mars Road 0 Lane Cove West NSW 2066 4 Phone : +61 2 9900 8400 NATA # 1261 Site # 18217				8 1/ 2066 Pi 0 N 17	Brisbane 1/21 Smallwood Place Murarrie QLD 4172 Phone : +61 7 3902 4600 NATA # 1261 Site # 20794				Newcastle 4/52 Industrial Drive Mayfield East NSW 2304 PO Box 60 Wickham 2293 Phone : +61 2 4968 8448 NATA # 1261 Site # 25079				Perth 6-48 Ba Velshpo Phone : - IATA # 2	nksia Road ol WA 6106 ⊧61 8 6253 4444 2377 Site # 2370	Auckland 35 O'Rorke Road Penrose, Auckland 1061 Phone : +64 9 526 45 51 IANZ # 1327	Christchurch 43 Detroit Drive Rolleston, Christchurch 7675 Phone : 0800 856 450 IANZ # 1290
Company Name: Alliance Geotechnical Address: 10 Welder Road Seven Hills NSW 2147					O R P Fa	rder N eport hone: ax:	No.: #:	8 1 (844355 1800 288 188 02 9675 1888							Recei Due: Priori Conta	ived: ity: act Name:	Nov 19, 2021 6:20 Nov 26, 2021 5 Day Jacob Walker	PM	
Project Name: Project ID:	MANLY VAL 14144	E														Eu	rofins	Analytical S	ervices Manager : Aı	ndrew Black
		Asbestos - AS4964	Asbestos Absence /Presence	HOLD	Polycyclic Aromatic Hydrocarbons	Metals M8	Metals M8	Suite B13: OCP/PCB	Volatile Organics	Moisture Set	Total Recoverable Hydrocarbons	Eurofins Suite B4	BTEXN and Volatile TRH	Per- and Polyfluoroalkyl Substances (PFASs)	BTEX					
Melbourne Laborato	ry - NATA # 12	61 Site # 1254																		
Sydney Laboratory -	NATA # 1261	Site # 18217		Х	X	Х	X		Х	X	Х	Х	X	Х	Х		Х			
Brisbane Laboratory	• - NATA # 126	1 Site # 20794						X								X		4		
Mayfield Laboratory	- NATA # 1261	Site # 25079																-		
Perth Laboratory - N	ATA # 2377 Sit	te # 2370																4		
External Laboratory	Nav. 40, 0004	C-il	004 Na00500	V			v		×		V	v						4		
10 BH04-1.0-1.2	Nov 19, 2021	Soll	S21-N062508	X			X		X	X	X	X	X					{		
12 BH04-2.2-2.4	Nov 19, 2021	Soil	S21-No62510				Ŷ					×						4		
13 BH05-0 1-0 3	Nov 19, 2021	Soil	S21-No62511	x	-	+	1 x		X	×	x	x	×			x	-	4		
14 BH05-1 5-1 7	Nov 19, 2021	Soil	S21-No62512	~			x		x	\uparrow		x						1		
15 BH06-0.1-0.3	Nov 19, 2021	Soil	S21-No62513	х		1	x		X	x	x	X	x			x		1		
16 BH06-1.0-1.2	Nov 19, 2021	Soil	S21-No62514				X		X			X	···					1		
17 BH07-0.1-0.3	Nov 19, 2021	Soil	S21-No62515	Х		1	x		X	x	x	Х	x			X		1		
18 BH08-0.1-0.3	Nov 19, 2021	Soil	S21-No62516	Х		1	х		Х	x	х	Х	X			X		1		
19 BH09-0.1-0.2	Nov 19, 2021	Soil	S21-No62517	Х			Х		Х	X	х	Х	X			X		1		
20 BH10-0.1-0.3	Nov 19, 2021	Soil	S21-No62518	Х			Х		Х	Х	Х	Х	Х			X]		

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web: v email:	www.eurofins.com.au	Envi	ironment Test	Melbour 6 Monter Dandenc Phone :- NATA #	rne rey Road ong South VIC 317 +61 3 8564 5000 1261 Site # 1254	Sy Ui 75 16 Pi Ni	ydney nit F3, E 6 Mars F ane Cov hone : + ATA # 1	Building Road ve West 61 2 99 1261 Sit	F NSW 2 900 8400 e # 182	8 1/ 066 PI 0 N 17	risband 21 Sma Jurarrie hone : - ATA #	e allwood QLD 4' +61 7 39 1261 Sit	Place 172 902 4600 e # 2079	N 4/ M 94 P N	ewcastle Perth 52 Industrial Drive 46-48 E ayfield East NSW 2304 Welshp D Box 60 Wickham 2293 Phone none : +61 2 4968 8448 NATA # ATA # 1261 Site # 25079			Perth 46-48 Banksia Road Welshpool WA 6106 Phone : +61 8 6253 4444 NATA # 2377 Site # 2370		Auckland 35 O'Rorke Road Penrose, Auckland 1061 Phone : +64 9 526 45 51 IANZ # 1327	Christchurch 43 Detroit Drive Rolleston, Christchurch 7675 Phone : 0800 856 450 IANZ # 1290	
Co Ao	Company Name: Alliance Geotechnical Address: 10 Welder Road Seven Hills NSW 2147					Order No.: Report #: Phone: Fax:					844355 1800 288 188 02 9675 1888								Recei Due: Priori Conta	ived: ty: act Name:	Nov 19, 2021 6:20 Nov 26, 2021 5 Day Jacob Walker	PM
Pr Pr	oject Name: oject ID:	MANLY VAL 14144	E				E								Eu	Eurofins Analytical Services Manager : Andrew Black						
Sample Detail							Asbestos Absence /Presence	HOLD	Polycyclic Aromatic Hydrocarbons	Metals M8	Metals M8	Suite B13: OCP/PCB	Volatile Organics	Moisture Set	Total Recoverable Hydrocarbons	Eurofins Suite B4	BTEXN and Volatile TRH	Per- and Polyfluoroalkyl Substances (PFASs)	BTEX			
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22	BH11-0.5-0.7	Nov 19, 2021	Soil	S21	-No62520				X		X			X								
23	DUP01	Nov 19, 2021	Soil	S21	-No62521					X				X		X		X		-		
24 25	FRAG01	Nov 19, 2021 Nov 19, 2021	Build	ling S21	-No62522		x			X								X		-		
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27	TRIP SPIKE	Nov 19, 2021	Soil	S21	-No62525						L								Х]		
28	TRIP BLANK	Nov 19, 2021	Soil	S21	-No62527												Х					
29	DUP02	Nov 19, 2021	Soil	S21	-No62528						Х	Х		Х				Х				
30	BH01-0.0-0.2	Nov 19, 2021	Soil	S21	-No62529			Х														

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web: www.eurofins.com.au email: EnviroSales@eurofins.com			Testing	Melbourne 6 Monterey Road Dandenong South VIC 3 Phone : +61 3 8564 500 NATA # 1261 Site # 125	S 175 1 0 L 4 P N	ydney Jnit F3, I 6 Mars ane Co Phone : IATA #	Building Road ve West +61 2 99 1261 Sit	1 F t NSW 2 900 840 te # 182	Brisbane 1/21 Smallwood Place Murarrie QLD 4172 066 Phone : +61 7 3902 4600 0 NATA # 1261 Site # 20794 17				N 4 0 P 94 P N	Newcastle 4/52 Industrial Drive Mayfield East NSW 2304 PO Box 60 Wickham 2293 Phone : +61 2 4968 8448 NATA # 1261 Site # 25079				Perth 46-48 Banksia Road Welshpool WA 6106 Phone : +61 8 6253 4444 NATA # 2377 Site # 2370		Auckland 35 O'Rorke Road Penrose, Auckland 1061 Phone : +64 9 526 45 51 IANZ # 1327	Christchurch 43 Detroit Drive Rolleston, Christchurch 7675 Phone : 0800 856 450 IANZ # 1290	
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Internal Quality Control Review and Glossary General

- QC data may be available on request. All soil results are reported on a dry basis, unless otherwise stated. 2 3. Samples were analysed on an 'as received' basis.
- Information identified on this report with the colour blue indicates data provided by customer that may have an impact on the results 4.
- 5 Information identified on this report with the colour orange indicates sections of the report not covered by the laboratory's scope of NATA accreditation.
- 6. This report replaces any interim results previously issued.

Holding Times

Please refer to the most recent version of the 'Sample Preservation and Container Guide' for holding times (QS3001). 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.

Units % w/w: F/fld F/mL g, kg g/kg L, mL L/min min	Percentage weight-for-weight basis, e.g. of asbestos in asbestos-containing finds in soil samples (% w/w) Airborne fibre filter loading as Fibres (N) per Fields counted (n) Airborne fibre reported concentration as Fibres per millilitre of air drawn over the sampler membrane (C) Mass, e.g. of whole sample (M) or asbestos-containing find within the sample (m) Concentration in grams per kilogram Volume, e.g. of air as measured in AFM (V = r x t) Airborne fibre sampling Flowrate as litres per minute of air drawn over the sampler membrane (r) Time (t), e.g. of air sample collection period
Calculations Airborne Fibre Concentration:	$C = \frac{1}{a} \times \frac{1}{n} \times \frac{1}{r} \times \frac{1}{t} = K \times \frac{1}{n} \times \frac{1}{v}$
Asbestos Content (as asbestos):	$\% w/w = \frac{(m \times PA)}{M}$
Weighted Average (of asbestos):	$\%_W = \sum \frac{(m \times P_A)_X}{X}$
Terms	
%asbestos	Estimated percentage of asbestos in a given matrix. May be derived from knowledge or experience of the material, informed by HSG264 Appendix 2, else assumed to be 15% in accordance with WA DOH Appendix 2 (P _A).
ACM	Asbestos Containing Materials. Asbestos contained within a non-asbestos matrix, typically presented in bonded (non-friable) condition. For the purposes of the NEPM and WA DOH, ACM corresponds to material larger than 7 mm x 7 mm.
AF	Asbestos Fines. Asbestos contamination within a soil sample, as defined by WA DOH. Includes loose fibre bundles and small pieces of friable and non-friable material such as asbestos cement fragments mixed with soil. Considered under the NEPM as equivalent to "non-bonded / friable".
AFM	Airborne Fibre Monitoring, e.g. by the MFM.
Amosite	Amosite Asbestos Detected. Amosite may also refer to Fibrous Grunerite or Brown Asbestos. Identified in accordance with AS 4964-2004.
AS	Australian Standard.
Asbestos Content (as asbestos)) Total % w/w asbestos content in asbestos-containing finds in a soil sample (% w/w).
Chrysotile	Chrysotile Asbestos Detected. Chrysotile may also refer to Fibrous Serpentine or White Asbestos. Identified in accordance with AS 4964-2004.
coc	Chain of Custody.
Compliant	Indicates the item has been assessed against the relevant criteria, e.g. NATA SAC_07.
Crocidolite	Crocidolite Asbestos Detected. Crocidolite may also refer to Fibrous Riebeckite or Blue Asbestos. Identified in accordance with AS 4964-2004.
Dry	Sample is dried by heating prior to analysis.
DS	Dispersion Staining. Technique required for Unequivocal Identification of asbestos fibres by PLM.
FA	Fibrous Asbestos. Asbestos containing material that is wholly or in part friable, including materials with higher asbestos content with a propensity to become friable
Fibre Count	with handling, and any material that was previously non-friable and in a severely degraded condition. For the purposes of the NEPM and WA DOH, FA generally corresponds to material larger than 7 mm x 7 mm, although FA may be more difficult to visibly distinguish and may be assessed as AF.
Fibre ID	The theorem (whether aspectos or not) meeting the counting chieria set out in the NOTSC. SOUS
Friable	Fibre Identification. Unequivocal identification or aspessos fibres according to AS 4964-2004. Includes Chrysottie, Amoste (Grunerie) or Crocidolite aspessos.
	Aspestos-containing materials or any size that may be broken or crumbled by nand pressure. For the purposes of the NEPM, this includes both AF and FA. It is
HSG248	outside of the laboratory's remit to assess degree of mability.
HSG264	UK INSE INSCRAD, ASDESIOS. THE ATAINISTS GUIDE (2012).
ISO (also ISO/IEC)	UN NOC NOCO4, ASDESIOS, THE SURVEY GUIDE (2012).
K Factor	mematorial organization for standardization/mematorial fectoreclinical commission.
	microscope constant (h) as derived from the effective liner area of the given AFW membrane used for Collecting the sample (A) and the projected eyeplece graditude area of the given AFW membrane used for the analysis (A).
LOR	Limit of Reporting.
MFM (also NOHSC:3003)	wembraite miter wemou, as described by the Australian Government National Occupational Health and Safety Commission, Guidance Note on the Membrane Filter Mothed for Estimating Alphane Alphane Alphane Proc. 2007 (2007)
N/A	Nicturo for Laurialing Andorrie Aspesios Fibres, 2nd Edition (NOFia), autorizable to that item
NATA	Not Applicable. Indicates a result of assessment is not required of applicable to that item.

NEPM (also ASC NEPM) National Environment Protection (Assessment of Site Contamination) Measure, (2013, as amended).

- Organic Fibres Detected. Organic may refer to Natural or Man-Made Polymeric Fibres. Identified in accordance with AS 4964-2004.
 - Phase Contrast Microscopy. As used for Fibre Counting according to the MFM

Polarised Light Microscopy. As used for Fibre Identification and Trace Analysis according to AS 4964-2004

Specific Accreditation Criteria: ISO/IEC 17025 Application Document, Life Sciences - Annex, Asbestos sampling and testing.

- Synthetic Mineral Fibre Detected. SMF may also refer to Man Made Vitreous Fibres. Identified in accordance with AS 4964-2004.
- SMF Sample Receipt Advice SRA

Analytical procedure used to detect the presence of respirable fibres (particularly asbestos) in a given sample matrix

United Kingdom, Health and Safety Executive, Health and Safety Guidance, publication.

Unidentified Mineral Fibre Detected. Fibrous minerals that are detected but have not been unequivocally identified by PLM with DS according the AS 4964-2004. May include (but not limited to) Actinolite, Anthophyllite or Tremolite asbestos. Reference document for the NEPM. Government of Western Australia, Guidelines for the Assessment, Remediation and Management of Asbestos- Contaminated

Weighted Average

Trace Analysis

UK HSE HSG

Organic

SAC 07

PCM

PLM

UMF WA DOH



Comments

The sample received was not collected in an approved asbestos bag and was therefore sub-sampled from the 250mL glass jar. Valid subsampling procedures were applied so as to ensure that the sub-sample to be analysed accurately represented the sample received.

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

Asbestos Counter/Identifier:

Bennel Jiri	Senior Analyst-Asbestos (NSW)
Sayeed Abu	Senior Analyst-Asbestos (NSW)

Authorised by:

Sayeed Abu Chamath JHM Annakkage Senior Analyst-Asbestos (NSW) Senior Analyst-Asbestos (NSW)

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.

Eurofins shall not be liable for loss, cost, damages or expenses incurred by the client, or any other person or company, resulting from the use of any information or interpretation given in this report. In no case shall Eurofins be liable for consequential damages including, but not limited to, lost profits, damages for failure to meet deadlines and lost production arising from this report. This document shall not be reproduced except in full and relates only to the items tested. Unless indicated otherwise, the tests were performed on the samples as received.

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submission of samples to the laboratory will be deemed as acceptance of Eurofins | mgt Standard Terms and Conditions unless agreed otherwise. A copy of Eurofins | mgt Standard Terms and Conditions is available on request. Eurofins Environment Testing Australia Pty Ltd trading as Eurofins | mgt

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34 Tot 2 QS3009_R7 Modifies by: Dr. R. Symons Approved by. T. Lekeland Approved an: 17 August 2017



	QA/QC Compliance	Assessment to assist with	n Quality Review	
Work Order	: ES2143088	Page	: 1 of 4	
Client		Laboratory	: Environmental Division Sydney	
Contact	: Jacob Walker	Telephone	: +61-2-8784 8555	
Project	: 14144 MANLY VALE	Date Samples Received	: 26-Nov-2021	
Site	:	Issue Date	: 03-Dec-2021	
Sampler	: Anya Palaversich	No. of samples received	: 1	
Order number	:	No. of samples analysed	: 1	

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.
- <u>NO</u> Duplicate outliers occur.
- <u>NO</u> Laboratory Control outliers occur.
- <u>NO</u> Matrix Spike outliers occur.
- For all regular sample matrices, <u>NO</u> surrogate recovery outliers occur.

Outliers : Analysis Holding Time Compliance

• <u>NO</u> 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

М	atr	ix•	SO	

Matrix: SOIL

Quality Control Sample Type	Co	unt	Rate	e (%)	Quality Control Specification
Method	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)					
Moisture Content	1	12	8.33	10.00	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 <u>VOC in soils</u> 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.

Evaluation: >	Holding	time breach ; 🗸	= Within	holding time.
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						0
Sample Date	Ex	traction / Preparation			Analysis	
	Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
19-Nov-2021				01-Dec-2021	03-Dec-2021	✓
19-Nov-2021	01-Dec-2021	18-May-2022	1	02-Dec-2021	18-May-2022	✓
19-Nov-2021	01-Dec-2021	17-Dec-2021	1	02-Dec-2021	17-Dec-2021	~
19-Nov-2021	01-Dec-2021	03-Dec-2021	1	02-Dec-2021	10-Jan-2022	~
19-Nov-2021	01-Dec-2021	03-Dec-2021	1	02-Dec-2021	10-Jan-2022	1
	Sample Date Sample Date 19-Nov-2021 19-Nov-2021 19-Nov-2021 19-Nov-2021 19-Nov-2021 19-Nov-2021	Sample Date Ex Date extracted Date extracted 19-Nov-2021 19-Nov-2021 01-Dec-2021 19-Nov-2021 01-Dec-2021 19-Nov-2021 01-Dec-2021 19-Nov-2021 01-Dec-2021 19-Nov-2021 01-Dec-2021 19-Nov-2021 01-Dec-2021	Sample Date Extraction / Preparation Date extracted Due for extraction 19-Nov-2021 19-Nov-2021 01-Dec-2021 19-Nov-2021 01-Dec-2021 19-Nov-2021 01-Dec-2021 19-Nov-2021 01-Dec-2021 19-Nov-2021 01-Dec-2021 19-Nov-2021 01-Dec-2021 19-Nov-2021 01-Dec-2021	Sample Date Extraction / Preparation Date extracted Due for extraction Evaluation 19-Nov-2021 19-Nov-2021 01-Dec-2021 18-May-2022 ✓ 19-Nov-2021 01-Dec-2021 17-Dec-2021 ✓ 19-Nov-2021 01-Dec-2021 03-Dec-2021 ✓ 19-Nov-2021 01-Dec-2021 03-Dec-2021 ✓	Sample Date Extraction / Preparation Date extracted Due for extraction Evaluation Date analysed 19-Nov-2021 01-Dec-2021 19-Nov-2021 01-Dec-2021 18-May-2022 ✓ 02-Dec-2021 19-Nov-2021 01-Dec-2021 17-Dec-2021 ✓ 02-Dec-2021 19-Nov-2021 01-Dec-2021 17-Dec-2021 ✓ 02-Dec-2021 19-Nov-2021 01-Dec-2021 03-Dec-2021 ✓ 02-Dec-2021 19-Nov-2021 01-Dec-2021 03-Dec-2021 ✓ 02-Dec-2021	Sample Date Extraction / Preparation Analysis Date extracted Due for extraction Evaluation Date analysed Due for analysis 19-Nov-2021 01-Dec-2021 03-Dec-2021 19-Nov-2021 01-Dec-2021 18-May-2022 ✓ 02-Dec-2021 18-May-2022 19-Nov-2021 01-Dec-2021 17-Dec-2021 17-Dec-2021 17-Dec-2021 19-Nov-2021 01-Dec-2021 03-Dec-2021 ✓ 02-Dec-2021 17-Dec-2021 19-Nov-2021 01-Dec-2021 03-Dec-2021 ✓ 02-Dec-2021 10-Jan-2022 19-Nov-2021 01-Dec-2021 03-Dec-2021 ✓ 02-Dec-2021 10-Jan-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				Evaluatio	n: × = Quality Co	ntrol frequency i	not within specification ; \checkmark = Quality Control frequency within specification.
Quality Control Sample Type		Co	ount		Rate (%)		Quality Control Specification
Analytical Methods	Method	20	Reaular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	1	12	8.33	10.00	*	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	2	14	14.29	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	2	14	14.29	10.00	~	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	10	10.00	10.00	~	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Pesticides by GCMS	EP068	1	14	7.14	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	14	7.14	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	10	10.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Pesticides by GCMS	EP068	1	14	7.14	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	14	7.14	5.00	~	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	10	10.00	5.00	~	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Pesticides by GCMS	EP068	1	14	7.14	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	14	7.14	5.00	1	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	10	10.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	5.00	5.00	~	NEPM 2013 B3 & ALS QC Standard



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
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).
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 AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3)
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).
Preparation Methods	Method	Matrix	Method Descriptions
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).
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.



QUALITY CONTROL REPORT

Work Order	: ES2143088	Page	: 1 of 6
Client		Laboratory	: Environmental Division Sydney
Contact	: Jacob Walker	Contact	: Customer Services ES
Address	∶ 8/10 Welder Road,	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
	Seven Hills 2147		
Telephone	:	Telephone	: +61-2-8784 8555
Project	: 14144 MANLY VALE	Date Samples Received	: 26-Nov-2021
Order number	:	Date Analysis Commenced	:01-Dec-2021
C-O-C number	:	Issue Date	03-Dec-2021
Sampler	: Anya Palaversich		HOC-MRA NATA
Site	:		
Quote number	: EN/222		Accreditation No. 825
No. of samples received	:1		Accredited for compliance with
No. of samples analysed	:1		ISO/IEC 17025 - Testing

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

This Quality Control Report contains the following information:

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

Signatories

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

Signatories	Position	Accreditation Category
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Wisam Marassa	Inorganics Coordinator	Sydney Inorganics, 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: Tot	al Metals by ICP-AES (QC L	ot: 4048056)									
ES2142996-002	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit		
		EG005T: Chromium	7440-47-3	2	mg/kg	9	12	21.8	No Limit		
		EG005T: Nickel	7440-02-0	2	mg/kg	4	6	24.6	No Limit		
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit		
		EG005T: Copper	7440-50-8	5	mg/kg	7	12	47.4	No Limit		
		EG005T: Lead	7439-92-1	5	mg/kg	22	23	0.0	No Limit		
		EG005T: Zinc	7440-66-6	5	mg/kg	63	73	15.1	0% - 50%		
ES2143171-003	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit		
		EG005T: Chromium	7440-47-3	2	mg/kg	28	28	0.0	0% - 50%		
		EG005T: Nickel	7440-02-0	2	mg/kg	8	10	11.4	No Limit		
		EG005T: Arsenic	7440-38-2	5	mg/kg	10	10	0.0	No Limit		
		EG005T: Copper	7440-50-8	5	mg/kg	20	21	0.0	No Limit		
		EG005T: Lead	7439-92-1	5	mg/kg	11	10	0.0	No Limit		
		EG005T: Zinc	7440-66-6	5	mg/kg	33	38	13.1	No Limit		
EA055: Moisture Co	ntent (Dried @ 105-110°C) (0	QC Lot: 4048062)									
ES2143026-001	Anonymous	EA055: Moisture Content		0.1	%	30.8	30.5	0.9	0% - 20%		
EG035T: Total Reco	verable Mercury by FIMS (C	C Lot: 4048057)									
ES2142996-002	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit		
EP066: Polychlorina	ted Biphenyls (PCB) (QC Lo	t: 4044868)									
ES2142897-001	Anonymous	EP066: Total Polychlorinated biphenyls		0.1	mg/kg	<0.1	<0.1	0.0	No Limit		
ES2142897-011	Anonymous	EP066: Total Polychlorinated biphenyls		0.1	mg/kg	<0.1	<0.1	0.0	No Limit		
EP068A: Organochle	orine Pesticides (OC) (QC Lo	ot: 4044867)									
ES2142897-001	Anonymous	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		

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Work Order	: ES2143088
Client	: ALLIANCE GEOTECHNICAL
Project	: 14144 MANLY VALE



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: Organochlo	rine Pesticides (OC) (QC L	ot: 4044867) - continued								
ES2142897-001	Anonymous	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	
		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	
ES2142897-011	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	
		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	

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Client	: ALLIANCE GEOTECHNICAL
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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: 4044867) - continued											
ES2142897-011	Anonymous	EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	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					Laboratory Control Spike (LCS) Report				
				Report	Spike	Spike Recovery (%)	Acceptable	Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High	
EG005(ED093)T: Total Metals by ICP-AES (QCLot	: 4048056)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	121.1 mg/kg	100	88.0	113	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	0.74 mg/kg	75.8	70.0	130	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	19.6 mg/kg	107	68.0	132	
EG005T: Copper	7440-50-8	5	mg/kg	<5	52.9 mg/kg	101	89.0	111	
EG005T: Lead	7439-92-1	5	mg/kg	<5	60.8 mg/kg	91.9	82.0	119	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.3 mg/kg	97.6	80.0	120	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	139.3 mg/kg	82.9	66.0	133	
EG035T: Total Recoverable Mercury by FIMS (QC	CLot: 4048057)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.087 mg/kg	90.8	70.0	125	
EP066: Polychlorinated Biphenyls (PCB) (QCLot:	4044868)								
EP066: Total Polychlorinated biphenyls		0.1	mg/kg	<0.1	1 mg/kg	91.4	62.0	126	
EP068A: Organochlorine Pesticides (OC) (QCLot:	: 4044867)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	98.5	69.0	113	
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	88.6	65.0	117	
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	101	67.0	119	
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	99.1	68.0	116	
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	94.2	65.0	117	
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	100.0	67.0	115	
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	100	69.0	115	
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	100	62.0	118	
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	98.7	63.0	117	
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	99.8	66.0	116	
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	99.7	64.0	116	
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	88.6	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	104	67.0	123	
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	103	69.0	115	
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	99.4	69.0	121	
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	83.4	56.0	120	
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	97.2	62.0	124	
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	100	66.0	120	
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	98.8	64.0	122	
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	101	54.0	130	



Matrix Spike (MS) Report

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

Sub-Matrix: SOIL					Matrix Spike (MS) Report				
				Spike	SpikeRecovery(%)	Acceptable L	imits (%)		
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High		
EG005(ED093)T: T	otal Metals by ICP-AES (QCLot: 4048056)								
ES2142996-002	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	103	70.0	130		
		EG005T: Cadmium	7440-43-9	50 mg/kg	87.4	70.0	130		
		EG005T: Chromium	7440-47-3	50 mg/kg	89.8	68.0	132		
		EG005T: Copper	7440-50-8	250 mg/kg	98.1	70.0	130		
		EG005T: Lead	7439-92-1	250 mg/kg	88.8	70.0	130		
		EG005T: Nickel	7440-02-0	50 mg/kg	86.5	70.0	130		
		EG005T: Zinc	7440-66-6	250 mg/kg	74.4	66.0	133		
EG035T: Total Red	overable Mercury by FIMS (QCLot: 4048057)								
ES2142996-002	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	117	70.0	130		
EP066: Polychlorir	ated Biphenyls (PCB) (QCLot: 4044868)								
ES2142897-001	Anonymous	EP066: Total Polychlorinated biphenyls		1 mg/kg	113	70.0	130		
EP068A: Organoch	lorine Pesticides (OC) (QCLot: 4044867)								
ES2142897-001	Anonymous	EP068: gamma-BHC	58-89-9	0.5 mg/kg	106	70.0	130		
		EP068: Heptachlor	76-44-8	0.5 mg/kg	105	70.0	130		
		EP068: Aldrin	309-00-2	0.5 mg/kg	106	70.0	130		
		EP068: Dieldrin	60-57-1	0.5 mg/kg	94.9	70.0	130		
		EP068: Endrin	72-20-8	2 mg/kg	93.9	70.0	130		
		EP068: 4.4`-DDT	50-29-3	2 mg/kg	82.4	70.0	130		



CERTIFICATE OF ANALYSIS

Work Order	ES2143088	Page	: 1 of 5
Client		Laboratory	: Environmental Division Sydney
Contact	: Jacob Walker	Contact	: Customer Services ES
Address	∶ 8/10 Welder Road,	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
	Seven Hills 2147		
Telephone	:	Telephone	: +61-2-8784 8555
Project	: 14144 MANLY VALE	Date Samples Received	: 26-Nov-2021 14:20
Order number	:	Date Analysis Commenced	: 01-Dec-2021
C-O-C number	:	Issue Date	: 03-Dec-2021 18:18
Sampler	: Anya Palaversich		Hac-MRA NAIA
Site	:		
Quote number	: EN/222		Accreditation No. 935
No. of samples received	: 1		Accredited for compliance with
No. of samples analysed	: 1		ISO/IEC 17025 - Testing

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

Signatories

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

Signatories	Position	Accreditation Category
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Wisam Marassa	Inorganics Coordinator	Sydney Inorganics, 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.

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 Contact 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.

- 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.

Page	: 3 of 5
Work Order	: ES2143088
Client	: ALLIANCE GEOTECHNICAL
Project	: 14144 MANLY VALE



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	DUP02A	 	
		Samplii	ng date / time	19-Nov-2021 00:00	 	
Compound	CAS Number	LOR	Unit	ES2143088-001	 	
				Result	 	
EA055: Moisture Content (Dried @ 105-11	10°C)					
Moisture Content		1.0	%	10.5	 	
EG005(ED093)T: Total Metals by ICP-AES	3					
Arsenic	7440-38-2	5	mg/kg	<5	 	
Cadmium	7440-43-9	1	mg/kg	<1	 	
Chromium	7440-47-3	2	mg/kg	4	 	
Copper	7440-50-8	5	mg/kg	18	 	
Lead	7439-92-1	5	mg/kg	425	 	
Nickel	7440-02-0	2	mg/kg	<2	 	
Zinc	7440-66-6	5	mg/kg	237	 	
EG035T: Total Recoverable Mercury by F	FIMS					
Mercury	7439-97-6	0.1	mg/kg	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	 	
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	 	

Page	: 4 of 5
Work Order	: ES2143088
Client	: ALLIANCE GEOTECHNICAL
Project	: 14144 MANLY VALE



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	DUP02A	 	
		Sampli	ng date / time	19-Nov-2021 00:00	 	
Compound	CAS Number	LOR	Unit	ES2143088-001	 	
				Result	 	
EP068A: Organochlorine Pesticides	s (OC) - Continued					
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	0.05	mg/kg	<0.05	 	
	0-2					
EP066S: PCB Surrogate						
Decachlorobiphenyl	2051-24-3	0.1	%	76.9	 	
EP068S: Organochlorine Pesticide	Surrogate					
Dibromo-DDE	21655-73-2	0.05	%	89.0	 	
EP068T: Organophosphorus Pestic	ide Surrogate					
DEF	78-48-8	0.05	%	78.4	 	



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																		
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Eurofins | Environment Testing

Unit F3, Parkview Building

16 Mars Road

LANE COVE WEST NSW 2066

AUSTRALIA

From: Jacob Walker <jacob.walker@allgeo.com.au> Sent: Friday, November 26, 2021 6:43 AM To: #AU04_Enviro_Sample_NSW <<u>EnviroSampleNSW@eurofins.com</u>> Cc: Andrew Black <<u>AndrewBlack@eurofins.com</u>> Subject: Re: Attention: Eurofins Sample Receipt Advice - Report 844355 : Site MANLY VALE (14144)

EXTERNAL EMAIL*

Hey Team,

Could you please send through photos of both the DUP02s, I have a feeling one was mislabelled and I should be able to work it out from the soil type.

Much appreciated! Jacob

Regards, Jacob Walker Environmental Consultant Mobile: 0424 066 612 | Email: jacob.walker@allgeo.com.au



Office Phone:1800 288 188Admin Email:admin@allgeo.com.auWebsite:allgeo.com.auOffice & Lab:8-10 Welder Road, Seven Hills NSW 2147Postal Address:PO Box 275, Seven Hills NSW 1730

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From: EnviroSampleNSW@eurofins.com <EnviroSampleNSW@eurofins.com> Sent: Friday, 26 November 2021, 3:08 am To: Jacob Walker Cc: enviro; Anya Palaversich Subject: Attention: Eurofins Sample Receipt Advice - Report 844355 : Site MANLY VALE (14144)

Dear Valued Client,

Sample DUP01A not received. Sample DUP02 received twice. Sample DUP02A (1x small jar) forwarded to ALS for analysis.

Please find attached a Sample Receipt Advice (SRA), a Summary Sheet and a scanned copy of your Chain-of-Custody (COC). It is important that you check this documentation to ensure that the details are correct such as the Client Job Number, Turn Around Time, any comments in the Notes section and sample numbers as well as the requested analysis. If there are any irregularities then please contact your Eurofins Analytical Services Manager as soon as possible to make certain that they get changed.

Kind regards, Mickael Ros **Sample Receipt**

Eurofins | Environmental Testing Unit F3, Parkview Building 16 Mars Road LANE COVE WEST NSW 2066 AUSTRALIA Phone: +61 02 9900 8421 Email: <u>EnviroSampleNSW@eurofins.com</u> Website: [http://]environment.eurofins.com.au

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feedback

2

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* WARNING - EXTERNAL: This email originated from outside of Eurofins. Do not click any links or open any attachments unless you trust the sender and know that the content is safe!

RE: Attention: Eurofins Sample Receipt Advice - Report 844355 : Site MANLY VALE (14144)

Jacob Walker <jacob.walker@allgeo.com.au>

Wed 12/1/2021 3:58 PM

To: #AU04_Enviro_Sample_NSW <EnviroSampleNSW@eurofins.com>

Cc: Andrew Black <AndrewBlack@eurofins.com>

EXTERNAL EMAIL*

Hey, the DUP02 on the right, the darker soil, is meant to be DUP01A. Can you please forward this to ALS?

Thanks!

Regards, Jacob Walker Environmental Consultant Mobile: <u>0424 066 612</u> | Email: jacob.walker@allgeo.com.au



Office Phone:1800 288 188Admin Email:admin@allgeo.com.auWebsite:allgeo.com.auOffice & Lab:8-10 Welder Road, Seven Hills NSW 2147Postal Address:PO Box 275, Seven Hills NSW 1730



Our office administration will be closed from December 23rd and will reopen on January 4th. We will still be servicing some projects over this period that have pre-arranged in advance. For urgent unexpected geotechnical or environmental enquiries, please phone 1800 288 188.



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If you received this communication in error, please notify the sender immediately. Unauthorised use of this communication is prohibited.

From: #AU04_Enviro_Sample_NSW <EnviroSampleNSW@eurofins.com>
Sent: Wednesday, 1 December 2021 3:44 PM
To: Jacob Walker <jacob.walker@allgeo.com.au>
Cc: Andrew Black <AndrewBlack@eurofins.com>
Subject: Re: Attention: Eurofins Sample Receipt Advice - Report 844355 : Site MANLY VALE (14144)

Good day Jacob,

Apologies for getting back to you so late. Please find attached the pictures of DUP01, and the duplicate DUP02. Please let us know which one is DUP01A and should be sent to ALS.

Kind regards,

Mickael Ros

Sample Receipt Officer



QA/QC Compliance Assessment	to assist with	Quality Review
: ES2143965	Page	: 1 of 5
	Laboratory	: Environmental Division Sydney
: Jacob Walker	Telephone	: +61-2-8784 8555
: 14144 MANLY VALE	Date Samples Received	: 02-Dec-2021
:	Issue Date	: 09-Dec-2021
: ANYA PALAVERSICH	No. of samples received	:1
:	No. of samples analysed	: 1
	ES2143965 ALLIANCE GEOTECHNICAL Jacob Walker 14144 MANLY VALE ANYA PALAVERSICH 	ES2143965 Page ALLIANCE GEOTECHNICAL Laboratory Jacob Walker Telephone 14144 MANLY VALE Date Samples Received Issue Date ANYA PALAVERSICH No. of samples received No. of samples analysed

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.

- <u>NO</u> Method Blank value outliers occur.
- <u>NO</u> Duplicate outliers occur.
- <u>NO</u> Laboratory Control outliers occur.
- <u>NO</u> Matrix Spike outliers occur.
- For all regular sample matrices, <u>NO</u> 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

• <u>NO</u> Quality Control Sample Frequency Outliers exist.



Outliers : Analysis Holding Time Compliance

Matrix:	SOIL

Method	Ex	traction / Preparation			Analysis	
Container / Client Sample ID(s)	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EA055: Moisture Content (Dried @ 105-110°C)						
Soil Glass Jar - Unpreserved						
DUP01A				06-Dec-2021	03-Dec-2021	3
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons						
Soil Glass Jar - Unpreserved						
DUP01A	06-Dec-2021	03-Dec-2021	3			
EP080/071: Total Petroleum Hydrocarbons						
Soil Glass Jar - Unpreserved						
DUP01A	06-Dec-2021	03-Dec-2021	3	06-Dec-2021	03-Dec-2021	3
Soil Glass Jar - Unpreserved						
DUP01A	06-Dec-2021	03-Dec-2021	3			
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions						
Soil Glass Jar - Unpreserved						
DUP01A	06-Dec-2021	03-Dec-2021	3	06-Dec-2021	03-Dec-2021	3
Soil Glass Jar - Unpreserved						
DUP01A	06-Dec-2021	03-Dec-2021	3			
EP080: BTEXN						
Soil Glass Jar - Unpreserved						
DUP01A	06-Dec-2021	03-Dec-2021	3	06-Dec-2021	03-Dec-2021	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 <u>VOC in soils</u> 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 <u>or</u> Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: SOIL				Evaluation	: × = Holding time	breach ; 🗸 = Withi	n holding time.
Method	Sample Date	Ex	traction / Preparation			Analysis	
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055) DUP01A	19-Nov-2021				06-Dec-2021	03-Dec-2021	se.
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							••
Soil Glass Jar - Unpreserved (EP075(SIM)) DUP01A	19-Nov-2021	06-Dec-2021	03-Dec-2021	٤	07-Dec-2021	15-Jan-2022	~

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Matrix: SOIL Evaluation: \mathbf{x} = Holding time breach ; \mathbf{v} = 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 EP080/071: Total Petroleum Hydrocarbons Soil Glass Jar - Unpreserved (EP071) 19-Nov-2021 06-Dec-2021 03-Dec-2021 07-Dec-2021 15-Jan-2022 DUP01A 50 \checkmark Soil Glass Jar - Unpreserved (EP080) 03-Dec-2021 DUP01A 19-Nov-2021 06-Dec-2021 06-Dec-2021 03-Dec-2021 30 50 EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions Soil Glass Jar - Unpreserved (EP071) 03-Dec-2021 15-Jan-2022 06-Dec-2021 07-Dec-2021 DUP01A 19-Nov-2021 * \checkmark Soil Glass Jar - Unpreserved (EP080) DUP01A 19-Nov-2021 06-Dec-2021 03-Dec-2021 06-Dec-2021 03-Dec-2021 * x EP080: BTEXN Soil Glass Jar - Unpreserved (EP080) 19-Nov-2021 06-Dec-2021 03-Dec-2021 06-Dec-2021 03-Dec-2021 DUP01A * ×



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		Co	unt		Rate (%)		Quality Control Specification				
Analytical Methods	Method	00	Reaular	Actual	Expected	Evaluation					
Laboratory Duplicates (DUP)											
Moisture Content	EA055	2	16	12.50	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				
TRH - Semivolatile Fraction	EP071	2	20	10.00	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 (SIM)	EP075(SIM)	1	15	6.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard				
TRH - Semivolatile Fraction	EP071	1	20	5.00	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)											
PAH/Phenols (SIM)	EP075(SIM)	1	15	6.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard				
TRH - Semivolatile Fraction	EP071	1	20	5.00	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)											
PAH/Phenols (SIM)	EP075(SIM)	1	15	6.67	5.00	\checkmark	NEPM 2013 B3 & ALS QC Standard				
TRH - Semivolatile Fraction	EP071	1	20	5.00	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
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).
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015 Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM Schedule B(3).
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM Schedule B(3) amended.
Preparation Methods	Method	Matrix	Method Descriptions
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.



QUALITY CONTROL REPORT

Work Order	: ES2143965	Page	: 1 of 6
Client		Laboratory	: Environmental Division Sydney
Contact	: Jacob Walker	Contact	: Customer Services ES
Address	: 8/10 Welder Road,	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
	Seven Hills 2147		
Telephone	:	Telephone	: +61-2-8784 8555
Project	: 14144 MANLY VALE	Date Samples Received	: 02-Dec-2021
Order number	:	Date Analysis Commenced	: 06-Dec-2021
C-O-C number	:	Issue Date	: 09-Dec-2021
Sampler	: ANYA PALAVERSICH		Hac-MRA NATA
Site	:		
Quote number	: EN/222		Accreditation No. 925
No. of samples received	:1		Accredited for compliance with
No. of samples analysed	:1		ISO/IEC 17025 - Testing

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

This Quality Control Report contains the following information:

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

Signatories

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

Signatories	Position	Accreditation Category
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic 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 (%)		
EA055: Moisture Cor	ntent (Dried @ 105-110°C)(QC Lot: 4058288)									
ES2143965-001	DUP01A	EA055: Moisture Content		0.1	%	7.3	7.3	0.0	No Limit		
ES2144288-003	Anonymous	EA055: Moisture Content		0.1	%	24.3	24.0	1.6	0% - 20%		
EP075(SIM)B: Polyn	clear Aromatic Hydrocarb	ons (QC Lot: 4055833)									
EN2110617-041	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			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		
			205-82-3								
		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		0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
		hydrocarbons									
		EP075(SIM): Benzo(a)pyrene TEQ (zero)		0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EW2105197-001	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		

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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: Polynu	clear Aromatic Hydrocarbo	ns (QC Lot: 4055833) - continued								
EW2105197-001	Anonymous	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	0.6	<0.5	23.8	No Limit	
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	0.6	<0.5	27.4	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	
			205-82-3							
		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		0.5	mg/kg	1.2	<0.5	82.4	No Limit	
		hydrocarbons								
		EP075(SIM): Benzo(a)pyrene TEQ (zero)		0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
EP080/071: Total Pet	roleum Hydrocarbons (QC I	Lot: 4055834)								
EN2110617-041	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	
EW2105197-001	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 Pet	roleum Hydrocarbons (QC I	Lot: 4055988)								
ES2143170-005	Anonymous	EP080: C6 - C9 Fraction		10	mg/kg	<10	<10	0.0	No Limit	
ES2143659-004	Anonymous	EP080: C6 - C9 Fraction		10	mg/kg	<10	<10	0.0	No Limit	
EP080/071: Total Rec	overable Hydrocarbons - NI	EPM 2013 Fractions (QC Lot: 4055834)								
EN2110617-041	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	
EW2105197-001	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	
EP080/071: Total Rec	overable Hydrocarbons - N	EPM 2013 Fractions (QC Lot: 4055988)								
ES2143170-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit	
ES2143659-004	Anonymous	EP080: C6 - C10 Eraction	C6 C10	10	ma/ka	<10	<10	0.0	No Limit	

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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: 4055988)									
ES2143170-005	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		106-42-3								
EP080: ortho-Xylene		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	
ES2143659-004	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	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	



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

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

Sub-Matrix: SOIL				Method Blank (MB)	Laboratory Control Spike (LCS) Report			
				Report	Spike	Spike Recovery (%)	Acceptable	Limits (%)
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbo	ns (QCLot: 4055833)							
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	102	77.0	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	106	72.0	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	97.0	73.0	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	110	72.0	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	83.9	75.0	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	77.5	77.0	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	92.1	73.0	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	88.7	74.0	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	106	69.0	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	103	75.0	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2	0.5	mg/kg	<0.5	6 mg/kg	106	68.0	116
	205-82-3							
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	104	74.0	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	95.3	70.0	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	101	61.0	121
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	98.0	62.0	118
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	101	63.0	121
EP080/071: Total Petroleum Hydrocarbons (QCL	_ot: 4055834)							
EP071: C10 - C14 Fraction		50	mg/kg	<50	300 mg/kg	93.6	75.0	129
EP071: C15 - C28 Fraction		100	mg/kg	<100	450 mg/kg	100	77.0	131
EP071: C29 - C36 Fraction		100	mg/kg	<100	300 mg/kg	101	71.0	129
EP080/071: Total Petroleum Hydrocarbons (QCL	₋ot: 4055988)							
EP080: C6 - C9 Fraction		10	mg/kg	<10	26 mg/kg	100	68.4	128
EP080/071: Total Recoverable Hydrocarbons - N	EPM 2013 Fractions (QCL	.ot: 4055834)						
EP071: >C10 - C16 Fraction		50	mg/kg	<50	375 mg/kg	101	77.0	125
EP071: >C16 - C34 Fraction		100	mg/kg	<100	525 mg/kg	98.2	74.0	138
EP071: >C34 - C40 Fraction		100	mg/kg	<100	225 mg/kg	103	63.0	131
EP080/071: Total Recoverable Hydrocarbons - N	EPM 2013 Fractions (QCL	.ot: 4055988)						
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	102	68.4	128
EP080: BTEXN (QCLot: 4055988)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	104	62.0	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	103	67.0	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	107	65.0	117
I								

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Work Order	: ES2143965
Client	: ALLIANCE GEOTECHNICAL
Project	: 14144 MANLY VALE



Sub-Matrix: SOIL				Method Blank (MB)	Laboratory Control Spike (LCS) Report			
				Report	Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP080: BTEXN (QCLot: 4055988) - continued								
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	104	66.0	118
	106-42-3							
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	107	68.0	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	105	63.0	119

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				Ma	Matrix Spike (MS) Report		
				Spike	SpikeRecovery(%)	Acceptable L	imits (%)
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP075(SIM)B: Poly	ynuclear Aromatic Hydrocarbons (QCLot: 4055833)						
EW2105197-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	103	70.0	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	122	70.0	130
EP080/071: Total F	Petroleum Hydrocarbons (QCLot: 4055834)						
EW2105197-001	Anonymous	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	110	52.0	132
EP080/071: Total F	Petroleum Hydrocarbons (QCLot: 4055988)						
ES2143170-005	Anonymous	EP080: C6 - C9 Fraction		32.5 mg/kg	78.9	70.0	130
EP080/071: Total F	Recoverable Hydrocarbons - NEPM 2013 Fractions(QCI	.ot: 4055834)					
EW2105197-001	Anonymous	EP071: >C10 - C16 Fraction		860 mg/kg	104	73.0	137
		EP071: >C16 - C34 Fraction		4320 mg/kg	108	53.0	131
		EP071: >C34 - C40 Fraction		890 mg/kg	103	52.0	132
EP080/071: Total F	Recoverable Hydrocarbons - NEPM 2013 Fractions(QCI	.ot: 4055988)					
ES2143170-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	78.0	70.0	130
EP080: BTEXN (Q	CLot: 4055988)						
ES2143170-005	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	71.2	70.0	130
		EP080: Toluene	108-88-3	2.5 mg/kg	71.1	70.0	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	73.4	70.0	130
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	72.3	70.0	130
			106-42-3				
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	74.7	70.0	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	75.9	70.0	130



CERTIFICATE OF ANALYSIS

Work Order	ES2143965	Page	: 1 of 5
Client		Laboratory	Environmental Division Sydney
Contact	: Jacob Walker	Contact	: Customer Services ES
Address	≑ 8/10 Welder Road,	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
	Seven Hills 2147		
Telephone	:	Telephone	: +61-2-8784 8555
Project	: 14144 MANLY VALE	Date Samples Received	: 02-Dec-2021 14:15
Order number	:	Date Analysis Commenced	: 06-Dec-2021
C-O-C number	:	Issue Date	: 09-Dec-2021 10:52
Sampler	: ANYA PALAVERSICH		Hac-MRA NAIA
Site	:		
Quote number	: EN/222		Acception No. 025
No. of samples received	: 1		Accreditation No. 825
No. of samples analysed	: 1		ISO/IEC 17025 - Testing

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

Signatories

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

Signatories	Position	Accreditation Category
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic 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.

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 Contact 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.

- 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.
- 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.

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Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	DUP01A	 	
		Samplii	ng date / time	19-Nov-2021 00:00	 	
Compound	CAS Number	LOR	Unit	ES2143965-001	 	
				Result	 	
EA055: Moisture Content (Dried @ 10	5-110°C)					
Moisture Content		1.0	%	7.3	 	
EP075(SIM)B: Polynuclear Aromatic H	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	 	
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 hydrocarbo	ns	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 Hydrocar	rbons					
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 Hydroc	carbons - NEPM 201	3 Fractio	าร			
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	 	
[^] C6 - C10 Fraction minus BTEX	C6_C10-BTEX	10	mg/kg	<10	 	
(F1)						
>C10 - C16 Fraction		50	mg/kg	<50	 	
>C16 - C34 Fraction		100	mg/kg	<100	 	

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Analytical Results

Sub-Matrix: SOIL			Sample ID	DUP01A	 	
		Samplii	ng date / time	19-Nov-2021 00:00	 	
Compound	CAS Number	LOR	Unit	ES2143965-001	 	
				Result	 	
EP080/071: Total Recoverable Hydroca	arbons - NEPM 201	3 Fractio	ns - Continued			
>C34 - C40 Fraction		100	mg/kg	<100	 	
^ >C10 - C40 Fraction (sum)		50	mg/kg	<50	 	
^ >C10 - C16 Fraction minus Naphthalene		50	mg/kg	<50	 	
(F2)						
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 Su	rrogates					
Phenol-d6	13127-88-3	0.5	%	97.8	 	
2-Chlorophenol-D4	93951-73-6	0.5	%	106	 	
2.4.6-Tribromophenol	118-79-6	0.5	%	91.0	 	
EP075(SIM)T: PAH Surrogates						
2-Fluorobiphenyl	321-60-8	0.5	%	117	 	
Anthracene-d10	1719-06-8	0.5	%	96.6	 	
4-Terphenyl-d14	1718-51-0	0.5	%	106	 	
EP080S: TPH(V)/BTEX Surrogates						
1.2-Dichloroethane-D4	17060-07-0	0.2	%	98.2	 	
Toluene-D8	2037-26-5	0.2	%	105	 	
4-Bromofluorobenzene	460-00-4	0.2	%	97.6	 	

ALS

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery	Limits (%)
Compound	CAS Number	Low	High
EP075(SIM)S: Phenolic Compound Surrogates	5		
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

APPENDIX C – Data Quality Indicator (DQI) Assessment

Completeness DQI			
Field Considerations	Target Criterion	Result	Pass / Fail / Comment
Experienced sampling team used	Yes	Yes	Pass
Sampling devices and equipment set out in sampling plan were used (refer Section 7.7).	Yes	Yes	Pass
Critical locations in sampling plan, sampled (refer Section 7.7).	Yes	No	Fail Comment – BH05 is considered incomplete due to poor sample recovery throughout stratigraphy, potentially from voids or cobbles blocking the push tubes path, although enough material was available to provide samples. However. adjacent sample points had similar soil stratigraphy and contained similar concentrations of COPCs. AEC03 where BH05 is located is already noted as a data gap. Performance against this DQI is considered adequate.
Critical samples in sampling plan, collected (refer Section 7.7).	Yes	No	Fail Comment – BH05 is considered incomplete due to poor sample recovery throughout stratigraphy, potentially from voids or cobbles blocking the push tube path, although enough material was available to provide samples. However, adjacent sample points had similar soil stratigraphy and contained similar concentrations of COPCs. AEC03 where BH05 is located is already noted as a data gap. Performance against this DQI is considered adequate.
Completed field and calibration logs attached	Yes	Yes	Pass
Completed chain of custody attached	Yes	Yes	Pass
Laboratory	Target Criterion	Result	Pass / Fail / Comment
Complete sample receipt advice and chain of custody attached	Yes	Yes	Pass
Critical samples identified in sampling plan, analysed	Yes	Yes	Pass
Analysis undertaken addresses COPC in sampling plan (refer Section 7.7)	Yes	Yes	Pass

Analytical methods reported in laboratory documentation and appropriate limit of reporting used	Yes	Yes	Pass
Sample holding times met (refer Section 7.7)	Yes	Yes	Pass
Comparability			
Laboratory Considerations	Target Criterion	Result	Pass / Fail / Comment
Same sampling team used for all work.	Yes	Yes	Pass
Weather conditions suitable for sampling.	Yes	Yes	Pass
Same sample types collected and preserved in same way (refer Section 7.7).	Yes	Yes	Pass
Relevant samples stored in insulated containers and chilled (refer Section 7.7).	Yes	Yes	Pass
Laboratory Considerations	Target Criterion	Result	Pass / Fail / Comment
Same laboratory used for all analysis (refer Section 7.7).	Yes	Yes	Pass
Comparable methods if different laboratories used Refer Section 7.7).	Yes	Yes	Pass
Comparable limits of reporting if different laboratories used.	Yes	Yes	Pass
Comparable units of measure if different laboratories have been used (refer Section 7.7).	Yes	Yes	Pass
Representativeness			
Field Considerations	Target Criterion	Result	Pass / Fail / Comment
Media identified in sampling plan, sampled (refer Section 7.7).	Yes	Yes	Pass
Samples required by sampling plan, collected (refer Section 7.7).	Yes	Yes	Pass
Laboratory Considerations	Target Criterion	Result	Pass / Fail / Comment
Samples identified in sampling plan, analysed.	Yes	Yes	Pass
Precision			
Field Considerations	Target Criterion	Result	Pass / Fail / Comment
Minimum 5% duplicates and triplicates collected and analysed (refer Section 7.5).	Yes	Yes	Pass
Minimum 10% duplicates and triplicates collected and analysed where PFAS is a contaminant of concern (refer Section 7.5.	Yes	Yes	Pass
RPD unlimited where detected concentrations are <10 times the limit of reporting.	Yes	Yes	Pass
RPD within 50% where detected concentrations are 10-20 times the limit of reporting.	Yes	Yes	Pass

RPD within 30% where detected concentrations are >20 times the limit of reporting.	Yes	No	Comment – Lead exceeded the RPD for BH09-0.1-0.2 (10 mg/kg) & DUP02A (425 mg/kg). Primary samples were not homogenised prior to splitting, as volatiles were identified as a COPC. The RPD target exceedance is considered likely to be attributable to heterogeneity in each of the discrete soil samples. As a conservative measure, the samples reporting the higher detected concentration of relevant analytes should be used when assessing potential land contamination risks at the site. Performance against this DQI is considered adequate.
Laboratory Considerations	Target Criterion	Result	Pass / Fail / Comment
All laboratory duplicate RPDs within laboratory acceptance criteria (refer Section 7.5).	Yes	No	Fail Comment – 4 duplicate RPDs failed, however the following comment is provided by Eurofins: The RPD reported passes Eurofins Environment Testing's QC – Acceptance Criteria. Performance against this DQI is considered adequate.

Field Considerations	Target Criterion	Result	Pass / Fail / Comment
Trip blank analyte results less than limit of reporting (refer Section 7.5).	Yes	Yes	Pass
Trip spike analyte results less between 60% and 140% (refer Section 7.5).	Yes	Yes	Pass
Rinsate blank analyte results less than limit of reporting (refer Section 7.5).	Yes	Yes	Pass
Field (PFAS) blank analyte results less than limit of reporting (refer Section 7.5).	Yes	Yes	Pass
Laboratory Considerations	Target Criterion	Result	Pass / Fail / Comment
Laboratory method blank results within laboratory acceptance limits (refer Section 7.5).	Yes	Yes	Pass
Laboratory control sample results within laboratory acceptance limits (refer Section 7.5).	Yes	Yes	Pass
Laboratory spike sample results within laboratory acceptance limits.	Yes	Yes	Pass

APPENDIX D – Calibration Records

APPENDIX E – SafeWork Records and Land Titles

Security Classification: Sensitive Personal Please do not amend the subject line of this email

Dear Mr Walker

Re: Site Search for Schedule 11 Hazardous Chemicals on premises Application – Result not found

I refer to your application for a Site Search for Schedule 11 Hazardous Chemicals on premises for the following site: Kenneth Road and Condamine, Street Manly Vale NSW 2093.

A search of the records held by SafeWork NSW has not located any records pertaining to the above-mentioned premises.

If you have any further information or if you have any questions, please use one of the following options, quoting the SafeWork NSW enquiry reference number: 00627218

- Email: <u>licensing@safework.nsw.gov.au</u>
- Phone: 13 10 50

Kind regards

Gabriela Draper Licensing Representative SafeWork NSW | Better Regulation Division Department of Customer Service p- 13 10 50 e- licensing@safework.nsw.gov.au | www.customerservice.nsw.gov.au Level 3, 32 Mann Street, Gosford, NSW 2250



We are always looking for ways that we can improve our services. You may be contacted by email in the next few weeks to complete a short survey and provide us with your feedback on what we did well and where we can improve. If you do not wish to participate in our surveys, please email us at: <u>licensingQA@customerservice.nsw.gov.au</u> and we will ensure that you are not contacted.

ref:_00D281hl6J._5004a5hwPP:ref

NSW LAND REGISTRY SERVICES

Cadastral Records Enquiry Report : Lot C DP 39108

Ref: 1 Kenneth Road, Manly Vale

Locality : MANLY VALE LGA : NORTHERN BEACHES Parish : MANLY COVE

County : CUMBERLAND



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This information is provided as a searching aid only.Whilst every endeavour is made to ensure that current map, plan and titling information is accurately reflected, the Registrar General cannot guarantee the information provided. For ALL ACTIVITY PRIOR TO SEPTEMBER 2002 you must refer to the RGs Charting and Reference Maps Page 1 of 4



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NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE -----24/11/2021 1:50PM

FOLIO: C/39108

First Title(s): SEE PRIOR TITLE(S) Prior Title(s): VOL 13561 FOL 144

LAND

REGISTRY

SERVICES

Recorded	Number	Type of Instrument	C.T. Issue
29/7/1989		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
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3/10/1989	Y626006	MORTGAGE	EDITION 1
31/7/1996 31/7/1996	2344669 2344670	REQUEST DISCHARGE OF MORTGAGE	EDITION 2
26/8/1997		AMENDMENT: LOCAL GOVT AREA	
30/10/1998	5362745	MORTGAGE	EDITION 3
6/8/2001 6/8/2001	7829398 7829399	DISCHARGE OF MORTGAGE MORTGAGE	EDITION 4
24/11/2005 24/11/2005	AB938087 AB938088	DISCHARGE OF MORTGAGE MORTGAGE	EDITION 5
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16/1/2012	AG743848	VARIATION OF MORTGAGE	EDITION 8
22/6/2012	AH60689	VARIATION OF MORTGAGE	EDITION 9
23/7/2012	AH128088	VARIATION OF MORTGAGE	EDITION 10
14/2/2014	AI378395	CAVEAT	
6/3/2017 <mark>6/3/2017</mark>	AM172947 AM163440	WITHDRAWAL OF CAVEAT TRANSFER BY MORTGAGEE UNDER POWER OF SALE	EDITION 11
19/12/2019	AP780297	TRANSFER	

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1 Kenneth Road, Manly Vale

NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

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PAGE 2

C.T. Issue

EDITION 12

Recorded Number Type of Instrument 19/12/2019 AP780298 MORTGAGE

*** END OF SEARCH ***

1 Kenneth Road, Manly Vale

PRINTED ON 24/11/2021

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NEW SOUTH WALES LAND REGISTRY SERVICES - TITLE SEARCH _____

FOLIO: C/39108

LAND

SERVICES

SEARCH DATE	TIME	EDITION NO	DATE
24/11/2021	1:50 PM	12	19/12/2019

LAND ____

LOT C IN DEPOSITED PLAN 39108 LOCAL GOVERNMENT AREA NORTHERN BEACHES PARISH OF MANLY COVE COUNTY OF CUMBERLAND TITLE DIAGRAM DP39108

FIRST SCHEDULE _____

CO-ORDINATED PROJECTS PTY LIMITED

(T AP780297)

SECOND SCHEDULE (2 NOTIFICATIONS)

- RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S) 1
- AP780298 MORTGAGE TO AUSTRALIAN CORPORATE HOLDINGS PTY 2 LIMITED

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

1 Kenneth Road, Manly Vale

* Any entries preceded by an asterisk do not appear on the current edition of the Certificate of Title. Warning: the information appearing under notations has not been formally recorded in the Register. InfoTrack an approved NSW Information Broker hereby certifies that the information contained in this document has been provided electronically by the Registrar General in accordance with Section 96B(2) of the Real Property Act 1900.

APPENDIX F – Council Planning Certificates



Northern Beaches Council Planning Certificate – Part 2&5

Applicant:	Jacob Walker		
	10 Welder Road		
	SEVEN HILLS NSW 2147		

Reference:	14144
Date:	11/11/2021
Certificate No.	ePLC2021/9071
Address of Property:	1 Kenneth Road MANLY NSW 2095
Description of Property	

Planning Certificate – Part 2

The following certificate is issued under the provisions of Section 10.7(2) of the *Environmental Planning and Assessment Act 1979* (as amended – formerly Section 149). The information applicable to the land is accurate as at the above date.

1. Relevant planning instruments and Development Control Plans

1.1 The name of each environmental planning instrument that applies to the carrying out of development on the land:

1.1a) Local Environmental Plan

Warringah Local Environmental Plan 2011

1.1b) State Environmental Planning Policies and Regional Environmental Plans

State Environmental Planning Policy 19 – Bushland in Urban Areas
State Environmental Planning Policy 21 – Caravan Parks
State Environmental Planning Policy 33 – Hazardous and Offensive Development
State Environmental Planning Policy 50 – Canal Estate Development
State Environmental Planning Policy 55 – Remediation of Land
State Environmental Planning Policy 64 – Advertising and Signage
State Environmental Planning Policy 65 – Design Quality of Residential Apartment Development
State Environmental Planning Policy No 70—Affordable Housing (Revised Schemes)
State Environmental Planning Policy (Affordable Rental Housing) 2009
State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017
State Environmental Planning Policy (Exempt and Complying Development Codes) 2008
State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004

State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007

State Environmental Planning Policy (State and Regional Development) 2011

State Environmental Planning Policy (State Significant Precincts) 2005

State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017

State Environmental Planning Policy (Primary Production and Rural Development) 2019

State Environmental Planning Policy (Koala Habitat Protection) 2019

Sydney Regional Environmental Plan No 20-Hawkesbury-Nepean River (No 2-1997)

Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005

Sydney Regional Environmental Plan No 9-Extractive Industry (No 2-1995)

1.2 Draft Environmental Planning Instruments

The name of each proposed environmental planning instrument that will apply to the carrying out of development on the land and that is or has been subject of community consultation or on public exhibition under the Act (unless the Secretary has notified the Council that the making of the proposed instrument has been deferred indefinitely or has not been approved):

1.2 a) Draft State Environmental Planning Policies

Draft State Environmental Planning Policy (Environment)

Draft State Environmental Planning Policy (Short-term Rental Accommodation) 2019 Amendment to State Environmental Planning Policy (Exempt and Complying Development Codes) 2008

Draft Remediation of Land State Environmental Planning Policy (intended to replace State Environmental Planning Policy 55)

1.2 b) Draft Local Environmental Plans

Planning Proposal - Manly Warringah War Memorial State Park (Wakehurst Parkway, Allambie Heights)

Applies to: Crown Land: Lots 76 and 77 DP 504237; Lot 2 DP 710023.

Outline: Proposed amendment to WLEP 2011 to:

- Amend Land Zoning Map to change the zoning from R2 (Low Density Residential) to RE1 (Public Recreation) for Lots 76 and 77 DP 504237, Lot 2 DP 710023.
- Amend Height of Building Map and Minimum Lot Size Map to remove the residential development standards for height and minimum lot size from all of the subject lots.
- Council resolution: 28 May 2019, 29 September 2020

Gateway Determination: 21 February 2021

1.3 Development Control Plans

The name of each development control plan that applies to the carrying out of development on the land:

Warringah Development Control Plan 2011

2. Zoning and land use under relevant Local Environmental Plans

For each environmental planning instrument or proposed instrument referred to in Clause 1 (other than a SEPP or proposed SEPP) that includes the land in any zone (however described):

2.1 Zoning and land use under relevant Local Environmental Plans

2.1 (a), (b), (c) & (d)

The following information identifies the purposes for which development may be carried out with or without development consent and the purposes for which the carrying out of development is prohibited, for all zones (however described) affecting the land to which the relevant Local Environmental Plan applies.

EXTRACT FROM WARRINGAH LOCAL ENVIRONMENTAL PLAN 2011

Zone B2 Local Centre

1 Objectives of zone

• To provide a range of retail, business, entertainment and community uses that serve the needs of people who live in, work in and visit the local area.

• To encourage employment opportunities in accessible locations.

• To maximise public transport patronage and encourage walking and cycling.

• To provide an environment for pedestrians that is safe, comfortable and interesting.

• To create urban form that relates favourably in scale and in architectural and landscape treatment to neighbouring land uses and to the natural environment.

• To minimise conflict between land uses in the zone and adjoining zones and ensure the amenity of any adjoining or nearby residential land uses.

2 Permitted without consent

Home-based child care; Home occupations

3 Permitted with consent

Boarding houses; Centre-based child care facilities; Commercial premises; Community facilities; Educational establishments; Entertainment facilities; Function centres; Information and education facilities;

Medical centres; Passenger transport facilities; Recreation facilities (indoor); Registered clubs; Respite day care centres; Restricted premises; Roads; Service stations; Shop top housing; Tourist and visitor accommodation; Any other development not specified in item 2 or 4

4 Prohibited

Advertising structures; Agriculture; Air transport facilities; Animal boarding or training establishments; Boat building and repair facilities; Boat sheds; Camping grounds; Caravan parks; Cemeteries; Charter and tourism boating facilities; Correctional centres; Crematoria; Depots; Ecotourist facilities; Environmental facilities; Exhibition villages; Extractive industries; Forestry; Freight transport facilities; Heavy industrial storage establishments; Highway service centres; Home occupations (sex services); Industrial retail outlets; Industrial training facilities; Industries; Marinas; Mooring pens; Moorings; Open cut mining; Port facilities; Recreation facilities (major); Recreation facilities (outdoor); Research stations; Residential accommodation; Rural industries; Sex services premises; Storage premises; Transport depots; Vehicle body repair workshops; Vehicle repair stations; Waste or resource management facilities; Water recreation structures; Wharf or boating facilities; Wholesale supplies

Additional permitted uses

Additional permitted uses, if any, for which development is permissible with development consent pursuant to Clause 2.5 and Schedule 1 of the relevant Local Environmental Plan:

Nil

(e) Minimum land dimensions

The *Warringah Local Environmental Plan 2011* contains no development standard that fixes minimum land dimensions for the erection of a dwelling house on the land.

(f) Critical habitat

The land does not include or comprise critical habitat.

(g) Conservation areas

The land is not in a heritage conservation area.

(h) Item of environmental heritage

The land does not contain an item of environmental heritage.

2.2 Draft Local Environmental Plan - if any

For any proposed changes to zoning and land use, see Part 1.2 b) Please contact Council's Strategic and Place Planning unit with enquiries on 1300 434 434.

2A. Zoning and land use under State Environmental Planning Policy (Sydney Region Growth Centres) 2006

The State Environmental Planning Policy (Sydney Region Growth Centres) 2006 does not apply to the land.

3. Complying Development

The extent to which the land is land on which complying development may or may not be carried out under each of the codes for complying development because of the provisions of clauses 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.

a) Housing Code

Complying Development under the Housing Code may be carried out on all of the land.

b) Rural Housing Code

Complying Development under the Rural Housing Code may be carried out on all of the land.

c) Low Rise Housing Diversity Code

Complying Development under the Low Rise Housing Diversity Code may be carried out on all of the land.

d) Greenfield Housing Code

Complying Development under the Greenfield Housing Code may not be carried out on all of the land.

e) Housing Alterations Code

Complying Development under the Housing Alterations Code may be carried out on all of the land.

f) General Development Code

Complying Development under the General Development Code may be carried out on all of the land.

g) Commercial and Industrial Alterations Code

Complying Development under the Commercial and Industrial Alterations Code may be carried out on all of the land.

h) Commercial and Industrial (New Buildings and Additions) Code

Complying Development under the Commercial and Industrial (New Buildings and Additions) Code may be carried out on all of the land.

i) Container Recycling Facilities Code

Complying Development under the Container Recycling Facilities Code may be carried out on all of the land.

j) Subdivisions Code

Complying Development under the Subdivisions Code may be carried out on all of the land.

k) Demolition Code

Complying Development under the Demolition Code may be carried out on all of the land.

I) Fire Safety Code

Complying Development under the Fire Safety Code may be carried out on all of the land.

m) Inland Code

Complying Development under the Inland Code does not apply to the land.

Note: Pursuant to clause 3D.1 of the *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*, the Inland Code only applies to 'inland local government areas'. Northern Beaches local government area is not defined as an 'inland local government area' by *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*.

4, 4A (Repealed)

4B. Annual charges under Local Government Act 1993 for coastal protection services that relate to existing coastal protection works

The owner of the land (or any previous owner) 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 (within the meaning of section 553B of that Act).

5. Mine Subsidence

The land has not been proclaimed to be a mine Subsidence (Mine Subsidence) district within the meaning of section 15 of the *Mine Subsidence (Mine Subsidence) Compensation Act, 1961.*

6. Road widening and road realignment

- (a) The land is not affected by a road widening or re-alignment proposal under Division 2 of Part 3 of the *Roads Act 1993*.
- (b) The land is not affected by a road widening or re-alignment proposal under an environmental planning instrument.
- (c) The land is not affected by a road widening or re-alignment proposal under a resolution of Council.

7. Council and other public authority policies on hazard risk restriction

(a) Council has adopted a number of policies with regard to various hazards or risks which may restrict development on this land. The identified hazard or risk and the respective Council policies which affect the property, if any, are listed below (other than flooding – see 7A):

Nil

(b) The following information applies to any policy as adopted by any other public authority and notified to the Council for the express purpose of its adoption by that authority being referred to in a planning certificate issued by the Council. The identified hazard or risk and the respective Policy which affect the property, if any, are listed below:

Nil

7A. Flood related development control Information

- (1) The land is not within the flood planning area and subject to flood related development controls.
- (2) The land or part of the land is not between the flood planning area and the probable maximum flood and subject to flood related development controls.
- (3) In this clause—

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.

8. Land reserved for acquisition

Environmental planning instrument referred to in Clause 1 does not make provision in relation to the acquisition of the land by a public authority, as referred to in section 3.15 of the Act.

9. Contribution plans

The following applies to the land:

Northern Beaches Section 7.12 Contributions Plan 2019

9A. Biodiversity certified land

The land is not biodiversity certified land under Part 8 of the *Biodiversity Conservation Act 2016* (includes land certified under Part 7AA of the repealed *Threatened Species Conservation Act 1995*).

10. Biodiversity Stewardship Sites

The Council has not been notified by the Chief Executive of the Office of Environment and Heritage that the land is a biodiversity stewardship site under a biodiversity stewardship agreement under Part 5 of the *Biodiversity Conservation Act 2016* (includes land to which a biobanking agreement under Part 7A of the repealed *Threatened Species Conservation Act 1995* relates).

10A. Native vegetation clearing set asides

Council has not been notified by Local Land Services of the existence of a set aside area under section 60ZC of the *Local Land Services Act 2013*.

11. Bush fire prone land

Bush Fire Prone Land

The land is not bush fire prone land.

12. Property vegetation plans

The Council has not been notified that the land is land to which a vegetation plan under the *Native Vegetation Act 2003* applies.

13. Orders under Trees (Disputes Between Neighbours) Act 2006

Council has not been notified of the existence of an order made under the *Trees (Disputes Between Neighbours) Act 2006* to carry out work in relation to a tree on the land.

14. Directions under Part 3A

There is not a direction by the Minister in force under section 75P(2) (c1) of the Act that a provision of an environmental planning instrument prohibiting or restricting the carrying out of a project or a stage of a project on the land under Part 4 of the Act does not have effect.

15. Site compatibility certificates and conditions for seniors housing

- (a) There is not a current site compatibility certificate (seniors housing), of which the council is aware, in respect of proposed development on the land.
- (b) No condition of consent applies to the property that limits the kind of people who may occupy the premises/ development. This refers only to consents granted after 11 October 2007 with conditions made in accordance with clause 18(2) of State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004.

<u>16. Site compatibility certificates for infrastructure, schools or TAFE establishments</u>

There is not a valid site compatibility certificate (infrastructure) or site compatibility certificate (schools or TAFE establishments), of which the council is aware, in respect of proposed development on the land.

<u>17. Site compatibility certificate and conditions for affordable rental</u> <u>housing</u>

- (a) There is not a current site compatibility certificate (affordable rental housing), of which the council is aware, in respect of proposed development on the land.
- (b) There are not terms of a kind referred to in clause 17 (1) or 38 (1) of State Environmental Planning Policy (Affordable Rental Housing) 2009 that have been imposed as a condition of consent to a development application in respect of the land.

18. Paper subdivision information

There is no current paper subdivision, of which council is aware, in respect of this land according to Part 16C of the *Environmental Planning and Assessment Regulation 2000*.

19. Site verification certificates

There is no current site verification certificate, of which council is aware, in respect of the land according to Part 4AA of the *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007.*

20. Loose-fill asbestos insulation

The residential dwelling erected on this land has not been identified in the Loose-Fill Asbestos Insulation Register as containing loose-fill asbestos ceiling insulation.

This clause applies to residential premises (within the meaning of Division 1A of part 8 of the Home Building Act 1989) that are listed in the register that is required to be maintained under that Division.

Contact NSW Fair Trading for more information.

21 Affected building notices and building product rectification orders

- 1) There is not an affected building notice of which the council is aware that is in force in respect of the land.
- 2) There is not a 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, and
- 3) There is not a 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.

In this clause:

affected building notice has the same meaning as in Part 4 of the Building Products (Safety) Act 2017. building product rectification order has the same meaning as in the Building Products (Safety) Act 2017.

Additional matters under the Contaminated Land Management Act 1997

Note. 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:

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If contamination is identified above please contact the Environmental Protection Authority (EPA) for further information.

Planning Certificate – Part 5

ePLC2021/9071

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Persons relying on this certificate should read the environmental planning instruments referred to in this certificate.

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Outline: Amends WLEP 2000 and WLEP 2011 to:

- Transfer the planning controls for land within the B2 Oxford Falls Valley and C8 Belrose North localities of WLEP 2000 into the best fit zones and land use controls under WLEP 2011
- Rezone the majority of the subject land to E3 Environmental Management under WLEP 2011
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Council resolution: 24 February 2015

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Applies to: 1294 - 1300 Pittwater Road and 2 - 4 Albert Street, Narrabeen **Outline:** Amends WLEP 2011 to:

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- To seek an affordable housing contribution in conjunction with future redevelopment of the land.

Council resolution: 28 May 2019

Additional Information Applying To The Land

Additional information, if any, relating to the land the subject of this certificate:

Nil

General Information

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(a) threatened species as described in the final determination of the scientific committee to list endangered and vulnerable species under Schedule 1 of the *Biodiversity Conservation Act 2016*, and/or

(b) one or more of the following threatened ecological communities as described in the final determination of the scientific committee to list the ecological communities under Schedule 2 of the *Biodiversity Conservation Act 2016*:

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- Swamp Sclerophyll Forest on Coastal Floodplain
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- Swamp Oak Floodplain Forest
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http://www.environment.nsw.gov.au/licences/AboriginalHeritageInformationManagementSystem.htm.

Coastal Erosion

Information available to Council indicates coastal erosion may affect a greater number of properties and may present an increased risk to properties than that shown on published hazard maps of the Warringah coastline. Council's Natural Environment Unit can be contacted for further information.

Moute

Ray Brownlee PSM Chief Executive Officer 11/11/2021



Northern Beaches Council Planning Certificate – Part 2&5

Applicant:	Jacob Walker			
	10 Welder Road			
	SEVEN HILLS NSW 214	7		

Reference:	14144 Condamine
Date:	11/11/2021
Certificate No.	ePLC2021/9072
Address of Property:	265 Condamine Street MANLY VALE NSW 2093
Description of Property:	Lot 3 Sec G DP 975160

Planning Certificate – Part 2

The following certificate is issued under the provisions of Section 10.7(2) of the *Environmental Planning and Assessment Act 1979* (as amended – formerly Section 149). The information applicable to the land is accurate as at the above date.

1. Relevant planning instruments and Development Control Plans

1.1 The name of each environmental planning instrument that applies to the carrying out of development on the land:

1.1a) Local Environmental Plan

Warringah Local Environmental Plan 2011

1.1b) State Environmental Planning Policies and Regional Environmental Plans

State Environmental Planning Policy 19 – Bushland in Urban Areas State Environmental Planning Policy 21 – Caravan Parks State Environmental Planning Policy 33 – Hazardous and Offensive Development State Environmental Planning Policy 50 – Canal Estate Development State Environmental Planning Policy 55 – Remediation of Land State Environmental Planning Policy 64 – Advertising and Signage State Environmental Planning Policy 65 – Design Quality of Residential Apartment Development State Environmental Planning Policy 05 – Design Quality of Residential Apartment Development State Environmental Planning Policy No 70—Affordable Housing (Revised Schemes) State Environmental Planning Policy (Affordable Rental Housing) 2009 State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004 State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017 State Environmental Planning Policy (Exempt and Complying Development Codes) 2008 State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004 State Environmental Planning Policy (Infrastructure) 2007 State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007

State Environmental Planning Policy (State and Regional Development) 2011

State Environmental Planning Policy (State Significant Precincts) 2005

State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017

State Environmental Planning Policy (Primary Production and Rural Development) 2019

State Environmental Planning Policy (Koala Habitat Protection) 2019

Sydney Regional Environmental Plan No 20-Hawkesbury-Nepean River (No 2-1997)

Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005

Sydney Regional Environmental Plan No 9-Extractive Industry (No 2-1995)

1.2 Draft Environmental Planning Instruments

The name of each proposed environmental planning instrument that will apply to the carrying out of development on the land and that is or has been subject of community consultation or on public exhibition under the Act (unless the Secretary has notified the Council that the making of the proposed instrument has been deferred indefinitely or has not been approved):

1.2 a) Draft State Environmental Planning Policies

Draft State Environmental Planning Policy (Environment)

Draft State Environmental Planning Policy (Short-term Rental Accommodation) 2019 Amendment to State Environmental Planning Policy (Exempt and Complying Development Codes) 2008

Draft Remediation of Land State Environmental Planning Policy (intended to replace State Environmental Planning Policy 55)

1.2 b) Draft Local Environmental Plans

Planning Proposal - Manly Warringah War Memorial State Park (Wakehurst Parkway, Allambie Heights)

Applies to: Crown Land: Lots 76 and 77 DP 504237; Lot 2 DP 710023.

Outline: Proposed amendment to WLEP 2011 to:

- Amend Land Zoning Map to change the zoning from R2 (Low Density Residential) to RE1 (Public Recreation) for Lots 76 and 77 DP 504237, Lot 2 DP 710023.
- Amend Height of Building Map and Minimum Lot Size Map to remove the residential development standards for height and minimum lot size from all of the subject lots.
- Council resolution: 28 May 2019, 29 September 2020

Gateway Determination: 21 February 2021

1.3 Development Control Plans

The name of each development control plan that applies to the carrying out of development on the land:

Warringah Development Control Plan 2011

2. Zoning and land use under relevant Local Environmental Plans

For each environmental planning instrument or proposed instrument referred to in Clause 1 (other than a SEPP or proposed SEPP) that includes the land in any zone (however described):

2.1 Zoning and land use under relevant Local Environmental Plans

2.1 (a), (b), (c) & (d)

The following information identifies the purposes for which development may be carried out with or without development consent and the purposes for which the carrying out of development is prohibited, for all zones (however described) affecting the land to which the relevant Local Environmental Plan applies.

EXTRACT FROM WARRINGAH LOCAL ENVIRONMENTAL PLAN 2011

Zone B2 Local Centre

1 Objectives of zone

• To provide a range of retail, business, entertainment and community uses that serve the needs of people who live in, work in and visit the local area.

• To encourage employment opportunities in accessible locations.

• To maximise public transport patronage and encourage walking and cycling.

• To provide an environment for pedestrians that is safe, comfortable and interesting.

• To create urban form that relates favourably in scale and in architectural and landscape treatment to neighbouring land uses and to the natural environment.

• To minimise conflict between land uses in the zone and adjoining zones and ensure the amenity of any adjoining or nearby residential land uses.

2 Permitted without consent

Home-based child care; Home occupations

3 Permitted with consent

Boarding houses; Centre-based child care facilities; Commercial premises; Community facilities; Educational establishments; Entertainment facilities; Function centres; Information and education facilities;

Medical centres; Passenger transport facilities; Recreation facilities (indoor); Registered clubs; Respite day care centres; Restricted premises; Roads; Service stations; Shop top housing; Tourist and visitor accommodation; Any other development not specified in item 2 or 4

4 Prohibited

Advertising structures; Agriculture; Air transport facilities; Animal boarding or training establishments; Boat building and repair facilities; Boat sheds; Camping grounds; Caravan parks; Cemeteries; Charter and tourism boating facilities; Correctional centres; Crematoria; Depots; Ecotourist facilities; Environmental facilities; Exhibition villages; Extractive industries; Forestry; Freight transport facilities; Heavy industrial storage establishments; Highway service centres; Home occupations (sex services); Industrial retail outlets; Industrial training facilities; Industries; Marinas; Mooring pens; Moorings; Open cut mining; Port facilities; Recreation facilities (major); Recreation facilities (outdoor); Research stations; Residential accommodation; Rural industries; Sex services premises; Storage premises; Transport depots; Vehicle body repair workshops; Vehicle repair stations; Waste or resource management facilities; Water recreation structures; Wharf or boating facilities; Wholesale supplies

Additional permitted uses

Additional permitted uses, if any, for which development is permissible with development consent pursuant to Clause 2.5 and Schedule 1 of the relevant Local Environmental Plan:

Nil

(e) Minimum land dimensions

The *Warringah Local Environmental Plan 2011* contains no development standard that fixes minimum land dimensions for the erection of a dwelling house on the land.

(f) Critical habitat

The land does not include or comprise critical habitat.

(g) Conservation areas

The land is not in a heritage conservation area.

(h) Item of environmental heritage

The land does not contain an item of environmental heritage.

2.2 Draft Local Environmental Plan - if any

For any proposed changes to zoning and land use, see Part 1.2 b) Please contact Council's Strategic and Place Planning unit with enquiries on 1300 434 434.

2A. Zoning and land use under State Environmental Planning Policy (Sydney Region Growth Centres) 2006

The State Environmental Planning Policy (Sydney Region Growth Centres) 2006 does not apply to the land.

3. Complying Development

The extent to which the land is land on which complying development may or may not be carried out under each of the codes for complying development because of the provisions of clauses 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.

a) Housing Code

Complying Development under the Housing Code may be carried out on all of the land.

b) Rural Housing Code

Complying Development under the Rural Housing Code may be carried out on all of the land.

c) Low Rise Housing Diversity Code

Complying Development under the Low Rise Housing Diversity Code may be carried out on all of the land.

d) Greenfield Housing Code

Complying Development under the Greenfield Housing Code may not be carried out on all of the land.

e) Housing Alterations Code

Complying Development under the Housing Alterations Code may be carried out on all of the land.

f) General Development Code

Complying Development under the General Development Code may be carried out on all of the land.

g) Commercial and Industrial Alterations Code

Complying Development under the Commercial and Industrial Alterations Code may be carried out on all of the land.

h) Commercial and Industrial (New Buildings and Additions) Code

Complying Development under the Commercial and Industrial (New Buildings and Additions) Code may be carried out on all of the land.

i) Container Recycling Facilities Code

Complying Development under the Container Recycling Facilities Code may be carried out on all of the land.

j) Subdivisions Code

Complying Development under the Subdivisions Code may be carried out on all of the land.

k) Demolition Code

Complying Development under the Demolition Code may be carried out on all of the land.

I) Fire Safety Code

Complying Development under the Fire Safety Code may be carried out on all of the land.

m) Inland Code

Complying Development under the Inland Code does not apply to the land.

Note: Pursuant to clause 3D.1 of the *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*, the Inland Code only applies to 'inland local government areas'. Northern Beaches local government area is not defined as an 'inland local government area' by *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*.

4, 4A (Repealed)

4B. Annual charges under Local Government Act 1993 for coastal protection services that relate to existing coastal protection works

The owner of the land (or any previous owner) 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 (within the meaning of section 553B of that Act).

5. Mine Subsidence

The land has not been proclaimed to be a mine Subsidence (Mine Subsidence) district within the meaning of section 15 of the *Mine Subsidence (Mine Subsidence) Compensation Act, 1961.*

6. Road widening and road realignment

- (a) The land is not affected by a road widening or re-alignment proposal under Division 2 of Part 3 of the *Roads Act 1993*.
- (b) The land is not affected by a road widening or re-alignment proposal under an environmental planning instrument.
- (c) The land is not affected by a road widening or re-alignment proposal under a resolution of Council.

7. Council and other public authority policies on hazard risk restriction

(a) Council has adopted a number of policies with regard to various hazards or risks which may restrict development on this land. The identified hazard or risk and the respective Council policies which affect the property, if any, are listed below (other than flooding – see 7A):

Nil

(b) The following information applies to any policy as adopted by any other public authority and notified to the Council for the express purpose of its adoption by that authority being referred to in a planning certificate issued by the Council. The identified hazard or risk and the respective Policy which affect the property, if any, are listed below:

Nil

7A. Flood related development control Information

- (1) The land is within the flood planning area and 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 subject to flood related development controls.

(3) In this clause—

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.

8. Land reserved for acquisition

Environmental planning instrument referred to in Clause 1 does not make provision in relation to the acquisition of the land by a public authority, as referred to in section 3.15 of the Act.

9. Contribution plans

The following applies to the land:

Northern Beaches Section 7.12 Contributions Plan 2019

9A. Biodiversity certified land

The land is not biodiversity certified land under Part 8 of the *Biodiversity Conservation Act 2016* (includes land certified under Part 7AA of the repealed *Threatened Species Conservation Act 1995*).

10. Biodiversity Stewardship Sites

The Council has not been notified by the Chief Executive of the Office of Environment and Heritage that the land is a biodiversity stewardship site under a biodiversity stewardship agreement under Part 5 of the *Biodiversity Conservation Act 2016* (includes land to which a biobanking agreement under Part 7A of the repealed *Threatened Species Conservation Act 1995* relates).

10A. Native vegetation clearing set asides

Council has not been notified by Local Land Services of the existence of a set aside area under section 60ZC of the *Local Land Services Act 2013*.

11. Bush fire prone land

Bush Fire Prone Land

The land is not bush fire prone land.

12. Property vegetation plans

The Council has not been notified that the land is land to which a vegetation plan under the *Native Vegetation Act 2003* applies.

13. Orders under Trees (Disputes Between Neighbours) Act 2006

Council has not been notified of the existence of an order made under the *Trees (Disputes Between Neighbours) Act 2006* to carry out work in relation to a tree on the land.

14. Directions under Part 3A

There is not a direction by the Minister in force under section 75P(2) (c1) of the Act that a provision of an environmental planning instrument prohibiting or restricting the carrying out of a project or a stage of a project on the land under Part 4 of the Act does not have effect.

15. Site compatibility certificates and conditions for seniors housing

- (a) There is not a current site compatibility certificate (seniors housing), of which the council is aware, in respect of proposed development on the land.
- (b) No condition of consent applies to the property that limits the kind of people who may occupy the premises/ development. This refers only to consents granted after 11 October 2007 with conditions made in accordance with clause 18(2) of State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004.

<u>16. Site compatibility certificates for infrastructure, schools or TAFE establishments</u>

There is not a valid site compatibility certificate (infrastructure) or site compatibility certificate (schools or TAFE establishments), of which the council is aware, in respect of proposed development on the land.

<u>17. Site compatibility certificate and conditions for affordable rental</u> <u>housing</u>

- (a) There is not a current site compatibility certificate (affordable rental housing), of which the council is aware, in respect of proposed development on the land.
- (b) There are not terms of a kind referred to in clause 17 (1) or 38 (1) of State Environmental Planning Policy (Affordable Rental Housing) 2009 that have been imposed as a condition of consent to a development application in respect of the land.

18. Paper subdivision information

There is no current paper subdivision, of which council is aware, in respect of this land according to Part 16C of the *Environmental Planning and Assessment Regulation 2000*.

19. Site verification certificates

There is no current site verification certificate, of which council is aware, in respect of the land according to Part 4AA of the *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007.*

20. Loose-fill asbestos insulation

The residential dwelling erected on this land has not been identified in the Loose-Fill Asbestos Insulation Register as containing loose-fill asbestos ceiling insulation.

This clause applies to residential premises (within the meaning of Division 1A of part 8 of the Home Building Act 1989) that are listed in the register that is required to be maintained under that Division.

Contact NSW Fair Trading for more information.

21 Affected building notices and building product rectification orders

- 1) There is not an affected building notice of which the council is aware that is in force in respect of the land.
- 2) There is not a 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, and
- 3) There is not a 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.

In this clause:

affected building notice has the same meaning as in Part 4 of the Building Products (Safety) Act 2017. building product rectification order has the same meaning as in the Building Products (Safety) Act 2017.

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Ray Brownlee PSM Chief Executive Officer 11/11/2021