FACTUAL CONTAMINAITON REPORT

SYDNEY METRO CITY AND SOUTH-WEST

Factual Contamination and Geotechnical Report, Marrickville Precast Segment Facility and Dive Site, Murray Street, Marrickville, NSW

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1.0 INTRODUCTION

1.1 Project Context

Sydney Metro is a modern high capacity rail network which will respond to Sydney's forecast population and economic growth. Working collaboratively with Sydney Metro and their partners, Golder-Douglas delivered a geotechnical investigation for Stage 1 Sydney Metro City and Southwest. In addition to geotechnical investigations, the work included investigation of groundwater conditions and assessment of soil contamination.

Sydney Metro subsequently requested Golder-Douglas to conduct a geotechnical, contamination and structural investigation at the Marrickville Precast Segment Facility and Dive sites, located at Murray Street, Marrickville, New South Wales (NSW) (hereinafter referred to as the 'Site', see **Figure 1**) which forms part of the Stage 2 Sydney Metro City and Southwest project. It is understood that the investigation is required to optimise and better inform the earthworks and drainage design for the future Sydney Metro Train Facility (South) as part of the City & Southwest project.

This Contamination Assessment Report (CAR) presents factual results of the contamination investigations undertaken at the Site and factual geotechnical data is presented as an appendix.

1.2 Terms of Reference

Sydney Metro awarded this contract for the SMW investigations to the Golder-Douglas team on 19 February 2018. Golder-Douglas is an integrated team comprising resources from Golder Associates Pty Ltd (Golder) and Douglas Partners Pty Ltd (Douglas) that has been operating to deliver large-scale geotechnical investigations for infrastructure projects in Sydney since 2015.

Golder Associates Pty Ltd was the contracting organisation with Sydney Metro and Douglas Partners was a subcontractor to Golder. WSP and AECOM are the Geotechnical Technical Advisor (TA) and Nation Partners are the Environmental Technical Advisor (EnvTA) to Sydney Metro.

Sydney Metro have requested that this contamination investigation be undertaken as a variation to the existing PSC (00013/11180). The work was carried out in general accordance with the requirements of the Proposal Request "Sydney Metro – City & Southwest – TSE Implementation Group – Marrickville and South Tunnels, Geotechnical, Contamination and Structural Investigation, 24 April 2019" ("The Brief"). The Environmental Technical Advisor (EnvTA) defined the scope of work for the contamination and groundwater investigations in The Brief. Concurrently with the contamination investigation, limited geotechnical data and sampling was collected.

1.3 Site Background

Sydney Metro and their subcontractors are currently occupying the Site as part of the Sydney Metro City and Southwest project. Operations at the Site involve the construction of concrete panels for use in the tunnels as well as a staging area for launching tunnel boring machines (TBMs) as part of the construction of the Sydney Metro line. The Site occupies an area of approximately 88,000 m^2.

The Site is currently being operated by the Sydney Metro Delivery Contractor (John Holland, CPB & Ghella Joint Venture – JHCPB&G). The Site is under the control of JHCPB&G (the Principal Contractor for the current project stage of the Southwest project). A proposal for the site investigation was submitted to Sydney Metro on 7 May 2019, subsequently a meeting and site walkover was undertaken on 16 May 2019. The scope of works proposed by the TA and the EnvTA was then updated to reflect outcomes of the meeting and site walkover, where necessary.

The following documentation was provided at the request for proposal stage:

- Site plan *Attachment 1 - P_CN-001427-SMCSWSFC-MET-SFC-CE-SKE-901022.02-Layout1*; and
- Photos provided by the client showing proposed investigation locations.

1.4 Objectives

The following objectives have been developed by Golder-Douglas for the project:

- Provide detailed geotechnical information to Sydney Metro for the Site to inform the earthworks and drainage design for the future Sydney Metro Train Facility;
- Provide preliminary soil, groundwater and soil vapour quality information to Sydney Metro to assist with the ongoing use of the Site for commercial/industrial purposes; and
- Obtain preliminary in-situ waste classification data (soil and fill) for potential waste disposal purposes.

Golder-Douglas note that this report was completed in accordance with PCS No. 00013/11180 for the provision of factual information only.

1.5 Report Structure

This report provides an overview of the scope of work and the investigation methodologies used. The locations of the investigations are presented in plans and tables. Protocols adopted for validating analytical data are discussed. An outline of the guidelines adopted for screening of the soil analytical results is provided. The analytical results are provided in the appendices along with summarised tabulations of the results and comparisons with health based and waste classification criteria.

2.0 SCOPE OF WORKS

2.1 Contamination Investigation

The contamination investigation (soil and groundwater) was undertaken in general accordance with The Brief. This section outlines the scope of works completed for each aspect of the project as well as the regulatory framework under which potentially contaminated land is assessed and managed.

2.2 Regulatory Framework

The *Contaminated Land Management Act 1997* (the *CLM Act*) is the primary regulatory instrument governing the management of contaminated sites in NSW. Section 105 of the Act allows the NSW EPA to make or approve guidelines for the investigation, remediation and management of contaminated lands. The contamination investigation has been completed with reference to relevant State and National guidance documents, endorsed under the *CLM Act*, including, but not limited to:

- *Guidelines for the NSW Auditor Scheme (3rd edition)*, NSW Environment Protection Authority, (EPA 2017);
- *Guidelines for Consultants Reporting on Contaminated Sites*, Office of Environment and Heritage (OEH 2011);
- *National Environment Protection (Assessment of Site Contamination) Measure 1999*, National Environment Protection Council (NEPC 2013);
- *Sampling Design Guidelines,* NSW Environment Protection Authority (EPA 1995);
- *Guidelines for the Assessment and Management of Groundwater Contamination*, Department of Environment and Conservation (DEC 2007);
- *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* (ANZG 2018);
- *Australian Drinking Water Guidelines 6 2011* (NHMRC 2011)[1]; and
- *Designing Sampling Programs for Sites Potentially Contaminated by PFAS,* NSW Environment Protection Authority (EPA 2016).

2.2.1 Scope of Works – Contamination

The investigation scope of works included the following:

- Implementation of the existing SMW SAQP to the project including:
  - Collection of soil samples from eleven of the fifteen borehole locations using hand auger and drill rig associated methods;
  - Installation, development and sampling of three groundwater monitoring wells;
  - Installation and sampling of three soil gas vapour monitoring wells;
  - Implementation of a quality assurance / quality control (QA/QC) plan for the project;
  - Analysis of soil and groundwater samples for EnvTA prescribed Potential Contaminants of Concern (PCoC);

[1] The Version 3.4 update of NHMRC 2011 was released in October 2017.

- Management of field related data and production of borelogs, groundwater well installation logs and soil gas well installation logs; and
- Preparation of this factual report.

2.3 Geotechnical Investigation

The field work for the geotechnical investigation in this report includes:

- Concrete coring of the investigation locations;
- Three boreholes with depths ranging between 6.30 m and 13.2 m;
- Installation of standpipes (monitoring wells) in the three boreholes;
- Selected samples of soil and rock core obtained were submitted to a National Association of Testing Authorities, Australia (NATA) accredited laboratory for testing;
- Cone Penetration Testing (CPT) was undertaken to further define the soil profile across the site and will establish depth to rock at each location; and
- Dissipation testing were undertaken at three CPT locations.

Laboratory certificates for the geotechnical sampling and analysis are presented in the following appendices:

- Concrete core logs and concrete unconfined compressive strength (UCS) test results are presented in **Appendix D**;
- CPT logs are presented in **Appendix E**;
- **Appendix J** contains the following laboratory results:
  - Atterberg Limits and Linear Shrinkage;
  - Moisture content;
  - Strength and compressibility (oedometer and triaxial); and
  - Particle size distribution results (hydrometer).

3.0 SITE INFORMATION

3.1 Site Identification

The Site is located on Edinburgh Road, Murray Street and Sydney Steel Road, Marrickville, NSW and relevant property information is summarised in **Table 1**. A site plan showing the location is attached as **Figure 1**.

Table 1: Site Identification

Item	Details
Street Address	The Site is located at the following addresses: • 5-15, 34, 38-46, 50-52 Murray Street; • 2, 18, 22, 30, 10, 1-8, 12-20 7 23/102-112 Edinburgh Road; and • 1A, 1B, 1C and 1D Sydney Steel Road.
Approximate Site Area	88,000 m^2
Current Land Use	Manufacturing of pre-cast concrete tunnel lining segments, excavation and construction activities associated with the Marrickville dive site and tunnel portal and support services associated with these activities.
Local Government Area (LGA) and Land Use Zoning	Inner West Council LGA IN1 General Industrial

3.2 Site Description

Golder-Douglas undertook a site walkover on 16 May 2019 to facilitate the formulation of the scope and planning of the site investigation. The majority of the Site was covered by concrete hardstand with some smaller areas covered in either asphalt or gravel surface. The western section of the Site was occupied by a large warehouse type structure which is where the concrete tunnel segments were constructed. Once the segments were constructed they were stored on external areas surrounding and to the north east of the warehouse.

A batching plant and associated materials storage was located in the northern section of the Site. Site offices and ablutions were located at the southern end of Murray Street.

An open top culvert enters the Site on the western boundary underneath Sydney Steel Road and bends to the south west through the Site prior to discharging into a large stormwater storage pond located immediately to the south of the Site. A smaller section of open top culvert was observed on the Site close to Murray Street. This culvert emanates from under Murray Street and appears to extend in a general northerly direction towards Edinburgh Street. This section of open top culvert joins the main culvert approximately 90 m to the south west of Murray Street where both discharge into the stormwater basin.

Other activities on the Site included:

- 24 hour general operations;
- Drainage system, water treatment and disposal system;
- General material storage;
- Workshops;

- Electricity substation; and
- Spoil storage and removal.

A general site plan is attached as **Figure 1**.

3.3 Surrounding Land Use

The site is located in an area of predominantly commercial/industrial properties with medium to high density residential properties located to the east. The general surrounding land uses are identified in **Table 2** with specific land uses and direction noted where considered applicable.

Table 2: Surrounding Land Use

Direction	Details
North	Edinburgh Road, commercial/industrial land use, Smidmore Street, commercial land use.
West	Sydney Steel Road, commercial/industrial land use.
South	Open top culvert, railway line, Bolton Street and commercial/industrial land use.
South west	Stormwater storage basin (concrete lined).
East	Railway line, Bolton Street, Bedwin Road, commercial/industrial land use, with a mixture of residential, some open space and commercial/industrial land use beyond this.

4.0 ENVIRONMENTAL SETTING

4.1 Topography and Drainage

The Site is located in a generally level area with an elevation of approximately 2 to 10 metres Australian Height Datum (m AHD) (Nearmap, 2019). The field survey data collected during this investigation indicates that the Site is generally flat with elevations ranging between 3.62 m AHD and 5.65 m AHD. The Site appeared to have higher elevations along the eastern portion and in the northern portion of the Site, towards Edinburgh Road and Railway Parade.

Stormwater generated on site during rain events is expected to be connected to the municipal stormwater system as well as the onsite stormwater management and would be expected to drain to the Sydenham stormwater drainage basin, located to the immediate south west. It is expected that the water eventually discharges into the Cooks River via a pumping station at the drainage basin.

4.2 Geology

4.2.1 Soils and Landscapes

Based on review of on-line mapping service, eSPADE[2], two soil landscapes are present at the Site. The Birrong soil landscape occupies the majority of the western, south western and northern portions of the Site. The Blacktown soil landscape occupies the central and eastern portions of the Site. The soil landscapes are described as:

- Birrong: fluvial in origin, described as 'level to gently undulating alluvial floodplain draining Wianamatta Group Shales'. The soils are described as deep (>2.5m) yellow podzolic soils and yellow solodic soils on older alluvial terraces and deep (>2.5m) solodic soils and yellow solonetz on current floodplains. The description on eSPADE further describes the geology as 'dominated by silt and clay sized alluvial materials derived from the Wianamatta Group; and
- Blacktown; residual in origin, described as 'gently undulating rises on Wianamatta Group Shales and Hawkesbury shale. Local relief to 30 m, slopes usually <5%'. The soils are described as shallow to moderately deep (<1.0m) red and brown podzolic soils on crests, upper slopes and well-drained areas; deep (1.5 to 3.0m) yellow podzolic soils and soloths on lower slopes and in areas of poor drainage.

4.2.2 Geology

A review of the 1:100,000 scale Sydney Geological Series Sheet 9130 (DMR 1983) indicates that the Site is located in an area mapped with Quaternary deposits as the underlying formation. These deposits are indicated to comprise peat, sandy peat and muds. Underlying these deposits is Ashfield shale bedrock.

4.2.3 Acid Sulfate Soils

Acid sulfate soils (ASS) planning sheets associated with Marrickville Local Environment Plan 2011 (the MLEP) identified the majority of the Site as being located in an area of 'Class 2 ASS' with a thin strip (i.e. maximum 40 m wide) of the eastern portion of the Site identified as 'Class 5 ASS'.

ASS planning maps were originally prepared by the NSW Department of Land and Water Conservation to indicate the potential presence of ASS, rather than the severity of ASS at a particular location. The planning maps identify five classes of ASS (Class 1 to Class 5) and identify types of work likely to present an environmental risk for each class of land (ASSMAC, 1998). If the types of work being undertaken are

[2] The data accessible through eSPADE is mainly sourced from the NSW Soil and Land Information System, including soil landscape mapping data.

proposed in an area identified with potential ASS, further investigations are required to confirm the presence of ASS, and if present, the potential risk to the environment.

The MLEP indicates the following in relation to Class 2 and Class 5 ASS:

- That development consent is required for works on Class 2 land, which are below the natural ground surface or which may lower the water table; and
- That development consent is required for works on Class 5 land which may lower the water table below 1 m AHD on adjacent Class 1 to 4 land which has an elevation of less than 5 m AHD within 500 m of the subject site.

On-line ASS mapping hosted by the Australian Soil Resource Information System (ASRIS) was reviewed through a Google Earth interface. The ASRIS mapping is based on existing data sets which have been converted to a national classification system (ASRIS 2011). ASRIS shows the majority of the Site as being in an area of "*low probability*" of ASS. A thin strip of the eastern portion of the Site extending from south of Murray Street to the southern corner, was identified as being in an area of "*no known occurrence*" of ASS.

4.3 Hydrogeology

A search of on-line records held by the NSW Department of Primary Industry Office of Water (DPI) was performed on 25 July 2019. The search indicated there were two licensed groundwater bores located within 500 m of the boundary of the site. The results of the search are summarised in **Table 3**.

Limited information was provided on the bore reports. Groundwater depths within 500 m of the Site were reported at both groundwater wells between 2.8 and 7.6 m below ground level (bgl).

Table 3: Summary of Groundwater Bore Information

Bore ID	Purpose	Approximate distance and direction from site	Depth (m)	Standing water level (m bgl)	Comments
GW114924	Monitoring Bore	60m to the north east	9.0	7.6	-
GW114925	Monitoring Bore	80m to the north east	6.10	2.8	-

Notes
- : no information provided
m: metres
m bgl: metres below ground level

Information in the form of existing borelogs provided by the EnvTA during the site investigation indicates that groundwater was encountered at a depth of 2.9 m bgl in a layer of silty clay at SRT-BH001 which is located in the northern section of the Site, close to the eastern boundary. Groundwater was not encountered at SRT-BH002 and SRT-BH002a located in the northern eastern corner of the Site adjacent to Railway Parade, however a piezometer was installed at SRT-BH002a. At SRT-BH501 located in the south eastern corner of the Site adjacent to the railway line, groundwater was observed at a depth of 3.0 m bgl during drilling in a silty clay layer.

The EnvTA also provided a report by GHD Pty Ltd titled *Geotechnical and Contamination Investigation Factual Report, City and Southwest Sydney Metro, Sub-portions 4 and 5: Marrickville Industrial Areas* (GHD 2017). A review of this report indicates that groundwater level ranged from 4.095 and 4.323 m below top of casing (mb toc) or -0.513 and -0.035 m AHD across the Site.

4.4 Climate

Meteorological conditions at the Site have been inferred from long term records for the Sydney Airport AMO meteorological station, which is located approximately 4.3 km to the south. The mean annual rainfall would be in the order of 1,080 mm, the wettest months being February to June and the driest month being September. The mean number of days in a year with rain of 25 mm or higher would be in the order of 8 days. The mean maximum temperature would be in the order of 22.3 °C. The warmest month would be January, with the highest temperature recorded at Sydney Airport AMO of 46.4 °C recorded on 18 January 2013. The mean minimum temperature would be in the order of 13 °C. The coldest month would be July, with the lowest temperature recorded at Sydney Airport AMO of -0.1 °C recorded on 23 July 1943.

5.0 INVESTIGATION METHODOLOGY

The soil and groundwater investigation comprised sampling and analysis and the soil gas investigation comprising monitoring of soil gas, was carried out by Golder-Douglas. The investigation was carried out in general accordance with the details summarised in this section.

5.1 Investigation Locations

The EnvTA defined the scope of work for the contamination and groundwater investigations in The Brief and Golder-Douglas completed the works according to this scope. The majority of the investigation locations were completed at the pre-determined locations however due to unexpected conditions on site some of these were repositioned. Further detail is provided in **Section 5.6**.

The investigation locations were surveyed using Differential global positioning system (GPS). Surveyed co-ordinates and Reduced Level (RL) for individual investigation locations are shown to the nearest 0.1 m on the attached investigation logs and on the tabulation in **Appendix A**. The co-ordinate system and height datum are MGA and AHD, respectively.

5.2 Field Work Supervision

Golder-Douglas environmental scientists supervised the investigation works, logged the subsurface conditions and collected soil, groundwater and measured soil gas across the Site. A total of sixteen soil bores were drilled on the Site, with three of these converted to groundwater monitoring wells and three converted to soil gas wells.

Fieldworks were completed in accordance with Golder Associates' Standard Operating Protocols. Copies of field records are presented in **Appendix F** and **Appendix G**.

5.3 Soil Investigation Works

The soil investigation works were undertaken on 1, 2, 8, 9, 11, 22 and 23 June 2019, which comprised sampling from a combination of hand augering and direct push tube methods. The mechanical sampling was performed using a Geoprobe push tube drill rig provided by Matrix Drilling Pty Ltd. Investigation locations are shown on **Figure 1**.

Soil samples were field head space screened for the presence of detectable VOCs with a field portable photo-ionization detector (PID). Soil samples were also inspected and ranked for the presence of visual or olfactory evidence of contamination. The ranking system used is outlined in **Table 4** below.

Table 4: Soil Contamination Ranking System

Visible Contamination		Odorous Soil	
Rank	**Description**	**Rank**	**Description**
0	No visible evidence of contamination	A	Natural odour only
1	Slight evidence of visual contamination (trace)	B	Slight odour
2	Visible contamination (e.g. more than trace)	C	Moderate odour

Visible Contamination		Odorous Soil	
Rank	Description	Rank	Description
3	Obviously contaminated (e.g. predominantly tar, slag, spent oxide, coke)	D	Strong odour

The soils encountered during drilling were logged according to the Unified Soil Classification System (USCS). A description of the soils encountered is presented on the bore logs presented in **Appendix A**, and observations of indicators of potential contamination are presented in **Section 7.1.2**. The soil bores were advanced to a maximum of 5.0 m bgl apart from the following:

- BH-MN05 encountered refusal on a suspected concrete slab at 0.45 m bgl;
- BH-MN06 encountered refusal in compacted fill material or suspected concrete slab at 0.7m. BH-MN06a was drilled within close proximity as a substitute borehole;
- BH-MN07 encountered refusal on a suspected concrete slab at 0.1m. Relocation was attempted four times in close proximity but redrill attempts were unsuccessful due the underlying layer; and
- BH-MN14 encountered refusal in a layer of orange bricks at a depth of 0.7 m bgl.

During drilling, soil sampling was generally conducted at depths of 0.0 to 0.25 m bgl, 0.5 m bgl, 0.75 m bgl, 1.0 m bgl, 1.5 m bgl, 2.0 m bgl and every metre thereafter within the soil profile. A limited number of samples were collected outside of the nominated sampling depths e.g. directly beneath varying depths of hard standing, changes in stratigraphy or where observations of potential contamination were identified.

Soil bores which did not have groundwater monitoring wells or soil gas wells installed were backfilled to the surface with drill cuttings upon completion of sampling.

5.4 Groundwater Investigation

5.4.1 Monitoring Bore Installation

Three geotechnical drilling and sampling locations (BH-MN01, BH-MN02 and BH-MN08) were converted to groundwater monitoring wells to assess general groundwater quality at the Site. The soil bores were drilled for geotechnical purposes and subsequently converted into groundwater wells once geotechnical testing was completed. The locations of the groundwater monitoring wells are shown on **Figure 1**.

5.4.2 Monitoring Bore Construction

The boreholes were drilled and groundwater monitoring wells were installed by Groundtest Pty Ltd on 2 June 2019 (BH-MN02 and BH-MN08) and 24 June 2019 (BH-MN01a). Throughout the drilling program, a geotechnical engineer from Golder-Douglas logged the sub-surface conditions. Groundwater monitoring wells were installed in general accordance the guidance provided in the *Minimum Construction Requirements for Water Bores in Australia* (NUDLC 2012) as described below.

The monitoring bores were intended to be screened across the groundwater table. The standpipes in each monitoring bore were constructed using 50 mm diameter Class 18 PVC casing. The annulus between the screen and monitoring bore wall was backfilled with 2 mm graded sand, to a height of approximately 0.5 m above the top of the screened section for each monitoring well. A bentonite seal was then placed above the sand at a height of 1.0 m above the filter pack. The well annulus above the bentonite seals were then grouted

and the wells completed with a steel 'gatic' cover, flush with the ground surface, installed over the top of each of the bores.

Borehole logs were prepared for each monitoring well location showing geology and well construction details. The well construction details are presented on the borehole reports in **Appendix B**. As the investigations were performed to support SSI 15_7400, the wells were not required to be licenced by Department of Primary Industries (DPI) Water.

Following installation, the monitoring wells were surveyed according to the MGA co-ordinate system and their locations plotted on a site layout plan. Golder-Douglas used differential GPS survey equipment to locate the monitoring locations and measure the elevation of the ground level and top of well casing to m AHD. Details of the well levels are presented in **Table 5** below.

Table 5: Groundwater Well Installation Information

Location	Ground Level (m AHD)	Well Collar Level (m AHD)	Well Depth (m)	Screen Interval (m bgl)
BH-MN01 (MN01a)	4.54	4.31	8.0	2.0 – 8.0
BH-MN02	5.65	5.45	6.3	3.3 – 6.3
BH-MN08	3.82	3.62	7.0	2.1 – 7.0

5.4.3 Groundwater Sampling

On completion of installation, each groundwater well was developed to remove silt/fines potentially introduced during drilling and for alignment of the gravel pack surrounding the well screens. The newly installed wells were developed using a Waterra Power Pack PP1 and dedicated Waterra polyethylene tubing. Between 20 and 35 litres of water were removed from the groundwater wells during well development and records are presented in **Appendix F**.

Sampling of the three groundwater monitoring wells was undertaken on 28 June 2019 using low flow sampling techniques. Prior to sampling the standing water level (SWL) was gauged using an electronic interface probe. A peristaltic pump, with dedicated tubing for each well, was used to purge and sample each groundwater monitoring well.

The field parameter results were obtained at the time of sampling and these are presented in **Appendix F**. No free phase hydrocarbons or odours were observed in the wells sampled.

5.5 Soil Gas Monitoring

5.5.1 Soil Gas Well Installation

Soil gas well monitoring was undertaken on 28 June 2019. Locations of the monitoring wells are presented on **Figure 1**. Soil gas well installation logs are presented in **Appendix C**.

The installation of the soil gas wells was undertaken in accordance with the SMW SAQP (Golder-Douglas 2019) which was based the methodology on Section 3.4.3 of the *Guidelines for the Assessment and Management of Sites Impacted by Hazardous Ground Gases* (NSW EPA 2012). The methodology for installation of the gas wells was as follows:

- A minimum hole size of 125 mm diameter (using solid flight augers) was used to ensure adequate room for a gravel pack with no breaches or voids;

- The gas well was constructed using uPVC with an internal diameter of 50 mm and was 0.4 mm machine slotted;
- The uPVC casing and screen was screwed together and glues were not used as part of the construction materials;
- Graded 2 to 5 mm clean, washed quartz rich specialised gravel (or similar) was used as the gravel pack around the screened section;
- Bentonite pellets were placed to approximately 0.5 m above the screen with a cement-bentonite grout to the surface;
- If the gas well screen was within 0.5 m of the ground surface, a reduced bentonite seal would be used with cement-bentonite grout for the remainder to surface;
- The bentonite pellets were hydrated insitu, once they had been placed around the standpipe;
- Gas monitoring wells were finished with a quick-connect/release gas fittings and gatic covers; and
- Following installation, the monitoring wells were surveyed according to a local datum (m AHD).

Details of the soil gas well installation details are presented in **Table 6** below.

Table 6: Soil Gas Well Installation Details

Location	Ground Level (m AHD)	Well Depth (m)	Screen Interval (m bgl)
VW_MN01	4.52	1.7*	0.5 – 1.7
VW_MN02	5.61	5.0**	0.4 – 4.5
BM-MN13 (VW_MN03)	4.09	4.5	0.5 – 4.5

* shallow well due to presence of water

** bentonite backfill from 4.5m to 5.0m

5.5.2 Soil Gas Monitoring

One soil gas monitoring event was completed on 28 June 2019 by a Golder-Douglas environmental scientist. The following methodology was used to monitor the subsurface gas at each soil gas monitoring location:

1) The gas flow rate in each monitoring well was measured over a period of 2 minutes;
2) The sample tubing was connected to the gas monitoring well and a record of the pressure, noting whether it is positive or negative, was obtained as well as the barometric pressure;
3) Concentrations of methane (CH_4), carbon dioxide (CO_2), carbon monoxide (CO), hydrogen sulfide (H_2S) and oxygen (O_2) was monitored for at least 3 minutes until concentrations stabilised. Both peak and steady state measurements were recorded;
4) One casing volume of air was purged using the gas monitoring meter; and
5) Following purging, the monitoring of the gas concentrations (described in Steps 1, 2 & 3) was repeated.

A summary of the subsurface soil gas measurements is provided in **Section 7.4**.

5.6 Investigation Constraints

A site walkover was undertaken on 16 May 2019 where conditions at the Site were observed by Golder-Douglas. At the time of the site inspection and throughout the investigation the Site was in use as described in **Section 3.2** and the vast majority sealed by concrete hardstand. The investigation locations were discussed

with SMW TSE staff and JHCPB&G during the site inspection and prior to commencement of the investigation.

Information provided to Golder-Douglas in The Brief indicated that the Site was an active worksite and that there were risks associated with disruption to construction activities. The potential risk to construction activities was mitigated through the positioning of sampling locations which JHCPB&G indicated was suitable based on planned site works, and by undertaking the investigation during 'out of hours'. The 'out of hours' working period was restricted to weekend work and limited by planning conditions associated with the overall construction of the site.

BH-MN07 was redrilled unsuccessfully at four other separate locations within close proximity to the preferred location due to the presence of a suspected layer of concrete in this area. No further attempts were made due to the multiple borehole refusal.

BH-MN06a was redrilled in the CPT-MN04 location which was within 1.5m from the preferred sampling location.

The preferred location for VW_MN03 was not achievable as the underlying fill material was saturated at a depth of 1.10 m bgl. The next preferred location was identified as adjacent to BH_MN14 within the warehouse however obstruction/refusal was encountered at 0.7m bgl. The adjacent CPT location was selected however due to perched water at 1.10m bgl this location was also unsuitable. As a result, VW_MN03 was repositioned at BH_MN13 close to the northern boundary of the Site.

5.7 QA/QC Plan

5.7.1 Field Quality Control Samples

Field QA/QC sampling procedures implemented for the project included the following:

- Field duplicates: Both the primary samples and field duplicate samples generated in the field were sent to the primary laboratory, however the duplicate sample were blind coded. These were targeted for analysis at a frequency of 5 % or greater;
- Field triplicates: Individual samples were split in the field and placed in two separate containers. One sample was sent to the primary laboratory and the duplicate sent to an independent check laboratory. These were targeted for analysis at a frequency of 5 % or greater;
- Field spikes (trip spikes) and trip blanks were collected at a rate of one per laboratory batch of samples when sampling materials potentially contained volatiles;
- One soil vapour field duplicate sample and one field triplicate were collected and analysed; and
- Wash blanks/rinsate blanks were collected at a rate of one per day when non-disposable sampling equipment was used. The rate of laboratory analysis was one per day.

5.7.2 Field Quality Control

Standard QA/QC procedures were adopted during the investigation, including those for sample collection, management and handling. Specific requirements included the use of laboratory prepared jars and containers, decontamination of sampling equipment between locations, collection of an appropriate number of quality control samples, preservation of samples in ice chests and transport to laboratories under chain of custody (CoC) documentation.

Decontamination protocols consistent with the methods recommended by the Australian Standard, AS 4482.1-2005 (SA 2005), were to be used throughout the soil sampling program to reduce the risk of cross contamination between samples and sample locations. Relevant sampling equipment were decontaminated

between samples and sample locations using a phosphate free detergent and a final rinse with deionised water.

Calibration of field measuring equipment such as a PID was carried out by the equipment supplier and the calibration certificates retained by the field scientist/engineer. Calibration documentation is presented in **Appendix H**.

5.7.3 Sample Labelling

The sample labels included sample identification numbers, date of collection, sampler initials and project number. Each sample was labelled with a unique sample identification number to facilitate tracking and cross referencing of sample information. QA/QC samples were also numbered with a unique sample number.

5.7.4 Chain of Custody Records

CoC records were used to track samples from the time of collection to the arrival of samples at the laboratory. Each sample container being shipped to the laboratory contained a CoC form. The laboratory maintains one copy of CoCs for its records. The scanned original was returned to Golder-Douglas acknowledging receipt of samples. Copies of the CoC records are presented in **Appendix I** along with the laboratory analytical certificates.

5.7.5 Sample Containers and Handling

Samples were placed in appropriate laboratory-supplied sample containers, filled to reduce headspace, labelled and properly sealed and transferred to an ice cooler for transport to the contract laboratory. Samples were cushioned within the ice chests by the use of bubble pack wrapping and were kept cool by the use of ice.

5.7.6 Data Quality Objectives for Investigation Program

The DQOs for the field work sampling and analysis implemented during the investigation works, to ensure data is valid and complete for the site assessment, included the following:

- The sampling program was aimed at characterising the media in the vicinity of investigation locations;
- The Laboratory Limits of Reporting (LOR) were targeted to be below the adopted criteria (see tables in **Section 6.0**) where technically possible;
- Sample preservation, storage, and holding time of samples were to be within acceptable limits;
- Field and analytical laboratory sample CoC procedures and documentation were to be complete;
- Analytical results for replicated samples, including field and laboratory duplicates and inter-laboratory duplicates, expressed as Relative Percent Difference (RPD) were to be within the nominated acceptance criteria for field duplicates and splits. Australian Standard AS4482.1-2005 (SA 2005) indicates that acceptably precise results are indicated by an RPD of better than 30 to 50 %, but notes that the variation can be expected to be higher for organic analytes than inorganic analytes, and higher where there are low concentrations of analytes. Tiered acceptance criteria have been adopted for assessment of RPDs as follows:
  - Results < 10 times LOR: any RPD acceptable;
  - Results ≥ 10 times and < 20 times LOR: RPD < 50% and
  - Results ≥ 20 times LOR: RPD < 30%;

- Field wash/rinsate blanks to be collected at the frequencies given in **Section 5.7.1** to provide evidence that cross-contamination had not occurred during field sampling. Results were targeted to be below the laboratory limits of reporting; and
- Laboratory spikes, controls and surrogates targeted to be within 70% and 130% to demonstrate the reliability of the laboratory results reported.

5.8 Laboratory Analysis

5.8.1 Soil Analytical Schedule

Based on the scope of works detailed in The Brief, visual observation recorded during fieldworks (i.e. staining, odours or changes in geology) as well as PID readings, at least three soil samples were selected from each sample location for laboratory analysis of the PCoC identified for the site. Copies of the certificates of analysis are presented in **Appendix I**.

The Potential Contaminants of Concern (PCoC) analysed as part of this investigation were as follows:

- Total recoverable hydrocarbons (TRHs) / total petroleum hydrocarbons (TPH);
- Benzene, toluene, ethylbenzene, xylene, naphthalene (BTEXN);
- Polycyclic aromatic hydrocarbons (PAHs);
- Heavy metals (As, Cd, Cr, Cu, Hg, Ni, Pb, Zn)[3];
- Organochlorine and organophosphorus pesticides (OCPs/OPPs);
- Polychlorinated biphenyls (PCBs);
- Asbestos;
- Volatile organic compounds (VOCs);
- Phenols – total; and
- Per- and poly-fluoroalkyl substances (PFAS) substances.

The soil samples were scheduled for a selection of the PCoCs listed above. In addition to the analytical suite detailed above, soil samples which had exceeded the waste classification screening levels were reviewed by the technical and selected samples scheduled for Toxicity Characteristic Leaching Procedure (TCLP) and Australian Standard Leaching Procedure (ASLP) testing. The TCLP testing focused on heavy metals (nickel) with the ASLP testing focusing on PFAS substances.

Laboratory tests types are detailed in the laboratory certificates of analysis (COA) provided in **Appendix I**. Tabulated summaries of laboratory soil analytical data results are provided in **Table A, Table B** and **Table C.**

5.8.2 Groundwater Analytical Schedule

Groundwater samples collected during the investigation were analysed for the pre-determined suite detailed bellow;

- TRH;
- BTEXN;
- PAHs;

[3] As – arsenic, Cd – cadmium, Cr – chromium, Cu – copper, Hg – mercury, Ni – nickel, Pb – lead, Zn - zinc

- Heavy metals (dissolved) (As, Cd, Cr, Cu, Hg, Ni, Pb, Zn);
- OCPs and OPPs;
- PCBs;
- VOCs;
- Speciated phenols; and
- PFAS substances.

Laboratory tests types are detailed in the laboratory COA provided in **Appendix I**. A tabulated summary of laboratory groundwater analytical data results is provided in **Table D**.

5.8.3 Laboratory Quality Control

Laboratory analysis was conducted in accordance with the standard test methods outlined in Schedule B(3) of the NEPM (NEPC 2013), US EPA, American Public Health Association (APHA) or equivalent modified methods supported by adequate quality control.

Golder-Douglas contracted laboratories that are NATA accredited, however it is noted that accreditation is not held for some specific analytes. As part of Golder's internal quality control, the analytical laboratories used are audited and internal quality control procedures reviewed periodically.

The laboratories contracted by Golder-Douglas for this investigation were:

- ALS Laboratory Group (ALS), located in Smithfield, NSW, for primary soil and water samples and intra laboratory duplicate samples;
- SGS Australia Pty Ltd (SGS), located in Alexandria, NSW, for inter-laboratory duplicate samples.

The laboratory certificates, including chain of custody documentation, are presented in **Appendix I**.

5.8.4 Data Validation

Following completion of the validation field programs, all of the information collected was checked, collated, and summarised in tabular form. The results of the laboratory analyses have been assessed and validated progressively using recognised QA procedures.

The primary objective of the data validation process has been to ensure that the data reported can be used to achieve the project objectives.

The validity of the analytical data reported has been assessed by a critical review of the QC check sample results. The validation process is based upon the following data validation guidance documents:

- *National Environment Protection (Assessment of Site Contamination) Measure 1999* (NEPC 2013);
- *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Inorganic Data Review* (US EPA, 2010); and
- *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review* (US EPA, 2008).

Accuracy and precision measurements from the appropriate QC check samples have been compared with the analytical DQOs to assess the quality of the analytical data. Data validation records are presented in **Appendix K**.

6.0 ADOPTED SITE ASSESSMENT CRITERIA

6.1 Human Health and Ecological Soil Criteria

The health and ecological based investigation levels documented in Schedule B1 of the *National Environmental Protection (Assessment of Contamination) Measure 1999*, as amended 2013 (NEPC, 2013) have been adopted to screen the analytical results. These include the health investigation levels (HILs), health screening levels (HSLs), management limits (MLs), ecological screening levels (ESLs) and ecological investigation levels (EILs) which are summarised in the sections below.

The health based criteria have been established using the most conservative value specified in the HILs and HSLs, and the ecological based criteria have been established using the most conservative specified in the EILs and ESLs. The Management Limits have also been considered.

Human health and ecological criteria for per- and poly-fluoroalkyl substances (PFAS) have been adopted from the *PFAS National Environment Management Plan* (HEPA 2018) (the NEMP).

The exposure settings in the NEPM that are considered to be relevant to the Site are the commercial / industrial (Level D) land use settings.

The criteria are presented in **Table 7** below and in the summary soil analytical tables (**Table A**).

6.1.1 Health Investigation Levels (HILs)

Health investigation levels (HILs) are generic assessment criteria for a range of metals and organic substances designed to be used in the first stage of the assessment of potential risks to human health from chronic exposure to contaminants. The HILs are generic to all soil types and have been developed for a range of land uses.

6.1.2 Health Screening Levels (HSLs)

The NEPM (NEPC, 2013) provides health screening levels (HSLs) for petroleum hydrocarbons and asbestos.

HSLs for petroleum hydrocarbons will be used to assess chronic human health risks of petroleum hydrocarbon impact via the vapour intrusion exposure pathway. The HSLs are also considered to be protective of direct contact. Soil HSLs are provided in the NEPM (NEPC, 2013) for a variety of exposure settings based on land use, depth of impact and soil type. The NEMP (NEPC, 2013) provides HSLs for the F1 (C_6-C_{10}) and F2 ($>C_{10}$-C_{16}) hydrocarbon fractions and for benzene, toluene, ethylbenzene, xylene and naphthalene (BTEXN). Where appropriate, the health risk of potential exposure via direct contact for F3 ($>C_{16}$-C_{34}) and F4 ($>C_{34}$-C_{40}) hydrocarbon fractions have been assessed against guidance provided in CRC CARE (2011). In addition to the commercial / industrial land use setting, guidance for exposure to workers in trenches have been considered through the application of the CRC Care (2011) HSLs for Intrusive Maintenance Workers for the vapour intrusion exposure pathway (or the direct contact pathway for F3 and F4).

It is noted that the HSLs for petroleum contaminants (TRH) are based on assumed sources of impact being consistent with typical fresh (not weathered or degraded) Australian petrol/diesel fuels.

The HSLs for asbestos documented in the NEPM (NEPC, 2013) provide specific guidance for the assessment of asbestos in soils based on the Western Australian Department of Health (DoH) Guidelines for the Assessment, Remediation and Management of Asbestos Contaminated Sites in Western Australia (WA DoH 2009). The DoH Guidelines identify three groups of asbestos contamination:

- Asbestos Containing Material (ACM): asbestos which is bound in a matrix (in sound condition) which cannot pass through a 7 mm x 7 mm sieve;

- Fibrous Asbestos (FA): friable asbestos material, such as severely weathered ACM and loose fibrous material such as insulation products. FA is defined as asbestos material that is in a degraded condition such that it can be broken or crumbled by hand pressure; and
- Asbestos Fines (AF): includes free fibres of asbestos, small fibre bundles and ACM fragments that pass through a 7 mm x 7 mm sieve.

The HSLs for asbestos have been adopted for the purpose of this assessment.

6.1.3 Management Limits

The NEPM (NEPC, 2013) includes 'Management Limits' that are designed to avoid or minimise the potential effects of petroleum hydrocarbons such as 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.

The management limits presented within the NEPM (NEPC, 2013) were adopted from the Canada-wide standard for Petroleum Hydrocarbons (PHC) in soil (referred to as the 'CWS PHC', CCME, 2008). The management limits were derived within the CCME to address various scientific, technical and socio-economic factors other than chronic toxicity of PHC to human and ecological receptors.

The application of the adopted Management Limits requires consideration of site-specific factors such as the depth of building basements and services and depth to groundwater. When the management limits are exceeded, further site-specific assessment and management may enable any identified risk to be addressed. The NEPM (NEPC, 2013) also notes that the presence of TRH 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.

The NEPM (NEPC, 2013) includes management limits for both coarse and fine grained soils. The most conservative value (coarse grained soils) has been adopted for screening purposes.

6.1.4 Aesthetics

Section 3.6.2 of the NEPM (NEPC, 2013) indicates an assessment of aesthetics would be required if there are strong residual petroleum hydrocarbon odours in soil. There is no prescriptive guidance on what the assessment should entail. The NEPM (NEPC, 2013), however, indicates: 'assessment requires balanced consideration of the quantity, type and distribution of foreign material or odours in relation to the specific land use and it's sensitivity.'

General assessment considerations include:

- That chemically discoloured soils or large quantities of various types of inert refuse, particularly if unsightly, and may cause ongoing concern to site users;
- The depth of the materials, including chemical residues, in relation to the final surface of the site; and
- The need for, and practicality of, any long-term management of foreign materials.

Aesthetics were assessed as follows:

- Olfactory impacts were assessed qualitatively and with the use of a field portable Photo-Ionisation Detector (PID); and
- Evidence of staining, discolouration and anthropogenic material was assessed through visual inspection of excavation surfaces, with findings recorded on field notes and through photographic records.

6.1.5 Ecological Investigation Levels (EILs)

Generic EILs are provided for lead, arsenic, dichlorodiphenyltrichloroethane (DDT) and naphthalene in the NEPM (NEPC, 2013). The generic EILs are independent of soil type.

Site specific EILs for chromium (III), copper, nickel and zinc can be calculated from the sum of the ambient background concentration (ABC) of the contaminant and on the added contaminant limit (ACL), which is based on soil specific properties such as pH, cation exchange capacity (CEC) and clay content. The ABC can be determined by measuring the concentration in a soil sample collected at a reference site not impacted by the contaminant. Where a reference site cannot be determined the ABC can be estimated based on urban metal levels as specified in the NEPM (NEPC, 2013).

Site specific EILs were calculated for chromium (III), nickel and zinc using the CSIRO developed 'EIL Calculation Spreadsheet'[4]. A site specific EIL was not calculated for copper, rather the lower limit for aged contamination presented in the NEPM (NEPC, 2013) was adopted[5].

6.1.6 Ecological Screening Levels (ESLs)

The NEPM (NEPC, 2013) includes ecological screening levels (ESLs) for selected petroleum hydrocarbon compounds and total petroleum hydrocarbon fractions for assessment of risk to terrestrial ecosystems. ESLs are provided for coarse and fine soils, and are relevant to the root zone in soil, corresponding to the top 2 m of the finished level of a site.

The most conservative value (coarse grained soils for TRH, benzene, toluene, ethylbenzene and benzo(a)pyrene, and fine grained soils for xylenes) has been adopted for screening purposes.

Table 7: Adopted Soil Criteria - Commercial/Industrial Land Use

Analyte	HIL D	HSL D [1]	HSL Main. Worker [2]	Proposed health-based criteria [3]	EIL	ESL [4]	Proposed ecological-based criteria	ML [5]
TRH								
F1 (C_6-C_{10})	-	-	-	-	-	-	-	700
F1 (C_6-C_{10}) less BTEX	-	260	NL	260	-	215 [6]	215	-
F2 (>C_{10}-C_{16})	-	-	-	-	-	170 [7]	170	1,000
F2 (>C_{10}-C_{16}) less naphthalene	-	20,000	NL	20,000	-	-	-	-
F3 (>C_{16}-C_{34})	-	27,000	85,000	27,000	-	1,700	1,700	3,500
F4 (>C_{34}-C_{40})	-	38,000	120,000	38,000	-	3,300	3,300	10,000
BTEXN								
Benzene	-	3	77	3	-	75	75	-

[4] Available at http://www.nepc.gov.au/nepms/assessment-site-contamination/toolbox

[5] Refer to Schedule B5a, Table A1

Analyte	HIL D	HSL D [1]	HSL Main. Worker [2]	Proposed health-based criteria [3]	EIL	ESL [4]	Proposed ecological-based criteria	ML [5]
Toluene	-	NL	NL	NL	-	135	135	-
Ethylbenzene	-	NL	NL	NL	-	165	165	-
Xylene	-	230	NL	230	-	95	95	-
Naphthalene	-	NL	NL	NL	370	-	370	-
Heavy Metals								
Arsenic	3,000	-	-	3,000	160	-	160	-
Cadmium	900	-	-	900	-	-	-	-
Chromium [8,9]	3,600	-	-	3,600	310	-	310	-
Copper [10]	240,000	-	-	240,000	85	-	85	-
Lead	1,500	-	-	1,500	1,800	-	1,800	-
Mercury (inorganic)	730	-	-	730	-	-	-	-
Nickel [8]	6,000	-	-	6,000	55	-	55	-
Zinc [8]	400,000	-	-	400,000	110	-	110	-
PAHs								
Naphthalene	-	NL	-	NL	370	-	370	-
B(a)P [11]	-	-	-	-	-	1.4	1.4	-
B(a)P TEQ [12]	40	-	-	40	-	-	-	-
Total PAH	4,000	-	-	4,000	-	-	-	-
PCBs								
Total PCB	7	-	-	7	-	-	-	-
OCPs & OPPs								
Aldrin + dieldrin	45	-	-	45	-	-	-	-
Chlordane	530	-	-	530	-	-	-	-
DDD + DDE + DDT	3,600	-	-	3,600	-	-	-	-

Analyte	HIL D	HSL D [1]	HSL Main. Worker [2]	Proposed health-based criteria [3]	EIL	ESL [4]	Proposed ecological-based criteria	ML [5]
DDT	-	-	-	-	640	-	640	-
Endosulfan	2,000	-	-	2,000	-	-	-	-
Endrin	100	-	-	100	-	-	-	-
Heptachlor	50	-	-	50	-	-	-	-
HCB	80	-	-	80	-	-	-	-
Methoxychlor	2,500	-	-	2,500	-	-	-	-
Mirex	100	-	-	100	-	-	-	-
Chlorpyriphos	2,000	-	-	2,000	-	-	-	-
Phenols								
Phenol	240,000	-	-	240,000	-	-	-	-
Asbestos								
Bonded ACM	-	0.05%	-	0.05%	-	-	-	-
Fibrous asbestos and asbestos fines	-	0.001%	-	0.001%	-	-	-	-
All forms of asbestos	-	No visible asbestos for surface soil	-	No visible asbestos for surface soil	-	-	-	-
PFAS [13]								
PFOS+PFHxS	20	-	-	20	-	-	-	-
PFOA	50	-	-	50	-	-	-	-
PFOS	-	-	-	-	0.14	-	0.14	-

Notes
Criteria in mg/kg unless otherwise indicated.
- No criteria provided.
NL non limiting.
w/w weight for weight.
1 HSL-D based on vapour intrusion risk (NEPC, 2013), except values adopted for F2, F3 and F4 based on health screening levels for direct contact (CRC CARE, 2011). HSL for sand soil type, depth 0m to <1m adopted as a conservative measure
2 HSL Intrusive Maintenance Worker based on vapour intrusion risk (CRC Care 2011), except for values F3 and F4 where health screening levels for direct contact (CRC CARE, 2011) are adopted. HSL for sand soil type, depth 0m to <2m adopted as a conservative measure.
3 Proposed health based criteria for TRH fractions consider HILs and HSLs.
4 The most conservative of the ESLs for coarse or fine grained soils have been adopted.

5 MLs for F1 and F2 include BTEX and naphthalene respectively. The most conservative of the MLs for coarse or fine grained soils have been adopted.
6 ESL for TRH F1 minus BTEX.
7 ESL for TRH F2 includes naphthalene.
8 EIL calculated using site specific soil qualities.
9 HIL for Cr VI, EIL for Cr III.
10 EIL for copper is based on the lower limit for aged contamination presented in the NEPM (NEPC, 2013).
11 Benz(a)pyrene.
12 Toxicity equivalent quotient.
13 PFAS criteria adopted from the PFAS National Environmental Management Plan (NEMP) (Heads of Environmental Protection Authorities Australia and New Zealand (HEPA), January 2018).

6.2 Waste Classification Criteria

Soil wastes generated during the construction works would require assessment and classification prior to off-site disposal in accordance with the NSW EPA *Waste Classification Guidelines: Part 1 Classifying waste* (EPA 2014) (the *Waste Guidelines*). The wastes would fall into one of the following classifications as defined in the *Waste Guidelines*:

- **General Solid Waste Non-Putrescible (GSW) –** GSW is waste (such as surplus excavated soil) which contains contaminant concentrations less than or equal to the GSW contaminant threshold (CT1[6]) values or contains specific contaminant concentrations (SCC) and toxicity characteristics leaching procedure (TCLP) test concentrations less than or equal to the respective SCC1[7] and TCLP1 threshold values;
- **Restricted Solid Waste (RSW) –** RSW is waste (such as surplus excavated fill/soil) which contains contaminant concentrations greater than the GSW criteria, however less than or equal to the RSW contaminant threshold CT2 values or contains SCC and TCLP test concentrations less than or equal to the respective SCC2 and TCLP2 threshold values;
- **Hazardous Waste (HW)** – HW is waste (such as surplus excavated fill/soil) which contains contaminant concentrations greater than the RSW criteria, or a material which has been pre-classified as hazardous waste by the EPA; and
- **Special Waste (Asbestos)** – This is waste (such as surplus excavated fill/soil) that contains asbestos. Soils containing asbestos waste also need to be chemically assessed for other potential contaminants, such that they can be classified as either GSW, RSW or HW in accordance with the *Waste Guidelines*.

The adopted assessment values along with the laboratory results are summarised in **Table B** and **Table C**.

6.3 Groundwater Criteria

The following criteria have been considered to establish the proposed human health and ecological criteria to assess groundwater quality:

- Australian and New Zealand Guidelines for Fresh and Marine Water Quality 2000 (ANZG 2018);
- Australian Drinking Water Guidelines (ADWG) (NHMRC 2011);
- Recreational contact (NHMRC 2008);
- Groundwater HSLs for BTEXN specified in the NEPM (NEPC 2013) for typical fuel mixtures, sand 2 to <4m values adopted; and

[6]EPA 2014 Table 1 Contaminant Threshold Values (CT1 and CT2) for classifying waste by chemical assessment without the leaching (TCLP) test

[7] EPA 2014 Table 2 Leachable concentration (TCLP) and Specific Contaminant Concentration (SCC) values for classifying waste by chemical assessment

- PFAS National Environment Management Plan (NEMP) (HEPA 2018).

As the Australian Drinking Water Guidelines (NHMRC 2011) do not provide any values for TRHs the United States Environment Protection Agency (US EPA) Regional Screening Levels for Chemical Contaminants at Superfund Sites (US EPA 2019) for tap water were adopted as they consider ingestion, dermal and inhalation pathways from direct exposure. The Screening Levels are risk-based concentrations derived from standardised equations combining exposure information assumptions with US EPA toxicity data and can be used to assess if concentrations of a chemical are present that warrant further investigation. As indicated in **Table 8** the TRH criteria for tap water is based on speciated TRH aromatic and aliphatic fractions. As the US EPA (2019) TRH fractions differ from the Australian analytical fractions professional judgement would be applied in allocating the US EPA screening levels to the site data. The low and medium aromatic TRH fractions are more conservative than their respective aliphatic TRH fractions. However, both benzene and naphthalene (upon which the aromatic screening levels are based) will be individually assessed and therefore the low and medium aliphatic TRH fractions have been adopted.

Table 8: US EPA RSLs for Tap Water

TRH Fraction	Equivalent Number of Carbon Atoms	Representative Compound	Tap Water Criteria (mg/L)*	Australian Analytical (NEPM) Fraction Assessed
Low aliphatic	C_5 - C_8	n-hexane	1.3	Adopted for the F1 Fraction
Medium aliphatic	C_9 - C_{18}	Hydrocarbon streams	0.1	Adopted for the F2 Fraction
High aliphatic	C_{19} - C_{32}	White mineral oil	60	Not adopted
Low aromatic	C_6 – C_8	Benzene	0.033	Not adopted
Medium aromatic	C_9 - C_{16}	2-methylnapthalene/ naphthalene	0.0055	Not adopted
High aromatic	C_{17} - C_{32}	Fluoranthene	0.8	Adopted for the F3, F4 Fraction

*Based on Hazard Index of 1, consistent with NEPM (2013) approach.

For the purpose of assessing risks related to primary contact recreation (e.g. swimming in which there is a high probability for water being swallowed), the National Health and Medical Research Council (NHMRC 2008) recommend screening the data relative to the health-based ADWG (revised in NHMRC 2011) criteria with a factor of 10x applied to account for the limited ingestion potential relative to the drinking water exposure assumptions. The 10x factor has been applied to drinking water guidelines derived by the ADWG (NHMRC 2011) to obtain screening levels for recreational use.

The criteria presented in **Table 9** will depend on the nature of the receiving water body (i.e. marine water) and on the potential use of the groundwater. For conservative purposes the lowest of the NEPM HSLs, ADWG, recreational contact guidelines and US EPA RSLs have been included as the proposed human health water criteria. However, should these values be exceeded an assessment of site specific data including depth to groundwater, groundwater yield, salinity, and licensed groundwater uses in the vicinity of the sites should be considered.

Table 9: Adopted Groundwater and Surface Water Criteria (Marine Water)

Analyte	95% Protection of species	Commercial / Industrial HSL D	Drinking Water	Recreational Contact
	ANZG 2018	NEPM 2013	NHMRC 2011	NHMRC 2008
TRH				
F1 (C_6-C_{10})	-	6,000	1,300 [1]	13,000
F2 (>C_{10}-C_{16})	-	NL	100 [1]	1,000
F3 (>C_{16}-C_{34})	-	-	800 [1]	8,000
F4 (>C_{34}-C_{40})	-	-	800 [1]	8,000
BTEXN				
Benzene	700	5,000	1	10
Toluene	180 [3]	NL	800	8,000
Ethylbenzene	5 [3]	NL	300	3,000
o-xylene	350 [3]	NL	600	6,000
m-xylene	75 [3]	NL		
p-xylene	200 [3]	NL		
Naphthalene	70	NL	-	-
Heavy Metals				
Arsenic	24 [4] / 13 [5]	-	10	100
Cadmium	0.7 [2]	-	2	20
Chromium (as Cr VI)	4.4	-	50	500
Copper	1.3	-	2,000	20,000
Lead	4.4	-	10	100
Mercury (inorganic)	0.1 [2]	-	1	10
Nickel	7 [2]	-	20	200
Zinc	15	-	-	-
PAHs				
Anthracene	0.01 [3]	-	-	-
Naphthalene	50 [2]	NL	-	-
Benzo(a)pyrene	0.1 [3]	-	0.01	0.1
Fluoranthene	1 [3]	-	-	-

Analyte	95% Protection of species	Commercial / Industrial HSL D	Drinking Water	Recreational Contact
	ANZG 2018	NEPM 2013	NHMRC 2011	NHMRC 2008
Phenanthrene	0.6 [3]	-	-	-
OCPs				
Aldrin	0.003 [3]	-	0.3	3
Dieldrin	0.01 [3]	-		
Chlordane	0.001 [3]	-	2	20
DDE	0.0005 [3]	-	-	-
DDT	0.0004 [3]	-	9	90
Endosulfan	0.005 [2]	-	20	200
g-BHC (Lindane)	0.007 [3]	-	10	100
Endrin	0.004 [2]	-	-	-
Heptachlor	0.0004 [3]	-	0.3	3
Methoxychlor	0.004 [3]	-	300	3,000
Mirex	0.04 [3]	-	-	-
OPPs				
Azinphos Methyl	0.01 [3]	-	30	300
Chlorpyrifos	0.009	-	10	100
Demeton-S-methyl	4 [3]	-	-	-
Diazinon	0.01 [3]	-	4	40
Dimethoate	0.15 [3]	-	7	70
Fenitrothion	0.001 [3]	-	7	70
Malathion	0.05 [3]	-	70	700
Parathion	0.004 [3]	-	2	20
Chlorfenvinphos	-	-	2	20
Dichlorvos	-	-	5	50
Ethion	-	-	4	40
Fenthion	-	-	7	70
Pirimphos-ethyl	-	-	0.5	5

Analyte	95% Protection of species	Commercial / Industrial HSL D	Drinking Water	Recreational Contact
	ANZG 2018	NEPM 2013	NHMRC 2011	NHMRC 2008
Phenols				
2,3,4,6-Tetrachlorophenol	10 [3]	-	-	-
2,4,5-Trichlorophenol	4 [3]	-	-	-
2,4,6-Trichlorophenol	3 [3]	-	20	200
2,4-Dichlorophenol	120 [3]	-	200	2,000
2,6-Dichlorophenol	34 [3]	-	-	-
2-Chlorophenol	340 [3]	-	300	3,000
Pentachlorophenol	11 [2]	-	10	100
2,4-Dimethylphenol	2 [3]	-	-	-
2-Nitrophenol	2 [3]	-	-	-
4-Nitrophenol	58 [3]	-	-	-
Phenol	400	-	-	-
PCBs				
Aroclor 1242	0.3 [3]	-	-	-
Aroclor 1254	0.01 [3]	-	-	-
VOCs				
1,4-Dichlorobenzene	60 [3]	-	40	400
1,2,3-Trichlorobenzene	3 [3]	-	-	-
1,2,4-Trichlorobenzene	20 [2]	-	-	-
1,2-Dichlorobenzene	160 [3]	-	1,500	15,000
1,3-Dichlorobenzene	260 [3]	-	-	-
Cumene (isopropylbenzene)	30 [3]	-	-	-
1,1,2,2-Tetrachloroethane	400 [3]	-	-	-
1,1,1-Trichloroethane	270 [3]	-	-	-
1,1,2-Trichloroethane	1,900	-	-	-
1,2-dichloroethane	1,900 [3]	-	3	30
1,1-dichloroethene	700 [3]	-	30	300
1,2-Dichloroethene	-	-	60	600

Analyte	95% Protection of species	Commercial / Industrial HSL D	Drinking Water	Recreational Contact
	ANZG 2018	NEPM 2013	NHMRC 2011	NHMRC 2008
1,2-Dichloropropane	900 [3]	-	-	-
1,3-Dichloropropane	1,100 [3]	-	-	-
1,3-dichloropropene	0.8 [3]	-	100	1,000
Carbon disulfide	20 [3]	-	-	-
Carbon tetrachloride	240 [3]	-	3	30
Chloroform	370 [3]	-	-	-
Dichloromethane	4,000 [3]	-	4	40
Hexachlorobutadiene	-	-	0.7	70
Hexachloroethane	290 [3]	-	-	-
Pentachloroethane	80 [3]	-	-	-
Tetrachloroethene	70 [3]	-	50	500
Trichloroethene	330 [3]	-	-	-
Vinyl chloride	100 [3]	-	0.3	3
Chlorobenzene (monochlorobenzene)	55 [3]	-	300	3,000
Styrene	-	-	30	300
Bromomethane (methyl bromide)	-	-	1	10
PFAS [6]				
PFOS+PFHxS	-	-	0.07	0.7
PFOS	0.00023 [2]	-	-	-
PFOA	19 [2]	-	0.56	5.6
Cations, Anions and Nutrients				
Fluoride	-	-	1.5	15
Ammonia (as N)	910	-	-	-

Notes:

All criteria in µg/L.

-: no criterion.

NL: not limiting.

1: US EPA RSL (2019) Tap water values.

2: 99% protection of species trigger value applied for compounds with bioaccumulating nature.

3: Unknown reliability trigger values taken from ANZG 2018.

4: As III.

5: As IV.

6: PFAS criteria adopted from the PFAS National Environmental Management Plan (NEMP) (Heads of Environmental Protection Authorities Australia and New Zealand (HEPA), January 2018).

6.4 Hazardous Ground Gases

The NSW EPA *Guidelines for the Assessment and Management of Sites Impacted by Hazardous Ground Gases* (EPA 2012) documents a semi-quantitative risk assessment approach for sites which have the potential to be impacted by ground gases.

Bulk ground gases are gases that may be encountered at percentage concentrations at which they are potentially pose an explosive, asphyxiating or acute toxic exposure risk. Bulk ground gases include CH_4, CO_2, H_2S, CO and hydrogen. Trace ground gases are generally encountered at lower trace concentrations and pose a carcinogenic or toxic exposure risk from longer term exposure. Trace ground gases include VOCs, radon and mercury.

The risk assessment is based on the gas screening value (GSV), which is the product of the maximum borehole gas flow rate (in L/hr) and the maximum gas concentration (in % gas). GSV thresholds have been documented in EPA 2012 as characteristic gas situations (CS). Values for GSV, CS and recommended actions extracted from EPA 2012 are reproduced in **Table 10**.

Table 10: Hazardous Ground Gas Criteria

Gas screening value threshold (GSV, L/hr)	Characteristic gas situation (CS)	Risk classification	Additional measures or assessment required
<0.07	1	Very low risk	No further action required
<0.7	2	Low risk	Select appropriate gas protection measures as per Section 5 of EPA 2012
<3.5	3	Moderate risk	
<15	4	Moderate to high risk	Select appropriate gas protection measures as per Section 5 of EPA 2012, assess requirement for a Level 3 quantitative risk assessment
<70	5	High risk	Select appropriate gas protection measures as per Section 5 of EPA 2012, perform a Level 3 quantitative risk assessment
>70	6	Very high risk	

7.0 INVESTIGATION RESULTS

7.1 Field Observations

7.1.1 Subsurface Ground Conditions

Borehole logs recorded during the field investigations are presented in **Appendix A**. The borelogs contain a record of the underlying fill material (if present) and the geology encountered. A record of the soil samples collected, drill method used, results of the PID screening and observations made during the drilling are also recorded.

7.1.2 Observations of Potential Indicators of Contamination

A summary of field observations and observed potential indicators of contamination (where encountered), including field head space PID readings, is presented in **Table 11**. Anthropogenic inclusions were found in the fill material at the locations as noted below.

Table 11: Potential Indicators of Contamination

Location	Description (Visual, Olfactory or PID Reading)
BH-MN03	Trace concrete in fill material, 0.4-0.6 m bgl. Strong hydrocarbon odour noted in clay material at 0.75m and 1.0m. PID readings ranged from 0.4 to 10.0 ppm.
BH-MN04	Concrete cobbles, clinker, clay gravel, trace glass, ironstone gravel, slag and ash in fill material, 0.35 to 0.6 m bgl. Terracotta brick fragments in fill material at 0.69 m bgl. Slight hydrocarbon odour noted in clay material at 0.95m bgl. PID readings ranged from 0.4 to 0.8 ppm.
BH-MN05	Borehole abandoned at 0.45 m, refusal on concrete slab.
BH-MN06	Brick fragments and sandstone cobbles in fill material, 0.18-0.7 m bgl, refusal at 0.7 m bgl. PID readings less than detection limit.
BH-MN06a	Brick fragments and sandstone cobbles in fill material, 0.18-0.9 m bgl. PID readings ranged from 0.0 to 2.2 ppm.
BH-MN07	Refusal at 0.1m in all attempted locations.
BH-MN09	Concrete layer to 0.42m, followed by gravel layers. PID readings less than detection limit.
BH-MN11	Gravelly fill to 1.5m followed by sand fill to 1.7m. PID readings ranged from 0.0 ppm to 2.3 ppm.
BH-MN12	Gravelly sand fill to 0.6m, followed by clay fill with trace concrete and gravel to 1.5m. Strong hydrocarbon odours at 1.0m bgl. PID readings ranged from 7.5 ppm to 27.5 ppm at 1.0m.
BH-MN13	Trace ash/charcoal in fill material between 0.4 to 0.54 m bgl and between 0.9 to 1.2m bgl. PID readings ranged from 0.0 to 1.3 ppm.
BH-MN14	Bricks in fill material at 0.5 m bgl.
VW-MN01	Bricks and cobbles in fill material between 0.3-0.7 m bgl. PID readings ranged from 0.0 to 1.3 ppm.
VW-MN02	Trace charcoal and sandstone gravel in fill material between 0.06 to 0.7 m bgl. PID readings ranged from 0.5 to 1.2 ppm.
VW-MN03	Wood, metal, fine gravels and trace glass between 0.4 and 1.1 m bgl in fill material. PID readings ranged from 0.5 to 1.0 ppm.
BH-HAUL_ROAD	Borehole abandoned at 0.7 m, inferred drainage blanket between 0.45 to 0.6 m bgl

7.1.3 Groundwater Field Parameters

Three groundwater monitoring wells were installed during the contamination and geotechnical investigation. Groundwater levels and field parameters at the time of sampling are presented in **Appendix F**. A sheen, NAPL or chemical odours were not observed during the well development or subsequent groundwater sampling event which occurred on 28 June 2019.

7.2 Analytical Results for Soil Investigation

7.2.1 Soil Analysis Results

Table A provides a summary of the laboratory analytical data with the recorded concentrations compared against selected investigation criteria. Laboratory certificates for these results are provided within **Appendix I**. A summary of the exceedances are provided in **Table 12**.

Table 12: Summary of Soil Exceedances

Bore	Depth (m)	Analyte	Concentration (mg/kg)	Criterion Exceeded †
MN03	0.25	TRH C_{16}-C_{34}	2710	EIL/ESLs
MN04	0.4-0.6	Zinc	374	EIL/ESLs
		Benzo(a)pyrene	2.9	EIL/ESLs
		Copper	111 (QA500A)	EIL/ESLs
		Zinc	558 (QA500A)	EIL/ESLs
		Zinc	220 (QA500B)	EIL/ESLs
	0.75-0.85	Lead	395	EIL/ESLs
		Zinc	282	EIL/ESLs
MN06	0.5-0.6	Zinc	1020	EIL/ESLs
		Benzo(a)pyrene	4.8	EIL/ESLs
MN12	0.5-0.6	Copper	121	EIL/ESLs
		Zinc	468	EIL/ESLs
		Benzo(a)pyrene	5.3	EIL/ESLs
	1.0-1.1	TRH C_{10}-C_{16}	180	EIL/ESLs
MN13	0.4-0.5	Benzo(a)pyrene	2.1	EIL/ESLs
		Zinc	110 (QA502B)	EIL/ESLs
	0.9-1.2	Benzo(a)pyrene	1.7 – 2.2 (incl QA508B)	EIL/ESLs
		Zinc	110 (QA508B)	EIL/ESLs
	3.0-3.2	Benzo(a)pyrene	1.5	EIL/ESLs
VW_MN02	0.5-0.6	Zinc	226 (QA501A)	EIL/ESLs
VW_MN01	0.7-0.8	Benzo(a)pyrene	1.5	EIL/ESLs
VW_MN03**	0.4-0.5	Copper	154	EIL/ESLs
		Nickel	69	EIL/ESLs
		Zinc	948	EIL/ESLs
	0.9-1.0	Zinc	220 – 263 (incl QA507A and QA507B)	EIL/ESLs
	1.1-1.2	Zinc	180	EIL/ESLs

Notes:

EIL/ESL – ecological investigation levels / ecological screening levels.

HILs – health investigation levels.

HSLs – health screening levels.

MLs – management limits.

† NEPC 2013 notes that ecological criteria apply to the top 2 m of soil at the finished ground level.

** One fragment of asbestos was detected in top 0.5m although calculated percentage is lower than the commercial/industrial criterion detailed in Table 7 of NEPM (NEPC 2013).

7.2.2 Preliminary Soil Waste Classification Testing

Table B provide summaries of the laboratory analytical data with the concentrations compared against the NSW Waste Classification Guidelines (EPA 2014a). **Table C** provides a summary of the PFAS analytical data compared against the NSW Waste Classification Guidelines (EPA 2014b).

Although exceedances of the CT1 or CT2 criteria for GSW and RSW were recorded in several boreholes across the Site however subsequent TCLP testing indicated that the results were lower than their respective SCC1/TCLP1 or SCC2/TCLP2 criteria and the materials would be preliminarily classified as GSW.

Where soil samples were subject to field duplicate and field triplicate testing (QA/QC) and concentrations of contaminants exceeded waste classification criteria, the sample with the highest concentration was scheduled for TCLP testing. The results of this testing were applied to the set of primary, field duplicate and field triplicate samples at a particular sample location e.g. BH_MN04 recorded a concentration of lead of 132 mg/kg and TCLP testing was not undertaken on this sample as field duplicate sample QA500A recorded a higher concentration of 188 mg/kg with TCLP and results reported were below the LOR.

A positive identification of asbestos in BH_VMN03 (0.4 – 0.5m), for chrysotile and crocidolite, and the preliminary waste classification for this material would be GSW special waste.

7.3 Analytical Results for Groundwater Investigation

A summary of key groundwater exceedances (nutrients, heavy metals and contaminants) is provided in **Table D** along with the value for the most conservative criterion it exceeded. A summary of the exceedances of the adopted groundwater criteria is provided in **Table 13**.

Table 13: Summary of Groundwater Exceedances

Groundwater Monitoring Well	Analyte	Concentration	Most Conservative Criterion Exceeded	
			Criterion Value	Criterion Exceeded
BH_MN01a / WQA500A / WQA500B	Copper	0.011 – 0.015 mg/L	0.0013 mg/L	Marine 95% ANZG 2018
	Zinc	0.017 – 0.021 mg/L	0.015 mg/L	Marine 95% ANZG 2018
BH_MN02	Cadmium	0.0013 mg/L	0.0007 mg/L	Marine 95% ANZG 2018
	Copper	0.026 mg/L	0.0013 mg/L	Marine 95% ANZG 2018
	Nickel	0.022 mg/L	0.02 mg/L	NHMRC 2011
	Zinc	0.12 mg/L	0.015 mg/L	Marine 95% ANZG 2018
BH_MN08	Nickel	0.031 mg/L	0.02 mg/L	NHMRC 2008
	Zinc	0.15 mg/L	0.015 mg/L	Marine 95% ANZG 2018

Notes:

ADWG 2011: Australian Drinking Water Guidelines 2011, National Health and Medical Research Council.

Marine 95% ANZG 2018: Australian and New Zealand Guidelines for Fresh and Marine Water Quality, Australia and New Zealand Government 2018.

7.4 Soil Gas Sampling Measurements

The results of the soil gas monitoring are summarised in **Table 14**. Field measurements are presented in **Appendix G**.

Table 14: Peak And Steady State Soil Gas Measurements

Bore Location	Flow (l/h)	CH_4 (% v/v)		CO_2 (% v/v)		O_2 (% v/v)		H_2S (ppm)		CO (ppm)	
		P	SS	P	SS	P	SS	P	SS	P	SS
VW_MN01	0.0 – 0.1	0.0	0.0	2.1	1.8	19.5	15.4	0	0	3	1
VW_MN02	0.1	0.1	0.1	12.1	11.3	16.0	3.7	0	0	0	0
VW_MN03	0.1	0.0	0.0	14.1	12.7	21.3	5.9	11	10	36	13

Notes: P – peak, SS – steady state.

The soil gas measurements were obtained on 28 June 2019 with an atmospheric pressure of 1032 – 1033 millibar (mB) which had decreased from and mean sea level pressure (MSLP) of 1035.7 hPa[8] measured on 27 June 2019. Prior to this the MSLP had generally increased from 14 June 2019.

7.5 Quality Assurance / Quality Control

An assessment of the project quality assurance program for the site investigation works has been performed and is presented in the data validation sheets for each laboratory batch.

Based on the assessment of the field and laboratory QA/QC data, the analytical data are considered acceptable and valid for use for the project. Although variances and non-conformances with both laboratory based and project acceptance criteria have been noted these are considered unlikely to affect the validity of the data.

The precision of most duplicate analyses of organic compounds was acceptable and variability was attributed to variance in laboratory handling, extraction and measurement procedures as well as sample heterogeneity which was observed across the Site.

In summary, the QA/QC analyses and data validation indicated that the quality of the data was acceptable for environmental interpretative purposes.

Data validation summaries are provided in **Appendix K**.

[8] Based on Sydney Airport daily weather and climate observations obtained from Bureau of Meteorology (www.bom.gov.au)

8.0 LIMITATIONS

Your attention is drawn to the document titled - “Important Information Relating to this Report”, which is included in **Appendix L** of this report. The statements presented in that document are intended to inform a reader of the report about its proper use. There are important limitations as to who can use the report and how it can be used. It is important that a reader of the report understands and has realistic expectations about those matters. The Important Information document does not alter the obligations Golder Associates has under the contract between it and its client.

9.0 REFERENCES

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TABLES

Table A – Soils Summary
Table B – Waste Classification Summary
Table C – PFAS Waste Classification Summary
Table D – Groundwater Analytical Summary

					Field_ID	BH_MN03_0.25	BH_MN03_0.75-0.85	BH_MN03_1.3-1.4	BH_MN03_2.9-3.0	BH_MN04_0.4-0.6	QA500A	QA500B	BH_MN04_0.75-0.85	BH_MN04_0.95-1.05	BH_MN04_2.0-2.2	BH_MN04_2.8-3.0	BH_MN06_0.25-0.35	BH_MN06_0.5-0.6	BH_MN06_0.9-1.0	QA506A	QA506B	BH_MN06_2.0-2.1	BH_MN09_0.8-0.9	BH_MN09_2.0	BH_MN09_3.0	BH_MN11_0.25-0.35	QA502A	QA502B	BH_MN11_1.5-1.6	BH_MN11_2.0-2.1	BH_MN11_2.9-3.0	BH_MN12_0.5-0.6
					Location_Code	BH_MN03	BH_MN03	BH_MN03	BH_MN03	BH_MN04	BH_MN04	BH_MN04	BH_MN04	BH_MN04	BH_MN04	BH_MN04	BH_MN06	BH_MN06	BH_MN06	BH_MN06	BH_MN06	BH_MN06	BH_MN09	BH_MN09	BH_MN09	BH_MN11	BH_MN11	BH_MN11	BH_MN11	BH_MN11	BH_MN11	BH_MN12
					Sample_Depth_Range	0.25	0.75-0.85	1.3-1.4	2.9-3	0.4-0.6	0.4-0.6	0.4-0.6	0.75-0.85	0.95-1.05	2-2.2	2.8-3	0.25-0.35	0.5-0.6	0.9-1	0.9-1	0.9-1	2-2.1	0.8-0.9	2	3	0.25-0.35	0.25-0.35	0.25-0.35	1.5-1.6	2-2.1	2.9-3	0.5-0.6
					Sampled_Date_Time	2/06/2019	2/06/2019	2/06/2019	2/06/2019	1/06/2019	1/06/2019	1/06/2019	1/06/2019	1/06/2019	1/06/2019	1/06/2019	11/06/2019	11/06/2019	22/06/2019	22/06/2019	22/06/2019	22/06/2019	1/06/2019	1/06/2019	1/06/2019	11/06/2019	11/06/2019	11/06/2019	23/06/2019	23/06/2019	23/06/2019	2/06/2019
ChemName	**Units**	**EQL**	**Human Health [A]**	**Ecological**	**Management Limits [B]**																											
Moisture content																																
Moisture Content (dried @ 40°C)	%	1				10	24.8	21.5	17.5	15.6	15.1	14	13.7	25.6	15.5	17.4	-	13.6	43	23.8	19	13.6	16.2	11	10.8	11.4	15	16	19.5	18.5	26	27.1
Total Recoverable Hydrocarbons (TRHS)																																
TRH C6 - C10 Fraction F1	mg/kg	10			700	<10	<10	<10	<10	<10	<10	<25	<10	<10	<10	<10	-	<10	<10	<10	<25	<10	<10	<10	<10	<10	<10	<25	<10	<10	<10	<10
TRH C6 - C10 Fraction Less BTEX F1	mg/kg	10	260 [1]	215 [6]		<10	<10	<10	<10	<10	<10	<25	<10	<10	<10	<10	-	<10	<10	<10	<25	<10	<10	<10	<10	<10	<10	<25	<10	<10	<10	<10
TRH >C10 - C16 Fraction F2	mg/kg	50		170 [6]	1000	<50	<50	<50	<50	<50	<50	<25	<50	<50	<50	<50	-	<50	<50	<50	<25	<50	<50	<50	<50	<50	<50	<25	<50	<50	<50	<50
TRH >C10 - C16 Fraction Less Naphthalene (F2)	mg/kg	50	20000 [2]			<50	<50	<50	<50	<50	<50	<25	<50	<50	<50	<50	-	<50	<50	<50	<25	<50	<50	<50	<50	<50	<50	<25	<50	<50	<50	<50
TRH >C16 - C34 Fraction F3	mg/kg	100	27000 [2]	1700 [6]	3500	2710	<100	<100	<100	210	110	<90	<100	<100	<100	<100	-	210	<100	<100	<90	<100	<100	<100	<100	<100	<100	<90	<100	<100	<100	240
TRH >C34 - C40 Fraction F4	mg/kg	100	38000 [2]	3300 [6]	10,000	490	<100	<100	<100	<100	<100	<120	<100	<100	<100	<100	-	<100	<100	<100	<120	<100	<100	<100	<100	<100	<100	<120	<100	<100	<100	<100
TRH+C10 - C40 (Sum of total) (Lab Reported)	mg/kg	50				3200	<50	<50	<50	210	110	<210	<50	<50	<50	<50	-	210	<50	<50	<210	<50	<50	<50	<50	<50	<50	<210	<50	<50	<50	240
BTEXN Compounds																																
Benzene	mg/kg	0.2	3 [1]	75 [6]		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	0.5	99000 [2]	135 [6]		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	0.5	27000 [2]	165 [6]		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5
Xylenes (m & p)	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<0.5
Xylene (o)	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5
Xylenes (Sum of total) (Lab Reported)	mg/kg	0.5	230 [1]	95 [7]		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.3	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.3	<0.5	<0.5	<0.5	<0.5
Total BTEX	mg/kg	0.2				<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.6	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.6	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.6	<0.2	<0.2	<0.2	<0.2
Naphthalene	mg/kg		11000 [2]	370 [8]		<1	<1	<1	<1	<1	<1	<0.1	<1	<1	<1	<1	<1	<1	<1	<1	<0.1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Heavy Metals																																
Arsenic	mg/kg	5	3000	160 [10]		6	5	<5	<5	<5	11	8	10	<5	<5	8	-	8	5	<5	5	<5	<5	<5	<5	7	9	7	<5	6	<5	12
Cadmium	mg/kg	1	900			<1	<1	<1	<1	<1	1	0.4	<1	<1	<1	<1	-	1	<1	<1	<0.3	<1	<1	<1	<1	<1	<1	<0.3	<1	<1	<1	<1
Chromium	mg/kg	2	3600	310 [11]		10	29	10	<2	20	28	24	30	15	16	27	-	16	26	18	10	9	4	6	3	26	36	19	11	21	8	19
Copper	mg/kg	5	240000	85 [11]		9	8	7	5	55	111	64	395	19	<5	8	-	66	7	<5	2.9	6	14	22	23	26	36	30	14	<5	5	121
Lead	mg/kg	5	1500	1800 [12]		<5	21	17	8	132	188	69	159	52	9	14	-	1300	31	18	8	9	15	32	19	92	93	83	30	11	15	849
Mercury	mg/kg	0.1	730			<0.1	<0.1	<0.1	<0.1	1.1	1.1	0.37	0.2	0.2	<0.1	<0.1	-	0.4	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	0.1	0.2	0.1	<0.1	<0.1	<0.1	2.5
Nickel	mg/kg	2	6000	55 [11]		4	4	<2	<2	12	41	17	20	4	2	5	-	10	16	4	1.2	4	<2	<2	<2	30	48	38	6	5	<2	10
Zinc	mg/kg	5	400000	110 [11]		35	14	<5	<5	374	558	220	282	60	<5	6	-	1020	12	13	7.4	5	<5	<5	<5	130	108	110	43	7	10	468
PAHs																																
Acenaphthene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	-	0.9	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.2	<0.5	<0.5	<0.5	0.8
Anthracene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	0.6	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	-	0.9	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.4	<0.5	<0.5	<0.5	1.1
Benz(a)anthracene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	2.7	1	0.4	<0.5	0.8	<0.5	<0.5	-	4.4	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	0.6	0.9	0.8	<0.5	<0.5	<0.5	5.1
Benzo(a)pyrene	mg/kg	0.5		1.4 [6]		<0.5	<0.5	<0.5	<0.5	2.9	1.2	0.6	1.1	0.8	<0.5	<0.5	-	4.8	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	0.6	1	0.9	<0.5	<0.5	<0.5	5.3
Benzo(a)pyrene TEQ (lower bound)*	mg/kg	0.5	40			<0.5	<0.5	<0.5	<0.5	3.8	1.4	0.7	1.4	1	<0.5	<0.5	-	6.9	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<0.5	0.7	1.2	1.1	<0.5	<0.5	<0.5	7.7
Benzo(a)pyrene TEQ (medium bound)*	mg/kg	0.5	40			0.6	0.6	0.6	0.6	4.1	1.7	-	1.7	1.3	0.6	0.6	-	6.9	0.6	0.6	-	0.6	0.6	0.6	0.6	1	1.5	-	0.6	0.6	0.6	7.7
Benzo(a)pyrene TEQ (upper bound)*	mg/kg	0.5	40			1.2	1.2	1.2	1.2	4.3	2	0.8	2	1.6	1.2	1.2	-	6.9	1.2	1.2	<0.3	1.2	1.2	1.2	1.2	1.3	1.8	1.2	1.2	1.2	1.2	7.7
Benzo(b)&(j)fluoranthene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	3.3	1.1	0.6	1.2	1.1	<0.5	<0.5	-	5.3	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	0.7	1.2	0.8	<0.5	<0.5	<0.5	6.4
Benzo(g,h,i)perylene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	2.1	0.6	0.3	3.4	0.6	<0.5	<0.5	-	3.1	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	0.4	<0.5	<0.5	<0.5	3.6
Benzo(k)fluoranthene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	1.2	<0.5	0.3	<0.5	<0.5	<0.5	<0.5	-	1.9	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.4	<0.5	<0.5	<0.5	2.1
Chrysene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	2.5	1	0.5	<0.5	0.8	<0.5	<0.5	-	4	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	0.6	0.9	0.8	<0.5	<0.5	<0.5	4.8
Dibenz(a,h)anthracene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	-	0.6	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	0.7
Benzo(a)pyrene TEQ (Calculated)	TEQ		40			-	-	-	-	-	-	0.8	-	-	-	-	-	-	-	-	<0.2	-	-	-	-	-	-	1.2	-	-	-	-
Fluoranthene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	5	2	0.6	<0.5	1.7	<0.5	<0.5	-	8.4	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	1.3	1.8	2	0.8	<0.5	<0.5	10.4
Fluorene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5
Indeno(1,2,3-c,d)pyrene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	1.6	<0.5	0.3	1.8	<0.5	<0.5	<0.5	-	2.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.7	<0.5	<0.5	<0.5	2.9
Naphthalene	mg/kg	0.5	11000 [2]	370 [8]		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	0.6
Phenanthrene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	2.4	0.7	0.3	<0.5	0.9	<0.5	<0.5	-	3.9	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	0.7	0.9	1.4	<0.5	<0.5	<0.5	4.7
Pyrene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	4.8	2.2	0.6	<0.5	1.6	<0.5	<0.5	-	8	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	1.2	1.7	2.1	0.8	<0.5	<0.5	10.2
PAH (Sum of Common 16 PAHs - Lab Reported)	mg/kg	0.5	4000			<0.5	<0.5	<0.5	<0.5	29.1	9.8	4.5	7.5	8.3	<0.5	<0.5	-	48.7	<0.5	<0.5	<0.8	<0.5	<0.5	<0.5	<0.5	5.7	9	11	1.6	<0.5	<0.5	58.7
Total PAH (NEPM/WHO 16)	mg/kg	0.8				-	-	-	-	-	-	4.5	-	-	-	-	-	-	-	-	<0.8	-	-	-	-	-	-	11	-	-	-	-
1-Methylnaphthalene	mg/kg	0.1				-	-	-	-	-	-	<0.1	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-	-	<0.1	-	-	-	-
2-Methylnaphthalene	mg/kg	0.1				-	-	-	-	-	-	<0.1	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-	-	<0.1	-	-	-	-
Organochlorine Pesticides																																
2,4-DDT	mg/kg	0.1				-	-	-	-	-	-	<0.1	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-	-	<0.1	-	-	-	-
a-BHC	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05
Aldrin	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05
Dieldrin	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	-	1.7	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	0.16	0.15	<0.2	<0.05	<0.05	<0.05	<0.05
Aldrin & Dieldrin (Sum of total) (Lab Reported)	mg/kg	0.05	45			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	-	1.7	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	0.16	0.15	-	<0.05	<0.05	<0.05	<0.05
b-BHC	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05
cis-Chlordane	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05
gamma-Chlordane	mg/kg	0.1				-	-	-	-	-	-	<0.1	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-	-	<0.1	-	-	-	-
trans-Chlordane	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Chlordane (Sum of total)	mg/kg	0.05	530			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
d-BHC	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05
DDD	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05
DDE	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05
DDT	mg/kg	0.2		640 [9]		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2
DDT+DDE+DDD (Sum of total) (Lab Reported)	mg/kg	0.05	3600			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Endosulfan	mg/kg	0.05	2000			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Endosulfan I	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05
Endosulfan II	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05
Endosulfan sulphate	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05
Endrin	mg/kg	0.05	100			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05
Endrin ketone	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05
g-BHC	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05
Heptachlor	mg/kg	0.05	50			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05
Hexachlorobenzene	mg/kg	0.05	80			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05
Isodrin	mg/kg	0.1				-	-	-	-	-	-	<0.1	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-	-	<0.1	-	-	-	-
Methoxychlor	mg/kg	0.2	2500			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2
Mirex	mg/kg	0.1	100			-	-	-	-	-	-	<0.1	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-	-	<0.1	-	-	-	-
o,p-DDD	mg/kg	0.1				-	-	-	-	-	-	<0.1	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-	-	<0.1	-	-	-	-
o,p-DDE	mg/kg	0.1				-	-	-	-	-	-	<0.1	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-	-	<0.1	-	-	-	-
trans-Nonachlor	mg/kg	0.1				-	-	-	-	-	-	<0.1	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-	-	<0.1	-	-	-	-
Organophosphorous Pesticides																																
Azinphos-methyl	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05
Bromophos-ethyl	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05
Carbophenothion	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Chlorfenvinphos	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Chlorpyriphos	mg/kg	0.05	2000			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05
Chlorpyriphos-methyl	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Demeton-s-methyl	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Diazinon	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	<0.05	<0.05	<0.05	<0.05
Dichlorvos	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	<0.05	<0.05	<0.05	<0.05
Dimethoate	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	<0.05	<0.05	<0.05	<0.05
Ethion	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05
Fenamiphos	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Fenitrothion	mg/kg	0.2				-	-	-	-	-	-	<0.2	-	-	-	-	-	-	-	-	<0.2	-	-	-	-	-	-	<0.2	-	-	-	-
Fenthion	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Malathion	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05
Methidathion	mg/kg	0.5				-	-	-	-	-	-	<0.5	-	-	-	-	-	-	-	-	<0.5	-	-	-	-	-	-	<0.5	-	-	-	-
Parathion-methyl	mg/kg	0.2				<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2
Monocrotophos	mg/kg	0.2				<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2
Parathion	mg/kg	0.2				<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Pirimphos-ethyl	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Prothiofos	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Phenols																																
Phenolics (Sum of total)	mg/kg	1				<1	<1	-	-	<1	<1	<0.1	<1	<1	-	-	-	<1	<1	<1	-	-	<1	-	-	<1	<1	-	<1	-	-	<1
Polychlorinated Biphenyls																																
Aroclor 1016	mg/kg	0.2				-	-	-	-	-	-	<0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aroclor 1232	mg/kg	0.2				-	-	-	-	-	-	<0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aroclor 1242	mg/kg	0.2				-	-	-	-	-	-	<0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aroclor 1248	mg/kg	0.2				-	-	-	-	-	-	<0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aroclor 1254	mg/kg	0.2				-	-	-	-	-	-	<0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aroclor 1260	mg/kg	0.2				-	-	-	-	-	-	<0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aroclor 1268	mg/kg	0.2				-	-	-	-	-	-	<0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aroclor 1221	mg/kg	0.2				-	-	-	-	-	-	<0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aroclor 1262	mg/kg	0.2				-	-	-	-	-	-	<0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PCB (Sum of Total-Lab Reported)	mg/kg	0.1	7			<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<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
Asbestos																																
Asbestos (detect or non-detect)	mg/kg	0.1	NAD [3]			NAD	NAD	-	-	NAD	-	-	NAD	-	-	-	NAD	NAD	NAD	-	-	-	NAD	-	-	NAD	NAD	-	NAD	-	-	NAD
Asbestos (trace)	fibres	5	NFD			NFD	NFD	-	-	NFD	-	-	NFD	-	-	-	NFD	NFD	NFD	-	-	-	NFD	-	-	NFD	NFD	-	NFD	-	-	NFD
Sample weight (dry)	g	0.01				80	100	-	-	32.5	-	-	48.7	-	-	-	120	81.9	90.4	-	-	-	56.6	-	-	52.7	27.9	-	87.3	-	-	134
Volatile Organic Compounds																																
1,4-Dichlorobenzene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<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
4-Chlorotoluene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<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
1,2,3-Trichlorobenzene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<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
1,2,4-Trichlorobenzene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<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
1,2-Dichlorobenzene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<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
1,3-Dichlorobenzene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<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
2-Chlorotoluene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<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
Bromobenzene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<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
Chlorobenzene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<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
1,2,4-trimethylbenzene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<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
1,3,5-Trimethylbenzene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<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
Isopropylbenzene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<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
n-Butylbenzene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<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
n-Propylbenzene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<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
p-Isopropyltoluene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<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
sec-Butylbenzene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<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
Styrene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<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

Field_ID						BH_MN03_0.25	BH_MN03_0.75-0.85	BH_MN03_1.3-1.4	BH_MN03_2.9-3.0	BH_MN04_0.4-0.6	QA500A	QA500B	BH_MN04_0.75-0.85	BH_MN04_0.95-1.05	BH_MN04_2.0-2.2	BH_MN04_2.8-3.0	BH_MN06_0.25-0.35	BH_MN06_0.5-0.6	BH_MN06_0.9-1.0	QA506A	QA506B	BH_MN06_2.0-2.1	BH_MN09_0.8-0.9	BH_MN09_2.0	BH_MN09_3.0	BH_MN11_0.25-0.35	QA502A	QA502B	BH_MN11_1.5-1.6	BH_MN11_2.0-2.1	BH_MN11_2.9-3.0	BH_MN12_0.5-0.6
Location_Code						BH_MN03	BH_MN03	BH_MN03	BH_MN03	BH_MN04	BH_MN04	BH_MN04	BH_MN04	BH_MN04	BH_MN04	BH_MN04	BH_MN06	BH_MN06	BH_MN06	BH_MN06	BH_MN06	BH_MN06	BH_MN09	BH_MN09	BH_MN09	BH_MN11	BH_MN11	BH_MN11	BH_MN11	BH_MN11	BH_MN11	BH_MN12
Sample_Depth_Range						0.25	0.75-0.85	1.3-1.4	2.9-3	0.4-0.6	0.4-0.6	0.4-0.6	0.75-0.85	0.95-1.05	2-2.2	2.8-3	0.25-0.35	0.5-0.6	0.9-1	0.9-1	0.9-1	2-2.1	0.8-0.9	2	3	0.25-0.35	0.25-0.35	0.25-0.35	1.5-1.6	2-2.1	2.9-3	0.5-0.6
Sampled_Date_Time						2/06/2019	2/06/2019	2/06/2019	2/06/2019	1/06/2019	1/06/2019	1/06/2019	1/06/2019	1/06/2019	1/06/2019	1/06/2019	11/06/2019	11/06/2019	22/06/2019	22/06/2019	22/06/2019	22/06/2019	1/06/2019	1/06/2019	1/06/2019	11/06/2019	11/06/2019	11/06/2019	23/06/2019	23/06/2019	23/06/2019	2/06/2019
ChemName	Units	EQL	Human Health [A]	Ecological	Management Limits [B]																											
tert-Butylbenzene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<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
Methyl Ethyl Ketone	mg/kg	5				<5	<5	<5	<5	<5	<5	<10	<5	<5	<5	<5	-	<5	<5	<5	-	<5	<5	<5	<5	<5	<5	-	<5	<5	<5	<5
2-Hexanone	mg/kg	5				<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	<5	<5	<5	-	<5	<5	<5	<5	<5	<5	-	<5	<5	<5	<5
Methyl iso-butyl ketone	mg/kg	5				<5	<5	<5	<5	<5	<5	<1	<5	<5	<5	<5	-	<5	<5	<5	-	<5	<5	<5	<5	<5	<5	-	<5	<5	<5	<5
Acetone	mg/kg	10				-	-	-	-	-	-	<10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acrylonitrile	mg/kg	0.1				-	-	-	-	-	-	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl-t-butyl ether	mg/kg	0.1				-	-	-	-	-	-	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vinyl acetate	mg/kg	5				<5	<5	<5	<5	<5	<5	<10	<5	<5	<5	<5	-	<5	<5	<5	-	<5	<5	<5	<5	<5	<5	-	<5	<5	<5	<5
1,1,1,2-Tetrachloroethane	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<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
1,1,2,2-Tetrachloroethane	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<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
1,1,1-Trichloroethane	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<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
1,1,2-Trichloroethane	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<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
1,2,3-Trichloropropane	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<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
1,2-Dibromo-3-chloropropane	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<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
1,2-Dibromoethane	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<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
1,1-Dichloroethane	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<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
1,2-Dichloroethane	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<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
1,1-Dichloroethene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<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
cis-1,2-Dichloroethene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<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
trans-1,2-dichloroethene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<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
1,2-Dichloropropane	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<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
1,3-Dichloropropane	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<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
2,2-Dichloropropane	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<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
1,1-Dichloropropene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<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
cis-1,3-Dichloropropene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<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
trans-1,3-dichloropropene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<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
2-Nitropropane	mg/kg	10				-	-	-	-	-	-	<10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
cis-1,4-Dichloro-2-butene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<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
trans-1,4-Dichloro-2-butene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<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
Allyl chloride	mg/kg	0.1				-	-	-	-	-	-	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bromochloromethane	mg/kg	0.1				-	-	-	-	-	-	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bromodichloromethane	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<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
Bromoform	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<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
Bromomethane	mg/kg	5				<5	<5	<5	<5	<5	<5	<1	<5	<5	<5	<5	-	<5	<5	<5	-	<5	<5	<5	<5	<5	<5	-	<5	<5	<5	<5
Carbon disulfide	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5
Carbon tetrachloride	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<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
Chlorodibromomethane	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<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
Chloroethane	mg/kg	5				<5	<5	<5	<5	<5	<5	<1	<5	<5	<5	<5	-	<5	<5	<5	-	<5	<5	<5	<5	<5	<5	-	<5	<5	<5	<5
Chloroform	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<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
Chloromethane	mg/kg	5				<5	<5	<5	<5	<5	<5	<1	<5	<5	<5	<5	-	<5	<5	<5	-	<5	<5	<5	<5	<5	<5	-	<5	<5	<5	<5
Dibromomethane	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<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
Dichlorodifluoromethane	mg/kg	5				<5	<5	<5	<5	<5	<5	<1	<5	<5	<5	<5	-	<5	<5	<5	-	<5	<5	<5	<5	<5	<5	-	<5	<5	<5	<5
Dichloromethane	mg/kg	0.5				-	-	-	-	-	-	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hexachlorobutadiene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<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
Iodomethane	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<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
Pentachloroethane	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5
Trichloroethene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<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
Tetrachloroethene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<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
Trichlorofluoromethane	mg/kg	5				<5	<5	<5	<5	<5	<5	<1	<5	<5	<5	<5	-	<5	<5	<5	-	<5	<5	<5	<5	<5	<5	-	<5	<5	<5	<5
Vinyl chloride	mg/kg	5				<5	<5	<5	<5	<5	<5	<0.1	<5	<5	<5	<5	-	<5	<5	<5	-	<5	<5	<5	<5	<5	<5	-	<5	<5	<5	<5
Perfluorinated Compounds																																
10:2 Fluorotelomer sulfonic acid	mg/kg	0.0005				-	<0.0005	-	-	<0.0005	<0.0005	-	<0.0005	<0.0005	-	-	-	<0.0005	<0.0005	<0.0005	-	-	<0.0005	<0.0005	-	<0.0005	<0.0005	-	<0.0005	-	-	<0.0005
4:2 Fluorotelomer sulfonic acid	mg/kg	0.0005				-	<0.0005	-	-	<0.0005	<0.0005	-	<0.0005	<0.0005	-	-	-	<0.0005	<0.0005	<0.0005	-	-	<0.0005	<0.0005	-	<0.0005	<0.0005	-	<0.0005	-	-	<0.0005
8:2 Fluorotelomer sulfonate	mg/kg	0.0005				-	<0.0005	-	-	<0.0005	<0.0005	-	<0.0005	<0.0005	-	-	-	<0.0005	<0.0005	<0.0005	-	-	<0.0005	<0.0005	-	<0.0005	<0.0005	-	<0.0005	-	-	<0.0005
N-Et-FOSA	mg/kg	0.0005				-	<0.0005	-	-	<0.0005	<0.0005	-	<0.0005	<0.0005	-	-	-	<0.0005	<0.0005	<0.0005	-	-	<0.0005	<0.0005	-	<0.0005	<0.0005	-	<0.0005	-	-	<0.0005
N-Et-FOSE	mg/kg	0.0005				-	<0.0005	-	-	<0.0005	<0.0005	-	<0.0005	<0.0005	-	-	-	<0.0005	<0.0005	<0.0005	-	-	<0.0005	<0.0005	-	<0.0005	<0.0005	-	<0.0005	-	-	<0.0005
N-Me-FOSA	mg/kg	0.0005				-	<0.0005	-	-	<0.0005	<0.0005	-	<0.0005	<0.0005	-	-	-	<0.0005	<0.0005	<0.0005	-	-	<0.0005	<0.0005	-	<0.0005	<0.0005	-	<0.0005	-	-	<0.0005
N-Me-FOSE	mg/kg	0.0005				-	<0.0005	-	-	<0.0005	<0.0005	-	<0.0005	<0.0005	-	-	-	<0.0005	<0.0005	<0.0005	-	-	<0.0005	<0.0005	-	<0.0005	<0.0005	-	<0.0005	-	-	<0.0005
Perfluorobutanoic acid (PFBA)	mg/kg	0.001				-	<0.001	-	-	<0.001	<0.001	-	<0.001	<0.001	-	-	-	<0.001	<0.001	<0.001	-	-	<0.001	<0.001	-	<0.001	<0.001	-	<0.001	-	-	<0.001
Perfluoroheptane sulfonic acid	mg/kg	0.0002				-	<0.0002	-	-	<0.0002	<0.0002	-	<0.0002	<0.0002	-	-	-	<0.0002	<0.0002	<0.0002	-	-	<0.0002	<0.0002	-	<0.0002	<0.0002	-	<0.0002	-	-	<0.0002
Perfluoro-n-pentanoic acid (PFPeA)	mg/kg	0.0002				-	<0.0002	-	-	<0.0002	<0.0002	-	<0.0002	<0.0002	-	-	-	<0.0002	<0.0002	<0.0002	-	-	<0.0002	<0.0002	-	<0.0002	<0.0002	-	<0.0002	-	-	<0.0002
Perfluoropentane sulfonic acid	mg/kg	0.0002				-	<0.0002	-	-	<0.0002	<0.0002	-	<0.0002	<0.0002	-	-	-	<0.0002	<0.0002	<0.0002	-	-	<0.0002	<0.0002	-	<0.0002	<0.0002	-	<0.0002	-	-	<0.0002
PFDcS	mg/kg	0.0002				-	<0.0002	-	-	<0.0002	<0.0002	-	<0.0002	<0.0002	-	-	-	<0.0002	<0.0002	<0.0002	-	-	<0.0002	<0.0002	-	<0.0002	<0.0002	-	<0.0002	-	-	<0.0002
N-methyl-perfluorooctanesulfonamidoacetic acid	mg/kg	0.0002				-	<0.0002	-	-	<0.0002	<0.0002	-	<0.0002	<0.0002	-	-	-	<0.0002	<0.0002	<0.0002	-	-	<0.0002	<0.0002	-	<0.0002	<0.0002	-	<0.0002	-	-	<0.0002
Sum of PFHxS and PFOS (lab reported)	mg/kg	0.0002		20 [C]		-	<0.0002	-	-	<0.0002	<0.0002	-	<0.0002	<0.0002	-	-	-	**0.001**	**0.0002**	<0.0002	-	-	<0.0002	<0.0002	-	<0.0002	<0.0002	-	<0.0002	-	-	<0.0002
Sum of WA DER PFAS (n=10)	mg/kg	0.0002				-	<0.0002	-	-	<0.0002	<0.0002	-	<0.0002	<0.0002	-	-	-	**0.0014**	**0.0002**	<0.0002	-	-	<0.0002	<0.0002	-	<0.0002	<0.0002	-	<0.0002	-	-	<0.0002
Sum of PFASs (n=28)	mg/kg	0.0002				-	<0.0002	-	-	<0.0002	<0.0002	-	<0.0002	<0.0002	-	-	-	**0.0014**	**0.0002**	<0.0002	-	-	<0.0002	<0.0002	-	<0.0002	<0.0002	-	<0.0002	-	-	<0.0002
Perfluorobutanesulfonic acid (PFBS)	mg/kg	0.0002				-	<0.0002	-	-	<0.0002	<0.0002	-	<0.0002	<0.0002	-	-	-	<0.0002	<0.0002	<0.0002	-	-	<0.0002	<0.0002	-	<0.0002	<0.0002	-	<0.0002	-	-	<0.0002
Perfluorodecanoic acid (PFDA)	mg/kg	0.0002				-	<0.0002	-	-	<0.0002	<0.0002	-	<0.0002	<0.0002	-	-	-	<0.0002	<0.0002	<0.0002	-	-	<0.0002	<0.0002	-	<0.0002	<0.0002	-	<0.0002	-	-	<0.0002
Perfluorododecanoic acid (PFDoA)	mg/kg	0.0002				-	<0.0002	-	-	<0.0002	<0.0002	-	<0.0002	<0.0002	-	-	-	<0.0002	<0.0002	<0.0002	-	-	<0.0002	<0.0002	-	<0.0002	<0.0002	-	<0.0002	-	-	<0.0002
Perfluoroheptanoic acid (PFHpA)	mg/kg	0.0002				-	<0.0002	-	-	<0.0002	<0.0002	-	<0.0002	<0.0002	-	-	-	<0.0002	<0.0002	<0.0002	-	-	<0.0002	<0.0002	-	<0.0002	<0.0002	-	<0.0002	-	-	<0.0002
Perfluorooctanesulfonic acid (PFOS)	mg/kg	0.0002		0.14 [D]		-	<0.0002	-	-	<0.0002	<0.0002	-	<0.0002	<0.0002	-	-	-	**0.0008**	**0.0002**	<0.0002	-	-	<0.0002	<0.0002	-	<0.0002	<0.0002	-	<0.0002	-	-	<0.0002
Perfluorooctanoate (PFOA)	mg/kg	0.0002	50 [E]			-	<0.0002	-	-	<0.0002	<0.0002	-	<0.0002	<0.0002	-	-	-	**0.0004**	<0.0002	<0.0002	-	-	<0.0002	<0.0002	-	<0.0002	<0.0002	-	<0.0002	-	-	<0.0002
Perfluorohexanesulfonic acid (PFHxS)	mg/kg	0.0002				-	<0.0002	-	-	<0.0002	<0.0002	-	<0.0002	<0.0002	-	-	-	**0.0002**	<0.0002	<0.0002	-	-	<0.0002	<0.0002	-	<0.0002	<0.0002	-	<0.0002	-	-	<0.0002
Perfluorononanoic acid (PFNA)	mg/kg	0.0002				-	<0.0002	-	-	<0.0002	<0.0002	-	<0.0002	<0.0002	-	-	-	<0.0002	<0.0002	<0.0002	-	-	<0.0002	<0.0002	-	<0.0002	<0.0002	-	<0.0002	-	-	<0.0002
Perfluorohexanoic acid (PFHxA)	mg/kg	0.0002				-	<0.0002	-	-	<0.0002	<0.0002	-	<0.0002	<0.0002	-	-	-	<0.0002	<0.0002	<0.0002	-	-	<0.0002	<0.0002	-	<0.0002	<0.0002	-	<0.0002	-	-	<0.0002
6:2 Fluorotelomer Sulfonate (6:2 FtS)	mg/kg	0.0005				-	<0.0005	-	-	<0.0005	<0.0005	-	<0.0005	<0.0005	-	-	-	<0.0005	<0.0005	<0.0005	-	-	<0.0005	<0.0005	-	<0.0005	<0.0005	-	<0.0005	-	-	<0.0005
N-ethyl-perfluorooctanesulfonamidoacetic acid	mg/kg	0.0002				-	<0.0002	-	-	<0.0002	<0.0002	-	<0.0002	<0.0002	-	-	-	<0.0002	<0.0002	<0.0002	-	-	<0.0002	<0.0002	-	<0.0002	<0.0002	-	<0.0002	-	-	<0.0002
Perfluorooctanesulfonamide (PFOSA)	mg/kg	0.0002				-	<0.0002	-	-	<0.0002	<0.0002	-	<0.0002	<0.0002	-	-	-	<0.0002	<0.0002	<0.0002	-	-	<0.0002	<0.0002	-	<0.0002	<0.0002	-	<0.0002	-	-	<0.0002
Perfluorotetradecanoic acid (PFTeDA)	mg/kg	0.0005				-	<0.0005	-	-	<0.0005	<0.0005	-	<0.0005	<0.0005	-	-	-	<0.0005	<0.0005	<0.0005	-	-	<0.0005	<0.0005	-	<0.0005	<0.0005	-	<0.0005	-	-	<0.0005
Perfluorotridecanoic acid (PFTrDA)	mg/kg	0.0002				-	<0.0002	-	-	<0.0002	<0.0002	-	<0.0002	<0.0002	-	-	-	<0.0002	<0.0002	<0.0002	-	-	<0.0002	<0.0002	-	<0.0002	<0.0002	-	<0.0002	-	-	<0.0002
Perfluoroundecanoic acid (PFUnA)	mg/kg	0.0002				-	<0.0002	-	-	<0.0002	<0.0002	-	<0.0002	<0.0002	-	-	-	<0.0002	<0.0002	<0.0002	-	-	<0.0002	<0.0002	-	<0.0002	<0.0002	-	<0.0002	-	-	<0.0002

Notes

All results in mg/kg unless otherwise stated
- : Not Analysed
AD - Asbestos Detected
NAD - No Asbestos Detected
NFD - No Fibres Detected, lower than reported detection limit however not per NEPM 2013 analysis requirements
* : Chrysotile & crocidolite detected

Data Comments

A - Health Investigation Level, Commercial/industrial, Table 1A(1) NEPC 2013 unless otherwise stated
B - Management Limits for TPH Fractions F1-F4 in Soil, Table 1B(7) NEPC 2013, Commercial/industrial, coarse soil type
1 - Table 1A(3) NEPC 2013, 0-1m, sand soil type
2 - CRC Care Technical Report #10, Table 4, Direct Contact Criterion, Commercial/industrial
3 - No asbestos fibres detected by AS4964
4 - Table 2 - NEMP 2018, Human Health Screening Values Industrial/commercial
5 - Table 3 - NEMP 2018, Interim Soil - Ecological Indirect Exposure
6 - Table 1B(6) ESLs, Coarse Soil Type, NEPC 2013,Commercial/industrial
7 - Table 1B(6) ESLs, Fine Soil Type, NEPC 2013, Commercial/industrial
8 - Table 1B(5) Generic EIL for fresh naphthalene in soils, NEPC 2013, Commercial/industrial
9 - Table 1B(5) Generic EIL for fresh DDT in soils, NEPC 2013, Commercial/industrial
10 - Table 1B(5) Generic EIL for aged As in soils, NEPC 2013, Commercial/industrial
11 - Table 1B(1) to 1B(3) lowest ACL for CrIII, Cu, Ni & Zn adopted as EILs, NEPC 2013, Commercial/industrial
12 - Table 1B(4) Generic ACL adopted as EIL for Pb in soil, NEPC 2013, Commercial/industrial

Field_ID						BH_MN12_1.0-1.1	BH_MN12_2.0-2.1	BH_MN12_2.9-3.0	VW_MN02_0.5-0.6	QA501A	QA501B	BH_MN13_0.25-0.35	BH_MN13_0.4-0.5	QA504A	QA504B	BH_MN13_0.9-1.2	QA508a	QA508B	BH_MN13_3.0-3.2	VW_MN01_0.7-0.8
Location_Code						BH_MN12	BH_MN12	BH_MN12	VW_MN02	VW_MN02	QA501B	BH_MN13	BH_MN13	BH_MN13	BH_MN13	BH_MN13	BH_MN13	BH_MN13	BH_MN13	VW_MN01
Sample_Depth_Range						1-1.1	2-2.1	2.9-3	0.5-0.6	0.5-0.6		0.25-0.35	0.4-0.5	0.4-0.5	0.4-0.5	0.9-1.2	0.9-1.2	0.9-1.2	3-3.2	0.7-0.8
Sampled_Date_Time						2/06/2019	2/06/2019	2/06/2019	2/06/2019	2/06/2019	2/06/2019	11/06/2019	11/06/2019	11/06/2019	11/06/2019	23/06/2019	23/06/2019	23/06/2019	23/06/2019	1/06/2019
ChemName	Units	EQL	Human Health [A]	Ecological	Management Limits [B]															
Moisture content																				
Moisture Content (dried @ 40°C)	%	1				23.5	20	20.3	8.6	10.3	12	-	12.2	19.2	20	24.6	25	21	13.1	29.1
Total Recoverable Hydrocarbons (TRHS)																				
TRH C6 - C10 Fraction F1	mg/kg	10			700	<10	<10	<10	<10	<10	<25	-	<10	<10	<25	<10	<10	<25	<10	<10
TRH C6 - C10 Fraction Less BTEX F1	mg/kg	10	260 [1]	215 [6]		<10	<10	<10	<10	<10	<25	-	<10	<10	<25	<10	<10	<25	<10	<10
TRH >C10 - C16 Fraction F2	mg/kg	50		170 [6]	1000	180	<50	<50	<50	<50	<25	-	<50	<50	<25	<50	<50	<25	<50	<50
TRH >C10 - C16 Fraction Less Naphthalene (F2)	mg/kg	50	20000 [2]			180	<50	<50	<50	<50	<25	-	<50	<50	<25	<50	<50	<25	<50	<50
TRH >C16 - C34 Fraction F3	mg/kg	100	27000 [2]	1700 [6]	3500	510	<100	<100	160	<100	<90	-	<100	<100	<90	130	<100	150	120	<100
TRH >C34 - C40 Fraction F4	mg/kg	100	38000 [2]	3300 [6]	10,000	<100	<100	<100	120	<100	<120	-	<100	<100	<120	<100	<100	<120	<100	<100
TRH+C10 - C40 (Sum of total) (Lab Reported)	mg/kg	50				690	<50	<50	280	<50	<210	-	<50	<50	<210	130	<50	<210	120	<50
BTEXN Compounds																				
Benzene	mg/kg	0.2	3 [1]	75 [6]		<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	-	<0.2	<0.2	<0.1	<0.2	<0.2	<0.1	<0.2	<0.2
Toluene	mg/kg	0.5	99000 [2]	135 [6]		<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	<0.5
Ethylbenzene	mg/kg	0.5	27000 [2]	165 [6]		<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	<0.5
Xylenes (m & p)	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	-	<0.5	<0.5	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5
Xylene (o)	mg/kg	0.5				<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	<0.5
Xylenes (Sum of total) (Lab Reported)	mg/kg	0.5	230 [1]	95 [7]		<0.5	<0.5	<0.5	<0.5	<0.5	<0.3	-	<0.5	<0.5	<0.3	<0.5	<0.5	<0.3	<0.5	<0.5
Total BTEX	mg/kg	0.2				<0.2	<0.2	<0.2	<0.2	<0.2	<0.6	-	<0.2	<0.2	<0.6	<0.2	<0.2	<0.6	<0.2	<0.2
Naphthalene	mg/kg		11000 [2]	370 [8]		<1	<1	<1	<1	<1	<0.1	<1	<1	<1	<1	<1	<1	<0.1	<1	<1
Heavy Metals																				
Arsenic	mg/kg	5	3000	160 [10]		6	6	6	<5	8	3	-	6	9	8	7	<5	7	<5	5
Cadmium	mg/kg	1	900			<1	<1	<1	<1	<1	<0.3	-	<1	<1	<0.3	<1	<1	<0.3	<1	<1
Chromium	mg/kg	2	3600	310 [11]		22	29	3	7	14	5.2	-	19	29	26	24	23	15	26	19
Copper	mg/kg	5	240000	85 [11]		18	40	10	36	40	18	-	12	12	4.5	14	6	24	6	10
Lead	mg/kg	5	1500	1800 [12]		55	32	19	21	48	19	-	31	32	19	64	31	92	12	50
Mercury	mg/kg	0.1	730			0.1	<0.1	<0.1	<0.1	<0.1	<0.05	-	<0.1	<0.1	<0.05	0.2	<0.1	0.5	<0.1	<0.1
Nickel	mg/kg	2	6000	55 [11]		5	<2	<2	22	25	11	-	4	4	1.6	8	5	4.6	6	6
Zinc	mg/kg	5	400000	110 [11]		36	12	<5	56	226	79	-	45	42	22	82	22	110	<5	20
PAHs																				
Acenaphthene	mg/kg	0.5				<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	<0.5
Acenaphthylene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	-	<0.5	<0.5	<0.1	<0.5	<0.5	0.9	<0.5	<0.5
Anthracene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	-	0.6	<0.5	<0.1	0.6	<0.5	1.1	<0.5	<0.5
Benz(a)anthracene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	-	2	0.6	0.2	1.8	<0.5	2.5	1.6	1.4
Benzo(a)pyrene	mg/kg	0.5		1.4 [6]		<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	-	2.1	0.6	0.2	1.7	0.5	2.2	1.5	1.5
Benzo(a)pyrene TEQ (lower bound)*	mg/kg	0.5	40			<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	-	2.8	0.7	0.3	2.3	0.6	3.3	2.1	2
Benzo(a)pyrene TEQ (medium bound)*	mg/kg	0.5	40			0.6	0.6	0.6	0.6	0.6	-	-	3	1	-	2.5	0.9	-	2.3	2.2
Benzo(a)pyrene TEQ (upper bound)*	mg/kg	0.5	40			1.2	1.2	1.2	1.2	1.2	<0.3	-	3.3	1.3	0.4	2.8	1.2	3.3	2.6	2.5
Benzo(b)&(j)fluoranthene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	-	2.5	0.7	0.3	2.1	0.7	2.4	1.8	1.6
Benzo(g,h,i)perylene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	-	1.2	<0.5	0.2	1.1	<0.5	1.3	1.4	1
Benzo(k)fluoranthene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	-	1.1	<0.5	0.2	0.9	<0.5	1.3	0.9	0.7
Chrysene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	-	1.8	0.5	0.2	1.7	<0.5	1.9	1.4	1.2
Dibenz(a,h)anthracene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	-	<0.5	<0.5	<0.1	<0.5	<0.5	0.3	<0.5	<0.5
Benzo(a)pyrene TEQ (Calculated)	TEQ		40			-	-	-	-	-	<0.2	-	-	-	0.4	-	-	3.3	-	-
Fluoranthene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	-	4.3	1.2	0.5	3.2	1	5.1	3	2.5
Fluorene	mg/kg	0.5				0.9	<0.5	<0.5	<0.5	<0.5	<0.1	-	<0.5	<0.5	<0.1	<0.5	<0.5	<0.1	<0.5	<0.5
Indeno(1,2,3-c,d)pyrene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	-	1	<0.5	0.2	0.9	<0.5	1.7	1.1	0.8
Naphthalene	mg/kg	0.5	11000 [2]	370 [8]		<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	-	<0.5	<0.5	<0.1	<0.5	<0.5	0.3	<0.5	<0.5
Phenanthrene	mg/kg	0.5				0.8	<0.5	<0.5	<0.5	<0.5	<0.1	-	2.6	0.7	0.2	2	0.5	2.8	1.8	0.9
Pyrene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	-	4	1.1	0.6	3.2	1	4.6	3.1	2.4
PAH (Sum of Common 16 PAHs - Lab Reported)	mg/kg	0.5	4000			1.7	<0.5	<0.5	<0.5	<0.5	<0.8	-	23.2	5.4	2.8	19.2	3.7	29	17.6	14
Total PAH (NEPM/WHO 16)	mg/kg	0.8				-	-	-	-	-	<0.8	-	-	-	2.8	-	-	29	-	-
1-Methylnaphthalene	mg/kg	0.1				-	-	-	-	-	<0.1	-	-	-	<0.1	-	-	0.1	-	-
2-Methylnaphthalene	mg/kg	0.1				-	-	-	-	-	<0.1	-	-	-	<0.1	-	-	0.1	-	-
Organochlorine Pesticides																				
2,4-DDT	mg/kg	0.1				-	-	-	-	-	<0.1	-	-	-	<0.1	-	-	<0.1	-	-
a-BHC	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	-	<0.05	<0.05	<0.1	<0.05	<0.05	<0.1	<0.05	<0.05
Aldrin	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	-	<0.05	<0.05	<0.1	<0.05	<0.05	<0.1	<0.05	<0.05
Dieldrin	mg/kg	0.05				<0.05	<0.05	<0.05	0.15	0.21	0.2	-	<0.05	<0.05	<0.2	<0.05	<0.05	<0.2	<0.05	<0.05
Aldrin & Dieldrin (Sum of total) (Lab Reported)	mg/kg	0.05	45			<0.05	<0.05	<0.05	0.15	0.21	-	-	<0.05	<0.05	-	<0.05	<0.05	-	<0.05	<0.05
b-BHC	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	-	<0.05	<0.05	<0.1	<0.05	<0.05	<0.1	<0.05	<0.05
cis-Chlordane	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	-	<0.05	<0.05	<0.1	<0.05	<0.05	<0.1	<0.05	<0.05
gamma-Chlordane	mg/kg	0.1				-	-	-	-	-	<0.1	-	-	-	<0.1	-	-	<0.1	-	-
trans-Chlordane	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	<0.05	-	<0.05	<0.05	-	<0.05	<0.05
Chlordane (Sum of total)	mg/kg	0.05	530			<0.05	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	<0.05	-	<0.05	<0.05	-	<0.05	<0.05
d-BHC	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	-	<0.05	<0.05	<0.1	<0.05	<0.05	<0.1	<0.05	<0.05
DDD	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	-	<0.05	<0.05	<0.1	<0.05	<0.05	<0.1	<0.05	<0.05
DDE	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	-	<0.05	<0.05	<0.1	<0.05	<0.05	<0.1	<0.05	<0.05
DDT	mg/kg	0.2		640 [9]		<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	-	<0.2	<0.2	<0.1	<0.2	<0.2	<0.1	<0.2	<0.2
DDT+DDE+DDD (Sum of total) (Lab Reported)	mg/kg	0.05	3600			<0.05	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	<0.05	-	<0.05	<0.05	-	<0.05	<0.05
Endosulfan	mg/kg	0.05	2000			<0.05	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	<0.05	-	<0.05	<0.05	-	<0.05	<0.05
Endosulfan I	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	<0.05	<0.05	<0.2	<0.05	<0.05	<0.2	<0.05	<0.05
Endosulfan II	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	<0.05	<0.05	<0.2	<0.05	<0.05	<0.2	<0.05	<0.05
Endosulfan sulphate	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	-	<0.05	<0.05	<0.1	<0.05	<0.05	<0.1	<0.05	<0.05
Endrin	mg/kg	0.05	100			<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	<0.05	<0.05	<0.2	<0.05	<0.05	<0.2	<0.05	<0.05
Endrin aldehyde	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	-	<0.05	<0.05	<0.1	<0.05	<0.05	<0.1	<0.05	<0.05
Endrin ketone	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	-	<0.05	<0.05	<0.1	<0.05	<0.05	<0.1	<0.05	<0.05
g-BHC	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	-	<0.05	<0.05	<0.1	<0.05	<0.05	<0.1	<0.05	<0.05
Heptachlor	mg/kg	0.05	50			<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	-	<0.05	<0.05	<0.1	<0.05	<0.05	<0.1	<0.05	<0.05
Heptachlor epoxide	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	-	<0.05	<0.05	<0.1	<0.05	<0.05	<0.1	<0.05	<0.05
Hexachlorobenzene	mg/kg	0.05	80			<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	-	<0.05	<0.05	<0.1	<0.05	<0.05	<0.1	<0.05	<0.05
Isodrin	mg/kg	0.1				-	-	-	-	-	<0.1	-	-	-	<0.1	-	-	<0.1	-	-
Methoxychlor	mg/kg	0.2	2500			<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	-	<0.2	<0.2	<0.1	<0.2	<0.2	<0.1	<0.2	<0.2
Mirex	mg/kg	0.1	100			-	-	-	-	-	<0.1	-	-	-	<0.1	-	-	<0.1	-	-
o,p-DDD	mg/kg	0.1				-	-	-	-	-	<0.1	-	-	-	<0.1	-	-	<0.1	-	-
o,p-DDE	mg/kg	0.1				-	-	-	-	-	<0.1	-	-	-	<0.1	-	-	<0.1	-	-
trans-Nonachlor	mg/kg	0.1				-	-	-	-	-	<0.1	-	-	-	<0.1	-	-	<0.1	-	-
Organophosphorous Pesticides																				
Azinphos-methyl	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	<0.05	<0.05	<0.2	<0.05	<0.05	<0.2	<0.05	<0.05
Bromophos-ethyl	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	<0.05	<0.05	<0.2	<0.05	<0.05	<0.2	<0.05	<0.05
Carbophenothion	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	<0.05	-	<0.05	<0.05	-	<0.05	<0.05
Chlorfenvinphos	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	<0.05	-	<0.05	<0.05	-	<0.05	<0.05
Chlorpyriphos	mg/kg	0.05	2000			<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	<0.05	<0.05	<0.2	<0.05	<0.05	<0.2	<0.05	<0.05
Chlorpyriphos-methyl	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	<0.05	-	<0.05	<0.05	-	<0.05	<0.05
Demeton-s-methyl	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	<0.05	-	<0.05	<0.05	-	<0.05	<0.05
Diazinon	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	-	<0.05	<0.05	<0.5	<0.05	<0.05	<0.5	<0.05	<0.05
Dichlorvos	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	-	<0.05	<0.05	<0.5	<0.05	<0.05	<0.5	<0.05	<0.05
Dimethoate	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	-	<0.05	<0.05	<0.5	<0.05	<0.05	<0.5	<0.05	<0.05
Ethion	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	<0.05	<0.05	<0.2	<0.05	<0.05	<0.2	<0.05	<0.05
Fenamiphos	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	<0.05	-	<0.05	<0.05	-	<0.05	<0.05
Fenitrothion	mg/kg	0.2				-	-	-	-	-	<0.2	-	-	-	<0.2	-	-	<0.2	-	-
Fenthion	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	<0.05	-	<0.05	<0.05	-	<0.05	<0.05
Malathion	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	<0.05	<0.05	<0.2	<0.05	<0.05	<0.2	<0.05	<0.05
Methidathion	mg/kg	0.5				-	-	-	-	-	<0.5	-	-	-	<0.5	-	-	<0.5	-	-
Parathion-methyl	mg/kg	0.2				<0.2	<0.2	<0.2	<0.2	<0.2	-	-	<0.2	<0.2	-	<0.2	<0.2	-	<0.2	<0.2
Monocrotophos	mg/kg	0.2				<0.2	<0.2	<0.2	<0.2	<0.2	-	-	<0.2	<0.2	-	<0.2	<0.2	-	<0.2	<0.2
Parathion	mg/kg	0.2				<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Pirimphos-ethyl	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	<0.05	-	<0.05	<0.05	-	<0.05	<0.05
Prothiofos	mg/kg	0.05				<0.05	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	<0.05	-	<0.05	<0.05	-	<0.05	<0.05
Phenols																				
Phenolics (Sum of total)	mg/kg	1				<1	<1	-	<1	<1	<0.1	-	<1	<1	-	<1	<1	-	-	<1
Polychlorinated Biphenyls																				
Aroclor 1016	mg/kg	0.2				-	-	-	-	-	<0.2	-	-	-	-	-	-	-	-	-
Aroclor 1232	mg/kg	0.2				-	-	-	-	-	<0.2	-	-	-	-	-	-	-	-	-
Aroclor 1242	mg/kg	0.2				-	-	-	-	-	<0.2	-	-	-	-	-	-	-	-	-
Aroclor 1248	mg/kg	0.2				-	-	-	-	-	<0.2	-	-	-	-	-	-	-	-	-
Aroclor 1254	mg/kg	0.2				-	-	-	-	-	<0.2	-	-	-	-	-	-	-	-	-
Aroclor 1260	mg/kg	0.2				-	-	-	-	-	<0.2	-	-	-	-	-	-	-	-	-
Aroclor 1268	mg/kg	0.2				-	-	-	-	-	<0.2	-	-	-	-	-	-	-	-	-
Aroclor 1221	mg/kg	0.2				-	-	-	-	-	<0.2	-	-	-	-	-	-	-	-	-
Aroclor 1262	mg/kg	0.2				-	-	-	-	-	<0.2	-	-	-	-	-	-	-	-	-
PCB (Sum of Total-Lab Reported)	mg/kg	0.1	7			<0.1	<0.1	<0.1	<0.1	<0.1	<1	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1
Asbestos																				
Asbestos (detect or non-detect)	mg/kg	0.1	NAD [3]			NAD	-	-	NAD	-	-	NAD	NAD	NAD	-	NAD	-	-	-	NAD
Asbestos (trace)	fibres	5	NFD			NFD	-	-	NFD	-	-	NFD	NFD	NFD	-	NFD	-	-	-	NFD
Sample weight (dry)	g	0.01				121	-	-	96.2	-	-	153	112	30.8	-	46.9	-	-	-	54
Volatile Organic Compounds																				
1,4-Dichlorobenzene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	-	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	<0.5
4-Chlorotoluene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	-	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	<0.5
1,2,3-Trichlorobenzene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	-	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	<0.5
1,2,4-Trichlorobenzene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	-	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	<0.5
1,2-Dichlorobenzene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	-	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	<0.5
1,3-Dichlorobenzene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	-	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	<0.5
2-Chlorotoluene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	-	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	<0.5
Bromobenzene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	-	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	<0.5
Chlorobenzene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	-	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	<0.5
1,2,4-trimethylbenzene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	-	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	<0.5
1,3,5-Trimethylbenzene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	-	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	<0.5
Isopropylbenzene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	-	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	<0.5
n-Butylbenzene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	-	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	<0.5
n-Propylbenzene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	-	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	<0.5
p-Isopropyltoluene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	-	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	<0.5
sec-Butylbenzene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	-	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	<0.5
Styrene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	-	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	<0.5

Field_ID	VW_MN01_0.9-1.1	BH_VW_MN01_2.0-2.1	BH_VW_MN01_3.0-3.1	VW_MN02_0.75-0.95	VW_MN02_1.0-1.1	VW_MN02_2.0-2.1	VW_MN02_3.0-3.1	VW_MN02_4.0-4.1	BH_VMN03_0.4-0.5	BH_VMN03_0.9-1.0	QA507a	QA507B	BH_VMN03_1 .1-1 .2	BH_VMN03_2.0-2.2
Location_Code	VW_MN01	BH_VW_MN01	BH_VW_MN01	VW_MN02	VW_MN02	VW_MN02	VW_MN02	VW_MN02	BH_VMN03	BH_VMN03	BH_VMN03	BH_VMN03	BH_VMN03	BH_VMN03
Sample_Depth_Range	0.9-1.1	2-2.1	3-3.1	0.75-0.95	1-1.1	2-2.1	3-3.1	4-4.1	0.4-0.5	0.9-1	0.9-1	0.9-1	1.1-1.2	2-2.2
Sampled_Date_Time	1/06/2019	23/06/2019	23/06/2019	2/06/2019	2/06/2019	2/06/2019	2/06/2019	2/06/2019	23/06/2019	23/06/2019	23/06/2019	23/06/2019	23/06/2019	23/06/2019
ChemName														
Moisture content														
Moisture Content (dried @ 40°C)	18.8	20.5	24.1	16	12	14.7	13.7	15.2	21.5	18.5	20	23	25.3	19
Total Recoverable Hydrocarbons (TRHS)														
TRH C6 - C10 Fraction F1	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<25	<10	<10
TRH C6 - C10 Fraction Less BTEX F1	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<25	<10	<10
TRH >C10 - C16 Fraction F2	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<25	<50	<50
TRH >C10 - C16 Fraction Less Naphthalene (F2)	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<25	<50	<50
TRH >C16 - C34 Fraction F3	<100	<100	<100	<100	<100	<100	<100	<100	280	<100	<100	<90	<100	<100
TRH >C34 - C40 Fraction F4	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<120	<100	<100
TRH+C10 - C40 (Sum of total) (Lab Reported)	<50	<50	<50	<50	<50	<50	<50	<50	280	<50	<50	<210	<50	<50
BTEXN Compounds														
Benzene	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2
Toluene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5
Ethylbenzene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5
Xylenes (m & p)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<0.5	<0.5
Xylene (o)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5
Xylenes (Sum of total) (Lab Reported)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.3	<0.5	<0.5
Total BTEX	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.6	<0.2	<0.2
Naphthalene	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.1	<0.5	<1
Heavy Metals														
Arsenic	<5	<5	22	<5	<5	<5	<5	8	19	8	7	6	8	<5
Cadmium	<1	<1	<1	<1	<1	<1	<1	<1	1	<1	<1	<0.3	<1	<1
Chromium	13	9	47	7	6	6	5	6	66	45	28	33	24	22
Copper	<5	<5	18	11	11	19	19	26	154	66	28	39	<5	<5
Lead	11	8	30	12	21	16	17	17	147	80	64	92	105	15
Mercury	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.22	<0.1	<0.1
Nickel	<2	2	3	3	3	<2	<2	<2	69	13	10	7.2	<2	3
Zinc	<5	6	<5	26	27	<5	<5	<5	948	229	263	220	180	<5
PAHs														
Acenaphthene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5
Acenaphthylene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5
Anthracene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5
Benz(a)anthracene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	<0.5	0.3	<0.5	<0.5
Benzo(a)pyrene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.7	<0.5	<0.5	0.3	<0.5	<0.5
Benzo(a)pyrene TEQ (lower bound)*	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.8	<0.5	<0.5	0.4	<0.5	<0.5
Benzo(a)pyrene TEQ (medium bound)*	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	1.2	0.6	0.6	-	0.6	0.6
Benzo(a)pyrene TEQ (upper bound)*	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.4	1.2	1.2	0.5	1.2	1.2
Benzo(b)&(j)fluoranthene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.8	<0.5	<0.5	0.3	<0.5	<0.5
Benzo(g,h,i)perylene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	<0.5	0.2	<0.5	<0.5
Benzo(k)fluoranthene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.2	<0.5	<0.5
Chrysene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	<0.5	0.2	<0.5	<0.5
Dibenz(a,h)anthracene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5
Benzo(a)pyrene TEQ (Calculated)	-	-	-	-	-	-	-	-	-	-	-	0.4	-	-
Fluoranthene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.6	<0.5	0.5	0.6	<0.5	<0.5
Fluorene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5
Indeno(1,2,3-c,d)pyrene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.2	<0.5	<0.5
Naphthalene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5
Phenanthrene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.8	<0.5	<0.5	0.2	<0.5	<0.5
Pyrene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.5	<0.5	<0.5	0.6	<0.5	<0.5
PAH (Sum of Common 16 PAHs - Lab Reported)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	7.2	<0.5	0.5	3.2	<0.5	<0.5
Total PAH (NEPM/WHO 16)	-	-	-	-	-	-	-	-	-	-	-	3.2	-	-
1-Methylnaphthalene	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-
2-Methylnaphthalene	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-
Organochlorine Pesticides														
2,4-DDT	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-
a-BHC	<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
Aldrin	<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
Dieldrin	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.14	<0.05	<0.05	<0.2	<0.05	<0.05
Aldrin & Dieldrin (Sum of total) (Lab Reported)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.14	<0.05	<0.05	-	<0.05	<0.05
b-BHC	<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
cis-Chlordane	<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
gamma-Chlordane	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-
trans-Chlordane	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05
Chlordane (Sum of total)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05
d-BHC	<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
DDD	<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
DDE	<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
DDT	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2
DDT+DDE+DDD (Sum of total) (Lab Reported)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05
Endosulfan	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05
Endosulfan I	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05
Endosulfan II	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05
Endosulfan sulphate	<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
Endrin	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05
Endrin aldehyde	<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
Endrin ketone	<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
g-BHC	<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
Heptachlor	<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
Heptachlor epoxide	<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
Hexachlorobenzene	<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
Isodrin	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-
Methoxychlor	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2
Mirex	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-
o,p-DDD	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-
o,p-DDE	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-
trans-Nonachlor	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-
Organophosphorous Pesticides														
Azinphos-methyl	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05
Bromophos-ethyl	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05
Carbophenothion	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05
Chlorfenvinphos	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05
Chlorpyriphos	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05
Chlorpyriphos-methyl	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05
Demeton-s-methyl	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05
Diazinon	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	<0.05	<0.05
Dichlorvos	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	<0.05	<0.05
Dimethoate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	<0.05	<0.05
Ethion	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05
Fenamiphos	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05
Fenitrothion	-	-	-	-	-	-	-	-	-	-	-	<0.2	-	-
Fenthion	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05
Malathion	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05
Methidathion	-	-	-	-	-	-	-	-	-	-	-	<0.5	-	-
Parathion-methyl	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2
Monocrotophos	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2
Parathion	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Pirimphos-ethyl	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05
Prothiofos	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05
Phenols														
Phenolics (Sum of total)	<1	-	-	<1	<1	-	-	-	<1	<1	<1	-	-	-
Polychlorinated Biphenyls														
Aroclor 1016	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aroclor 1232	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aroclor 1242	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aroclor 1248	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aroclor 1254	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aroclor 1260	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aroclor 1268	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aroclor 1221	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aroclor 1262	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PCB (Sum of Total-Lab Reported)	<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
Asbestos														
Asbestos (detect or non-detect)	-	-	-	NAD	-	-	-	-	AD*	NAD	-	-	-	-
Asbestos (trace)	-	-	-	NFD	-	-	-	-	NFD	NFD	-	-	-	-
Sample weight (dry)	-	-	-	113	-	-	-	-	34.2	30.1	-	-	-	-
Volatile Organic Compounds														
1,4-Dichlorobenzene	<0.5	<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-Chlorotoluene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5
1,2,3-Trichlorobenzene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5
1,2,4-Trichlorobenzene	<0.5	<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-Dichlorobenzene	<0.5	<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-Dichlorobenzene	<0.5	<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-Chlorotoluene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5
Bromobenzene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5
Chlorobenzene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5
1,2,4-trimethylbenzene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5
1,3,5-Trimethylbenzene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5
Isopropylbenzene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5
n-Butylbenzene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5
n-Propylbenzene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5
p-Isopropyltoluene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5
sec-Butylbenzene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5
Styrene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5

Field_ID						BH_MN12_1.0-1.1	BH_MN12_2.0-2.1	BH_MN12_2.9-3.0	VW_MN02_0.5-0.6	QA501A	QA501B	BH_MN13_0.25-0.35	BH_MN13_0.4-0.5	QA504A	QA504B	BH_MN13_0.9-1.2	QA508a	QA508B	BH_MN13_3.0-3.2	VW_MN01_0.7-0.8	VW_MN01_0.9-1.1	BH_VW_MN01_2.0-2.1	BH_VW_MN01_3.0-3.1	VW_MN02_0.75-0.95	VW_MN02_1.0-1.1	VW_MN02_2.0-2.1	VW_MN02_3.0-3.1	VW_MN02_4.0-4.1	BH_VMN03_0.4-0.5	BH_VMN03_0.9-1.0	QA507a	QA507B	BH_VMN03_1.1-1.2	BH_VMN03_2.0-2.2
Location_Code						BH_MN12	BH_MN12	BH_MN12	VW_MN02	VW_MN02	QA501B	BH_MN13	BH_MN13	BH_MN13	BH_MN13	BH_MN13	BH_MN13	BH_MN13	BH_MN13	VW_MN01	VW_MN01	BH_VW_MN01	BH_VW_MN01	VW_MN02	VW_MN02	VW_MN02	VW_MN02	VW_MN02	BH_VMN03	BH_VMN03	BH_VMN03	BH_VMN03	BH_VMN03	BH_VMN03
Sample_Depth_Range						1-1.1	2-2.1	2.9-3	0.5-0.6	0.5-0.6	0.5-0.6	0.25-0.35	0.4-0.5	0.4-0.5	0.4-0.5	0.9-1.2	0.9-1.2	0.9-1.2	3-3.2	0.7-0.8	0.9-1.1	2-2.1	3-3.1	0.75-0.95	1-1.1	2-2.1	3-3.1	4-4.1	0.4-0.5	0.9-1	0.9-1	0.9-1	1.1-1.2	2-2.2
Sampled_Date_Time						2/06/2019	2/06/2019	2/06/2019	2/06/2019	2/06/2019	2/06/2019	11/06/2019	11/06/2019	11/06/2019	11/06/2019	23/06/2019	23/06/2019	23/06/2019	23/06/2019	1/06/2019	1/06/2019	23/06/2019	23/06/2019	2/06/2019	2/06/2019	2/06/2019	2/06/2019	2/06/2019	23/06/2019	23/06/2019	23/06/2019	23/06/2019	23/06/2019	23/06/2019
ChemName	Units	EQL	Human Health [A]	Ecological	Management Limits [B]																													
tert-Butylbenzene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<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
Methyl Ethyl Ketone	mg/kg	5				<5	<5	<5	<5	<5	<10	-	<5	<5	-	<5	<5	-	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	<5	<5
2-Hexanone	mg/kg	5				<5	<5	<5	<5	<5	<5	-	<5	<5	-	<5	<5	-	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	<5	<5
Methyl iso-butyl ketone	mg/kg	5				<5	<5	<5	<5	<5	<1	-	<5	<5	-	<5	<5	-	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	<5	<5
Acetone	mg/kg	10				-	-	-	-	-	<10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acrylonitrile	mg/kg	0.1				-	-	-	-	-	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl-t-butyl ether	mg/kg	0.1				-	-	-	-	-	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vinyl acetate	mg/kg	5				<5	<5	<5	<5	<5	<10	-	<5	<5	-	<5	<5	-	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	<5	<5
1,1,1,2-Tetrachloroethane	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<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
1,1,2,2-Tetrachloroethane	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<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
1,1,1-Trichloroethane	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<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
1,1,2-Trichloroethane	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<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
1,2,3-Trichloropropane	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<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
1,2-Dibromo-3-chloropropane	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<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
1,2-Dibromoethane	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<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
1,1-Dichloroethane	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<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
1,2-Dichloroethane	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<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
1,1-Dichloroethene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<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
cis-1,2-Dichloroethene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<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
trans-1,2-dichloroethene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<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
1,2-Dichloropropane	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<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
1,3-Dichloropropane	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<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
2,2-Dichloropropane	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<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
1,1-Dichloropropene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<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
cis-1,3-Dichloropropene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<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
trans-1,3-dichloropropene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<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
2-Nitropropane	mg/kg	10				-	-	-	-	-	<10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
cis-1,4-Dichloro-2-butene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<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
trans-1,4-Dichloro-2-butene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<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
Allyl chloride	mg/kg	0.1				-	-	-	-	-	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bromochloromethane	mg/kg	0.1				-	-	-	-	-	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bromodichloromethane	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<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
Bromoform	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<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
Bromomethane	mg/kg	5				<5	<5	<5	<5	<5	<1	-	<5	<5	-	<5	<5	-	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	<5	<5
Carbon disulfide	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5
Carbon tetrachloride	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<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
Chlorodibromomethane	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<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
Chloroethane	mg/kg	5				<5	<5	<5	<5	<5	<1	-	<5	<5	-	<5	<5	-	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	<5	<5
Chloroform	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<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
Chloromethane	mg/kg	5				<5	<5	<5	<5	<5	<1	-	<5	<5	-	<5	<5	-	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	<5	<5
Dibromomethane	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<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
Dichlorodifluoromethane	mg/kg	5				<5	<5	<5	<5	<5	<1	-	<5	<5	-	<5	<5	-	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	<5	<5
Dichloromethane	mg/kg	0.5				-	-	-	-	-	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hexachlorobutadiene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<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
Iodomethane	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<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
Pentachloroethane	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	-	-	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5
Trichloroethene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<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
Tetrachloroethene	mg/kg	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<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
Trichlorofluoromethane	mg/kg	5				<5	<5	<5	<5	<5	<1	-	<5	<5	-	<5	<5	-	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	<5	<5
Vinyl chloride	mg/kg	5				<5	<5	<5	<5	<5	<0.1	-	<5	<5	-	<5	<5	-	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	<5	<5
Perfluorinated Compounds																																		
10:2 Fluorotelomer sulfonic acid	mg/kg	0.0005				<0.0005	<0.0005	-	<0.0005	<0.0005	-	-	<0.0005	<0.0005	-	<0.0005	<0.0005	-	-	<0.0005	<0.0005	-	-	-	-	<0.0005	-	-	<0.0005	<0.0005	<0.0005	-	-	-
4:2 Fluorotelomer sulfonic acid	mg/kg	0.0005				<0.0005	<0.0005	-	<0.0005	<0.0005	-	-	<0.0005	<0.0005	-	<0.0005	<0.0005	-	-	<0.0005	<0.0005	-	-	-	-	<0.0005	-	-	<0.0005	<0.0005	<0.0005	-	-	-
8:2 Fluorotelomer sulfonate	mg/kg	0.0005				<0.0005	<0.0005	-	<0.0005	<0.0005	-	-	<0.0005	<0.0005	-	<0.0005	<0.0005	-	-	<0.0005	<0.0005	-	-	-	-	<0.0005	-	-	<0.0005	<0.0005	<0.0005	-	-	-
N-Et-FOSA	mg/kg	0.0005				<0.0005	<0.0005	-	<0.0005	<0.0005	-	-	<0.0005	<0.0005	-	<0.0005	<0.0005	-	-	<0.0005	<0.0005	-	-	-	-	<0.0005	-	-	<0.0005	<0.0005	<0.0005	-	-	-
N-Et-FOSE	mg/kg	0.0005				<0.0005	<0.0005	-	<0.0005	<0.0005	-	-	<0.0005	<0.0005	-	<0.0005	<0.0005	-	-	<0.0005	<0.0005	-	-	-	-	<0.0005	-	-	<0.0005	<0.0005	<0.0005	-	-	-
N-Me-FOSA	mg/kg	0.0005				<0.0005	<0.0005	-	<0.0005	<0.0005	-	-	<0.0005	<0.0005	-	<0.0005	<0.0005	-	-	<0.0005	<0.0005	-	-	-	-	<0.0005	-	-	<0.0005	<0.0005	<0.0005	-	-	-
N-Me-FOSE	mg/kg	0.0005				<0.0005	<0.0005	-	<0.0005	<0.0005	-	-	<0.0005	<0.0005	-	<0.0005	<0.0005	-	-	<0.0005	<0.0005	-	-	-	-	<0.0005	-	-	<0.0005	<0.0005	<0.0005	-	-	-
Perfluorobutanoic acid (PFBA)	mg/kg	0.001				<0.001	<0.001	-	<0.001	<0.001	-	-	<0.001	<0.001	-	<0.001	<0.001	-	-	<0.001	<0.001	-	-	-	-	<0.001	-	-	<0.001	<0.001	<0.001	-	-	-
Perfluoroheptane sulfonic acid	mg/kg	0.0002				<0.0002	<0.0002	-	<0.0002	<0.0002	-	-	<0.0002	<0.0002	-	<0.0002	<0.0002	-	-	<0.0002	<0.0002	-	-	-	-	<0.0002	-	-	<0.0002	<0.0002	<0.0002	-	-	-
Perfluoro-n-pentanoic acid (PFPeA)	mg/kg	0.0002				<0.0002	<0.0002	-	<0.0002	<0.0002	-	-	<0.0002	<0.0002	-	<0.0002	<0.0002	-	-	<0.0002	<0.0002	-	-	-	-	<0.0002	-	-	<0.0002	<0.0002	<0.0002	-	-	-
Perfluoropentane sulfonic acid	mg/kg	0.0002				<0.0002	<0.0002	-	<0.0002	<0.0002	-	-	<0.0002	<0.0002	-	<0.0002	<0.0002	-	-	<0.0002	<0.0002	-	-	-	-	<0.0002	-	-	<0.0002	<0.0002	<0.0002	-	-	-
PFDcS	mg/kg	0.0002				<0.0002	<0.0002	-	<0.0002	<0.0002	-	-	<0.0002	<0.0002	-	<0.0002	<0.0002	-	-	<0.0002	<0.0002	-	-	-	-	<0.0002	-	-	<0.0002	<0.0002	<0.0002	-	-	-
N-methyl-perfluorooctanesulfonamidoacetic acid	mg/kg	0.0002				<0.0002	<0.0002	-	<0.0002	<0.0002	-	-	<0.0002	<0.0002	-	<0.0002	<0.0002	-	-	<0.0002	<0.0002	-	-	-	-	<0.0002	-	-	<0.0002	<0.0002	<0.0002	-	-	-
Sum of PFHxS and PFOS (lab reported)	mg/kg	0.0002	20 [4]			<0.0002	<0.0002	-	**0.0003**	**<0.0002**	-	-	<0.0002	<0.0002	-	<0.0002	<0.0002	-	-	<0.0002	<0.0002	-	-	-	-	<0.0002	-	-	<0.0002	<0.0002	<0.0002	-	-	-
Sum of WA DER PFAS (n=10)	mg/kg	0.0002				<0.0002	<0.0002	-	**0.0003**	**<0.0002**	-	-	<0.0002	<0.0002	-	<0.0002	<0.0002	-	-	<0.0002	<0.0002	-	-	-	-	<0.0002	-	-	<0.0002	<0.0002	<0.0002	-	-	-
Sum of PFASs (n=28)	mg/kg	0.0002				<0.0002	<0.0002	-	**0.0003**	**<0.0002**	-	-	<0.0002	<0.0002	-	<0.0002	<0.0002	-	-	<0.0002	<0.0002	-	-	-	-	<0.0002	-	-	<0.0002	<0.0002	<0.0002	-	-	-
Perfluorobutanesulfonic acid (PFBS)	mg/kg	0.0002				<0.0002	<0.0002	-	<0.0002	<0.0002	-	-	<0.0002	<0.0002	-	<0.0002	<0.0002	-	-	<0.0002	<0.0002	-	-	-	-	<0.0002	-	-	<0.0002	<0.0002	<0.0002	-	-	-
Perfluorodecanoic acid (PFDA)	mg/kg	0.0002				<0.0002	<0.0002	-	<0.0002	<0.0002	-	-	<0.0002	<0.0002	-	<0.0002	<0.0002	-	-	<0.0002	<0.0002	-	-	-	-	<0.0002	-	-	<0.0002	<0.0002	<0.0002	-	-	-
Perfluorododecanoic acid (PFDoA)	mg/kg	0.0002				<0.0002	<0.0002	-	<0.0002	<0.0002	-	-	<0.0002	<0.0002	-	<0.0002	<0.0002	-	-	<0.0002	<0.0002	-	-	-	-	<0.0002	-	-	<0.0002	<0.0002	<0.0002	-	-	-
Perfluoroheptanoic acid (PFHpA)	mg/kg	0.0002				<0.0002	<0.0002	-	<0.0002	<0.0002	-	-	<0.0002	<0.0002	-	<0.0002	<0.0002	-	-	<0.0002	<0.0002	-	-	-	-	<0.0002	-	-	<0.0002	<0.0002	<0.0002	-	-	-
Perfluorooctanesulfonic acid (PFOS)	mg/kg	0.0002		0.14 [5]		<0.0002	<0.0002	-	**0.0003**	**<0.0002**	-	-	<0.0002	<0.0002	-	<0.0002	<0.0002	-	-	<0.0002	<0.0002	-	-	-	-	<0.0002	-	-	<0.0002	<0.0002	<0.0002	-	-	-
Perfluorooctanoate (PFOA)	mg/kg	0.0002	50 [4]			<0.0002	<0.0002	-	<0.0002	<0.0002	-	-	<0.0002	<0.0002	-	<0.0002	<0.0002	-	-	<0.0002	<0.0002	-	-	-	-	<0.0002	-	-	<0.0002	<0.0002	<0.0002	-	-	-
Perfluorohexanesulfonic acid (PFHxS)	mg/kg	0.0002				<0.0002	<0.0002	-	<0.0002	<0.0002	-	-	<0.0002	<0.0002	-	<0.0002	<0.0002	-	-	<0.0002	<0.0002	-	-	-	-	<0.0002	-	-	<0.0002	<0.0002	<0.0002	-	-	-
Perfluorononanoic acid (PFNA)	mg/kg	0.0002				<0.0002	<0.0002	-	<0.0002	<0.0002	-	-	<0.0002	<0.0002	-	<0.0002	<0.0002	-	-	<0.0002	<0.0002	-	-	-	-	<0.0002	-	-	<0.0002	<0.0002	<0.0002	-	-	-
Perfluorohexanoic acid (PFHxA)	mg/kg	0.0002				<0.0002	<0.0002	-	<0.0002	<0.0002	-	-	<0.0002	<0.0002	-	<0.0002	<0.0002	-	-	<0.0002	<0.0002	-	-	-	-	<0.0002	-	-	<0.0002	<0.0002	<0.0002	-	-	-
6:2 Fluorotelomer Sulfonate (6:2 FtS)	mg/kg	0.0005				<0.0005	<0.0005	-	<0.0005	<0.0005	-	-	<0.0005	<0.0005	-	<0.0005	<0.0005	-	-	<0.0005	<0.0005	-	-	-	-	<0.0005	-	-	<0.0005	<0.0005	<0.0005	-	-	-
N-ethyl-perfluorooctanesulfonamidoacetic acid	mg/kg	0.0002				<0.0002	<0.0002	-	<0.0002	<0.0002	-	-	<0.0002	<0.0002	-	<0.0002	<0.0002	-	-	<0.0002	<0.0002	-	-	-	-	<0.0002	-	-	<0.0002	<0.0002	<0.0002	-	-	-
Perfluorooctanesulfonamide (PFOSA)	mg/kg	0.0002				<0.0002	<0.0002	-	<0.0002	<0.0002	-	-	<0.0002	<0.0002	-	<0.0002	<0.0002	-	-	<0.0002	<0.0002	-	-	-	-	<0.0002	-	-	<0.0002	<0.0002	<0.0002	-	-	-
Perfluorotetradecanoic acid (PFTeDA)	mg/kg	0.0005				<0.0005	<0.0005	-	<0.0005	<0.0005	-	-	<0.0005	<0.0005	-	<0.0005	<0.0005	-	-	<0.0005	<0.0005	-	-	-	-	<0.0005	-	-	<0.0005	<0.0005	<0.0005	-	-	-
Perfluorotridecanoic acid (PFTrDA)	mg/kg	0.0002				<0.0002	<0.0002	-	<0.0002	<0.0002	-	-	<0.0002	<0.0002	-	<0.0002	<0.0002	-	-	<0.0002	<0.0002	-	-	-	-	<0.0002	-	-	<0.0002	<0.0002	<0.0002	-	-	-
Perfluoroundecanoic acid (PFUnA)	mg/kg	0.0002				<0.0002	<0.0002	-	<0.0002	<0.0002	-	-	<0.0002	<0.0002	-	<0.0002	<0.0002	-	-	<0.0002	<0.0002	-	-	-	-	<0.0002	-	-	<0.0002	<0.0002	<0.0002	-	-	-

Notes

All results in mg/kg unless otherwise stated
- ' Not Analysed
AD - Asbestos Detected
NAD - No Asbestos Detected
NFD - No Fibres Detected, lower than reported detection limit however not per NEPM 2013 analysis requirements
* : Chrysotile & crocidolite detected

Data Comments

A - Health Investigation Level, Commercial/industrial, Table 1A(1) NEPC 2013 unless otherwise stated
B - Management Limits for TPH Fractions F1-F4 in Soil, Table 1B(7) NEPC 2013, Commercial/industrial, coarse soil type
1 - Table 1A(3) NEPC 2013, 0-1m, sand soil type
2 - CRC Care Technical Report #10, Table 4, Direct Contact Criterion, Commercial/industrial
3 - No asbestos fibres detected by AS4964
4 - Table 2 - NEMP 2018, Human Health Screening Values Industrial/commercial
5 - Table 3 - NEMP 2018, Interim Soil - Ecological Indirect Exposure
6 - Table 1B(6) ESLs, Coarse Soil Type, NEPC 2013,Commercial/industrial
7 - Table 1B(6) ESLs, Fine Soil Type, NEPC 2013, Commercial/industrial
8 - Table 1B(5) Generic EIL for fresh naphthalene in soils, NEPC 2013, Commercial/industrial
9 - Table 1B(5) Generic EIL for fresh DDT in soils, NEPC 2013, Commercial/industrial
10 - Table 1B(5) Generic EIL for aged As in soils, NEPC 2013, Commercial/industrial
11 - Table 1B(1) to 1B(3) lowest ACL for CrIII, Cu, Ni & Zn adopted as EILs, NEPC 2013, Commercial/industrial
12 - Table 1B(4) Generic ACL adopted as EIL for Pb in soil, NEPC 2013, Commercial/industrial

Field_ID									BH_MN03	BH_MN03	BH_MN03	BH_MN03	BH_MN04		QA500A		QA500B	BH_MN04		BH_MN04	BH_MN04	BH_MN04	BH_MN06	BH_MN06		BH_MN06	QA506a	QA506B	BH_MN06	BH_MN09	BH_MN09	BH_MN09	BH_MN11
Location_Code									BH_MN03	BH_MN03	BH_MN03	BH_MN03	BH_MN04	TCLP (mg/L)	BH_MN04	TCLP (mg/L)	BH_MN04	BH_MN04	TCLP (mg/L)	BH_MN04	BH_MN04	BH_MN04	BH_MN06	BH_MN06	TCLP (mg/L)	BH_MN06	BH_MN06	QA506B	BH_MN06	BH_MN09	BH_MN09	BH_MN09	BH_MN11
Sample_Depth_Range									0.25	0.75-0.85	1.3-1.4	2.9-3	0.4-0.6	0.4-0.6	0.4-0.6	0.4-0.6	0.4-0.6	0.75-0.85	0.75-0.85	0.95-1.05	2-2.2	2.8-3	0.25-0.35	0.5-0.6	0.5-0.6	0.9-1	0.9-1	0.9-1	2-2.1	0.8-0.9	2	3	0.25-0.35
Sampled_Date									6/02/2019	6/02/2019	6/02/2019	6/02/2019	6/01/2019	6/01/2019	6/01/2019	6/01/2019	6/01/2019	6/01/2019	6/01/2019	6/01/2019	6/01/2019	6/01/2019	6/11/2019	6/11/2019	6/11/2019	22/06/2019	22/06/2019	22/06/2019	22/06/2019	6/01/2019	6/01/2019	6/01/2019	6/11/2019
ANALYTE	**Unit**	**EQL**	CT1 General Solid Waste	CT2 Restricted Solid Waste	SCC1^^ General Solid Waste	TCLP1 General Solid Waste mg/L	SCC2^^ Restricted Solid Waste	TCLP2 Restricted Solid Waste mg/L																									
BTEX Compounds																																	
Benzene	mg/kg	0.2	10	40					<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	-	<0.1	<0.2	-	<0.2	<0.2	<0.2	-	<0.2	-	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	0.5	288	1152					<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.1	<0.5	-	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	0.5	600	2400					<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.1	<0.5	-	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5
Xylenes (m & p)	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.2	<0.5	-	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene (o)	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.1	<0.5	-	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5
Xylenes (Sum of total) (Lab Reported)	mg/kg	0.5	1000	4000					<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.3	<0.5	-	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.3	<0.5	<0.5	<0.5	<0.5	<0.5
Total BTEX	mg/kg	0.2							<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	-	<0.6	<0.2	-	<0.2	<0.2	<0.2	-	<0.2	-	<0.2	<0.2	<0.6	<0.2	<0.2	<0.2	<0.2	<0.2
Total Petroleum Hydrocarbons (TPHs)														-											-								
TRH C6-C9	mg/kg	10	650	2600					<10	<10	<10	<10	<10	-	<10	-	<20	<10	-	<10	<10	<10	-	<10	-	<10	<10	<20	<10	<10	<10	<10	<10
TRH C10-C14	mg/kg	50							<50	<50	<50	<50	<50	-	<50	-	<20	<50	-	<50	<50	<50	-	<50	-	<50	<50	<20	<50	<50	<50	<50	<50
TRH C15-C28	mg/kg	100	10,000	40,000					1470	<100	<100	<100	130	-	<100	-	<45	<100	-	<100	<100	<100	-	140	-	<100	<100	<45	<100	<100	<100	<100	<100
TRH C29-C36	mg/kg	100							1550	<100	<100	<100	110	-	<100	-	<45	<100	-	<100	<100	<100	-	110	-	<100	<100	<45	<100	<100	<100	<100	<100
Heavy Metals														-											-								
Arsenic	mg/kg	5	100	400	500	5	2000	20	6	5	<5	<5	<5	-	11	-	8	10	-	<5	<5	8	-	8	-	5	<5	5	<5	<5	<5	<5	7
Cadmium	mg/kg	1	20	80	100	1	oh	4	<1	<1	<1	<1	<1	-	1	-	0.4	<1	-	<1	<1	<1	-	1	-	<1	<1	<0.3	<1	<1	<1	<1	<1
Chromium ##	mg/kg	2	100	400	1900	5	7600	20	10	29	10	<2	20	-	28	-	24	30	-	15	16	27	-	16	-	26	18	10	9	4	6	3	26
Copper	mg/kg	5							9	8	7	5	55	-	111	-	64	395	-	19	<5	8	-	66	-	7	<5	2.9	6	14	22	23	26
Lead	mg/kg	5	100	400	1500	5	6000	20	<5	21	17	8	132	-	188	<0.1	69	159	<0.1	52	9	14	-	1300	3.5	31	18	8	9	15	32	19	92
Nickel	mg/kg	2	40	160	1050	2	4200	8	4	4	<2	<2	12	-	41	<0.1	17	20	-	4	2	5	-	10	-	16	4	1.2	4	<2	<2	<2	30
Zinc	mg/kg	5							35	14	<5	<5	374	-	558	-	220	282	-	60	<5	6	-	1020	-	12	13	7.4	5	<5	<5	<5	130
Mercury	mg/kg	0.1	4	16	50	0.2	200	0.8	<0.1	<0.1	<0.1	<0.1	1.1	-	1.1	-	0.37	0.2	-	0.2	<0.1	<0.1	-	0.4	-	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	0.1
Polycyclic Aromatic Hydrocarbons (PAHs)														-																			
Naphthalene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.1	<0.5	-	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5
2-methylnaphthalene	mg/kg	0.1							-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-
1-methylnaphthalene	mg/kg	0.1							-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-
Acenaphthylene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.1	<0.5	-	<0.5	<0.5	<0.5	-	0.9	-	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.1	<0.5	-	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.1	<0.5	-	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	2.4	-	0.7	-	0.3	<0.5	-	0.9	<0.5	<0.5	-	3.9	-	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	0.7
Anthracene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	0.6	-	<0.5	-	<0.1	<0.5	-	<0.5	<0.5	<0.5	-	0.9	-	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	5	-	2	-	0.6	<0.5	-	1.7	<0.5	<0.5	-	8.4	-	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	1.3
Pyrene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	4.8	-	2.2	-	0.6	<0.5	-	1.6	<0.5	<0.5	-	8	-	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	1.2
Benzo(a)anthracene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	2.7	-	1	-	0.4	<0.5	-	0.8	<0.5	<0.5	-	4.4	-	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	0.6
Chrysene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	2.5	-	1	-	0.5	<0.5	-	0.8	<0.5	<0.5	-	4	-	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	0.6
Benzo(b&j)fluoranthene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	3.3	-	1.1	-	0.6	1.2	-	1.1	<0.5	<0.5	-	5.3	-	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	0.7
Benzo(k)fluoranthene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	1.2	-	<0.5	-	0.3	<0.5	-	<0.5	<0.5	<0.5	-	1.9	-	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	mg/kg	0.5	0.8	3.2	10	0.04	23	0.16	<0.5	<0.5	<0.5	<0.5	2.9	<0.0005	1.2	-	0.6	1.1	<0.0005	0.8	<0.5	<0.5	-	4.8	<0.0005	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	0.6
Indeno(1,2,3-cd)pyrene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	1.6	-	<0.5	-	0.3	1.8	-	<0.5	<0.5	<0.5	-	2.5	-	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenzo(ah)anthracene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.1	<0.5	-	<0.5	<0.5	<0.5	-	0.6	-	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(ghi)perylene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	2.1	-	0.6	-	0.3	3.4	-	0.6	<0.5	<0.5	-	3.1	-	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.5							<0.5	<0.5	<0.5	<0.5	3.8	-	1.4	-	0.7	1.4	-	1	<0.5	<0.5	-	6.9	-	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<0.5	0.7
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.5							0.6	0.6	0.6	0.6	4.1	-	1.7	-	-	1.7	-	1.3	0.6	0.6	-	6.9	-	0.6	0.6	-	0.6	0.6	0.6	0.6	1
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.5							1.2	1.2	1.2	1.2	4.3	-	2	-	0.8	2	-	1.6	1.2	1.2	-	6.9	-	1.2	1.2	<0.3	1.2	1.2	1.2	1.2	1.3
Total PAH (18)	mg/kg	0.5	200	800					<0.5	<0.5	<0.5	<0.5	29.1	-	9.8	-	4.5	7.5	-	8.3	<0.5	<0.5	-	48.7	-	<0.5	<0.5	<0.8	<0.5	<0.5	<0.5	<0.5	5.7
Organochlorine Pesticides (OCPs) **																																	
2,4-DDT	mg/kg	0.1	<50	<50					-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-
a-BHC	mg/kg	0.05	<50	<50					<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	-	<0.1	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	mg/kg	0.05	<50	<50					<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	-	<0.1	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	mg/kg	0.05	<50	<50					<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	-	<0.2	<0.05	-	<0.05	<0.05	<0.05	-	1.7	-	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	0.16
Aldrin & Dieldrin (Sum of total) (Lab Reported)	mg/kg	0.05	<50	<50					<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	-	-	<0.05	-	<0.05	<0.05	<0.05	-	1.7	-	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	0.16
b-BHC	mg/kg	0.05	<50	<50					<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	-	<0.1	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05
cis-Chlordane	mg/kg	0.05	<50	<50					<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	-	<0.1	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05
gamma-Chlordane	mg/kg	0.1	<50	<50					-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-
trans-Chlordane	mg/kg	0.05	<50	<50					<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	-	-	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05
Chlordane (Sum of total)	mg/kg	0.05	<50	<50					<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	-	-	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05
d-BHC	mg/kg	0.05	<50	<50					<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	-	<0.1	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05
DDD	mg/kg	0.05	<50	<50					<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	-	<0.1	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05
DDE	mg/kg	0.05	<50	<50					<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	-	<0.1	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05
DDT	mg/kg	0.2	<50	<50					<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	-	<0.1	<0.2	-	<0.2	<0.2	<0.2	-	<0.2	-	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2
DDT+DDE+DDD (Sum of total) (Lab Reported)	mg/kg	0.05	<50	<50					<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	-	-	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan	mg/kg	0.05							<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	-	-	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan I	mg/kg	0.05	60	240					<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	-	<0.2	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan II	mg/kg	0.05							<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	-	<0.2	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulphate	mg/kg	0.05							<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	-	<0.1	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	mg/kg	0.05	<50	<50					<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	-	<0.2	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	mg/kg	0.05	<50	<50					<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	-	<0.1	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin ketone	mg/kg	0.05							<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	-	<0.1	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05
g-BHC	mg/kg	0.05	<50	<50					<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	-	<0.1	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	mg/kg	0.05	<50	<50					<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	-	<0.1	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	mg/kg	0.05	<50	<50					<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	-	<0.1	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05
Hexachlorobenzene	mg/kg	0.05	<50	<50					<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	-	<0.1	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05
Isodrin	mg/kg	0.1							-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-
Methoxychlor	mg/kg	0.2							<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	-	<0.1	<0.2	-	<0.2	<0.2	<0.2	-	<0.2	-	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2
Mirex	mg/kg	0.1							-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-
o,p-DDD	mg/kg	0.1							-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-
o,p-DDE	mg/kg	0.1							-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-
trans-Nonachlor	mg/kg	0.1							-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-
Organophosphate Pesticides (OPPs) +																																	
Azinphos-methyl	mg/kg	0.05							<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	-	<0.2	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05
Bromophos-ethyl	mg/kg	0.05							<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	-	<0.2	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05
Carbophenothion	mg/kg	0.05							<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	-	-	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorfenvinphos	mg/kg	0.05							<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	-	-	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyriphos	mg/kg	0.05	4	16					<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	-	<0.2	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyriphos-methyl	mg/kg	0.05							<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	-	-	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05
Demeton-s-methyl	mg/kg	0.05							<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	-	-	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05
Diazinon	mg/kg	0.05							<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	-	<0.5	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.05	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05
Dichlorvos	mg/kg	0.05	250	1000					<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	-	<0.5	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.05	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05
Dimethoate	mg/kg	0.05	250	1000					<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	-	<0.5	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.05	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05
Ethion	mg/kg	0.05	250	1000					<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	-	<0.2	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05
Fenamiphos	mg/kg	0.05							<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	-	-	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05
Fenitrothion	mg/kg	0.2	250	1000					-	-	-	-	-	-	-	-	<0.2	-	-	-	-	-	-	-	-	-	-	<0.2	-	-	-	-	-
Fenthion	mg/kg	0.05	250	1000					<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	-	-	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05
Malathion	mg/kg	0.05	250	1000					<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	-	<0.2	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05
Methidathion	mg/kg	0.5	250	1000					-	-	-	-	-	-	-	-	<0.5	-	-	-	-	-	-	-	-	-	-	<0.5	-	-	-	-	-
Parathion-methyl	mg/kg	0.2	250	1000					<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	-	-	<0.2	-	<0.2	<0.2	<0.2	-	<0.2	-	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2
Monocrotophos	mg/kg	0.2							<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	-	-	<0.2	-	<0.2	<0.2	<0.2	-	<0.2	-	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2
Parathion	mg/kg	0.2							<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	-	<0.2	<0.2	-	<0.2	<0.2	<0.2	-	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Pirimphos-ethyl	mg/kg	0.05							<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	-	-	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05
Prothiofos	mg/kg	0.05							<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	-	-	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05
Volatile Organic Compounds																																	
1,4-Dichlorobenzene	mg/kg	0.5	150	600					<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<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
4-Chlorotoluene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<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
1,2,3-Trichlorobenzene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<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
1,2,4-Trichlorobenzene **	mg/kg	0.5	<50	<50					<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<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
1,2-Dichlorobenzene	mg/kg	0.5	86	344					<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<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
1,3-Dichlorobenzene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<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
2-Chlorotoluene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<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
Bromobenzene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<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
Chlorobenzene	mg/kg	0.5	2000	8000					<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<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
1,2,4-trimethylbenzene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<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
1,3,5-Trimethylbenzene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<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
Isopropylbenzene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<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
n-Butylbenzene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<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
n-Propylbenzene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<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
p-Isopropyltoluene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<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
sec-Butylbenzene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<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
Styrene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<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
tert-Butylbenzene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<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
Methyl Ethyl Ketone	mg/kg	5	4000	16,000					<5	<5	<5	<5	<5	-	<5	-	<10	<5	-	<5	<5	<5	-	<5	-	<5	<5	-	<5	<5	<5	<5	<5
2-Hexanone	mg/kg	5							<5	<5	<5	<5	<5	-	<5	-	<5	<5	-	<5	<5	<5	-	<5	-	<5	<5	-	<5	<5	<5	<5	<5
Methyl iso-butyl ketone	mg/kg	5							<5	<5	<5	<5	<5	-	<5	-	<1	<5	-	<5	<5	<5	-	<5	-	<5	<5	-	<5	<5	<5	<5	<5
Acetone	mg/kg	10							-	-	-	-	-	-	-	-	<10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acrylonitrile	mg/kg	0.1							-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl-t-butyl ether	mg/kg	0.1							-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Produced: KR/BU 24/07/2019
Checkeed: BH 26/07/2019

								Field_ID	BH_MN03	BH_MN03	BH_MN03	BH_MN03	BH_MN04		QA500A		QA500B	BH_MN04		BH_MN04	BH_MN04	BH_MN04	BH_MN04	BH_MN06	BH_MN06		BH_MN06	QA506a	QA506B	BH_MN06	BH_MN09	BH_MN09	BH_MN09	BH_MN11	
								Location_Code	BH_MN03	BH_MN03	BH_MN03	BH_MN03	BH_MN04	TCLP (mg/L)	BH_MN04	TCLP (mg/L)	BH_MN04	BH_MN04	TCLP (mg/L)	BH_MN04	BH_MN04	BH_MN04	BH_MN04	BH_MN06	BH_MN06	TCLP (mg/L)	BH_MN06	BH_MN06	QA506B	BH_MN06	BH_MN09	BH_MN09	BH_MN09	BH_MN11	
								Sample_Depth_Range	0.25	0.75-0.85	1.3-1.4	2.9-3	0.4-0.6	0.4-0.6	0.4-0.6	0.4-0.6	0.4-0.6	0.75-0.85	0.75-0.85	0.95-1.05	2-2.2	2.8-3	0.25-0.35	0.5-0.6	0.5-0.6		0.9-1	0.9-1	0.9-1	2-2.1	0.8-0.9	2	3	0.25-0.35	
								Sampled_Date	6/02/2019	6/02/2019	6/02/2019	6/02/2019	6/01/2019	6/01/2019	6/01/2019	6/01/2019	6/01/2019	6/01/2019	6/01/2019	6/01/2019	6/01/2019	6/01/2019	6/11/2019	6/11/2019	6/11/2019		22/06/2019	22/06/2019	22/06/2019	22/06/2019	6/01/2019	6/01/2019	6/01/2019	6/11/2019	
ANALYTE	Unit	EQL	CT1 General Solid Waste	CT2 Restricted Solid Waste	SCC1^^ General Solid Waste	TCLP1 General Solid Waste mg/L	SCC2^^ Restricted Solid Waste	TCLP2 Restricted Solid Waste mg/L																												
Vinyl acetate	mg/kg	5							<5	<5	<5	<5	<5	-	<5	-	<10	<5	-	<5	<5	<5	-	<5	-	<5	<5	-	<5	<5	<5	**<5**	**<5**	
1,1,1,2-Tetrachloroethane	mg/kg	0.5	200	800					<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<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**	
1,1,2,2-Tetrachloroethane	mg/kg	0.5	26	104					<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<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**	
1,1,1-Trichloroethane	mg/kg	0.5	600	2400					<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<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**	
1,1,2-Trichloroethane	mg/kg	0.5	24	96					<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<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**	
1,2,3-Trichloropropane	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<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**	
1,2-Dibromo-3-chloropropane	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<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**	
1,2-Dibromoethane	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<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**	
1,1-Dichloroethane	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<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**	
1,2-Dichloroethane	mg/kg	0.5	10	40					<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<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**	
1,1-Dichloroethene	mg/kg	0.5	14	56					<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<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**	
cis-1,2-Dichloroethene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<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**	
trans-1,2-dichloroethene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<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**	
1,2-Dichloropropane	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<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**	
1,3-Dichloropropane	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<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**	
2,2-Dichloropropane	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<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**	
1,1-Dichloropropene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<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**	
cis-1,3-Dichloropropene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<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**	
trans-1,3-dichloropropene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<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**	
2-Nitropropane	mg/kg	10							-	-	-	-	-	-	-	-	<10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
cis-1,4-Dichloro-2-butene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<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**	
trans-1,4-Dichloro-2-butene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<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**	
Allyl chloride	mg/kg	0.1							-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Bromochloromethane	mg/kg	0.1							-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Bromodichloromethane	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<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**	
Bromoform	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<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**	
Bromomethane	mg/kg	5							<5	<5	<5	<5	<5	-	<5	-	<1	<5	-	<5	<5	<5	-	<5	-	<5	<5	-	<5	<5	<5	**<5**	**<5**	
Carbon disulfide	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	-	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	-	<0.5	<0.5	<0.5	**<0.5**	**<0.5**	
Carbon tetrachloride	mg/kg	0.5	10	40					<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<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**	
Chlorodibromomethane	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<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**	
Chloroethane	mg/kg	5							<5	<5	<5	<5	<5	-	<5	-	<1	<5	-	<5	<5	<5	-	<5	-	<5	<5	-	<5	<5	<5	**<5**	**<5**	
Chloroform	mg/kg	0.5	120	480					<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<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**	
Chloromethane	mg/kg	5							<5	<5	<5	<5	<5	-	<5	-	<1	<5	-	<5	<5	<5	-	<5	-	<5	<5	-	<5	<5	<5	**<5**	**<5**	
Dibromomethane	mg/kg	0.5	172	688					<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<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**	
Dichlorodifluoromethane	mg/kg	5							<5	<5	<5	<5	<5	-	<5	-	<1	<5	-	<5	<5	<5	-	<5	-	<5	<5	-	<5	<5	<5	**<5**	**<5**	
Dichloromethane	mg/kg	0.5							-	-	-	-	-	-	-	-	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Hexachlorobutadiene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<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**	
Iodomethane	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	-	<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**	
Pentachloroethane	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	-	<0.5	-	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	-	<0.5	<0.5	<0.5	**<0.5**	**<0.5**	
Trichloroethene	mg/kg	0.5	10	40					<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<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**	
Tetrachloroethene	mg/kg	0.5	14	56					<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<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**	
Trichlorofluoromethane	mg/kg	5							<5	<5	<5	<5	<5	-	<5	-	<1	<5	-	<5	<5	<5	-	<5	-	<5	<5	-	<5	<5	<5	**<5**	**<5**	
Vinyl chloride	mg/kg	5	4	16					<5	<5	<5	<5	<5	-	<5	-	<0.1	<5	-	<5	<5	<5	-	<5	-	<5	<5	-	<5	<5	<5	**<5**	**<5**	
Polychlorinated Biphenyls (PCBs)																																			
Total PCBs	mg/kg	0.1	<50	<50					<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	-	**<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**	
Phenols (Total)																																			
Total Phenols	mg/kg	0.1							<1	<1	-	-	<1	-	-	-	-	**<1**	-	**<1**	-	-	-	<1	-	<1	<1	-	-	<1	-	-	**<1**	
Asbestos Identification in Soils																																			
Asbestos Detected	mg/kg	0.1							No	No	-	-	No	-	-	-	-	No	-	-	-	-	No	No	-	No	-	-	-	No	-	-	No	
Sample weight (dry)	g	0.01							80	100	-	-	32.5	-	-	-	-	48.7	-	-	-	-	120	81.9	-	90.4	-	-	-	56.6	-	-	52.7	
Moisture Content																																			
Moisture Content (dried @ 40°C)	%	1							10	24.8	21.5	17.5	15.6	-	15.1	-	-	13.7	-	25.6	15.5	17.4	-	13.6	-	43	23.8	-	13.6	16.2	11	10.8	11.4	

Notes

- Not analysed
g/kg milligrams per kilogram
ng/L TCLP results in milligrams per litre unless otherwise stated
^^ Where TCLP testing has been undertaken, the SCC1 and SCC2 values are adopted as opposed to CT1 and CT2 respectively
** Criterion of <50 mg/kg for the sum of Scheduled Chemicals
+ CT1 criterion of 250 mg/kg and CT2 criterion of 1000 mg/kg for the sum of Moderately Harmful Pesticides
# Endosulfan - Sum
Criteria for chromium VI
N/A TCLP analysis is not required. Moderately harmful pesticides, TPH, PAHs and scheduled chemicals are assessed only using SCC1 and SCC2
† Chrysotile and crocidolite asbestos detected

								Field_ID	QA502A		QA502B		BH_MN11	BH_MN11	BH_MN11	BH_MN12		BH_MN	BH_MN12	BH_MN12	BH_MN13	BH_MN13		QA504A	QA504B	BH_MN13		QA508A	QA508B	BH_MN13		VW_MN01	
								Location_Code	BH_MN11	TCLP (mg/L)	BH_MN11	TCLP (mg/L)	BH_MN11	BH_MN11	BH_MN11	BH_MN12	TCLP (mg/L)	BH_MN12	BH_MN12	BH_MN12	BH_MN13	BH_MN13	TCLP (mg/L)	BH_MN13	BH_MN13	BH_MN13	TCLP (mg/L)	BH_MN13	QA508B	BH_MN13	TCLP (mg/L)	VW_MN01	TCLP (mg/L)
								Sample_Depth_Range	0.25-0.35	0.25-0.35	0.25-0.35	0.25-0.35	1.5-1.6	2-2.1	2.9-3	0.5-0.6	0.5-0.6	1-1.1	2-2.1	2.9-3	0.25-0.35	0.4-0.5	0.4-0.5	0.4-0.5	0.4-0.5	0.9-1.2	0.9-1.2	0.9-1.2	0.9-1.2	3-3.2	3-3.2	0.7-0.8	0.7-0.8
								Sampled_Date	6/11/2019	6/11/2019	6/11/2019	6/11/2019	23/06/2019	23/06/2019	23/06/2019	6/02/2019	6/02/2019	6/02/2019	6/02/2019	6/02/2019	6/11/2019	6/11/2019	6/11/2019	6/11/2019	6/11/2019	23/06/2019	23/06/2019	23/06/2019	23/06/2019	23/06/2019	23/06/2019	6/01/2019	6/01/2019
ANALYTE	**Unit**	**EQL**	CT1 General Solid Waste	CT2 Restricted Solid Waste	SCC1^^ General Solid Waste	TCLP1 General Solid Waste mg/L	SCC2^^ Restricted Solid Waste	TCLP2 Restricted Solid Waste mg/L																									
BTEX Compounds																																	
Benzene	mg/kg	0.2	10	40					<0.2	-	<0.1	-	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	-	<0.2	-	<0.2	<0.1	<0.2	-	<0.2	<0.1	<0.2	-	<0.2	-
Toluene	mg/kg	0.5	288	1152					<0.5	-	<0.1	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.1	<0.5	-	<0.5	<0.1	<0.5	-	<0.5	-
Ethylbenzene	mg/kg	0.5	600	2400					<0.5	-	<0.1	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.1	<0.5	-	<0.5	<0.1	<0.5	-	<0.5	-
Xylenes (m & p)	mg/kg	0.5							<0.5	-	<0.2	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.2	<0.5	-	<0.5	<0.2	<0.5	-	<0.5	-
Xylene (o)	mg/kg	0.5							<0.5	-	<0.1	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.1	<0.5	-	<0.5	<0.1	<0.5	-	<0.5	-
Xylenes (Sum of total) (Lab Reported)	mg/kg	0.5	1000	4000					<0.5	-	<0.3	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.3	<0.5	-	<0.5	<0.3	<0.5	-	<0.5	-
Total BTEX	mg/kg	0.2							<0.2	-	<0.6	-	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	-	<0.2	-	<0.2	<0.6	<0.2	-	<0.2	<0.6	<0.2	-	<0.2	-
Total Petroleum Hydrocarbons (TPHs)										-													-				-				-		-
TRH C6-C9	mg/kg	10	650	2600					<10	-	<20	-	<10	<10	<10	<10	-	<10	<10	<10	-	<10	-	<10	<20	<10	-	<10	<20	<10	-	<10	-
TRH C10-C14	mg/kg	50							<50	-	<20	-	<50	<50	<50	<50	-	<50	<50	<50	-	<50	-	<50	<20	<50	-	<50	<20	<50	-	<50	-
TRH C15-C28	mg/kg	100	10,000	40,000					<100	-	<45	-	<100	<100	<100	170	-	590	<100	<100	-	<100	-	<100	<45	<100	-	<100	100	<100	-	<100	-
TRH C29-C36	mg/kg	100							<100	-	<45	-	<100	<100	<100	100	-	<100	<100	<100	-	<100	-	<100	<45	<100	-	<100	54	<100	-	<100	-
Heavy Metals										-													-				-				-		-
Arsenic	mg/kg	5	100	400	500	5	2000	20	9	-	7	-	<5	6	<5	12	-	6	6	6	-	6	-	9	8	7	-	<5	7	<5	-	5	-
Cadmium	mg/kg	1	20	80	100	1	oh	4	<1	-	<0.3	-	<1	<1	<1	<1	-	<1	<1	<1	-	<1	-	<1	<0.3	<1	-	<1	<0.3	<1	-	<1	-
Chromium ##	mg/kg	2	100	400	1900	5	7600	20	36	-	19	-	11	21	8	19	-	22	29	3	-	19	-	29	26	24	-	23	15	26	-	19	-
Copper	mg/kg	5							36	-	30	-	14	<5	5	121	-	18	40	10	-	12	-	12	4.5	14	-	6	24	6	-	10	-
Lead	mg/kg	5	100	400	1500	5	6000	20	93	-	83	-	30	11	15	849	4.2	55	32	19	-	31	-	32	19	64	-	31	92	12	-	50	-
Nickel	mg/kg	2	40	160	1050	2	4200	8	48	<0.1	38	-	6	5	<2	10	-	5	<2	<2	-	4	-	4	1.6	8	-	5	4.6	6	-	6	-
Zinc	mg/kg	5							108	-	110	-	43	7	10	468	-	36	12	<5	-	45	-	42	22	82	-	22	110	<5	-	20	-
Mercury	mg/kg	0.1	4	16	50	0.2	200	0.8	0.2	-	0.1	-	<0.1	<0.1	<0.1	2.5	-	0.1	<0.1	<0.1	-	<0.1	-	<0.1	<0.05	0.2	-	<0.1	0.5	<0.1	-	<0.1	-
Polycyclic Aromatic Hydrocarbons (PAHs)																							-				-				-		-
Naphthalene	mg/kg	0.5							<0.5	-	<0.1	-	<0.5	<0.5	<0.5	0.6	-	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.1	<0.5	-	<0.5	<0.1 - 0.3	<0.5	-	<0.5	-
2-methylnaphthalene	mg/kg	0.1							-	-	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	0.1	-	-	-	-
1-methylnaphthalene	mg/kg	0.1							-	-	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	0.1	-	-	-	-
Acenaphthylene	mg/kg	0.5							<0.5	-	0.2	-	<0.5	<0.5	<0.5	0.8	-	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.1	<0.5	-	<0.5	0.9	<0.5	-	<0.5	-
Acenaphthene	mg/kg	0.5							<0.5	-	<0.1	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.1	<0.5	-	<0.5	<0.1	<0.5	-	<0.5	-
Fluorene	mg/kg	0.5							<0.5	-	<0.1	-	<0.5	<0.5	<0.5	<0.5	-	0.9	<0.5	<0.5	-	<0.5	-	<0.5	<0.1	<0.5	-	<0.5	<0.1	<0.5	-	<0.5	-
Phenanthrene	mg/kg	0.5							0.9	-	1.4	-	<0.5	<0.5	<0.5	4.7	-	0.8	<0.5	<0.5	-	2.6	-	0.7	0.2	2	-	0.5	2.8	1.8	-	0.9	-
Anthracene	mg/kg	0.5							<0.5	-	0.4	-	<0.5	<0.5	<0.5	1.1	-	<0.5	<0.5	<0.5	-	0.6	-	<0.5	<0.1	0.6	-	<0.5	1.1	<0.5	-	<0.5	-
Fluoranthene	mg/kg	0.5							1.8	-	2	-	0.8	<0.5	<0.5	10.4	-	<0.5	<0.5	<0.5	-	4.3	-	1.2	0.5	3.2	-	1	5.1	3	-	2.5	-
Pyrene	mg/kg	0.5							1.7	-	2.1	-	0.8	<0.5	<0.5	10.2	-	<0.5	<0.5	<0.5	-	4	-	1.1	0.6	3.2	-	1	4.6	3.1	-	2.4	-
Benzo(a)anthracene	mg/kg	0.5							0.9	-	0.8	-	<0.5	<0.5	<0.5	5.1	-	<0.5	<0.5	<0.5	-	2	-	0.6	0.2	1.8	-	<0.5	2.5	1.6	-	1.4	-
Chrysene	mg/kg	0.5							0.9	-	0.8	-	<0.5	<0.5	<0.5	4.8	-	<0.5	<0.5	<0.5	-	1.8	-	0.5	0.2	1.7	-	<0.5	1.9	1.4	-	1.2	-
Benzo(b&j)fluoranthene	mg/kg	0.5							1.2	-	0.8	-	<0.5	<0.5	<0.5	6.4	-	<0.5	<0.5	<0.5	-	2.5	-	0.7	0.3	2.1	-	0.7	2.4	1.8	-	1.6	-
Benzo(k)fluoranthene	mg/kg	0.5							<0.5	-	0.4	-	<0.5	<0.5	<0.5	2.1	-	<0.5	<0.5	<0.5	-	1.1	-	<0.5	0.2	0.9	-	<0.5	1.3	0.9	-	0.7	-
Benzo(a)pyrene	mg/kg	0.5	0.8	3.2	10	0.04	23	0.16	1	<0.0005	0.9	-	<0.5	<0.5	<0.5	5.3	<0.0005	<0.5	<0.5	<0.5	-	2.1	<0.0005	0.6	0.2	1.7	<0.0005	0.5	2.2	1.5	<0.0005	1.5	<0.0005
Indeno(1,2,3-cd)pyrene	mg/kg	0.5							<0.5	-	0.7	-	<0.5	<0.5	<0.5	2.9	-	<0.5	<0.5	<0.5	-	1	-	<0.5	0.2	0.9	-	<0.5	1.7	1.1	-	0.8	-
Dibenzo(ah)anthracene	mg/kg	0.5							<0.5	-	<0.1	-	<0.5	<0.5	<0.5	0.7	-	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.1	<0.5	-	<0.5	0.3	<0.5	-	<0.5	-
Benzo(ghi)perylene	mg/kg	0.5							0.6	-	0.4	-	<0.5	<0.5	<0.5	3.6	-	<0.5	<0.5	<0.5	-	1.2	-	<0.5	0.2	1.1	-	<0.5	1.3	1.4	-	1	-
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.5							1.2	-	1.1	-	<0.5	<0.5	<0.5	7.7	-	<0.5	<0.5	<0.5	-	2.8	-	0.7	0.3	2.3	-	0.6	3.3	2.1	-	2	-
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.5							1.5	-	-	-	0.6	0.6	0.6	7.7	-	0.6	0.6	0.6	-	3	-	1	-	2.5	-	0.9	-	2.3	-	2.2	-
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.5							1.8	-	1.2	-	1.2	1.2	1.2	7.7	-	1.2	1.2	1.2	-	3.3	-	1.3	0.4	2.8	-	1.2	3.3	2.6	-	2.5	-
Total PAH (18)	mg/kg	0.5	200	800					9	-	11	-	1.6	<0.5	<0.5	58.7	-	1.7	<0.5	<0.5	-	23.2	-	5.4	2.8	19.2	-	3.7	29	17.6	-	14	-
Organochlorine Pesticides (OCPs) **																																	
2,4-DDT	mg/kg	0.1	<50	<50					-	-	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	<0.1	-	-	-	-
a-BHC	mg/kg	0.05	<50	<50					<0.05	-	<0.1	-	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.1	<0.05	-	<0.05	<0.1	<0.05	-	<0.05	-
Aldrin	mg/kg	0.05	<50	<50					<0.05	-	<0.1	-	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.1	<0.05	-	<0.05	<0.1	<0.05	-	<0.05	-
Dieldrin	mg/kg	0.05	<50	<50					0.15	-	<0.2	-	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.2	<0.05	-	<0.05	<0.2	<0.05	-	<0.05	-
Aldrin & Dieldrin (Sum of total) (Lab Reported)	mg/kg	0.05	<50	<50					0.15	-	-	-	<0.05	<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	mg/kg	0.05	<50	<50					<0.05	-	<0.1	-	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.1	<0.05	-	<0.05	<0.1	<0.05	-	<0.05	-
cis-Chlordane	mg/kg	0.05	<50	<50					<0.05	-	<0.1	-	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.1	<0.05	-	<0.05	<0.1	<0.05	-	<0.05	-
gamma-Chlordane	mg/kg	0.1	<50	<50					-	-	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	<0.1	-	-	-	-
trans-Chlordane	mg/kg	0.05	<50	<50					<0.05	-	-	-	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-
Chlordane (Sum of total)	mg/kg	0.05	<50	<50					<0.05	-	-	-	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-
d-BHC	mg/kg	0.05	<50	<50					<0.05	-	<0.1	-	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.1	<0.05	-	<0.05	<0.1	<0.05	-	<0.05	-
DDD	mg/kg	0.05	<50	<50					<0.05	-	<0.1	-	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.1	<0.05	-	<0.05	<0.1	<0.05	-	<0.05	-
DDE	mg/kg	0.05	<50	<50					<0.05	-	<0.1	-	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.1	<0.05	-	<0.05	<0.1	<0.05	-	<0.05	-
DDT	mg/kg	0.2	<50	<50					<0.2	-	<0.1	-	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	-	<0.2	-	<0.2	<0.1	<0.2	-	<0.2	<0.1	<0.2	-	<0.2	-
DDT+DDE+DDD (Sum of total) (Lab Reported)	mg/kg	0.05	<50	<50					<0.05	-	-	-	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-
Endosulfan	mg/kg	0.05							<0.05	-	-	-	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-
Endosulfan I	mg/kg	0.05	60	240					<0.05	-	<0.2	-	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.2	<0.05	-	<0.05	<0.2	<0.05	-	<0.05	-
Endosulfan II	mg/kg	0.05							<0.05	-	<0.2	-	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.2	<0.05	-	<0.05	<0.2	<0.05	-	<0.05	-
Endosulfan sulphate	mg/kg	0.05							<0.05	-	<0.1	-	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.1	<0.05	-	<0.05	<0.1	<0.05	-	<0.05	-
Endrin	mg/kg	0.05	<50	<50					<0.05	-	<0.2	-	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.2	<0.05	-	<0.05	<0.2	<0.05	-	<0.05	-
Endrin aldehyde	mg/kg	0.05	<50	<50					<0.05	-	<0.1	-	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.1	<0.05	-	<0.05	<0.1	<0.05	-	<0.05	-
Endrin ketone	mg/kg	0.05							<0.05	-	<0.1	-	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.1	<0.05	-	<0.05	<0.1	<0.05	-	<0.05	-
g-BHC	mg/kg	0.05	<50	<50					<0.05	-	<0.1	-	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.1	<0.05	-	<0.05	<0.1	<0.05	-	<0.05	-
Heptachlor	mg/kg	0.05	<50	<50					<0.05	-	<0.1	-	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.1	<0.05	-	<0.05	<0.1	<0.05	-	<0.05	-
Heptachlor epoxide	mg/kg	0.05	<50	<50					<0.05	-	<0.1	-	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.1	<0.05	-	<0.05	<0.1	<0.05	-	<0.05	-
Hexachlorobenzene	mg/kg	0.05	<50	<50					<0.05	-	<0.1	-	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.1	<0.05	-	<0.05	<0.1	<0.05	-	<0.05	-
Isodrin	mg/kg	0.1							-	-	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	<0.1	-	-	-	-
Methoxychlor	mg/kg	0.2							<0.2	-	<0.1	-	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	-	<0.2	-	<0.2	<0.1	<0.2	-	<0.2	<0.1	<0.2	-	<0.2	-
Mirex	mg/kg	0.1							-	-	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	<0.1	-	-	-	-
o,p-DDD	mg/kg	0.1							-	-	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	<0.1	-	-	-	-
o,p-DDE	mg/kg	0.1							-	-	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	<0.1	-	-	-	-
trans-Nonachlor	mg/kg	0.1							-	-	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	<0.1	-	-	-	-
Organophosphate Pesticides (OPPs) +																																	
Azinphos-methyl	mg/kg	0.05							<0.05	-	<0.2	-	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.2	<0.05	-	<0.05	<0.2	<0.05	-	<0.05	-
Bromophos-ethyl	mg/kg	0.05							<0.05	-	<0.2	-	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.2	<0.05	-	<0.05	<0.2	<0.05	-	<0.05	-
Carbophenothion	mg/kg	0.05							<0.05	-	-	-	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-
Chlorfenvinphos	mg/kg	0.05							<0.05	-	-	-	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-
Chlorpyriphos	mg/kg	0.05	4	16					<0.05	-	<0.2	-	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.2	<0.05	-	<0.05	<0.2	<0.05	-	<0.05	-
Chlorpyriphos-methyl	mg/kg	0.05							<0.05	-	-	-	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-
Demeton-s-methyl	mg/kg	0.05							<0.05	-	-	-	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-
Diazinon	mg/kg	0.05							<0.05	-	<0.5	-	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.5	<0.05	-	<0.05	<0.5	<0.05	-	<0.05	-
Dichlorvos	mg/kg	0.05	250	1000					<0.05	-	<0.5	-	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.5	<0.05	-	<0.05	<0.5	<0.05	-	<0.05	-
Dimethoate	mg/kg	0.05	250	1000					<0.05	-	<0.5	-	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.5	<0.05	-	<0.05	<0.5	<0.05	-	<0.05	-
Ethion	mg/kg	0.05	250	1000					<0.05	-	<0.2	-	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.2	<0.05	-	<0.05	<0.2	<0.05	-	<0.05	-
Fenamiphos	mg/kg	0.05							<0.05	-	-	-	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-
Fenitrothion	mg/kg	0.2	250	1000					-	-	<0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.2	-	-	-	<0.2	-	-	-	-
Fenthion	mg/kg	0.05	250	1000					<0.05	-	-	-	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-
Malathion	mg/kg	0.05	250	1000					<0.05	-	<0.2	-	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.2	<0.05	-	<0.05	<0.2	<0.05	-	<0.05	-
Methidathion	mg/kg	0.5	250	1000					-	-	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	-	-	-	<0.5	-	-	-	-
Parathion-methyl	mg/kg	0.2	250	1000					<0.2	-	-	-	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	-	<0.2	-	<0.2	-	<0.2	-	<0.2	-	<0.2	-	<0.2	-
Monocrotophos	mg/kg	0.2							<0.2	-	-	-	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	-	<0.2	-	<0.2	-	<0.2	-	<0.2	-	<0.2	-	<0.2	-
Parathion	mg/kg	0.2							<0.2	-	<0.2	-	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	-	<0.2	-	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	-	<0.2	-
Pirimphos-ethyl	mg/kg	0.05							<0.05	-	-	-	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-
Prothiofos	mg/kg	0.05							<0.05	-	-	-	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-
Volatile Organic Compounds																																	
1,4-Dichlorobenzene	mg/kg	0.5	150	600					<0.5	-	-	-	<0.5	<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-Chlorotoluene	mg/kg	0.5							<0.5	-	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-
1,2,3-Trichlorobenzene	mg/kg	0.5							<0.5	-	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-
1,2,4-Trichlorobenzene **	mg/kg	0.5	<50	<50					<0.5	-	-	-	<0.5	<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-Dichlorobenzene	mg/kg	0.5	86	344					<0.5	-	-	-	<0.5	<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-Dichlorobenzene	mg/kg	0.5							<0.5	-	-	-	<0.5	<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-Chlorotoluene	mg/kg	0.5							<0.5	-	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-
Bromobenzene	mg/kg	0.5							<0.5	-	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-
Chlorobenzene	mg/kg	0.5	2000	8000					<0.5	-	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-
1,2,4-trimethylbenzene	mg/kg	0.5							<0.5	-	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-
1,3,5-Trimethylbenzene	mg/kg	0.5							<0.5	-	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-
Isopropylbenzene	mg/kg	0.5							<0.5	-	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-
n-Butylbenzene	mg/kg	0.5							<0.5	-	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-
n-Propylbenzene	mg/kg	0.5							<0.5	-	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-
p-Isopropyltoluene	mg/kg	0.5							<0.5	-	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-
sec-Butylbenzene	mg/kg	0.5							<0.5	-	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-
Styrene	mg/kg	0.5							<0.5	-	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-
tert-Butylbenzene	mg/kg	0.5							<0.5	-	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-
Methyl Ethyl Ketone	mg/kg	5	4000	16,000					<5	-	-	-	<5	<5	<5	<5	-	<5	<5	<5	-	<5	-	<5	-	<5	-	<5	-	<5	-	<5	-
2-Hexanone	mg/kg	5							<5	-	-	-	<5	<5	<5	<5	-	<5	<5	<5	-	<5	-	<5	-	<5	-	<5	-	<5	-	<5	-
Methyl iso-butyl ketone	mg/kg	5							<5	-	-	-	<5	<5	<5	<5	-	<5	<5	<5	-	<5	-	<5	-	<5	-	<5	-	<5	-	<5	-
Acetone	mg/kg	10							-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acrylonitrile	mg/kg	0.1							-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl-t-butyl ether	mg/kg	0.1							-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

ANALYTE	Unit	EQL	CT1 General Solid Waste	CT2 Restricted Solid Waste	SCC1^^ General Solid Waste	TCLP1 General Solid Waste mg/L	SCC2^^ Restricted Solid Waste	TCLP2 Restricted Solid Waste mg/L	QA502A		QA502B		BH_MN11	BH_MN11	BH_MN11	BH_MN12		BH_MN	BH_MN12	BH_MN12	BH_MN13	BH_MN13		QA504A	QA504B	BH_MN13		QA508A	QA508B	BH_MN13		VW_MN01	
Location_Code									BH_MN11	TCLP (mg/L)	BH_MN11	TCLP (mg/L)	BH_MN11	BH_MN11	BH_MN11	BH_MN12	TCLP (mg/L)	BH_MN12	BH_MN12	BH_MN12	BH_MN13	BH_MN13	TCLP (mg/L)	BH_MN13	BH_MN13	BH_MN13	TCLP (mg/L)	BH_MN13	QA508B	BH_MN13	TCLP (mg/L)	VW_MN01	TCLP (mg/L)
Sample_Depth_Range									0.25-0.35	0.25-0.35	0.25-0.35	0.25-0.35	1.5-1.6	2-2.1	2.9-3	0.5-0.6	0.5-0.6	1-1.1	2-2.1	2.9-3	0.25-0.35	0.4-0.5	0.4-0.5	0.4-0.5	0.4-0.5	0.9-1.2	0.9-1.2	0.9-1.2	0.9-1.2	3-3.2	3-3.2	0.7-0.8	0.7-0.8
Sampled_Date									6/11/2019	6/11/2019	6/11/2019	6/11/2019	23/06/2019	23/06/2019	23/06/2019	6/02/2019	6/02/2019	6/02/2019	6/02/2019	6/02/2019	6/11/2019	6/11/2019	6/11/2019	6/11/2019	6/11/2019	23/06/2019	23/06/2019	23/06/2019	23/06/2019	23/06/2019	23/06/2019	6/01/2019	6/01/2019
Vinyl acetate	mg/kg	5							<5	-	-	-	<5	<5	<5	<5	-	<5	<5	<5	-	<5	-	<5	-	<5	-	<5	-	<5	-	<5	-
1,1,1,2-Tetrachloroethane	mg/kg	0.5	200	800					<0.5	-	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-
1,1,2,2-Tetrachloroethane	mg/kg	0.5	26	104					<0.5	-	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-
1,1,1-Trichloroethane	mg/kg	0.5	600	2400					<0.5	-	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-
1,1,2-Trichloroethane	mg/kg	0.5	24	96					<0.5	-	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-
1,2,3-Trichloropropane	mg/kg	0.5							<0.5	-	-	-	<0.5	<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-Dibromo-3-chloropropane	mg/kg	0.5							<0.5	-	-	-	<0.5	<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-Dibromoethane	mg/kg	0.5							<0.5	-	-	-	<0.5	<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	mg/kg	0.5							<0.5	-	-	-	<0.5	<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-Dichloroethane	mg/kg	0.5	10	40					<0.5	-	-	-	<0.5	<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-Dichloroethene	mg/kg	0.5	14	56					<0.5	-	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-
cis-1,2-Dichloroethene	mg/kg	0.5							<0.5	-	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-
trans-1,2-dichloroethene	mg/kg	0.5							<0.5	-	-	-	<0.5	<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	mg/kg	0.5							<0.5	-	-	-	<0.5	<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	mg/kg	0.5							<0.5	-	-	-	<0.5	<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-Dichloropropane	mg/kg	0.5							<0.5	-	-	-	<0.5	<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-Dichloropropene	mg/kg	0.5							<0.5	-	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-
cis-1,3-Dichloropropene	mg/kg	0.5							<0.5	-	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-
trans-1,3-dichloropropene	mg/kg	0.5							<0.5	-	-	-	<0.5	<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-Nitropropane	mg/kg	10							-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
cis-1,4-Dichloro-2-butene	mg/kg	0.5							<0.5	-	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-
trans-1,4-Dichloro-2-butene	mg/kg	0.5							<0.5	-	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-
Allyl chloride	mg/kg	0.1							-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bromochloromethane	mg/kg	0.1							-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bromodichloromethane	mg/kg	0.5							<0.5	-	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-
Bromoform	mg/kg	0.5							<0.5	-	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-
Bromomethane	mg/kg	5							<5	-	-	-	<5	<5	<5	<5	-	<5	<5	<5	-	<5	-	<5	-	<5	-	<5	-	<5	-	<5	-
Carbon disulfide	mg/kg	0.5							<0.5	-	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-
Carbon tetrachloride	mg/kg	0.5	10	40					<0.5	-	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-
Chlorodibromomethane	mg/kg	0.5							<0.5	-	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-
Chloroethane	mg/kg	5							<5	-	-	-	<5	<5	<5	<5	-	<5	<5	<5	-	<5	-	<5	-	<5	-	<5	-	<5	-	<5	-
Chloroform	mg/kg	0.5	120	480					<0.5	-	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-
Chloromethane	mg/kg	5							<5	-	-	-	<5	<5	<5	<5	-	<5	<5	<5	-	<5	-	<5	-	<5	-	<5	-	<5	-	<5	-
Dibromomethane	mg/kg	0.5	172	688					<0.5	-	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-
Dichlorodifluoromethane	mg/kg	5							<5	-	-	-	<5	<5	<5	<5	-	<5	<5	<5	-	<5	-	<5	-	<5	-	<5	-	<5	-	<5	-
Dichloromethane	mg/kg	0.5							-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hexachlorobutadiene	mg/kg	0.5							<0.5	-	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-
Iodomethane	mg/kg	0.5							<0.5	-	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-
Pentachloroethane	mg/kg	0.5							<0.5	-	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-
Trichloroethene	mg/kg	0.5	10	40					<0.5	-	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-
Tetrachloroethene	mg/kg	0.5	14	56					<0.5	-	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-
Trichlorofluoromethane	mg/kg	5							<5	-	-	-	<5	<5	<5	<5	-	<5	<5	<5	-	<5	-	<5	-	<5	-	<5	-	<5	-	<5	-
Vinyl chloride	mg/kg	5	4	16					<5	-	-	-	<5	<5	<5	<5	-	<5	<5	<5	-	<5	-	<5	-	<5	-	<5	-	<5	-	<5	-
Polychlorinated Biphenyls (PCBs)																																	
Total PCBs	mg/kg	0.1	<50	<50					<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	-
Phenols (Total)																																	
Total Phenols	mg/kg	0.1							<1	-	-	-	<1	-	-	<1	-	<1	<1	-	-	<1	-	<1	-	<1	-	<1	-	-	-	<1	-
Asbestos Identification in Soils																																	
Asbestos Detected	mg/kg	0.1							No	-	-	-	No	-	-	No	-	No	-	-	No	No	-	No	-	No	-	-	-	-	-	No	-
Sample weight (dry)	g	0.01							27.9	-	-	-	87.3	-	-	134	-	121	-	-	153	112	-	30.8	-	46.9	-	-	-	-	-	54	-
Moisture Content																																	
Moisture Content (dried @ 40°C)	%	1							15	-	-	-	19.5	18.5	26	27.1	-	23.5	20	20.3	-	12.2	-	19.2	-	24.6	-	25	-	13.1	-	29.1	-

Notes

- \- Not analysed
- g/kg miligrams per kilogram
- ng/L TCLP results in milligrams per litre unless otherwise stated
- ^^ Where TCLP testing has been undertaken, the SCC1 and SCC2 values are adopted as opposed to CT1 and CT2 respectively
- ** Criterion of <50 mg/kg for the sum of Scheduled Chemicals
- \+ CT1 criterion of 250 mg/kg and CT2 criterion of 1000 mg/kg for the sum of Moderately Harmful Pesticides
- \# Endosulfan - Sum
- \#\# Criteria for chromium VI
- N/A TCLP analysis is not required. Moderately harmful pesticides, TPH, PAHs and scheduled chemicals are assessed only using SCC1 and SCC2
- † Chrysotile and crocidolite asbestos detected

								Field_ID	VW_MN01	BH_VW_MN01	BH_VW_MN01	VW_MN02	QA501A	QA501B	VW_MN02	VW_MN02	VW_MN02	VW_MN02	VW_MN02	BH_VMN03		BH_VMN03	QA507A	QA507B	BH_VMN03		BH_VMN03
								Location_Code	VW_MN01	BH_VW_MN01	BH_VW_MN01	VW_MN02	VW_MN02	QA501B	VW_MN02	VW_MN02	VW_MN02	VW_MN02	VW_MN02	BH_VMN03	TCLP (mg/L)	BH_VMN03	BH_VMN03	QA507B	BH_VMN03	TCLP (mg/L)	BH_VMN03
								Sample_Depth_Range	0.9-1.1	2-2.1	3-3.1	0.5-0.6	0.5-0.6	0.5-0.6	0.75-0.95	1-1.1	2-2.1	3-3.1	4-4.1	0.4-0.5	0.4-0.5	0.9-1	0.9-1		1.1-1.2	1.1-1.2	2-2.2
								Sampled_Date	6/01/2019	23/06/2019	23/06/2019	6/02/2019	6/02/2019	6/02/2019	6/02/2019	6/02/2019	6/02/2019	6/02/2019	6/02/2019	23/06/2019	23/06/2019	23/06/2019	23/06/2019	23/06/2019	23/06/2019	23/06/2019	23/06/2019
ANALYTE	**Unit**	**EQL**	CT1 General Solid Waste	CT2 Restricted Solid Waste	SCC1^^ General Solid Waste	TCLP1 General Solid Waste mg/L	SCC2^^ Restricted Solid Waste	TCLP2 Restricted Solid Waste mg/L																			
BTEX Compounds																											
Benzene	mg/kg	0.2	10	40					<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.1	<0.2	-	<0.2
Toluene	mg/kg	0.5	288	1152					<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.1	<0.5	-	<0.5
Ethylbenzene	mg/kg	0.5	600	2400					<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.1	<0.5	-	<0.5
Xylenes (m & p)	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.2	<0.5	-	<0.5
Xylene (o)	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.1	<0.5	-	<0.5
Xylenes (Sum of total) (Lab Reported)	mg/kg	0.5	1000	4000					<0.5	<0.5	<0.5	<0.5	<0.5	<0.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.3	<0.5	-	<0.5
Total BTEX	mg/kg	0.2							<0.2	<0.2	<0.2	<0.2	<0.2	<0.6	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.6	<0.2	-	<0.2
Total Petroleum Hydrocarbons (TPHs)																					-					-	
TRH C6-C9	mg/kg	10	650	2600					<10	<10	<10	<10	<10	<20	<10	<10	<10	<10	<10	<10	-	<10	<10	<20	<10	-	<10
TRH C10-C14	mg/kg	50							<50	<50	<50	<50	<50	<20	<50	<50	<50	<50	<50	<50	-	<50	<50	<20	<50	-	<50
TRH C15-C28	mg/kg	100	10,000	40,000					<100	<100	<100	110	<100	<45	<100	<100	<100	<100	<100	170	-	<100	<100	50	<100	-	<100
TRH C29-C36	mg/kg	100							<100	<100	<100	110	<100	<45	<100	<100	<100	<100	<100	140	-	<100	<100	<45	<100	-	<100
Heavy Metals																					-					-	
Arsenic	mg/kg	5	100	400	500	5	2000	20	<5	<5	22	<5	8	3	<5	<5	<5	<5	8	19	-	8	7	6	8	-	<5
Cadmium	mg/kg	1	20	80	100	1	oh	4	<1	<1	<1	<1	<1	<0.3	<1	<1	<1	<1	<1	1	-	<1	<1	<0.3	<1	-	<1
Chromium ##	mg/kg	2	100	400	1900	5	7600	20	13	9	47	7	14	5.2	7	6	6	5	6	66	-	45	28	33	24	-	22
Copper	mg/kg	5							<5	<5	18	36	40	18	11	11	19	19	26	154	-	66	28	39	<5	-	<5
Lead	mg/kg	5	100	400	1500	5	6000	20	11	8	30	21	48	19	12	21	16	17	17	147	0.1	80	64	92	105	<0.1	15
Nickel	mg/kg	2	40	160	1050	2	4200	8	<2	2	3	22	25	11	3	3	<2	<2	<2	69	<0.1	13	10	7.2	<2	-	3
Zinc	mg/kg	5							<5	6	<5	56	226	79	26	27	<5	<5	<5	948	-	229	263	220	180	-	<5
Mercury	mg/kg	0.1	4	16	50	0.2	200	0.8	<0.1	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	0.22	<0.1	-	<0.1
Polycyclic Aromatic Hydrocarbons (PAHs)																					-					-	
Naphthalene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.1	<0.5	-	<0.5
2-methylnaphthalene	mg/kg	0.1							-	-	-	-	-	<0.1	-	-	-	-	-	-	-	-	-	<0.1	-	-	-
1-methylnaphthalene	mg/kg	0.1							-	-	-	-	-	<0.1	-	-	-	-	-	-	-	-	-	<0.1	-	-	-
Acenaphthylene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.1	<0.5	-	<0.5
Acenaphthene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.1	<0.5	-	<0.5
Fluorene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.1	<0.5	-	<0.5
Phenanthrene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	0.8	-	<0.5	<0.5	0.2	<0.5	-	<0.5
Anthracene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.1	<0.5	-	<0.5
Fluoranthene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	1.6	-	<0.5	0.5	0.6	<0.5	-	<0.5
Pyrene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	1.5	-	<0.5	<0.5	0.6	<0.5	-	<0.5
Benzo(a)anthracene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	-	<0.5	<0.5	0.3	<0.5	-	<0.5
Chrysene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	-	<0.5	<0.5	0.2	<0.5	-	<0.5
Benzo(b&j)fluoranthene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	0.8	-	<0.5	<0.5	0.3	<0.5	-	<0.5
Benzo(k)fluoranthene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	0.2	<0.5	-	<0.5
Benzo(a)pyrene	mg/kg	0.5	0.8	3.2	10	0.04	23	0.16	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	0.7	-	<0.5	<0.5	0.3	<0.5	-	<0.5
Indeno(1,2,3-cd)pyrene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	0.2	<0.5	-	<0.5
Dibenzo(ah)anthracene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.1	<0.5	-	<0.5
Benzo(ghi)perylene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	-	<0.5	<0.5	0.2	<0.5	-	<0.5
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	0.8	-	<0.5	<0.5	0.4	<0.5	-	<0.5
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.5							0.6	0.6	0.6	0.6	0.6	-	0.6	0.6	0.6	0.6	0.6	1.2	-	0.6	0.6	-	0.6	-	0.6
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.5							1.2	1.2	1.2	1.2	1.2	<0.3	1.2	1.2	1.2	1.2	1.2	1.4	-	1.2	1.2	0.5	1.2	-	1.2
Total PAH (18)	mg/kg	0.5	200	800					<0.5	<0.5	<0.5	<0.5	<0.5	<0.8	<0.5	<0.5	<0.5	<0.5	<0.5	7.2	-	<0.5	0.5	3.2	<0.5	-	<0.5
Organochlorine Pesticides (OCPs) **																											
2,4-DDT	mg/kg	0.1	<50	<50					-	-	-	-	-	<0.1	-	-	-	-	-	-	-	-	-	<0.1	-	-	-
a-BHC	mg/kg	0.05	<50	<50					<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.1	<0.05	-	<0.05
Aldrin	mg/kg	0.05	<50	<50					<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.1	<0.05	-	<0.05
Dieldrin	mg/kg	0.05	<50	<50					<0.05	<0.05	<0.05	0.15	0.21	0.2	<0.05	<0.05	<0.05	<0.05	<0.05	0.14	-	<0.05	<0.05	<0.2	<0.05	-	<0.05
Aldrin & Dieldrin (Sum of total) (Lab Reported)	mg/kg	0.05	<50	<50					<0.05	<0.05	<0.05	0.15	0.21	-	<0.05	<0.05	<0.05	<0.05	<0.05	0.14	-	<0.05	<0.05	-	<0.05	-	<0.05
b-BHC	mg/kg	0.05	<50	<50					<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.1	<0.05	-	<0.05
cis-Chlordane	mg/kg	0.05	<50	<50					<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.1	<0.05	-	<0.05
gamma-Chlordane	mg/kg	0.1	<50	<50					-	-	-	-	-	<0.1	-	-	-	-	-	-	-	-	-	<0.1	-	-	-
trans-Chlordane	mg/kg	0.05	<50	<50					<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	-	<0.05	-	<0.05
Chlordane (Sum of total)	mg/kg	0.05	<50	<50					<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	-	<0.05	-	<0.05
d-BHC	mg/kg	0.05	<50	<50					<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.1	<0.05	-	<0.05
DDD	mg/kg	0.05	<50	<50					<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.1	<0.05	-	<0.05
DDE	mg/kg	0.05	<50	<50					<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.1	<0.05	-	<0.05
DDT	mg/kg	0.2	<50	<50					<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.1	<0.2	-	<0.2
DDT+DDE+DDD (Sum of total) (Lab Reported)	mg/kg	0.05	<50	<50					<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	-	<0.05	-	<0.05
Endosulfan	mg/kg	0.05							<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	-	<0.05	-	<0.05
Endosulfan I	mg/kg	0.05	60	240					<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.2	<0.05	-	<0.05
Endosulfan II	mg/kg	0.05							<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.2	<0.05	-	<0.05
Endosulfan sulphate	mg/kg	0.05							<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.1	<0.05	-	<0.05
Endrin	mg/kg	0.05	<50	<50					<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.2	<0.05	-	<0.05
Endrin aldehyde	mg/kg	0.05	<50	<50					<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.1	<0.05	-	<0.05
Endrin ketone	mg/kg	0.05							<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.1	<0.05	-	<0.05
g-BHC	mg/kg	0.05	<50	<50					<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.1	<0.05	-	<0.05
Heptachlor	mg/kg	0.05	<50	<50					<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.1	<0.05	-	<0.05
Heptachlor epoxide	mg/kg	0.05	<50	<50					<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.1	<0.05	-	<0.05
Hexachlorobenzene	mg/kg	0.05	<50	<50					<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.1	<0.05	-	<0.05
Isodrin	mg/kg	0.1							-	-	-	-	-	<0.1	-	-	-	-	-	-	-	-	-	<0.1	-	-	-
Methoxychlor	mg/kg	0.2							<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.1	<0.2	-	<0.2
Mirex	mg/kg	0.1							-	-	-	-	-	<0.1	-	-	-	-	-	-	-	-	-	<0.1	-	-	-
o,p-DDD	mg/kg	0.1							-	-	-	-	-	<0.1	-	-	-	-	-	-	-	-	-	<0.1	-	-	-
o,p-DDE	mg/kg	0.1							-	-	-	-	-	<0.1	-	-	-	-	-	-	-	-	-	<0.1	-	-	-
trans-Nonachlor	mg/kg	0.1							-	-	-	-	-	<0.1	-	-	-	-	-	-	-	-	-	<0.1	-	-	-
Organophosphate Pesticides (OPPs) +																											
Azinphos-methyl	mg/kg	0.05							<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.2	<0.05	-	<0.05
Bromophos-ethyl	mg/kg	0.05							<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.2	<0.05	-	<0.05
Carbophenothion	mg/kg	0.05							<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	-	<0.05	-	<0.05
Chlorfenvinphos	mg/kg	0.05							<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	-	<0.05	-	<0.05
Chlorpyriphos	mg/kg	0.05	4	16					<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.2	<0.05	-	<0.05
Chlorpyriphos-methyl	mg/kg	0.05							<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	-	<0.05	-	<0.05
Demeton-s-methyl	mg/kg	0.05							<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	-	<0.05	-	<0.05
Diazinon	mg/kg	0.05							<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.5	<0.05	-	<0.05
Dichlorvos	mg/kg	0.05	250	1000					<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.5	<0.05	-	<0.05
Dimethoate	mg/kg	0.05	250	1000					<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.5	<0.05	-	<0.05
Ethion	mg/kg	0.05	250	1000					<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.2	<0.05	-	<0.05
Fenamiphos	mg/kg	0.05							<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	-	<0.05	-	<0.05
Fenitrothion	mg/kg	0.2	250	1000					-	-	-	-	-	<0.2	-	-	-	-	-	-	-	-	-	<0.2	-	-	-
Fenthion	mg/kg	0.05	250	1000					<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	-	<0.05	-	<0.05
Malathion	mg/kg	0.05	250	1000					<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.2	<0.05	-	<0.05
Methidathion	mg/kg	0.5	250	1000					-	-	-	-	-	<0.5	-	-	-	-	-	-	-	-	-	<0.5	-	-	-
Parathion-methyl	mg/kg	0.2	250	1000					<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	-	<0.2	-	<0.2
Monocrotophos	mg/kg	0.2							<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	-	<0.2	-	<0.2
Parathion	mg/kg	0.2							<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	-	<0.2
Pirimphos-ethyl	mg/kg	0.05							<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	-	<0.05	-	<0.05
Prothiofos	mg/kg	0.05							<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	-	<0.05	-	<0.05
Volatile Organic Compounds																											
1,4-Dichlorobenzene	mg/kg	0.5	150	600					<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	-	<0.5
4-Chlorotoluene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	-	<0.5
1,2,3-Trichlorobenzene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	-	<0.5
1,2,4-Trichlorobenzene **	mg/kg	0.5	<50	<50					<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	-	<0.5
1,2-Dichlorobenzene	mg/kg	0.5	86	344					<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	-	<0.5
1,3-Dichlorobenzene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	-	<0.5
2-Chlorotoluene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	-	<0.5
Bromobenzene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	-	<0.5
Chlorobenzene	mg/kg	0.5	2000	8000					<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	-	<0.5
1,2,4-trimethylbenzene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	-	<0.5
1,3,5-Trimethylbenzene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	-	<0.5
Isopropylbenzene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	-	<0.5
n-Butylbenzene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	-	<0.5
n-Propylbenzene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	-	<0.5
p-Isopropyltoluene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	-	<0.5
sec-Butylbenzene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	-	<0.5
Styrene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	-	<0.5
tert-Butylbenzene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	-	<0.5
Methyl Ethyl Ketone	mg/kg	5	4000	16,000					<5	<5	<5	<5	<5	<10	<5	<5	<5	<5	<5	<5	-	<5	<5	-	<5	-	<5
2-Hexanone	mg/kg	5							<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	<5	<5	-	<5	-	<5
Methyl iso-butyl ketone	mg/kg	5							<5	<5	<5	<5	<5	<1	<5	<5	<5	<5	<5	<5	-	<5	<5	-	<5	-	<5
Acetone	mg/kg	10							-	-	-	-	-	<10	-	-	-	-	-	-	-	-	-	-	-	-	-
Acrylonitrile	mg/kg	0.1							-	-	-	-	-	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl-t-butyl ether	mg/kg	0.1							-	-	-	-	-	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-

Produced: KR/BU 24/07/2019
Checkeed: BH 26/07/2019

								Field_ID	VW_MN01	BH_VW_MN01	BH_VW_MN01	VW_MN02	QA501A	QA501B	VW_MN02	VW_MN02	VW_MN02	VW_MN02	VW_MN02	BH_VMN03		BH_VMN03	QA507A	QA507B	BH_VMN03		BH_VMN03
								Location_Code	VW_MN01	BH_VW_MN01	BH_VW_MN01	VW_MN02	VW_MN02	QA501B	VW_MN02	VW_MN02	VW_MN02	VW_MN02	VW_MN02	BH_VMN03	TCLP (mg/L)	BH_VMN03	BH_VMN03	QA507B	BH_VMN03	TCLP (mg/L)	BH_VMN03
								Sample_Depth_Range	0.9-1.1	2-2.1	3-3.1	0.5-0.6	0.5-0.6	0.5-0.6	0.75-0.95	1-1.1	2-2.1	3-3.1	4-4.1	0.4-0.5	0.4-0.5	0.9-1	0.9-1		1.1-1.2	1.1-1.2	2-2.2
								Sampled_Date	6/01/2019	23/06/2019	23/06/2019	6/02/2019	6/02/2019	6/02/2019	6/02/2019	6/02/2019	6/02/2019	6/02/2019	6/02/2019	23/06/2019	23/06/2019	23/06/2019	23/06/2019	23/06/2019	23/06/2019	23/06/2019	23/06/2019
ANALYTE	Unit	EQL	CT1 General Solid Waste	CT2 Restricted Solid Waste	SCC1^^ General Solid Waste	TCLP1 General Solid Waste mg/L	SCC2^^ Restricted Solid Waste	TCLP2 Restricted Solid Waste mg/L																							
Vinyl acetate	mg/kg	5							<5	<5	<5	<5	<5	<10	<5	<5	<5	<5	<5	<5	-	<5	<5	-	<5	-	<5
1,1,1,2-Tetrachloroethane	mg/kg	0.5	200	800					<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	-	<0.5
1,1,2,2-Tetrachloroethane	mg/kg	0.5	26	104					<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	-	<0.5
1,1,1-Trichloroethane	mg/kg	0.5	600	2400					<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	-	<0.5
1,1,2-Trichloroethane	mg/kg	0.5	24	96					<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	-	<0.5
1,2,3-Trichloropropane	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	-	<0.5
1,2-Dibromo-3-chloropropane	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	-	<0.5
1,2-Dibromoethane	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	-	<0.5
1,1-Dichloroethane	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	-	<0.5
1,2-Dichloroethane	mg/kg	0.5	10	40					<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	-	<0.5
1,1-Dichloroethene	mg/kg	0.5	14	56					<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	-	<0.5
cis-1,2-Dichloroethene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	-	<0.5
trans-1,2-dichloroethene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	-	<0.5
1,2-Dichloropropane	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	-	<0.5
1,3-Dichloropropane	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	-	<0.5
2,2-Dichloropropane	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	-	<0.5
1,1-Dichloropropene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	-	<0.5
cis-1,3-Dichloropropene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	-	<0.5
trans-1,3-dichloropropene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	-	<0.5
2-Nitropropane	mg/kg	10							-	-	-	-	-	<10	-	-	-	-	-	-	-	-	-	-	-	-	-
cis-1,4-Dichloro-2-butene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	-	<0.5
trans-1,4-Dichloro-2-butene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	-	<0.5
Allyl chloride	mg/kg	0.1							-	-	-	-	-	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-
Bromochloromethane	mg/kg	0.1							-	-	-	-	-	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-
Bromodichloromethane	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	-	<0.5
Bromoform	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	-	<0.5
Bromomethane	mg/kg	5							<1	<5	<5	<5	<5	<1	<5	<5	<5	<5	<5	<5	-	<5	<5	-	<5	-	<5
Carbon disulfide	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	-	<0.5
Carbon tetrachloride	mg/kg	0.5	10	40					<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	-	<0.5
Chlorodibromomethane	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	-	<0.5
Chloroethane	mg/kg	5							<5	<5	<5	<5	<5	<1	<5	<5	<5	<5	<5	<5	-	<5	<5	-	<5	-	<5
Chloroform	mg/kg	0.5	120	480					<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	-	<0.5
Chloromethane	mg/kg	5							<5	<5	<5	<5	<5	<1	<5	<5	<5	<5	<5	<5	-	<5	<5	-	<5	-	<5
Dibromomethane	mg/kg	0.5	172	688					<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	-	<0.5
Dichlorodifluoromethane	mg/kg	5							<5	<5	<5	<5	<5	<1	<5	<5	<5	<5	<5	<5	-	<5	<5	-	<5	-	<5
Dichloromethane	mg/kg	0.5							-	-	-	-	-	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
Hexachlorobutadiene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	-	<0.5
Iodomethane	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	-	<0.5
Pentachloroethane	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	-	<0.5
Trichloroethene	mg/kg	0.5	10	40					<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	-	<0.5
Tetrachloroethene	mg/kg	0.5	14	56					<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	-	<0.5
Trichlorofluoromethane	mg/kg	5							<5	<5	<5	<5	<5	<1	<5	<5	<5	<5	<5	<5	-	<5	<5	-	<5	-	<5
Vinyl chloride	mg/kg	5	4	16					<5	<5	<5	<5	<5	<0.1	<5	<5	<5	<5	<5	<5	-	<5	<5	-	<5	-	<5
Polychlorinated Biphenyls (PCBs)																															
Total PCBs	mg/kg	0.1	<50	<50					<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		<0.1	<0.1		<0.1	-	<0.1
Phenols (Total)																															
Total Phenols	mg/kg	0.1							<1	-	-	<1	<1	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-
Asbestos Identification in Soils																															
Asbestos Detected	mg/kg	0.1							-	-	-	No	-	-	No	-	-	-	-	Yes†	-	0	-	-	-	-	-
Sample weight (dry)	g	0.01							-	-	-	96.2	-	-	113	-	-	-	-	34.2	-	30.1	-	-	-	-	-
Moisture Content																															
Moisture Content (dried @ 40°C)	%	1							18.8	20.5	24.1	8.6	10.3	-	16	12	14.7	13.7	15.2	21.5	-	18.5	20	-	25.3	-	19

Notes

- Not analysed
g/kg milligrams per kilogram
mg/L TCLP results in milligrams per litre unless otherwise stated
^^ Where TCLP testing has been undertaken, the SCC1 and SCC2 values are adopted as opposed to CT1 and CT2 respectively
** Criterion of <50 mg/kg for the sum of Scheduled Chemicals
+ CT1 criterion of 250 mg/kg and CT2 criterion of 1000 mg/kg for the sum of Moderately Harmful Pesticides
# Endosulfan - Sum
Criteria for chromium VI
N/A TCLP analysis is not required. Moderately harmful pesticides, TPH, PAHs and scheduled chemicals are assessed only using SCC1 and SCC2
† Chrysotile and crocidolite asbestos detected

							Location_Code	BH_MN03	BH_MN04	QA500A	QA500B	BH_MN04	BH_MN04	BH_MN06	BH_MN06	BH_MN06	BH_MN06	QA506A	BH_MN09	BH_MN09	BH_MN11	QA502A	BH_MN11
							Field_ID	BH_MN03	BH_MN04	BH_MN04	BH_MN04	BH_MN04	BH_MN04	BH_MN06	BH_MN06	BH_MN06	BH_MN06	BH_MN06	BH_MN09	BH_MN09	BH_MN11	BH_MN11	BH_MN11
							Sample_Depth	0.75-0.85	0.4-0.6	0.4-0.6	0.4-0.6	0.75-0.85	0.95-1.05	0.5-0.6	0.5-0.6	0.9-1	0.9-1	0.9-1	0.8-0.9	2	0.25-0.35	0.25-0.35	1.5-1.6
							Sampled_Date	2/06/2019	1/06/2019	1/06/2019	1/06/2019	1/06/2019	1/06/2019	11/06/2019	11/06/2019	22/06/2019	22/06/2019	22/06/2019	1/06/2019	1/06/2019	11/06/2019	11/06/2019	23/06/2019
Analyte	Units	EQL	CT1 / TCLP1 General Solid Waste (mg/L)	SCC1 General Solid Waste (mg/kg)	CT2 / TCLP2 Restricted Solid Waste (mg/L)	SCC2 Restricted Solid Waste (mg/kg)																	
Per- and Polyfluoroalkyl Substances (PFAS)																	-						
10:2 Fluorotelomer sulfonic acid	mg/kg	0.0005					<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.0005	<0.0005	-	<0.0005	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	
4:2 Fluorotelomer sulfonic acid	mg/kg	0.0005					<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.0005	<0.0005	-	<0.0005	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	
8:2 Fluorotelomer sulfonate	mg/kg	0.0005					<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.0005	<0.0005	-	<0.0005	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	
N-Et-FOSA	mg/kg	0.0005					<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.0005	<0.0005	-	<0.0005	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	
N-Et-FOSE	mg/kg	0.0005					<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	-	<0.0005	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	
N-Me-FOSA	mg/kg	0.0005					<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.0005	<0.0005	-	<0.0005	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	
N-Me-FOSE	mg/kg	0.0005					<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	-	<0.0005	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	
Perfluorobutanoic acid (PFBA)	mg/kg	0.001					<0.001	<0.001	<0.001	<0.0001	<0.001	<0.001	<0.001	-	<0.001	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
Perfluoroheptane sulfonic acid	mg/kg	0.0002					<0.0002	<0.0002	<0.0002	<0.0001	<0.0002	<0.0002	<0.0002	-	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	
Perfluoro-n-pentanoic acid (PFPeA)	mg/kg	0.0002					<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002	-	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	
Perfluoropentane sulfonic acid	mg/kg	0.0002					<0.0002	<0.0002	<0.0002	<0.0001	<0.0002	<0.0002	<0.0002	-	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	
PFDcS	mg/kg	0.0002					<0.0002	<0.0002	<0.0002	<0.0001	<0.0002	<0.0002	<0.0002	-	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	
N-methyl-perfluorooctanesulfonamidoacetic acid	mg/kg	0.0002					<0.0002	<0.0002	<0.0002	<0.0001	<0.0002	<0.0002	<0.0002	-	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	
Sum of PFHxS and PFOS (lab reported)	mg/kg	0.0002		1.8		7.2	<0.0002	<0.0002	<0.0002	0.0006	<0.0002	<0.0002	0.001	-	0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	
Sum of WA DER PFAS (n=10)	mg/kg	0.0002					<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	0.0014	-	0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	
Sum of PFASs (n=28)	mg/kg	0.0002					<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	0.0014	-	0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	
Perfluorobutanesulfonic acid (PFBS)	mg/kg	0.0002					<0.0002	<0.0002	<0.0002	<0.0001	<0.0002	<0.0002	<0.0002	-	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	
Perfluorodecanoic acid (PFDA)	mg/kg	0.0002					<0.0002	<0.0002	<0.0002	<0.0001	<0.0002	<0.0002	<0.0002	-	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	
Perfluorododecanoic acid (PFDoA)	mg/kg	0.0002					<0.0002	<0.0002	<0.0002	<0.0001	<0.0002	<0.0002	<0.0002	-	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	
Perfluoroheptanoic acid (PFHpA)	mg/kg	0.0002					<0.0002	<0.0002	<0.0002	0.0001	<0.0002	<0.0002	<0.0002	-	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	
Perfluorooctanesulfonic acid (PFOS)	mg/kg	0.0002					<0.0002	<0.0002	<0.0002	0.0006	<0.0002	<0.0002	0.0008	-	0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	
Perfluorooctanoate (PFOA)	mg/kg	0.0002		18		72	<0.0002	<0.0002	<0.0002	0.0004	<0.0002	<0.0002	0.0004	-	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	
Perfluorohexanesulfonic acid (PFHxS)	mg/kg	0.0002					<0.0002	<0.0002	<0.0002	<0.0001	<0.0002	<0.0002	0.0002	-	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	
Perfluorononanoic acid (PFNA)	mg/kg	0.0002					<0.0002	<0.0002	<0.0002	<0.0001	<0.0002	<0.0002	<0.0002	-	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	
Perfluorohexanoic acid (PFHxA)	mg/kg	0.0002					<0.0002	<0.0002	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	
6:2 Fluorotelomer Sulfonate (6:2 FtS)	mg/kg	0.0005					<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.0005	<0.0005	-	<0.0005	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	
N-ethyl-perfluorooctanesulfonamidoacetic acid	mg/kg	0.0002					<0.0002	<0.0002	<0.0002	<0.0001	<0.0002	<0.0002	<0.0002	-	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	
Perfluorooctanesulfonamide (PFOSA)	mg/kg	0.0002					<0.0002	<0.0002	<0.0002	<0.0001	<0.0002	<0.0002	<0.0002	-	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	
Perfluorotetradecanoic acid (PFTeDA)	mg/kg	0.0005					<0.0005	<0.0005	<0.0005	<0.0001	<0.0005	<0.0005	<0.0005	-	<0.0005	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	
Perfluorotridecanoic acid (PFTrDA)	mg/kg	0.0002					<0.0002	<0.0002	<0.0002	<0.0001	<0.0002	<0.0002	<0.0002	-	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	
Perfluoroundecanoic acid (PFUnA)	mg/kg	0.0002					<0.0002	<0.0002	<0.0002	<0.0001	<0.0002	<0.0002	<0.0002	-	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	
Per- and Polyfluoroalkyl Substances (PFAS) - TCLP														ASLP	DI Water	ASLP	DI Water						
Perfluorooctane sulfonamide (FOSA)	mg/L	0.00002					-	-	-	-	-	-	<0.00002	<0.00002	<0.00002	<0.00002	-	-	-	-	-	-	
N-Methyl perfluorooctane sulfonamide (MeFOSA)	mg/L	0.00005					-	-	-	-	-	-	<0.00005	<0.00005	<0.00005	<0.00005	-	-	-	-	-	-	
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	mg/L	0.00005					-	-	-	-	-	-	<0.00005	<0.00005	<0.00005	<0.00005	-	-	-	-	-	-	
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	mg/L	0.00005					-	-	-	-	-	-	<0.00005	<0.00005	<0.00005	<0.00005	-	-	-	-	-	-	
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	mg/L	0.00005					-	-	-	-	-	-	<0.00005	<0.00005	<0.00005	<0.00005	-	-	-	-	-	-	
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	mg/L	0.00002					-	-	-	-	-	-	<0.00002	<0.00002	<0.00002	<0.00002	-	-	-	-	-	-	
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	mg/L	0.00002					-	-	-	-	-	-	<0.00002	<0.00002	<0.00002	<0.00002	-	-	-	-	-	-	
Perfluorobutane sulfonic acid (PFBS)	mg/L	0.00002					-	-	-	-	-	-	<0.00002	<0.00002	<0.00002	<0.00002	-	-	-	-	-	-	
Perfluoropentane sulfonic acid (PFPeS)	mg/L	0.00002					-	-	-	-	-	-	<0.00002	<0.00002	<0.00002	<0.00002	-	-	-	-	-	-	
Perfluorohexane sulfonic acid (PFHxS)	mg/L	0.00002					-	-	-	-	-	-	<0.00002	<0.00002	<0.00002	<0.00002	-	-	-	-	-	-	
Perfluoroheptane sulfonic acid (PFHpS)	mg/L	0.00002					-	-	-	-	-	-	<0.00002	<0.00002	<0.00002	<0.00002	-	-	-	-	-	-	
Perfluorooctane sulfonic acid (PFOS)	mg/L	0.00001					-	-	-	-	-	-	<0.00001	0.00001	<0.00001	<0.00001	-	-	-	-	-	-	
Perfluorodecane sulfonic acid (PFDS)	mg/L	0.00002					-	-	-	-	-	-	<0.00002	<0.00002	<0.00002	<0.00002	-	-	-	-	-	-	
Perfluorobutanoic acid (PFBA)	mg/L	0.0001					-	-	-	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	-	-	-	-	-	-	
Perfluoropentanoic acid (PFPeA)	mg/L	0.00002					-	-	-	-	-	-	<0.00002	<0.00002	<0.00002	<0.00002	-	-	-	-	-	-	
Perfluorohexanoic acid (PFHxA)	mg/L	0.00002					-	-	-	-	-	-	<0.00002	<0.00002	<0.00002	<0.00002	-	-	-	-	-	-	
Perfluoroheptanoic acid (PFHpA)	mg/L	0.00002					-	-	-	-	-	-	<0.00002	<0.00002	<0.00002	<0.00002	-	-	-	-	-	-	
Perfluorooctanoic acid (PFOA)	mg/L	0.00001	0.5		2.0		-	-	-	-	-	-	<0.00001	<0.00001	<0.00001	<0.00001	-	-	-	-	-	-	
Perfluorononanoic acid (PFNA)	mg/L	0.00002					-	-	-	-	-	-	<0.00002	<0.00002	<0.00002	<0.00002	-	-	-	-	-	-	
Perfluorodecanoic acid (PFDA)	mg/L	0.00002					-	-	-	-	-	-	<0.00002	<0.00002	<0.00002	<0.00002	-	-	-	-	-	-	
Perfluoroundecanoic acid (PFUnDA)	mg/L	0.00002					-	-	-	-	-	-	<0.00002	<0.00002	<0.00002	<0.00002	-	-	-	-	-	-	
Perfluorododecanoic acid (PFDoDA)	mg/L	0.00002					-	-	-	-	-	-	<0.00002	<0.00002	<0.00002	<0.00002	-	-	-	-	-	-	
Perfluorotridecanoic acid (PFTrDA)	mg/L	0.00002					-	-	-	-	-	-	<0.00002	<0.00002	<0.00002	<0.00002	-	-	-	-	-	-	
Perfluorotetradecanoic acid (PFTeDA)	mg/L	0.00005					-	-	-	-	-	-	<0.00005	<0.00005	<0.00005	<0.00005	-	-	-	-	-	-	
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	mg/L	0.00005					-	-	-	-	-	-	<0.00005	<0.00005	<0.00005	<0.00005	-	-	-	-	-	-	
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	mg/L	0.00005					-	-	-	-	-	-	<0.00005	<0.00005	<0.00005	<0.00005	-	-	-	-	-	-	
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	mg/L	0.00005					-	-	-	-	-	-	<0.00005	<0.00005	<0.00005	<0.00005	-	-	-	-	-	-	
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	mg/L	0.00005					-	-	-	-	-	-	<0.00005	<0.00005	<0.00005	<0.00005	-	-	-	-	-	-	
Sum of PFAS	mg/L	0.00001					-	-	-	-	-	-	<0.00001	0.00001	<0.00001	<0.00001	-	-	-	-	-	-	
Sum of PFHxS and PFOS	mg/L	0.00001	0.05		0.2		-	-	-	-	-	-	<0.00001	0.00001	<0.00001	<0.00001	-	-	-	-	-	-	
Sum of PFAS (WA DER List)	mg/L	0.00001					-	-	-	-	-	-	<0.00001	0.00001	<0.00001	<0.00001	-	-	-	-	-	-	

Notes

- Not analysed
mg/kg milligrams per kilogram
mg/L leacate results in milligrams per litre unless otherwise stated

Location_Code						BH_MN12	BH_MN12	BH_MN12	BH_MN13	QA504A	BH_MN13	QA508A	VW_MN01	VW_MN01	VW_MN02	VW_MN02	QA501A	VW_MN02	BH_VMN03	BH_VMN03	QA507A
Field_ID						BH_MN12	BH_MN12	BH_MN12	BH_MN13	BH_MN13	BH_MN13	BH_MN13	VW_MN01	VW_MN01	VW_MN02	VW_MN02	VW_MN02	VW_MN02	BH_VMN03	BH_VMN03	BH_VMN03
Sample_Depth						0.5-0.6	1-1.1	2-2.1	0.4-0.5	0.4-0.5	0.9-1.2	0.9-1.2	0.7-0.8	0.9-1.1	0.5-0.6	0.5-0.6	0.5-0.6	2-2.1	0.4-0.5	0.9-1	0.9-1
Sampled_Date						2/06/2019	2/06/2019	2/06/2019	11/06/2019	11/06/2019	23/06/2019	23/06/2019	1/06/2019	1/06/2019	2/06/2019	2/06/2019	2/06/2019	2/06/2019	23/06/2019	23/06/2019	23/06/2019
Analyte	Units	EQL	CT1 / TCLP1 General Solid Waste (mg/L)	SCC1 General Solid Waste (mg/kg)	CT2 / TCLP2 Restricted Solid Waste (mg/L)	SCC2 Restricted Solid Waste (mg/kg)															
Per- and Polyfluoroalkyl Substances (PFAS)																					
10:2 Fluorotelomer sulfonic acid	mg/kg	0.0005					<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
4:2 Fluorotelomer sulfonic acid	mg/kg	0.0005					<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
8:2 Fluorotelomer sulfonate	mg/kg	0.0005					<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Et-FOSA	mg/kg	0.0005					<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Et-FOSE	mg/kg	0.0005					<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Me-FOSA	mg/kg	0.0005					<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Me-FOSE	mg/kg	0.0005					<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Perfluorobutanoic acid (PFBA)	mg/kg	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	<0.001	<0.001	<0.001	<0.001
Perfluoroheptane sulfonic acid	mg/kg	0.0002					<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoro-n-pentanoic acid (PFPeA)	mg/kg	0.0002					<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoropentane sulfonic acid	mg/kg	0.0002					<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
PFDcS	mg/kg	0.0002					<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
N-methyl-perfluorooctanesulfonamidoacetic acid	mg/kg	0.0002					<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Sum of PFHxS and PFOS (lab reported)	mg/kg	0.0002		1.8		7.2	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0003	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Sum of WA DER PFAS (n=10)	mg/kg	0.0002					<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0003	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Sum of PFASs (n=28)	mg/kg	0.0002					<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0003	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorobutanesulfonic acid (PFBS)	mg/kg	0.0002					<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorodecanoic acid (PFDA)	mg/kg	0.0002					<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorododecanoic acid (PFDoA)	mg/kg	0.0002					<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoroheptanoic acid (PFHpA)	mg/kg	0.0002					<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorooctanesulfonic acid (PFOS)	mg/kg	0.0002					<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0003	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorooctanoate (PFOA)	mg/kg	0.0002		18		72	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorohexanesulfonic acid (PFHxS)	mg/kg	0.0002					<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorononanoic acid (PFNA)	mg/kg	0.0002					<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorohexanoic acid (PFHxA)	mg/kg	0.0002					<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
6:2 Fluorotelomer Sulfonate (6:2 FtS)	mg/kg	0.0005					<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-ethyl-perfluorooctanesulfonamidoacetic acid	mg/kg	0.0002					<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorooctanesulfonamide (PFOSA)	mg/kg	0.0002					<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorotetradecanoic acid (PFTeDA)	mg/kg	0.0005					<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Perfluorotridecanoic acid (PFTrDA)	mg/kg	0.0002					<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoroundecanoic acid (PFUnA)	mg/kg	0.0002					<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Per- and Polyfluoroalkyl Substances (PFAS) - TCLP																ASLP	DI Water				
Perfluorooctane sulfonamide (FOSA)	mg/L	0.00002					-	-	-	-	-	-	-	-	-	<0.00002	<0.00002	-	-	-	-
N-Methyl perfluorooctane sulfonamide (MeFOSA)	mg/L	0.00005					-	-	-	-	-	-	-	-	-	<0.00005	<0.00005	-	-	-	-
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	mg/L	0.00005					-	-	-	-	-	-	-	-	-	<0.00005	<0.00005	-	-	-	-
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	mg/L	0.00005					-	-	-	-	-	-	-	-	-	<0.00005	<0.00005	-	-	-	-
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	mg/L	0.00005					-	-	-	-	-	-	-	-	-	<0.00005	<0.00005	-	-	-	-
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	mg/L	0.00002					-	-	-	-	-	-	-	-	-	<0.00002	<0.00002	-	-	-	-
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	mg/L	0.00002					-	-	-	-	-	-	-	-	-	<0.00002	<0.00002	-	-	-	-
Perfluorobutane sulfonic acid (PFBS)	mg/L	0.00002					-	-	-	-	-	-	-	-	-	<0.00002	<0.00002	-	-	-	-
Perfluoropentane sulfonic acid (PFPeS)	mg/L	0.00002					-	-	-	-	-	-	-	-	-	<0.00002	<0.00002	-	-	-	-
Perfluorohexane sulfonic acid (PFHxS)	mg/L	0.00002					-	-	-	-	-	-	-	-	-	<0.00002	<0.00002	-	-	-	-
Perfluoroheptane sulfonic acid (PFHpS)	mg/L	0.00002					-	-	-	-	-	-	-	-	-	<0.00002	<0.00002	-	-	-	-
Perfluorooctane sulfonic acid (PFOS)	mg/L	0.00001					-	-	-	-	-	-	-	-	-	0.00004	0.00006	-	-	-	-
Perfluorodecane sulfonic acid (PFDS)	mg/L	0.00002					-	-	-	-	-	-	-	-	-	<0.00002	<0.00002	-	-	-	-
Perfluorobutanoic acid (PFBA)	mg/L	0.0001					-	-	-	-	-	-	-	-	-	<0.0001	<0.0001	-	-	-	-
Perfluoropentanoic acid (PFPeA)	mg/L	0.00002					-	-	-	-	-	-	-	-	-	<0.00002	<0.00002	-	-	-	-
Perfluorohexanoic acid (PFHxA)	mg/L	0.00002					-	-	-	-	-	-	-	-	-	<0.00002	<0.00002	-	-	-	-
Perfluoroheptanoic acid (PFHpA)	mg/L	0.00002					-	-	-	-	-	-	-	-	-	<0.00002	<0.00002	-	-	-	-
Perfluorooctanoic acid (PFOA)	mg/L	0.00001	0.5		2.0		-	-	-	-	-	-	-	-	-	<0.00001	0.00001	-	-	-	-
Perfluorononanoic acid (PFNA)	mg/L	0.00002					-	-	-	-	-	-	-	-	-	<0.00002	<0.00002	-	-	-	-
Perfluorodecanoic acid (PFDA)	mg/L	0.00002					-	-	-	-	-	-	-	-	-	<0.00002	<0.00002	-	-	-	-
Perfluoroundecanoic acid (PFUnDA)	mg/L	0.00002					-	-	-	-	-	-	-	-	-	<0.00002	<0.00002	-	-	-	-
Perfluorododecanoic acid (PFDoDA)	mg/L	0.00002					-	-	-	-	-	-	-	-	-	<0.00002	<0.00002	-	-	-	-
Perfluorotridecanoic acid (PFTrDA)	mg/L	0.00002					-	-	-	-	-	-	-	-	-	<0.00002	<0.00002	-	-	-	-
Perfluorotetradecanoic acid (PFTeDA)	mg/L	0.00005					-	-	-	-	-	-	-	-	-	<0.00005	<0.00005	-	-	-	-
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	mg/L	0.00005					-	-	-	-	-	-	-	-	-	<0.00005	<0.00005	-	-	-	-
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	mg/L	0.00005					-	-	-	-	-	-	-	-	-	<0.00005	<0.00005	-	-	-	-
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	mg/L	0.00005					-	-	-	-	-	-	-	-	-	<0.00005	<0.00005	-	-	-	-
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	mg/L	0.00005					-	-	-	-	-	-	-	-	-	<0.00005	<0.00005	-	-	-	-
Sum of PFAS	mg/L	0.00001					-	-	-	-	-	-	-	-	-	0.00004	0.00007	-	-	-	-
Sum of PFHxS and PFOS	mg/L	0.00001	0.05		0.2		-	-	-	-	-	-	-	-	-	0.00004	0.00006	-	-	-	-
Sum of PFAS (WA DER List)	mg/L	0.00001					-	-	-	-	-	-	-	-	-	0.00004	0.00007	-	-	-	-

Notes

- Not analysed
mg/kg milligrams per kilogram
mg/L leacate results in milligrams per litre unless otherwise stated

						Well ID	BH_MN01A	WQA500A	WQA500B	BH_MN02	BH_MN08
						Sample ID	BH_MN01A	BH_MN01A	BH_MN01A	BH_MN02	BH_MN08
			Adopted Groundwater Screening Levels			Sample Date	28/06/2019	28/06/2019	28/06/2019	28/06/2019	28/06/2019
			Drinking Water	Recreational /Direct Contact [7]	95% Protection of species	Comm/ Ind HSL D (2-4 m)					
Analyte	**Units**	**EQL**	**NHMRC 2011**	**NHMRC 2008**	**ANZG 2018**	**NEPM 2013, CRC 2011**					
Heavy Metals											
Arsenic (Filtered)	mg/L	0.001	**0.01**	0.1	0.024 [1,4] / 0.013 [2,4]		<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium (Filtered)	mg/L	0.0001	**0.002**	0.02	0.0007 [8]		<0.0001	<0.0001	<0.0001	0.0013	0.0002
Chromium (Filtered)	mg/L	0.001	**0.05**	0.5	0.027		<0.001	<0.001	<0.001	<0.001	<0.001
Copper (Filtered)	mg/L	0.001	**2**	20	0.0013		0.011	0.015	0.015	0.026	<0.001
Lead (Filtered)	mg/L	0.001	**0.01**	0.1	0.0044 [3]		<0.001	<0.001	<0.001	<0.001	<0.001
Mercury (Filtered)	mg/L	0.0001	**0.001**	0.01	0.0001		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Nickel (Filtered)	mg/L	0.001	**0.02**	0.2	0.07		0.002	0.003	0.003	**0.022**	**0.031**
Zinc (Filtered)	mg/L	0.005			0.015		0.017	0.021	0.019	0.12	0.15
Volatile Petroleum Hydrocarbons (PHCs)											
TRH C6 - C10 Fraction F1	mg/L	0.02					<0.02	<0.02	<0.05	<0.02	<0.02
TRH C6 - C10 Fraction Less BTEX F1	mg/L	0.02	**1.3** [6]	13		6	<0.02	<0.02	<0.05	<0.02	<0.02
Total Recoverable Hydrocarbons (TRHs)											
TRH >C10 - C16 Fraction F2	mg/L	0.1					<0.1	<0.1	<0.06	<0.1	<0.1
TRH >C10 - C16 Fraction Less Naphthalene (F2)	mg/L	0.1	**0.1** [6]	1		NL	<0.1	<0.1	<0.06	<0.1	<0.1
TRH >C16 - C34 Fraction F3	mg/L	0.1	**0.8** [6]	8			<0.1	<0.1	<0.5	<0.1	<0.1
TRH >C34 - C40 Fraction F4	mg/L	0.1	**0.8** [6]	8			<0.1	<0.1	<0.5	<0.1	<0.1
TRH+C10 - C40 (Sum of total) (Lab Reported)	mg/L	0.1					<0.1	<0.1	<0.65	<0.1	<0.1
BTEXN											
Benzene	mg/L	0.001	**0.001**	0.01	0.7	5	<0.001	<0.001	<0.0005	<0.001	<0.001
Toluene	mg/L	0.002	**0.8**	8	0.18	NL	<0.002	<0.002	<0.0005	<0.002	<0.002
Ethylbenzene	mg/L	0.002	**0.3**	3	0.08	NL	<0.002	<0.002	<0.0005	<0.002	<0.002
Xylenes (m & p)	mg/L	0.002			m-xylene: 0.075 [3]		<0.002	<0.002	<0.001	<0.002	<0.002
Xylene (o)	mg/L	0.002			0.35 [3]		<0.002	<0.002	<0.0005	<0.002	<0.002
Xylenes (Sum of total) (Lab Reported)	mg/L	0.002	**0.6**	6		NL	<0.002	<0.002	<0.0015	<0.002	<0.002
Naphthalene	mg/L	0.005			0.07	NL	<0.005	<0.005	<0.0005	<0.005	<0.005
Total BTEX	mg/L	0.001					<0.001	<0.001	<0.003	<0.001	<0.001
Organochlorine Pesticides											
a-BHC	µg/L	0.5					<0.5	<0.5	<0.1	<0.5	<0.5
Aldrin	µg/L	0.5			0.003 [3]		<0.5	<0.5	<0.1	<0.5	<0.5
Dieldrin	µg/L	0.5			0.01 [3]		<0.5	<0.5	<0.1	<0.5	<0.5
Aldrin & Dieldrin (Sum of total) (Lab Reported)	µg/L	0.5	**0.3**	3			<0.5	<0.5	<0.1	<0.5	<0.5
b-BHC	µg/L	0.5					<0.5	<0.5	<0.1	<0.5	<0.5
cis-Chlordane	µg/L	0.5					<0.5	<0.5	<0.1	<0.5	<0.5
trans-Chlordane	µg/L	0.5					<0.5	<0.5	<0.1	<0.5	<0.5
Chlordane (Sum of total)	µg/L	0.5	**2**	20	0.001 [3]		<0.5	<0.5	<0.1	<0.5	<0.5
d-BHC	µg/L	0.5					<0.5	<0.5	<0.1	<0.5	<0.5
DDD	µg/L	0.5					<0.5	<0.5	<0.1	<0.5	<0.5
DDE	µg/L	0.5			0.0005 [3]		<0.5	<0.5	<0.1	<0.5	<0.5
DDT	µg/L	2	**9**	90	0.0004 [3]		<2.0	<2.0	<0.1	<2.0	<2.0
DDT+DDE+DDD (Sum of total) (Lab Reported)	µg/L	0.5					<0.5	<0.5	<0.1	<0.5	<0.5
Endosulfan I	µg/L	0.5	**20**	200	0.005		<0.5	<0.5	<0.1	<0.5	<0.5
Endosulfan II	µg/L	0.5					<0.5	<0.5	<0.1	<0.5	<0.5
Endosulfan sulphate	µg/L	0.5					<0.5	<0.5	<0.1	<0.5	<0.5
Endrin	µg/L	0.5			0.004 [9]		<0.5	<0.5	<0.1	<0.5	<0.5
Endrin aldehyde	µg/L	0.5					<0.5	<0.5	<0.1	<0.5	<0.5
Endrin ketone	µg/L	0.5					<0.5	<0.5	<0.1	<0.5	<0.5
g-BHC	µg/L	0.5	**10**	100	0.007 [3]		<0.5	<0.5	<0.1	<0.5	<0.5
Heptachlor	µg/L	0.5	**0.3**	3	0.0004 [3]		<0.5	<0.5	<0.1	<0.5	<0.5
Heptachlor epoxide	µg/L	0.5					<0.5	<0.5	<0.1	<0.5	<0.5
Hexachlorobenzene	µg/L	0.5			0.05 [3]		<0.5	<0.5	<0.1	<0.5	<0.5
Methoxychlor	µg/L	2	**300**	3000	0.004 [3]		<2.0	<2.0	<0.1	<2.0	<2.0
Organophosphorous Pesticides											
Azinphos-methyl	µg/L	0.5	**30**	300	0.02 [4]		<0.5	<0.5	<0.2	<0.5	<0.5
Bromophos-ethyl	µg/L	0.5	**10**	100			<0.5	<0.5	<0.2	<0.5	<0.5
Carbophenothion	µg/L	0.5	**0.5**	5			<0.5	<0.5	-	<0.5	<0.5
Chlorfenvinphos	µg/L	0.5	**2**	20			<0.5	<0.5	-	<0.5	<0.5
Chlorpyriphos	µg/L	0.5	**10**	100	0.009		<0.5	<0.5	<0.2	<0.5	<0.5
Chlorpyriphos-methyl	µg/L	0.5					<0.5	<0.5	-	<0.5	<0.5
Demeton-s-methyl	µg/L	0.5			4 [3]		<0.5	<0.5	-	<0.5	<0.5
Diazinon	µg/L	0.5	**4**	40	0.01 [3,4]		<0.5	<0.5	<0.5	<0.5	<0.5
Dichlorvos	µg/L	0.5	**5**	50			<0.5	<0.5	<0.5	<0.5	<0.5
Dimethoate	µg/L	0.5	**7**	70	0.15 [3,4]		<0.5	<0.5	<0.5	<0.5	<0.5
Ethion	µg/L	0.5	**4**	40			<0.5	<0.5	<0.2	<0.5	<0.5
Fenamiphos	µg/L	0.5	**0.5**	5			<0.5	<0.5	-	<0.5	<0.5
Fenitrothion	µg/L	0.2			0.001 [3]		-	-	<0.2	-	-
Fenthion	µg/L	0.5	**7**	70			<0.5	<0.5	-	<0.5	<0.5
Malathion	µg/L	0.5	**70**	700	0.05 [3,4]		<0.5	<0.5	<0.2	<0.5	<0.5
Methidathion	µg/L	0.5					-	-	<0.5	-	-
Parathion-methyl	µg/L	2	**0.7**	7			<2.0	<2.0	-	<2.0	<2.0
Monocrotophos	µg/L	2	**2**	20			<2.0	<2.0	-	<2.0	<2.0
Parathion	µg/L	2	**20**	200	0.004 [3,4]		<2.0	<2.0	-	<2.0	<2.0
Pirimphos-ethyl	µg/L	0.5	**0.5**	5			<0.5	<0.5	<0.2	<0.5	<0.5
Prothiofos	µg/L	0.5					<0.5	<0.5	-	<0.5	<0.5
PAH											
Acenaphthene	mg/L	0.001					<0.001	<0.001	<0.0001	<0.001	<0.001
Acenaphthylene	mg/L	0.001					<0.001	<0.001	<0.0001	<0.001	<0.001
Anthracene	mg/L	0.001			0.00001 [8]		<0.001	<0.001	<0.0001	<0.001	<0.001
Benz(a)anthracene	mg/L	0.001					<0.001	<0.001	<0.0001	<0.001	<0.001
Benzo(a)pyrene	mg/L	0.0005	**0.00001**	0.0001	0.0001 [8]		<0.0005	<0.0005	<0.0001	<0.0005	<0.0005
Benzo(a)pyrene TEQ (lower bound)*	mg/L	0.0005					<0.0005	<0.0005	<0.0001	<0.0005	<0.0005
Benzo(b)&(j)fluoranthene	mg/L	0.001					<0.001	<0.001	<0.0001	<0.001	<0.001
Benzo(g,h,i)perylene	mg/L	0.001					<0.001	<0.001	<0.0001	<0.001	<0.001
Benzo(k)fluoranthene	mg/L	0.001					<0.001	<0.001	<0.0001	<0.001	<0.001
Chrysene	mg/L	0.001					<0.001	<0.001	<0.0001	<0.001	<0.001
Dibenz(a,h)anthracene	mg/L	0.001					<0.001	<0.001	<0.0001	<0.001	<0.001
Fluoranthene	mg/L	0.001			0.001 [8]		<0.001	<0.001	<0.0001	<0.001	<0.001
Fluorene	mg/L	0.001					<0.001	<0.001	<0.0001	<0.001	<0.001
Indeno(1,2,3-c,d)pyrene	mg/L	0.001					<0.001	<0.001	<0.0001	<0.001	<0.001
Naphthalene	mg/L	0.001			0.05 [8]	NL	<0.001	<0.001	<0.0001	<0.001	<0.001
Phenanthrene	mg/L	0.001			0.0006 [8]		<0.001	<0.001	<0.0001	<0.001	<0.001
Pyrene	mg/L	0.001					<0.001	<0.001	<0.0001	<0.001	<0.001
PAH (Sum of Common 16 PAHs - Lab Reported)	mg/L	0.0005					<0.0005	<0.0005	<0.0001	<0.0005	<0.0005
Phenols											
2,4,5-Trichlorophenol	µg/L	1			4 [3]		<1.0	<1.0	<0.5	<1.0	<1.0
2,4,6-Trichlorophenol	µg/L	1	**20**	200	3 [4,8]		<1.0	<1.0	<0.5	<1.0	<1.0
2,3,5,6-tetrachlorophenol	µg/L	1			0.2 [3,4]		-	-	<1	-	-
2,4-Dichlorophenol	µg/L	1	**200**	2000	120 [4,8]		<1.0	<1.0	<0.5	<1.0	<1.0
2,6-Dichlorophenol	µg/L	1			34 [3,4]		<1.0	<1.0	<0.5	<1.0	<1.0
2,4-dinitrophenol	µg/L	2					-	-	<2	-	-
2-Chlorophenol	µg/L	1	**300**	3000	340 [3]		<1.0	<1.0	<0.5	<1.0	<1.0
4-Chloro-3-methylphenol	µg/L	1					<1.0	<1.0	<2	<1.0	<1.0
Pentachlorophenol	µg/L	2	**10**	100	11 [8]		<2.0	<2.0	<0.5	<2.0	<2.0
2,4-Dimethylphenol	µg/L	1			2 [3,4]		<1.0	<1.0	<0.5	<1.0	<1.0
2-Methylphenol	µg/L	1					<1.0	<1.0	<0.5	<1.0	<1.0
2-Nitrophenol	µg/L	1					<1.0	<1.0	<0.5	<1.0	<1.0
4-Nitrophenol	µg/L	1					-	-	<1	-	-
3- & 4- Methylphenol	µg/L	2					<2.0	<2.0	<1	<2.0	<2.0
Total cresol	µg/L	1.5					-	-	<1.5	-	-
Phenol	µg/L	1			400		<1.0	<1.0	<0.5	<1.0	<1.0
Polychlorinated Biphenyls											
PCB (Sum of Total-Lab Reported)	µg/L	1					<1	<1	<5	<1	<1

Analyte	Units	EQL	Adopted Groundwater Screening Levels: Drinking Water NHMRC 2011	Adopted Groundwater Screening Levels: Recreational /Direct Contact [7] NHMRC 2008	Adopted Groundwater Screening Levels: 95% Protection of species ANZG 2018	Comm/ Ind HSL D (2-4 m) NEPM 2013, CRC 2011	Well ID	BH_MN01A	WQA500A	WQA500B	BH_MN02	BH_MN08
							Sample ID	BH_MN01A	BH_MN01A	BH_MN01A	BH_MN02	BH_MN08
							Sample Date	28/06/2019	28/06/2019	28/06/2019	28/06/2019	28/06/2019
Volatile Organic Compounds												
1,4-Dichlorobenzene	µg/L	5	**40**	400	60 [3]			<5	<5	<0.3	<5	<5
2-Chlorotoluene	µg/L	5						<5	<5	<0.5	<5	<5
4-Chlorotoluene	µg/L	5						<5	<5	<0.5	<5	<5
1,2,3-Trichlorobenzene	µg/L	5			3 [3]			<5	<5	<0.5	<5	<5
1,2,4-Trichlorobenzene	µg/L	5			20 [8]			<5	<5	<0.5	<5	<5
1,2-Dichlorobenzene	µg/L	5	**1500**	15000	160 [3]			<5	<5	<0.5	<5	<5
1,3-Dichlorobenzene	µg/L	5			260 [3]			<5	<5	<0.5	<5	<5
Bromobenzene	µg/L	5						<5	<5	<0.5	<5	<5
Chlorobenzene	µg/L	5	**300**	3000	55 [3]			<5	<5	<0.5	<5	<5
1,2,4-trimethylbenzene	µg/L	5						<5	<5	<0.5	<5	<5
1,3,5-Trimethylbenzene	µg/L	5						<5	<5	<0.5	<5	<5
Isopropylbenzene	µg/L	5			30 [3]			<5	<5	<0.5	<5	<5
n-Butylbenzene	µg/L	5						<5	<5	<0.5	<5	<5
n-Propylbenzene	µg/L	5						<5	<5	<0.5	<5	<5
p-Isopropyltoluene	µg/L	5						<5	<5	<0.5	<5	<5
sec-Butylbenzene	µg/L	5						<5	<5	<0.5	<5	<5
Styrene	µg/L	5	**30**	300				<5	<5	<0.5	<5	<5
tert-Butylbenzene	µg/L	5						<5	<5	<0.5	<5	<5
Methyl Ethyl Ketone	µg/L	50						<50	<50	<10	<50	<50
2-Hexanone	µg/L	50						<50	<50	<5	<50	<50
Methyl iso-butyl ketone	µg/L	50						<50	<50	-	<50	<50
Vinyl acetate	µg/L	50						<50	<50	<10	<50	<50
1,1,1,2-Tetrachloroethane	µg/L	5						<5	<5	<0.5	<5	<5
1,1,2,2-Tetrachloroethane	µg/L	5						<5	<5	<0.5	<5	<5
1,1,1-Trichloroethane	µg/L	5			270 [3]			<5	<5	<0.5	<5	<5
1,1,2-Trichloroethane	µg/L	5			1900			<5	<5	<0.5	<5	<5
1,2,3-Trichloropropane	µg/L	5						<5	<5	<0.5	<5	<5
1,2-Dibromo-3-chloropropane	µg/L	5						<5	<5	<0.5	<5	<5
1,2-Dibromoethane	µg/L	5						<5	<5	<0.5	<5	<5
1,1-Dichloroethane	µg/L	5						<5	<5	<0.5	<5	<5
1,2-Dichloroethane	µg/L	5	**3**	30	1900 [3]			<5	<5	<0.5	<5	<5
1,1-Dichloroethene	µg/L	5	**30**	300	700 [3]			<5	<5	<0.5	<5	<5
cis-1,2-Dichloroethene	µg/L	5	**60**	600				<5	<5	<0.5	<5	<5
trans-1,2-dichloroethene	µg/L	5						<5	<5	<0.5	<5	<5
1,2-Dichloropropane	µg/L	5			900 [3]			<5	<5	<0.5	<5	<5
1,3-Dichloropropane	µg/L	5			1100 [3]			<5	<5	<0.5	<5	<5
2,2-Dichloropropane	µg/L	5						<5	<5	<0.5	<5	<5
1,1-Dichloropropylene	µg/L	5						<5	<5	<0.5	<5	<5
cis-1,3-Dichloropropylene	µg/L	5						<5	<5	<0.5	<5	<5
trans-1,3-dichloropropylene	µg/L	5						<5	<5	<0.5	<5	<5
1,3-dichloropropene (as sum of cis-1,3-Dichloropropene and trans-1,3-dichloropropene)	µg/L	-	**100**	1000	0.8 [3]			<5	<5	<0.5	<5	<5
cis-1,4-Dichloro-2-butene	µg/L	5						<5	<5	<1	<5	<5
trans-1,4-Dichloro-2-butene	µg/L	5						<5	<5	<1	<5	<5
Bromochloromethane	µg/L	1						-	-	<0.5	-	-
Bromodichloromethane	µg/L	5						<5	<5	<0.5	<5	<5
Bromoform	µg/L	5						<5	<5	<0.5	<5	<5
Bromomethane	µg/L	50	**1**	10				<50	<50	<10	<50	<50
Carbon disulfide	µg/L	5			20 [3]			<5	<5	<2	<5	<5
Carbon tetrachloride	µg/L	5	**3**	30	240 [3]			<5	<5	<0.5	<5	<5
Chlorodibromomethane	µg/L	5						<5	<5	-	<5	<5
Chloroethane	µg/L	50						<50	<50	<5	<50	<50
Chloroform	µg/L	5			370 [3]			<5	<5	<0.5	<5	<5
Chloromethane	µg/L	50						<50	<50	<5	<50	<50
Dibromomethane	µg/L	5						<5	<5	<0.5	<5	<5
Dichlorodifluoromethane	µg/L	50						<50	<50	<0.5	<50	<50
Hexachlorobutadiene	µg/L	5	**0.7**	7				<5	<5	<0.5	<5	<5
Iodomethane	µg/L	5						<5	<5	<5	<5	<5
Pentachloroethane	µg/L	5			80 [3]			<5	<5	-	<5	<5
Trichloroethene	µg/L	5			330 [3]			<5	<5	<0.5	<5	<5
Tetrachloroethene	µg/L	5	**50**	500	70 [3]			<5	<5	<0.5	<5	<5
Trichlorofluoromethane	µg/L	50						<50	<50	<1	<50	<50
Vinyl chloride	µg/L	50	**0.3**	3	100 [3]			<50	<50	<0.3	<50	<50
Per- and polyfluoroalkyl substances (PFAS)												
Sum of PFHxS and PFOS (lab reported)	mg/L	0.00001	**0.00007** [5]	0.0007 [5]				0.00002	0.00002	0.000018	<0.00001	<0.00005
10:2 Fluorotelomer sulfonic acid	mg/L	0.00005						<0.00005	<0.00005	-	<0.00005	<0.00005
8:2 Fluorotelomer sulfonate	mg/L	0.00005						<0.00005	<0.00005	<0.000002	<0.00005	<0.00005
6:2 Fluorotelomer Sulfonate (6:2 FtS)	mg/L	0.00005						<0.00005	<0.00005	0.000002	<0.00005	<0.00005
4:2 Fluorotelomer sulfonic acid	mg/L	0.00005						<0.00005	<0.00005	<0.000002	<0.00005	<0.00005
Perfluorobutanoic acid (PFBA)	mg/L	0.0001						<0.0001	<0.0001	0.001	<0.0001	<0.0002
Perfluoroheptane sulfonic acid	mg/L	0.00002						<0.00002	<0.00002	0.000005	<0.00002	<0.00005
Perfluoro-n-pentanoic acid (PFPeA)	mg/L	0.00002						<0.00002	<0.00002	0.000012	<0.00002	<0.00005
Perfluoropentane sulfonic acid	mg/L	0.00002						<0.00002	<0.00002	<0.000004	<0.00002	<0.00005
N-Et-FOSA	mg/L	0.00005						<0.00005	<0.00005	<0.00001	<0.00005	<0.00012
N-Et-FOSE	mg/L	0.00005						<0.00005	<0.00005	<0.00001	<0.00005	<0.00012
N-Me-FOSA	mg/L	0.00005						<0.00005	<0.00005	<0.00001	<0.00005	<0.00012
N-Me-FOSE	mg/L	0.00005						<0.00005	<0.00005	<0.00001	<0.00005	<0.00012
N-methyl-perfluorooctanesulfonamidoacetic acid	mg/L	0.00002						<0.00002	<0.00002	<0.00001	<0.00002	<0.00005
Perfluorobutanesulfonic acid (PFBS)	mg/L	0.00002						<0.00002	<0.00002	<0.000004	<0.00002	<0.00005
Perfluorodecanesulfonic acid (PFDS)	mg/L	0.00002						<0.00002	<0.00002	<0.000002	<0.00002	<0.00005
Perfluorodecanoic acid (PFDA)	mg/L	0.00002						<0.00002	<0.00002	<0.000004	<0.00002	<0.00005
Perfluorododecanoic acid (PFDoA)	mg/L	0.00002						<0.00002	<0.00002	<0.000004	<0.00002	<0.00005
Perfluoroheptanoic acid (PFHpA)	mg/L	0.00002						<0.00002	<0.00002	0.000005	<0.00002	<0.00005
Perfluorooctanesulfonic acid (PFOS)	mg/L	0.00001			0.00013 [5]			0.00002	0.00002	0.000014	<0.00001	<0.00005
Perfluorooctanoate (PFOA)	mg/L	0.00001	**0.00056** [5]	0.0056 [5]	0.22 [5]			0.00002	0.00002	0.000019	<0.00001	<0.00005
Perfluorohexanesulfonic acid (PFHxS)	mg/L	0.00002						<0.00002	<0.00002	0.000004	<0.00002	<0.00005
Perfluorononanoic acid (PFNA)	mg/L	0.00002						<0.00002	<0.00002	<0.000004	<0.00002	<0.00005
Perfluorohexanoic acid (PFHxA)	mg/L	0.00002						<0.00002	<0.00002	0.000009	<0.00002	<0.00005
N-ethyl-perfluorooctanesulfonamidoacetic acid	mg/L	0.00002						<0.00002	<0.00002	<0.00001	<0.00002	<0.00005
Perfluorooctanesulfonamide (PFOSA)	mg/L	0.00002						<0.00002	<0.00002	<0.000008	<0.00002	<0.00005
Perfluorotetradecanoic acid (PFTeDA)	mg/L	0.00005						<0.00005	<0.00005	<0.000004	<0.00005	<0.00012
Perfluorotridecanoic acid (PFTrDA)	mg/L	0.00002						<0.00002	<0.00002	<0.000004	<0.00002	<0.00005
Perfluoroundecanoic acid (PFUnA)	mg/L	0.00002						<0.00002	<0.00002	<0.000004	<0.00002	<0.00005

Notes
1 as As III
2 as As V
3 No high reliability value available, a low or unknown reliability value adopted
4 Freshwater value adopted
5 Value taken from PFAS National Environmental Management Plan (NEMP) (HEPA 2018)
6 Value taken from US EPA 2019 guideline for tap water
7 a 10x factor applied to the drinking water guideline consistent with NHMRC 2008 and WA DoH 2014 for recreational contact and/or direct contact during site construction and maintenance work
8 99% level of species protection

FIGURES

330635

331135

6246000

EDINBURGH ROAD

RAILWAY PARADE

BEDWIN ROAD

MURRAY STREET

SYDNEY STEEL ROAD

LILIAN FOWLER PLACE

UNWINS BRIDGE ROAD

CONWAY PLACE

BROWN STREET

SILVER STREET

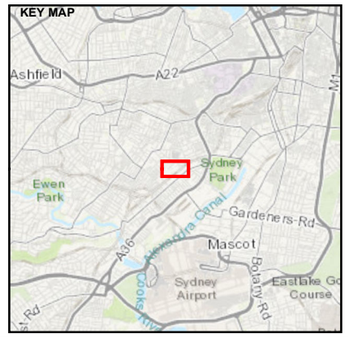
HAUL ROAD

BH-MN04
CPT-MN01
VW-MN01
BH-MN01
CPT-MN02
BH-MN06
CPT-MN04
BH-MN06a
CPT-MN13
BH-MN13
VW-MN03
CPT-MN03
BH-MN05
CPT-MN11
BH-MN11
BH-MN07
CPT-MN05
BH-MN03
CPT-MN14
BH-MN14
CPT-MN07
BH-MN08
CPT-MN09
CPT-MN06
BH-MN02
VW-MN02
CPT-MN08
BH-MN09
CPT-MN12
BH-MN12

LEGEND

- Borehole
- CPT
- Vapour well

KEY MAP



0 75 150

1:1,750 METRES

NOTE(S)
1. COORDINATE SYSTEM: GDA 1994 MGA ZONE 56

REFERENCE(S)
1. AERIAL PHOTO (C) NEARMAP.

CLIENT
TRANSPORT FOR NEW SOUTH WALES

PROJECT
SYDNEY METRO CITY AND SOUTHWEST

CONSULTANT
GOLDER
Douglas Partners
Geotechnics / Environment / Groundwater

YYYY-MM-DD	2019-07-29
DESIGNED	EAA
PREPARED	EAA
REVIEWED	BS
APPROVED	-

TITLE
INVESTIGATION LOCATIONS - AS-BUILT
MARRICKVILLE

PROJECT NO.	CONTROL	REV.	FIGURE
1791865	-	-	-

PATH: V:\TRNSW\1791865_SMW\GIS\Project\1791865-Marrickville.mxd PRINTED ON: 2019-07-29 AT: 11:52:35 AM

25mm

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APPENDIX A

Soil Bore Logs

NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : BH-MN01
FILE / JOB NO : 00013/11180
SHEET : 1 OF 2

PROJECT : Sydney Metro City & Southwest
LOCATION : Marrickville Dive Site

POSITION : E: 331107.5, N: 6246408.8 (56 MGA94) SURFACE ELEVATION : 4.54 (mAHD) ANGLE FROM HORIZONTAL : 90°

RIG TYPE : Comacchio 305 MOUNTING : Track CONTRACTOR : Ground Test DRILLER : LC

DATE STARTED : 1/6/19 DATE COMPLETED : 1/6/19 DATE LOGGED : 1/6/19 LOGGED BY : JDB CHECKED BY : DEM

DRILLING						MATERIAL					
PROGRESS: DRILLING & CASING	PROGRESS: WATER LOSS	DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m) RL (m AHD)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
DT					0.0 4.5			0.13m CONCRETE: grey, with 8mmø steel reinforcment at 56mm depth			FILL
NDD				1.50m				FILL: sandy CLAY: low to medium plasticity, brown, coarse sand			
					1.0 3.5			1.50m			
		E		D U75 1.85m SPT 3, 4, 6 N*=10 2.30m 2.50m U75 2.88m	2.0 2.5		CI	Silty CLAY: medium plasticity, pale grey mottled red-brown, some ironstaining	w<PL	St	RESIDUAL SOIL 1.85: HP =270 kPa 1.85: SPT Recovery: 0.45 m 1.90: HP =140 kPa 2.25: HP =220 kPa
				SPT 3,00m 3,3,3 N*=15 3.33m	3.0 1.5			2.88m Silty CLAY: medium plasticity, red-brown and grey-brown, trace fine ironstone gravel, ironstained			2.88: HP =440 kPa 2.88: SPT Recovery: 0.45 m 2.95: HP =270 kPa 3.30: HP =400 kPa
AD/T				4.00m U75 4.36m	4.0 0.5		CI	4.36m			
		F		SPT 8, 8, 12 N*=20 4.81m	5.0 -0.5			Silty CLAY: medium to high plasticity, grey and brown, with fine to coarse ironstone gravel	w~PL	VSt	4.36: HP =410 kPa 4.36: SPT Recovery: 0.45 m 4.40: HP =330 kPa 4.80: HP =440 kPa
				5.50m SPT 4, 8, 11 N=19 5.95m 6.00m	6.0 -1.5		CI-CH				5.50: SPT Recovery: 0 m
				7.00m SPT 6, 9, 12 N*=21 7.45m	7.0 -2.5						7.00: SPT Recovery: 0.45 m 7.05: HP =320 kPa 7.40: HP =320 kPa
					8.0 -3.5						

See Explanatory Notes for details of abbreviations & basis of descriptions.

GOLDER Douglas Partners Geotechnics / Environment / Groundwater

NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : BH-MN01
FILE / JOB NO : 00013/11180
SHEET : 2 OF 2

PROJECT : Sydney Metro City & Southwest
LOCATION : Marrickville Dive Site

POSITION : E: 331107.5, N: 6246408.8 (56 MGA94) SURFACE ELEVATION : 4.54 (mAHD) ANGLE FROM HORIZONTAL : 90°

RIG TYPE : Comacchio 305 MOUNTING : Track CONTRACTOR : Ground Test DRILLER : LC

DATE STARTED : 1/6/19 DATE COMPLETED : 1/6/19 DATE LOGGED : 1/6/19 LOGGED BY : JDB CHECKED BY : DEM

DRILLING						MATERIAL					
PROGRESS: DRILLING & CASING	PROGRESS: WATER LOSS	DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m) RL (m AHD)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
		F		8.50m U75 **8.71m**	8.0 -3.5		CI-CH	Silty CLAY: medium to high plasticity, grey and brown, with fine to coarse ironstone gravel *(continued)*	w~PL	VSt	
				SPT 13, 23, 15/90mm HB N*=R 9.10m	9.0 -4.5			8.71m SILTSTONE: dark grey and grey, some bands with soil strength; very low strength			WEATHERED MATERIAL 8.71: SPT Recovery: 0.39 m
AD/T		H		10.00m SPT 7, 12, 12 N*=24 10.45m	10.0 -5.5			10.00m SILTSTONE: dark grey and pale grey, interlaminated with 10 to 20% fine grained sandstone (laminations up to 5mm thick); very low strength			10.00: SPT Recovery: 0.45 m
				11.50m SPT 10, 26, 25/100mm HB N*=R 11.90m	11.0 -6.5 12.0 -7.5						11.50: SPT Recovery: 0.4 m
				13.00m SPT 27, 10/50mm HB N*=R 13.20m	13.0 -8.5			13.20m BOREHOLE BH-MN01 TERMINATED AT 13.20 m Target depth Groundwater Well installed			13.00: SPT Recovery: 0.2 m
					14.0 -9.5 15.0 -10.5 16.0 -11.5						

See Explanatory Notes for details of abbreviations & basis of descriptions.

GOLDER Douglas Partners Geotechnics / Environment / Groundwater

CORE PHOTOGRAPHS

HOLE NO : BH-MN01
FILE / JOB NO 00013/11180
SHEET : 1 OF 1

PROJECT : Sydney Metro City & Southwest
LOCATION : Marrickville Dive Site

POSITION : E: 331107.5, N:6246408.8 (56 MGA94)	SURFACE ELEVATION 4.54 (mAHD)		ANGLE FROM HORIZONTAL : 90°	
RIG TYPE : Comacchio 305	MOUNTING : Track	CONTRACTOR : Ground Test		DRILLER : LC
DATE STARTED : 1/6/19	DATE COMPLETED : 1/6/19	DATE LOGGED : 1/6/19	LOGGED BY : JDB	CHECKED BY : DEM

NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : BH-MN02
FILE / JOB NO : 00013/11180
SHEET : 1 OF 1

PROJECT : Sydney Metro City & Southwest
LOCATION : Marrickville Dive Site

POSITION : E: 330916.8, N: 6246208.0 (56 MGA94) SURFACE ELEVATION : 5.65 (mAHD) ANGLE FROM HORIZONTAL : 90°

RIG TYPE : Comacchio 305 MOUNTING : Track CONTRACTOR : Ground Test DRILLER : LC

DATE STARTED : 2/6/19 DATE COMPLETED : 2/6/19 DATE LOGGED : 2/6/19 LOGGED BY : JDB CHECKED BY : DEM

DRILLING						MATERIAL					
PROGRESS: DRILLING & CASING	PROGRESS: WATER LOSS	DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m) RL (m AHD)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
					0.0 5.7			0.06m FILL: ASPHALTIC CONCRETE: dark grey			ROAD SURFACE
								FILL: gravelly SAND: brown and dark brown, fine to medium, fine to coarse, igneous gravel, trace charcoal			FILL
								0.70m FILL: CLAY: medium plasticity, orange-grey, trace medium to coarse sand			
					1.0 4.7			1.00m Silty CLAY: medium plasticity, grey mottled red-brown, with fine to medium ironstone gravel, some ironstaining	w~PL		RESIDUAL SOIL 1.00: w~PL due to NDD
NDD				1.50m SPT 12, 24/130mm HB N*=R 1.78m							1.50: SPT Recovery: 0.28 m 1.55: HP =310 kPa 1.75: HP =340 kPa
					2.0 3.7		CI		w<PL	VS	
				2.50m SPT 10, 20, 25/120mm N*=R 2.92m				2.5m: pale grey mottled red-brown			2.50: SPT Recovery: 0.42 m 2.55: HP =430 kPa
		F									2.90: HP =500 kPa
					3.0 2.7			3.00m Silty CLAY: low to medium plasticity, grey and dark grey, with some ironstone bands	w~PL		
AD/T							CL-CI			VS to H	
				4.00m SPT 9, 18, 24 N*=42 4.45m	4.0 1.7						4.00: SPT Recovery: 0.48 m 4.05: HP =470 kPa
								4.40m SILTSTONE: dark grey; very low to low strength			WEATHERED MATERIAL 4.40: HP =550 kPa
		H		5.50m SPT 27/150mm HB N*=R 5.65m	5.0 0.7						5.50: SPT Recovery: 0.15 m
					6.0 -0.4			6.30m BOREHOLE BH-MN02 TERMINATED AT 6.30 m Target depth Groundwater Well installed			
					7.0 -1.4						
					8.0 -2.4						

See Explanatory Notes for details of abbreviations & basis of descriptions.

GOLDER Douglas Partners Geotechnics / Environment / Groundwater

CORE PHOTOGRAPHS

HOLE NO : BH-MN02
FILE / JOB NO 00013/11180
SHEET : 1 OF 1

PROJECT : Sydney Metro City & Southwest
LOCATION : Marrickville Dive Site

POSITION : E: 330916.8, N:6246208 (56 MGA94)	SURFACE ELEVATION 5.65 (mAHD)		ANGLE FROM HORIZONTAL : 90°	
RIG TYPE : Comacchio 305	MOUNTING : Track	CONTRACTOR : Ground Test	DRILLER : LC	
DATE STARTED : 2/6/19	DATE COMPLETED : 2/6/19	DATE LOGGED : 2/6/19	LOGGED BY : JDB	CHECKED BY : DEM

No concrete core
from
this location

NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : BH-MN03
FILE / JOB NO : 00013/11180
SHEET : 1 OF 1

PROJECT : Sydney Metro City & Southwest
LOCATION : Marrickville Precast Segment Facility

POSITION : E: 330829.0, N: 6246233.8 (56 MGA94) SURFACE ELEVATION : 3.62 (mAHD) ANGLE FROM HORIZONTAL : 90°

RIG TYPE : Geoprobe MOUNTING : Track CONTRACTOR : Matrix Drilling DRILLER : IN

DATE STARTED : 2/6/19 DATE COMPLETED : 2/6/19 DATE LOGGED : 2/6/19 LOGGED BY : CL CHECKED BY : BH

DRILLING						MATERIAL					
PROGRESS: DRILLING & CASING	PROGRESS: WATER LOSS	DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m) RL (m AHD)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
DT					0.0 3.6			0.13m CONCRETE: grey, aggregate up to 20 mm			ROAD SURFACE
								0.23m CONCRETE: grey			
HA				0.25m ES-0.25 0.35m				0.40m FILL: silty CLAY: red-brown, with sandstone gravel	M		FILL 0.25: PID = 0.5 ppm
		H		0.50m ES-0.5 0.60m	0.5 3.1			0.60m FILL: SAND: orange-red, coarse grained sand, with concrete	M		0.50: PID = 0.4 ppm
PT				0.75m ES-0.75-0.85 0.85m				CLAY: medium to high plasticity, dark brown			RESIDUAL SOIL 0.75: PID = 10.0 ppm Strong hydrocarbon odour
				1.00m ES-1.0-1.1 1.10m	1.0 2.6						1.00: PID = 10.0 ppm Strong hydrocarbon odour
				1.30m ES-1.3-1.4 1.40m				1.2m: becoming red mottled grey			1.30: PID = 8.5 ppm
		F-H	Not Observed		1.5 2.1		CI-CH	1.5m: trace ironstone gravel	w~PL	St	
				2.00m ES-2.0-2.1 2.10m	2.0 1.6						2.00: PID = 7.3 ppm
					2.5 1.1			2.50m CLAY: medium to high plasticity, red, with ironstone gravel			
		H		2.90m ES-2.9-3.0 3.00m			CI-CH	3.00m		St - VSt	2.90: PID = 3.4 ppm
					3.0 0.6			BOREHOLE BH-MN03 TERMINATED AT 3.00 m Target depth Hole Grouted			
					3.5 0.1						
					4.0 -0.4						
					4.5 -0.9						
					5.0 -1.4						

See Explanatory Notes for details of abbreviations & basis of descriptions.

GOLDER Douglas Partners Geotechnics / Environment / Groundwater

NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : BH-MN04
FILE / JOB NO : 00013/11180
SHEET : 1 OF 1

PROJECT : Sydney Metro City & Southwest
LOCATION : Marrickville Dive Site

POSITION : E: 331191.1, N: 6246456.8 (56 MGA94) SURFACE ELEVATION : 5.17 (mAHD) ANGLE FROM HORIZONTAL : 90°

RIG TYPE : Geoprobe MOUNTING : Track CONTRACTOR : Matrix Drilling DRILLER : IN

DATE STARTED : 2/6/19 DATE COMPLETED : 2/6/19 DATE LOGGED : 2/6/19 LOGGED BY : LT CHECKED BY : BH

DRILLING						MATERIAL					
PROGRESS: DRILLING & CASING	PROGRESS: WATER LOSS	DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m) RL (m AHD)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
HA					0.0 5.2			0.13m CONCRETE: aggregate <30 mm, 8 mm steel reinforcement at 0.06 m depth			ROAD SURFACE
								0.35m LEAN MIX CONCRETE: aggregate <30 mm			
				0.40m ES-0.4-0.6 0.60m	0.5 4.7			FILL: silty SAND: dark brown, with concrete cobbles, clinker, clay gravel, trace glass, ironstone gravel and ash			FILL 0.40: PID = 0.8 ppm 0.4-0.6m: QA500A, QA500B replicate and triplicate samples.
		F						0.6m: slag, ash, clinker	M		
				0.75m ES-0.75-0.85 0.85m 0.95m				0.69m: terracotta brick fragments			0.75: PID = 0.8 ppm
								0.95m			
				ES-0.95-1.05 1.05m	1.0 4.2			CLAY: medium to high plasticity, dark grey-brown			RESIDUAL SOIL 0.95: PID = 0.4 ppm Slight hydrocarbon odour
		E					CI-CH		w>PL	S to F	
								1.30m			
			Not Observed					CLAY: medium to high plasticity, yellow-brown mottled orange, trace root fibres			
					1.5 3.7			1.6m: becoming grey mottled yellow-brown			
				2.00m ES-2.0-2.2	2.0 3.2						2.00: PID = 0.4 ppm
PT		F-H		2.20m			CI-CH	2.2m: becoming grey with ironstone gravel	w~PL	F to H	
					2.5 2.7						
				2.80m ES-2.8-3							2.80: PID = 0.0 ppm
				3.00m	3.0 2.2			3.00m BOREHOLE BH-MN04 TERMINATED AT 3.00 m Target depth Hole Grouted			
					3.5 1.7						
					4.0 1.2						
					4.5 0.7						
					5.0 0.2						

See Explanatory Notes for details of abbreviations & basis of descriptions.

GOLDER Douglas Partners Geotechnics / Environment / Groundwater

NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : BH-MN05
FILE / JOB NO : 00013/11180
SHEET : 1 OF 1

PROJECT : Sydney Metro City & Southwest
LOCATION : Marrickville Dive Site

POSITION : E: 331079.1, N: 6246361.8 (56 MGA94) SURFACE ELEVATION : 5.31 (mAHD) ANGLE FROM HORIZONTAL : 90°

RIG TYPE : Geoprobe MOUNTING : Track CONTRACTOR : Matrix Drilling DRILLER : IN

DATE STARTED : 1/6/19 DATE COMPLETED : 1/6/19 DATE LOGGED : 1/6/19 LOGGED BY : LT CHECKED BY : BH

DRILLING					MATERIAL					
PROGRESS: DRILLING & CASING	PROGRESS: WATER LOSS	DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m) RL (m AHD)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
DT			Not Observed		0.0 5.3			CONCRETE: grey, aggregate <25 mm, 8 mm steel reinforcement at 0.09 m depth			ROAD SURFACE
NDD		F			0.16m			FILL: sandy GRAVEL: yellow-brown, sub-rounded			FILL
					0.45m			BOREHOLE BH-MN05 TERMINATED AT 0.45 m Refusal on Concrete Slab Hole Grouted			
					0.5 4.8						
					1.0 4.3						
					1.5 3.8						
					2.0 3.3						
					2.5 2.8						
					3.0 2.3						
					3.5 1.8						
					4.0 1.3						
					4.5 0.8						
					5.0 0.3						

See Explanatory Notes for details of abbreviations & basis of descriptions.

GOLDER Douglas Partners Geotechnics / Environment / Groundwater

NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : BH-MN06
FILE / JOB NO : 00013/11180
SHEET : 1 OF 1

PROJECT : Sydney Metro City & Southwest
LOCATION : Marrickville Precast Segment Facility

POSITION : E: 331028.0, N: 6246406.5 (56 MGA94) SURFACE ELEVATION : 4.46 (mAHD) ANGLE FROM HORIZONTAL : 90°

RIG TYPE : Hand Auger MOUNTING : N/A CONTRACTOR : Golder-Douglas DRILLER : CL

DATE STARTED : 11/6/19 DATE COMPLETED : 11/6/19 DATE LOGGED : 11/6/19 LOGGED BY : CL CHECKED BY : BH

DRILLING						MATERIAL					
PROGRESS: DRILLING & CASING	PROGRESS: WATER LOSS	DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m) RL (m AHD)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
DT					0.0 4.5			CONCRETE: grey, dark grey igneous aggregate and REO08 at 0.092m and 0.10m			ROAD SURFACE
					0.18m						
HA		F-VH	Not Observed	0.25m ES-0.25-0.35 0.35m				FILL: gravelly SAND: yellow-brown, with brick fragments, sandstone cobbles			FILL 0.25: PID = 0.0 ppm
				0.50m ES-0.5-0.6 0.60m	0.5 4.0			FILL: SAND: becoming dark brown	M		0.50: PID = 0.0 ppm
					0.70m			BOREHOLE BH-MN06 TERMINATED AT 0.70 m Refusal Hole Grouted Relocated to BH-MN06a			
					1.0 3.5						
					1.5 3.0						
					2.0 2.5						
					2.5 2.0						
					3.0 1.5						
					3.5 1.0						
					4.0 0.5						
					4.5 0.0						
					5.0 -0.5						

See Explanatory Notes for details of abbreviations & basis of descriptions.

GOLDER Douglas Partners Geotechnics / Environment / Groundwater

NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : BH-MN06a
FILE / JOB NO : 00013/11180
SHEET : 1 OF 1

PROJECT : Sydney Metro City & Southwest
LOCATION : Marrickville Precast Segment Facility

POSITION : E: 331026.0, N: 6246406.5 (56 MGA94) SURFACE ELEVATION : 4.46 (mAHD) ANGLE FROM HORIZONTAL : 90°

RIG TYPE : Geoprobe MOUNTING : Track CONTRACTOR : Matrix Drilling DRILLER : IN

DATE STARTED : 11/6/19 DATE COMPLETED : 11/6/19 DATE LOGGED : 11/6/19 LOGGED BY : CL CHECKED BY : BH

DRILLING						MATERIAL					
PROGRESS: DRILLING & CASING	PROGRESS: WATER LOSS	DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m) RL (m AHD)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
DT					0.0 4.5			CONCRETE: grey, dark grey igneous aggregate and REO08 at 0.092m and 0.10m			ROAD SURFACE
								0.18m			
HA		F-VH		0.25m ES-0.25-0.35 0.35m 0.50m ES-0.5-0.6 0.60m 0.75m ES-0.75-0.85 0.85m 0.90m ES-0.9-1.0 1.00m	0.5 4.0			FILL: gravelly SAND: yellow-brown, with brick fragments, sandstone cobbles	M		FILL 0.25: PID = 0.0 ppm 0.50: PID = 0.0 ppm 0.75: PID = 1.8 ppm
								0.90m			
					1.0 3.5			FILL: CLAY: low to medium plasticity, brown mottled red, trace fine to medium shale gravel			0.90: PID = 1.9 ppm 0.9-1.0m: QA506A, QA506B replicate and triplicate samples.
PT			Not Observed	1.40m ES-1.4.-1.5 1.50m	1.5 3.0						1.40: PID = 2.2 ppm
								1.60m CLAY: medium to high plasticity, red-brown	w~PL	St	RESIDUAL SOIL
				2.00m ES-2.0-2.1 2.10m	2.0 2.5						2.00: PID = 1.7 ppm
							CI-CH	2.3m: becoming pale grey mottled red, trace ironstone gravel		St to VSt	
				2.90m ES-2.9-3.0 3.00m	2.5 2.0						2.90: PID = 0.9 ppm
					3.0 1.5			3.00m BOREHOLE BH-MN06a TERMINATED AT 3.00 m Target depth Hole Grouted			
					3.5 1.0						
					4.0 0.5						
					4.5 0.0						
					5.0 -0.5						

See Explanatory Notes for details of abbreviations & basis of descriptions.

GOLDER Douglas Partners Geotechnics / Environment / Groundwater

NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : BH-MN07
FILE / JOB NO : 00013/11180
SHEET : 1 OF 1

PROJECT : Sydney Metro City & Southwest
LOCATION : Marrickville Precast Segment Facility

POSITION : E: 330974.8, N: 6246318.6 (56 MGA94) SURFACE ELEVATION : 4.29 (mAHD) ANGLE FROM HORIZONTAL : 90°

RIG TYPE : Hand Auger MOUNTING : N/A CONTRACTOR : Golder-Douglas DRILLER : CL

DATE STARTED : 11/6/19 DATE COMPLETED : 11/6/19 DATE LOGGED : 11/6/19 LOGGED BY : CL CHECKED BY : BH

DRILLING						MATERIAL					
PROGRESS: DRILLING & CASING	PROGRESS: WATER LOSS	DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m) / RL (m AHD)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY / RELATIVE DENSITY	STRUCTURE & Other Observations
HA		VH	Not Observed		0.0 4.3			0.05m CONCRETE GRAVEL: grey 0.10m Silty sandy GRAVEL: grey, with steel fibres	M		ROAD SURFACE FILL
								BOREHOLE BH-MN07 TERMINATED AT 0.10 m Refusal Hole Grouted Refusal at four seperate locations			
					0.5 3.8						
					1.0 3.3						
					1.5 2.8						
					2.0 2.3						
					2.5 1.8						
					3.0 1.3						
					3.5 0.8						
					4.0 0.3						
					4.5 -0.2						
					5.0 -0.7						

See Explanatory Notes for details of abbreviations & basis of descriptions.

GOLDER Douglas Partners Geotechnics / Environment / Groundwater

NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : BH-MN08
FILE / JOB NO : 00013/11180
SHEET : 1 OF 1

PROJECT : Sydney Metro City & Southwest
LOCATION : Marrickville Precast Segment Facility

POSITION : E: 330863.8, N: 6246256.3 (56 MGA94) SURFACE ELEVATION : 3.82 (mAHD) ANGLE FROM HORIZONTAL : 90°

RIG TYPE : Comacchio 305 MOUNTING : Track CONTRACTOR : Ground Test DRILLER : LC

DATE STARTED : 2/6/19 DATE COMPLETED : 2/6/19 DATE LOGGED : 2/6/19 LOGGED BY : JDB CHECKED BY : DEM

DRILLING						MATERIAL					
PROGRESS: DRILLING & CASING	PROGRESS: WATER LOSS	DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m) RL (m AHD)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
DT					0.0 3.8			CONCRETE: grey 0.64m			ROAD SURFACE
NDD			02/06/19		1.0 2.8			FILL: COBBLES: grey, to100 mm, uniform, sub-angular to angular, igneous 1.70m			FILL
		H						CLAY: medium to high plasticity, pale grey mottled red-brown, with silt, trace fine to medium ironstone gravel			RESIDUAL SOIL
				2.00m U75 2.28m	2.0 1.8						
				SPT 7, 12, 16 N*=28							2.28: HP >=600 kPa 2.28: SPT Recovery: 0.45 m 2.30: HP =310 kPa
				2.73m							2.70: HP =350 kPa
					3.0 0.8						
				3.50m D							
AD/T		F		4.00m			CI-CH		w~PL	VSt	
				SPT 6, 11, 13 N*=24	4.0 -0.2						4.00: SPT Recovery: 0.45 m 4.05: HP =300 kPa
				4.45m							4.40: HP =310 kPa
					5.0 -1.2						
				5.50m SPT 7, 12, 25/120mm HB N*=R							5.50: SPT Recovery: 0.42 m 5.55: HP =360 kPa
				5.92m				5.85m SILTSTONE: dark grey; very low to low strength			WEATHERED MATERIAL
		H		6.50m D	6.0 -2.2						
				7.00m SPT 15/30mm HB N*=R 7.03m	7.0 -3.2			7.03m BOREHOLE BH-MN08 TERMINATED AT 7.03 m Target depth Groundwater Well installed			7.00: SPT Recovery: 0.03 m
					8.0 -4.2						

See Explanatory Notes for details of abbreviations & basis of descriptions.

GOLDER Douglas Partners Geotechnics / Environment / Groundwater

CORE PHOTOGRAPHS

HOLE NO : BH-MN08
FILE / JOB NO 00013/11180
SHEET : 1 OF 1

PROJECT : Sydney Metro City & Southwest
LOCATION : Marrickville Precast Segment Facility

POSITION : E: 330863.8, N:6246256.3 (56 MGA94) SURFACE ELEVATION 3.82 (mAHD) ANGLE FROM HORIZONTAL : 90°

RIG TYPE : Comacchio 305 MOUNTING : Track CONTRACTOR : Ground Test DRILLER : LC

DATE STARTED : 2/6/19 DATE COMPLETED : 2/6/19 DATE LOGGED : 2/6/19 LOGGED BY : JDB CHECKED BY : DEM

GOLDER Douglas Partners Geotechnics / Environment / Groundwater

NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : BH-MN09
FILE / JOB NO : 00013/11180
SHEET : 1 OF 1

PROJECT : Sydney Metro City & Southwest
LOCATION : Marrickville Dive Site

POSITION : E: 330868.8, N: 6246157.8 (56 MGA94) SURFACE ELEVATION : 5.30 (mAHD) ANGLE FROM HORIZONTAL : 90°

RIG TYPE : Geoprobe MOUNTING : Track CONTRACTOR : Matrix Drilling DRILLER : IN

DATE STARTED : 1/6/19 DATE COMPLETED : 2/6/19 DATE LOGGED : 1/6/19 LOGGED BY : LT/CL CHECKED BY : BH

DRILLING						MATERIAL					
PROGRESS: DRILLING & CASING	PROGRESS: WATER LOSS	DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m) / RL (m AHD)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY / RELATIVE DENSITY	STRUCTURE & Other Observations
DT					0.0 5.3			CONCRETE: grey, aggregate <25 mm diameter, 8 mm steel reinforcement at 0.09 m depth			ROAD SURFACE
								0.42m			
NDD		H			0.5 4.8			FILL: GRAVEL: pale grey, sandstone , 20 to 40 mm sub angular			
								0.55m FILL: GRAVEL: dark grey, 20 to 30 mm sub angular			
				0.80m				0.80m			
PT		F	Not Observed	ES-0.8-0.9 0.90m				CLAY: medium to high plasticity, grey, trace ironstone gravel and root fibres	w~PL		RESIDUAL SOIL 0.80: PID = 0.0 ppm
				1.00m	1.0 4.3						
				ES-1-1.1 1.10m			CI-CH		w<PL	F	1.00: PID = 0.0 ppm
								1.40m			
		F-H			1.5 3.8			CLAY: medium to high plasticity, with ironstone banding			WEATHERED MATERIAL
				1.90m ES-1.9-2.0 2.00m	2.0 3.3		CI-CH		w<PL	H	2.00: PID = 0.0 ppm
				2.90m ES-2.9-3.0 3.00m	2.5 2.8						2.90: PID = 0.0 ppm
					3.0 2.3			3.00m BOREHOLE BH-MN09 TERMINATED AT 3.00 m Target depth Hole Grouted			
					3.5 1.8						
					4.0 1.3						
					4.5 0.8						
					5.0 0.3						

See Explanatory Notes for details of abbreviations & basis of descriptions.

GOLDER Douglas Partners Geotechnics / Environment / Groundwater

NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : BH-MN11
FILE / JOB NO : 00013/11180
SHEET : 1 OF 1

PROJECT : Sydney Metro City & Southwest
LOCATION : Marrickville Precast Segment Facility

POSITION : E: 331004.3, N: 6246350.2 (56 MGA94) SURFACE ELEVATION : 4.50 (mAHD) ANGLE FROM HORIZONTAL : 90°

RIG TYPE : Geoprobe MOUNTING : Track CONTRACTOR : Matrix Drilling DRILLER : IN

DATE STARTED : 11/6/19 DATE COMPLETED : 11/6/19 DATE LOGGED : 22/6/19 LOGGED BY : CL CHECKED BY : BH

DRILLING						MATERIAL					
PROGRESS: DRILLING & CASING	PROGRESS: WATER LOSS	DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m) RL (m AHD)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
DT					0.0 4.5			0.05m CONCRETE: grey, aggregate, ballast / dark grey cobbles			ROAD SURFACE
				0.25m ES-0.25-0.35 0.35m				FILL: clayey SAND: dark brown, fine to medium grained sand, gravelly clay, with sandstone cobbles			FILL
								0.40m			0.25: PID = 0.0 ppm 0.25-0.35m: QA502A, QA502B replicate and triplicate samples
HA		E			0.5 4.0			FILL: gravelly SAND: dark brown, gravelly gravel, with medium to coarse sandstone cobbles, trace fine to medium igneous gravel			
					1.0 3.5						
				1.50m				1.50m			
			Not Observed	ES-1.5-1.6 1.60m	1.5 3.0			FILL: clayey SAND: brown, with fine to medium gravel	W		1.50: PID= 0.9 ppm
								1.70m			
				2.00m ES-2.0-2.1 2.10m	2.0 2.5		CL-CI	Sandy CLAY: low to medium plasticity, red-brown, fine to medium	w~PL	S	RESIDUAL SOIL 2.00: PID = 2.3 ppm
PT		F						2.30m			
					2.5 2.0		CI-CH	CLAY: medium to high plasticity, red mottled orange, with ironstone gravel	w~PL	St to VSt	
				2.90m ES-2.9-3.0 3.00m				3.00m			2.90: PID = 1.8 ppm
					3.0 1.5			BOREHOLE BH-MN11 TERMINATED AT 3.00 m Target depth Hole Grouted BH-MN11 relocated to CPT-MN11			
					3.5 1.0						
					4.0 0.5						
					4.5 0.0						
					5.0 -0.5						

See Explanatory Notes for details of abbreviations & basis of descriptions.

GOLDER Douglas Partners Geotechnics / Environment / Groundwater

NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : BH-MN12
FILE / JOB NO : 00013/11180
SHEET : 1 OF 1

PROJECT : Sydney Metro City & Southwest
LOCATION : Marrickville Precast Segment Facility

POSITION : E: 330764.0, N: 6246129.5 (56 MGA94) SURFACE ELEVATION : 3.74 (mAHD) ANGLE FROM HORIZONTAL : 90°

RIG TYPE : Geoprobe MOUNTING : Track CONTRACTOR : Matrix Drilling DRILLER : IN

DATE STARTED : 2/6/19 DATE COMPLETED : 2/6/19 DATE LOGGED : 2/6/19 LOGGED BY : CL CHECKED BY : BH

DRILLING						MATERIAL					
PROGRESS: DRILLING & CASING	PROGRESS: WATER LOSS	DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m) / RL (m AHD)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY / RELATIVE DENSITY	STRUCTURE & Other Observations
DT					0.0 3.7			CONCRETE: grey, with aggregate (igneous <25 mm diameter) 0.13m			ROAD SURFACE
NDD				0.50m ES-0.5-0.6 0.60m	0.5 3.2			FILL: gravelly SAND: dark brown, with fine to medium igneous gravel 0.60m			FILL 0.50: PID = 9.8 ppm
				0.75m ES-0.75-0.85 0.85m				FILL: CLAY: low to medium plasticity, dark brown, with fine to medium gravel, trace concrete fragments and sandstone gravel			0.75: PID = 7.5 ppm
				1.00m ES-1.0-1.1 1.10m	1.0 2.7						1.00: PID = 27.5 ppm Strong hydrocarbon odour
					1.5 2.2			1.50m			
PT		F-H	Not Observed	2.00m ES-2.0-2.1 2.10m	2.0 1.7		CI-CH	CLAY: medium to high plasticity, red mottled grey, with ironstone gravel	w~PL	F	RESIDUAL SOIL 2.00: PID = 4.6 ppm
					2.5 1.2			2.5m: becoming stiff to very stiff, grey, and damp	w<PL	St to VSt	
				2.90m ES-2.9-3.0 3.00m	3.0 0.7			3.00m BOREHOLE BH-MN12 TERMINATED AT 3.00 m Target depth Hole Grouted			2.90: PID = 7.6 ppm
					3.5 0.2						
					4.0 -0.3						
					4.5 -0.8						
					5.0 -1.3						

See Explanatory Notes for details of abbreviations & basis of descriptions.

GOLDER Douglas Partners Geotechnics / Environment / Groundwater

NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : BH-MN13
FILE / JOB NO : 00013/11180
SHEET : 1 OF 1

PROJECT : Sydney Metro City & Southwest
LOCATION : Marrickville Precast Segment Facility

POSITION : E: 330915.9, N: 6246401.1 (56 MGA94) SURFACE ELEVATION : 4.10 (mAHD) ANGLE FROM HORIZONTAL : 90°

RIG TYPE : Geoprobe MOUNTING : Track CONTRACTOR : Matrix Drilling DRILLER : IN

DATE STARTED : 11/6/19 DATE COMPLETED : 23/6/19 DATE LOGGED : 23/6/19 LOGGED BY : CL CHECKED BY : BH

DRILLING						MATERIAL					
PROGRESS: DRILLING & CASING	PROGRESS: WATER LOSS	DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m) RL (m AHD)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
HA					0.0 4.1			0.03m FILL: GRAVEL: grey			ROAD SURFACE
								FILL: gravelly SAND: brown, trace silt and rootlets			FILL
				0.25m ES-0.25-035 0.35m							0.25: PID = 0.0 ppm 0.25-0.35m: QA503A, QA503B replicate and triplicate samples
				0.40m ES-0.4-0.5 0.50m				0.40m			0.40: PID = 0.0 ppm 0.4-0.5m: QA504A, QA504B replicate and triplicate samples
					0.5 3.6			FILL: CLAY: brown mottled red-orange, with gravel, trace rootlets and ash/charcoal	M		
								0.54m FILL: silty CLAY: red mottled white-brown			
		E-F		0.90m ES-0.9-1.2				0.90m 0.87 m to 0.9 m: tree root			0.90: PID = 1.3 ppm 0.9-1.2m: QA508A, QA508B replicate and triplicate samples
					1.0 3.1			FILL: CLAY: brown mottled red-brown, some silt and rootlets, trace ash/charcoal	w~PL		
				1.20m				1.20m CLAY: medium to high plasticity, mottled yellow-brown-grey, with silt and rootlets			RESIDUAL SOIL
PT					1.5 2.6		CI-CH				
								1.90m CLAY: medium to high plasticity, grey mottled red-brown, with ironstone gravel			
				2.00m ES-2.0-2.2	2.0 2.1						2.00: PID = 0.4 ppm
		F-H	Not Observed	2.20m					w~PL		
					2.5 1.6					St to VSt	
				3.00m ES-3.0-3.2	3.0 1.1						3.00: PID = 0.2 ppm
				3.20m			CI-CH				
AD/T		F			3.5 0.6				w~PL		
					4.0 0.1						
								4.50m			
					4.5 -0.4			BOREHOLE BH-MN13 TERMINATED AT 4.50 m Target depth Relocated following refusal at 0.54m on very stiff clay Soil Gas Well Installed			
					5.0 -0.9						

See Explanatory Notes for details of abbreviations & basis of descriptions.

GOLDER Douglas Partners Geotechnics / Environment / Groundwater

NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : BH-MN14
FILE / JOB NO : 00013/11180
SHEET : 1 OF 1

PROJECT : Sydney Metro City & Southwest
LOCATION : Marrickville Precast Segment Facility

POSITION : E: 330816.3, N: 6246300.1 (56 MGA94) SURFACE ELEVATION : 3.89 (mAHD) ANGLE FROM HORIZONTAL : 90°

RIG TYPE : Geoprobe MOUNTING : Track CONTRACTOR : Matrix Drilling DRILLER : IN

DATE STARTED : 23/6/19 DATE COMPLETED : 23/6/19 DATE LOGGED : 23/6/19 LOGGED BY : SS CHECKED BY : BH

DRILLING						MATERIAL					
PROGRESS: DRILLING & CASING	PROGRESS: WATER LOSS	DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m) RL (m AHD)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
DT			Not Observed		0.0 3.9			CONCRETE: grey, with 7mm diameter steel reinforcement at 49mm top cover			ROAD SURFACE
								0.27m			
NDD		E						FILL: SAND: yellow-brown, fine to medium grained sand	M		FILL
					0.5 3.4			0.50m			
		H						FILL: BRICKS: orange			
								0.70m			
								BOREHOLE BH-MN14 TERMINATED AT 0.70 m Refusal			
					1.0 2.9						
					1.5 2.4						
					2.0 1.9						
					2.5 1.4						
					3.0 0.9						
					3.5 0.4						
					4.0 -0.1						
					4.5 -0.6						
					5.0 -1.1						

See Explanatory Notes for details of abbreviations & basis of descriptions.

GOLDER Douglas Partners Geotechnics / Environment / Groundwater

NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : HAUL_ROAD
FILE / JOB NO : 00013/11180
SHEET : 1 OF 1

PROJECT : Sydney Metro City & Southwest
LOCATION : Marrickville Precast Segment Facility

POSITION : E: 330863.0, N: 6246257.9 (56 MGA94) SURFACE ELEVATION : 3.81 (mAHD) ANGLE FROM HORIZONTAL : 90°

RIG TYPE : Geoprobe MOUNTING : Track CONTRACTOR : Matrix Drilling DRILLER : IN

DATE STARTED : 23/6/19 DATE COMPLETED : 23/6/19 DATE LOGGED : 23/6/19 LOGGED BY : SS CHECKED BY : BH

DRILLING						MATERIAL					
PROGRESS: DRILLING & CASING	PROGRESS: WATER LOSS	DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m) RL (m AHD)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
DT					0.0 3.8			CONCRETE: grey, sub-angular, aggregate 0.20m CONCRETE: grey, sub-angular, aggregate 0.45m			ROAD SURFACE
HA		H	23/06/19 ▽		0.5 3.3			FILL: GRAVEL AND COBBLES: medium to coarse, sub-angular, igneous, inferred drainage blanket 0.60m	M		FILL
								BOREHOLE HAUL_ROAD TERMINATED AT 0.60 m Refusal Hole abandoned at 0.7m depth Hole Grouted			
					1.0 2.8						
					1.5 2.3						
					2.0 1.8						
					2.5 1.3						
					3.0 0.8						
					3.5 0.3						
					4.0 -0.2						
					4.5 -0.7						
					5.0 -1.2						

See Explanatory Notes for details of abbreviations & basis of descriptions.

GOLDER Douglas Partners Geotechnics / Environment / Groundwater

NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : VW-MN01
FILE / JOB NO : 00013/11180
SHEET : 1 OF 1

PROJECT : Sydney Metro City & Southwest
LOCATION : Marrickville Dive Site

POSITION : E: 331106.1, N: 6246410.4 (56 MGA94) SURFACE ELEVATION : 4.53 (mAHD) ANGLE FROM HORIZONTAL : 90°

RIG TYPE : Geoprobe MOUNTING : Track CONTRACTOR : Matrix Drilling DRILLER : IN

DATE STARTED : 1/6/19 DATE COMPLETED : 22/6/19 DATE LOGGED : 22/6/19 LOGGED BY : CL CHECKED BY : BH

DRILLING						MATERIAL					
PROGRESS: DRILLING & CASING	PROGRESS: WATER LOSS	DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m) RL (m AHD)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
DT					0.0 4.5			0.13m CONCRETE: grey, with aggregate (igneous <25 mm diameter), reo 09 (0.065 m depth), reo 09 (0.105 mm depth)			ROAD SURFACE
								0.30m CONCRETE: grey, with aggregate (<25 mm diameter), reinforcing 08 (0.09 m depth)			
NDD					0.5 4.0			FILL: silty sandy GRAVEL: dark brown, with cobbles and bricks	D to M		FILL
				0.70m				0.70m			
HA			22/06/19	ES-0.7-0.8 0.80m			CI-CH	0.80m CLAY: medium to high plasticity, dark brown			RESIDUAL SOIL 0.70: PID = 0 ppm
				0.90m ES-0.9-1.1				CLAY: medium to high plasticity, yellow mottled brown, trace root fibres			0.90: PID = 0 ppm
				1.10m	1.0 3.5		CI-CH	1.20m: becoming grey with trace ironstone gravel			
					1.5 3.0			1.50m CLAY: medium to high plasticity, brown and red			
				2.00m ES-2-2.1 2.10m	2.0 2.5					St	2.00: PID = 0.6 ppm
		F			2.5 2.0		CI-CH		w~PL		
				3.00m ES-3-3.1 3.10m	3.0 1.5						3.00: PID = 1.3 ppm
PT								3.20m: becoming pale grey			
					3.5 1.0					St to VSt	
					4.0 0.5			4.20m			
		H						CLAY: medium to high plasticity, pale grey, with ironstone gravel			
					4.5 0.0		CI-CH			VSt	
					5.0 -0.5			5.00m			

See Explanatory Notes for details of abbreviations & basis of descriptions.

BOREHOLE VW-MN01 TERMINATED
Target depth
Soil Gas Well Installed

GOLDER Douglas Partners Geotechnics / Environment / Groundwater

NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : VW-MN02
FILE / JOB NO : 00013/11180
SHEET : 1 OF 1

PROJECT : Sydney Metro City & Southwest
LOCATION : Marrickville Dive Site

POSITION : E: 330914.8, N: 6246208.7 (56 MGA94) SURFACE ELEVATION : 5.62 (mAHD) ANGLE FROM HORIZONTAL : 90°

RIG TYPE : Geoprobe MOUNTING : Track CONTRACTOR : Matrix Drilling DRILLER : IN

DATE STARTED : 2/6/19 DATE COMPLETED : 2/6/19 DATE LOGGED : 2/6/19 LOGGED BY : LT CHECKED BY : BH

DRILLING						MATERIAL					
PROGRESS: DRILLING & CASING	PROGRESS: WATER LOSS	DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m) RL (m AHD)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
DT					0.0 5.6			0.06m CONCRETE: grey, with aggregate (igneous <25 mm diameter), reo 09 (0.065 m depth)			ROAD SURFACE
				0.25m ES-0.25-0.35 0.35m				FILL: gravelly SAND: brown and dark brown, with fine to medium igneous gravel, trace charcoal and sandstone gravel			FILL 0.25: PID = 0.5 ppm
				0.50m ES-0.5-0.6 0.60m	0.5 5.1			0.70m	M		0.50: PID = 0.9 ppm
NDD				0.75m ES-0.75-0.95				FILL: CLAY: grey mottled orange, trace sandstone gravel			0.75: PID = 1.2 ppm
				0.95m 1.00m ES-1.0-1.1 1.10m	1.0 4.6			1.10m			1.00: PID = 1.1 ppm
PT					1.5 4.1			CLAY: medium to high plasticity, grey, trace ironstone gravel	w>PL	St	RESIDUAL SOIL
				2.00m ES-2.0-2.1 2.10m	2.0 3.6						2.00: PID = 0.0 ppm Push tube refusal
AD/T		F	Not Observed		2.5 3.1						
				3.00m ES-3.0-3.1 3.10m	3.0 2.6		CI-CH				3.00: PID = 0.0 ppm
		H			3.5 2.1				w~PL	St to VSt	
				4.00m ES-4.0-4.1 4.10m	4.0 1.6						4.00: PID = 0.0 ppm
		VH			4.5 1.1						
				4.90m ES-4.9-5.0 5.00m	5.0 0.6			5.00m			4.90: PID = 0.0 ppm

See Explanatory Notes for details of abbreviations & basis of descriptions.

BOREHOLE VW-MN02 TERMINATED
Refusal
Soil Gas Well Installed

GOLDER Douglas Partners Geotechnics / Environment / Groundwater

NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : VW-MN03
FILE / JOB NO : 00013/11180
SHEET : 1 OF 1

PROJECT : Sydney Metro City & Southwest
LOCATION : Marrickville Precast Segment Facility

POSITION : E: 330816.4, N: 6246307.8 (56 MGA94) SURFACE ELEVATION : 3.86 (mAHD) ANGLE FROM HORIZONTAL : 90°

RIG TYPE : Geoprobe MOUNTING : Track CONTRACTOR : Matrix Drilling DRILLER : IN

DATE STARTED : 23/6/19 DATE COMPLETED : 23/6/19 DATE LOGGED : 23/6/19 LOGGED BY : LT CHECKED BY : BH

DRILLING					MATERIAL					
PROGRESS: DRILLING & CASING	PROGRESS: WATER LOSS	DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m) RL (m AHD)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
DT					0.0 3.9			CONCRETE: grey, aggregate <25 mm, 8 mm steel reinforcement at 0.10 m and 0.13 m depth			ROAD SURFACE
				0.25m				0.25m			
HA		E		ES-0.2-0.35 0.35m				FILL: silty SAND: brown, fine to medium grained sand	M		FILL 0.25: PID = 1.0 ppm
				0.40m				0.40m			
		F-H		ES-0.4-0.5 0.50m	0.5 3.4			FILL: sandy CLAY: dark brown, with wood, metal, fine gravel, trace glass	w~PL		0.40: PID = 0.5 ppm
				0.75m							
				ES-0.75-0.85 0.85m							0.75: PID = 0.9 ppm
				0.90m							
				ES-0.9-1.0 1.00m							0.90: PID = 0.5 ppm 0.9-1.0m: QA507A, QA507B replicate and triplicate samples
				1.10m	1.0 2.9			1.10m			
			Perched Water Table	ES-1.1-1.2 1.20m			CI-CH	Silty CLAY: medium to high plasticity, grey mottled yellow-brown, trace mudstone gravel, rootlets	w>PL		RESIDUAL SOIL 1.10: PID = 0.4 ppm
PT					1.5 2.4				w~PL		
								1.80m			
				2.00m				Silty CLAY: medium to high plasticity, grey-red-brown mottled, with some ironstone			
				ES-2.0-2.2	2.0 1.9		CI-CH				2.00: PID = 0.4 ppm
		F-H		2.20m				2.20m		F to St	
								Silty CLAY: medium to high plasticity, grey mottled yellow and red			
					2.5 1.4		CI-CH		w<PL to w~PL		
					3.0 0.9			3.20m			
								BOREHOLE VW-MN03 TERMINATED AT 3.20 m Saturated from 1.1m in Fill (Perched Water) Rinsate water sample RB_VW_MN03 Integrity of Well Compromised, Hole Abandoned Vapour well installed at BH-MN13 in lieu of this location Hole Grouted			
					3.5 0.4						
					4.0 -0.1						
					4.5 -0.6						
					5.0 -1.1						

See Explanatory Notes for details of abbreviations & basis of descriptions.

GOLDER Douglas Partners Geotechnics / Environment / Groundwater

APPENDIX B

Groundwater Well Installation Logs

PIEZOMETER CONSTRUCTION

HOLE NO : BH-MN01a_w
FILE / JOB NO : 00013/11180
SHEET : 1 OF 1

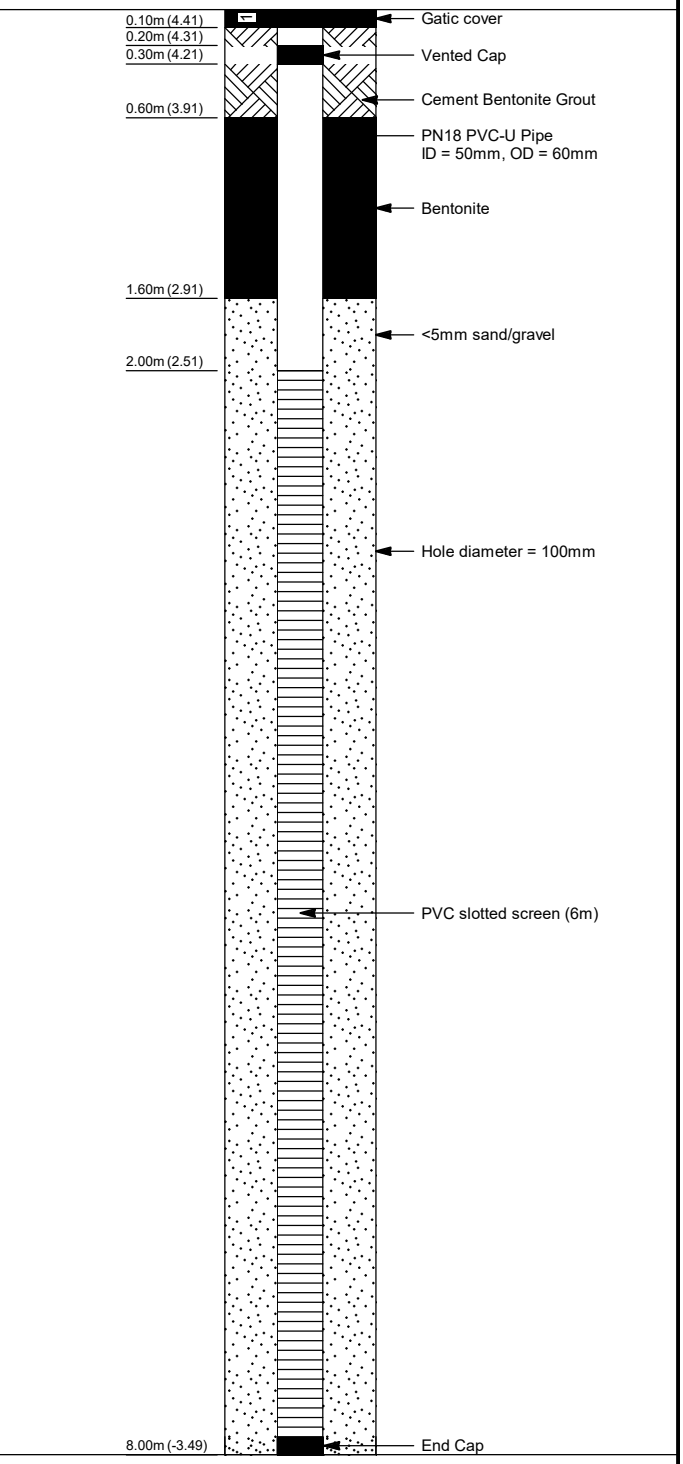
PROJECT : Sydney Metro City & Southwest
LOCATION : Marrickville Dive Site

POSITION : E: 331105.4, N: 6246408.1 (56 MGA94) SURFACE ELEVATION : 4.51 (mAHD) ANGLE FROM HORIZONTAL : 90°

RIG TYPE : Comacchio 305 MOUNTING : Track CONTRACTOR : Ground Test

DATE STARTED : 24/6/19 DATE COMPLETED : 24/6/19 DATE LOGGED : 24/6/19 LOGGED BY : CL CHECKED BY : DEM

DRILLING				MATERIAL			PIEZOMETER CONSTRUCTION DETAILS
PROGRESS							ID / Type / Stick Up & RL / Tip Depth & RL / Installation Date / Static Water Level
DRILLING & CASING	WATER LOSS	GROUND WATER LEVELS	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL (See geotechnical log for soil/rock detail)	1 Standpipe 8.00 m -3.49 mAHD 24/06/2019
DT			0.0			0.13m CONCRETE	
NDD						FILL	
			1.0				
						1.50m	
AD/T						CLAY	
			2.0				
			3.0				
			4.0			4.36m	
						CLAY	
			5.0				
			6.0				
			7.0				
			8.0			8.00m	
						BH-MN01a_w TERMINATED AT 8.00 m Target depth	
			9.0				



This report of well/VWP installation must be read in conjunction with accompanying notes and abbreviations. The geotechnical log is a summary only and the detailed log should be referred to for strata details and any core loss zones.

GOLDER Douglas Partners Geotechnics / Environment / Groundwater

PIEZOMETER CONSTRUCTION

HOLE NO : BH-MN02_w
FILE / JOB NO : 00013/11180
SHEET : 1 OF 1

PROJECT : Sydney Metro City & Southwest
LOCATION : Marrickville Dive Site

POSITION : E: 330916.8, N: 6246208.0 (56 MGA94) SURFACE ELEVATION : 5.65 (mAHD) ANGLE FROM HORIZONTAL : 90°

RIG TYPE : Comacchio 305 MOUNTING : Track CONTRACTOR : Ground Test

DATE STARTED : 2/6/19 DATE COMPLETED : 2/6/19 DATE LOGGED : 2/6/19 LOGGED BY : JDB CHECKED BY : DEM

DRILLING				MATERIAL			PIEZOMETER CONSTRUCTION DETAILS
PROGRESS							ID / Type / Stick Up & RL / Tip Depth & RL / Installation Date / Static Water Level
DRILLING & CASING	WATER LOSS	GROUND WATER LEVELS	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL (See geotechnical log for soil/rock detail)	1 Standpipe 6.30 m -0.65 mAHD 02/06/2019
NDD			0.0			0.06m ASPHALTIC CONCRETE FILL	0.10m (5.55) Gatic cover 0.20m (5.45) 0.30m (5.35) Vented Cap
			1.0			1.00m CLAY	Hole diameter = 100mm Cement Bentonite Grout PN18 PVC-U Pipe ID = 50mm, OD = 60mm
AD/T			2.0		CI		1.50m (4.15) Bentonite
			3.0			3.00m CLAY	2.90m (2.75) <5mm sand/gravel
			4.0		CL-CI	4.40m SILTSTONE	3.30m (2.35) PVC slotted screen (3m)
			5.0				
			6.0			6.30m BH-MN02_w TERMINATED AT 6.30 m Target depth	6.30m (-0.65) End Cap
			7.0				

This report of well/VWP installation must be read in conjunction with accompanying notes and abbreviations. The geotechnical log is a summary only and the detailed log should be referred to for strata details and any core loss zones.

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PIEZOMETER CONSTRUCTION

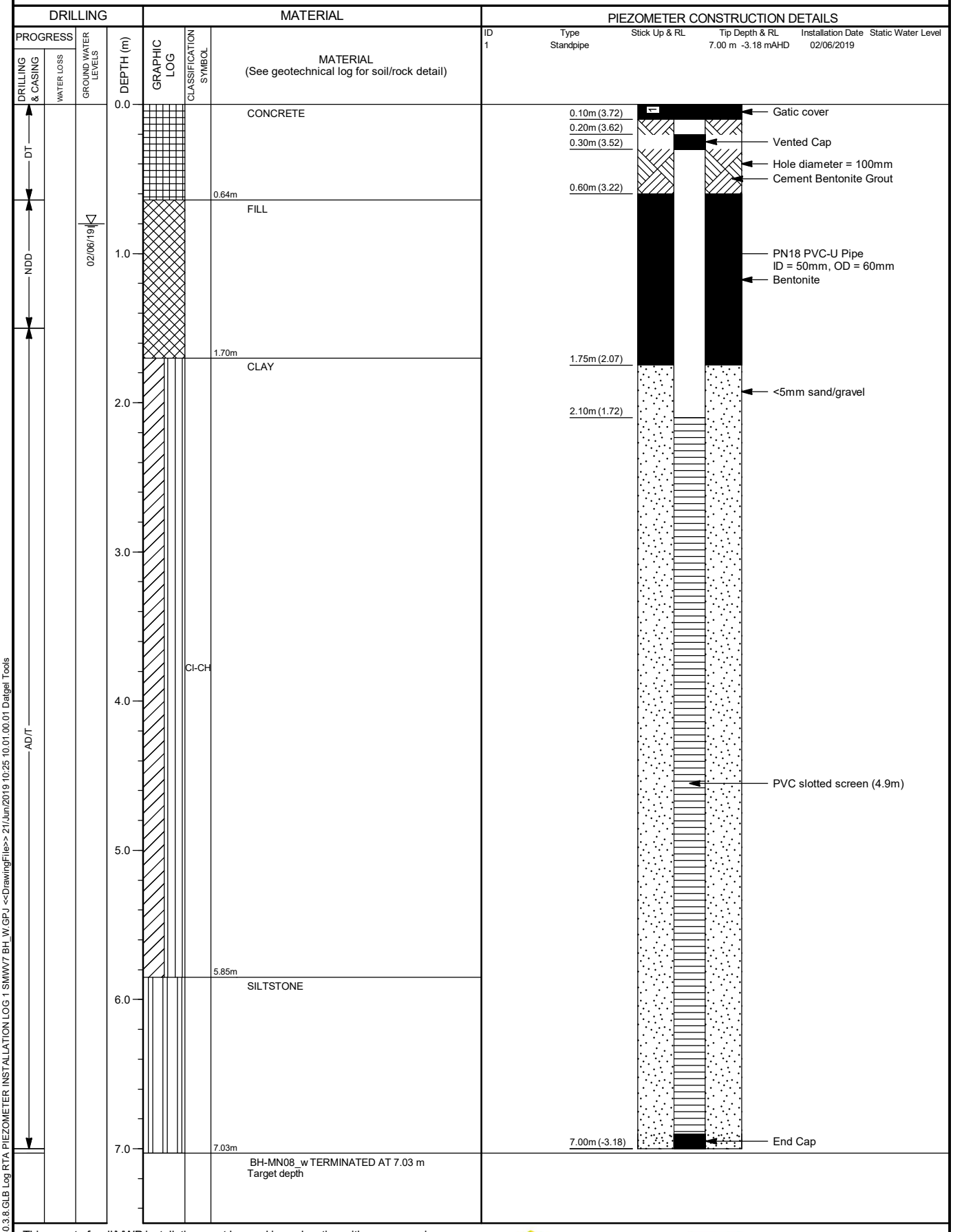
HOLE NO : BH-MN08_w
FILE / JOB NO : 00013/11180
SHEET : 1 OF 1

PROJECT : Sydney Metro City & Southwest
LOCATION : Marrickville Precast Segment Facility

POSITION : E: 330863.8, N: 6246256.3 (56 MGA94) SURFACE ELEVATION : 3.82 (mAHD) ANGLE FROM HORIZONTAL : 90°

RIG TYPE : Comacchio 305 MOUNTING : Track CONTRACTOR : Ground Test

DATE STARTED : 2/6/19 DATE COMPLETED : 2/6/19 DATE LOGGED : 2/6/19 LOGGED BY : JDB CHECKED BY : DEM



This report of well/VWP installation must be read in conjunction with accompanying notes and abbreviations. The geotechnical log is a summary only and the detailed log should be referred to for strata details and any core loss zones.

GOLDER Douglas Partners Geotechnics / Environment / Groundwater

APPENDIX C

Soil Gas Well Installation Logs

PIEZOMETER CONSTRUCTION

HOLE NO : BH-MN13_w
FILE / JOB NO : 00013/11180
SHEET : 1 OF 1

PROJECT : Sydney Metro City & Southwest
LOCATION : Marrickville Precast Segment Facility

POSITION : E: 330915.9, N: 6246401.1 (56 MGA94) SURFACE ELEVATION : 4.10 (mAHD) ANGLE FROM HORIZONTAL : 90°

RIG TYPE : Geoprobe MOUNTING : Track CONTRACTOR : Matrix Drilling

DATE STARTED : 11/6/19 DATE COMPLETED : 23/6/19 DATE LOGGED : 23/6/19 LOGGED BY : CL CHECKED BY : BH

DRILLING				MATERIAL			PIEZOMETER CONSTRUCTION DETAILS
PROGRESS: DRILLING & CASING	PROGRESS: WATER LOSS	GROUND WATER LEVELS	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL (See geotechnical log for soil/rock detail)	ID 1 / Type: Standpipe / Stick Up & RL / Tip Depth & RL: 4.50 m -0.40 mAHD / Installation Date: 23/06/2019 / Static Water Level
HA			0.0			FILL	0.01m (4.09) Gatic cover / vented cap; Bentonite
			0.5				0.50m (3.60) Slotted screen (4m)
			1.0				<5mm sand/gravel
						1.20m CLAY	Hole diameter = 100mm
PT			1.5				PN18 PVC-U Pipe ID = 50mm, OD = 60mm
		Not Observed	2.0				
			2.5				
					CI-CH		
			3.0				
AD/T			3.5				
			4.0				
			4.5			4.50m BH-MN13_w TERMINATED AT 4.50 m Target depth	4.50m (-0.40) End Cap
			5.0				

This report of well/VWP installation must be read in conjunction with accompanying notes and abbreviations. The geotechnical log is a summary only and the detailed log should be referred to for strata details and any core loss zones.

GOLDER Douglas Partners Geotechnics / Environment / Groundwater

PIEZOMETER CONSTRUCTION

HOLE NO : VW-MN01_w
FILE / JOB NO : 00013/11180
SHEET : 1 OF 1

PROJECT : Sydney Metro City & Southwest
LOCATION : Marrickville Dive Site

POSITION : E: 331106.1, N: 6246410.4 (56 MGA94) SURFACE ELEVATION : 4.53 (mAHD) ANGLE FROM HORIZONTAL : 90°

RIG TYPE : Geoprobe MOUNTING : Track CONTRACTOR : Matrix Drilling

DATE STARTED : 1/6/19 DATE COMPLETED : 22/6/19 DATE LOGGED : 22/6/19 LOGGED BY : CL CHECKED BY : BH

DRILLING

PROGRESS: DRILLING & CASING, WATER LOSS; GROUND WATER LEVELS; DEPTH (m)

DT

NDD

HA

PT

22/06/19

MATERIAL

DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL (See geotechnical log for soil/rock detail)
0.0			CONCRETE
0.30m			FILL: GRAVEL
0.70m			CLAY
		CI-CH	
5.00m			VW-MN01_w TERMINATED AT 5.00 m Target depth

PIEZOMETER CONSTRUCTION DETAILS

ID	Type	Stick Up & RL	Tip Depth & RL	Installation Date	Static Water Level
1	Standpipe		1.70 m 2.83 mAHD	22/06/2019	

0.01m (4.52) — Gatic cover / vented cap

Bentonite

0.50m (4.03)

0.60m (3.93) — PN18 PVC-U Pipe
ID = 50mm, OD = 60mm

Slotted screen (4m)

<5mm sand/gravel

Hole diameter = 100mm

1.70m (2.83) — End Cap

Bentonite

2.50m (2.03)

Cement Bentonite Grout

5.00m (-0.47)

This report of well/VWP installation must be read in conjunction with accompanying notes and abbreviations. The geotechnical log is a summary only and the detailed log should be referred to for strata details and any core loss zones.

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PIEZOMETER CONSTRUCTION

HOLE NO : VW-MN02_w
FILE / JOB NO : 00013/11180
SHEET : 1 OF 1

PROJECT : Sydney Metro City & Southwest
LOCATION : Marrickville Dive Site

POSITION : E: 330914.8, N: 6246208.7 (56 MGA94) SURFACE ELEVATION : 5.62 (mAHD) ANGLE FROM HORIZONTAL : 90°

RIG TYPE : Geoprobe MOUNTING : Track CONTRACTOR : Matrix Drilling

DATE STARTED : 2/6/19 DATE COMPLETED : 2/6/19 DATE LOGGED : 2/6/19 LOGGED BY : LT CHECKED BY : BH

DRILLING

PROGRESS: DRILLING & CASING, WATER LOSS

GROUND WATER LEVELS: Not Observed

DEPTH (m)

MATERIAL

GRAPHIC LOG | CLASSIFICATION SYMBOL | MATERIAL (See geotechnical log for soil/rock detail)

- 0.06m — CONCRETE
- FILL: SAND
- 1.10m — CLAY
- CI-CH
- 5.00m — VW-MN02_w TERMINATED AT 5.00 m
  Refusal

PIEZOMETER CONSTRUCTION DETAILS

ID	Type	Stick Up & RL	Tip Depth & RL	Installation Date	Static Water Level
1	Standpipe Piezometer		4.50 m 1.12 mAHD	02/06/2019	

- 0.01m (5.61) — Gatic cover / vented cap
- Bentonite
- 0.40m (5.22)
- Slotted screen (4m)
- <5mm sand/gravel
- Hole diameter = 100mm
- PN18 PVC-U Pipe
  ID = 50mm, OD = 60mm
- 4.50m (1.12) — End Cap
- Bentonite
- 5.00m (0.62)

This report of well/VWP installation must be read in conjunction with accompanying notes and abbreviations. The geotechnical log is a summary only and the detailed log should be referred to for strata details and any core loss zones.

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APPENDIX D

Concrete Core Logs

Borehole	Corrected Compressive Strength (MPa)	Defects
BH_MN01	38.0	Length/diameter < 1:1, 1x reinforcement (8 mm)
BH_MN03	47.0	Length/diameter < 1:1
BH_MN04	47.5	Length/diameter < 1:1
BH_MN05	44.5	Length/diameter < 1:1, 2x reinforcement (7 mm)
BH_MN06	49.0	Length/diameter < 1:1, 2x reinforcement (6 mm)
BH_MN08_1	31.5	Length/diameter < 1:1, voids
BH_MN08_2	35.0	Length/diameter < 1:1, voids
BH_MN09	23.0	Length/diameter < 1:1
BH_MN12	29.5	Length/diameter < 1:1, 1x reinforcement (8 mm)
BH_MN14	52.5	Length/diameter < 1:1, 1x reinforcement (7 mm)
CPT_MN01	53.5	Length/diameter < 1:1, 1x reinforcement (8 mm)
CPT_MN02	54.5	Length/diameter < 1:1, 1x reinforcement (9 mm), cracks
CPT_MN03	51.5	Length/diameter < 1:1, 3x reinforcement (5.7 & 8 mm)
CPT_MN04	50.5	Length/diameter < 1:1, 2x reinforcement (6 & 7 mm)
CPT_MN07_1	38.0	Length/diameter < 1:1, 2x reinforcement (5 & 8 mm)
CPT_MN07_2	46.0	Length/diameter < 1:1
CPT_MN07_3	22.5	Length/diameter < 1:1
CPT_MN08_1	33.0	Voids
CPT_MN08_2	47.5	Voids
CPT_MN12	30.5	Length/diameter < 1:1, 1x reinforcement (9 mm), cracks
CPT_MN14	41.5	Length/diameter < 1:1, 2x reinforcement (6 mm)
Haul Road_1	40.5	Nil
Haul Road_2	53.5	Length/diameter < 1:1
VN_MN01	44.0	Length/diameter < 1:1

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CONCRETE TEST REPORT

CLIENT: **MACQUARIE GEOTECHNICAL (Alexandria)**
PROJECT: **GOLDER-DOUGLAS - Sydney Metro Marrickville (1791865-VAR07-E)**

CLIENT No: **740**
REQUEST No: **84844**

Date of securing: **01.06.2019**
Location: **unknown**
Age of concrete in core at test: **unknown**

TEST METHOD: AS1012.14:2018 - Method for securing and testing cores from hardened concrete for compressive strength and mass per unit volume
AS1012.12.1: – Determination of mass per unit volume of hardened concrete- Rapid measuring method

Lab sample No.	Core Identification	Test date	Defects *Note 1	Trimmed length (mm)	Average diameter (mm)	Preconditioning when tested	Core density (kg/m^3)	Core Strength (MPa)	Corrected Compressive Strength (MPa)
221890	**BH-MN01**	04.07.19	2 + 5	89	93.0	Wet	2340	45.0	**38.0**

*** Note 1**

1. Diam. less than 75mm	3. Diam. Uneven	5. Reinforcement	7. Cracks
2. L/d < 1/1	4. Broken Edges	6. Voids	8. Other

Remarks: 1.Samples delivered to Boral Laboratory on 27.06.2019 in air dry condition. Core samples were trimmed and preconditioned in water bath at temperature 23 ±2°C for three days in the standard temperate zone before testing. Cores were prepared and tested as per AS1012.14 and AS1012.12.1 respectively.
2. This core has one reinforcement bar approx. 8mm dia, its axis 29mm from the nearest end. The core density was not further corrected due to the presence of reinforcement bar. The length/diameter is less than 1/1 and therefore the sample is liable for rejection.
C. Lloyd, J. Lloyd, D. Stone, J. Haines, S. Vandermeys, File: 7973, ref:84844RC

Approved Signatory _____ Robert Camilleri
Date 08.07.2019 Serial No. CON:84844.1

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CONCRETE TEST REPORT

CLIENT: **MACQUARIE GEOTECHNICAL (Alexandria)**
PROJECT: **GOLDER-DOUGLAS - Sydney Metro Marrickville (1791865-VAR07-E)**

CLIENT No: **740**
REQUEST No: **84844**

Date of securing: **02.06.2019**
Location: **unknown**
Age of concrete in core at test: **unknown**

TEST METHOD: AS1012.14:2018 - Method for securing and testing cores from hardened concrete for compressive strength and mass per unit volume
AS1012.12.1: – Determination of mass per unit volume of hardened concrete- Rapid measuring method

Lab sample No.	Core Identification	Test date	Defects *Note 1	Trimmed length (mm)	Average diameter (mm)	Preconditioning when tested	Core density (kg/m^3)	Core Strength (MPa)	Corrected Compressive Strength (MPa)
221891	**BH-MN03**	04.07.19	2	107	80.6	Wet	2360	50.0	**47.0**

*** Note 1**

1. Diam. less than 75mm	3. Diam. Uneven	5. Reinforcement	7. Cracks
2. L/d < 2/1	4. Broken Edges	6. Voids	8. Other

Remarks: Samples delivered to Boral Laboratory on 27.06.2019 in air dry condition. Core samples were trimmed and preconditioned in water bath at temperature 23 ±2°C for three days in the standard temperate zone before testing. Cores were prepared and tested as per AS1012.14 and AS1012.12.1 respectively.

C. Lloyd, J. Lloyd, D. Stone, J. Haines, S. Vandermeys, File: 7973, ref:84844RC

Approved Signatory _____ Robert Camilleri
Date 08.07.2019 Serial No. CON:84844.2

NATA
ACCREDITED FOR TECHNICAL COMPETENCE

Accredited for compliance with ISO/IEC 17025

NATA Accredited Laboratory Number: 547

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CONCRETE TEST REPORT

CLIENT: **MACQUARIE GEOTECHNICAL (Alexandria)**
PROJECT: **GOLDER-DOUGLAS - Sydney Metro Marrickville (1791865-VAR07-E)**

CLIENT No: **740**
REQUEST No: **84844**

Date of securing: **01.06.2019**
Location: **unknown**
Age of concrete in core at test: **unknown**

TEST METHOD: AS1012.14:2018 - Method for securing and testing cores from hardened concrete for compressive strength and mass per unit volume
AS1012.12.1: – Determination of mass per unit volume of hardened concrete- Rapid measuring method

Lab sample No.	Core Identification	Test date	Defects *Note 1	Trimmed length (mm)	Average diameter (mm)	Preconditioning when tested	Core density (kg/m^3)	Core Strength (MPa)	Corrected Compressive Strength (MPa)
221892	**BH-MN04**	04.07.19	2	123	80.6	Wet	2420	49.5	**47.5**

*** Note 1**

1. Diam. less than 75mm	3. Diam. Uneven	5. Reinforcement	7. Cracks
2. L/d < 2/1	4. Broken Edges	6. Voids	8. Other

Remarks: Samples delivered to Boral Laboratory on 27.06.2019 in air dry condition. Core samples were trimmed and preconditioned in water bath at temperature 23 ±2°C for three days in the standard temperate zone before testing. Cores were prepared and tested as per AS1012.14 and AS1012.12.1 respectively.

C. Lloyd, J. Lloyd, D. Stone, J. Haines, S. Vandermeys, File: 7973, ref:84844RC

Approved Signatory _____ Robert Camilleri

Date 08.07.2019 Serial No. CON:84844.3

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CONCRETE TEST REPORT

CLIENT: **MACQUARIE GEOTECHNICAL (Alexandria)**
PROJECT: **GOLDER-DOUGLAS - Sydney Metro Marrickville (1791865-VAR07-E)**

CLIENT No: **740**
REQUEST No: **84844**

Date of securing: **01.06.2019**
Location: **unknown**
Age of concrete in core at test: **unknown**

TEST METHOD: AS1012.14:2018 - Method for securing and testing cores from hardened concrete for compressive strength and mass per unit volume
AS1012.12.1: – Determination of mass per unit volume of hardened concrete- Rapid measuring method

Lab sample No.	Core Identification	Test date	Defects *Note 1	Trimmed length (mm)	Average diameter (mm)	Preconditioning when tested	Core density (kg/m^3)	Core Strength (MPa)	Corrected Compressive Strength (MPa)
221893	**BH-MN05**	04.07.19	2 + 5	85	80.6	Wet	2360	50.0	**44.5**

*** Note 1**

1. Diam. less than 75mm	3. Diam. Uneven	5. Reinforcement	7. Cracks
2. L/d < 2/1	4. Broken Edges	6. Voids	8. Other

Remarks: Samples delivered to Boral Laboratory on 27.06.2019 in air dry condition. Core samples were trimmed and preconditioned in water bath at temperature 23 ±2°C for three days in the standard temperate zone before testing. Cores were prepared and tested as per AS1012.14 and AS1012.12.1 respectively.
2. This core has two reinforcement bars approx. 7mm dia, its axis 4mm and 32mm from the nearest end. The core density was not further corrected due to the presence of reinforcement bar.

C. Lloyd, J. Lloyd, D. Stone, J. Haines, S. Vandermeys, File: 7973, ref:84844RC

Approved Signatory _____ Robert Camilleri

Date 08.07.2019 Serial No. CON:84844.4

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CONCRETE TEST REPORT

CLIENT: **MACQUARIE GEOTECHNICAL (Alexandria)**
PROJECT: **GOLDER-DOUGLAS - Sydney Metro Marrickville (1791865-VAR07-E)**

CLIENT No: **740**
REQUEST No: **84844**

Date of securing: **02.06.2019**
Location: **unknown**
Age of concrete in core at test: **unknown**

TEST METHOD: AS1012.14:2018 - Method for securing and testing cores from hardened concrete for compressive strength and mass per unit volume
AS1012.12.1: – Determination of mass per unit volume of hardened concrete- Rapid measuring method

Lab sample No.	Core Identification	Test date	Defects *Note 1	Trimmed length (mm)	Average diameter (mm)	Preconditioning when tested	Core density (kg/m^3)	Core Strength (MPa)	Corrected Compressive Strength (MPa)
221894	**BH-MN08 1/2**	04.07.19	2 + 6	151	80.8	Wet	2320	32.0	**31.5**

*** Note 1**

1. Diam. less than 75mm	3. Diam. Uneven	5. Reinforcement	7. Cracks
2. L/d < 2/1	4. Broken Edges	6. Voids	8. Other

Remarks: Samples delivered to Boral Laboratory on 27.06.2019 in air dry condition. Core samples were trimmed and preconditioned in water bath at temperature 23 ±2°C for three days in the standard temperate zone before testing. Cores were prepared and tested as per AS1012.14 and AS1012.12.1 respectively.

C. Lloyd, J. Lloyd, D. Stone, J. Haines, S. Vandermeys, File: 7973, ref:84844RC

Approved Signatory _____ Robert Camilleri

Date 08.07.2019 Serial No. CON:84844.5

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NATA Accredited Laboratory Number: 547

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CONCRETE TEST REPORT

CLIENT: **MACQUARIE GEOTECHNICAL (Alexandria)**
PROJECT: **GOLDER-DOUGLAS - Sydney Metro Marrickville (1791865-VAR07-E)**

CLIENT No: **740**
REQUEST No: **84844**

Date of securing: **02.06.2019**
Location: **unknown**
Age of concrete in core at test: **unknown**

TEST METHOD: AS1012.14:2018 - Method for securing and testing cores from hardened concrete for compressive strength and mass per unit volume
AS1012.12.1: – Determination of mass per unit volume of hardened concrete- Rapid measuring method

Lab sample No.	Core Identification	Test date	Defects *Note 1	Trimmed length (mm)	Average diameter (mm)	Preconditioning when tested	Core density (kg/m³)	Core Strength (MPa)	Corrected Compressive Strength (MPa)
221895	**BH-MN08 2/2**	04.07.19	2 + 6	155	80.8	Wet	2320	35.0	**35.0**

*** Note 1**

1. Diam. less than 75mm	3. Diam. Uneven	5. Reinforcement	7. Cracks
2. L/d < 2/1	4. Broken Edges	6. Voids	8. Other

Remarks: Samples delivered to Boral Laboratory on 27.06.2019 in air dry condition. Core samples were trimmed and preconditioned in water bath at temperature 23 ±2°C for three days in the standard temperate zone before testing. Cores were prepared and tested as per AS1012.14 and AS1012.12.1 respectively.

C. Lloyd, J. Lloyd, D. Stone, J. Haines, S. Vandermeys, File: 7973, ref:84844RC

Approved Signatory _____ Robert Camilleri

Date 08.07.2019 Serial No. CON:84844.6

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NATA Accredited Laboratory Number: 547

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CONCRETE TEST REPORT

CLIENT: **MACQUARIE GEOTECHNICAL (Alexandria)**
PROJECT: **GOLDER-DOUGLAS - Sydney Metro Marrickville (1791865-VAR07-E)**

CLIENT No: **740**
REQUEST No: **84844**

Date of securing: **01.06.2019**
Location: **unknown**
Age of concrete in core at test: **unknown**

TEST METHOD: AS1012.14:2018 - Method for securing and testing cores from hardened concrete for compressive strength and mass per unit volume
AS1012.12.1: – Determination of mass per unit volume of hardened concrete- Rapid measuring method

Lab sample No.	Core Identification	Test date	Defects *Note 1	Trimmed length (mm)	Average diameter (mm)	Preconditioning when tested	Core density (kg/m^3)	Core Strength (MPa)	Corrected Compressive Strength (MPa)
221896	**BH-MN09**	04.07.19	2	151	80.6	Wet	2260	23.5	**23.0**

*** Note 1**

1. Diam. less than 75mm	3. Diam. Uneven	5. Reinforcement	7. Cracks
2. L/d < 2/1	4. Broken Edges	6. Voids	8. Other

Remarks: Samples delivered to Boral Laboratory on 27.06.2019 in air dry condition. Core samples were trimmed and preconditioned in water bath at temperature 23 ±2°C for three days in the standard temperate zone before testing. Cores were prepared and tested as per AS1012.14 and AS1012.12.1 respectively.

C. Lloyd, J. Lloyd, D. Stone, J. Haines, S. Vandermeys, File: 7973, ref:84844RC

Approved Signatory _____ Robert Camilleri

Date 08.07.2019 Serial No. CON:84844.7

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CONCRETE TEST REPORT

CLIENT: **MACQUARIE GEOTECHNICAL (Alexandria)**
PROJECT: **GOLDER-DOUGLAS - Sydney Metro Marrickville (1791865-VAR07-E)**

CLIENT No: **740**
REQUEST No: **84844**

Date of securing: **02.06.2019**
Location: **unknown**
Age of concrete in core at test: **unknown**

TEST METHOD: AS1012.14:2018 - Method for securing and testing cores from hardened concrete for compressive strength and mass per unit volume
AS1012.12.1: – Determination of mass per unit volume of hardened concrete- Rapid measuring method

Lab sample No.	Core Identification	Test date	Defects *Note 1	Trimmed length (mm)	Average diameter (mm)	Preconditioning when tested	Core density (kg/m^3)	Core Strength (MPa)	Corrected Compressive Strength (MPa)
221897	**BH-MN12**	04.07.19	2 + 5	114	80.6	Wet	2400	31.0	**29.5**

*** Note 1**

1. Diam. less than 75mm	3. Diam. Uneven	5. Reinforcement	7. Cracks
2. L/d < 2/1	4. Broken Edges	6. Voids	8. Other

Remarks: Samples delivered to Boral Laboratory on 27.06.2019 in air dry condition. Core samples were trimmed and preconditioned in water bath at temperature 23 ±2°C for three days in the standard temperate zone before testing. Cores were prepared and tested as per AS1012.14 and AS1012.12.1 respectively.
2. This core has one reinforcement bar approx. 8mm dia, its axis 24mm from the nearest end. The core density was not further corrected due to the presence of reinforcement bar.

C. Lloyd, J. Lloyd, D. Stone, J. Haines, S. Vandermeys, File: 7973, ref:84844RC

Approved Signatory _____ Robert Camilleri
Date 08.07.2019 Serial No. CON:84844.8

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CONCRETE TEST REPORT

CLIENT: **MACQUARIE GEOTECHNICAL (Alexandria)**
PROJECT: **GOLDER-DOUGLAS - Sydney Metro Marrickville (1791865-VAR07-E)**

CLIENT No: **740**
REQUEST No: **84844**

Date of securing: **02.06.2019**
Location: **unknown**
Age of concrete in core at test: **unknown**

TEST METHOD: AS1012.14:2018 - Method for securing and testing cores from hardened concrete for compressive strength and mass per unit volume
AS1012.12.1: – Determination of mass per unit volume of hardened concrete- Rapid measuring method

Lab sample No.	Core Identification	Test date	Defects *Note 1	Trimmed length (mm)	Average diameter (mm)	Preconditioning when tested	Core density (kg/m³)	Core Strength (MPa)	Corrected Compressive Strength (MPa)
221898	**BH-MN14**	04.07.19	2 + 5	153	80.8	Wet	2360	53.0	**52.5**

*** Note 1**

1. Diam. less than 75mm	3. Diam. Uneven	5. Reinforcement	7. Cracks
2. L/d < 2/1	4. Broken Edges	6. Voids	8. Other

Remarks: Samples delivered to Boral Laboratory on 27.06.2019 in air dry condition. Core samples were trimmed and preconditioned in water bath at temperature 23 ±2°C for three days in the standard temperate zone before testing. Cores were prepared and tested as per AS1012.14 and AS1012.12.1 respectively.
2. This core has one reinforcement bar approx. 7mm dia, its axis 49mm from the nearest end. The core density was not further corrected due to the presence of reinforcement bar.

C. Lloyd, J. Lloyd, D. Stone, J. Haines, S. Vandermeys, File: 7973, ref:84844RC

Approved Signatory _____ Robert Camilleri
Date 08.07.2019 Serial No. CON:84844.9

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CONCRETE TEST REPORT

CLIENT: **MACQUARIE GEOTECHNICAL (Alexandria)**
PROJECT: **GOLDER-DOUGLAS - Sydney Metro Marrickville (1791865-VAR07-E)**

CLIENT No: **740**
REQUEST No: **84844**

Date of securing: **01.06.2019**
Location: **unknown**
Age of concrete in core at test: **unknown**

TEST METHOD: AS1012.14:2018 - Method for securing and testing cores from hardened concrete for compressive strength and mass per unit volume
AS1012.12.1: – Determination of mass per unit volume of hardened concrete- Rapid measuring method

Lab sample No.	Core Identification	Test date	Defects *Note 1	Trimmed length (mm)	Average diameter (mm)	Preconditioning when tested	Core density (kg/m³)	Core Strength (MPa)	Corrected Compressive Strength (MPa)
221899	**CPT-MN01**	04.07.19	2 + 5	113	80.8	Wet	2400	56.0	**53.5**

*** Note 1**

1. Diam. less than 75mm	3. Diam. Uneven	5. Reinforcement	7. Cracks
2. L/d < 2/1	4. Broken Edges	6. Voids	8. Other

Remarks: Samples delivered to Boral Laboratory on 27.06.2019 in air dry condition. Core samples were trimmed and preconditioned in water bath at temperature 23 ±2°C for three days in the standard temperate zone before testing. Cores were prepared and tested as per AS1012.14 and AS1012.12.1 respectively.
2. This core has one reinforcement bar approx. 8mm dia, its axis 49mm from the nearest end. The core density was not further corrected due to the presence of reinforcement bar.

C. Lloyd, J. Lloyd, D. Stone, J. Haines, S. Vandermeys, File: 7973, ref:84844RC

Approved Signatory _____ Robert Camilleri

Date 08.07.2019 Serial No. CON:84844.10

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CONCRETE TEST REPORT

CLIENT: **MACQUARIE GEOTECHNICAL (Alexandria)**
PROJECT: **GOLDER-DOUGLAS - Sydney Metro Marrickville (1791865-VAR07-E)**

CLIENT No: **740**
REQUEST No: **84844**

Date of securing: **01.06.2019**
Location: **unknown**
Age of concrete in core at test: **unknown**

TEST METHOD: AS1012.14:2018 - Method for securing and testing cores from hardened concrete for compressive strength and mass per unit volume
AS1012.12.1: – Determination of mass per unit volume of hardened concrete- Rapid measuring method

Lab sample No.	Core Identification	Test date	Defects *Note 1	Trimmed length (mm)	Average diameter (mm)	Preconditioning when tested	Core density (kg/m³)	Core Strength (MPa)	Corrected Compressive Strength (MPa)
221900	**CPT-MN02**	04.07.19	2,5 + 7	156	93.2	Wet	2280	56.0	**54.5**

*** Note 1**

1. Diam. less than 75mm	3. Diam. Uneven	5. Reinforcement	7. Cracks
2. L/d < 2/1	4. Broken Edges	6. Voids	8. Other

Remarks: Samples delivered to Boral Laboratory on 27.06.2019 in air dry condition. Core samples were trimmed and preconditioned in water bath at temperature 23 ±2°C for three days in the standard temperate zone before testing. Cores were prepared and tested as per AS1012.14 and AS1012.12.1 respectively.
2. This core has one reinforcement bar approx. 9mm dia, its axis 65mm from the nearest end. The core density was not further corrected due to the presence of reinforcement bar.

C. Lloyd, J. Lloyd, D. Stone, J. Haines, S. Vandermeys, File: 7973, ref:84844RC

Approved Signatory _____ Robert Camilleri
Date 08.07.2019 Serial No. CON:84844.11

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CONCRETE TEST REPORT

CLIENT: **MACQUARIE GEOTECHNICAL (Alexandria)**
PROJECT: **GOLDER-DOUGLAS - Sydney Metro Marrickville (1791865-VAR07-E)**

CLIENT No: **740**
REQUEST No: **84844**

Date of securing: **01.06.2019**
Location: **unknown**
Age of concrete in core at test: **unknown**

TEST METHOD: AS1012.14:2018 - Method for securing and testing cores from hardened concrete for compressive strength and mass per unit volume
AS1012.12.1: – Determination of mass per unit volume of hardened concrete- Rapid measuring method

Lab sample No.	Core Identification	Test date	Defects *Note 1	Trimmed length (mm)	Average diameter (mm)	Preconditioning when tested	Core density (kg/m³)	Core Strength (MPa)	Corrected Compressive Strength (MPa)
221901	**CPT-MN03**	04.07.19	2 + 5	150	80.4	Wet	2380	52.0	**51.5**

*** Note 1**

1. Diam. less than 75mm	3. Diam. Uneven	5. Reinforcement	7. Cracks
2. L/d < 2/1	4. Broken Edges	6. Voids	8. Other

Remarks: Samples delivered to Boral Laboratory on 27.06.2019 in air dry condition. Core samples were trimmed and preconditioned in water bath at temperature 23 ±2°C for three days in the standard temperate zone before testing. Cores were prepared and tested as per AS1012.14 and AS1012.12.1 respectively.
2. This core has three reinforcement bars approx. 8, 7 and 5mm dia, its axis 59, 67 and 55 mm from the nearest end. The core density was not further corrected due to the presence of reinforcement bar.
C. Lloyd, J. Lloyd, D. Stone, J. Haines, S. Vandermeys, File: 7973, ref:84844RC

Approved Signatory _____ Robert Camilleri
Date 08.07.2019 Serial No. CON:84844.12

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CONCRETE TEST REPORT

CLIENT: **MACQUARIE GEOTECHNICAL (Alexandria)**
PROJECT: **GOLDER-DOUGLAS - Sydney Metro Marrickville (1791865-VAR07-E)**

CLIENT No: **740**
REQUEST No: **84844**

Date of securing: **02.06.2019**
Location: **unknown**
Age of concrete in core at test: **unknown**

TEST METHOD: AS1012.14:2018 - Method for securing and testing cores from hardened concrete for compressive strength and mass per unit volume
AS1012.12.1: – Determination of mass per unit volume of hardened concrete- Rapid measuring method

Lab sample No.	Core Identification	Test date	Defects *Note 1	Trimmed length (mm)	Average diameter (mm)	Preconditioning when tested	Core density (kg/m^3)	Core Strength (MPa)	Corrected Compressive Strength (MPa)
221902	**CPT-MN07 1/3**	04.07.19	2 + 5	150	80.8	Wet	2360	38.5	**38.0**

*** Note 1**

1. Diam. less than 75mm	3. Diam. Uneven	5. Reinforcement	7. Cracks
2. L/d < 2/1	4. Broken Edges	6. Voids	8. Other

Remarks: Samples delivered to Boral Laboratory on 27.06.2019 in air dry condition. Core samples were trimmed and preconditioned in water bath at temperature 23 ±2°C for three days in the standard temperate zone before testing. Cores were prepared and tested as per AS1012.14 and AS1012.12.1 respectively.
2. This core has two reinforcement bars approx. 5 and 8mm dia, its axis 53mm and 64mm from the nearest end. The core density was not further corrected due to the presence of reinforcement bar.
C. Lloyd, J. Lloyd, D. Stone, J. Haines, S. Vandermeys, File: 7973, ref:84844RC

Approved Signatory RCL Robert Camilleri
Date 08.07.2019 Serial No. CON:84844.13

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CONCRETE TEST REPORT

CLIENT: **MACQUARIE GEOTECHNICAL (Alexandria)**
PROJECT: **GOLDER-DOUGLAS - Sydney Metro Marrickville (1791865-VAR07-E)**

CLIENT No: **740**
REQUEST No: **84844**

Date of securing: **02.06.2019**
Location: **unknown**
Age of concrete in core at test: **unknown**

TEST METHOD: AS1012.14:2018 - Method for securing and testing cores from hardened concrete for compressive strength and mass per unit volume
AS1012.12.1: – Determination of mass per unit volume of hardened concrete- Rapid measuring method

Lab sample No.	Core Identification	Test date	Defects *Note 1	Trimmed length (mm)	Average diameter (mm)	Preconditioning when tested	Core density (kg/m^3)	Core Strength (MPa)	Corrected Compressive Strength (MPa)
221903	**CPT-MN07 2/3**	04.07.19	2	150	80.8	Wet	2300	46.5	**46.0**

*** Note 1**

1. Diam. less than 75mm	3. Diam. Uneven	5. Reinforcement	7. Cracks
2. L/d < 2/1	4. Broken Edges	6. Voids	8. Other

Remarks: Samples delivered to Boral Laboratory on 27.06.2019 in air dry condition. Core samples were trimmed and preconditioned in water bath at temperature 23 ±2°C for three days in the standard temperate zone before testing. Cores were prepared and tested as per AS1012.14 and AS1012.12.1 respectively.

C. Lloyd, J. Lloyd, D. Stone, J. Haines, S. Vandermeys, File: 7973, ref:84844RC

Approved Signatory _____ Robert Camilleri

Date 08.07.2019 Serial No. CON:84844.14

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CONCRETE TEST REPORT

CLIENT: **MACQUARIE GEOTECHNICAL (Alexandria)**
PROJECT: **GOLDER-DOUGLAS - Sydney Metro Marrickville (1791865-VAR07-E)**

CLIENT No: **740**
REQUEST No: **84844**

Date of securing: **02.06.2019**
Location: **unknown**
Age of concrete in core at test: **unknown**

TEST METHOD: AS1012.14:2018 - Method for securing and testing cores from hardened concrete for compressive strength and mass per unit volume
AS1012.12.1: – Determination of mass per unit volume of hardened concrete- Rapid measuring method

Lab sample No.	Core Identification	Test date	Defects *Note 1	Trimmed length (mm)	Average diameter (mm)	Preconditioning when tested	Core density (kg/m^3)	Core Strength (MPa)	Corrected Compressive Strength (MPa)
221904	**CPT-MN07 3/3**	04.07.19	2	151	80.6	Wet	2240	22.5	**22.5**

*** Note 1**

1. Diam. less than 75mm	3. Diam. Uneven	5. Reinforcement	7. Cracks
2. L/d < 2/1	4. Broken Edges	6. Voids	8. Other

Remarks: Samples delivered to Boral Laboratory on 27.06.2019 in air dry condition. Core samples were trimmed and preconditioned in water bath at temperature 23 ±2°C for three days in the standard temperate zone before testing. Cores were prepared and tested as per AS1012.14 and AS1012.12.1 respectively.

C. Lloyd, J. Lloyd, D. Stone, J. Haines, S. Vandermeys, File: 7973, ref:84844RC

Approved Signatory _____ Robert Camilleri
Date 08.07.2019 Serial No. CON:84844.15

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CONCRETE TEST REPORT

CLIENT: **MACQUARIE GEOTECHNICAL (Alexandria)**
PROJECT: **GOLDER-DOUGLAS - Sydney Metro Marrickville (1791865-VAR07-E)**

CLIENT No: **740**
REQUEST No: **84844**

Date of securing: **01.06.2019**
Location: **unknown**
Age of concrete in core at test: **unknown**

TEST METHOD: AS1012.14:2018 - Method for securing and testing cores from hardened concrete for compressive strength and mass per unit volume
AS1012.12.1: – Determination of mass per unit volume of hardened concrete- Rapid measuring method

Lab sample No.	Core Identification	Test date	Defects *Note 1	Trimmed length (mm)	Average diameter (mm)	Preconditioning when tested	Core density (kg/m³)	Core Strength (MPa)	Corrected Compressive Strength (MPa)
221905	**CPT-MN08 1/2**	04.07.19	6	161	80.6	Wet	2300	33.0	**33.0**

*** Note 1**

1. Diam. less than 75mm	3. Diam. Uneven	5. Reinforcement	7. Cracks
2. L/d < 2/1	4. Broken Edges	6. Voids	8. Other

Remarks: Samples delivered to Boral Laboratory on 27.06.2019 in air dry condition. Core samples were trimmed and preconditioned in water bath at temperature 23 ±2°C for three days in the standard temperate zone before testing. Cores were prepared and tested as per AS1012.14 and AS1012.12.1 respectively.

C. Lloyd, J. Lloyd, D. Stone, J. Haines, S. Vandermeys, File: 7973, ref:84844RC

Approved Signatory _____ Robert Camilleri
Date 08.07.2019 Serial No. CON:84844.16

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CONCRETE TEST REPORT

CLIENT: **MACQUARIE GEOTECHNICAL (Alexandria)**
PROJECT: **GOLDER-DOUGLAS - Sydney Metro Marrickville (1791865-VAR07-E)**

CLIENT No: **740**
REQUEST No: **84844**

Date of securing: **01.06.2019**
Location: **unknown**
Age of concrete in core at test: **unknown**

TEST METHOD: AS1012.14:2018 - Method for securing and testing cores from hardened concrete for compressive strength and mass per unit volume
AS1012.12.1: – Determination of mass per unit volume of hardened concrete- Rapid measuring method

Lab sample No.	Core Identification	Test date	Defects *Note 1	Trimmed length (mm)	Average diameter (mm)	Preconditioning when tested	Core density (kg/m³)	Core Strength (MPa)	Corrected Compressive Strength (MPa)
221906	**CPT-MN08 2/2**	04.07.19	6	161	80.6	Wet	2360	47.5	**47.5**

*** Note 1**

1. Diam. less than 75mm	3. Diam. Uneven	5. Reinforcement	7. Cracks
2. L/d < 2/1	4. Broken Edges	6. Voids	8. Other

Remarks: Samples delivered to Boral Laboratory on 27.06.2019 in air dry condition. Core samples were trimmed and preconditioned in water bath at temperature 23 ±2°C for three days in the standard temperate zone before testing. Cores were prepared and tested as per AS1012.14 and AS1012.12.1 respectively.

This report replaces report number CON:84844.17 due to incorrect core identification number.

C. Lloyd, J. Lloyd, D. Stone, J. Haines, S. Vandermeys, File: 7973, ref:84844RC

Approved Signatory _____ Robert Camilleri
Date 11.07.2019 Serial No. CON:84844R.17

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CONCRETE TEST REPORT

CLIENT: **MACQUARIE GEOTECHNICAL (Alexandria)**
PROJECT: **GOLDER-DOUGLAS - Sydney Metro Marrickville (1791865-VAR07-E)**

CLIENT No: **740**
REQUEST No: **84844**

Date of securing: **01.06.2019**
Location: **unknown**
Age of concrete in core at test: **unknown**

TEST METHOD: AS1012.14:2018 - Method for securing and testing cores from hardened concrete for compressive strength and mass per unit volume
AS1012.12.1: – Determination of mass per unit volume of hardened concrete- Rapid measuring method

Lab sample No.	Core Identification	Test date	Defects *Note 1	Trimmed length (mm)	Average diameter (mm)	Preconditioning when tested	Core density (kg/m³)	Core Strength (MPa)	Corrected Compressive Strength (MPa)
221908	**CPT-MN012**	04.07.19	2, 5 + 7	125	80.6	Wet	2360	32.0	**30.5**

*** Note 1**

1. Diam. less than 75mm	3. Diam. Uneven	5. Reinforcement	7. Cracks
2. L/d < 2/1	4. Broken Edges	6. Voids	8. Other

Remarks: Samples delivered to Boral Laboratory on 27.06.2019 in air dry condition. Core samples were trimmed and preconditioned in water bath at temperature 23 ±2°C for three days in the standard temperate zone before testing. Cores were prepared and tested as per AS1012.14 and AS1012.12.1 respectively.
2. This core has one reinforcement bar approx. 9mm dia, its axis 59mm from the nearest end. The core density was not further corrected due to the presence of reinforcement bar.

C. Lloyd, J. Lloyd, D. Stone, J. Haines, S. Vandermeys, File: 7973, ref:84844RC

Approved Signatory _____ Robert Camilleri

Date 08.07.2019 Serial No. CON:84844.19

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CONCRETE TEST REPORT

CLIENT: **MACQUARIE GEOTECHNICAL (Alexandria)**
PROJECT: **GOLDER-DOUGLAS - Sydney Metro Marrickville (1791865-VAR07-E)**

CLIENT No: **740**
REQUEST No: **84844**

Date of securing: **02.06.2019**
Location: **unknown**
Age of concrete in core at test: **unknown**

TEST METHOD: AS1012.14:2018 - Method for securing and testing cores from hardened concrete for compressive strength and mass per unit volume
AS1012.12.1: – Determination of mass per unit volume of hardened concrete- Rapid measuring method

Lab sample No.	Core Identification	Test date	Defects *Note 1	Trimmed length (mm)	Average diameter (mm)	Preconditioning when tested	Core density (kg/m³)	Core Strength (MPa)	Corrected Compressive Strength (MPa)
221909	**CPT-MN014**	04.07.19	5	164	80.6	Wet	2380	41.5	**41.5**

*** Note 1**

1. Diam. less than 75mm	3. Diam. Uneven	5. Reinforcement	7. Cracks
2. L/d < 2/1	4. Broken Edges	6. Voids	8. Other

Remarks: Samples delivered to Boral Laboratory on 27.06.2019 in air dry condition. Core samples were trimmed and preconditioned in water bath at temperature 23 ±2°C for three days in the standard temperate zone before testing. Cores were prepared and tested as per AS1012.14 and AS1012.12.1 respectively.
2. This core has two reinforcement bars approx. 6mm dia, its axis 75mm and 53mm from the nearest end. The core density was not further corrected due to the presence of reinforcement bar.

C. Lloyd, J. Lloyd, D. Stone, J. Haines, S. Vandermeys, File: 7973, ref:84844RC

Approved Signatory _____ Robert Camilleri

Date 08.07.2019 Serial No. CON:84844.20

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CONCRETE TEST REPORT

CLIENT: **MACQUARIE GEOTECHNICAL (Alexandria)**
PROJECT: **GOLDER-DOUGLAS - Sydney Metro Marrickville (1791865-VAR07-E)**

CLIENT No: **740**
REQUEST No: **84844**

Date of securing: **02.06.2019**
Location: **unknown**
Age of concrete in core at test: **unknown**

TEST METHOD: AS1012.14:2018 - Method for securing and testing cores from hardened concrete for compressive strength and mass per unit volume
AS1012.12.1: – Determination of mass per unit volume of hardened concrete- Rapid measuring method

Lab sample No.	Core Identification	Test date	Defects *Note 1	Trimmed length (mm)	Average diameter (mm)	Preconditioning when tested	Core density (kg/m³)	Core Strength (MPa)	Corrected Compressive Strength (MPa)
221910	**Haul Road 1/2**	04.07.19	N/A	163	80.8	Wet	2340	40.5	**40.5**

*** Note 1**

1. Diam. less than 75mm	3. Diam. Uneven	5. Reinforcement	7. Cracks
2. L/d < 2/1	4. Broken Edges	6. Voids	8. Other

Remarks: Samples delivered to Boral Laboratory on 27.06.2019 in air dry condition. Core samples were trimmed and preconditioned in water bath at temperature 23 ±2°C for three days in the standard temperate zone before testing. Cores were prepared and tested as per AS1012.14 and AS1012.12.1 respectively.

C. Lloyd, J. Lloyd, D. Stone, J. Haines, S. Vandermeys, File: 7973, ref:84844RC

Approved Signatory _____ Robert Camilleri

Date 08.07.2019 Serial No. CON:84844.21

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CONCRETE TEST REPORT

CLIENT: **MACQUARIE GEOTECHNICAL (Alexandria)**
PROJECT: **GOLDER-DOUGLAS - Sydney Metro Marrickville (1791865-VAR07-E)**

CLIENT No: **740**
REQUEST No: **84844**

Date of securing: **02.06.2019**
Location: **unknown**
Age of concrete in core at test: **unknown**

TEST METHOD: AS1012.14:2018 - Method for securing and testing cores from hardened concrete for compressive strength and mass per unit volume
AS1012.12.1: – Determination of mass per unit volume of hardened concrete- Rapid measuring method

Lab sample No.	Core Identification	Test date	Defects *Note 1	Trimmed length (mm)	Average diameter (mm)	Preconditioning when tested	Core density (kg/m^3)	Core Strength (MPa)	Corrected Compressive Strength (MPa)
221911	**Haul Road 2/2**	04.07.19	2	159	80.6	Wet	2300	53.5	**53.5**

*** Note 1**

1. Diam. less than 75mm	3. Diam. Uneven	5. Reinforcement	7. Cracks
2. L/d < 2/1	4. Broken Edges	6. Voids	8. Other

Remarks: Samples delivered to Boral Laboratory on 27.06.2019 in air dry condition. Core samples were trimmed and preconditioned in water bath at temperature 23 ±2°C for three days in the standard temperate zone before testing. Cores were prepared and tested as per AS1012.14 and AS1012.12.1 respectively.

C. Lloyd, J. Lloyd, D. Stone, J. Haines, S. Vandermeys, File: 7973, ref:84844RC

Approved Signatory _____ Robert Camilleri

Date 08.07.2019 Serial No. CON:84844.22

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CONCRETE TEST REPORT

CLIENT: **MACQUARIE GEOTECHNICAL (Alexandria)**
PROJECT: **GOLDER-DOUGLAS - Sydney Metro Marrickville (1791865-VAR07-E)**

CLIENT No: **740**
REQUEST No: **84844**

Date of securing: **01.06.2019**
Location: **unknown**
Age of concrete in core at test: **unknown**

TEST METHOD: AS1012.14:2018 - Method for securing and testing cores from hardened concrete for compressive strength and mass per unit volume
AS1012.12.1: – Determination of mass per unit volume of hardened concrete- Rapid measuring method

Lab sample No.	Core Identification	Test date	Defects *Note 1	Trimmed length (mm)	Average diameter (mm)	Preconditioning when tested	Core density (kg/m^3)	Core Strength (MPa)	Corrected Compressive Strength (MPa)
221912	**VW-MN01**	04.07.19	2	108	80.6	Wet	2340	48.0	**44.0**

*** Note 1**

1. Diam. less than 75mm	3. Diam. Uneven	5. Reinforcement	7. Cracks
2. L/d < 2/1	4. Broken Edges	6. Voids	8. Other

Remarks: Samples delivered to Boral Laboratory on 27.06.2019 in air dry condition. Core samples were trimmed and preconditioned in water bath at temperature 23 ±2°C for three days in the standard temperate zone before testing. Cores were prepared and tested as per AS1012.14 and AS1012.12.1 respectively.

C. Lloyd, J. Lloyd, D. Stone, J. Haines, S. Vandermeys, File: 7973, ref:84844RC

Approved Signatory _____ Robert Camilleri

Date 08.07.2019 Serial No. CON:84844.23

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CONCRETE TEST REPORT

CLIENT: **MACQUARIE GEOTECHNICAL (Alexandria)**
PROJECT: **GOLDER-DOUGLAS - Sydney Metro Marrickville (1791865-VAR07-E)**

CLIENT No: **740**
REQUEST No: **84844**

Date of securing: **11.06.2019**
Location: **unknown**
Age of concrete in core at test: **unknown**

TEST METHOD: AS1012.14:2018 - Method for securing and testing cores from hardened concrete for compressive strength and mass per unit volume
AS1012.12.1: – Determination of mass per unit volume of hardened concrete- Rapid measuring method

Lab sample No.	Core Identification	Test date	Defects *Note 1	Trimmed length (mm)	Average diameter (mm)	Preconditioning when tested	Core density (kg/m^3)	Core Strength (MPa)	Corrected Compressive Strength (MPa)
221913	**BH-MN06**	04.07.19	2 + 5	162	143.2	Wet	2360	54.0	**49.0**

*** Note 1**

1. Diam. less than 75mm	3. Diam. Uneven	5. Reinforcement	7. Cracks
2. L/d < 2/1	4. Broken Edges	6. Voids	8. Other

Remarks: Samples delivered to Boral Laboratory on 27.06.2019 in air dry condition. Core samples were trimmed and preconditioned in water bath at temperature 23 ±2°C for three days in the standard temperate zone before testing. Cores were prepared and tested as per AS1012.14 and AS1012.12.1 respectively.
2. This core has two reinforcement bars approx. 6mm dia, its axis 75mm and 53mm from the nearest end. The core density was not further corrected due to the presence of reinforcement bar.

C. Lloyd, J. Lloyd, D. Stone, J. Haines, S. Vandermeys, File: 7973, ref:84844RC

Approved Signatory _____ Robert Camilleri

Date 08.07.2019 Serial No. CON:84844.24

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CONCRETE TEST REPORT

CLIENT: **MACQUARIE GEOTECHNICAL (Alexandria)**
PROJECT: **GOLDER-DOUGLAS - Sydney Metro Marrickville (1791865-VAR07-E)**

CLIENT No: **740**
REQUEST No: **84844**

Date of securing: **11.06.2019**
Location: **unknown**
Age of concrete in core at test: **unknown**

TEST METHOD: AS1012.14:2018 - Method for securing and testing cores from hardened concrete for compressive strength and mass per unit volume
AS1012.12.1: – Determination of mass per unit volume of hardened concrete- Rapid measuring method

Lab sample No.	Core Identification	Test date	Defects *Note 1	Trimmed length (mm)	Average diameter (mm)	Preconditioning when tested	Core density (kg/m³)	Core Strength (MPa)	Corrected Compressive Strength (MPa)
221914	**CPT-MN04**	04.07.19	2 + 5	129	143.0	Wet	2340	59.0	**50.5**

*** Note 1**

1. Diam. less than 75mm	3. Diam. Uneven	5. Reinforcement	7. Cracks
2. L/d < 1/1	4. Broken Edges	6. Voids	8. Other

Remarks: Samples delivered to Boral Laboratory on 27.06.2019 in air dry condition. Core samples were trimmed and preconditioned in water bath at temperature 23 ±2°C for three days in the standard temperate zone before testing. Cores were prepared and tested as per AS1012.14 and AS1012.12.1 respectively.
2. This core has two reinforcement bars approx. 6mm and 7mm dia, its axis 45mm and 43mm from the nearest end. The core density was not further corrected due to the presence of reinforcement bar. The length/diameter is less than 1/1 and therefore the sample is liable for rejection.
C. Lloyd, J. Lloyd, D. Stone, J. Haines, S. Vandermeys, File: 7973, ref:84844RC

Approved Signatory _____ Robert Camilleri

Date 08.07.2019 Serial No. CON:84844.25

CORE PHOTOGRAPHS

HOLE NO : BH-MN03
FILE / JOB NO 00013/11180
SHEET : 1 OF 1

PROJECT : Sydney Metro City & Southwest
LOCATION : Marrickville Precast Segment Facility

POSITION : E: 330829 , N:6246233.8 (56 MGA94)	SURFACE ELEVATION 3.62 (mAHD)		ANGLE FROM HORIZONTAL : 90°	
RIG TYPE : Geoprobe	MOUNTING : Track	CONTRACTOR : Matrix Drilling	DRILLER : IN	
DATE STARTED : 2/6/19	DATE COMPLETED : 2/6/19	DATE LOGGED : 2/6/19	LOGGED BY : CL	CHECKED BY : BH

CORE PHOTOGRAPHS

HOLE NO : BH-MN04
FILE / JOB NO 00013/11180
SHEET : 1 OF 1

PROJECT : Sydney Metro City & Southwest
LOCATION : Marrickville Dive Site

POSITION : E: 331191.1, N:6246456.8 (56 MGA94)	SURFACE ELEVATION 5.17 (mAHD)		ANGLE FROM HORIZONTAL : 90°	
RIG TYPE : Geoprobe	MOUNTING : Track	CONTRACTOR : Matrix Drilling	DRILLER : IN	
DATE STARTED : 2/6/19	DATE COMPLETED : 2/6/19	DATE LOGGED : 2/6/19	LOGGED BY : LT	CHECKED BY : BH

CORE PHOTOGRAPHS

HOLE NO : BH-MN05
FILE / JOB NO 00013/11180
SHEET : 1 OF 1

PROJECT : Sydney Metro City & Southwest
LOCATION : Marrickville Dive Site

POSITION : E: 331079.1, N:6246361.8 (56 MGA94)	SURFACE ELEVATION 5.31 (mAHD)		ANGLE FROM HORIZONTAL : 90°
RIG TYPE : Geoprobe	MOUNTING : Track	CONTRACTOR : Matrix Drilling	DRILLER : IN
DATE STARTED : 1/6/19	DATE COMPLETED : 1/6/19	DATE LOGGED : 1/6/19	LOGGED BY : LT	CHECKED BY : BH

GOLDER Douglas Partners Geotechnics / Environment / Groundwater

CORE PHOTOGRAPHS

HOLE NO : BH-MN06
FILE / JOB NO 00013/11180
SHEET : 1 OF 1

PROJECT : Sydney Metro City & Southwest
LOCATION : Marrickville Precast Segment Facility

POSITION : E: 331028 , N:6246406.5 (56 MGA94)	SURFACE ELEVATION 4.46 (mAHD)		ANGLE FROM HORIZONTAL : 90°	
RIG TYPE : Geoprobe	MOUNTING : Track	CONTRACTOR : Matrix Drilling	DRILLER : IN	
DATE STARTED : 11/6/19	DATE COMPLETED : 11/6/19	DATE LOGGED : 11/6/19	LOGGED BY : CL	CHECKED BY : BH

CORE PHOTOGRAPHS

HOLE NO : BH-MN09
FILE / JOB NO 00013/11180
SHEET : 1 OF 1

PROJECT : Sydney Metro City & Southwest
LOCATION : Marrickville Dive Site

POSITION : E: 330868.8, N:6246157.8 (56 MGA94)	SURFACE ELEVATION 5.3 (mAHD)		ANGLE FROM HORIZONTAL : 90°
RIG TYPE : Geoprobe	MOUNTING : Track	CONTRACTOR : Matrix Drilling	DRILLER : IN
DATE STARTED : 1/6/19	DATE COMPLETED : 2/6/19	DATE LOGGED : 1/6/19	LOGGED BY : LT/CL	CHECKED BY : BH

CORE PHOTOGRAPHS

HOLE NO : BH-MN12
FILE / JOB NO 00013/11180
SHEET : 1 OF 1

PROJECT : Sydney Metro City & Southwest
LOCATION : Marrickville Precast Segment Facility

POSITION : E: 330764 , N:6246129.5 (56 MGA94)	SURFACE ELEVATION 3.74 (mAHD)		ANGLE FROM HORIZONTAL : 90°	
RIG TYPE : Geoprobe	MOUNTING : Track	CONTRACTOR : Matrix Drilling		DRILLER : IN
DATE STARTED : 2/6/19	DATE COMPLETED : 2/6/19	DATE LOGGED : 2/6/19	LOGGED BY : CL	CHECKED BY : BH

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CORE PHOTOGRAPHS

HOLE NO : VW-MN01
FILE / JOB NO 00013/11180
SHEET : 1 OF 1

PROJECT : Sydney Metro City & Southwest
LOCATION : Marrickville Dive Site

POSITION : E: 331106.1, N:6246410.4 (56 MGA94)	SURFACE ELEVATION 4.53 (mAHD)		ANGLE FROM HORIZONTAL : 90°
RIG TYPE : Geoprobe	MOUNTING : Track	CONTRACTOR : Matrix Drilling	DRILLER : IN
DATE STARTED : 1/6/19	DATE COMPLETED : 22/6/19	DATE LOGGED : 22/6/19	LOGGED BY : CL	CHECKED BY : BH

APPENDIX E

Cone Penetration Testing Logs

CPT LOG

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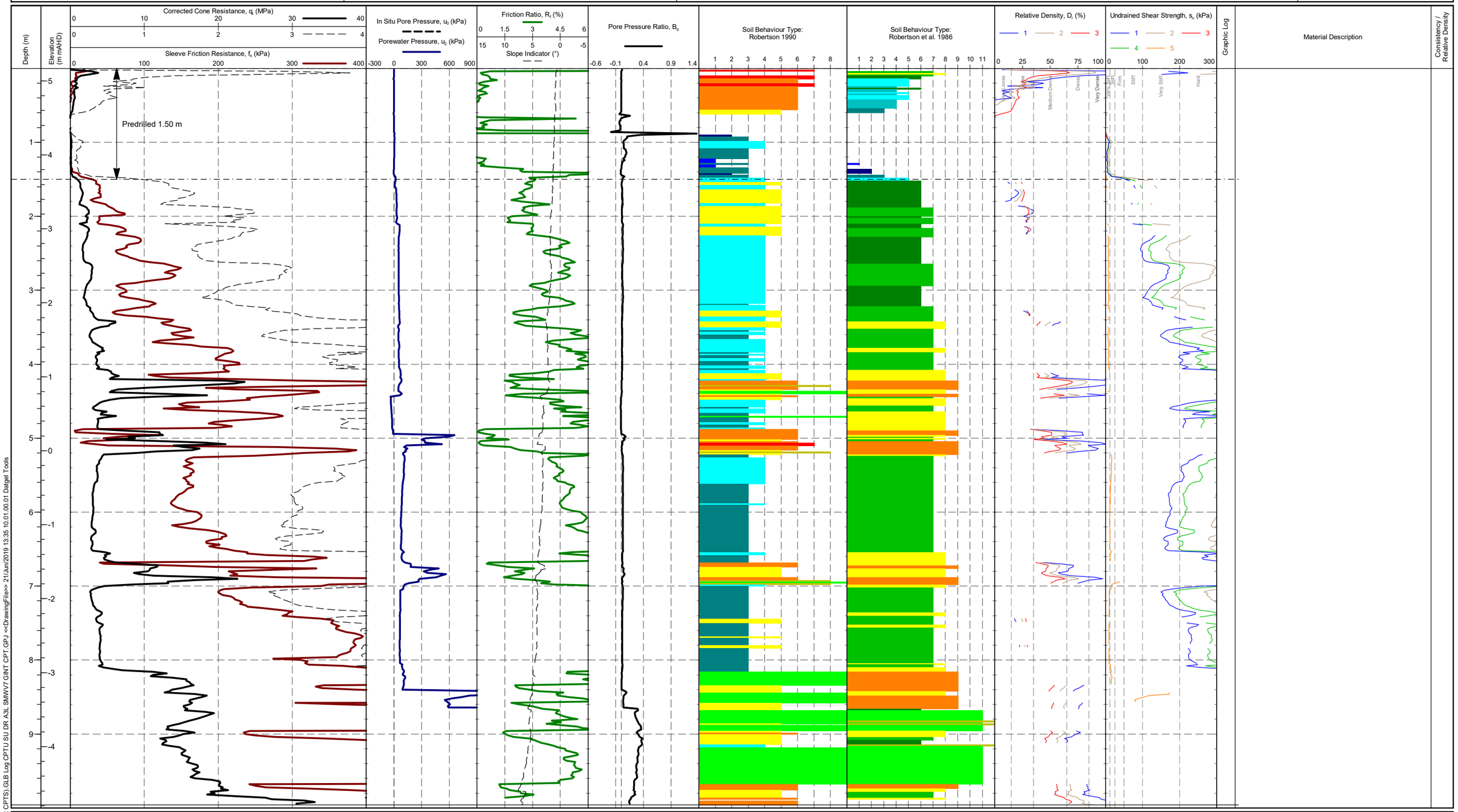
Geotechnics | Environment | Groundwater

PointID **CPT-MN01**

CLIENT	: Sydney Metro Authority	AREA	: Marrickville Dive Site	SHEET	: 1 OF 2
ENGINEER	: Golder-Douglas	EASTING	: 331191.4 m	STATUS	:
PROJECT	: Sydney Metro City & Southwest	NORTHING	: 6246456.2 m	DATE	: 11/06/2019
LOCATION	: Sydney	COORD. SYS.	: MGA94		
PROJECT No.	: 00013/11180	ELEVATION	: 5.17 m mAHD		

METHOD: Robertson 1990
1 - Sensitive, fine grained
2 - Organic soil - peats
3 - Clays - clay to silty clay
4 - Silt mixtures - clayey silt to silty clay
5 - Sand mixtures - silty sand to sandy silt
6 - Sands - clean sand to silty sand
7 - Gravelly sand to sand
8 - Very stiff sand to clayey sand
9 - Very stiff fine grained

Relative Density Method:
1. Baldi et al. (1986); Al-Homoud & Wehr (2006)
2. Jamiolkowski et al. (2001)
3. Kulhawy & Mayne (1990)



RIG : UXH-183
CONE TYPE : C+F+W2+S
CONE ID : 120509
OPERATOR : GP

CHECKED BY : RG
CHECKED DATE : 20/06/2019
APPROVED BY : AP
APPROVED DATE : 21/06/2019

Dissipation Test

METHOD: Robertson et al. 1986
1 - Sensitive fine grained material
2 - Organic material
3 - Clay
4 - Silty clay to clay
5 - Clayey silt to silty clay
6 - Sandy silt to clayey silt
7 - Silty sand to sandy silt
8 - Sand to silty sand
9 - Sand
10 - Gravelly sand to sand
11 - Very stiff fine grained
12 - Sand to clayey sand

Undrained Shear Strength Method:
1. $s_u = (q_t - \sigma_{vo})/N_c$ or $(q_t - \sigma_{vo})/N_k$ where N_c = 16-17 & N_k = 14-15
2. $s_u = q_t/N_c$ or q_t/N_k, where N_c = 16-17 & N_k = 14-15
3. Wroth (1984)
4. Trak et al. (1980), Terzaghi et al. (1996)
5. Robertson (2009), $s_u = \Delta u/N$

REMARK

CPT LOG

GOLDER | Douglas Partners
Geotechnics | Environment | Groundwater

PointID: **CPT-MN01**

CLIENT	: Sydney Metro Authority	AREA	: Marrickville Dive Site	SHEET	: 2 OF 2
ENGINEER	: Golder-Douglas	EASTING	: 331191.4 m	STATUS	:
PROJECT	: Sydney Metro City & Southwest	NORTHING	: 6246456.2 m	DATE	: 11/06/2019
LOCATION	: Sydney	COORD. SYS.	: MGA94		
PROJECT No.	: 00013/11180	ELEVATION	: 5.17 m mAHD		

METHOD: Robertson 1990
1 - Sensitive, fine grained; 2 - Organic soil - peats; 3 - Clays - clay to silty clay; 4 - Silt mixtures - clayey silt to silty clay; 5 - Sand mixtures - silty sand to sandy silt; 6 - Sands - clean sand to silty sand; 7 - Gravelly sand to sand; 8 - Very stiff sand to clayey sand; 9 - Very stiff fine grained

Relative Density Method:
1. Baldi et al. (1986); Al-Homoud & Wehr (2006)
2. Jamiolkowski et al. (2001)
3. Kulhawy & Mayne (1990)

Terminated at 9.96 m
Refusal/Bending

RIG : UXH-183
CONE TYPE : C+F+W2+S
CONE ID : 120509
OPERATOR : GP

CHECKED BY : RG
CHECKED DATE : 20/06/2019
APPROVED BY : AP
APPROVED DATE : 21/06/2019

Dissipation Test

METHOD: Robertson et al. 1986
1 - Sensitive fine grained material; 2 - Organic material; 3 - Clay; 4 - Silty clay to clay; 5 - Clayey silt to silty clay; 6 - Sandy silt to clayey silt; 7 - Silty sand to sandy silt; 8 - Sand to silty sand; 9 - Sand; 10 - Gravelly sand to sand; 11 - Very stiff fine grained; 12 - Sand to clayey sand

Undrained Shear Strength Method:
1. $s_u = (q_t - \sigma_{vo})/N_{kc}$ or $(q_t - \sigma_{vo})/N_k$, where N_{kc} = 16-17 & N_k = 14-15
2. $s_u = q_t/N_{kc}$ or q_t/N_k, where N_{kc} = 16-17 & N_k = 14-15
3. Wroth (1984)
4. Trak et al. (1980), Terzaghi et al. (1996)
5. Robertson (2009), $s_u = \Delta u/N$

REMARK

CORE PHOTOGRAPHS

HOLE NO : CPT-MN01
FILE / JOB NO 00013/11180
SHEET : 1 OF 1

PROJECT : Sydney Metro City & Southwest
LOCATION : Marrickville Dive Site

POSITION : E: 331191.4, N:6246456.2 (56 MGA94)	SURFACE ELEVATION 5.17 (mAHD)		ANGLE FROM HORIZONTAL : 90°	
RIG TYPE : UXH-183	MOUNTING : Truck	CONTRACTOR : Ground Test	DRILLER : GP	
DATE STARTED : 11/6/19	DATE COMPLETED : 11/6/19	DATE LOGGED : 30/12/99	LOGGED BY : RMM	CHECKED BY : DEM

GOLDER Douglas Partners Geotechnics / Environment / Groundwater

CPT LOG

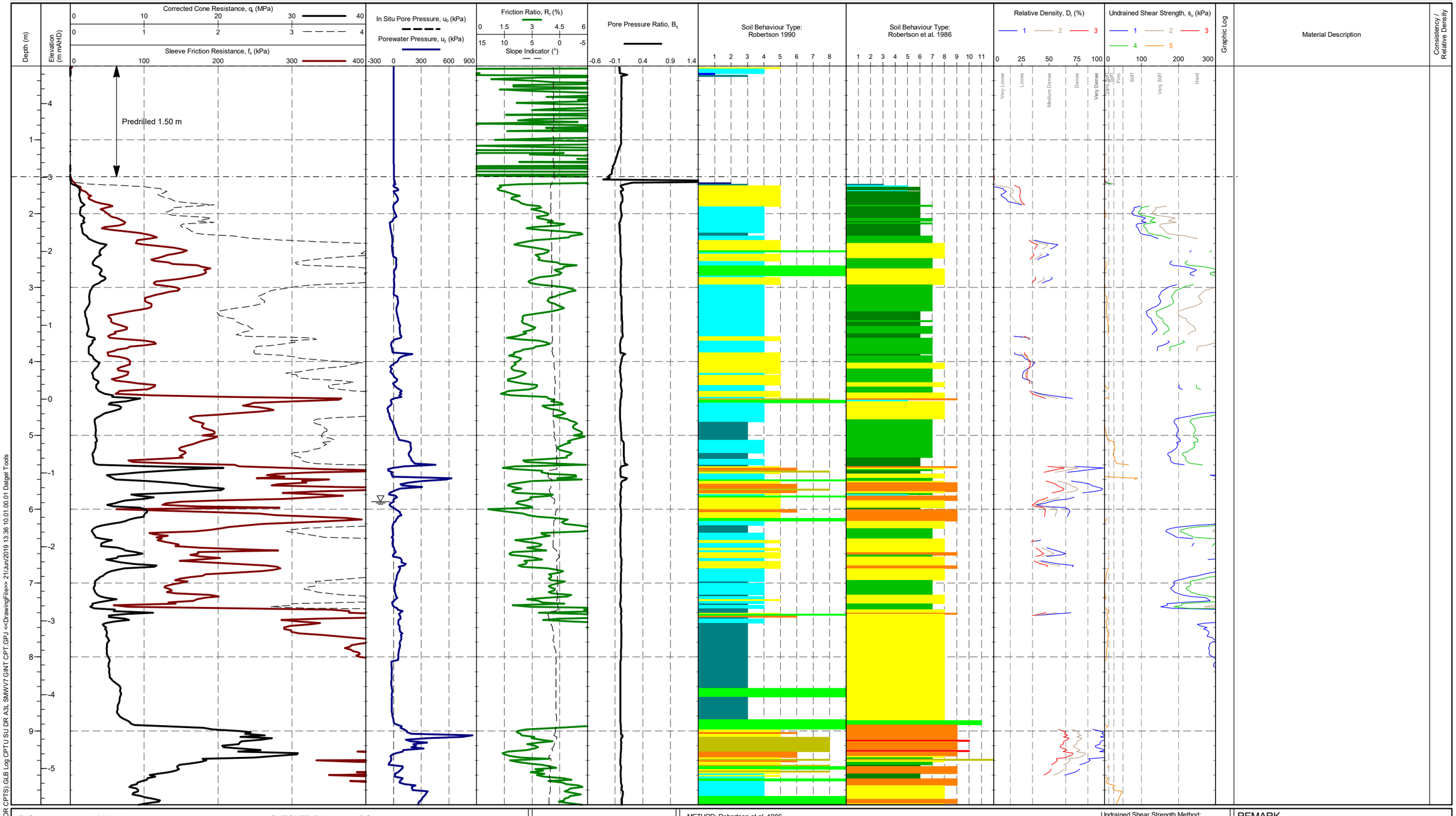
GOLDER | Douglas Partners
Geotechnics | Environment | Groundwater

PointID **CPT-MN02**

CLIENT	: Sydney Metro Authority	AREA	: Marrickville Dive Site	SHEET	: 1 OF 2
ENGINEER	: Golder-Douglas	EASTING	: 331105.4 m	STATUS	:
PROJECT	: Sydney Metro City & Southwest	NORTHING	: 6246408.1 m	DATE	: 01/06/2019
LOCATION	: Sydney	COORD. SYS.	: MGA94		
PROJECT No.	: 00013/11180	ELEVATION	: 4.51 m mAHD		

METHOD: Robertson 1990
1 - Sensitive, fine grained
2 - Organic soil - peats
3 - Clays - clay to silty clay
4 - Silt mixtures - clayey silt to silty clay
5 - Sand mixtures - silty sand to sandy silt
6 - Sands - clean sand to silty sand
7 - Gravelly sand to sand
8 - Very stiff sand to clayey sand
9 - Very stiff fine grained

Relative Density Method:
1. Baldi et al. (1986); Al-Homoud & Wehr (2006)
2. Jamiolkowski et al. (2001)
3. Kulhawy & Mayne (1990)



RMS 41.0.1 LIB (FOR CPTS).GLB Log CPTU SU DR A3L SMWV7 GINT CPT.GPJ <<DrawingFile>> 21/Jun/2019 13:36 10.01.00.01 Datgel Tools

RIG	: UXH-183	CHECKED BY	: RG
CONE TYPE	: C+F+W2+S	CHECKED DATE	: 20/06/2019
CONE ID	: 120509	APPROVED BY	: AP
OPERATOR	: GP	APPROVED DATE	: 21/06/2019

Dissipation Test

METHOD: Robertson et al. 1986
1 - Sensitive fine grained material
2 - Organic material
3 - Clay
4 - Silty clay to clay
5 - Clayey silt to silty clay
6 - Sandy silt to clayey silt
7 - Silty sand to sandy silt
8 - Sand to silty sand
9 - Sand
10 - Gravelly sand to sand
11 - Very stiff fine grained
12 - Sand to clayey sand

Undrained Shear Strength Method:
1. $s_u = (q_t - \sigma_{vo})/N_{kt}$ or $(q_t - \sigma_{vo})/N_k$ where N_{kt} = 16-17 & N_k = 14-15
2. $s_u = q_t/N_{kt}$ or q_t/N_k where N_{kt} = 16-17 & N_k = 14-15
3. Wroth (1984)
4. Trak et al. (1980), Terzaghi et al. (1996)
5. Robertson (2009), $s_u = \Delta u/N$

REMARK

CPT LOG

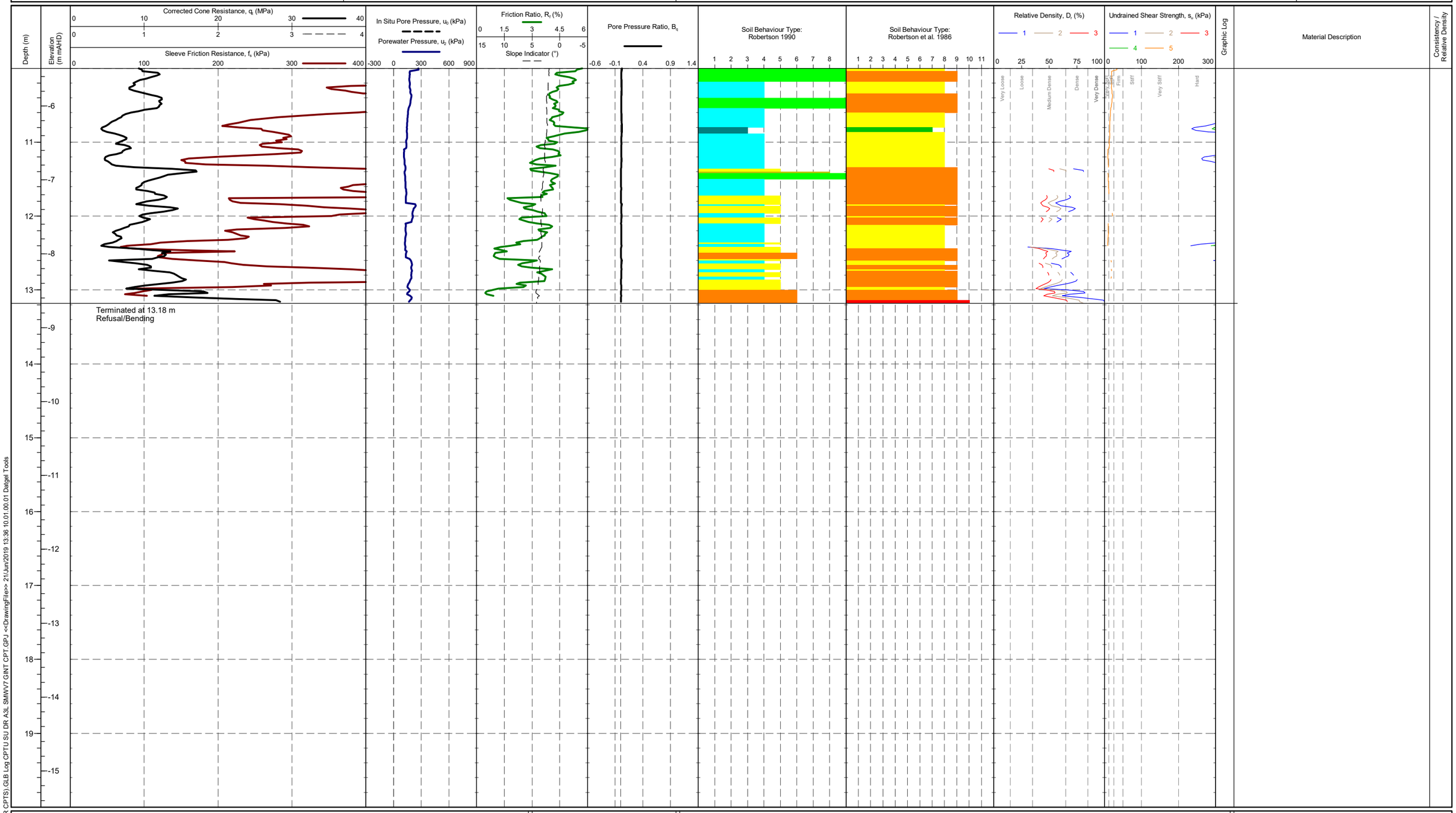
GOLDER | Douglas Partners
Geotechnics | Environment | Groundwater

PointID **CPT-MN02**

CLIENT	: Sydney Metro Authority	AREA	: Marrickville Dive Site	SHEET	: 2 OF 2
ENGINEER	: Golder-Douglas	EASTING	: 331105.4 m	STATUS	:
PROJECT	: Sydney Metro City & Southwest	NORTHING	: 6246408.1 m	DATE	: 01/06/2019
LOCATION	: Sydney	COORD. SYS.	: MGA94		
PROJECT No.	: 00013/11180	ELEVATION	: 4.51 m mAHD		

METHOD: Robertson 1990
1 - Sensitive, fine grained
2 - Organic soil - peats
3 - Clays - clay to silty clay
4 - Silt mixtures - clayey silt to silty clay
5 - Sand mixtures - silty sand to sandy silt
6 - Sands - clean sand to silty sand
7 - Gravelly sand to sand
8 - Very stiff sand to clayey sand
9 - Very stiff fine grained

Relative Density Method:
1. Baldi et al. (1986); Al-Homoud & Wehr (2006)
2. Jamiolkowski et al. (2001)
3. Kulhawy & Mayne (1990)



RIG : UXH-183
CONE TYPE : C+F+W2+S
CONE ID : 120509
OPERATOR : GP

CHECKED BY : RG
CHECKED DATE : 20/06/2019
APPROVED BY : AP
APPROVED DATE : 21/06/2019

Dissipation Test

METHOD: Robertson et al. 1986
1 - Sensitive fine grained material
2 - Organic material
3 - Clay
4 - Silty clay to clay
5 - Clayey silt to silty clay
6 - Sandy silt to clayey silt
7 - Silty sand to sandy silt
8 - Sand to silty sand
9 - Sand
10 - Gravelly sand to sand
11 - Very stiff fine grained
12 - Sand to clayey sand

Undrained Shear Strength Method:
1. $s_u = (q_t - \sigma_{vo})/N_{kc}$ or $(q_t - \sigma_{vo})/N_k$, where N_{kc} = 16-17 & N_k = 14-15
2. $s_u = q_t/N_{kc}$ or q_t/N_k, where N_{kc} = 16-17 & N_k = 14-15
3. Wroth (1984)
4. Trak et al. (1980), Terzaghi et al. (1996)
5. Robertson (2009), $s_u = \Delta u/N$

REMARK

CORE PHOTOGRAPHS

HOLE NO : CPT-MN02
FILE / JOB NO 00013/11180
SHEET : 1 OF 1

PROJECT : Sydney Metro City & Southwest
LOCATION : Marrickville Dive Site

POSITION : E: 331105.4, N:6246408.1 (56 MGA94)	SURFACE ELEVATION 4.51 (mAHD)		ANGLE FROM HORIZONTAL : 90°	
RIG TYPE : UXH-183	MOUNTING : Truck	CONTRACTOR : Ground Test	DRILLER : GP	
DATE STARTED : 1/6/19	DATE COMPLETED : 1/6/19	DATE LOGGED : 30/12/99	LOGGED BY : RMM	CHECKED BY : DEM

GOLDER Douglas Partners
Geotechnics / Environment / Groundwater

CPT LOG

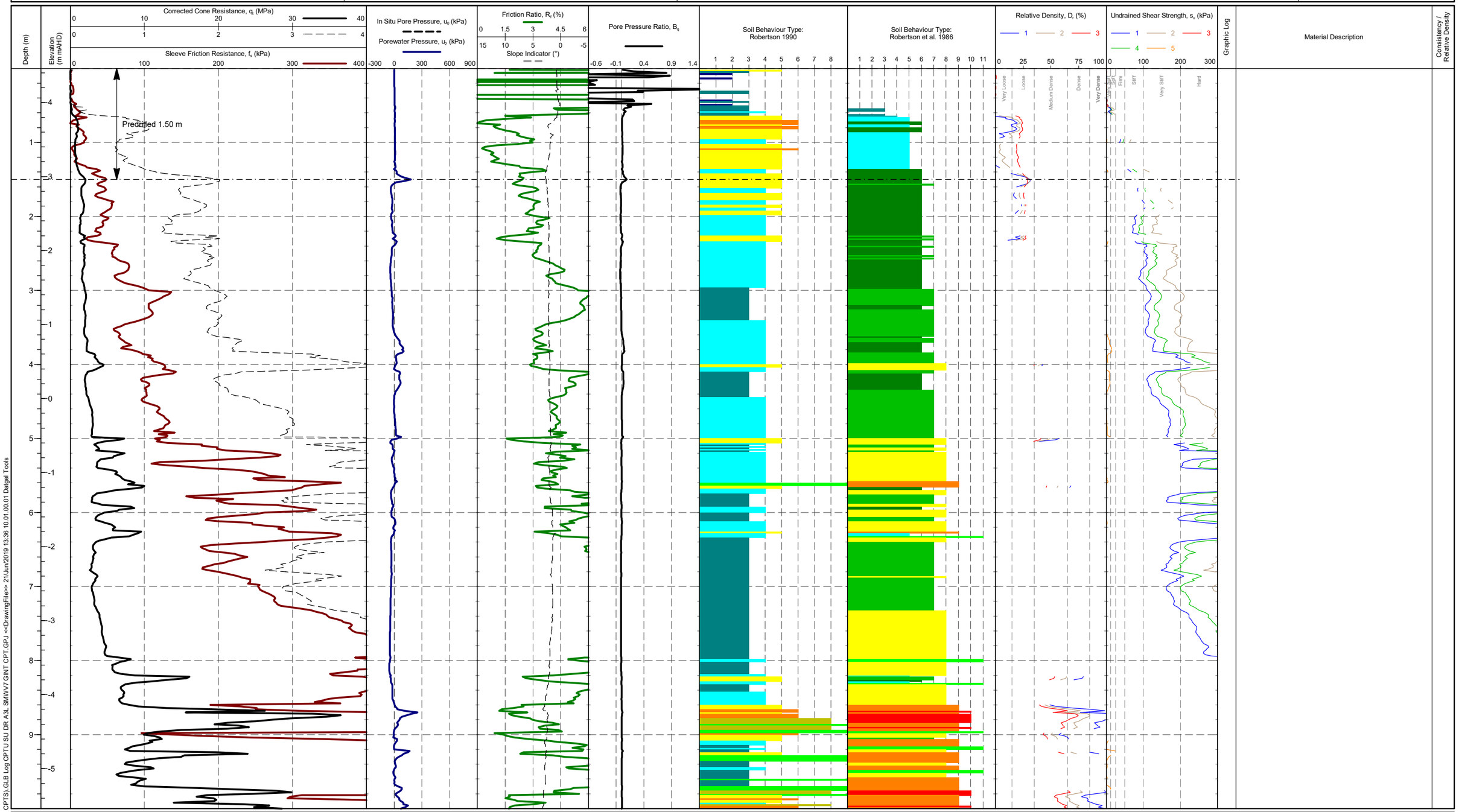
GOLDER Douglas Partners
Geotechnics | Environment | Groundwater

PointID **CPT-MN04**

CLIENT	: Sydney Metro Authority	AREA	: Marrickville Precast Segment Facility	SHEET	: 1 OF 2
ENGINEER	: Golder-Douglas	EASTING	: 331025.7 m	STATUS	:
PROJECT	: Sydney Metro City & Southwest	NORTHING	: 6246406.2 m	DATE	: 11/06/2019
LOCATION	: Sydney	COORD. SYS.	: MGA94		
PROJECT No.	: 00013/11180	ELEVATION	: 4.46 m mAHD		

METHOD: Robertson 1990
1 - Sensitive, fine grained; 2 - Organic soil - peats; 3 - Clays - clay to silty clay; 4 - Silt mixtures - clayey silt to silty clay; 5 - Sand mixtures - silty sand to sandy silt; 6 - Sands - clean sand to silty sand; 7 - Gravelly sand to sand; 8 - Very stiff sand to clayey sand; 9 - Very stiff fine grained

Relative Density Method:
1. Baldi et al. (1986); Al-Homoud & Wehr (2006)
2. Jamiolkowski et al. (2001)
3. Kulhawy & Mayne (1990)



RIG : UXH-183
CONE TYPE : C+F+W2+S
CONE ID : 171006
OPERATOR : GP

CHECKED BY : RG
CHECKED DATE : 20/06/2019
APPROVED BY : AP
APPROVED DATE : 21/06/2019

Dissipation Test

METHOD: Robertson et al. 1986
1 - Sensitive fine grained material; 2 - Organic material; 3 - Clay; 4 - Silty clay to clay; 5 - Clayey silt to silty clay; 6 - Sandy silt to clayey silt; 7 - Silty sand to sandy silt; 8 - Sand to silty sand; 9 - Sand; 10 - Gravelly sand to sand; 11 - Very stiff fine grained; 12 - Sand to clayey sand

Undrained Shear Strength Method:
1. $s_u = (q_t - \sigma_{vo})/N_{kt}$ or $(q_t - \sigma_{vo})/N_k$, where N_{kt} = 16-17 & N_k = 14-15
2. $s_u = q_t/N_{kt}$ or q_t/N_k, where N_{kt} = 16-17 & N_k = 14-15
3. Wroth (1984)
4. Trak et al. (1980), Terzaghi et al. (1996)
5. Robertson (2009), $s_u = \Delta u/N$

REMARK

RMS 41.0.1 LIB [FOR CPTS).GLB Log CPTU SU DR A3L SMWV7 GINT CPT.GPJ <<DrawingFile>> 21/Jun/2019 13:36 10.01.00.01 Datgel Tools

CPT LOG

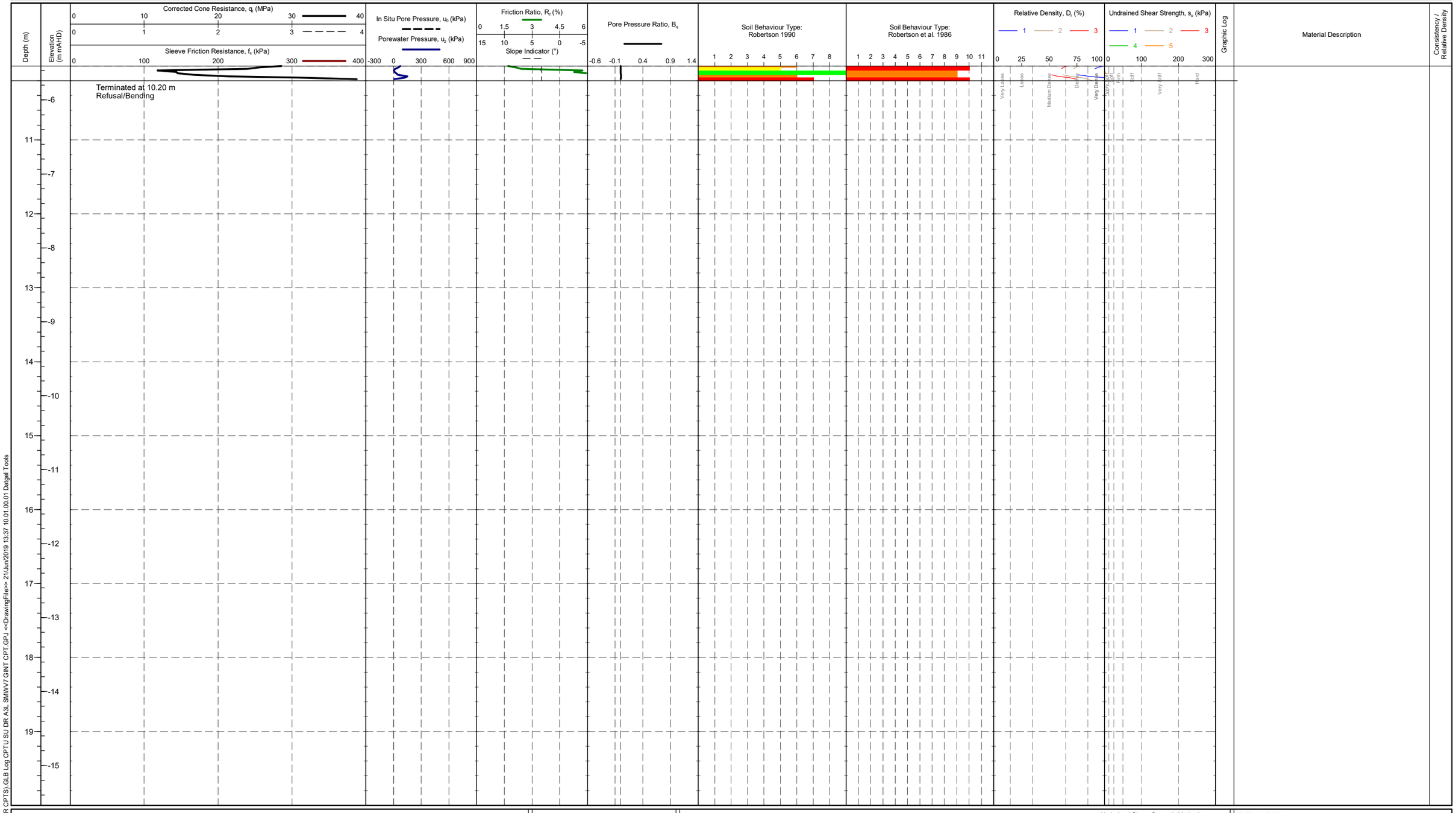
GOLDER | Douglas Partners
Geotechnics | Environment | Groundwater

PointID **CPT-MN04**

CLIENT	: Sydney Metro Authority	AREA	: Marrickville Precast Segment Facility	SHEET	: 2 OF 2
ENGINEER	: Golder-Douglas	EASTING	: 331025.7 m	STATUS	:
PROJECT	: Sydney Metro City & Southwest	NORTHING	: 6246406.2 m	DATE	: 11/06/2019
LOCATION	: Sydney	COORD. SYS.	: MGA94		
PROJECT No.	: 00013/11180	ELEVATION	: 4.46 m mAHD		

METHOD: Robertson 1990
1 - Sensitive, fine grained
2 - Organic soil - peats
3 - Clays - clay to silty clay
4 - Silt mixtures - clayey silt to silty clay
5 - Sand mixtures - silty sand to sandy silt
6 - Sands - clean sand to silty sand
7 - Gravelly sand to sand
8 - Very stiff sand to clayey sand
9 - Very stiff fine grained

Relative Density Method:
1. Baldi et al. (1986); Al-Homoud & Wehr (2006)
2. Jamiolkowski et al. (2001)
3. Kulhawy & Mayne (1990)



RIG : UXH-183
CONE TYPE : C+F+W2+S
CONE ID : 171006
OPERATOR : GP

CHECKED BY : RG
CHECKED DATE : 20/06/2019
APPROVED BY : AP
APPROVED DATE : 21/06/2019

Dissipation Test

METHOD: Robertson et al. 1986
1 - Sensitive fine grained material
2 - Organic material
3 - Clay
4 - Silty clay to clay
5 - Clayey silt to silty clay
6 - Sandy silt to clayey silt
7 - Silty sand to sandy silt
8 - Sand to silty sand
9 - Sand
10 - Gravelly sand to sand
11 - Very stiff fine grained
12 - Sand to clayey sand

Undrained Shear Strength Method:
1. $s_u = (q_t - \sigma_{vo})/N_c$ or $(q_t - \sigma_{vo})/N_k$, where N_c = 16-17 & N_k = 14-15
2. $s_u = q_t/N_c$ or q_t/N_k, where N_c = 16-17 & N_k = 14-15
3. Wroth (1984)
4. Trak et al. (1980), Terzaghi et al. (1996)
5. Robertson (2009), $s_u = \Delta u/N$

REMARK

CORE PHOTOGRAPHS

HOLE NO : CPT-MN04
FILE / JOB NO 00013/11180
SHEET : 1 OF 1

PROJECT : Sydney Metro City & Southwest
LOCATION : Marrickville Precast Segment Facility

POSITION : E: 331025.7, N:6246406.2 (56 MGA94)	SURFACE ELEVATION 4.46 (mAHD)		ANGLE FROM HORIZONTAL : 90°	
RIG TYPE : UXH-183	MOUNTING : Truck	CONTRACTOR : Ground Test	DRILLER : GP	
DATE STARTED : 11/6/19	DATE COMPLETED : 11/6/19	DATE LOGGED : 30/12/99	LOGGED BY : RMM	CHECKED BY : DEM

GOLDER Douglas Partners Geotechnics / Environment / Groundwater

CPT LOG

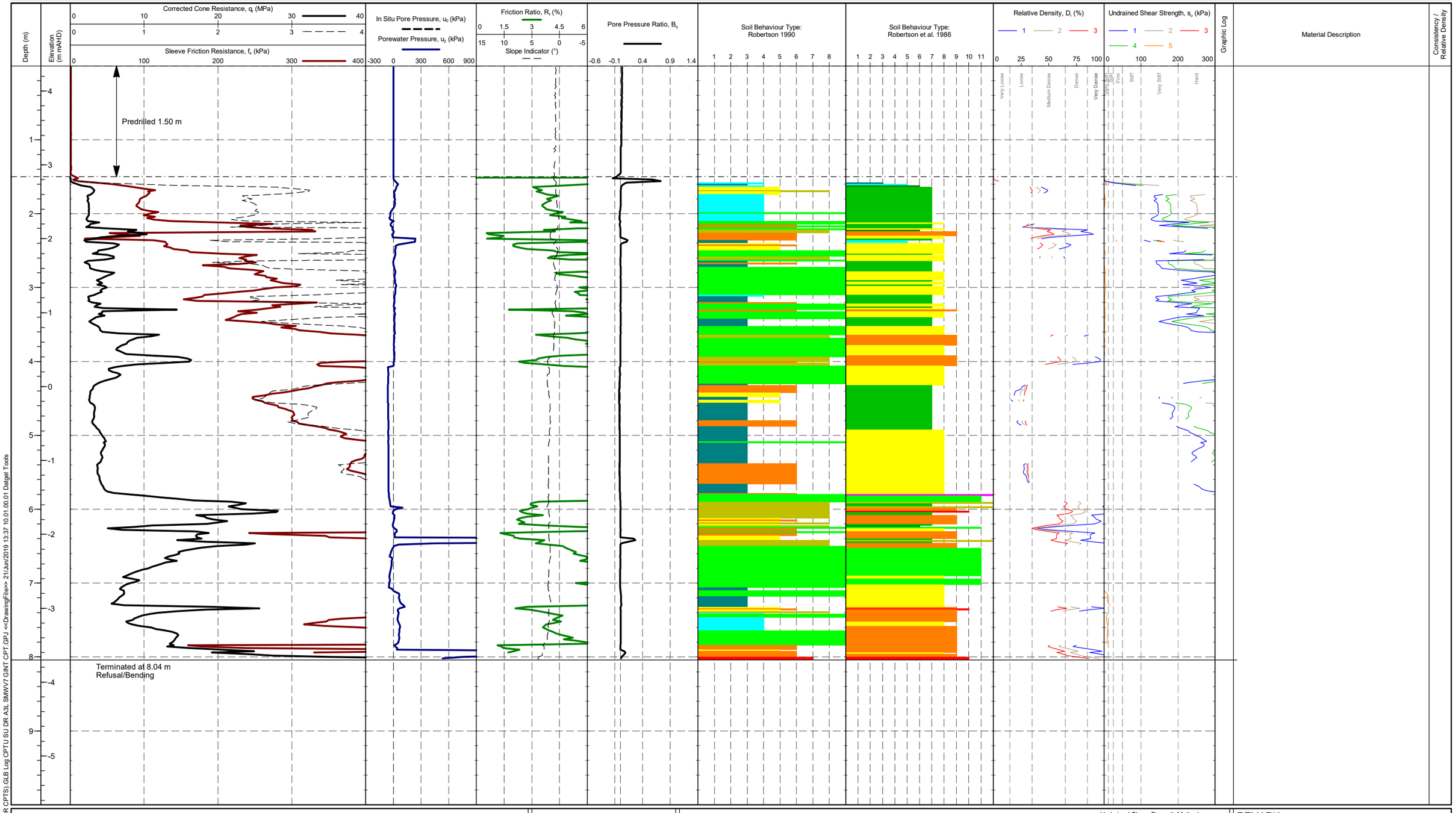
GOLDER Douglas Partners
Geotechnics | Environment | Groundwater

PointID **CPT-MN05**

CLIENT	: Sydney Metro Authority	AREA	: Marrickville Precast Segment Facility	SHEET	: 1 OF 1
ENGINEER	: Golder-Douglas	EASTING	: 330977.2 m	STATUS	:
PROJECT	: Sydney Metro City & Southwest	NORTHING	: 6246318.7 m	DATE	: 02/06/2019
LOCATION	: Sydney	COORD. SYS.	: MGA94		
PROJECT No.	: 00013/11180	ELEVATION	: 4.34 m mAHD		

METHOD: Robertson 1990
1 - Sensitive, fine grained; 2 - Organic soil - peats; 3 - Clays - clay to silty clay; 4 - Silt mixtures - clayey silt to silty clay; 5 - Sand mixtures - silty sand to sandy silt; 6 - Sands - clean sand to silty sand; 7 - Gravelly sand to sand; 8 - Very stiff sand to clayey sand; 9 - Very stiff fine grained

Relative Density Method:
1. Baldi et al. (1986); Al-Homoud & Wehr (2006)
2. Jamiolkowski et al. (2001)
3. Kulhawy & Mayne (1990)



RIG	: UXH-183	CHECKED BY	: RG
CONE TYPE	: C+F+W2+S	CHECKED DATE	: 20/06/2019
CONE ID	: 120539	APPROVED BY	: AP
OPERATOR	: GP	APPROVED DATE	: 21/06/2019

Dissipation Test

METHOD: Robertson et al. 1986
1 - Sensitive fine grained material; 2 - Organic material; 3 - Clay; 4 - Silty clay to clay; 5 - Clayey silt to silty clay; 6 - Sandy silt to clayey silt; 7 - Silty sand to sandy silt; 8 - Sand to silty sand; 9 - Sand; 10 - Gravelly sand to sand; 11 - Very stiff fine grained; 12 - Sand to clayey sand

Undrained Shear Strength Method:
1. $s_u = (q_t - \sigma_{vo})/N_{kc}$ or $(q_t - \sigma_{vo})/N_k$ where N_{kc} = 16-17 & N_k = 14-15
2. $s_u = q_t/N_{kt}$ or q_n/N_k where N_{kt} = 16-17 & N_k = 14-15
3. Wroth (1984)
4. Trak et al. (1980), Terzaghi et al. (1996)
5. Robertson (2009), $s_u = \Delta u/N$

REMARK

RMS 41.0.1 LIB (FOR CPTS).GLB Log CPTU SU DR A3L SMWV7 GINT CPT.GPJ <<DrawingFile>> 21/Jun/2019 13:37 10.01.00.01 Datgel Tools

CORE PHOTOGRAPHS

HOLE NO : CPT-MN05
FILE / JOB NO 00013/11180
SHEET : 1 OF 1

PROJECT : Sydney Metro City & Southwest
LOCATION : Marrickville Precast Segment Facility

POSITION : E: 330977.2, N:6246318.7 (56 MGA94)	SURFACE ELEVATION 4.34 (mAHD)		ANGLE FROM HORIZONTAL : 90°	
RIG TYPE : UXH-183	MOUNTING : Truck	CONTRACTOR : Ground Test	DRILLER : GP	
DATE STARTED : 2/6/19	DATE COMPLETED : 2/6/19	DATE LOGGED : 30/12/99	LOGGED BY : RMM	CHECKED BY : DEM

No concrete core
from
this location

CPT LOG

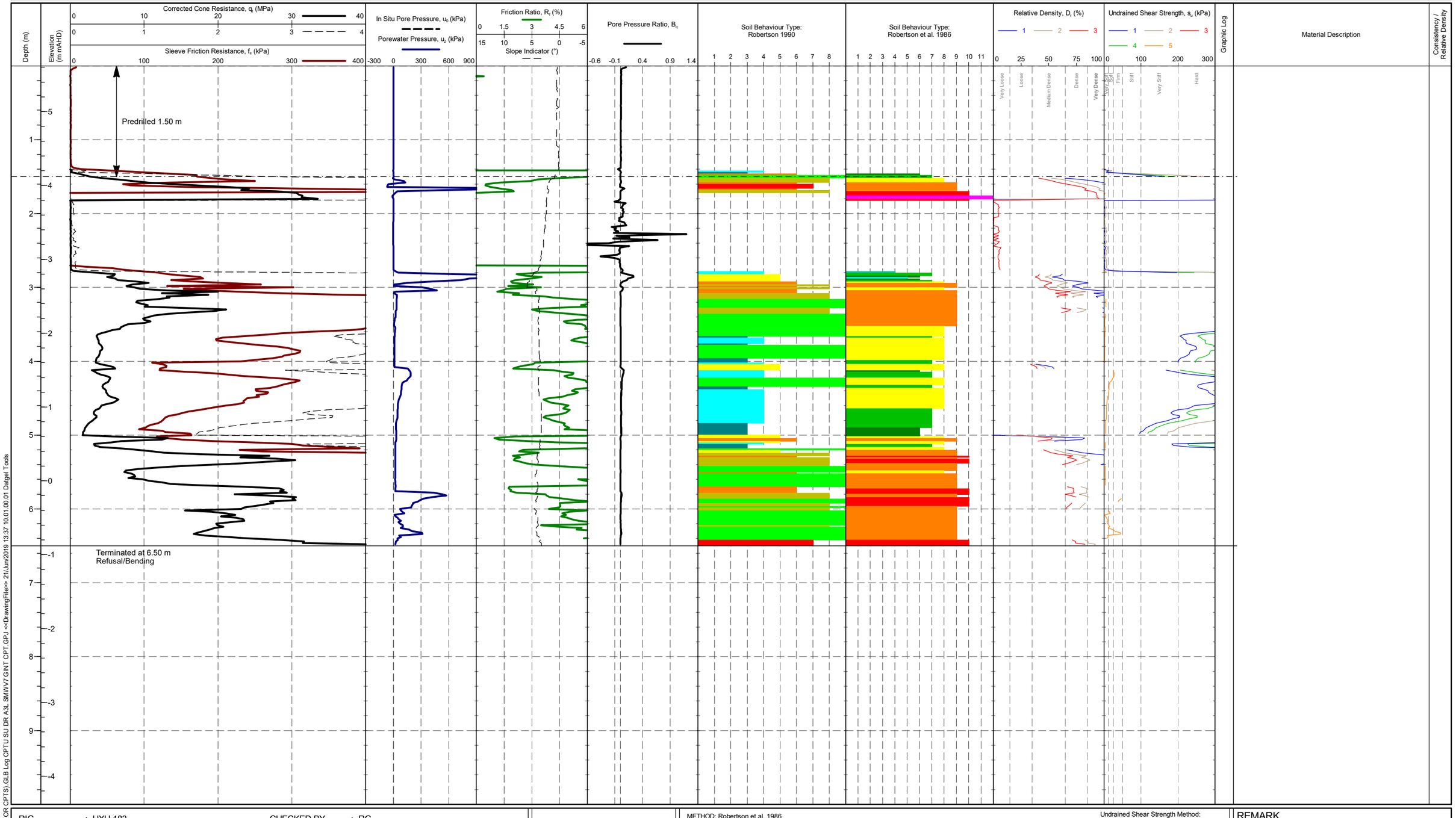
GOLDER Douglas Partners
Geotechnics | Environment | Groundwater

PointID **CPT-MN06**

CLIENT	: Sydney Metro Authority	AREA	: Marrickville Dive Site	SHEET	: 1 OF 1
ENGINEER	: Golder-Douglas	EASTING	: 330916.3 m	STATUS	:
PROJECT	: Sydney Metro City & Southwest	NORTHING	: 6246209.0 m	DATE	: 01/06/2019
LOCATION	: Sydney	COORD. SYS.	: MGA94		
PROJECT No.	: 00013/11180	ELEVATION	: 5.62 m mAHD		

METHOD: Robertson 1990
1 - Sensitive, fine grained; 2 - Organic soil - peats; 3 - Clays - clay to silty clay; 4 - Silt mixtures - clayey silt to silty clay; 5 - Sand mixtures - silty sand to sandy silt; 6 - Sands - clean sand to silty sand; 7 - Gravelly sand to sand; 8 - Very stiff sand to clayey sand; 9 - Very stiff fine grained

Relative Density Method:
1. Baldi et al. (1986); Al-Homoud & Wehr (2006)
2. Jamiolkowski et al. (2001)
3. Kulhawy & Mayne (1990)



RMS 41.0.1 LIB (FOR CPTS).GLB Log CPTU SU DR A3L SMWV7 GINT CPT.GPJ <<DrawingFile>> 21/Jun/2019 13:37 10.01.00.01 Datgel Tools

RIG	: UXH-183	CHECKED BY	: RG
CONE TYPE	: C+F+W2+S	CHECKED DATE	: 20/06/2019
CONE ID	: 160917	APPROVED BY	: AP
OPERATOR	: GP	APPROVED DATE	: 21/06/2019

Dissipation Test

METHOD: Robertson et al. 1986
1 - Sensitive fine grained material; 2 - Organic material; 3 - Clay; 4 - Silty clay to clay; 5 - Clayey silt to silty clay; 6 - Sandy silt to clayey silt; 7 - Silty sand to sandy silt; 8 - Sand to silty sand; 9 - Sand; 10 - Gravelly sand to sand; 11 - Very stiff fine grained; 12 - Sand to clayey sand

Undrained Shear Strength Method:
1. $s_u = (q_t - \sigma_{vo})/N_{kt}$ or $(q_t - \sigma_{vo})/N_k$ where N_{kt} = 16-17 & N_k = 14-15
2. $s_u = q_t/N_{kt}$ or q_t/N_k where N_{kt} = 16-17 & N_k = 14-15
3. Wroth (1984)
4. Trak et al. (1980), Terzaghi et al. (1996)
5. Robertson (2009), $s_u = \Delta u/N$

REMARK

CORE PHOTOGRAPHS

HOLE NO : CPT-MN06
FILE / JOB NO 00013/11180
SHEET : 1 OF 1

PROJECT : Sydney Metro City & Southwest
LOCATION : Marrickville Dive Site

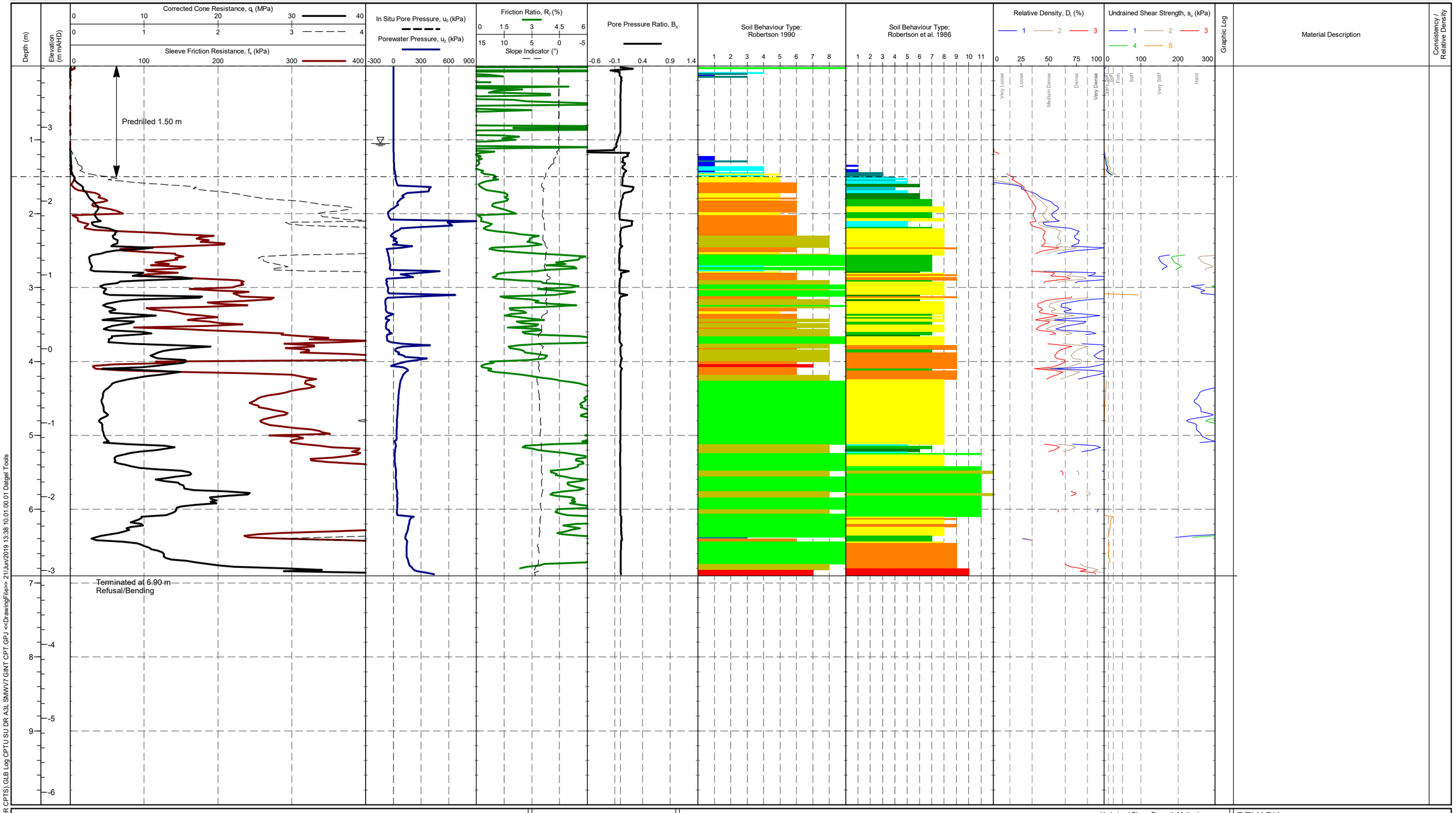
POSITION : E: 330916.3, N:6246209 (56 MGA94)	SURFACE ELEVATION 5.62 (mAHD)		ANGLE FROM HORIZONTAL : 90°	
RIG TYPE : UXH-183	MOUNTING : Truck	CONTRACTOR : Ground Test	DRILLER : GP	
DATE STARTED : 1/6/19	DATE COMPLETED : 1/6/19	DATE LOGGED : 30/12/99	LOGGED BY : RMM	CHECKED BY : DEM

CPT LOG

GOLDER Douglas Partners
Geotechnics | Environment | Groundwater

PointID **CPT-MN07**

CLIENT	: Sydney Metro Authority	AREA	: Marrickville Precast Segment Facility	SHEET	: 1 OF 1
ENGINEER	: Golder-Douglas	EASTING	: 330864.6 m	STATUS	:
PROJECT	: Sydney Metro City & Southwest	NORTHING	: 6246257.4 m	DATE	: 02/06/2019
LOCATION	: Sydney	COORD. SYS.	: MGA94		
PROJECT No.	: 00013/11180	ELEVATION	: 3.83 m mAHD		



METHOD: Robertson 1990
1 - Sensitive, fine grained
2 - Organic soil - peats
3 - Clays - clay to silty clay
4 - Silt mixtures - clayey silt to silty clay
5 - Sand mixtures - silty sand to sandy silt
6 - Sands - clean sand to silty sand
7 - Gravelly sand to sand
8 - Very stiff sand to clayey sand
9 - Very stiff fine grained

Relative Density Method:
1. Baldi et al. (1986); Al-Homoud & Wehr (2006)
2. Jamiolkowski et al. (2001)
3. Kulhawy & Mayne (1990)

RIG	: UXH-183	CHECKED BY	: RG
CONE TYPE	: C+F+W2+S	CHECKED DATE	: 20/06/2019
CONE ID	: 120509	APPROVED BY	: AP
OPERATOR	: GP	APPROVED DATE	: 21/06/2019

Dissipation Test

METHOD: Robertson et al. 1986
1 - Sensitive fine grained material
2 - Organic material
3 - Clay
4 - Silty clay to clay
5 - Clayey silt to silty clay
6 - Sandy silt to clayey silt
7 - Silty sand to sandy silt
8 - Sand to silty sand
9 - Sand
10 - Gravelly sand to sand
11 - Very stiff fine grained
12 - Sand to clayey sand

Undrained Shear Strength Method:
1. $s_u = (q_t - \sigma_{vo})/N_{kt}$ or $(q_t - \sigma_{vo})/N_k$ where N_{kt} = 16-17 & N_k = 14-15
2. $s_u = q_t/N_{kt}$ or q_t/N_k where N_{kt} = 16-17 & N_k = 14-15
3. Wroth (1984)
4. Trak et al. (1980), Terzaghi et al. (1996)
5. Robertson (2009), $s_u = \Delta u/N$

REMARK

CORE PHOTOGRAPHS

HOLE NO : CPT-MN07
FILE / JOB NO 00013/11180
SHEET : 1 OF 1

PROJECT : Sydney Metro City & Southwest
LOCATION : Marrickville Precast Segment Facility

POSITION : E: 330864.6, N:6246257.4 (56 MGA94)	SURFACE ELEVATION 3.83 (mAHD)		ANGLE FROM HORIZONTAL : 90°	
RIG TYPE : UXH-183	MOUNTING : Truck	CONTRACTOR : Ground Test	DRILLER : GP	
DATE STARTED : 2/6/19	DATE COMPLETED : 2/6/19	DATE LOGGED : 30/12/99	LOGGED BY : RMM	CHECKED BY : DEM

GOLDER Douglas Partners Geotechnics / Environment / Groundwater

CPT LOG

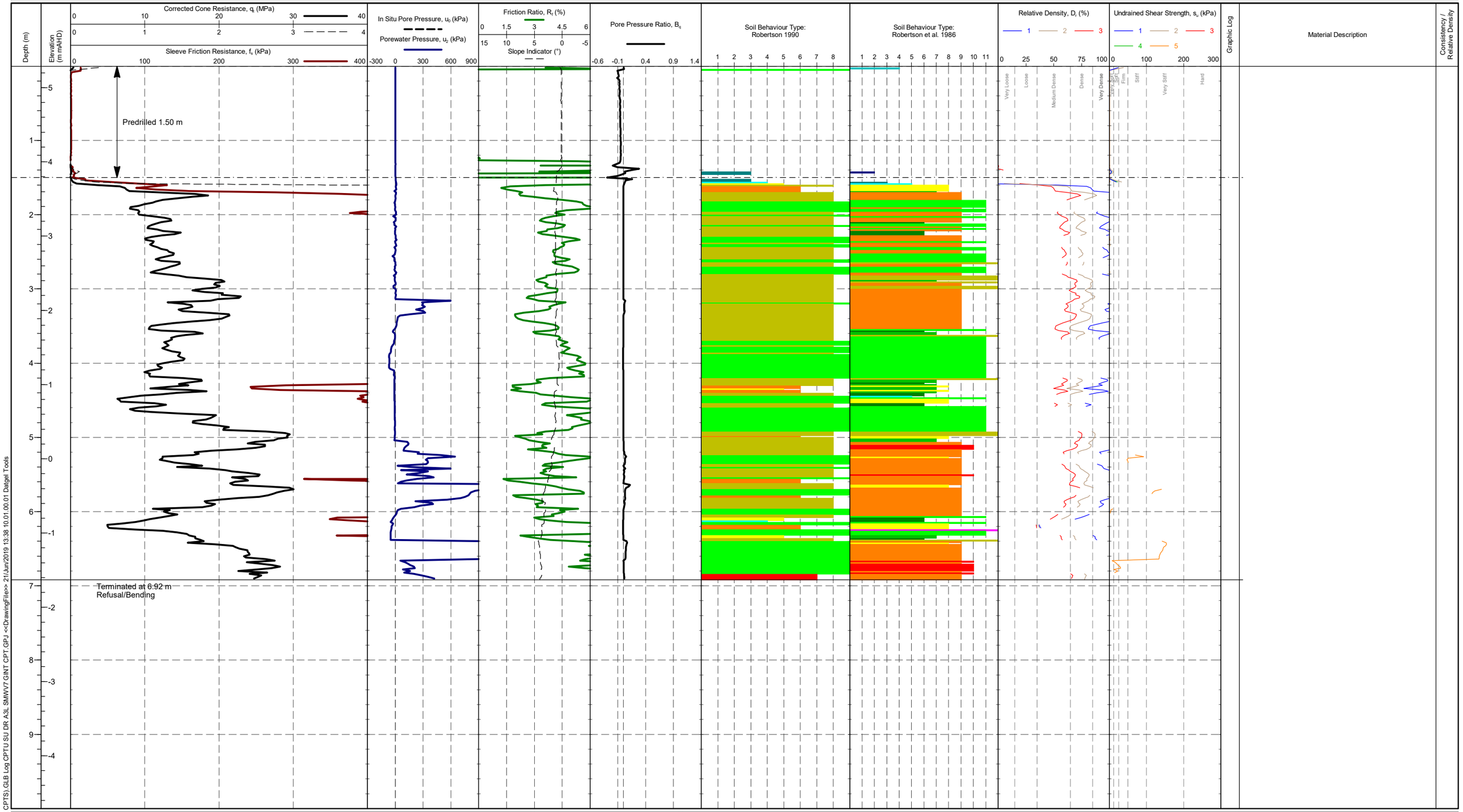
GOLDER | Douglas Partners
Geotechnics | Environment | Groundwater

PointID **CPT-MN08**

CLIENT	: Sydney Metro Authority	AREA	: Marrickville Dive Site	SHEET	: 1 OF 1
ENGINEER	: Golder-Douglas	EASTING	: 330868.6 m	STATUS	:
PROJECT	: Sydney Metro City & Southwest	NORTHING	: 6246159.7 m	DATE	: 01/06/2019
LOCATION	: Sydney	COORD. SYS.	: MGA94		
PROJECT No.	: 00013/11180	ELEVATION	: 5.29 m mAHD		

METHOD: Robertson 1990
1 - Sensitive, fine grained; 2 - Organic soil - peats; 3 - Clays - clay to silty clay; 4 - Silt mixtures - clayey silt to silty clay; 5 - Sand mixtures - silty sand to sandy silt; 6 - Sands - clean sand to silty sand; 7 - Gravelly sand to sand; 8 - Very stiff sand to clayey sand; 9 - Very stiff fine grained

Relative Density Method:
1. Baldi et al. (1986); Al-Homoud & Wehr (2006)
2. Jamiolkowski et al. (2001)
3. Kulhawy & Mayne (1990)



RMS 41.0.1 LIB (FOR CPTS).GLB Log CPTU SU DR A3L SMWV7.GINT CPT.GPJ <<DrawingFile>> 21/Jun/2019 13:38 10.01.00.01 Datgel Tools

RIG	: UXH-183	CHECKED BY	: RG	Dissipation Test	
CONE TYPE	: C+F+W2+S	CHECKED DATE	: 20/06/2019		
CONE ID	: 171006	APPROVED BY	: AP		
OPERATOR	: GP	APPROVED DATE	: 21/06/2019		

METHOD: Robertson et al. 1986
1 - Sensitive fine grained material; 2 - Organic material; 3 - Clay; 4 - Silty clay to clay; 5 - Clayey silt to silty clay; 6 - Sandy silt to clayey silt; 7 - Silty sand to sandy silt; 8 - Sand to silty sand; 9 - Sand; 10 - Gravelly sand to sand; 11 - Very stiff fine grained; 12 - Sand to clayey sand

Undrained Shear Strength Method:
1. $s_u = (q_t - \sigma_{vo})/N_c$ or $(q_t - \sigma_{vo})/N_k$ where N_c = 16-17 & N_k = 14-15
2. $s_u = q_t/N_c$; or q_t/N_k, where N_c = 16-17 & N_k = 14-15
3. Wroth (1984)
4. Trak et al. (1980), Terzaghi et al. (1996)
5. Robertson (2009), $s_u = \Delta u/N$

REMARK

CORE PHOTOGRAPHS

HOLE NO : CPT-MN08
FILE / JOB NO 00013/11180
SHEET : 1 OF 1

PROJECT : Sydney Metro City & Southwest
LOCATION : Marrickville Dive Site

POSITION : E: 330868.6, N:6246159.7 (56 MGA94)	SURFACE ELEVATION 5.29 (mAHD)		ANGLE FROM HORIZONTAL : 90°	
RIG TYPE : UXH-183	MOUNTING : Truck	CONTRACTOR : Ground Test	DRILLER : GP	
DATE STARTED : 1/6/19	DATE COMPLETED : 1/6/19	DATE LOGGED : 30/12/99	LOGGED BY : RMM	CHECKED BY : DEM

GOLDER Douglas Partners Geotechnics / Environment / Groundwater

CPT LOG

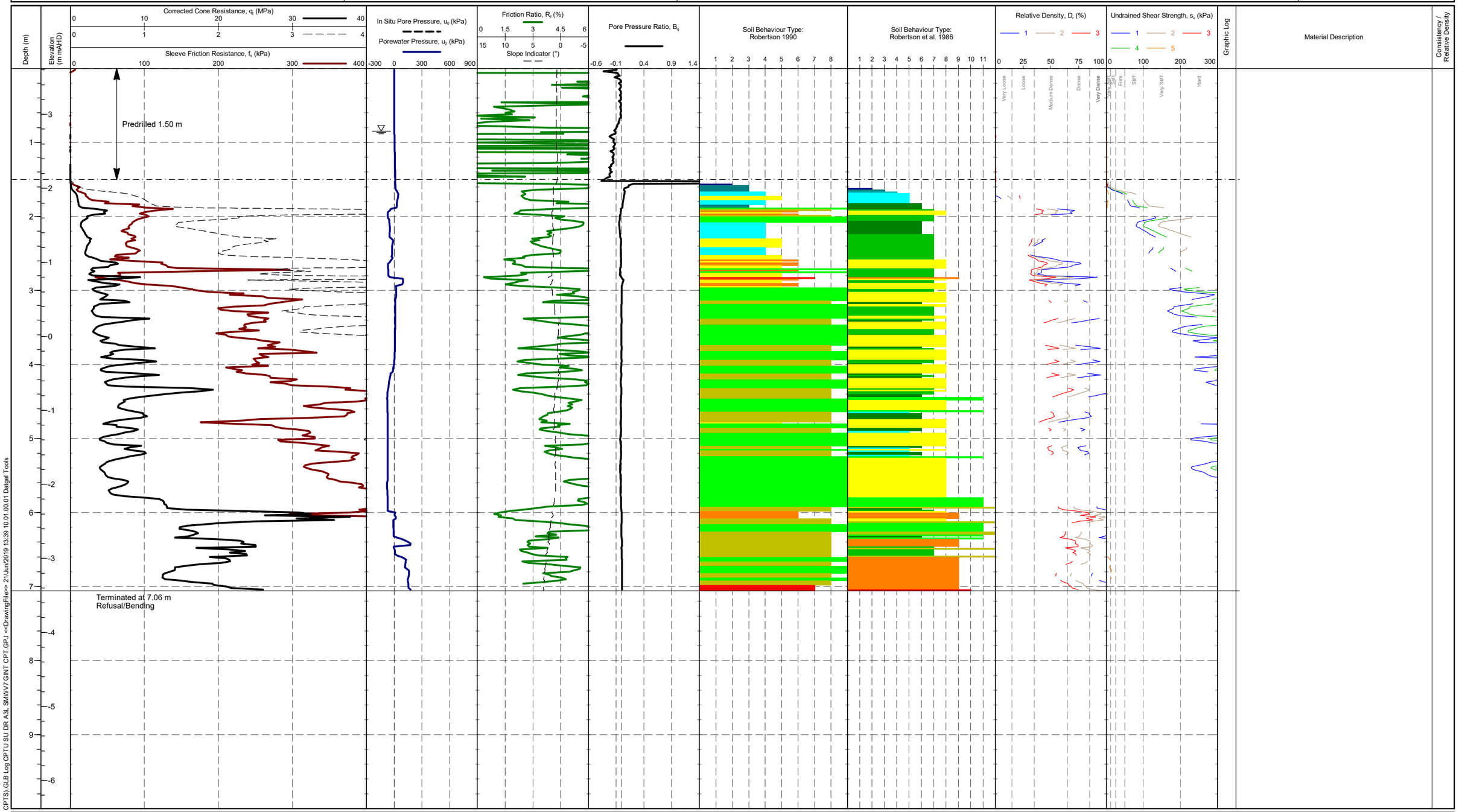
GOLDER | Douglas Partners
Geotechnics | Environment | Groundwater

PointID **CPT-MN09**

CLIENT	: Sydney Metro Authority	AREA	: Marrickville Precast Segment Facility	SHEET	: 1 OF 1
ENGINEER	: Golder-Douglas	EASTING	: 330828.3 m	STATUS	:
PROJECT	: Sydney Metro City & Southwest	NORTHING	: 6246233.4 m	DATE	: 02/06/2019
LOCATION	: Sydney	COORD. SYS.	: MGA94		
PROJECT No.	: 00013/11180	ELEVATION	: 3.62 m mAHD		

METHOD: Robertson 1990
1 - Sensitive, fine grained; 2 - Organic soil - peats; 3 - Clays - clay to silty clay; 4 - Silt mixtures - clayey silt to silty clay; 5 - Sand mixtures - silty sand to sandy silt; 6 - Sands - clean sand to silty sand; 7 - Gravelly sand to sand; 8 - Very stiff sand to clayey sand; 9 - Very stiff fine grained

Relative Density Method:
1. Baldi et al. (1986); Al-Homoud & Wehr (2006)
2. Jamiolkowski et al. (2001)
3. Kulhawy & Mayne (1990)



RIG	: UXH-183	CHECKED BY	: RG	Dissipation Test	
CONE TYPE	: C+F+W2+S	CHECKED DATE	: 20/06/2019		
CONE ID	: 160917	APPROVED BY	: AP		
OPERATOR	: GP	APPROVED DATE	: 21/06/2019		

METHOD: Robertson et al. 1986
1 - Sensitive fine grained material; 2 - Organic material; 3 - Clay; 4 - Silty clay to clay; 5 - Clayey silt to silty clay; 6 - Sandy silt to clayey silt; 7 - Silty sand to sandy silt; 8 - Sand to silty sand; 9 - Sand; 10 - Gravelly sand to sand; 11 - Very stiff fine grained; 12 - Sand to clayey sand

Undrained Shear Strength Method:
1. $s_u = (q_t - \sigma_{vo})/N_{kt}$ or $(q_t - \sigma_{vo})/N_k$, where N_{kt} = 16-17 & N_k = 14-15
2. $s_u = q_t/N_{kt}$ or q_t/N_k, where N_{kt} = 16-17 & N_k = 14-15
3. Wroth (1984)
4. Trak et al. (1980), Terzaghi et al. (1996)
5. Robertson (2009), $s_u = \Delta u/N$

REMARK

RMS 41.0.1 LIB (FOR CPTS).GLB Log CPTU SU DR A3L SMWV7 GINT CPT.GPJ <<DrawingFile>> 21/Jun/2019 13:39 10.01.00.01 Datgel Tools

CORE PHOTOGRAPHS

HOLE NO : CPT-MN09
FILE / JOB NO 00013/11180
SHEET : 1 OF 1

PROJECT : Sydney Metro City & Southwest
LOCATION : Marrickville Precast Segment Facility

POSITION : E: 330828.3, N:6246233.4 (56 MGA94)	SURFACE ELEVATION 3.62 (mAHD)		ANGLE FROM HORIZONTAL : 90°
RIG TYPE : UXH-183	MOUNTING : Truck	CONTRACTOR : Ground Test	DRILLER : GP
DATE STARTED : 2/6/19	DATE COMPLETED : 2/6/19	DATE LOGGED : 30/12/99	LOGGED BY : RMM	CHECKED BY : DEM

GOLDER Douglas Partners
Geotechnics / Environment / Groundwater

CPT LOG

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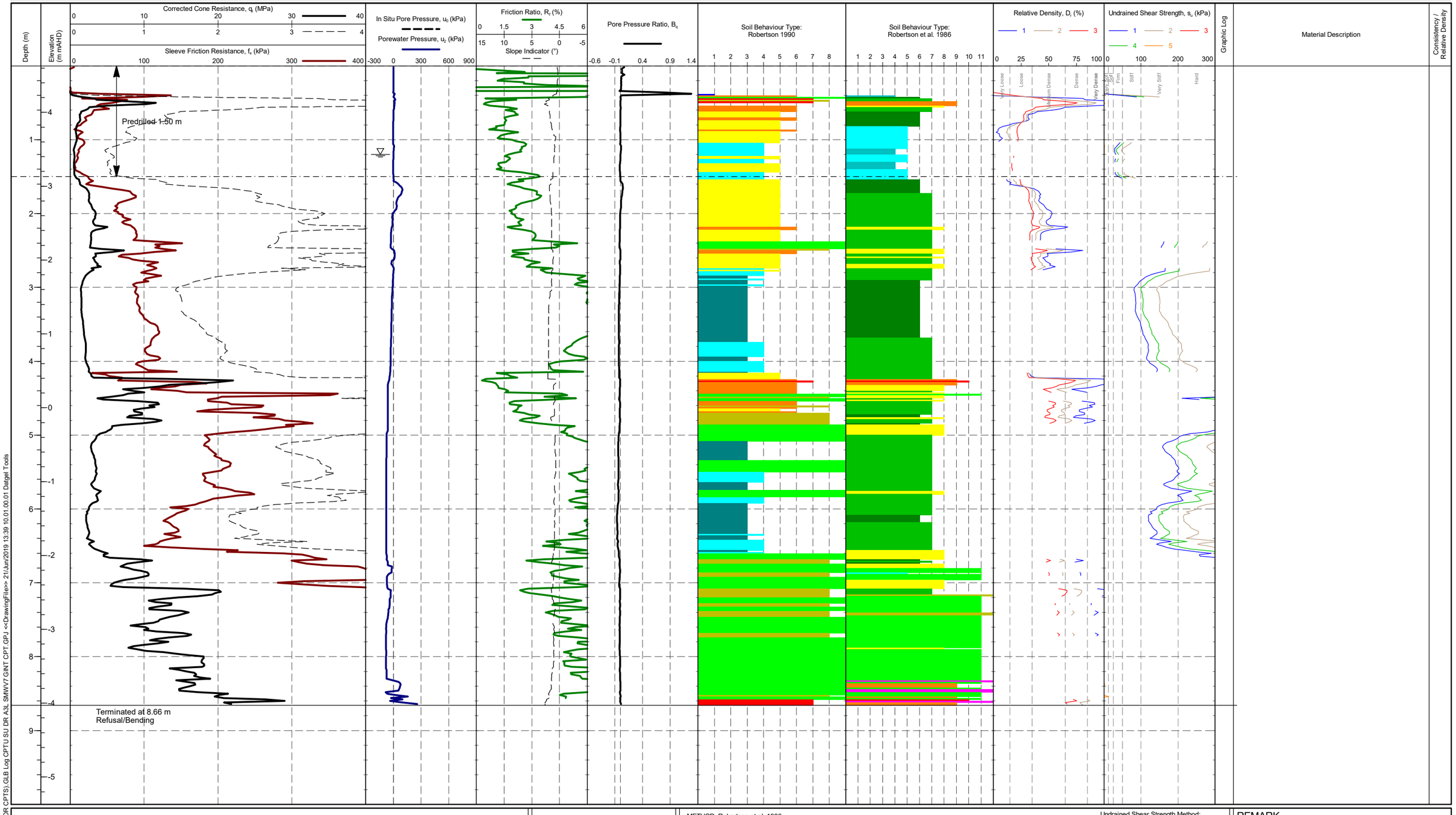
PointID
CPT-MN11

CLIENT	: Sydney Metro Authority	AREA	: Marrickville Precast Segment Facility	SHEET	: 1 OF 1
ENGINEER	: Golder-Douglas	EASTING	: 331002.1 m	STATUS	:
PROJECT	: Sydney Metro City & Southwest	NORTHING	: 6246353.5 m	DATE	: 11/06/2019
LOCATION	: Sydney	COORD. SYS.	: MGA94		
PROJECT No.	: 00013/11180	ELEVATION	: 4.63 m mAHD		

METHOD: Robertson 1990
1 - Sensitive, fine grained
2 - Organic soil - peats
3 - Clays - clay to silty clay
4 - Silt mixtures - clayey silt to silty clay
5 - Sand mixtures - silty sand to sandy silt
6 - Sands - clean sand to silty sand
7 - Gravelly sand to sand
8 - Very stiff sand to clayey sand
9 - Very stiff fine grained

Relative Density Method:
1. Baldi et al. (1986); Al-Homoud & Wehr (2006)
2. Jamiolkowski et al. (2001)
3. Kulhawy & Mayne (1990)



RIG	: UXH-183	CHECKED BY	: RG
CONE TYPE	: C+F+W2+S	CHECKED DATE	: 20/06/2019
CONE ID	: 160917	APPROVED BY	: AP
OPERATOR	: GP	APPROVED DATE	: 21/06/2019

Dissipation Test

METHOD: Robertson et al. 1986
1 - Sensitive fine grained material
2 - Organic material
3 - Clay
4 - Silty clay to clay
5 - Clayey silt to silty clay
6 - Sandy silt to clayey silt
7 - Silty sand to sandy silt
8 - Sand to silty sand
9 - Sand
10 - Gravelly sand to sand
11 - Very stiff fine grained
12 - Sand to clayey sand

Undrained Shear Strength Method:
1. $s_u = (q_t - \sigma_{vo})/N_{kt}$ or $(q_t - \sigma_{vo})/N_k$ where N_{kt} = 16-17 & N_k = 14-15
2. $s_u = q_t/N_{kt}$ or q_t/N_k, where N_{kt} = 16-17 & N_k = 14-15
3. Wroth (1984)
4. Trak et al. (1980), Terzaghi et al. (1996)
5. Robertson (2009), $s_u = \Delta u/N$

REMARK

CORE PHOTOGRAPHS

HOLE NO : CPT-MN11
FILE / JOB NO 00013/11180
SHEET : 1 OF 1

PROJECT : Sydney Metro City & Southwest
LOCATION : Marrickville Precast Segment Facility

POSITION : E: 331002.1, N:6246353.5 (56 MGA94)	SURFACE ELEVATION 4.63 (mAHD)		ANGLE FROM HORIZONTAL : 90°	
RIG TYPE : UXH-183	MOUNTING : Truck	CONTRACTOR : Ground Test	DRILLER : GP	
DATE STARTED : 11/6/19	DATE COMPLETED : 11/6/19	DATE LOGGED : 30/12/99	LOGGED BY : RMM	CHECKED BY : DEM

No concrete core
from
this location

GOLDER Douglas Partners
Geotechnics | Environment | Groundwater

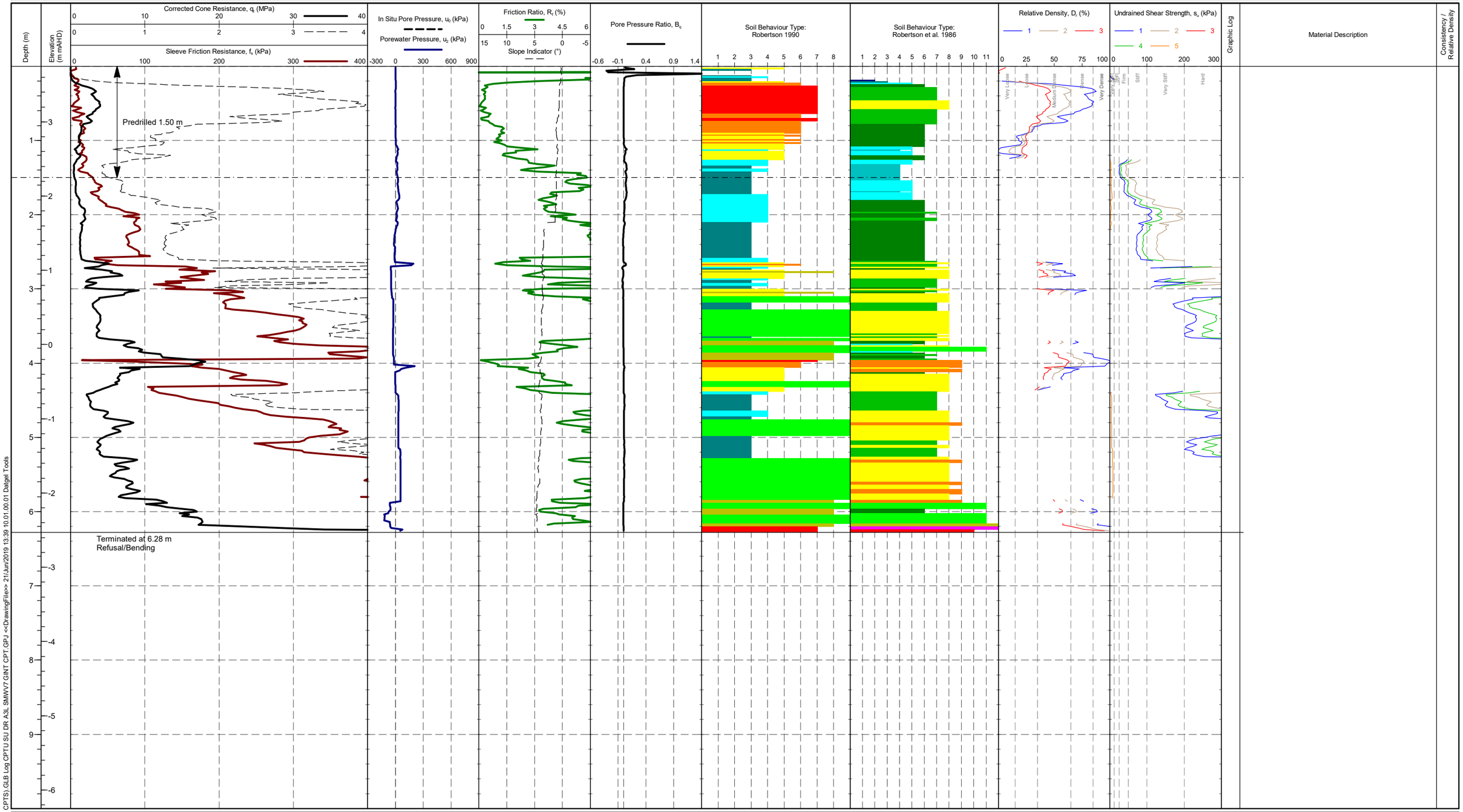
CPT LOG

PointID **CPT-MN12**

CLIENT	: Sydney Metro Authority	AREA	: Marrickville Precast Segment Facility	SHEET	: 1 OF 1
ENGINEER	: Golder-Douglas	EASTING	: 330761.3 m	STATUS	:
PROJECT	: Sydney Metro City & Southwest	NORTHING	: 6246130.5 m	DATE	: 11/06/2019
LOCATION	: Sydney	COORD. SYS.	: MGA94		
PROJECT No.	: 00013/11180	ELEVATION	: 3.75 m mAHD		

METHOD: Robertson 1990
1 - Sensitive, fine grained; 2 - Organic soil - peats; 3 - Clays - clay to silty clay; 4 - Silt mixtures - clayey silt to silty clay; 5 - Sand mixtures - silty sand to sandy silt; 6 - Sands - clean sand to silty sand; 7 - Gravelly sand to sand; 8 - Very stiff sand to clayey sand; 9 - Very stiff fine grained

Relative Density Method:
1. Baldi et al. (1986); Al-Homoud & Wehr (2006)
2. Jamiolkowski et al. (2001)
3. Kulhawy & Mayne (1990)



RMS 41.0.1 LIB (FOR CPTS) GLB Log CPTU SU DR A3L SMWV7 GINT CPT.GPJ <<DrawingFile>> 21/Jun/2019 13:39 10.01.00.01 Datgel Tools

RIG	: UXH-183	CHECKED BY	: RG
CONE TYPE	: C+F+W2+S	CHECKED DATE	: 20/06/2019
CONE ID	: 120539	APPROVED BY	: AP
OPERATOR	: GP	APPROVED DATE	: 21/06/2019

Dissipation Test

METHOD: Robertson et al. 1986
1 - Sensitive fine grained material; 2 - Organic material; 3 - Clay; 4 - Silty clay to clay; 5 - Clayey silt to silty clay; 6 - Sandy silt to clayey silt; 7 - Silty sand to sandy silt; 8 - Sand to silty sand; 9 - Sand; 10 - Gravelly sand to sand; 11 - Very stiff fine grained; 12 - Sand to clayey sand

Undrained Shear Strength Method:
1. $s_u = (q_t - \sigma_{vo})/N_{kc}$ or $(q_t - \sigma_{vo})/N_k$, where N_{kc} = 16-17 & N_k = 14-15
2. $s_u = q_t/N_{kc}$ or q_t/N_k, where N_{kc} = 16-17 & N_k = 14-15
3. Wroth (1984)
4. Trak et al. (1980), Terzaghi et al. (1996)
5. Robertson (2009), $s_u = \Delta u/N$

REMARK

CORE PHOTOGRAPHS

HOLE NO : CPT-MN12
FILE / JOB NO 00013/11180
SHEET : 1 OF 1

PROJECT : Sydney Metro City & Southwest
LOCATION : Marrickville Precast Segment Facility

POSITION : E: 330761.3, N:6246130.5 (56 MGA94)	SURFACE ELEVATION 3.75 (mAHD)		ANGLE FROM HORIZONTAL : 90°	
RIG TYPE : UXH-183	MOUNTING : Truck	CONTRACTOR : Ground Test	DRILLER : GP	
DATE STARTED : 11/6/19	DATE COMPLETED : 11/6/19	DATE LOGGED : 30/12/99	LOGGED BY : RMM	CHECKED BY : DEM

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CPT LOG

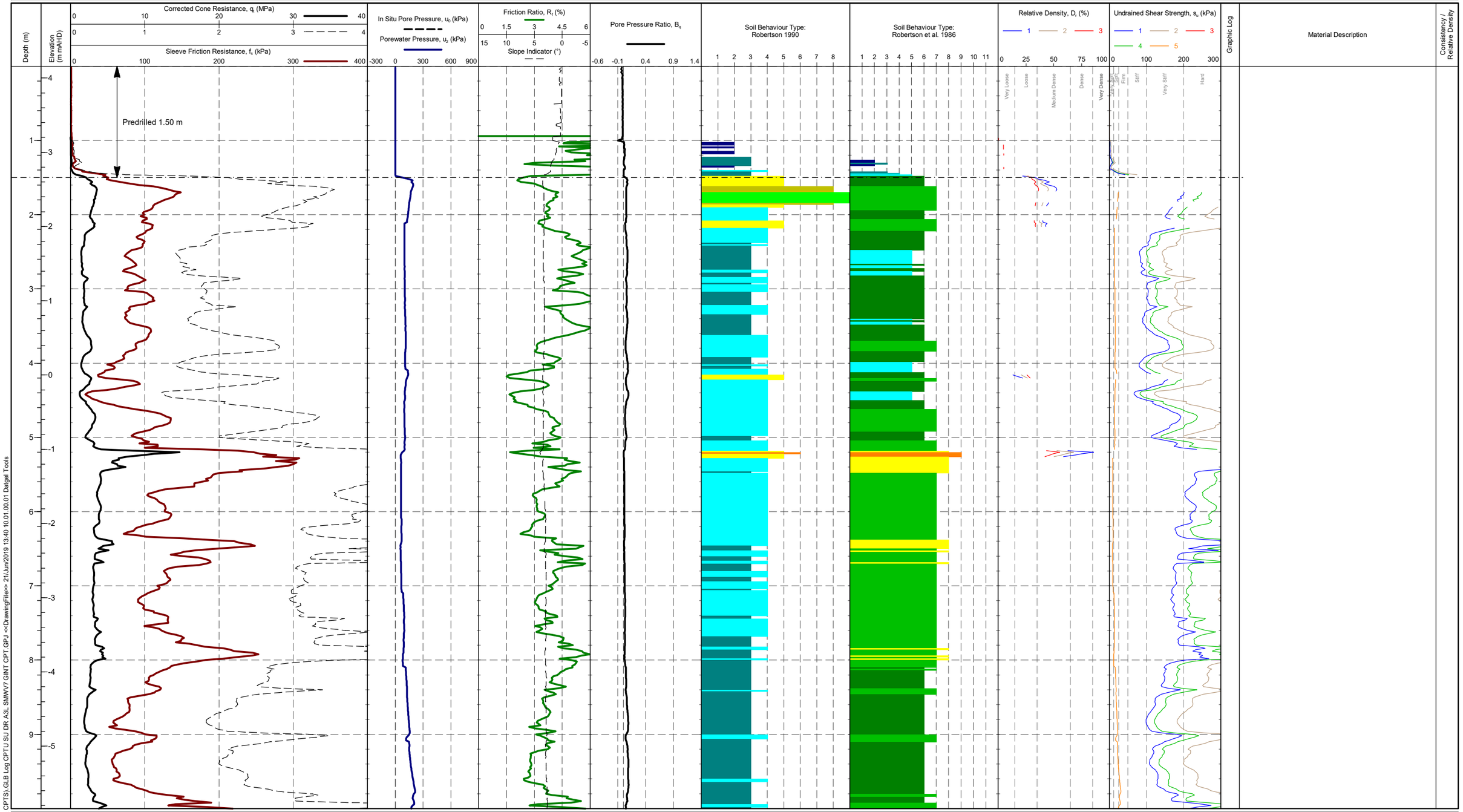
GOLDER Douglas Partners
Geotechnics | Environment | Groundwater

PointID **CPT-MN13**

CLIENT	: Sydney Metro Authority	AREA	: Marrickville Precast Segment Facility	SHEET	: 1 OF 2
ENGINEER	: Golder-Douglas	EASTING	: 330915.0 m	STATUS	:
PROJECT	: Sydney Metro City & Southwest	NORTHING	: 6246402.0 m	DATE	: 02/06/2019
LOCATION	: Sydney	COORD. SYS.	: MGA94		
PROJECT No.	: 00013/11180	ELEVATION	: 4.16 m mAHD		

METHOD: Robertson 1990
1 - Sensitive, fine grained
2 - Organic soil - peats
3 - Clays - clay to silty clay
4 - Silt mixtures - clayey silt to silty clay
5 - Sand mixtures - silty sand to sandy silt
6 - Sands - clean sand to silty sand
7 - Gravelly sand to sand
8 - Very stiff sand to clayey sand
9 - Very stiff fine grained

Relative Density Method:
1. Baldi et al. (1986); Al-Homoud & Wehr (2006)
2. Jamiolkowski et al. (2001)
3. Kulhawy & Mayne (1990)



RIG	: UXH-183	CHECKED BY	: RG		
CONE TYPE	: C+F+W2+S	CHECKED DATE	: 20/06/2019		
CONE ID	: 120539	APPROVED BY	: AP		
OPERATOR	: GP	APPROVED DATE	: 21/06/2019		

Dissipation Test

METHOD: Robertson et al. 1986
1 - Sensitive fine grained material
2 - Organic material
3 - Clay
4 - Silty clay to clay
5 - Clayey silt to silty clay
6 - Sandy silt to clayey silt
7 - Silty sand to sandy silt
8 - Sand to silty sand
9 - Sand
10 - Gravelly sand to sand
11 - Very stiff fine grained
12 - Sand to clayey sand

Undrained Shear Strength Method:
1. $s_u = (q_t - \sigma_{vo})/N_{kt}$ or $(q_t - \sigma_{vo})/N_{\Delta}$ where N_{kt} = 16-17 & N_{Δ} = 14-15
2. $s_u = q_t/N_{kt}$ or q_t/N_{Δ}, where N_{kt} = 16-17 & N_{Δ} = 14-15
3. Wroth (1984)
4. Trak et al. (1980), Terzaghi et al. (1996)
5. Robertson (2009), $s_u = \Delta u/N$

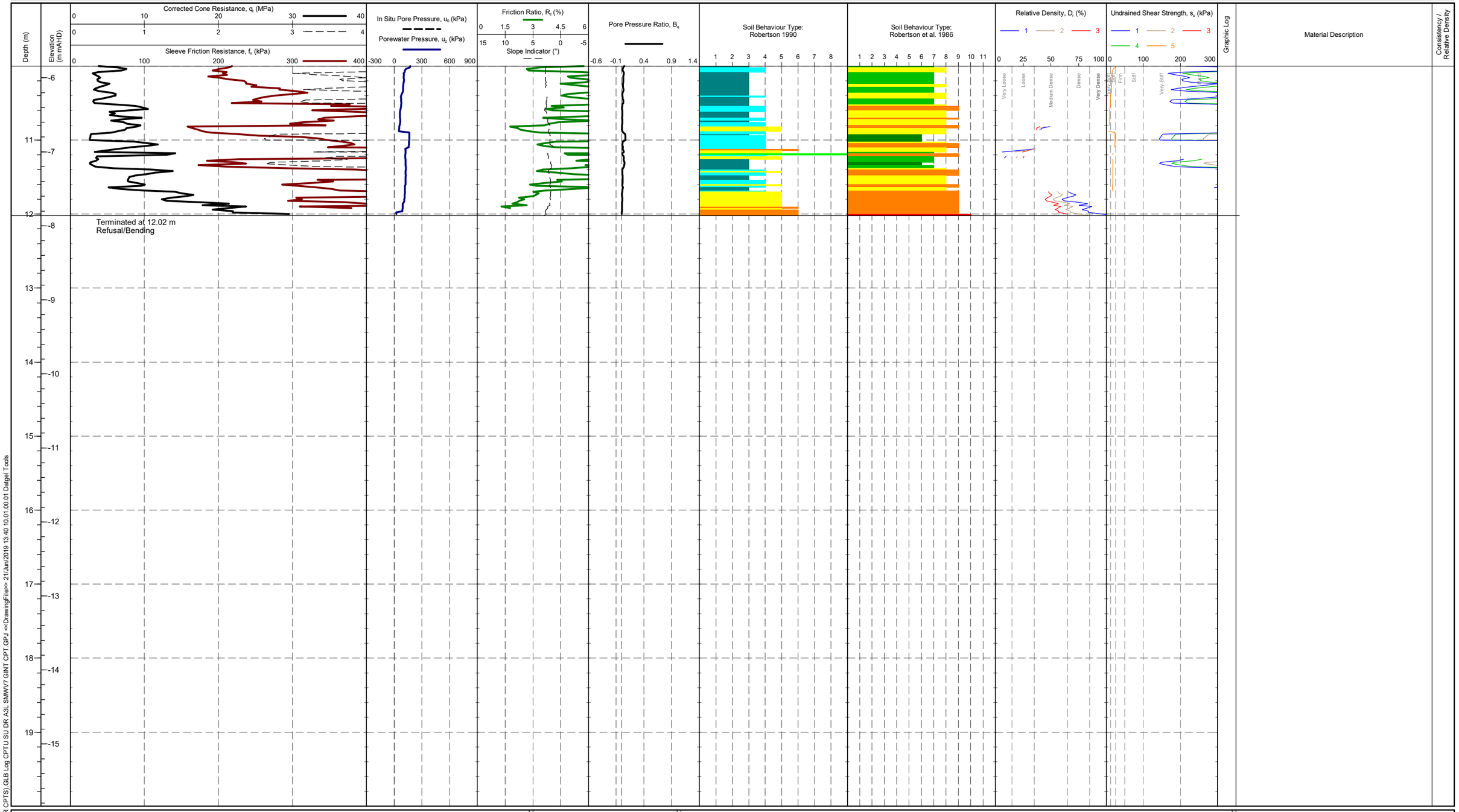
REMARK

CPT LOG

GOLDER Douglas Partners
Geotechnics | Environment | Groundwater

PointID **CPT-MN13**

CLIENT	: Sydney Metro Authority	AREA	: Marrickville Precast Segment Facility	SHEET	: 2 OF 2
ENGINEER	: Golder-Douglas	EASTING	: 330915.0 m	STATUS	:
PROJECT	: Sydney Metro City & Southwest	NORTHING	: 6246402.0 m	DATE	: 02/06/2019
LOCATION	: Sydney	COORD. SYS.	: MGA94		
PROJECT No.	: 00013/11180	ELEVATION	: 4.16 m mAHD		



METHOD: Robertson 1990
1 - Sensitive, fine grained
2 - Organic soil - peats
3 - Clays - clay to silty clay
4 - Silt mixtures - clayey silt to silty clay
5 - Sand mixtures - silty sand to sandy silt
6 - Sands - clean sand to silty sand
7 - Gravelly sand to sand
8 - Very stiff sand to clayey sand
9 - Very stiff fine grained

Relative Density Method:
1. Baldi et al. (1986); Al-Homoud & Wehr (2006)
2. Jamiolkowski et al. (2001)
3. Kulhawy & Mayne (1990)

RIG	: UXH-183	CHECKED BY	: RG
CONE TYPE	: C+F+W2+S	CHECKED DATE	: 20/06/2019
CONE ID	: 120539	APPROVED BY	: AP
OPERATOR	: GP	APPROVED DATE	: 21/06/2019

Dissipation Test

METHOD: Robertson et al. 1986
1 - Sensitive fine grained material
2 - Organic material
3 - Clay
4 - Silty clay to clay
5 - Clayey silt to silty clay
6 - Sandy silt to clayey silt
7 - Silty sand to sandy silt
8 - Sand to silty sand
9 - Sand
10 - Gravelly sand to sand
11 - Very stiff fine grained
12 - Sand to clayey sand

Undrained Shear Strength Method:
1. $s_u = (q_t - \sigma_{vo})/N_c$ or $(q_t - \sigma_{vo})/N_k$, where N_k = 16-17 & N_c = 14-15
2. $s_u = q_t/N_c$ or q_t/N_k, where N_k = 16-17 & N_c = 14-15
3. Wroth (1984)
4. Trak et al. (1980), Terzaghi et al. (1996)
5. Robertson (2009), $s_u = \Delta u/N$

REMARK

CORE PHOTOGRAPHS

HOLE NO : CPT-MN13
FILE / JOB NO 00013/11180
SHEET : 1 OF 1

PROJECT : Sydney Metro City & Southwest
LOCATION : Marrickville Precast Segment Facility

POSITION : E: 330915 , N:6246402 (56 MGA94)	SURFACE ELEVATION 4.16 (mAHD)		ANGLE FROM HORIZONTAL : 90°	
RIG TYPE : UXH-183	MOUNTING : Truck	CONTRACTOR : Ground Test	DRILLER : GP	
DATE STARTED : 2/6/19	DATE COMPLETED : 2/6/19	DATE LOGGED : 30/12/99	LOGGED BY : RMM	CHECKED BY : DEM

No concrete core
from
this location

GOLDER Douglas Partners
Geotechnics | Environment | Groundwater

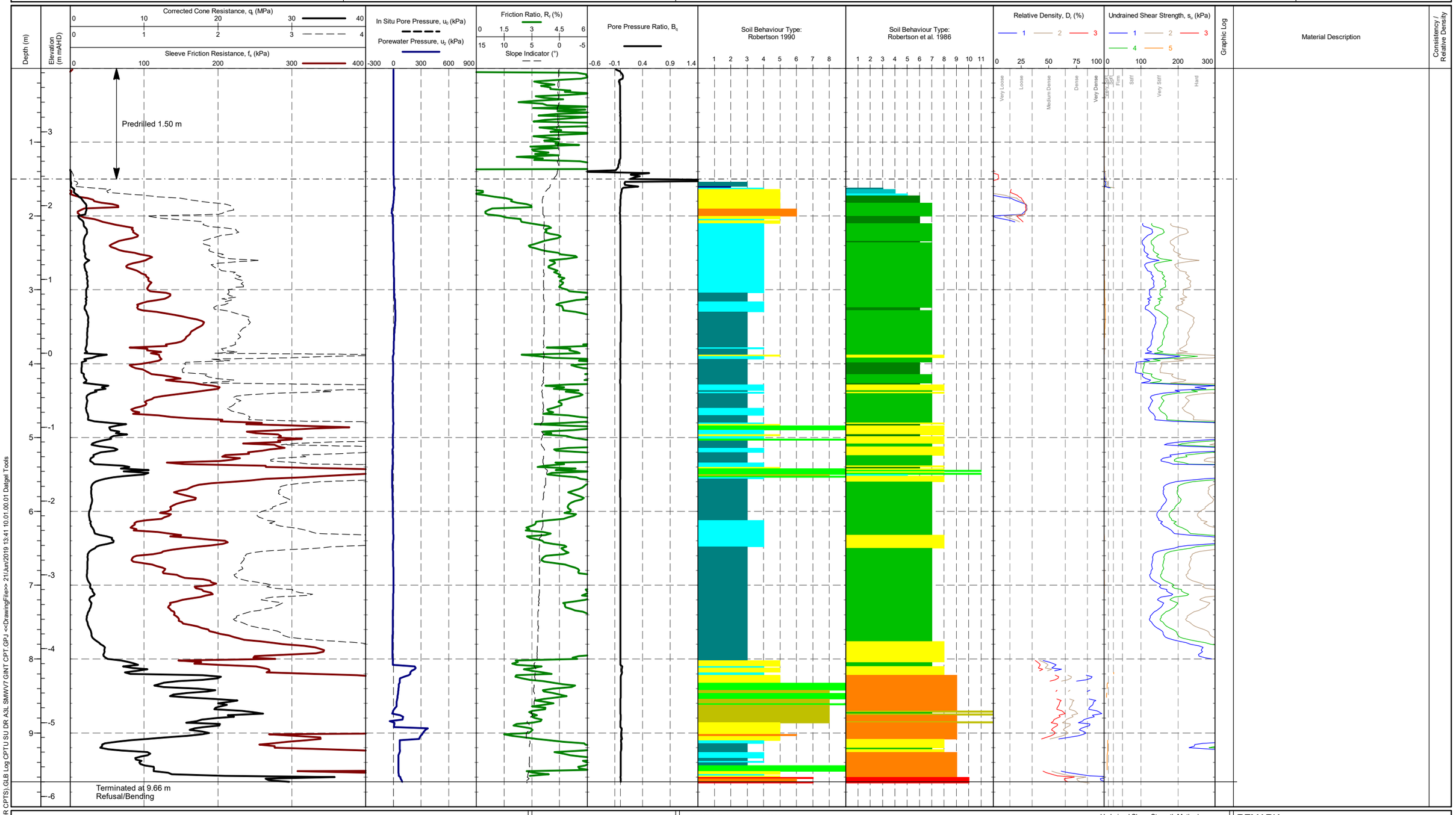
CPT LOG

PointID **CPT-MN14**

CLIENT	: Sydney Metro Authority	AREA	: Marrickville Precast Segment Facility	SHEET	: 1 OF 1
ENGINEER	: Golder-Douglas	EASTING	: 330817.1 m	STATUS	:
PROJECT	: Sydney Metro City & Southwest	NORTHING	: 6246307.7 m	DATE	: 02/06/2019
LOCATION	: Sydney	COORD. SYS.	: MGA94		
PROJECT No.	: 00013/11180	ELEVATION	: 3.86 m mAHD		

METHOD: Robertson 1990
1 - Sensitive, fine grained
2 - Organic soil - peats
3 - Clays - clay to silty clay
4 - Silt mixtures - clayey silt to silty clay
5 - Sand mixtures - silty sand to sandy silt
6 - Sands - clean sand to silty sand
7 - Gravelly sand to sand
8 - Very stiff sand to clayey sand
9 - Very stiff fine grained

Relative Density Method:
1. Baldi et al. (1986); Al-Homoud & Wehr (2006)
2. Jamiolkowski et al. (2001)
3. Kulhawy & Mayne (1990)



RIG	: UXH-183	CHECKED BY	: RG
CONE TYPE	: C+F+W2+S	CHECKED DATE	: 20/06/2019
CONE ID	: 171006	APPROVED BY	: AP
OPERATOR	: GP	APPROVED DATE	: 21/06/2019

Dissipation Test

METHOD: Robertson et al. 1986
1 - Sensitive fine grained material
2 - Organic material
3 - Clay
4 - Silty clay to clay
5 - Clayey silt to silty clay
6 - Sandy silt to clayey silt
7 - Silty sand to sandy silt
8 - Sand to silty sand
9 - Sand
10 - Gravelly sand to sand
11 - Very stiff fine grained
12 - Sand to clayey sand

Undrained Shear Strength Method:
1. $s_u = (q_t - \sigma_{vo})/N_c$ or $(q_t - \sigma_{vo})/N_k$, where N_c = 16-17 & N_k = 14-15
2. $s_u = q_t/N_c$ or q_t/N_k, where N_c = 16-17 & N_k = 14-15
3. Wroth (1984)
4. Trak et al. (1980), Terzaghi et al. (1996)
5. Robertson (2009), $s_u = \Delta u/N$

REMARK

CORE PHOTOGRAPHS

HOLE NO : CPT-MN14
FILE / JOB NO 00013/11180
SHEET : 1 OF 1

PROJECT : Sydney Metro City & Southwest
LOCATION : Marrickville Precast Segment Facility

POSITION : E: 330817.1, N:6246307.7 (56 MGA94)	SURFACE ELEVATION 3.86 (mAHD)		ANGLE FROM HORIZONTAL : 90°
RIG TYPE : UXH-183	MOUNTING : Truck	CONTRACTOR : Ground Test	DRILLER : GP
DATE STARTED : 2/6/19	DATE COMPLETED : 2/6/19	DATE LOGGED : 30/12/99	LOGGED BY : RMM	CHECKED BY : DEM

GOLDER Douglas Partners Geotechnics / Environment / Groundwater

APPENDIX F

Groundwater Field Sheets

Douglas Partners
Geotechnics / Environment / Groundwater

Groundwater Field Sheet

Bore Volume = casing volume + filter pack volume
$= \pi h_1 d_2^2/4 + n(\pi h_1 d_1^2/4 - \pi h_2 d_2^2/4)$
Where: $\pi = 3.14$
n = porosity (0.3 for most filter pack material)
h_1 = height of water column
d_1 = diameter of annulus
h_2 = length of filter pack
d_2 = diameter of casing
Bore Vol Normally: 7.2*h

Project and Bore Installation Details

Bore / Standpipe ID:	BH_MW08
Project Name:	SMCSW - Marrickville
Project Number:	86305.00 / 179865
Site Location:	Marrickville
Bore GPS Co-ord:	
Installation Date:	2/6/19
GW Level (during drilling):	- m bgl
Well Depth:	7.00 m bgl
Screened Interval:	2.1 - 7.00 m bgl
Contaminants/Comments:	-

Bore Development Details

Date/Time:	23/6/19 3:10 pm Overcast.
Purged By:	LT → no parameters., warm not working
GW Level (pre-purge):	2.39 m bgl
GW Level (post-purge):	4.78 m bgl
PSH observed:	Yes / (No) ((interface) / visual). Thickness if observed: —
Observed Well Depth:	5.85 m bgl
Estimated Bore Volume:	24.9 L
Total Volume Purged:	(target: no drill mud, min 3 well vol. or dry) ~20L, dry
Equipment:	twister pump, HDPE tubing, 12V battery, interface meter

Micropurge and Sampling Details

Date/Time:	28/6/19
Sampled By:	LT
Weather Conditions:	clear, sunny
GW Level (pre-purge):	2.63 m bgl
GW Level (post sample):	4.34 m bgl
PSH observed:	Yes / (No) ((interface) / visual). Thickness if observed:
Observed Well Depth:	5.64 m bgl
Estimated Bore Volume:	21.7 L
Total Volume Purged:	10-11 L
Equipment:	peristaltic pump, interface meter, YSI water quality meter, 12V pump, (PPM) ~~45µm filter~~, HDPE tubing

Water Quality Parameters

Time / Volume	Temp (°C)	DO (mg/L)	EC (µS or mS/cm)	pH	Turbidity	Redox (mV)
Stabilisation Criteria (3 readings)	**0.1°C**	**+/- 0.3 mg/L**	**+/- 3%**	**+/- 0.1**	**+/- 10%**	**+/- 10 mV**
10:52	21.1	2.85	8683	5.38		140.2
10:53	21.5	0.26	8706	5.45		128.9
10:54	21.4	0.20	8030	5.31		142.3
10:55	21.3	0.18	7600	5.21		150.6
10:56	21.3	0.29	7405	5.21		153.9
10:57	21.0	0.47	6735	5.12		172.4
10:58	21.1	0.80	6898	5.17		165.9
10:59	21.3	0.96	8132	5.33		133.3
11:00	21.4	1.3				
Additional Readings Following stabilisation:	DO % Sat	SPC	TDS			

cloud cover →
sun →

Sample Details

Sampling Depth (rationale):	4.5 m bgl, mid col.
Sample Appearance (e.g. colour, siltiness, odour):	cloudy, slightly silty brown
Sample ID:	BH_MW08
QA/QC Samples:	—
Sampling Containers and filtration:	1x 500ml unpreserved glass, 1x 250 unpreserved plastic, 3x ~~HNO3~~ HCl preserved vials, 1x HNO_3 preserved plastic, 1x250 unpreserved for (PFAS), 1x H_2SO_4 preserved plastic, 45µm filter
Comments / Observations:	~~water~~ water inside gatic covers

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Geotechnics / Environment / Groundwater

Groundwater Field Sheet

Bore Volume = casing volume + filter pack volume
$= \pi h_1 d_1^2/4 + n(\pi h_1 d_1^2/4 - \pi h_2 d_2^2/4)$
Where: $\pi = 3.14$
n = porosity (0.3 for most filter pack material)
h_1 = height of water column
d_1 = diameter of annulus
h_2 = length of filter pack
d_2 = diameter of casing
Bore Vol Normally: 7.2*h

Project and Bore Installation Details	
Bore / Standpipe ID:	BH_MW02
Project Name:	
Project Number:	
Site Location:	
Bore GPS Co-ord:	
Installation Date:	
GW Level (during drilling):	- m bgl
Well Depth:	m bgl
Screened Interval:	m bgl
Contaminants/Comments:	-
Bore Development Details	
Date/Time:	
Purged By:	
GW Level (pre-purge):	m bgl
GW Level (post-purge):	m bgl
PSH observed:	Yes / No (interface / visual). Thickness if observed:
Observed Well Depth:	m bgl
Estimated Bore Volume:	L
Total Volume Purged:	(target: no drill mud, min 3 well vol. or dry)
Equipment:	
Micropurge and Sampling Details	
Date/Time:	28/6/19 9:30AM
Sampled By:	LT
Weather Conditions:	Clear, sunny
GW Level (pre-purge):	4.64 m bgl
GW Level (post sample):	~~4.6~~ 5.13 m bgl
PSH observed:	Yes / (No) (interface / visual). Thickness if observed:
Observed Well Depth:	6.24 m bgl
Estimated Bore Volume:	11.52 L
Total Volume Purged:	8-9 ~~L~~ L
Equipment:	peristaltic pump, interface meter, YSI water quality meter, 12V battery, ~~YSI flow cell~~, HDPE tubing

Water Quality Parameters

Time / Volume	Temp (°C)	DO (mg/L)	EC (µS or mS/cm)	pH	Turbidity	Redox (mV)
Stabilisation Criteria (3 readings)	**0.1°C**	**+/- 0.3 mg/L**	**+/- 3%**	**+/- 0.1**	**+/- 10%**	**+/- 10 mV**
9:44	21.0	1.76	2423	5.44		187.6
9:45	21.7	1.59	2496	5.36		194.7
9:46	21.7	2.12	2579	5.28		200.2
9:47	21.5	2.28	2618	5.26		202.8
9:48	21.6	2.36	2634	5.25		205.1
Additional Readings Following stabilisation:	DO % Sat	SPC	TDS			

Sample Details

Sampling Depth (rationale):	5.5m m bgl, mid col.
Sample Appearance (e.g. colour, siltiness, odour):	silt brown, cloudy
Sample ID:	BH_MW02
QA/QC Samples:	
Sampling Containers and filtration:	1x500ml unpreserved glass, ~~1x250 unpreserved plastic~~, ~~1x250ml unpreserved plastic (for PFAS)~~, 3x HCl preserved vials, 1x HNO_3 preserved plastic, 1x H_2SO_4 preserved plastic, ~~YSI flow cell~~
Comments / Observations:	~~Rain~~ water inside gatic cover

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Groundwater Field Sheet

Bore Volume = casing volume + filter pack volume
$= \pi h_1 d_1^2/4 + n(\pi h_1 d_1^2/4 - \pi h_2 d_2^2/4)$
Where: $\pi = 3.14$
n = porosity (0.3 for most filter pack material)
h_1 = height of water column
d_1 = diameter of annulus
h_2 = length of filter pack
d_2 = diameter of casing
Bore Vol Normally: 7.2*h

Project and Bore Installation Details	
Bore / Standpipe ID:	BH_MW01a
Project Name:	SMCSW_ Mamelenile
Project Number:	86305.00 / 1791865
Site Location:	
Bore GPS Co-ord:	
Installation Date:	22/6/19
GW Level (during drilling):	- m bgl
Well Depth:	m bgl
Screened Interval:	m bgl
Contaminants/Comments:	-

Bore Development Details	
Date/Time:	23/6/19 4:00 pm Overcast / light rain
Purged By:	LT → no parameters water not working
GW Level (pre-purge):	2.20 m bgl
GW Level (post-purge):	7.47 m bgl
PSH observed:	Yes / (No) ((interface) visual). Thickness if observed: —
Observed Well Depth:	8.18 m bgl
Estimated Bore Volume:	43.05 L
Total Volume Purged:	(target: no drill mud, min 3 well vol. or dry) 35L, dry
Equipment:	twister pump, HDPE tubing, 12V battery, interface meter

Micropurge and Sampling Details	
Date/Time:	28/6/19
Sampled By:	LT
Weather Conditions:	Slightly overcast
GW Level (pre-purge):	1.84 m bgl
GW Level (post sample):	3.65 m bgl
PSH observed:	Yes / (No) ((interface) / visual). Thickness if observed:
Observed Well Depth:	8.27 m bgl
Estimated Bore Volume:	45.9 L
Total Volume Purged:	10 - 11 L
Equipment:	1.12 (ppm)

Water Quality Parameters

Time / Volume	Temp (°C)	DO (mg/L)	EC (µS or mS/cm)	pH	Turbidity	Redox (mV)
Stabilisation Criteria (3 readings)	**0.1°C**	**+/- 0.3 mg/L**	**+/- 3%**	**+/- 0.1**	**+/- 10%**	**+/- 10 mV**
7:45	20.3	~~7.84~~	1033	7.40	/	127.3
7:47	21.0	1.14	1048	6.45	/	148.6
7:48	21.2	1.32	1068	6.07	/	158.7
7:49	21.2	1.36	1061	5.90	/	163.8
7:50	21.1	1.37	1064	5.77		167.2
7:51	21.1	1.37	1057	5.70		169.9
7:52	21.1	1.36	1058	5.67		173.5
Additional Readings Following stabilisation:	DO % Sat	SPC	TDS			

Sample Details

Sampling Depth (rationale):	~6.0 m bgl, mid col.
Sample Appearance (e.g. colour, siltiness, odour):	Clear,
Sample ID:	~~QA WQA500A~~, ~~WQA500B~~ BH_MW01A (for PFAS)
QA/QC Samples:	WQA500A, WQA500B
Sampling Containers and filtration:	3 x unpreserved glass, 3x250ml unpreserved plastic, 3x250ml unpreserved plastic, 9x 500ml HCl preserved glass vials, 3x HNO_3 preserved plastic, 3x H_2SO_4 preserved plastic, 45µm filter
Comments / Observations:	

APPENDIX G

Soil Gas Monitoring Field Sheets

Douglas Partners
Geotechnics | Environment | Groundwater

Landfill Gas Monitoring

Client: Sydney Metro
Project:
Location: Marrickville
Well ID: VW_MN01
Time: 7:10 AM
Temperature:

Date: 28/06/19
Project Number: 1791865 / 86305.00 (V7)

Pressure Mb: 1032

Time (sec)	Concentration (% v/v)			H_2S (ppm)	CO (ppm)	Bal (%)	Relative (mb)	Flow (l/h)	
	CH_4	CO_2	O_2						
0	0.0	2.1	19.5	0		79.5	~~1032~~		0.0
30	0.0	2.1	15.2	0	2	82.7	1032		0.1
60	0.0	2.1	15.1	0	3	82.9	0.05		0.0
90	0.0	2.0	15.0	0	1	83.0	0.05		0.0
120	0.0	2.0	15.0	0	0	83.0	0.05		0.1
150	0.0	1.9	15.1	0	0	83.0	0.05		0.1
180	0.0	1.9	15.1	0	0	82.9	0.05		0.1
210	0.0	1.9	15.2	0	0	82.9	0.05		0.1
240	0.0	1.9	15.3	0	0	82.8	0.05		0.1
270	0.0	1.9	15.4	0	1	82.8	0.05		0.1
300	0.0	1.8	15.4	0	1	82.7	0.05		0.1

Well ID: VW_MN02
Date: 28/06/19
Time: 9:10 AM

Well Base:
Pressure Mb: 1033

Time (sec)	Concentration (% v/v)			H_2S (ppm)	CO (ppm)	Bal (%)	Relative (mb)	Flow (l/h)
	CH_4	CO_2	O_2					
0	0.0	~~0.1~~	~~21.7~~	0	0		~~0.05~~	~~0.1~~
30	0.0	11.9	16.0	0	0	75.0	0.05	0.1
60	0.0	12.1	3.8	0	0	84.1	0.05	0.1
90	0.0	12.1	3.5	0	0	84.4	0.05	0.1
120	0.1	12.0	3.1	0	0	84.9	0.05	0.1
150	0.1	11.9	2.8	0	0	85.2	0.05	0.1
180	0.1	11.8	2.8	0	0	85.3	0.05	0.1
210	0.1	11.7	3.0	0	0	85.3	0.05	0.1
240	0.1	11.6	3.2	0	0	85.2	0.05	0.1
270	0.1	11.5	3.4	0	0	85.0	0.05	0.1
300	0.1	11.3	3.7	0	0	85.0	0.05	0.1

Well ID: BH_MN13
Date: 28/06/19
Time: 11:25 AM

Well Base:
Pressure Mb: 1032

Time (sec)	Concentration (% v/v)			H_2S (ppm)	CO (ppm)	Bal (%)	Relative (mb)	Flow (l/h)	
	CH_4	CO_2	O_2						
0	0.0	0.3	18.7	0	1	81.0	0.05		0.1
30	0.0	14.0	7.5	3	31	80.6	0.05		0.1
60	0.0	14.1	4.4	6	36	81.7	0.05		0.1
90	0.0	13.9	4.4	9	34	81.7	0.05	0.1	
120	0.0	13.8	4.5	10	33	81.7	0.05	0.1	
150	0.0	13.7	4.6	11	30	81.7	0.05	0.1	— rapid drop (pump stop?) re-start
180	0.0	0.2	21.3	3	0	78.5	0.05	0.1	
210	0.0	3.9	16.2	4	10	79.8	0.05	0.1	
240	0.0	9.8	9.6	6	23	80.8	0.05	0.1	
270	0.0	12.5	6.2	8	28	81.3	0.05	0.1	
300	0.0	12.7	5.9	10	13	81.3	0.05	0.1	

APPENDIX H

Calibration Certificates

Calibration and Service Report – PID

Company:	Douglas Partners Pty Ltd (Sydn	**Manufacturer:**	RAE	**Serial #:**	595-004553
Contact:	Kurt Plambeck	**Instrument:**	MINIRAE LITE SN: 595-004553	**Asset #:**	
Address:	PO Box 472 WEST RYDE NSW 2114	**Model:**	MiniRAE Lite	**Part #:**	059-A126-000
		Configuration:	VOC	**Sold:**	30.04.2019
		Wireless:	-	**Last Cal:**	
Phone:	02 4351 1422	**Network ID:**	-	**Job #:**	69411
Fax:	02 4351 1410	**Unit ID:**	-	**Cal Spec:**	
Email:	Kurt.Plambeck@douglaspartner	**Details:**		**Order #:**	139386

Item	Test	Pass/Fail	Comments	Serial Number
Battery	NiCd, NiMH, Dry cell, LiIon	P		
Charger	Power Supply	P		
	Cradle, Travel Charger	P		
Pump	Flow	P	>500 mL/min	
Filter	Filter, fitting, etc	P		
Alarms	Audible, visual, vibration	P		
Display	Operation	P		
Switches	Operation	P		
PCB	Operation	P		
Connectors	Condition	P		
Firmware	Version	P	2.20A	
Datalogger	Operation	P		
Monitor Housing	Condition	P		
Case	Condition / Type	P		
Sensors				
PID	Lamp	P		
PID	Sensor	P		
THP	Sensor	P		

Engineer's Report

Initial Setup and Calibration

AES
sensing safety

Calibration Certificate

Sensor	Type	Serial No.	Span Gas	Concentration	Traceability Lot #	CF	Reading	
							Zero	Span
Oxygen								
LEL								
PID	050-0000-004. 10.6EV 1/ 2 INCH LAMP	1062R138126	Isobutylene	100 PPM	2618-2-1		0	100.2
Battery	059-3051-000. LI-ION BA TTERY FOR MINIRAE	159W4W0022						
Toxic 1								
Toxic 2								
Toxic 3								
Toxic 4								
Toxic 5								
Toxic 6								

Calibrated/Repaired by: NENAD SAVIC Date: 01.05.2019 Next Due: 01.11.2019

Douglas Partners
Geotechnics | Environment | Groundwater

CALIBRATION RECORD

Project: 86305.00 Sydney Metro ~~WEST~~ - City & South West
Project Number: 86305.00

Calibrated Equipment
Model: mini Rae Lite
Serial No.: 595-V04553W4
DP Reference:
Other: 10.6eV Lamp

Calibration
Date(s): 30/5/19
Operator(s): LT
Zero Gas: ambient air
Span Gas: isobutylene
Span Gas Concentration: 100
Response Factor: 1.0
Pre-calibration Reading 94.6 ppm
Post-calibration Reading 100.1 ppm

Approved:
Date: 30/5/19

Gas Calibration Certificate

Instrument MX6
Serial No. 11102ZX-010
Sensors O2,LEL,CO,H2S

Air-Met Scientific Pty Ltd
1300 137 067

Item	Test	Pass	Comments			
Battery	Charge Condition	✓				
	Fuses	✓				
	Capacity	✓				
	Recharge OK?	✓				
Switch/keypad	Operation	✓				
Display	Intensity	✓				
	Operation (segments)	✓				
Grill Filter	Condition	✓				
	Seal	✓				
Pump	Operation					
	Filter					
	Flow					
	Valves, Diaphragm					
PCB	Condition	✓				
Connectors	Condition	✓				
			Low	**High**	**TWA**	**STEL**
Sensor	O2	✓	19.5%	23.5%	N/A	N/A
	LEL	✓	5.0%	10.0%	N/A	N/A
	CO	✓	30ppm	60ppm	30ppm	200ppm
	H2S	✓	10ppm	15ppm	10ppm	15ppm
Alarms	Beeper	✓				
	Settings	✓				
Software	Version					
Datalogger	Operation					
Download	Operation					
Other tests:						

Certificate of Calibration

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

Diffusion mode Aspirated mode

Sensor	Serial no	Calibration gas and concentration	Certified	Gas bottle No	Instrument Reading
O2		20.90%		Fresh Air	20.90%
LEL		50% LEL Methane	NATA	SY174	49%
CO		95ppm	NATA	SY174	94ppm
H2S		25ppm	NATA	SY174	24.7ppm

Calibrated by: Sarah Lian

Calibration date: **30-May-19**

Next calibration due: **26-Nov-19**

PID Calibration Certificate

Instrument PhoCheck Tiger
Serial No. T-105429

Air-Met Scientific Pty Ltd
1300 137 067

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

Certificate of Calibration

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

Sensor	Serial no	Calibration gas and concentration	Certified	Gas bottle No		Instrument Reading
PID Lamp		98ppm Isobutylene	NATA	SY137		97.5ppm

Calibrated by: Sarah Lian

Calibration date: 29/05/2019

Next calibration due: 25/11/2019

APPENDIX I

Contamination Related Laboratory Based Information

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES1917591**

Client	: **GOLDER ASSOCIATES**	Laboratory	: Environmental Division Sydney
Contact	: MR BEN SEAFORD	Contact	: Customer Services ES
Address	: LEVEL 1, 124 PACIFIC HIGHWAY ST LEONARDS NSW, AUSTRALIA 2065	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: bseaford@golder.com.au	E-mail	: ALSEnviro.Sydney@ALSGlobal.com
Telephone	: +61 02 9478 3900	Telephone	: +61-2-8784 8555
Facsimile	: +61 02 9478 3901	Facsimile	: +61-2-8784 8500
Project	: 1791865	Page	: 1 of 3
Order number	: PCOC63	Quote number	: ES2017GOLASS0019 (SY/698/17 C V4)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Marrickville		
Sampler	: Golder-Douglas		

Dates

Date Samples Received	: 07-Jun-2019 14:00	Issue Date	: 07-Jun-2019
Client Requested Due Date	: 17-Jun-2019	Scheduled Reporting Date	: **17-Jun-2019**

Delivery Details

Mode of Delivery	: Undefined	Security Seal	: Not Available
No. of coolers/boxes	: 4	Temperature	: 2.6'C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 41 / 27

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Sample ID BH_MN02, BH_MN02_0.25 & BH_MN02_5.0 received as extra**
- **Please note that the Trip blank have dates 1/06/19 & 2/06/19 to differentiate between the two as they both have the same sample date.**
- **Please note that asbestos has not been added to sample 30, 31 as no bag was provided.**
- **Please note that pfas has not been added to samples 30,32-35 due to correct jar not being provided.**
- **Sample ID Risnate has not been received.**
- **Sample ID Rinsate was not received.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- **Asbestos analysis will be conducted by ALS Newcastle.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

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

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

Summary of Sample(s) and Requested Analysis

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

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	(On Hold) SOIL No analysis requested	SOIL - EA055-103 Moisture Content	SOIL - EA200 Asbestos Identification in Soils -	SOIL - EP035G (solids) Total Phenol by Discrete Analyser	SOIL - EP074 (solids) minus BTEXN Volatile Organic Compounds (minus BTEXN)	SOIL - EP231X (solids) PFAS - Full Suite (28 analytes)	SOIL - S-16 TRH/BTEXN/PAH/OC/OP/PCB/8Metals
ES1917591-001	02-Jun-2019 00:00	BH_MN03_0.25		✓	✓	✓	✓		✓
ES1917591-002	02-Jun-2019 00:00	BH_MN03_0.5	✓						
ES1917591-003	02-Jun-2019 00:00	BH_MN03_0.75-0.85		✓	✓	✓	✓	✓	✓
ES1917591-004	02-Jun-2019 00:00	BH_MN03_1.0-1.1	✓						
ES1917591-005	02-Jun-2019 00:00	BH_MN03_1.3-1.4		✓			✓		✓
ES1917591-006	02-Jun-2019 00:00	BH_MN03_2.0-2.1	✓						
ES1917591-007	02-Jun-2019 00:00	BH_MN03_2.9-3.0		✓			✓		✓
ES1917591-008	01-Jun-2019 00:00	BH_MN04_0.4-0.6		✓	✓	✓	✓	✓	✓
ES1917591-009	01-Jun-2019 00:00	BH_MN04_0.75-0.85		✓	✓	✓	✓	✓	✓
ES1917591-010	01-Jun-2019 00:00	BH_MN04_0.95-1.05		✓		✓	✓	✓	✓
ES1917591-011	01-Jun-2019 00:00	BH_MN04_2.0-2.2		✓			✓		✓
ES1917591-012	01-Jun-2019 00:00	BH_MN04_2.8-3.0		✓			✓		✓
ES1917591-013	01-Jun-2019 00:00	BH_MN09_0.8-0.9		✓	✓	✓	✓	✓	✓
ES1917591-014	01-Jun-2019 00:00	BH_MN09_1.0-1.1	✓						
ES1917591-015	01-Jun-2019 00:00	BH_MN09_2.0		✓			✓	✓	✓
ES1917591-016	01-Jun-2019 00:00	BH_MN09_3.0		✓			✓		✓
ES1917591-017	02-Jun-2019 00:00	BH_MN12_0.5-0.6		✓	✓	✓	✓	✓	✓
ES1917591-018	02-Jun-2019 00:00	BH_MN12_0.75-0.85	✓						
ES1917591-019	02-Jun-2019 00:00	BH_MN12_1.0-1.1		✓	✓	✓	✓	✓	✓
ES1917591-020	02-Jun-2019 00:00	BH_MN12_2.0-2.1		✓		✓	✓	✓	✓
ES1917591-021	02-Jun-2019 00:00	BH_MN12_2.9-3.0		✓			✓		✓
ES1917591-022	01-Jun-2019 00:00	VW_MN01_0.7-0.8		✓	✓	✓	✓	✓	✓
ES1917591-023	01-Jun-2019 00:00	VM_MN01_0.9-1.1		✓		✓	✓	✓	✓
ES1917591-024	02-Jun-2019 00:00	VW_MN02_0.5-0.6		✓	✓	✓	✓	✓	✓
ES1917591-025	02-Jun-2019 00:00	VW_MN02_0.75-0.95		✓	✓	✓	✓		✓
ES1917591-026	02-Jun-2019 00:00	VW_MN02_1.0-1.1		✓		✓	✓		✓
ES1917591-027	02-Jun-2019 00:00	VW_MN02_2.0-2.1		✓			✓	✓	✓
ES1917591-028	02-Jun-2019 00:00	VW_MN02_3.0-3.1		✓			✓		✓
ES1917591-029	02-Jun-2019 00:00	VW_MN02_4.0-4.1		✓			✓		✓
ES1917591-030	01-Jun-2019 00:00	Q500A		✓		✓	✓		✓
ES1917591-031	02-Jun-2019 00:00	Q501A		✓		✓	✓	✓	✓
ES1917591-032	30-May-2019 00:00	Trip blank 1/06/19	✓						
ES1917591-033	30-May-2019 00:00	Trip spike-2	✓						
ES1917591-034	30-May-2019 00:00	Trip blank 2/06/19	✓						
ES1917591-035	30-May-2019 00:00	Trip spike-3	✓						

			(On Hold) SOIL No analysis requested	SOIL - EA055-103 Moisture Content	SOIL - EA200 Asbestos Identification in Soils -	SOIL - EP035G (solids) Total Phenol by Discrete Analyser	SOIL - EP074 (solids) minus BTEXN Volatile Organic Compounds (minus BTEXN)	SOIL - EP231X (solids) PFAS - Full Suite (28 analytes)	SOIL - S-16 TRH/BTEXN/PAH/OC/OP/PCB/8Metals
ES1917591-037	30-May-2019 00:00	TSC2	✓						
ES1917591-038	30-May-2019 00:00	TSC3	✓						
ES1917591-040	02-Jun-2019 00:00	BH_MN02_0.25	✓						
ES1917591-041	02-Jun-2019 00:00	BH_MN02_5.0	✓						

Matrix: **WATER**

Laboratory sample ID	*Client sampling date / time*	*Client sample ID*	(On Hold) WATER No analysis requested	WATER - EP074 (water) minus BTEXN Volatile Organic Compounds (minus BTEXN)	WATER - EP231X PFAS - Full Suite (28 analytes)	WATER - W-16T TRH/BTEXN/PAH/OC/OP/PCB/8 Total metals
ES1917591-036	01-Jun-2019 00:00	Rinsate_BH_MN04		✓	✓	✓
ES1917591-039	01-Jun-2019 00:00	BH_MN02	✓			

Proactive Holding Time Report

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

Requested Deliverables

ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	au_accountspayable@golder.com.au

BARRY HOUSTON

- *AU Certificate of Analysis - NATA (COA)	Email	bhouston@golder.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	bhouston@golder.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	bhouston@golder.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	bhouston@golder.com.au
- Chain of Custody (CoC) (COC)	Email	bhouston@golder.com.au
- EDI Format - ENMRG (ENMRG)	Email	bhouston@golder.com.au
- EDI Format - ESDAT (ESDAT)	Email	bhouston@golder.com.au

BEN SEAFORD

- *AU Certificate of Analysis - NATA (COA)	Email	bseaford@golder.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	bseaford@golder.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	bseaford@golder.com.au
- Chain of Custody (CoC) (COC)	Email	bseaford@golder.com.au
- EDI Format - ENMRG (ENMRG)	Email	bseaford@golder.com.au
- EDI Format - ESDAT (ESDAT)	Email	bseaford@golder.com.au

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **ES1917591**	Page	: 1 of 51
Amendment	: **1**		
Client	: **GOLDER ASSOCIATES**	Laboratory	: Environmental Division Sydney
Contact	: MR BEN SEAFORD	Contact	: Customer Services ES
Address	: LEVEL 1, 124 PACIFIC HIGHWAY ST LEONARDS NSW, AUSTRALIA 2065	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 9478 3900	Telephone	: +61-2-8784 8555
Project	: 1791865	Date Samples Received	: 07-Jun-2019
Order number	: PCOC63	Date Analysis Commenced	: 08-Jun-2019
C-O-C number	: ----	Issue Date	: 08-Jul-2019
Sampler	: Golder-Douglas		
Site	: Marrickville		
Quote number	: SY/698/17 C V4		
No. of samples received	: 41		
No. of samples analysed	: 33		

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

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

This Quality Control Report contains the following information:

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
Alana Smylie	Asbestos Identifier	Newcastle - Asbestos, Mayfield West, NSW
Ankit Joshi	Inorganic Chemist	Sydney Inorganics, Smithfield, NSW
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Franco Lentini		Sydney Organics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW
Peter Wu		Sydney Inorganics, Smithfield, NSW
Wisam Marassa	Inorganics Coordinator	Sydney Inorganics, Smithfield, NSW

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by 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

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	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 2402500)									
ES1917492-050	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	16	16	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	3	3	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	9	9	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	6	6	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	26	22	14.7	No Limit
ES1917591-012	BH_MN04_2.8-3.0	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	27	26	5.11	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	5	6	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	8	9	17.8	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	8	8	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	14	11	18.5	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	6	6	0.00	No Limit
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 2402502)									
ES1917961-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	2	4	48.7	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	2	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	36	54	39.8	0% - 50%
ES1917591-024	VW_MN02_0.5-0.6	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	7	6	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	22	27	18.9	0% - 50%

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 2402502) - continued									
ES1917591-024	VW_MN02_0.5-0.6	EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	36	26	31.4	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	21	17	20.7	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	56	60	7.40	0% - 50%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 2398740)									
ES1917591-003	BH_MN03_0.75-0.85	EA055: Moisture Content	----	0.1	%	24.8	24.8	0.00	0% - 20%
ES1917591-017	BH_MN12_0.5-0.6	EA055: Moisture Content	----	0.1	%	27.1	27.7	2.29	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 2398741)									
ES1917591-027	VW_MN02_2.0-2.1	EA055: Moisture Content	----	0.1	%	14.7	13.8	6.76	0% - 50%
ES1917752-002	Anonymous	EA055: Moisture Content	----	0.1	%	46.1	46.0	0.310	0% - 20%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 2402501)									
ES1917492-050	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
ES1917591-012	BH_MN04_2.8-3.0	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 2402503)									
ES1917591-024	VW_MN02_0.5-0.6	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
ES1917817-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP035G: Total Phenol by Discrete Analyser (QC Lot: 2404834)									
ES1917591-003	BH_MN03_0.75-0.85	EP035G: Phenols (Total)	----	1	mg/kg	<1	<1	0.00	No Limit
ES1917591-020	BH_MN12_2.0-2.1	EP035G: Phenols (Total)	----	1	mg/kg	<1	<1	0.00	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 2394422)									
ES1917585-012	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
ES1917591-031	QA501A	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 2394435)									
ES1917591-003	BH_MN03_0.75-0.85	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
ES1917591-016	BH_MN09_3.0	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 2394425)									
ES1917585-012	Anonymous	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP068A: Organochlorine Pesticides (OC) (QC Lot: 2394425) - continued									
ES1917585-012	Anonymous	EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
ES1917591-031	QA501A	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	0.21	0.15	31.8	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 2394434)									
ES1917591-003	BH_MN03_0.75-0.85	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP068A: Organochlorine Pesticides (OC) (QC Lot: 2394434) - continued									
ES1917591-003	BH_MN03_0.75-0.85	EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
ES1917591-016	BH_MN09_3.0	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 2394425)									
ES1917585-012	Anonymous	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 2394425) - continued									
ES1917585-012	Anonymous	EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
ES1917591-031	QA501A	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 2394434)									
ES1917591-003	BH_MN03_0.75-0.85	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 2394434) - continued									
ES1917591-003	BH_MN03_0.75-0.85	EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
ES1917591-016	BH_MN09_3.0	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 2394446)									
ES1917591-001	BH_MN03_0.25	EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 2394446) - continued									
ES1917591-015	BH_MN09_2.0	EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 2394454)									
ES1917591-026	VW_MN02_1.0-1.1	EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
ES1917692-001	Anonymous	EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP074B: Oxygenated Compounds (QC Lot: 2394446)									
ES1917591-001	BH_MN03_0.25	EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	0.00	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.00	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	0.00	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.00	No Limit
ES1917591-015	BH_MN09_2.0	EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	0.00	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.00	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	0.00	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.00	No Limit
EP074B: Oxygenated Compounds (QC Lot: 2394454)									
ES1917591-026	VW_MN02_1.0-1.1	EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	0.00	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP074B: Oxygenated Compounds (QC Lot: 2394454) - continued									
ES1917591-026	VW_MN02_1.0-1.1	EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	0.00	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.00	No Limit
ES1917692-001	Anonymous	EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	0.00	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.00	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	0.00	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.00	No Limit
EP074C: Sulfonated Compounds (QC Lot: 2394446)									
ES1917591-001	BH_MN03_0.25	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
ES1917591-015	BH_MN09_2.0	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP074C: Sulfonated Compounds (QC Lot: 2394454)									
ES1917591-026	VW_MN02_1.0-1.1	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
ES1917692-001	Anonymous	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP074D: Fumigants (QC Lot: 2394446)									
ES1917591-001	BH_MN03_0.25	EP074: 2.2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
ES1917591-015	BH_MN09_2.0	EP074: 2.2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP074D: Fumigants (QC Lot: 2394454)									
ES1917591-026	VW_MN02_1.0-1.1	EP074: 2.2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
ES1917692-001	Anonymous	EP074: 2.2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 2394446)									
ES1917591-001	BH_MN03_0.25	EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP074E: Halogenated Aliphatic Compounds (QC Lot: 2394446) - continued									
ES1917591-001	BH_MN03_0.25	EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.00	No Limit
ES1917591-015	BH_MN09_2.0	EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP074E: Halogenated Aliphatic Compounds (QC Lot: 2394446) - continued									
ES1917591-015	BH_MN09_2.0	EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.00	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 2394454)									
ES1917591-026	VW_MN02_1.0-1.1	EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP074E: Halogenated Aliphatic Compounds (QC Lot: 2394454) - continued									
ES1917591-026	VW_MN02_1.0-1.1	EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.00	No Limit
ES1917692-001	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.00	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 2394446)									
ES1917591-001	BH_MN03_0.25	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
ES1917591-015	BH_MN09_2.0	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP074F: Halogenated Aromatic Compounds (QC Lot: 2394446) - continued									
ES1917591-015	BH_MN09_2.0	EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 2394454)									
ES1917591-026	VW_MN02_1.0-1.1	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
ES1917692-001	Anonymous	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP074G: Trihalomethanes (QC Lot: 2394446)									
ES1917591-001	BH_MN03_0.25	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
ES1917591-015	BH_MN09_2.0	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP074G: Trihalomethanes (QC Lot: 2394454)									
ES1917591-026	VW_MN02_1.0-1.1	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP074G: Trihalomethanes (QC Lot: 2394454) - continued									
ES1917591-026	VW_MN02_1.0-1.1	EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
ES1917692-001	Anonymous	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 2394424)									
ES1917585-012	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
ES1917591-031	QA501A	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 2394424) - continued									
ES1917591-031	QA501A	EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 2394433)									
ES1917591-003	BH_MN03_0.75-0.85	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
ES1917591-016	BH_MN09_3.0	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 2394433) - continued									
ES1917591-016	BH_MN09_3.0	EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2394423)									
ES1917585-012	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
ES1917591-031	QA501A	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2394432)									
ES1917591-003	BH_MN03_0.75-0.85	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
ES1917591-016	BH_MN09_3.0	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2394445)									
ES1917591-001	BH_MN03_0.25	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
ES1917591-015	BH_MN09_2.0	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2394453)									
ES1917591-026	VW_MN02_1.0-1.1	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
ES1917692-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2399450)									
ES1917765-011	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
ES1917765-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2394423)									
ES1917585-012	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
ES1917591-031	QA501A	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2394432)									
ES1917591-003	BH_MN03_0.75-0.85	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2394432) - continued									
ES1917591-003	BH_MN03_0.75-0.85	EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
ES1917591-016	BH_MN09_3.0	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2394445)									
ES1917591-001	BH_MN03_0.25	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
ES1917591-015	BH_MN09_2.0	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2394453)									
ES1917591-026	VW_MN02_1.0-1.1	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
ES1917692-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2399450)									
ES1917765-011	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
ES1917765-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EP080: BTEXN (QC Lot: 2394445)									
ES1917591-001	BH_MN03_0.25	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
ES1917591-015	BH_MN09_2.0	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EP080: BTEXN (QC Lot: 2394453)									
ES1917591-026	VW_MN02_1.0-1.1	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
ES1917692-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP080: BTEXN (QC Lot: 2394453) - continued									
ES1917692-001	Anonymous	EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EP080: BTEXN (QC Lot: 2399450)									
ES1917765-011	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
ES1917765-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 2398087)									
ES1917405-001	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	0.0025	0.0023	5.73	0% - 50%
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
ES1917591-015	BH_MN09_2.0	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 2404856)									
ES1917591-030	QA500A	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 2398087)									
ES1917405-001	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.00	No Limit
ES1917591-015	BH_MN09_2.0	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.00	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 2404856)									
ES1917591-030	QA500A	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.00	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 2398087)									
ES1917405-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 2398087) - continued									
ES1917405-001	Anonymous	EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit
ES1917591-015	BH_MN09_2.0	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 2404856)									
ES1917591-030	QA500A	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 2398087)									
ES1917405-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 2398087) - continued									
ES1917405-001	Anonymous	EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit
ES1917591-015	BH_MN09_2.0	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 2404856)									
ES1917591-030	QA500A	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG020T: Total Metals by ICP-MS (QC Lot: 2399685)									
ES1917850-004	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.00	No Limit
ES1917557-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.001	0.001	0.00	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 2402832)									
ES1917471-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 2402832) - continued									
ES1917831-002	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 2398254)									
ES1917565-001	Anonymous	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.00	No Limit
ES1917589-003	Anonymous	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.00	No Limit
EP074B: Oxygenated Compounds (QC Lot: 2398254)									
ES1917565-001	Anonymous	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.00	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.00	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.00	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.00	No Limit
ES1917589-003	Anonymous	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.00	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.00	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.00	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.00	No Limit
EP074C: Sulfonated Compounds (QC Lot: 2398254)									
ES1917565-001	Anonymous	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.00	No Limit
ES1917589-003	Anonymous	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.00	No Limit
EP074D: Fumigants (QC Lot: 2398254)									
ES1917565-001	Anonymous	EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.00	No Limit
ES1917589-003	Anonymous	EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP074D: Fumigants (QC Lot: 2398254) - continued									
ES1917589-003	Anonymous	EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.00	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 2398254)									
ES1917565-001	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.00	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.00	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.00	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.00	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.00	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.00	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.00	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.00	No Limit
ES1917589-003	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP074E: Halogenated Aliphatic Compounds (QC Lot: 2398254) - continued									
ES1917589-003	Anonymous	EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.00	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.00	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.00	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.00	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.00	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.00	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.00	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.00	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 2398254)									
ES1917565-001	Anonymous	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.00	No Limit
ES1917589-003	Anonymous	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP074G: Trihalomethanes (QC Lot: 2398254)									
ES1917565-001	Anonymous	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.00	No Limit
ES1917589-003	Anonymous	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2398253)									
ES1917565-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
ES1917589-003	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2398253)									
ES1917565-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	30	0.00	No Limit
ES1917589-003	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EP080: BTEXN (QC Lot: 2398253)									
ES1917565-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit
ES1917589-003	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 2399553)									
ES1917591-036	Rinsate_BH_MN04	EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	0.00	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.00	No Limit
ES1917815-002	Anonymous	EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	168	178	6.03	0% - 20%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	0.05	0.05	0.00	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L	0.06	0.05	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 2399553) - continued									
ES1917815-002	Anonymous	EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	4.53	4.71	3.87	0% - 20%
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	0.03	0.04	0.00	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 2399553)									
ES1917591-036	Rinsate_BH_MN04	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.00	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.00	No Limit
ES1917815-002	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.00	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.00	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 2399553)									
ES1917591-036	Rinsate_BH_MN04	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.00	No Limit
ES1917815-002	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 2399553) - continued									
ES1917815-002	Anonymous	EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.00	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 2399553)									
ES1917591-036	Rinsate_BH_MN04	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.00	No Limit
ES1917815-002	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.00	No Limit
EP231P: PFAS Sums (QC Lot: 2399553)									
ES1917591-036	Rinsate_BH_MN04	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.00	No Limit
ES1917815-002	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	173	183	5.73	0% - 20%

Method Blank (MB) and Laboratory Control Spike (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 Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 2402500)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	98.9	86	126
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	96.7	83	113
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	97.7	76	128
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	97.6	86	120
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	105	80	114
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	99.1	87	123
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	102	80	122
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 2402502)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	104	86	126
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	98.6	83	113
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	102	76	128
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	103	86	120
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	102	80	114
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	102	87	123
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	107	80	122
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2402501)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	77.0	70	105
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2402503)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	78.5	70	105
EP035G: Total Phenol by Discrete Analyser (QCLot: 2404834)								
EP035G: Phenols (Total)	----	1	mg/kg	<1	2.5 mg/kg	88.6	60	102
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 2394422)								
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	110	62	126
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 2394435)								
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	115	62	126
EP068A: Organochlorine Pesticides (OC) (QCLot: 2394425)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	101	69	113
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	103	65	117
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	104	67	119
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	103	68	116
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	101	65	117
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	104	67	115
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	108	69	115

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP068A: Organochlorine Pesticides (OC) (QCLot: 2394425) - continued								
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	106	62	118
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	106	63	117
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	98.0	66	116
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	103	64	116
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	109	66	116
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	107	67	115
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	105	67	123
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	106	69	115
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	107	69	121
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	86.6	56	120
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	99.4	62	124
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	97.6	66	120
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	102	64	122
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	91.4	54	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 2394434)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	88.9	69	113
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	94.3	65	117
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	86.9	67	119
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	83.7	68	116
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	82.8	65	117
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	82.8	67	115
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	90.4	69	115
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	89.1	62	118
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	88.9	63	117
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	90.6	66	116
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	89.6	64	116
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	90.8	66	116
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	93.6	67	115
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	85.5	67	123
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	95.1	69	115
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	94.4	69	121
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	91.8	56	120
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	89.9	62	124
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	82.6	66	120
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	90.2	64	122
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	78.7	54	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2394425)								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	78.9	59	119
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	89.8	62	128

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2394425) - continued								
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	84.3	54	126
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	94.8	67	119
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	102	70	120
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	101	72	120
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	97.5	68	120
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	94.1	68	122
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	101	69	117
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	105	76	118
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	98.2	64	122
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	101	70	116
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	81.8	69	121
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	105	66	118
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	96.5	68	124
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	106	62	112
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	105	68	120
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	104	65	127
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	84.0	41	123
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2394434)								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	102	59	119
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	90.4	62	128
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	105	54	126
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	99.6	67	119
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	90.3	70	120
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	85.9	72	120
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	82.3	68	120
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	90.2	68	122
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	88.3	69	117
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	90.6	76	118
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	83.3	64	122
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	92.0	70	116
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	85.7	69	121
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	90.0	66	118
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	83.1	68	124
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	92.0	62	112
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	90.7	68	120
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	88.7	65	127
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	73.4	41	123
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 2394446)								
EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	1 mg/kg	100	67	113

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 2394446) - continued								
EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	1 mg/kg	104	65	117
EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	1 mg/kg	104	66	122
EP074: 1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	1 mg/kg	103	68	118
EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	1 mg/kg	103	69	119
EP074: 1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	1 mg/kg	104	69	117
EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	1 mg/kg	104	69	115
EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	1 mg/kg	102	66	118
EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	1 mg/kg	105	59	125
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 2394454)								
EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	1 mg/kg	111	67	113
EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	1 mg/kg	112	65	117
EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	1 mg/kg	104	66	122
EP074: 1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	1 mg/kg	104	68	118
EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	1 mg/kg	106	69	119
EP074: 1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	1 mg/kg	101	69	117
EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	1 mg/kg	104	69	115
EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	1 mg/kg	105	66	118
EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	1 mg/kg	102	59	125
EP074B: Oxygenated Compounds (QCLot: 2394446)								
EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	10 mg/kg	85.8	30	156
EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	10 mg/kg	89.1	58	136
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	10 mg/kg	104	62	132
EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	10 mg/kg	91.8	54	136
EP074B: Oxygenated Compounds (QCLot: 2394454)								
EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	10 mg/kg	85.2	30	156
EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	10 mg/kg	105	58	136
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	10 mg/kg	97.0	62	132
EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	10 mg/kg	102	54	136
EP074C: Sulfonated Compounds (QCLot: 2394446)								
EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	1 mg/kg	73.0	54	126
EP074C: Sulfonated Compounds (QCLot: 2394454)								
EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	1 mg/kg	95.3	54	126
EP074D: Fumigants (QCLot: 2394446)								
EP074: 2.2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	1 mg/kg	95.4	60	126
EP074: 1.2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	1 mg/kg	110	68	124
EP074: cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	1 mg/kg	104	51	119
EP074: trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	1 mg/kg	99.4	52	114
EP074: 1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	1 mg/kg	108	63	115

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP074D: Fumigants (QCLot: 2394454)								
EP074: 2.2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	1 mg/kg	88.7	60	126
EP074: 1.2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	1 mg/kg	95.6	68	124
EP074: cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	1 mg/kg	95.5	51	119
EP074: trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	1 mg/kg	89.3	52	114
EP074: 1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	1 mg/kg	104	63	115
EP074E: Halogenated Aliphatic Compounds (QCLot: 2394446)								
EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	10 mg/kg	62.6	30	148
EP074: Chloromethane	74-87-3	5	mg/kg	<5	10 mg/kg	72.3	41	141
EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	10 mg/kg	75.4	43	147
EP074: Bromomethane	74-83-9	5	mg/kg	<5	10 mg/kg	73.3	47	141
EP074: Chloroethane	75-00-3	5	mg/kg	<5	10 mg/kg	81.2	49	143
EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	10 mg/kg	83.5	49	135
EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	79.9	54	126
EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	1 mg/kg	65.5	43	129
EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	1 mg/kg	102	64	120
EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	1 mg/kg	105	67	125
EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	1 mg/kg	107	69	121
EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	1 mg/kg	98.2	65	117
EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	1 mg/kg	102	65	123
EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	1 mg/kg	95.0	59	125
EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	1 mg/kg	97.8	65	125
EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	1 mg/kg	104	70	118
EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	1 mg/kg	105	68	118
EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	1 mg/kg	110	64	126
EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	1 mg/kg	111	68	122
EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	1 mg/kg	113	67	143
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	1 mg/kg	103	62	122
EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	1 mg/kg	96.7	54	128
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	1 mg/kg	99.4	55	129
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1 mg/kg	101	65	121
EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	1 mg/kg	102	61	125
EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	1 mg/kg	97.0	20	134
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	1 mg/kg	102	53	129
EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	1 mg/kg	101	50	128
EP074E: Halogenated Aliphatic Compounds (QCLot: 2394454)								
EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	10 mg/kg	87.2	30	148
EP074: Chloromethane	74-87-3	5	mg/kg	<5	10 mg/kg	89.4	41	141
EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	10 mg/kg	91.0	43	147
EP074: Bromomethane	74-83-9	5	mg/kg	<5	10 mg/kg	89.5	47	141

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP074E: Halogenated Aliphatic Compounds (QCLot: 2394454) - continued								
EP074: Chloroethane	75-00-3	5	mg/kg	<5	10 mg/kg	86.3	49	143
EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	10 mg/kg	88.2	49	135
EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	100	54	126
EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	1 mg/kg	115	43	129
EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	1 mg/kg	102	64	120
EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	1 mg/kg	91.9	67	125
EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	1 mg/kg	102	69	121
EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	1 mg/kg	89.5	65	117
EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	1 mg/kg	99.2	65	123
EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	1 mg/kg	87.7	59	125
EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	1 mg/kg	78.2	65	125
EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	1 mg/kg	101	70	118
EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	1 mg/kg	94.7	68	118
EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	1 mg/kg	110	64	126
EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	1 mg/kg	106	68	122
EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	1 mg/kg	114	67	143
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	1 mg/kg	107	62	122
EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	1 mg/kg	89.1	54	128
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	1 mg/kg	90.2	55	129
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1 mg/kg	110	65	121
EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	1 mg/kg	108	61	125
EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	1 mg/kg	97.8	20	134
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	1 mg/kg	84.9	53	129
EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	1 mg/kg	100	50	128
EP074F: Halogenated Aromatic Compounds (QCLot: 2394446)								
EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1 mg/kg	106	68	116
EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	1 mg/kg	102	70	114
EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	1 mg/kg	105	68	122
EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	1 mg/kg	105	67	123
EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	1 mg/kg	105	70	116
EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1 mg/kg	107	67	117
EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	1 mg/kg	100	70	114
EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	1 mg/kg	98.0	48	122
EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	1 mg/kg	101	52	122
EP074F: Halogenated Aromatic Compounds (QCLot: 2394454)								
EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1 mg/kg	115	68	116
EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	1 mg/kg	106	70	114
EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	1 mg/kg	102	68	122
EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	1 mg/kg	102	67	123

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP074F: Halogenated Aromatic Compounds (QCLot: 2394454) - continued								
EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	1 mg/kg	108	70	116
EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1 mg/kg	106	67	117
EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	1 mg/kg	104	70	114
EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	1 mg/kg	103	48	122
EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	1 mg/kg	103	52	122
EP074G: Trihalomethanes (QCLot: 2394446)								
EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	1 mg/kg	101	66	124
EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	1 mg/kg	100	61	121
EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	1 mg/kg	99.2	63	121
EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	1 mg/kg	96.6	60	126
EP074G: Trihalomethanes (QCLot: 2394454)								
EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	1 mg/kg	91.5	66	124
EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	1 mg/kg	86.3	61	121
EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	1 mg/kg	98.3	63	121
EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	1 mg/kg	100	60	126
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2394424)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	115	77	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	119	72	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	112	73	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	117	72	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	121	75	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	120	77	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	108	73	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	119	74	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	117	69	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	115	75	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	110	68	116
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	114	74	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	116	70	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	71.7	61	121
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	74.1	62	118
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	74.1	63	121
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2394433)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	109	77	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	104	72	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	109	73	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	107	72	126

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2394433) - continued								
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	106	75	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	112	77	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	118	73	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	122	74	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	103	69	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	96.6	75	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	97.5	68	116
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	100	74	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	107	70	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	94.7	61	121
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	89.1	62	118
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	91.7	63	121
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2394423)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	100.0	75	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	104	77	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	100.0	71	129
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2394432)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	97.6	75	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	101	77	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	101	71	129
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2394445)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	93.9	68	128
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2394453)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	105	68	128
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2399450)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	90.9	68	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2394423)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	99.0	77	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	104	74	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	87.9	63	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2394432)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	102	77	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	99.9	74	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	101	63	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2394445)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	94.6	68	128

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2394453)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	106	68	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2399450)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	91.4	68	128
EP080: BTEXN (QCLot: 2394445)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	97.8	62	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	94.4	67	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	91.5	65	117
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	93.9	66	118
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	95.2	68	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	94.1	63	119
EP080: BTEXN (QCLot: 2394453)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	106	62	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	110	67	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	107	65	117
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	104	66	118
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	109	68	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	104	63	119
EP080: BTEXN (QCLot: 2399450)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	91.1	62	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	87.7	67	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	86.9	65	117
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	87.6	66	118
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	89.9	68	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	89.2	63	119
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 2398087)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.00125 mg/kg	71.6	57	121
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	79.2	55	125
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	74.8	52	126
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	79.6	54	123
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	79.6	55	127
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	74.4	54	125
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 2404856)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.00125 mg/kg	60.0	57	121
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	65.2	55	125
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	75.6	52	126

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 2404856) - continued								
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	76.0	54	123
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	72.4	55	127
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	83.6	54	125
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 2398087)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	78.8	52	128
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	82.0	54	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	79.6	58	127
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	84.8	57	128
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	89.2	60	134
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	83.6	63	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	0.00125 mg/kg	90.4	55	130
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	88.8	62	130
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	93.6	53	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	79.6	49	129
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	80.0	59	129
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 2404856)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	64.3	52	128
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	90.4	54	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	65.2	58	127
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	59.6	57	128
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	80.0	60	134
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	72.0	63	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	0.00125 mg/kg	68.4	55	130
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	76.8	62	130
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	98.4	53	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	80.8	49	129
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	80.3	59	129
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 2398087)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	82.4	52	132
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	0.00312 mg/kg	71.2	65	126
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	66.3	64	126
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	65.5	63	124
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	81.9	58	125
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	80.4	61	130
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	96.0	55	130

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 2404856)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	58.8	52	132
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	0.00312 mg/kg	77.7	65	126
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	79.0	64	126
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	72.3	63	124
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	76.4	58	125
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	78.8	61	130
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	92.8	55	130
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 2398087)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00125 mg/kg	78.0	54	130
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00125 mg/kg	80.0	61	130
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	0.00125 mg/kg	96.8	62	130
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	0.00125 mg/kg	88.8	60	130
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 2404856)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00125 mg/kg	104	54	130
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00125 mg/kg	78.4	61	130
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	0.00125 mg/kg	79.2	62	130
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	0.00125 mg/kg	112	60	130

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EG020T: Total Metals by ICP-MS (QCLot: 2399685)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	103	82	114
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	105	84	112
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	100.0	86	116
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	98.2	83	118
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	96.6	85	115
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	95.9	84	116
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	99.7	79	117
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2402832)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	89.4	77	111
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 2394339)								
EP066: Total Polychlorinated biphenyls	----	1	µg/L	<1	10 µg/L	102	62	107
EP068A: Organochlorine Pesticides (OC) (QCLot: 2394341)								
EP068: alpha-BHC	319-84-6	0.5	µg/L	<0.5	5 µg/L	97.0	65	107

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP068A: Organochlorine Pesticides (OC) (QCLot: 2394341) - continued								
EP068: Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	5 µg/L	89.7	58	111
EP068: beta-BHC	319-85-7	0.5	µg/L	<0.5	5 µg/L	76.1	69	117
EP068: gamma-BHC	58-89-9	0.5	µg/L	<0.5	5 µg/L	82.8	70	112
EP068: delta-BHC	319-86-8	0.5	µg/L	<0.5	5 µg/L	82.0	69	110
EP068: Heptachlor	76-44-8	0.5	µg/L	<0.5	5 µg/L	78.4	65	108
EP068: Aldrin	309-00-2	0.5	µg/L	<0.5	5 µg/L	76.8	66	109
EP068: Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	5 µg/L	78.4	67	107
EP068: trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	5 µg/L	77.2	64	110
EP068: alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	5 µg/L	80.8	67	112
EP068: cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	5 µg/L	76.9	63	111
EP068: Dieldrin	60-57-1	0.5	µg/L	<0.5	5 µg/L	81.0	65	113
EP068: 4.4`-DDE	72-55-9	0.5	µg/L	<0.5	5 µg/L	82.9	66	112
EP068: Endrin	72-20-8	0.5	µg/L	<0.5	5 µg/L	81.9	65	113
EP068: beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	5 µg/L	82.1	67	114
EP068: 4.4`-DDD	72-54-8	0.5	µg/L	<0.5	5 µg/L	82.3	72	122
EP068: Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	5 µg/L	85.1	67	109
EP068: Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	5 µg/L	100	65	112
EP068: 4.4`-DDT	50-29-3	2	µg/L	<2.0	5 µg/L	96.0	65	112
EP068: Endrin ketone	53494-70-5	0.5	µg/L	<0.5	5 µg/L	94.0	64	110
EP068: Methoxychlor	72-43-5	2	µg/L	<2.0	5 µg/L	92.2	61	114
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2394341)								
EP068: Dichlorvos	62-73-7	0.5	µg/L	<0.5	5 µg/L	86.1	66	114
EP068: Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	5 µg/L	76.8	64	113
EP068: Monocrotophos	6923-22-4	2	µg/L	<2.0	5 µg/L	23.8	20	48
EP068: Dimethoate	60-51-5	0.5	µg/L	<0.5	5 µg/L	88.9	70	110
EP068: Diazinon	333-41-5	0.5	µg/L	<0.5	5 µg/L	85.1	71	110
EP068: Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	5 µg/L	82.4	77	119
EP068: Parathion-methyl	298-00-0	2	µg/L	<2.0	5 µg/L	78.2	70	124
EP068: Malathion	121-75-5	0.5	µg/L	<0.5	5 µg/L	82.2	68	116
EP068: Fenthion	55-38-9	0.5	µg/L	<0.5	5 µg/L	80.6	69	112
EP068: Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	5 µg/L	82.1	75	119
EP068: Parathion	56-38-2	2	µg/L	<2.0	5 µg/L	76.7	67	121
EP068: Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	5 µg/L	81.0	69	121
EP068: Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	5 µg/L	83.4	72	110
EP068: Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	5 µg/L	79.7	68	112
EP068: Fenamiphos	22224-92-6	0.5	µg/L	<0.5	5 µg/L	79.2	64	116
EP068: Prothiofos	34643-46-4	0.5	µg/L	<0.5	5 µg/L	81.9	68	114
EP068: Ethion	563-12-2	0.5	µg/L	<0.5	5 µg/L	80.4	74	120
EP068: Carbophenothion	786-19-6	0.5	µg/L	<0.5	5 µg/L	98.0	66	114

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2394341) - continued								
EP068: Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	5 µg/L	90.2	52	128
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 2398254)								
EP074: Styrene	100-42-5	5	µg/L	<5	10 µg/L	100	73	119
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	10 µg/L	100	76	118
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	10 µg/L	98.2	69	119
EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	10 µg/L	99.2	74	116
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	10 µg/L	102	73	119
EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	10 µg/L	98.5	74	116
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	10 µg/L	99.3	72	116
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	10 µg/L	97.2	71	119
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	10 µg/L	95.4	65	123
EP074B: Oxygenated Compounds (QCLot: 2398254)								
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	100 µg/L	88.4	61	134
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	79.1	74	130
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	100 µg/L	96.4	66	132
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	100 µg/L	94.0	65	137
EP074C: Sulfonated Compounds (QCLot: 2398254)								
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	10 µg/L	79.4	73	127
EP074D: Fumigants (QCLot: 2398254)								
EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	87.6	68	122
EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	90.9	76	118
EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	10 µg/L	90.6	62	120
EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	10 µg/L	88.4	60	114
EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	98.1	69	117
EP074E: Halogenated Aliphatic Compounds (QCLot: 2398254)								
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	98.2	61	138
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	83.7	67	130
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	79.7	69	129
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	88.3	56	140
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	86.1	61	139
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	83.8	69	131
EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	84.8	70	124
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	76.0	70	128
EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	85.2	74	118
EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	87.1	74	120
EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	89.9	77	119
EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	10 µg/L	86.8	67	119
EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	92.4	73	119

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP074E: Halogenated Aliphatic Compounds (QCLot: 2398254) - continued								
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	89.1	62	120
EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	10 µg/L	84.6	73	123
EP074: Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	95.2	76	118
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	93.1	73	119
EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	100	72	126
EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	98.3	71	129
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	100	72	124
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	10 µg/L	100	66	114
EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	76.4	60	120
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	92.4	71	128
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	94.9	70	124
EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	100	74	126
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	94.4	72	126
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	91.5	66	136
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	10 µg/L	88.7	58	130
EP074F: Halogenated Aromatic Compounds (QCLot: 2398254)								
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	100	79	117
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	103	76	116
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	102	73	119
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	101	73	119
EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	10 µg/L	99.0	75	117
EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	10 µg/L	101	74	118
EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	10 µg/L	93.9	75	117
EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	10 µg/L	92.5	61	125
EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	94.7	67	123
EP074G: Trihalomethanes (QCLot: 2398254)								
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	87.6	72	120
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	88.1	64	118
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	94.5	65	115
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	91.1	74	126
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2394338)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	66.2	50	94
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	72.9	64	114
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	66.7	62	113
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	72.3	64	115
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	90.1	63	116
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	86.8	64	116
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	81.6	64	118

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2394338) - continued								
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	84.3	63	118
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	89.2	64	117
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	87.1	63	116
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	91.6	62	119
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	77.1	63	115
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	90.6	63	117
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	85.8	60	118
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	85.3	61	117
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	91.2	59	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2394337)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	80.9	70	113
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	84.9	81	111
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	92.0	67	117
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2398253)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	81.6	75	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2394337)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	2500 µg/L	83.2	76	112
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	89.4	65	118
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	1500 µg/L	88.9	77	119
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2398253)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	89.1	75	127
EP080: BTEXN (QCLot: 2398253)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	90.5	70	122
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	99.1	69	123
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	98.3	70	120
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	96.1	69	121
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	101	72	122
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	93.5	70	120
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 2399553)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.5 µg/L	78.6	70	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.5 µg/L	77.0	70	130
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L	<0.02	0.5 µg/L	78.2	70	130
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.5 µg/L	93.6	70	130
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.5 µg/L	81.0	70	130
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.5 µg/L	95.4	70	130
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 2399553)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 2399553) - continued								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	2.5 µg/L	101	70	130
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.5 µg/L	75.8	70	130
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.5 µg/L	86.6	70	130
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.5 µg/L	80.0	70	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.5 µg/L	94.8	70	130
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.5 µg/L	89.4	70	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.5 µg/L	89.4	70	130
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.5 µg/L	90.2	70	130
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.5 µg/L	93.8	70	130
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.5 µg/L	95.6	70	130
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	1.25 µg/L	91.0	70	150
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 2399553)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.5 µg/L	99.6	70	130
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	1.25 µg/L	93.4	70	150
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	1.25 µg/L	79.0	70	150
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	1.25 µg/L	101	70	150
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	1.25 µg/L	95.8	70	150
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.5 µg/L	88.4	70	130
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.5 µg/L	79.0	70	130
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 2399553)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.5 µg/L	96.4	70	130
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.5 µg/L	93.0	70	130
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.5 µg/L	107	70	130
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.5 µg/L	94.8	70	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**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
				Concentration	MS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 2402500)							
ES1917492-050	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	88.8	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	92.7	70	130

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 2402500) - continued							
ES1917492-050	Anonymous	EG005T: Chromium	7440-47-3	50 mg/kg	93.6	70	130
		EG005T: Copper	7440-50-8	250 mg/kg	97.0	70	130
		EG005T: Lead	7439-92-1	250 mg/kg	97.1	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	97.4	70	130
		EG005T: Zinc	7440-66-6	250 mg/kg	101	70	130
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 2402502)							
ES1917591-024	VW_MN02_0.5-0.6	EG005T: Arsenic	7440-38-2	50 mg/kg	92.7	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	93.0	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	99.8	70	130
		EG005T: Copper	7440-50-8	250 mg/kg	96.8	70	130
		EG005T: Lead	7439-92-1	250 mg/kg	96.9	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	94.9	70	130
		EG005T: Zinc	7440-66-6	250 mg/kg	96.6	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2402501)							
ES1917492-050	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	96.9	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2402503)							
ES1917591-024	VW_MN02_0.5-0.6	EG035T: Mercury	7439-97-6	5 mg/kg	95.9	70	130
EP035G: Total Phenol by Discrete Analyser (QCLot: 2404834)							
ES1917591-003	BH_MN03_0.75-0.85	EP035G: Phenols (Total)	----	10 mg/kg	79.2	70	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 2394422)							
ES1917585-012	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	106	70	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 2394435)							
ES1917591-003	BH_MN03_0.75-0.85	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	97.0	70	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 2394425)							
ES1917585-012	Anonymous	EP068: gamma-BHC	58-89-9	0.5 mg/kg	96.4	70	130
		EP068: Heptachlor	76-44-8	0.5 mg/kg	90.9	70	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	95.7	70	130
		EP068: Dieldrin	60-57-1	0.5 mg/kg	78.2	70	130
		EP068: Endrin	72-20-8	2 mg/kg	84.4	70	130
		EP068: 4.4`-DDT	50-29-3	2 mg/kg	96.8	70	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 2394434)							
ES1917591-003	BH_MN03_0.75-0.85	EP068: gamma-BHC	58-89-9	0.5 mg/kg	104	70	130
		EP068: Heptachlor	76-44-8	0.5 mg/kg	80.9	70	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	86.4	70	130
		EP068: Dieldrin	60-57-1	0.5 mg/kg	83.8	70	130
		EP068: Endrin	72-20-8	2 mg/kg	90.8	70	130

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP068A: Organochlorine Pesticides (OC) (QCLot: 2394434) - continued							
ES1917591-003	BH_MN03_0.75-0.85	EP068: 4.4`-DDT	50-29-3	2 mg/kg	78.0	70	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2394425)							
ES1917585-012	Anonymous	EP068: Diazinon	333-41-5	0.5 mg/kg	97.4	70	130
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	78.0	70	130
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	96.7	70	130
		EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	89.8	70	130
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	82.3	70	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2394434)							
ES1917591-003	BH_MN03_0.75-0.85	EP068: Diazinon	333-41-5	0.5 mg/kg	91.9	70	130
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	74.7	70	130
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	81.9	70	130
		EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	80.5	70	130
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	73.2	70	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 2394446)							
ES1917591-001	BH_MN03_0.25	EP074: 1.1-Dichloroethene	75-35-4	2.5 mg/kg	126	70	130
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	115	70	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 2394454)							
ES1917591-026	VW_MN02_1.0-1.1	EP074: 1.1-Dichloroethene	75-35-4	2.5 mg/kg	92.2	70	130
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	97.6	70	130
EP074F: Halogenated Aromatic Compounds (QCLot: 2394446)							
ES1917591-001	BH_MN03_0.25	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	115	70	130
EP074F: Halogenated Aromatic Compounds (QCLot: 2394454)							
ES1917591-026	VW_MN02_1.0-1.1	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	117	70	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2394424)							
ES1917585-012	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	102	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	112	70	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2394433)							
ES1917591-003	BH_MN03_0.75-0.85	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	109	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	123	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2394423)							
ES1917585-012	Anonymous	EP071: C10 - C14 Fraction	----	523 mg/kg	97.5	73	137
		EP071: C15 - C28 Fraction	----	2319 mg/kg	106	53	131
		EP071: C29 - C36 Fraction	----	1714 mg/kg	118	52	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2394432)							
ES1917591-003	BH_MN03_0.75-0.85	EP071: C10 - C14 Fraction	----	523 mg/kg	93.5	73	137

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2394432) - continued							
ES1917591-003	BH_MN03_0.75-0.85	EP071: C15 - C28 Fraction	----	2319 mg/kg	115	53	131
		EP071: C29 - C36 Fraction	----	1714 mg/kg	125	52	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2394445)							
ES1917591-001	BH_MN03_0.25	EP080: C6 - C9 Fraction	----	32.5 mg/kg	77.0	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2394453)							
ES1917591-026	VW_MN02_1.0-1.1	EP080: C6 - C9 Fraction	----	32.5 mg/kg	83.6	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2399450)							
ES1917765-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	113	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2394423)							
ES1917585-012	Anonymous	EP071: >C10 - C16 Fraction	----	860 mg/kg	91.6	73	137
		EP071: >C16 - C34 Fraction	----	3223 mg/kg	109	53	131
		EP071: >C34 - C40 Fraction	----	1058 mg/kg	122	52	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2394432)							
ES1917591-003	BH_MN03_0.75-0.85	EP071: >C10 - C16 Fraction	----	860 mg/kg	106	73	137
		EP071: >C16 - C34 Fraction	----	3223 mg/kg	116	53	131
		EP071: >C34 - C40 Fraction	----	1058 mg/kg	123	52	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2394445)							
ES1917591-001	BH_MN03_0.25	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	72.2	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2394453)							
ES1917591-026	VW_MN02_1.0-1.1	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	84.4	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2399450)							
ES1917765-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	114	70	130
EP080: BTEXN (QCLot: 2394445)							
ES1917591-001	BH_MN03_0.25	EP080: Benzene	71-43-2	2.5 mg/kg	84.6	70	130
		EP080: Toluene	108-88-3	2.5 mg/kg	90.9	70	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	94.5	70	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	93.5	70	130
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	96.6	70	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	96.0	70	130
EP080: BTEXN (QCLot: 2394453)							
ES1917591-026	VW_MN02_1.0-1.1	EP080: Benzene	71-43-2	2.5 mg/kg	84.5	70	130
		EP080: Toluene	108-88-3	2.5 mg/kg	91.0	70	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	95.3	70	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	93.4	70	130

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080: BTEXN (QCLot: 2394453) - continued							
ES1917591-026	VW_MN02_1.0-1.1	EP080: ortho-Xylene	95-47-6	2.5 mg/kg	99.1	70	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	103	70	130
EP080: BTEXN (QCLot: 2399450)							
ES1917765-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	92.6	70	130
		EP080: Toluene	108-88-3	2.5 mg/kg	86.6	70	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	96.3	70	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	96.0	70	130
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	106	70	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	114	70	130
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 2398087)							
ES1917405-001	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.00125 mg/kg	94.0	50	130
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.00125 mg/kg	103	50	130
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00125 mg/kg	98.8	50	130
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.00125 mg/kg	103	50	130
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00125 mg/kg	125	50	130
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.00125 mg/kg	96.8	50	130
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 2404856)							
ES1917591-030	QA500A	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.00125 mg/kg	74.0	50	130
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.00125 mg/kg	78.0	50	130
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00125 mg/kg	74.4	50	130
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.00125 mg/kg	88.8	50	130
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00125 mg/kg	82.4	50	130
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.00125 mg/kg	68.4	50	130
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 2398087)							
ES1917405-001	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	91.9	30	130
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	102	50	130
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	104	50	130
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	111	50	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	106	50	130
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.00125 mg/kg	102	50	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.00125 mg/kg	102	50	130
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.00125 mg/kg	108	50	130
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.00125 mg/kg	104	50	130
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.00125 mg/kg	83.6	30	130
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.00312 mg/kg	80.0	30	130
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 2404856)							
ES1917591-030	QA500A	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	53.4	30	130

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 2404856) - continued							
ES1917591-030	QA500A	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	94.8	50	130
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	67.6	50	130
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	60.0	50	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	91.6	50	130
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.00125 mg/kg	83.2	50	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.00125 mg/kg	81.2	50	130
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.00125 mg/kg	74.4	50	130
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.00125 mg/kg	98.8	50	130
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.00125 mg/kg	90.4	30	130
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.00312 mg/kg	99.8	30	130
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 2398087)							
ES1917405-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.00125 mg/kg	90.4	50	130
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.00312 mg/kg	93.1	30	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.00312 mg/kg	87.8	30	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.00312 mg/kg	85.4	30	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.00312 mg/kg	75.8	30	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.00125 mg/kg	86.0	30	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.00125 mg/kg	93.2	30	130
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 2404856)							
ES1917591-030	QA500A	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.00125 mg/kg	78.4	50	130
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.00312 mg/kg	86.7	30	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.00312 mg/kg	83.0	30	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.00312 mg/kg	82.7	30	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.00312 mg/kg	90.7	30	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.00125 mg/kg	102	30	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.00125 mg/kg	100	30	130
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 2398087)							
ES1917405-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00125 mg/kg	100	50	130
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00125 mg/kg	98.8	50	130

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 2398087) - continued							
ES1917405-001	Anonymous	EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.00125 mg/kg	110	50	130
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.00125 mg/kg	87.6	50	130
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 2404856)							
ES1917591-030	QA500A	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00125 mg/kg	118	50	130
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00125 mg/kg	78.0	50	130
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.00125 mg/kg	86.8	50	130
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.00125 mg/kg	96.8	50	130

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG020T: Total Metals by ICP-MS (QCLot: 2399685)							
ES1917548-002	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	99.0	70	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	103	70	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	100	70	130
		EG020A-T: Copper	7440-50-8	1 mg/L	99.5	70	130
		EG020A-T: Lead	7439-92-1	1 mg/L	115	70	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	97.2	70	130
		EG020A-T: Zinc	7440-66-6	1 mg/L	99.5	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2402832)							
ES1917591-036	Rinsate_BH_MN04	EG035T: Mercury	7439-97-6	0.01 mg/L	94.7	70	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 2398254)							
ES1917565-001	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	25 µg/L	97.1	70	130
		EP074: Trichloroethene	79-01-6	25 µg/L	101	70	130
EP074F: Halogenated Aromatic Compounds (QCLot: 2398254)							
ES1917565-001	Anonymous	EP074: Chlorobenzene	108-90-7	25 µg/L	106	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2398253)							
ES1917565-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	97.8	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2398253)							
ES1917565-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	102	70	130
EP080: BTEXN (QCLot: 2398253)							
ES1917565-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	104	70	130
		EP080: Toluene	108-88-3	25 µg/L	108	70	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	114	70	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	115	70	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	116	70	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080: BTEXN (QCLot: 2398253) - continued							
ES1917565-001	Anonymous	EP080: Naphthalene	91-20-3	25 µg/L	92.6	70	130
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 2399553)							
ES1917591-036	Rinsate_BH_MN04	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.5 µg/L	81.6	50	130
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.5 µg/L	76.4	50	130
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.5 µg/L	75.8	50	130
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.5 µg/L	81.8	50	130
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.5 µg/L	84.8	50	130
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.5 µg/L	86.6	50	130
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 2399553)							
ES1917591-036	Rinsate_BH_MN04	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	2.5 µg/L	93.3	50	130
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.5 µg/L	87.8	50	130
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.5 µg/L	87.4	50	130
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.5 µg/L	79.4	50	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.5 µg/L	83.2	50	130
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.5 µg/L	84.2	50	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.5 µg/L	78.6	50	130
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.5 µg/L	79.2	50	130
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.5 µg/L	70.6	50	130
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.5 µg/L	85.4	50	130
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	1.25 µg/L	87.0	50	150
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 2399553)							
ES1917591-036	Rinsate_BH_MN04	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.5 µg/L	92.8	50	130
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	1.25 µg/L	89.2	50	150
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	1.25 µg/L	79.8	50	150
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	1.25 µg/L	99.3	50	150
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	1.25 µg/L	89.1	50	150
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.5 µg/L	88.6	50	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.5 µg/L	72.6	50	130
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 2399553)							
ES1917591-036	Rinsate_BH_MN04	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.5 µg/L	99.8	50	130
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.5 µg/L	86.0	50	130
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.5 µg/L	109	50	130
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.5 µg/L	81.2	50	130

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **ES1917591**	Page	: 1 of 61
Amendment	: **2**		
Client	: **GOLDER ASSOCIATES**	Laboratory	: Environmental Division Sydney
Contact	: MR BEN SEAFORD	Contact	: Customer Services ES
Address	: LEVEL 1, 124 PACIFIC HIGHWAY ST LEONARDS NSW, AUSTRALIA 2065	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 9478 3900	Telephone	: +61-2-8784 8555
Project	: 1791865	Date Samples Received	: 07-Jun-2019 14:00
Order number	: PCOC63	Date Analysis Commenced	: 08-Jun-2019
C-O-C number	: ----	Issue Date	: 09-Jul-2019 11:40
Sampler	: Golder-Douglas		
Site	: Marrickville		
Quote number	: SY/698/17 C V4		
No. of samples received	: 41		
No. of samples analysed	: 33		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
Alana Smylie	Asbestos Identifier	Newcastle - Asbestos, Mayfield West, NSW
Ankit Joshi	Inorganic Chemist	Sydney Inorganics, Smithfield, NSW
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Franco Lentini		Sydney Organics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW
Peter Wu		Sydney Inorganics, Smithfield, NSW
Wisam Marassa	Inorganics Coordinator	Sydney Inorganics, Smithfield, NSW

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by 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.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP231X: Surrogate recoveries on samples ES1917591_024 and ES1917591_031 bias low due to sample matix interferences. Confirmed by re-extraction and re-analysis
- EP231X: Positive result for analyte Perfluorooctane sulfonic acid (PFOS) on sample ES1917591_024 has been confirmed by re-extraction and re-analysis.
- EP071: Results of sample QA500A have been confirmed by re-extraction and re-analysis.
- Amendment (08/07/2019): This report has been amended as a result of misinterpretation of sample identification numbers (IDs). All analysis results are as per the previous report
- Amendment (09/07/2019): This report has been amended as a result of misinterpretation of sample identification numbers (IDs). All analysis results are as per the previous report
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Trace' - Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EA200 Legend
- EA200 'Ch' Chrysotile (white asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EA200: Negative results for vinyl tiles should be confirmed by an independent analytical technique.
- EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2
- EA200: 'Yes' - Asbestos detected by polarised light microscopy including dispersion staining.
- EA200: 'No*' - No asbestos found, at the reporting limit of 0.1g/kg, by polarised light microscopy including dispersion staining. Asbestos material was detected and positively identified at concentrations estimated to be below 0.1g/kg.
- EA200: 'No' - No asbestos found at the reporting limit 0.1g/kg, by polarised light microscopy including dispersion staining.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH_MN03_0.25	BH_MN03_0.75-0.85	BH_MN03_1.3-1.4	BH_MN03_2.9-3.0	BH_MN04_0.4-0.6
				Client sampling date / time	02-Jun-2019 00:00	02-Jun-2019 00:00	02-Jun-2019 00:00	02-Jun-2019 00:00	01-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1917591-001	ES1917591-003	ES1917591-005	ES1917591-007	ES1917591-008
					Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		10.0	24.8	21.5	17.5	15.6
EA200: AS 4964 - 2004 Identification of Asbestos in Soils									
Asbestos Detected	1332-21-4	0.1	g/kg		No	No	----	----	No
Asbestos (Trace)	1332-21-4	5	Fibres		No	No	----	----	No
Asbestos Type	1332-21-4	-	--		-	-	----	----	-
Sample weight (dry)	----	0.01	g		80.0	100	----	----	32.5
APPROVED IDENTIFIER:	----	-	--		A. SMYLIE	A. SMYLIE	----	----	A. SMYLIE
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		6	5	<5	<5	<5
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg		10	29	10	<2	20
Copper	7440-50-8	5	mg/kg		9	8	7	5	55
Lead	7439-92-1	5	mg/kg		<5	21	17	8	132
Nickel	7440-02-0	2	mg/kg		4	4	<2	<2	12
Zinc	7440-66-6	5	mg/kg		35	14	<5	<5	374
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	1.1
EP035G: Total Phenol by Discrete Analyser									
Phenols (Total)	----	1	mg/kg		<1	<1	----	----	<1
EP066: Polychlorinated Biphenyls (PCB)									
Total Polychlorinated biphenyls	----	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ Total Chlordane (sum)	----	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH_MN03_0.25	BH_MN03_0.75-0.85	BH_MN03_1.3-1.4	BH_MN03_2.9-3.0	BH_MN04_0.4-0.6
				Client sampling date / time	02-Jun-2019 00:00	02-Jun-2019 00:00	02-Jun-2019 00:00	02-Jun-2019 00:00	01-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1917591-001	ES1917591-003	ES1917591-005	ES1917591-007	ES1917591-008
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
Dieldrin	60-57-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ **Endosulfan (sum)**	115-29-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDT	50-29-3	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Demeton-S-methyl	919-86-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Monocrotophos	6923-22-4	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Dimethoate	60-51-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Diazinon	333-41-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Parathion-methyl	298-00-0	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	121-75-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Fenthion	55-38-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos	2921-88-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Parathion	56-38-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Chlorfenvinphos	470-90-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Bromophos-ethyl	4824-78-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Fenamiphos	22224-92-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Prothiofos	34643-46-4	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Ethion	563-12-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Carbophenothion	786-19-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Azinphos Methyl	86-50-0	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
EP074A: Monocyclic Aromatic Hydrocarbons									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH_MN03_0.25	BH_MN03_0.75-0.85	BH_MN03_1.3-1.4	BH_MN03_2.9-3.0	BH_MN04_0.4-0.6
				Client sampling date / time	02-Jun-2019 00:00	02-Jun-2019 00:00	02-Jun-2019 00:00	02-Jun-2019 00:00	01-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1917591-001	ES1917591-003	ES1917591-005	ES1917591-007	ES1917591-008
					Result	Result	Result	Result	Result
EP074A: Monocyclic Aromatic Hydrocarbons - Continued									
Styrene	100-42-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Isopropylbenzene	98-82-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
n-Propylbenzene	103-65-1	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
sec-Butylbenzene	135-98-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
tert-Butylbenzene	98-06-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
p-Isopropyltoluene	99-87-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
n-Butylbenzene	104-51-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
EP074B: Oxygenated Compounds									
Vinyl Acetate	108-05-4	5	mg/kg		<5	<5	<5	<5	<5
2-Butanone (MEK)	78-93-3	5	mg/kg		<5	<5	<5	<5	<5
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg		<5	<5	<5	<5	<5
2-Hexanone (MBK)	591-78-6	5	mg/kg		<5	<5	<5	<5	<5
EP074C: Sulfonated Compounds									
Carbon disulfide	75-15-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
EP074D: Fumigants									
2.2-Dichloropropane	594-20-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.2-Dichloropropane	78-87-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
EP074E: Halogenated Aliphatic Compounds									
Dichlorodifluoromethane	75-71-8	5	mg/kg		<5	<5	<5	<5	<5
Chloromethane	74-87-3	5	mg/kg		<5	<5	<5	<5	<5
Vinyl chloride	75-01-4	5	mg/kg		<5	<5	<5	<5	<5
Bromomethane	74-83-9	5	mg/kg		<5	<5	<5	<5	<5
Chloroethane	75-00-3	5	mg/kg		<5	<5	<5	<5	<5
Trichlorofluoromethane	75-69-4	5	mg/kg		<5	<5	<5	<5	<5
1.1-Dichloroethene	75-35-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Iodomethane	74-88-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.1-Dichloroethane	75-34-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH_MN03_0.25	BH_MN03_0.75-0.85	BH_MN03_1.3-1.4	BH_MN03_2.9-3.0	BH_MN04_0.4-0.6
				Client sampling date / time	02-Jun-2019 00:00	02-Jun-2019 00:00	02-Jun-2019 00:00	02-Jun-2019 00:00	01-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1917591-001	ES1917591-003	ES1917591-005	ES1917591-007	ES1917591-008
					Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds - Continued									
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.1-Dichloropropylene	563-58-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Carbon Tetrachloride	56-23-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.2-Dichloroethane	107-06-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Trichloroethene	79-01-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Dibromomethane	74-95-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.3-Dichloropropane	142-28-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Tetrachloroethene	127-18-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Pentachloroethane	76-01-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Hexachlorobutadiene	87-68-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
EP074F: Halogenated Aromatic Compounds									
Chlorobenzene	108-90-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Bromobenzene	108-86-1	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorotoluene	95-49-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
4-Chlorotoluene	106-43-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
EP074G: Trihalomethanes									
Chloroform	67-66-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Bromodichloromethane	75-27-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Dibromochloromethane	124-48-1	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Bromoform	75-25-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH_MN03_0.25	BH_MN03_0.75-0.85	BH_MN03_1.3-1.4	BH_MN03_2.9-3.0	BH_MN04_0.4-0.6
				Client sampling date / time	02-Jun-2019 00:00	02-Jun-2019 00:00	02-Jun-2019 00:00	02-Jun-2019 00:00	01-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1917591-001	ES1917591-003	ES1917591-005	ES1917591-007	ES1917591-008
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	**2.4**
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	**0.6**
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	**5.0**
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	**4.8**
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	**2.7**
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	**2.5**
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	**3.3**
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	**1.2**
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	**2.9**
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	**1.6**
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	**2.1**
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	**29.1**
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	**3.8**
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	**0.6**	**0.6**	**0.6**	**4.1**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**1.2**	**1.2**	**1.2**	**4.3**
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg		**1470**	<100	<100	<100	**130**
C29 - C36 Fraction	----	100	mg/kg		**1550**	<100	<100	<100	**110**
^ C10 - C36 Fraction (sum)	----	50	mg/kg		**3020**	<50	<50	<50	**240**
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		**2710**	<100	<100	<100	**210**
>C34 - C40 Fraction	----	100	mg/kg		**490**	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		**3200**	<50	<50	<50	**210**
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	<50	<50

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH_MN03_0.25	BH_MN03_0.75-0.85	BH_MN03_1.3-1.4	BH_MN03_2.9-3.0	BH_MN04_0.4-0.6
				Client sampling date / time	02-Jun-2019 00:00	02-Jun-2019 00:00	02-Jun-2019 00:00	02-Jun-2019 00:00	01-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1917591-001	ES1917591-003	ES1917591-005	ES1917591-007	ES1917591-008
					Result	Result	Result	Result	Result
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ **Sum of BTEX**	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ **Total Xylenes**	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		----	<0.0002	----	----	<0.0002
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg		----	<0.0002	----	----	<0.0002
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		----	<0.0002	----	----	<0.0002
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg		----	<0.0002	----	----	<0.0002
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		----	<0.0002	----	----	<0.0002
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg		----	<0.0002	----	----	<0.0002
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		----	<0.001	----	----	<0.001
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		----	<0.0002	----	----	<0.0002
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		----	<0.0002	----	----	<0.0002
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		----	<0.0002	----	----	<0.0002
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		----	<0.0002	----	----	<0.0002
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg		----	<0.0002	----	----	<0.0002
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg		----	<0.0002	----	----	<0.0002
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg		----	<0.0002	----	----	<0.0002
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg		----	<0.0002	----	----	<0.0002
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg		----	<0.0002	----	----	<0.0002

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH_MN03_0.25	BH_MN03_0.75-0.85	BH_MN03_1.3-1.4	BH_MN03_2.9-3.0	BH_MN04_0.4-0.6
				Client sampling date / time	02-Jun-2019 00:00	02-Jun-2019 00:00	02-Jun-2019 00:00	02-Jun-2019 00:00	01-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1917591-001	ES1917591-003	ES1917591-005	ES1917591-007	ES1917591-008
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg		----	<0.0005	----	----	<0.0005
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg		----	<0.0002	----	----	<0.0002
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg		----	<0.0005	----	----	<0.0005
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg		----	<0.0005	----	----	<0.0005
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg		----	<0.0005	----	----	<0.0005
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg		----	<0.0005	----	----	<0.0005
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg		----	<0.0002	----	----	<0.0002
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg		----	<0.0002	----	----	<0.0002
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		----	<0.0005	----	----	<0.0005
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		----	<0.0005	----	----	<0.0005
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		----	<0.0005	----	----	<0.0005
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		----	<0.0005	----	----	<0.0005
EP231P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg		----	<0.0002	----	----	<0.0002
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		----	<0.0002	----	----	<0.0002
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		----	<0.0002	----	----	<0.0002
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		**70.5**	**106**	**107**	**115**	**99.8**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH_MN03_0.25	BH_MN03_0.75-0.85	BH_MN03_1.3-1.4	BH_MN03_2.9-3.0	BH_MN04_0.4-0.6
				Client sampling date / time	02-Jun-2019 00:00	02-Jun-2019 00:00	02-Jun-2019 00:00	02-Jun-2019 00:00	01-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1917591-001	ES1917591-003	ES1917591-005	ES1917591-007	ES1917591-008
					Result	Result	Result	Result	Result
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		94.5	113	117	124	113
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		95.7	87.3	76.4	83.1	101
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.5	%		106	102	98.6	101	101
Toluene-D8	2037-26-5	0.5	%		125	119	115	118	117
4-Bromofluorobenzene	460-00-4	0.5	%		114	110	109	110	107
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		98.1	82.9	85.8	85.3	82.8
2-Chlorophenol-D4	93951-73-6	0.5	%		101	89.0	92.2	91.5	85.8
2.4.6-Tribromophenol	118-79-6	0.5	%		62.8	81.1	89.7	91.9	58.8
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		122	109	108	110	107
Anthracene-d10	1719-06-8	0.5	%		112	93.1	92.8	92.1	94.6
4-Terphenyl-d14	1718-51-0	0.5	%		111	108	109	110	104
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		110	105	102	104	105
Toluene-D8	2037-26-5	0.2	%		116	110	106	109	108
4-Bromofluorobenzene	460-00-4	0.2	%		113	108	107	108	104
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		----	108	----	----	89.0
13C8-PFOA	----	0.0002	%		----	99.5	----	----	80.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH_MN04_0.75-0.85	BH_MN04_0.95-1.05	BH_MN04_2.0-2.2	BH_MN04_2.8-3.0	BH_MN09_0.8-0.9
				Client sampling date / time	01-Jun-2019 00:00	01-Jun-2019 00:00	01-Jun-2019 00:00	01-Jun-2019 00:00	01-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1917591-009	ES1917591-010	ES1917591-011	ES1917591-012	ES1917591-013
					Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		13.7	25.6	15.5	17.4	16.2
EA200: AS 4964 - 2004 Identification of Asbestos in Soils									
Asbestos Detected	1332-21-4	0.1	g/kg		No	----	----	----	No
Asbestos (Trace)	1332-21-4	5	Fibres		No	----	----	----	No
Asbestos Type	1332-21-4	-	--		-	----	----	----	-
Sample weight (dry)	----	0.01	g		48.7	----	----	----	56.6
APPROVED IDENTIFIER:	----	-	--		A. SMYLIE	----	----	----	A. SMYLIE
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		10	<5	<5	8	<5
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg		30	15	16	27	4
Copper	7440-50-8	5	mg/kg		395	19	<5	8	14
Lead	7439-92-1	5	mg/kg		159	52	9	14	15
Nickel	7440-02-0	2	mg/kg		20	4	2	5	<2
Zinc	7440-66-6	5	mg/kg		282	60	<5	6	<5
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		0.2	0.2	<0.1	<0.1	<0.1
EP035G: Total Phenol by Discrete Analyser									
Phenols (Total)	----	1	mg/kg		<1	<1	----	----	<1
EP066: Polychlorinated Biphenyls (PCB)									
Total Polychlorinated biphenyls	----	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ Total Chlordane (sum)	----	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH_MN04_0.75-0.85	BH_MN04_0.95-1.05	BH_MN04_2.0-2.2	BH_MN04_2.8-3.0	BH_MN09_0.8-0.9
				Client sampling date / time	01-Jun-2019 00:00	01-Jun-2019 00:00	01-Jun-2019 00:00	01-Jun-2019 00:00	01-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1917591-009	ES1917591-010	ES1917591-011	ES1917591-012	ES1917591-013
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
Dieldrin	60-57-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ Endosulfan (sum)	115-29-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDT	50-29-3	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Demeton-S-methyl	919-86-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Monocrotophos	6923-22-4	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Dimethoate	60-51-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Diazinon	333-41-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Parathion-methyl	298-00-0	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	121-75-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Fenthion	55-38-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos	2921-88-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Parathion	56-38-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Chlorfenvinphos	470-90-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Bromophos-ethyl	4824-78-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Fenamiphos	22224-92-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Prothiofos	34643-46-4	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Ethion	563-12-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Carbophenothion	786-19-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Azinphos Methyl	86-50-0	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
EP074A: Monocyclic Aromatic Hydrocarbons									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH_MN04_0.75-0.85	BH_MN04_0.95-1.05	BH_MN04_2.0-2.2	BH_MN04_2.8-3.0	BH_MN09_0.8-0.9
				Client sampling date / time	01-Jun-2019 00:00	01-Jun-2019 00:00	01-Jun-2019 00:00	01-Jun-2019 00:00	01-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1917591-009	ES1917591-010	ES1917591-011	ES1917591-012	ES1917591-013
					Result	Result	Result	Result	Result
EP074A: Monocyclic Aromatic Hydrocarbons - Continued									
Styrene	100-42-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Isopropylbenzene	98-82-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
n-Propylbenzene	103-65-1	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
sec-Butylbenzene	135-98-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
tert-Butylbenzene	98-06-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
p-Isopropyltoluene	99-87-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
n-Butylbenzene	104-51-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
EP074B: Oxygenated Compounds									
Vinyl Acetate	108-05-4	5	mg/kg		<5	<5	<5	<5	<5
2-Butanone (MEK)	78-93-3	5	mg/kg		<5	<5	<5	<5	<5
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg		<5	<5	<5	<5	<5
2-Hexanone (MBK)	591-78-6	5	mg/kg		<5	<5	<5	<5	<5
EP074C: Sulfonated Compounds									
Carbon disulfide	75-15-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
EP074D: Fumigants									
2.2-Dichloropropane	594-20-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.2-Dichloropropane	78-87-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
EP074E: Halogenated Aliphatic Compounds									
Dichlorodifluoromethane	75-71-8	5	mg/kg		<5	<5	<5	<5	<5
Chloromethane	74-87-3	5	mg/kg		<5	<5	<5	<5	<5
Vinyl chloride	75-01-4	5	mg/kg		<5	<5	<5	<5	<5
Bromomethane	74-83-9	5	mg/kg		<5	<5	<5	<5	<5
Chloroethane	75-00-3	5	mg/kg		<5	<5	<5	<5	<5
Trichlorofluoromethane	75-69-4	5	mg/kg		<5	<5	<5	<5	<5
1.1-Dichloroethene	75-35-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Iodomethane	74-88-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.1-Dichloroethane	75-34-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH_MN04_0.75-0.85	BH_MN04_0.95-1.05	BH_MN04_2.0-2.2	BH_MN04_2.8-3.0	BH_MN09_0.8-0.9
				Client sampling date / time	01-Jun-2019 00:00	01-Jun-2019 00:00	01-Jun-2019 00:00	01-Jun-2019 00:00	01-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1917591-009	ES1917591-010	ES1917591-011	ES1917591-012	ES1917591-013
					Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds - Continued									
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.1-Dichloropropylene	563-58-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Carbon Tetrachloride	56-23-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.2-Dichloroethane	107-06-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Trichloroethene	79-01-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Dibromomethane	74-95-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.3-Dichloropropane	142-28-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Tetrachloroethene	127-18-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Pentachloroethane	76-01-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Hexachlorobutadiene	87-68-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
EP074F: Halogenated Aromatic Compounds									
Chlorobenzene	108-90-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Bromobenzene	108-86-1	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorotoluene	95-49-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
4-Chlorotoluene	106-43-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
EP074G: Trihalomethanes									
Chloroform	67-66-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Bromodichloromethane	75-27-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Dibromochloromethane	124-48-1	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Bromoform	75-25-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH_MN04_0.75-0.85	BH_MN04_0.95-1.05	BH_MN04_2.0-2.2	BH_MN04_2.8-3.0	BH_MN09_0.8-0.9
				Client sampling date / time	01-Jun-2019 00:00	01-Jun-2019 00:00	01-Jun-2019 00:00	01-Jun-2019 00:00	01-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1917591-009	ES1917591-010	ES1917591-011	ES1917591-012	ES1917591-013
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	**0.9**	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	**1.7**	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg		<0.5	**1.6**	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	**0.8**	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg		<0.5	**0.8**	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		**1.2**	**1.1**	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		**1.1**	**0.8**	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		**1.8**	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		**3.4**	**0.6**	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		**7.5**	**8.3**	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		**1.4**	**1.0**	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**1.7**	**1.3**	**0.6**	**0.6**	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**2.0**	**1.6**	**1.2**	**1.2**	**1.2**
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	<50	<50

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH_MN04_0.75-0.85	BH_MN04_0.95-1.05	BH_MN04_2.0-2.2	BH_MN04_2.8-3.0	BH_MN09_0.8-0.9
				Client sampling date / time	01-Jun-2019 00:00	01-Jun-2019 00:00	01-Jun-2019 00:00	01-Jun-2019 00:00	01-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1917591-009	ES1917591-010	ES1917591-011	ES1917591-012	ES1917591-013
					Result	Result	Result	Result	Result
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ **Sum of BTEX**	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ **Total Xylenes**	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		<0.0002	<0.0002	----	----	<0.0002
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg		<0.0002	<0.0002	----	----	<0.0002
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		<0.0002	<0.0002	----	----	<0.0002
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg		<0.0002	<0.0002	----	----	<0.0002
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		<0.0002	<0.0002	----	----	<0.0002
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg		<0.0002	<0.0002	----	----	<0.0002
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		<0.001	<0.001	----	----	<0.001
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		<0.0002	<0.0002	----	----	<0.0002
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		<0.0002	<0.0002	----	----	<0.0002
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		<0.0002	<0.0002	----	----	<0.0002
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		<0.0002	<0.0002	----	----	<0.0002
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg		<0.0002	<0.0002	----	----	<0.0002
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg		<0.0002	<0.0002	----	----	<0.0002
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg		<0.0002	<0.0002	----	----	<0.0002
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg		<0.0002	<0.0002	----	----	<0.0002
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg		<0.0002	<0.0002	----	----	<0.0002

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH_MN04_0.75-0.85	BH_MN04_0.95-1.05	BH_MN04_2.0-2.2	BH_MN04_2.8-3.0	BH_MN09_0.8-0.9
				Client sampling date / time	01-Jun-2019 00:00	01-Jun-2019 00:00	01-Jun-2019 00:00	01-Jun-2019 00:00	01-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1917591-009	ES1917591-010	ES1917591-011	ES1917591-012	ES1917591-013
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg		<0.0005	<0.0005	----	----	<0.0005
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg		<0.0002	<0.0002	----	----	<0.0002
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg		<0.0005	<0.0005	----	----	<0.0005
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg		<0.0005	<0.0005	----	----	<0.0005
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg		<0.0005	<0.0005	----	----	<0.0005
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg		<0.0005	<0.0005	----	----	<0.0005
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg		<0.0002	<0.0002	----	----	<0.0002
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg		<0.0002	<0.0002	----	----	<0.0002
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		<0.0005	<0.0005	----	----	<0.0005
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		<0.0005	<0.0005	----	----	<0.0005
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		<0.0005	<0.0005	----	----	<0.0005
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		<0.0005	<0.0005	----	----	<0.0005
EP231P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg		<0.0002	<0.0002	----	----	<0.0002
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		<0.0002	<0.0002	----	----	<0.0002
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		<0.0002	<0.0002	----	----	<0.0002
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		**96.4**	**101**	**112**	**118**	**106**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH_MN04_0.75-0.85	BH_MN04_0.95-1.05	BH_MN04_2.0-2.2	BH_MN04_2.8-3.0	BH_MN09_0.8-0.9
				Client sampling date / time	01-Jun-2019 00:00	01-Jun-2019 00:00	01-Jun-2019 00:00	01-Jun-2019 00:00	01-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1917591-009	ES1917591-010	ES1917591-011	ES1917591-012	ES1917591-013
					Result	Result	Result	Result	Result
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		116	112	115	112	117
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		73.8	90.9	65.0	61.8	66.9
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.5	%		102	93.6	96.0	95.9	101
Toluene-D8	2037-26-5	0.5	%		118	105	112	113	117
4-Bromofluorobenzene	460-00-4	0.5	%		111	101	106	107	108
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		83.8	86.6	85.6	83.1	86.2
2-Chlorophenol-D4	93951-73-6	0.5	%		91.1	92.7	93.6	89.3	93.6
2.4.6-Tribromophenol	118-79-6	0.5	%		82.7	92.7	81.3	80.4	86.1
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		111	109	105	106	112
Anthracene-d10	1719-06-8	0.5	%		96.2	97.1	96.3	94.6	102
4-Terphenyl-d14	1718-51-0	0.5	%		109	108	108	109	116
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		106	97.4	99.8	99.8	105
Toluene-D8	2037-26-5	0.2	%		109	97.1	103	105	108
4-Bromofluorobenzene	460-00-4	0.2	%		108	99.1	104	105	107
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		100	77.0	----	----	89.5
13C8-PFOA	----	0.0002	%		88.0	76.0	----	----	81.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH_MN09_2.0	BH_MN09_3.0	BH_MN12_0.5-0.6	BH_MN12_1.0-1.1	BH_MN12_2.0-2.1
				Client sampling date / time	01-Jun-2019 00:00	01-Jun-2019 00:00	02-Jun-2019 00:00	02-Jun-2019 00:00	02-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1917591-015	ES1917591-016	ES1917591-017	ES1917591-019	ES1917591-020
					Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		11.0	10.8	27.1	23.5	20.0
EA200: AS 4964 - 2004 Identification of Asbestos in Soils									
Asbestos Detected	1332-21-4	0.1	g/kg		----	----	No	No	----
Asbestos (Trace)	1332-21-4	5	Fibres		----	----	No	No	----
Asbestos Type	1332-21-4	-	--		----	----	-	-	----
Sample weight (dry)	----	0.01	g		----	----	134	121	----
APPROVED IDENTIFIER:	----	-	--		----	----	A. SMYLIE	A. SMYLIE	----
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		<5	<5	12	6	6
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg		6	3	19	22	29
Copper	7440-50-8	5	mg/kg		22	23	121	18	40
Lead	7439-92-1	5	mg/kg		32	19	849	55	32
Nickel	7440-02-0	2	mg/kg		<2	<2	10	5	<2
Zinc	7440-66-6	5	mg/kg		<5	<5	468	36	12
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	2.5	0.1	<0.1
EP035G: Total Phenol by Discrete Analyser									
Phenols (Total)	----	1	mg/kg		----	----	<1	<1	<1
EP066: Polychlorinated Biphenyls (PCB)									
Total Polychlorinated biphenyls	----	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ Total Chlordane (sum)	----	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH_MN09_2.0	BH_MN09_3.0	BH_MN12_0.5-0.6	BH_MN12_1.0-1.1	BH_MN12_2.0-2.1
				Client sampling date / time	01-Jun-2019 00:00	01-Jun-2019 00:00	02-Jun-2019 00:00	02-Jun-2019 00:00	02-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1917591-015	ES1917591-016	ES1917591-017	ES1917591-019	ES1917591-020
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
Dieldrin	60-57-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ **Endosulfan (sum)**	115-29-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDT	50-29-3	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Demeton-S-methyl	919-86-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Monocrotophos	6923-22-4	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Dimethoate	60-51-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Diazinon	333-41-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Parathion-methyl	298-00-0	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	121-75-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Fenthion	55-38-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos	2921-88-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Parathion	56-38-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Chlorfenvinphos	470-90-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Bromophos-ethyl	4824-78-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Fenamiphos	22224-92-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Prothiofos	34643-46-4	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Ethion	563-12-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Carbophenothion	786-19-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Azinphos Methyl	86-50-0	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
EP074A: Monocyclic Aromatic Hydrocarbons									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH_MN09_2.0	BH_MN09_3.0	BH_MN12_0.5-0.6	BH_MN12_1.0-1.1	BH_MN12_2.0-2.1
				Client sampling date / time	01-Jun-2019 00:00	01-Jun-2019 00:00	02-Jun-2019 00:00	02-Jun-2019 00:00	02-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1917591-015	ES1917591-016	ES1917591-017	ES1917591-019	ES1917591-020
					Result	Result	Result	Result	Result
EP074A: Monocyclic Aromatic Hydrocarbons - Continued									
Styrene	100-42-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Isopropylbenzene	98-82-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
n-Propylbenzene	103-65-1	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
sec-Butylbenzene	135-98-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
tert-Butylbenzene	98-06-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
p-Isopropyltoluene	99-87-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
n-Butylbenzene	104-51-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
EP074B: Oxygenated Compounds									
Vinyl Acetate	108-05-4	5	mg/kg		<5	<5	<5	<5	<5
2-Butanone (MEK)	78-93-3	5	mg/kg		<5	<5	<5	<5	<5
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg		<5	<5	<5	<5	<5
2-Hexanone (MBK)	591-78-6	5	mg/kg		<5	<5	<5	<5	<5
EP074C: Sulfonated Compounds									
Carbon disulfide	75-15-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
EP074D: Fumigants									
2.2-Dichloropropane	594-20-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.2-Dichloropropane	78-87-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
EP074E: Halogenated Aliphatic Compounds									
Dichlorodifluoromethane	75-71-8	5	mg/kg		<5	<5	<5	<5	<5
Chloromethane	74-87-3	5	mg/kg		<5	<5	<5	<5	<5
Vinyl chloride	75-01-4	5	mg/kg		<5	<5	<5	<5	<5
Bromomethane	74-83-9	5	mg/kg		<5	<5	<5	<5	<5
Chloroethane	75-00-3	5	mg/kg		<5	<5	<5	<5	<5
Trichlorofluoromethane	75-69-4	5	mg/kg		<5	<5	<5	<5	<5
1.1-Dichloroethene	75-35-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Iodomethane	74-88-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.1-Dichloroethane	75-34-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH_MN09_2.0	BH_MN09_3.0	BH_MN12_0.5-0.6	BH_MN12_1.0-1.1	BH_MN12_2.0-2.1
				Client sampling date / time	01-Jun-2019 00:00	01-Jun-2019 00:00	02-Jun-2019 00:00	02-Jun-2019 00:00	02-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1917591-015	ES1917591-016	ES1917591-017	ES1917591-019	ES1917591-020
					Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds - Continued									
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.1-Dichloropropylene	563-58-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Carbon Tetrachloride	56-23-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.2-Dichloroethane	107-06-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Trichloroethene	79-01-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Dibromomethane	74-95-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.3-Dichloropropane	142-28-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Tetrachloroethene	127-18-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Pentachloroethane	76-01-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Hexachlorobutadiene	87-68-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
EP074F: Halogenated Aromatic Compounds									
Chlorobenzene	108-90-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Bromobenzene	108-86-1	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorotoluene	95-49-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
4-Chlorotoluene	106-43-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
EP074G: Trihalomethanes									
Chloroform	67-66-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Bromodichloromethane	75-27-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Dibromochloromethane	124-48-1	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Bromoform	75-25-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	**0.6**	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH_MN09_2.0	BH_MN09_3.0	BH_MN12_0.5-0.6	BH_MN12_1.0-1.1	BH_MN12_2.0-2.1
				Client sampling date / time	01-Jun-2019 00:00	01-Jun-2019 00:00	02-Jun-2019 00:00	02-Jun-2019 00:00	02-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1917591-015	ES1917591-016	ES1917591-017	ES1917591-019	ES1917591-020
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	**0.8**	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	**0.9**	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	**4.7**	**0.8**	<0.5
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	**1.1**	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	**10.4**	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	**10.2**	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	**5.1**	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	**4.8**	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	<0.5	**6.4**	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	**2.1**	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	**5.3**	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	**2.9**	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	**0.7**	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	**3.6**	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	**58.7**	**1.7**	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	**7.7**	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	**0.6**	**7.7**	**0.6**	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**1.2**	**7.7**	**1.2**	**1.2**
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg		<100	<100	**170**	**590**	<100
C29 - C36 Fraction	----	100	mg/kg		<100	<100	**100**	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	**270**	**590**	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	**180**	<50
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	**240**	**510**	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	**240**	**690**	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	**180**	<50

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH_MN09_2.0	BH_MN09_3.0	BH_MN12_0.5-0.6	BH_MN12_1.0-1.1	BH_MN12_2.0-2.1
				Client sampling date / time	01-Jun-2019 00:00	01-Jun-2019 00:00	02-Jun-2019 00:00	02-Jun-2019 00:00	02-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1917591-015	ES1917591-016	ES1917591-017	ES1917591-019	ES1917591-020
					Result	Result	Result	Result	Result
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ **Sum of BTEX**	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ **Total Xylenes**	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		<0.0002	----	<0.0002	<0.0002	<0.0002
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg		<0.0002	----	<0.0002	<0.0002	<0.0002
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		<0.0002	----	<0.0002	<0.0002	<0.0002
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg		<0.0002	----	<0.0002	<0.0002	<0.0002
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		<0.0002	----	<0.0002	<0.0002	<0.0002
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg		<0.0002	----	<0.0002	<0.0002	<0.0002
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		<0.001	----	<0.001	<0.001	<0.001
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		<0.0002	----	<0.0002	<0.0002	<0.0002
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		<0.0002	----	<0.0002	<0.0002	<0.0002
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		<0.0002	----	<0.0002	<0.0002	<0.0002
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		<0.0002	----	<0.0002	<0.0002	<0.0002
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg		<0.0002	----	<0.0002	<0.0002	<0.0002
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg		<0.0002	----	<0.0002	<0.0002	<0.0002
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg		<0.0002	----	<0.0002	<0.0002	<0.0002
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg		<0.0002	----	<0.0002	<0.0002	<0.0002
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg		<0.0002	----	<0.0002	<0.0002	<0.0002

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH_MN09_2.0	BH_MN09_3.0	BH_MN12_0.5-0.6	BH_MN12_1.0-1.1	BH_MN12_2.0-2.1
				Client sampling date / time	01-Jun-2019 00:00	01-Jun-2019 00:00	02-Jun-2019 00:00	02-Jun-2019 00:00	02-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1917591-015	ES1917591-016	ES1917591-017	ES1917591-019	ES1917591-020
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg		<0.0005	----	<0.0005	<0.0005	<0.0005
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg		<0.0002	----	<0.0002	<0.0002	<0.0002
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg		<0.0005	----	<0.0005	<0.0005	<0.0005
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg		<0.0005	----	<0.0005	<0.0005	<0.0005
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg		<0.0005	----	<0.0005	<0.0005	<0.0005
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg		<0.0005	----	<0.0005	<0.0005	<0.0005
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg		<0.0002	----	<0.0002	<0.0002	<0.0002
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg		<0.0002	----	<0.0002	<0.0002	<0.0002
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		<0.0005	----	<0.0005	<0.0005	<0.0005
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		<0.0005	----	<0.0005	<0.0005	<0.0005
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		<0.0005	----	<0.0005	<0.0005	<0.0005
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		<0.0005	----	<0.0005	<0.0005	<0.0005
EP231P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg		<0.0002	----	<0.0002	<0.0002	<0.0002
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		<0.0002	----	<0.0002	<0.0002	<0.0002
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		<0.0002	----	<0.0002	<0.0002	<0.0002
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		**118**	**120**	**102**	**104**	**98.9**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH_MN09_2.0	BH_MN09_3.0	BH_MN12_0.5-0.6	BH_MN12_1.0-1.1	BH_MN12_2.0-2.1
				Client sampling date / time	01-Jun-2019 00:00	01-Jun-2019 00:00	02-Jun-2019 00:00	02-Jun-2019 00:00	02-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1917591-015	ES1917591-016	ES1917591-017	ES1917591-019	ES1917591-020
					Result	Result	Result	Result	Result
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		112	122	106	123	119
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		62.2	67.4	110	124	120
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.5	%		98.0	94.2	89.8	109	94.2
Toluene-D8	2037-26-5	0.5	%		110	106	101	126	111
4-Bromofluorobenzene	460-00-4	0.5	%		103	102	96.7	116	105
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		83.3	85.4	82.1	81.0	95.8
2-Chlorophenol-D4	93951-73-6	0.5	%		91.1	92.1	89.0	87.5	100
2.4.6-Tribromophenol	118-79-6	0.5	%		74.3	75.5	81.7	84.2	95.2
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		104	106	106	106	118
Anthracene-d10	1719-06-8	0.5	%		99.2	96.1	93.4	92.2	99.8
4-Terphenyl-d14	1718-51-0	0.5	%		112	109	104	102	121
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		101	97.5	93.5	113	98.0
Toluene-D8	2037-26-5	0.2	%		102	98.3	93.4	116	102
4-Bromofluorobenzene	460-00-4	0.2	%		101	99.6	94.0	112	104
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		79.0	----	89.5	78.5	79.5
13C8-PFOA	----	0.0002	%		71.5	----	84.5	73.5	81.0

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH_MN12_2.9-3.0	VW_MN01_0.7-0.8	VW_MN01_0.9-1.1	VW_MN02_0.5-0.6	VW_MN02_0.75-0.95
				Client sampling date / time	02-Jun-2019 00:00	01-Jun-2019 00:00	01-Jun-2019 00:00	02-Jun-2019 00:00	02-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1917591-021	ES1917591-022	ES1917591-023	ES1917591-024	ES1917591-025
					Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		20.3	29.1	18.8	8.6	16.0
EA200: AS 4964 - 2004 Identification of Asbestos in Soils									
Asbestos Detected	1332-21-4	0.1	g/kg		----	No	----	No	No
Asbestos (Trace)	1332-21-4	5	Fibres		----	No	----	No	No
Asbestos Type	1332-21-4	-	--		----	-	----	-	-
Sample weight (dry)	----	0.01	g		----	54.0	----	96.2	113
APPROVED IDENTIFIER:	----	-	--		----	A. SMYLIE	----	A. SMYLIE	A. SMYLIE
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		6	5	<5	<5	<5
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg		3	19	13	7	7
Copper	7440-50-8	5	mg/kg		10	10	<5	36	11
Lead	7439-92-1	5	mg/kg		19	50	11	21	12
Nickel	7440-02-0	2	mg/kg		<2	6	<2	22	3
Zinc	7440-66-6	5	mg/kg		<5	20	<5	56	26
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EP035G: Total Phenol by Discrete Analyser									
Phenols (Total)	----	1	mg/kg		----	<1	<1	<1	<1
EP066: Polychlorinated Biphenyls (PCB)									
Total Polychlorinated biphenyls	----	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ Total Chlordane (sum)	----	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH_MN12_2.9-3.0	VW_MN01_0.7-0.8	VW_MN01_0.9-1.1	VW_MN02_0.5-0.6	VW_MN02_0.75-0.95
				Client sampling date / time	02-Jun-2019 00:00	01-Jun-2019 00:00	01-Jun-2019 00:00	02-Jun-2019 00:00	02-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1917591-021	ES1917591-022	ES1917591-023	ES1917591-024	ES1917591-025
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
Dieldrin	60-57-1	0.05	mg/kg		<0.05	<0.05	<0.05	**0.15**	<0.05
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ **Endosulfan (sum)**	115-29-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDT	50-29-3	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.05	mg/kg		<0.05	<0.05	<0.05	**0.15**	<0.05
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Demeton-S-methyl	919-86-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Monocrotophos	6923-22-4	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Dimethoate	60-51-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Diazinon	333-41-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Parathion-methyl	298-00-0	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	121-75-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Fenthion	55-38-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos	2921-88-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Parathion	56-38-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Chlorfenvinphos	470-90-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Bromophos-ethyl	4824-78-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Fenamiphos	22224-92-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Prothiofos	34643-46-4	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Ethion	563-12-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Carbophenothion	786-19-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Azinphos Methyl	86-50-0	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
EP074A: Monocyclic Aromatic Hydrocarbons									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH_MN12_2.9-3.0	VW_MN01_0.7-0.8	VW_MN01_0.9-1.1	VW_MN02_0.5-0.6	VW_MN02_0.75-0.95
				Client sampling date / time	02-Jun-2019 00:00	01-Jun-2019 00:00	01-Jun-2019 00:00	02-Jun-2019 00:00	02-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1917591-021	ES1917591-022	ES1917591-023	ES1917591-024	ES1917591-025
					Result	Result	Result	Result	Result
EP074A: Monocyclic Aromatic Hydrocarbons - Continued									
Styrene	100-42-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Isopropylbenzene	98-82-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
n-Propylbenzene	103-65-1	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
sec-Butylbenzene	135-98-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
tert-Butylbenzene	98-06-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
p-Isopropyltoluene	99-87-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
n-Butylbenzene	104-51-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
EP074B: Oxygenated Compounds									
Vinyl Acetate	108-05-4	5	mg/kg		<5	<5	<5	<5	<5
2-Butanone (MEK)	78-93-3	5	mg/kg		<5	<5	<5	<5	<5
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg		<5	<5	<5	<5	<5
2-Hexanone (MBK)	591-78-6	5	mg/kg		<5	<5	<5	<5	<5
EP074C: Sulfonated Compounds									
Carbon disulfide	75-15-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
EP074D: Fumigants									
2.2-Dichloropropane	594-20-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.2-Dichloropropane	78-87-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
EP074E: Halogenated Aliphatic Compounds									
Dichlorodifluoromethane	75-71-8	5	mg/kg		<5	<5	<5	<5	<5
Chloromethane	74-87-3	5	mg/kg		<5	<5	<5	<5	<5
Vinyl chloride	75-01-4	5	mg/kg		<5	<5	<5	<5	<5
Bromomethane	74-83-9	5	mg/kg		<5	<5	<5	<5	<5
Chloroethane	75-00-3	5	mg/kg		<5	<5	<5	<5	<5
Trichlorofluoromethane	75-69-4	5	mg/kg		<5	<5	<5	<5	<5
1.1-Dichloroethene	75-35-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Iodomethane	74-88-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.1-Dichloroethane	75-34-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH_MN12_2.9-3.0	VW_MN01_0.7-0.8	VW_MN01_0.9-1.1	VW_MN02_0.5-0.6	VW_MN02_0.75-0.95
				Client sampling date / time	02-Jun-2019 00:00	01-Jun-2019 00:00	01-Jun-2019 00:00	02-Jun-2019 00:00	02-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1917591-021	ES1917591-022	ES1917591-023	ES1917591-024	ES1917591-025
					Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds - Continued									
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.1-Dichloropropylene	563-58-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Carbon Tetrachloride	56-23-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.2-Dichloroethane	107-06-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Trichloroethene	79-01-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Dibromomethane	74-95-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.3-Dichloropropane	142-28-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Tetrachloroethene	127-18-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Pentachloroethane	76-01-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Hexachlorobutadiene	87-68-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
EP074F: Halogenated Aromatic Compounds									
Chlorobenzene	108-90-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Bromobenzene	108-86-1	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorotoluene	95-49-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
4-Chlorotoluene	106-43-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
EP074G: Trihalomethanes									
Chloroform	67-66-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Bromodichloromethane	75-27-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Dibromochloromethane	124-48-1	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Bromoform	75-25-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH_MN12_2.9-3.0	VW_MN01_0.7-0.8	VW_MN01_0.9-1.1	VW_MN02_0.5-0.6	VW_MN02_0.75-0.95
				Client sampling date / time	02-Jun-2019 00:00	01-Jun-2019 00:00	01-Jun-2019 00:00	02-Jun-2019 00:00	02-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1917591-021	ES1917591-022	ES1917591-023	ES1917591-024	ES1917591-025
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	**0.9**	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	**2.5**	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg		<0.5	**2.4**	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	**1.4**	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg		<0.5	**1.2**	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	**1.6**	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	**0.7**	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	**1.5**	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	**0.8**	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	**1.0**	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	**14.0**	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	**2.0**	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	**2.2**	**0.6**	**0.6**	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**2.5**	**1.2**	**1.2**	**1.2**
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	**110**	<100
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	**110**	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	<50	**220**	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	**160**	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	**120**	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	<50	**280**	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	<50	<50

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH_MN12_2.9-3.0	VW_MN01_0.7-0.8	VW_MN01_0.9-1.1	VW_MN02_0.5-0.6	VW_MN02_0.75-0.95
				Client sampling date / time	02-Jun-2019 00:00	01-Jun-2019 00:00	01-Jun-2019 00:00	02-Jun-2019 00:00	02-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1917591-021	ES1917591-022	ES1917591-023	ES1917591-024	ES1917591-025
					Result	Result	Result	Result	Result
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ **Sum of BTEX**	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ **Total Xylenes**	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		----	<0.0002	<0.0002	<0.0002	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg		----	<0.0002	<0.0002	<0.0002	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		----	<0.0002	<0.0002	<0.0002	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg		----	<0.0002	<0.0002	<0.0002	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		----	<0.0002	<0.0002	**0.0003**	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg		----	<0.0002	<0.0002	<0.0002	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		----	<0.001	<0.001	<0.001	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		----	<0.0002	<0.0002	<0.0002	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		----	<0.0002	<0.0002	<0.0002	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		----	<0.0002	<0.0002	<0.0002	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		----	<0.0002	<0.0002	<0.0002	----
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg		----	<0.0002	<0.0002	<0.0002	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg		----	<0.0002	<0.0002	<0.0002	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg		----	<0.0002	<0.0002	<0.0002	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg		----	<0.0002	<0.0002	<0.0002	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg		----	<0.0002	<0.0002	<0.0002	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH_MN12_2.9-3.0	VW_MN01_0.7-0.8	VW_MN01_0.9-1.1	VW_MN02_0.5-0.6	VW_MN02_0.75-0.95
				Client sampling date / time	02-Jun-2019 00:00	01-Jun-2019 00:00	01-Jun-2019 00:00	02-Jun-2019 00:00	02-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1917591-021	ES1917591-022	ES1917591-023	ES1917591-024	ES1917591-025
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg		----	<0.0005	<0.0005	<0.0005	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg		----	<0.0002	<0.0002	<0.0002	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg		----	<0.0005	<0.0005	<0.0005	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg		----	<0.0005	<0.0005	<0.0005	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg		----	<0.0005	<0.0005	<0.0005	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg		----	<0.0005	<0.0005	<0.0005	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg		----	<0.0002	<0.0002	<0.0002	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg		----	<0.0002	<0.0002	<0.0002	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		----	<0.0005	<0.0005	<0.0005	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		----	<0.0005	<0.0005	<0.0005	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		----	<0.0005	<0.0005	<0.0005	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		----	<0.0005	<0.0005	<0.0005	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg		----	<0.0002	<0.0002	**0.0003**	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		----	<0.0002	<0.0002	**0.0003**	----
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		----	<0.0002	<0.0002	**0.0003**	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		**121**	**114**	**117**	**110**	**97.5**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH_MN12_2.9-3.0	VW_MN01_0.7-0.8	VW_MN01_0.9-1.1	VW_MN02_0.5-0.6	VW_MN02_0.75-0.95
				Client sampling date / time	02-Jun-2019 00:00	01-Jun-2019 00:00	01-Jun-2019 00:00	02-Jun-2019 00:00	02-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1917591-021	ES1917591-022	ES1917591-023	ES1917591-024	ES1917591-025
					Result	Result	Result	Result	Result
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		122	117	120	122	122
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		119	139	98.9	124	121
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.5	%		98.1	78.9	101	81.9	106
Toluene-D8	2037-26-5	0.5	%		115	89.6	115	95.8	128
4-Bromofluorobenzene	460-00-4	0.5	%		108	93.3	110	98.8	119
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		86.4	81.6	89.8	80.7	82.9
2-Chlorophenol-D4	93951-73-6	0.5	%		95.2	88.0	96.3	89.2	91.2
2.4.6-Tribromophenol	118-79-6	0.5	%		84.4	83.1	82.4	72.8	77.8
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		113	106	115	103	105
Anthracene-d10	1719-06-8	0.5	%		101	97.9	106	91.6	89.0
4-Terphenyl-d14	1718-51-0	0.5	%		111	106	113	100	108
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		101	81.6	105	85.0	110
Toluene-D8	2037-26-5	0.2	%		106	82.9	106	88.4	118
4-Bromofluorobenzene	460-00-4	0.2	%		106	92.2	108	98.4	118
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		----	88.5	78.5	14.5	----
13C8-PFOA	----	0.0002	%		----	83.0	80.5	18.0	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	VW_MN02_1.0-1.1	VW_MN02_2.0-2.1	VW_MN02_3.0-3.1	VW_MN02_4.0-4.1	QA500A
				Client sampling date / time	02-Jun-2019 00:00	02-Jun-2019 00:00	02-Jun-2019 00:00	02-Jun-2019 00:00	01-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1917591-026	ES1917591-027	ES1917591-028	ES1917591-029	ES1917591-030
					Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		12.0	14.7	13.7	15.2	15.1
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		<5	<5	<5	8	11
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	<1	1
Chromium	7440-47-3	2	mg/kg		6	6	5	6	28
Copper	7440-50-8	5	mg/kg		11	19	19	26	111
Lead	7439-92-1	5	mg/kg		21	16	17	17	188
Nickel	7440-02-0	2	mg/kg		3	<2	<2	<2	41
Zinc	7440-66-6	5	mg/kg		27	<5	<5	<5	558
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	1.1
EP035G: Total Phenol by Discrete Analyser									
Phenols (Total)	----	1	mg/kg		<1	----	----	----	<1
EP066: Polychlorinated Biphenyls (PCB)									
Total Polychlorinated biphenyls	----	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ Total Chlordane (sum)	----	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ Endosulfan (sum)	115-29-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	VW_MN02_1.0-1.1	VW_MN02_2.0-2.1	VW_MN02_3.0-3.1	VW_MN02_4.0-4.1	QA500A
				Client sampling date / time	02-Jun-2019 00:00	02-Jun-2019 00:00	02-Jun-2019 00:00	02-Jun-2019 00:00	01-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1917591-026	ES1917591-027	ES1917591-028	ES1917591-029	ES1917591-030
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDT	50-29-3	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Demeton-S-methyl	919-86-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Monocrotophos	6923-22-4	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Dimethoate	60-51-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Diazinon	333-41-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Parathion-methyl	298-00-0	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	121-75-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Fenthion	55-38-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos	2921-88-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Parathion	56-38-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Chlorfenvinphos	470-90-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Bromophos-ethyl	4824-78-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Fenamiphos	22224-92-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Prothiofos	34643-46-4	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Ethion	563-12-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Carbophenothion	786-19-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Azinphos Methyl	86-50-0	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
EP074A: Monocyclic Aromatic Hydrocarbons									
Styrene	100-42-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Isopropylbenzene	98-82-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
n-Propylbenzene	103-65-1	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
sec-Butylbenzene	135-98-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	VW_MN02_1.0-1.1	VW_MN02_2.0-2.1	VW_MN02_3.0-3.1	VW_MN02_4.0-4.1	QA500A
				Client sampling date / time	02-Jun-2019 00:00	02-Jun-2019 00:00	02-Jun-2019 00:00	02-Jun-2019 00:00	01-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1917591-026	ES1917591-027	ES1917591-028	ES1917591-029	ES1917591-030
					Result	Result	Result	Result	Result
EP074A: Monocyclic Aromatic Hydrocarbons - Continued									
tert-Butylbenzene	98-06-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
p-Isopropyltoluene	99-87-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
n-Butylbenzene	104-51-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
EP074B: Oxygenated Compounds									
Vinyl Acetate	108-05-4	5	mg/kg		<5	<5	<5	<5	<5
2-Butanone (MEK)	78-93-3	5	mg/kg		<5	<5	<5	<5	<5
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg		<5	<5	<5	<5	<5
2-Hexanone (MBK)	591-78-6	5	mg/kg		<5	<5	<5	<5	<5
EP074C: Sulfonated Compounds									
Carbon disulfide	75-15-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
EP074D: Fumigants									
2.2-Dichloropropane	594-20-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.2-Dichloropropane	78-87-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
EP074E: Halogenated Aliphatic Compounds									
Dichlorodifluoromethane	75-71-8	5	mg/kg		<5	<5	<5	<5	<5
Chloromethane	74-87-3	5	mg/kg		<5	<5	<5	<5	<5
Vinyl chloride	75-01-4	5	mg/kg		<5	<5	<5	<5	<5
Bromomethane	74-83-9	5	mg/kg		<5	<5	<5	<5	<5
Chloroethane	75-00-3	5	mg/kg		<5	<5	<5	<5	<5
Trichlorofluoromethane	75-69-4	5	mg/kg		<5	<5	<5	<5	<5
1.1-Dichloroethene	75-35-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Iodomethane	74-88-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.1-Dichloroethane	75-34-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.1-Dichloropropylene	563-58-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Carbon Tetrachloride	56-23-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.2-Dichloroethane	107-06-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Trichloroethene	79-01-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Dibromomethane	74-95-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	VW_MN02_1.0-1.1	VW_MN02_2.0-2.1	VW_MN02_3.0-3.1	VW_MN02_4.0-4.1	QA500A
				Client sampling date / time	02-Jun-2019 00:00	02-Jun-2019 00:00	02-Jun-2019 00:00	02-Jun-2019 00:00	01-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1917591-026	ES1917591-027	ES1917591-028	ES1917591-029	ES1917591-030
					Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds - Continued									
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.3-Dichloropropane	142-28-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Tetrachloroethene	127-18-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Pentachloroethane	76-01-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Hexachlorobutadiene	87-68-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
EP074F: Halogenated Aromatic Compounds									
Chlorobenzene	108-90-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Bromobenzene	108-86-1	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorotoluene	95-49-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
4-Chlorotoluene	106-43-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
EP074G: Trihalomethanes									
Chloroform	67-66-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Bromodichloromethane	75-27-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Dibromochloromethane	124-48-1	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Bromoform	75-25-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	**0.7**
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	**2.0**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	VW_MN02_1.0-1.1	VW_MN02_2.0-2.1	VW_MN02_3.0-3.1	VW_MN02_4.0-4.1	QA500A
				Client sampling date / time	02-Jun-2019 00:00	02-Jun-2019 00:00	02-Jun-2019 00:00	02-Jun-2019 00:00	01-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1917591-026	ES1917591-027	ES1917591-028	ES1917591-029	ES1917591-030
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	**2.2**
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	**1.0**
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	**1.0**
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	**1.1**
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	**1.2**
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	**0.6**
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	**9.8**
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	**1.4**
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	**0.6**	**0.6**	**0.6**	**1.7**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**1.2**	**1.2**	**1.2**	**2.0**
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	<100	**110**
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	**110**
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	VW_MN02_1.0-1.1	VW_MN02_2.0-2.1	VW_MN02_3.0-3.1	VW_MN02_4.0-4.1	QA500A
				Client sampling date / time	02-Jun-2019 00:00	02-Jun-2019 00:00	02-Jun-2019 00:00	02-Jun-2019 00:00	01-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1917591-026	ES1917591-027	ES1917591-028	ES1917591-029	ES1917591-030
					Result	Result	Result	Result	Result
EP080: BTEXN - Continued									
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		----	<0.0002	----	----	<0.0002
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg		----	<0.0002	----	----	<0.0002
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		----	<0.0002	----	----	<0.0002
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg		----	<0.0002	----	----	<0.0002
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		----	<0.0002	----	----	<0.0002
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg		----	<0.0002	----	----	<0.0002
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		----	<0.001	----	----	<0.001
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		----	<0.0002	----	----	<0.0002
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		----	<0.0002	----	----	<0.0002
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		----	<0.0002	----	----	<0.0002
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		----	<0.0002	----	----	<0.0002
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg		----	<0.0002	----	----	<0.0002
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg		----	<0.0002	----	----	<0.0002
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg		----	<0.0002	----	----	<0.0002
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg		----	<0.0002	----	----	<0.0002
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg		----	<0.0002	----	----	<0.0002
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg		----	<0.0005	----	----	<0.0005
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg		----	<0.0002	----	----	<0.0002

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	VW_MN02_1.0-1.1	VW_MN02_2.0-2.1	VW_MN02_3.0-3.1	VW_MN02_4.0-4.1	QA500A
				Client sampling date / time	02-Jun-2019 00:00	02-Jun-2019 00:00	02-Jun-2019 00:00	02-Jun-2019 00:00	01-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1917591-026	ES1917591-027	ES1917591-028	ES1917591-029	ES1917591-030
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg		----	<0.0005	----	----	<0.0005
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg		----	<0.0005	----	----	<0.0005
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg		----	<0.0005	----	----	<0.0005
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg		----	<0.0005	----	----	<0.0005
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg		----	<0.0002	----	----	<0.0002
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg		----	<0.0002	----	----	<0.0002
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		----	<0.0005	----	----	<0.0005
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		----	<0.0005	----	----	<0.0005
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		----	<0.0005	----	----	<0.0005
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		----	<0.0005	----	----	<0.0005
EP231P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg		----	<0.0002	----	----	<0.0002
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		----	<0.0002	----	----	<0.0002
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		----	<0.0002	----	----	<0.0002
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		**85.3**	**94.2**	**102**	**109**	**105**
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		**115**	**121**	**131**	**117**	**97.9**
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		**63.5**	**62.0**	**74.5**	**67.4**	**65.6**
EP074S: VOC Surrogates									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	VW_MN02_1.0-1.1	VW_MN02_2.0-2.1	VW_MN02_3.0-3.1	VW_MN02_4.0-4.1	QA500A
				Client sampling date / time	02-Jun-2019 00:00	02-Jun-2019 00:00	02-Jun-2019 00:00	02-Jun-2019 00:00	01-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1917591-026	ES1917591-027	ES1917591-028	ES1917591-029	ES1917591-030
					Result	Result	Result	Result	Result
EP074S: VOC Surrogates - Continued									
1.2-Dichloroethane-D4	17060-07-0	0.5	%		112	114	82.0	87.1	85.0
Toluene-D8	2037-26-5	0.5	%		126	129	122	127	133
4-Bromofluorobenzene	460-00-4	0.5	%		113	120	104	110	110
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		92.2	94.4	85.5	77.5	83.7
2-Chlorophenol-D4	93951-73-6	0.5	%		99.0	100	102	93.8	98.0
2.4.6-Tribromophenol	118-79-6	0.5	%		74.1	78.7	73.5	74.4	48.4
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		98.4	128	124	121	124
Anthracene-d10	1719-06-8	0.5	%		114	113	112	107	107
4-Terphenyl-d14	1718-51-0	0.5	%		118	97.0	117	127	122
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		91.9	93.7	80.0	85.0	82.9
Toluene-D8	2037-26-5	0.2	%		121	124	105	110	115
4-Bromofluorobenzene	460-00-4	0.2	%		108	115	94.6	101	101
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		----	75.0	----	----	70.5
13C8-PFOA	----	0.0002	%		----	71.5	----	----	79.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	QA501A	Trip blank 1/06/19	Trip spike-2	Trip blank 2/06/19	Trip spike-3
			Client sampling date / time	02-Jun-2019 00:00	30-May-2019 00:00	30-May-2019 00:00	30-May-2019 00:00	30-May-2019 00:00
Compound	CAS Number	LOR	Unit	ES1917591-031	ES1917591-032	ES1917591-033	ES1917591-034	ES1917591-035
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**10.3**	----	----	----	----
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	**8**	----	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	----	----	----	----
Chromium	7440-47-3	2	mg/kg	**14**	----	----	----	----
Copper	7440-50-8	5	mg/kg	**40**	----	----	----	----
Lead	7439-92-1	5	mg/kg	**48**	----	----	----	----
Nickel	7440-02-0	2	mg/kg	**25**	----	----	----	----
Zinc	7440-66-6	5	mg/kg	**226**	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	----	----	----	----
EP035G: Total Phenol by Discrete Analyser								
Phenols (Total)	----	1	mg/kg	<1	----	----	----	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	----	----	----	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	----	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	----	----	----	----
beta-BHC	319-85-7	0.05	mg/kg	<0.05	----	----	----	----
gamma-BHC	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	**0.21**	----	----	----	----
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	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	QA501A	Trip blank 1/06/19	Trip spike-2	Trip blank 2/06/19	Trip spike-3
				Client sampling date / time	02-Jun-2019 00:00	30-May-2019 00:00	30-May-2019 00:00	30-May-2019 00:00	30-May-2019 00:00
Compound	CAS Number	LOR	Unit		ES1917591-031	ES1917591-032	ES1917591-033	ES1917591-034	ES1917591-035
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	----	----	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	----	----	----	----
4.4`-DDT	50-29-3	0.2	mg/kg		<0.2	----	----	----	----
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	----	----	----	----
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	----	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		**0.21**	----	----	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	----	----	----	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		<0.05	----	----	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg		<0.05	----	----	----	----
Monocrotophos	6923-22-4	0.2	mg/kg		<0.2	----	----	----	----
Dimethoate	60-51-5	0.05	mg/kg		<0.05	----	----	----	----
Diazinon	333-41-5	0.05	mg/kg		<0.05	----	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		<0.05	----	----	----	----
Parathion-methyl	298-00-0	0.2	mg/kg		<0.2	----	----	----	----
Malathion	121-75-5	0.05	mg/kg		<0.05	----	----	----	----
Fenthion	55-38-9	0.05	mg/kg		<0.05	----	----	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg		<0.05	----	----	----	----
Parathion	56-38-2	0.2	mg/kg		<0.2	----	----	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		<0.05	----	----	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg		<0.05	----	----	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg		<0.05	----	----	----	----
Fenamiphos	22224-92-6	0.05	mg/kg		<0.05	----	----	----	----
Prothiofos	34643-46-4	0.05	mg/kg		<0.05	----	----	----	----
Ethion	563-12-2	0.05	mg/kg		<0.05	----	----	----	----
Carbophenothion	786-19-6	0.05	mg/kg		<0.05	----	----	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg		<0.05	----	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons									
Styrene	100-42-5	0.5	mg/kg		<0.5	----	----	----	----
Isopropylbenzene	98-82-8	0.5	mg/kg		<0.5	----	----	----	----
n-Propylbenzene	103-65-1	0.5	mg/kg		<0.5	----	----	----	----
1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg		<0.5	----	----	----	----
sec-Butylbenzene	135-98-8	0.5	mg/kg		<0.5	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	QA501A	Trip blank 1/06/19	Trip spike-2	Trip blank 2/06/19	Trip spike-3
				Client sampling date / time	02-Jun-2019 00:00	30-May-2019 00:00	30-May-2019 00:00	30-May-2019 00:00	30-May-2019 00:00
Compound	CAS Number	LOR	Unit		ES1917591-031	ES1917591-032	ES1917591-033	ES1917591-034	ES1917591-035
					Result	Result	Result	Result	Result
EP074A: Monocyclic Aromatic Hydrocarbons - Continued									
1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg		<0.5	----	----	----	----
tert-Butylbenzene	98-06-6	0.5	mg/kg		<0.5	----	----	----	----
p-Isopropyltoluene	99-87-6	0.5	mg/kg		<0.5	----	----	----	----
n-Butylbenzene	104-51-8	0.5	mg/kg		<0.5	----	----	----	----
EP074B: Oxygenated Compounds									
Vinyl Acetate	108-05-4	5	mg/kg		<5	----	----	----	----
2-Butanone (MEK)	78-93-3	5	mg/kg		<5	----	----	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg		<5	----	----	----	----
2-Hexanone (MBK)	591-78-6	5	mg/kg		<5	----	----	----	----
EP074C: Sulfonated Compounds									
Carbon disulfide	75-15-0	0.5	mg/kg		<0.5	----	----	----	----
EP074D: Fumigants									
2.2-Dichloropropane	594-20-7	0.5	mg/kg		<0.5	----	----	----	----
1.2-Dichloropropane	78-87-5	0.5	mg/kg		<0.5	----	----	----	----
cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg		<0.5	----	----	----	----
trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg		<0.5	----	----	----	----
1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg		<0.5	----	----	----	----
EP074E: Halogenated Aliphatic Compounds									
Dichlorodifluoromethane	75-71-8	5	mg/kg		<5	----	----	----	----
Chloromethane	74-87-3	5	mg/kg		<5	----	----	----	----
Vinyl chloride	75-01-4	5	mg/kg		<5	----	----	----	----
Bromomethane	74-83-9	5	mg/kg		<5	----	----	----	----
Chloroethane	75-00-3	5	mg/kg		<5	----	----	----	----
Trichlorofluoromethane	75-69-4	5	mg/kg		<5	----	----	----	----
1.1-Dichloroethene	75-35-4	0.5	mg/kg		<0.5	----	----	----	----
Iodomethane	74-88-4	0.5	mg/kg		<0.5	----	----	----	----
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg		<0.5	----	----	----	----
1.1-Dichloroethane	75-34-3	0.5	mg/kg		<0.5	----	----	----	----
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg		<0.5	----	----	----	----
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg		<0.5	----	----	----	----
1.1-Dichloropropylene	563-58-6	0.5	mg/kg		<0.5	----	----	----	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg		<0.5	----	----	----	----
1.2-Dichloroethane	107-06-2	0.5	mg/kg		<0.5	----	----	----	----
Trichloroethene	79-01-6	0.5	mg/kg		<0.5	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	QA501A	Trip blank 1/06/19	Trip spike-2	Trip blank 2/06/19	Trip spike-3
				Client sampling date / time	02-Jun-2019 00:00	30-May-2019 00:00	30-May-2019 00:00	30-May-2019 00:00	30-May-2019 00:00
Compound	CAS Number	LOR	Unit		ES1917591-031	ES1917591-032	ES1917591-033	ES1917591-034	ES1917591-035
					Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds - Continued									
Dibromomethane	74-95-3	0.5	mg/kg		<0.5	----	----	----	----
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg		<0.5	----	----	----	----
1.3-Dichloropropane	142-28-9	0.5	mg/kg		<0.5	----	----	----	----
Tetrachloroethene	127-18-4	0.5	mg/kg		<0.5	----	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg		<0.5	----	----	----	----
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg		<0.5	----	----	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg		<0.5	----	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg		<0.5	----	----	----	----
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg		<0.5	----	----	----	----
Pentachloroethane	76-01-7	0.5	mg/kg		<0.5	----	----	----	----
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg		<0.5	----	----	----	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg		<0.5	----	----	----	----
EP074F: Halogenated Aromatic Compounds									
Chlorobenzene	108-90-7	0.5	mg/kg		<0.5	----	----	----	----
Bromobenzene	108-86-1	0.5	mg/kg		<0.5	----	----	----	----
2-Chlorotoluene	95-49-8	0.5	mg/kg		<0.5	----	----	----	----
4-Chlorotoluene	106-43-4	0.5	mg/kg		<0.5	----	----	----	----
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg		<0.5	----	----	----	----
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg		<0.5	----	----	----	----
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg		<0.5	----	----	----	----
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg		<0.5	----	----	----	----
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg		<0.5	----	----	----	----
EP074G: Trihalomethanes									
Chloroform	67-66-3	0.5	mg/kg		<0.5	----	----	----	----
Bromodichloromethane	75-27-4	0.5	mg/kg		<0.5	----	----	----	----
Dibromochloromethane	124-48-1	0.5	mg/kg		<0.5	----	----	----	----
Bromoform	75-25-2	0.5	mg/kg		<0.5	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	----	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	----	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	----	----	----	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	----	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	----	----	----	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	QA501A	Trip blank 1/06/19	Trip spike-2	Trip blank 2/06/19	Trip spike-3
				Client sampling date / time	02-Jun-2019 00:00	30-May-2019 00:00	30-May-2019 00:00	30-May-2019 00:00	30-May-2019 00:00
Compound	CAS Number	LOR	Unit		ES1917591-031	ES1917591-032	ES1917591-033	ES1917591-034	ES1917591-035
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
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 hydrocarbons	----	0.5	mg/kg		<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	----	----	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	**26**	<10	**70**
C10 - C14 Fraction	----	50	mg/kg		<50	----	----	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	----	----	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	----	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	**32**	<10	**83**
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	**14**	<10	**37**
>C10 - C16 Fraction	----	50	mg/kg		<50	----	----	----	----
>C16 - C34 Fraction	----	100	mg/kg		<100	----	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	----	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	----	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	**0.4**
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	**7.6**	<0.5	**21.1**
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	**1.3**	<0.5	**3.0**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	QA501A	Trip blank 1/06/19	Trip spike-2	Trip blank 2/06/19	Trip spike-3
				Client sampling date / time	02-Jun-2019 00:00	30-May-2019 00:00	30-May-2019 00:00	30-May-2019 00:00	30-May-2019 00:00
Compound	CAS Number	LOR	Unit		ES1917591-031	ES1917591-032	ES1917591-033	ES1917591-034	ES1917591-035
					Result	Result	Result	Result	Result
EP080: BTEXN - Continued									
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	**6.7**	<0.5	**15.1**
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	**2.9**	<0.5	**6.0**
^ **Sum of BTEX**	----	0.2	mg/kg		<0.2	<0.2	**18.5**	<0.2	**45.6**
^ **Total Xylenes**	----	0.5	mg/kg		<0.5	<0.5	**9.6**	<0.5	**21.1**
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg		<0.0002	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		<0.001	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg		<0.0005	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	QA501A	Trip blank 1/06/19	Trip spike-2	Trip blank 2/06/19	Trip spike-3
				Client sampling date / time	02-Jun-2019 00:00	30-May-2019 00:00	30-May-2019 00:00	30-May-2019 00:00	30-May-2019 00:00
Compound	CAS Number	LOR	Unit		ES1917591-031	ES1917591-032	ES1917591-033	ES1917591-034	ES1917591-035
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg		<0.0002	----	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg		<0.0005	----	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg		<0.0005	----	----	----	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg		<0.0005	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg		<0.0005	----	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg		<0.0002	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg		<0.0002	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		<0.0005	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		<0.0005	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		<0.0005	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		<0.0005	----	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg		<0.0002	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		<0.0002	----	----	----	----
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		<0.0002	----	----	----	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		**119**	----	----	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		**123**	----	----	----	----
EP068T: Organophosphorus Pesticide Surrogate									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	QA501A	Trip blank 1/06/19	Trip spike-2	Trip blank 2/06/19	Trip spike-3
				Client sampling date / time	02-Jun-2019 00:00	30-May-2019 00:00	30-May-2019 00:00	30-May-2019 00:00	30-May-2019 00:00
Compound	CAS Number	LOR	Unit		ES1917591-031	ES1917591-032	ES1917591-033	ES1917591-034	ES1917591-035
					Result	Result	Result	Result	Result
EP068T: Organophosphorus Pesticide Surrogate - Continued									
DEF	78-48-8	0.05	%		87.3	----	----	----	----
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.5	%		83.0	----	----	----	----
Toluene-D8	2037-26-5	0.5	%		130	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.5	%		112	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		92.7	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		100	----	----	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%		86.6	----	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		119	----	----	----	----
Anthracene-d10	1719-06-8	0.5	%		101	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.5	%		120	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		81.4	93.0	85.2	92.8	92.1
Toluene-D8	2037-26-5	0.2	%		113	95.2	86.2	91.6	92.8
4-Bromofluorobenzene	460-00-4	0.2	%		104	97.0	89.7	96.0	87.8
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		16.5	----	----	----	----
13C8-PFOA	----	0.0002	%		19.0	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TSC2	TSC3	----	----	----
				Client sampling date / time	30-May-2019 00:00	30-May-2019 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES1917591-037	ES1917591-038	--------	--------	--------
					Result	Result	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		**34**	**78**	**----**	**----**	**----**
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		**42**	**87**	**----**	**----**	**----**
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg		**19**	**40**	**----**	**----**	**----**
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	**0.5**	**----**	**----**	**----**
Toluene	108-88-3	0.5	mg/kg		**10.0**	**22.4**	**----**	**----**	**----**
Ethylbenzene	100-41-4	0.5	mg/kg		**1.5**	**3.0**	**----**	**----**	**----**
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		**8.0**	**15.3**	**----**	**----**	**----**
ortho-Xylene	95-47-6	0.5	mg/kg		**3.3**	**6.1**	**----**	**----**	**----**
^ **Sum of BTEX**	----	0.2	mg/kg		**22.8**	**47.3**	**----**	**----**	**----**
^ **Total Xylenes**	----	0.5	mg/kg		**11.3**	**21.4**	**----**	**----**	**----**
Naphthalene	91-20-3	1	mg/kg		<1	<1	**----**	**----**	**----**
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**96.2**	**90.6**	**----**	**----**	**----**
Toluene-D8	2037-26-5	0.2	%		**95.2**	**92.3**	**----**	**----**	**----**
4-Bromofluorobenzene	460-00-4	0.2	%		**89.2**	**88.5**	**----**	**----**	**----**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	Rinsate_BH_MN04	----	----	----	----
				Client sampling date / time	01-Jun-2019 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES1917591-036	--------	--------	--------	--------
					Result	----	----	----	----
EG020T: Total Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		<0.001	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	----	----	----	----
Chromium	7440-47-3	0.001	mg/L		<0.001	----	----	----	----
Copper	7440-50-8	0.001	mg/L		<0.001	----	----	----	----
Nickel	7440-02-0	0.001	mg/L		<0.001	----	----	----	----
Lead	7439-92-1	0.001	mg/L		<0.001	----	----	----	----
Zinc	7440-66-6	0.005	mg/L		<0.005	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	----	----	----	----
EP066: Polychlorinated Biphenyls (PCB)									
^ **Total Polychlorinated biphenyls**	----	1	µg/L		<1	----	----	----	----
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.5	µg/L		<0.5	----	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L		<0.5	----	----	----	----
beta-BHC	319-85-7	0.5	µg/L		<0.5	----	----	----	----
gamma-BHC	58-89-9	0.5	µg/L		<0.5	----	----	----	----
delta-BHC	319-86-8	0.5	µg/L		<0.5	----	----	----	----
Heptachlor	76-44-8	0.5	µg/L		<0.5	----	----	----	----
Aldrin	309-00-2	0.5	µg/L		<0.5	----	----	----	----
Heptachlor epoxide	1024-57-3	0.5	µg/L		<0.5	----	----	----	----
trans-Chlordane	5103-74-2	0.5	µg/L		<0.5	----	----	----	----
alpha-Endosulfan	959-98-8	0.5	µg/L		<0.5	----	----	----	----
cis-Chlordane	5103-71-9	0.5	µg/L		<0.5	----	----	----	----
Dieldrin	60-57-1	0.5	µg/L		<0.5	----	----	----	----
4.4`-DDE	72-55-9	0.5	µg/L		<0.5	----	----	----	----
Endrin	72-20-8	0.5	µg/L		<0.5	----	----	----	----
beta-Endosulfan	33213-65-9	0.5	µg/L		<0.5	----	----	----	----
4.4`-DDD	72-54-8	0.5	µg/L		<0.5	----	----	----	----
Endrin aldehyde	7421-93-4	0.5	µg/L		<0.5	----	----	----	----
Endosulfan sulfate	1031-07-8	0.5	µg/L		<0.5	----	----	----	----
4.4`-DDT	50-29-3	2.0	µg/L		<2.0	----	----	----	----
Endrin ketone	53494-70-5	0.5	µg/L		<0.5	----	----	----	----
Methoxychlor	72-43-5	2.0	µg/L		<2.0	----	----	----	----
^ **Total Chlordane (sum)**	----	0.5	µg/L		<0.5	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	Rinsate_BH_MN04	----	----	----	----
				Client sampling date / time	01-Jun-2019 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES1917591-036	--------	--------	--------	--------
					Result	----	----	----	----
EP068A: Organochlorine Pesticides (OC) - Continued									
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.5	µg/L		<0.5	----	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.5	µg/L		<0.5	----	----	----	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.5	µg/L		<0.5	----	----	----	----
Demeton-S-methyl	919-86-8	0.5	µg/L		<0.5	----	----	----	----
Monocrotophos	6923-22-4	2.0	µg/L		<2.0	----	----	----	----
Dimethoate	60-51-5	0.5	µg/L		<0.5	----	----	----	----
Diazinon	333-41-5	0.5	µg/L		<0.5	----	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.5	µg/L		<0.5	----	----	----	----
Parathion-methyl	298-00-0	2.0	µg/L		<2.0	----	----	----	----
Malathion	121-75-5	0.5	µg/L		<0.5	----	----	----	----
Fenthion	55-38-9	0.5	µg/L		<0.5	----	----	----	----
Chlorpyrifos	2921-88-2	0.5	µg/L		<0.5	----	----	----	----
Parathion	56-38-2	2.0	µg/L		<2.0	----	----	----	----
Pirimphos-ethyl	23505-41-1	0.5	µg/L		<0.5	----	----	----	----
Chlorfenvinphos	470-90-6	0.5	µg/L		<0.5	----	----	----	----
Bromophos-ethyl	4824-78-6	0.5	µg/L		<0.5	----	----	----	----
Fenamiphos	22224-92-6	0.5	µg/L		<0.5	----	----	----	----
Prothiofos	34643-46-4	0.5	µg/L		<0.5	----	----	----	----
Ethion	563-12-2	0.5	µg/L		<0.5	----	----	----	----
Carbophenothion	786-19-6	0.5	µg/L		<0.5	----	----	----	----
Azinphos Methyl	86-50-0	0.5	µg/L		<0.5	----	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons									
Styrene	100-42-5	5	µg/L		<5	----	----	----	----
Isopropylbenzene	98-82-8	5	µg/L		<5	----	----	----	----
n-Propylbenzene	103-65-1	5	µg/L		<5	----	----	----	----
1.3.5-Trimethylbenzene	108-67-8	5	µg/L		<5	----	----	----	----
sec-Butylbenzene	135-98-8	5	µg/L		<5	----	----	----	----
1.2.4-Trimethylbenzene	95-63-6	5	µg/L		<5	----	----	----	----
tert-Butylbenzene	98-06-6	5	µg/L		<5	----	----	----	----
p-Isopropyltoluene	99-87-6	5	µg/L		<5	----	----	----	----
n-Butylbenzene	104-51-8	5	µg/L		<5	----	----	----	----
EP074B: Oxygenated Compounds									

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	Rinsate_BH_MN04	----	----	----	----
				Client sampling date / time	01-Jun-2019 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES1917591-036	--------	--------	--------	--------
					Result	----	----	----	----
EP074B: Oxygenated Compounds - Continued									
Vinyl Acetate	108-05-4	50	µg/L		<50	----	----	----	----
2-Butanone (MEK)	78-93-3	50	µg/L		<50	----	----	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L		<50	----	----	----	----
2-Hexanone (MBK)	591-78-6	50	µg/L		<50	----	----	----	----
EP074C: Sulfonated Compounds									
Carbon disulfide	75-15-0	5	µg/L		<5	----	----	----	----
EP074D: Fumigants									
2.2-Dichloropropane	594-20-7	5	µg/L		<5	----	----	----	----
1.2-Dichloropropane	78-87-5	5	µg/L		<5	----	----	----	----
cis-1.3-Dichloropropylene	10061-01-5	5	µg/L		<5	----	----	----	----
trans-1.3-Dichloropropylene	10061-02-6	5	µg/L		<5	----	----	----	----
1.2-Dibromoethane (EDB)	106-93-4	5	µg/L		<5	----	----	----	----
EP074E: Halogenated Aliphatic Compounds									
Dichlorodifluoromethane	75-71-8	50	µg/L		<50	----	----	----	----
Chloromethane	74-87-3	50	µg/L		<50	----	----	----	----
Vinyl chloride	75-01-4	50	µg/L		<50	----	----	----	----
Bromomethane	74-83-9	50	µg/L		<50	----	----	----	----
Chloroethane	75-00-3	50	µg/L		<50	----	----	----	----
Trichlorofluoromethane	75-69-4	50	µg/L		<50	----	----	----	----
1.1-Dichloroethene	75-35-4	5	µg/L		<5	----	----	----	----
Iodomethane	74-88-4	5	µg/L		<5	----	----	----	----
trans-1.2-Dichloroethene	156-60-5	5	µg/L		<5	----	----	----	----
1.1-Dichloroethane	75-34-3	5	µg/L		<5	----	----	----	----
cis-1.2-Dichloroethene	156-59-2	5	µg/L		<5	----	----	----	----
1.1.1-Trichloroethane	71-55-6	5	µg/L		<5	----	----	----	----
1.1-Dichloropropylene	563-58-6	5	µg/L		<5	----	----	----	----
Carbon Tetrachloride	56-23-5	5	µg/L		<5	----	----	----	----
1.2-Dichloroethane	107-06-2	5	µg/L		<5	----	----	----	----
Trichloroethene	79-01-6	5	µg/L		<5	----	----	----	----
Dibromomethane	74-95-3	5	µg/L		<5	----	----	----	----
1.1.2-Trichloroethane	79-00-5	5	µg/L		<5	----	----	----	----
1.3-Dichloropropane	142-28-9	5	µg/L		<5	----	----	----	----
Tetrachloroethene	127-18-4	5	µg/L		<5	----	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L		<5	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	Rinsate_BH_MN04	----	----	----	----
				Client sampling date / time	01-Jun-2019 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES1917591-036	--------	--------	--------	--------
					Result	----	----	----	----
EP074E: Halogenated Aliphatic Compounds - Continued									
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L		<5	----	----	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L		<5	----	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L		<5	----	----	----	----
1.2.3-Trichloropropane	96-18-4	5	µg/L		<5	----	----	----	----
Pentachloroethane	76-01-7	5	µg/L		<5	----	----	----	----
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L		<5	----	----	----	----
Hexachlorobutadiene	87-68-3	5	µg/L		<5	----	----	----	----
EP074F: Halogenated Aromatic Compounds									
Chlorobenzene	108-90-7	5	µg/L		<5	----	----	----	----
Bromobenzene	108-86-1	5	µg/L		<5	----	----	----	----
2-Chlorotoluene	95-49-8	5	µg/L		<5	----	----	----	----
4-Chlorotoluene	106-43-4	5	µg/L		<5	----	----	----	----
1.3-Dichlorobenzene	541-73-1	5	µg/L		<5	----	----	----	----
1.4-Dichlorobenzene	106-46-7	5	µg/L		<5	----	----	----	----
1.2-Dichlorobenzene	95-50-1	5	µg/L		<5	----	----	----	----
1.2.4-Trichlorobenzene	120-82-1	5	µg/L		<5	----	----	----	----
1.2.3-Trichlorobenzene	87-61-6	5	µg/L		<5	----	----	----	----
EP074G: Trihalomethanes									
Chloroform	67-66-3	5	µg/L		<5	----	----	----	----
Bromodichloromethane	75-27-4	5	µg/L		<5	----	----	----	----
Dibromochloromethane	124-48-1	5	µg/L		<5	----	----	----	----
Bromoform	75-25-2	5	µg/L		<5	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	1.0	µg/L		<1.0	----	----	----	----
Acenaphthylene	208-96-8	1.0	µg/L		<1.0	----	----	----	----
Acenaphthene	83-32-9	1.0	µg/L		<1.0	----	----	----	----
Fluorene	86-73-7	1.0	µg/L		<1.0	----	----	----	----
Phenanthrene	85-01-8	1.0	µg/L		<1.0	----	----	----	----
Anthracene	120-12-7	1.0	µg/L		<1.0	----	----	----	----
Fluoranthene	206-44-0	1.0	µg/L		<1.0	----	----	----	----
Pyrene	129-00-0	1.0	µg/L		<1.0	----	----	----	----
Benz(a)anthracene	56-55-3	1.0	µg/L		<1.0	----	----	----	----
Chrysene	218-01-9	1.0	µg/L		<1.0	----	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L		<1.0	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	Rinsate_BH_MN04	----	----	----	----
				Client sampling date / time	01-Jun-2019 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES1917591-036	--------	--------	--------	--------
					Result	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Benzo(k)fluoranthene	207-08-9	1.0	µg/L		<1.0	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L		<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L		<1.0	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L		<1.0	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L		<1.0	----	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L		<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L		<0.5	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	----	----	----	----
C10 - C14 Fraction	----	50	µg/L		<50	----	----	----	----
C15 - C28 Fraction	----	100	µg/L		<100	----	----	----	----
C29 - C36 Fraction	----	50	µg/L		<50	----	----	----	----
^ C10 - C36 Fraction (sum)	----	50	µg/L		<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	----	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L		<20	----	----	----	----
>C10 - C16 Fraction	----	100	µg/L		<100	----	----	----	----
>C16 - C34 Fraction	----	100	µg/L		<100	----	----	----	----
>C34 - C40 Fraction	----	100	µg/L		<100	----	----	----	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L		<100	----	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L		<100	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	----	----	----	----
Toluene	108-88-3	2	µg/L		<2	----	----	----	----
Ethylbenzene	100-41-4	2	µg/L		<2	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L		<2	----	----	----	----
^ Total Xylenes	----	2	µg/L		<2	----	----	----	----
^ Sum of BTEX	----	1	µg/L		<1	----	----	----	----
Naphthalene	91-20-3	5	µg/L		<5	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	Rinsate_BH_MN04	----	----	----	----
				Client sampling date / time	01-Jun-2019 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES1917591-036	--------	--------	--------	--------
					Result	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids - Continued									
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L		<0.02	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	----	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	----	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	----	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	----	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	----	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	----	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	----	----	----	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	Rinsate_BH_MN04	----	----	----	----
				Client sampling date / time	01-Jun-2019 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES1917591-036	--------	--------	--------	--------
					Result	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	----	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	----	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		<0.01	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	----	----	----	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	1	%		**76.0**	----	----	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.5	%		**75.2**	----	----	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.5	%		**76.1**	----	----	----	----
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	5	%		**104**	----	----	----	----
Toluene-D8	2037-26-5	5	%		**103**	----	----	----	----
4-Bromofluorobenzene	460-00-4	5	%		**91.4**	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1.0	%		**23.7**	----	----	----	----
2-Chlorophenol-D4	93951-73-6	1.0	%		**48.2**	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	Rinsate_BH_MN04	----	----	----	----
				Client sampling date / time	01-Jun-2019 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES1917591-036	--------	--------	--------	--------
					Result	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates - Continued									
2.4.6-Tribromophenol	118-79-6	1.0	%		54.6	----	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		65.8	----	----	----	----
Anthracene-d10	1719-06-8	1.0	%		63.4	----	----	----	----
4-Terphenyl-d14	1718-51-0	1.0	%		67.5	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		105	----	----	----	----
Toluene-D8	2037-26-5	2	%		98.9	----	----	----	----
4-Bromofluorobenzene	460-00-4	2	%		93.6	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		102	----	----	----	----
13C8-PFOA	----	0.02	%		96.5	----	----	----	----

Analytical Results

Descriptive Results

Sub-Matrix: **SOIL**

Method: Compound	Client sample ID - Client sampling date / time	Analytical Results
EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	BH_MN03_0.25 - 02-Jun-2019 00:00	Pale red soil.
EA200: Description	BH_MN03_0.75-0.85 - 02-Jun-2019 00:00	Mid brown soil.
EA200: Description	BH_MN04_0.4-0.6 - 01-Jun-2019 00:00	Mid brown soil.
EA200: Description	BH_MN04_0.75-0.85 - 01-Jun-2019 00:00	Mid brown soil.
EA200: Description	BH_MN09_0.8-0.9 - 01-Jun-2019 00:00	Mid brown soil.
EA200: Description	BH_MN12_0.5-0.6 - 02-Jun-2019 00:00	Mid brown soil.
EA200: Description	BH_MN12_1.0-1.1 - 02-Jun-2019 00:00	Mid brown soil.
EA200: Description	VW_MN01_0.7-0.8 - 01-Jun-2019 00:00	Mid brown soil.
EA200: Description	VW_MN02_0.5-0.6 - 02-Jun-2019 00:00	Mid brown soil.
EA200: Description	VW_MN02_0.75-0.95 - 02-Jun-2019 00:00	Mid brown soil.

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
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	64	130
Toluene-D8	2037-26-5	66	136
4-Bromofluorobenzene	460-00-4	60	122
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	73	133
Toluene-D8	2037-26-5	74	132
4-Bromofluorobenzene	460-00-4	72	130
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	29	129
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	67	111
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	67	111
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	78	133
Toluene-D8	2037-26-5	79	129
4-Bromofluorobenzene	460-00-4	81	124

Sub-Matrix: **WATER**

Compound	CAS Number	Recovery Limits (%) Low	Recovery Limits (%) High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	32	112
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES1917591**	Page	: 1 of 23
Amendment	: **2**		
Client	: **GOLDER ASSOCIATES**	Laboratory	: Environmental Division Sydney
Contact	: MR BEN SEAFORD	Telephone	: +61-2-8784 8555
Project	: 1791865	Date Samples Received	: 07-Jun-2019
Site	: Marrickville	Issue Date	: 09-Jul-2019
Sampler	: Golder-Douglas	No. of samples received	: 41
Order number	: PCOC63	No. of samples analysed	: 33

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **Surrogate recovery outliers exist for all regular sample matrices - please see following pages for full details.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Regular Sample Surrogates

Sub-Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Samples Submitted							
EP075(SIM)T: PAH Surrogates	ES1917591-027	VW_MN02_2.0-2.1	**2-Fluorobiphenyl**	321-60-8	128 %	70-122 %	**Recovery greater than upper data quality objective**
EP075(SIM)T: PAH Surrogates	ES1917591-028	VW_MN02_3.0-3.1	**2-Fluorobiphenyl**	321-60-8	124 %	70-122 %	**Recovery greater than upper data quality objective**
EP075(SIM)T: PAH Surrogates	ES1917591-030	QA500A	**2-Fluorobiphenyl**	321-60-8	124 %	70-122 %	**Recovery greater than upper data quality objective**
EP231S: PFAS Surrogate	ES1917591-024	VW_MN02_0.5-0.6	**13C4-PFOS**	----	14.5 %	60-120 %	**Recovery less than lower data quality objective**
EP231S: PFAS Surrogate	ES1917591-031	QA501A	**13C4-PFOS**	----	16.5 %	60-120 %	**Recovery less than lower data quality objective**
EP231S: PFAS Surrogate	ES1917591-024	VW_MN02_0.5-0.6	**13C8-PFOA**	----	18.0 %	60-120 %	**Recovery less than lower data quality objective**
EP231S: PFAS Surrogate	ES1917591-031	QA501A	**13C8-PFOA**	----	19.0 %	60-120 %	**Recovery less than lower data quality objective**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
Method	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)					
PAH/Phenols (GC/MS - SIM)	0	13	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	0	8	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	0	13	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	14	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
PAH/Phenols (GC/MS - SIM)	0	13	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	0	8	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	0	13	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	14	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

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

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

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

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

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

Matrix: **SOIL**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055)							
BH_MN04_0.4-0.6, BH_MN04_0.75-0.85, BH_MN04_0.95-1.05, BH_MN04_2.0-2.2, BH_MN04_2.8-3.0, BH_MN09_0.8-0.9, BH_MN09_2.0, BH_MN09_3.0, VW_MN01_0.7-0.8, VW_MN01_0.9-1.1, QA500A	**01-Jun-2019**	**----**	----	----	**11-Jun-2019**	15-Jun-2019	✓
Soil Glass Jar - Unpreserved (EA055)							
BH_MN03_0.25, BH_MN03_0.75-0.85, BH_MN03_1.3-1.4, BH_MN03_2.9-3.0, BH_MN12_0.5-0.6, BH_MN12_1.0-1.1, BH_MN12_2.0-2.1, BH_MN12_2.9-3.0, VW_MN02_0.5-0.6, VW_MN02_0.75-0.95, VW_MN02_1.0-1.1, VW_MN02_2.0-2.1, VW_MN02_3.0-3.1, VW_MN02_4.0-4.1, QA501A	**02-Jun-2019**	**----**	----	----	**11-Jun-2019**	16-Jun-2019	✓
EA200: AS 4964 - 2004 Identification of Asbestos in Soils							
Snap Lock Bag (EA200)							
BH_MN04_0.4-0.6, BH_MN04_0.75-0.85, BH_MN09_0.8-0.9, VW_MN01_0.7-0.8	**01-Jun-2019**	**----**	----	----	**12-Jun-2019**	28-Nov-2019	✓
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200)							
BH_MN03_0.25, BH_MN03_0.75-0.85, BH_MN12_0.5-0.6, BH_MN12_1.0-1.1, VW_MN02_0.5-0.6, VW_MN02_0.75-0.95	**02-Jun-2019**	**----**	----	----	**12-Jun-2019**	29-Nov-2019	✓
EG005(ED093)T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
BH_MN04_0.4-0.6, BH_MN04_0.75-0.85, BH_MN04_0.95-1.05, BH_MN04_2.0-2.2, BH_MN04_2.8-3.0, BH_MN09_0.8-0.9, BH_MN09_2.0, BH_MN09_3.0, VW_MN01_0.7-0.8, VW_MN01_0.9-1.1, QA500A	**01-Jun-2019**	**13-Jun-2019**	28-Nov-2019	✓	**13-Jun-2019**	28-Nov-2019	✓
Soil Glass Jar - Unpreserved (EG005T)							
BH_MN03_0.25, BH_MN03_0.75-0.85, BH_MN03_1.3-1.4, BH_MN03_2.9-3.0, BH_MN12_0.5-0.6, BH_MN12_1.0-1.1, BH_MN12_2.0-2.1, BH_MN12_2.9-3.0, VW_MN02_0.5-0.6, VW_MN02_0.75-0.95, VW_MN02_1.0-1.1, VW_MN02_2.0-2.1, VW_MN02_3.0-3.1, VW_MN02_4.0-4.1, QA501A	**02-Jun-2019**	**13-Jun-2019**	29-Nov-2019	✓	**13-Jun-2019**	29-Nov-2019	✓

Matrix: **SOIL**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
BH_MN04_0.4-0.6, BH_MN04_0.75-0.85, BH_MN04_0.95-1.05, BH_MN04_2.0-2.2, BH_MN04_2.8-3.0, BH_MN09_0.8-0.9, BH_MN09_2.0, BH_MN09_3.0, VW_MN01_0.7-0.8, VW_MN01_0.9-1.1, QA500A	**01-Jun-2019**	**13-Jun-2019**	29-Jun-2019	✓	**14-Jun-2019**	29-Jun-2019	✓
Soil Glass Jar - Unpreserved (EG035T)							
BH_MN03_0.25, BH_MN03_0.75-0.85, BH_MN03_1.3-1.4, BH_MN03_2.9-3.0, BH_MN12_0.5-0.6, BH_MN12_1.0-1.1, BH_MN12_2.0-2.1, BH_MN12_2.9-3.0, VW_MN02_0.5-0.6, VW_MN02_0.75-0.95, VW_MN02_1.0-1.1, VW_MN02_2.0-2.1, VW_MN02_3.0-3.1, VW_MN02_4.0-4.1, QA501A	**02-Jun-2019**	**13-Jun-2019**	30-Jun-2019	✓	**14-Jun-2019**	30-Jun-2019	✓
EP035G: Total Phenol by Discrete Analyser							
Soil Glass Jar - Unpreserved (EP035G)							
BH_MN04_0.4-0.6, BH_MN04_0.75-0.85, BH_MN04_0.95-1.05, BH_MN09_0.8-0.9, VW_MN01_0.7-0.8, VW_MN01_0.9-1.1, QA500A	**01-Jun-2019**	**14-Jun-2019**	15-Jun-2019	✓	**14-Jun-2019**	15-Jun-2019	✓
Soil Glass Jar - Unpreserved (EP035G)							
BH_MN03_0.25, BH_MN03_0.75-0.85, BH_MN12_0.5-0.6, BH_MN12_1.0-1.1, BH_MN12_2.0-2.1, VW_MN02_0.5-0.6, VW_MN02_0.75-0.95, VW_MN02_1.0-1.1, QA501A	**02-Jun-2019**	**14-Jun-2019**	16-Jun-2019	✓	**14-Jun-2019**	16-Jun-2019	✓

Matrix: **SOIL**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP066: Polychlorinated Biphenyls (PCB)							
Soil Glass Jar - Unpreserved (EP066) BH_MN04_0.4-0.6, BH_MN04_0.75-0.85, BH_MN04_0.95-1.05, BH_MN04_2.0-2.2, BH_MN04_2.8-3.0, BH_MN09_0.8-0.9, BH_MN09_2.0, BH_MN09_3.0, VW_MN01_0.7-0.8, VW_MN01_0.9-1.1	**01-Jun-2019**	**08-Jun-2019**	15-Jun-2019	✓	**14-Jun-2019**	18-Jul-2019	✓
Soil Glass Jar - Unpreserved (EP066) QA500A	**01-Jun-2019**	**11-Jun-2019**	15-Jun-2019	✓	**13-Jun-2019**	21-Jul-2019	✓
Soil Glass Jar - Unpreserved (EP066) BH_MN03_0.75-0.85, BH_MN03_1.3-1.4, BH_MN03_2.9-3.0, BH_MN12_0.5-0.6, BH_MN12_1.0-1.1, BH_MN12_2.0-2.1, BH_MN12_2.9-3.0, VW_MN02_0.5-0.6, VW_MN02_0.75-0.95	**02-Jun-2019**	**08-Jun-2019**	16-Jun-2019	✓	**14-Jun-2019**	18-Jul-2019	✓
Soil Glass Jar - Unpreserved (EP066) BH_MN03_0.25, VW_MN02_1.0-1.1, VW_MN02_2.0-2.1, VW_MN02_3.0-3.1, VW_MN02_4.0-4.1, QA501A	**02-Jun-2019**	**11-Jun-2019**	16-Jun-2019	✓	**13-Jun-2019**	21-Jul-2019	✓
EP068A: Organochlorine Pesticides (OC)							
Soil Glass Jar - Unpreserved (EP068) BH_MN04_0.4-0.6, BH_MN04_0.75-0.85, BH_MN04_0.95-1.05, BH_MN04_2.0-2.2, BH_MN04_2.8-3.0, BH_MN09_0.8-0.9, BH_MN09_2.0, BH_MN09_3.0, VW_MN01_0.7-0.8, VW_MN01_0.9-1.1	**01-Jun-2019**	**08-Jun-2019**	15-Jun-2019	✓	**14-Jun-2019**	18-Jul-2019	✓
Soil Glass Jar - Unpreserved (EP068) QA500A	**01-Jun-2019**	**11-Jun-2019**	15-Jun-2019	✓	**13-Jun-2019**	21-Jul-2019	✓
Soil Glass Jar - Unpreserved (EP068) BH_MN03_0.75-0.85, BH_MN03_1.3-1.4, BH_MN03_2.9-3.0, BH_MN12_0.5-0.6, BH_MN12_1.0-1.1, BH_MN12_2.0-2.1, BH_MN12_2.9-3.0, VW_MN02_0.5-0.6, VW_MN02_0.75-0.95	**02-Jun-2019**	**08-Jun-2019**	16-Jun-2019	✓	**14-Jun-2019**	18-Jul-2019	✓
Soil Glass Jar - Unpreserved (EP068) BH_MN03_0.25, VW_MN02_1.0-1.1, VW_MN02_2.0-2.1, VW_MN02_3.0-3.1, VW_MN02_4.0-4.1, QA501A	**02-Jun-2019**	**11-Jun-2019**	16-Jun-2019	✓	**13-Jun-2019**	21-Jul-2019	✓

Matrix: **SOIL**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP068B: Organophosphorus Pesticides (OP)							
Soil Glass Jar - Unpreserved (EP068) BH_MN04_0.4-0.6, BH_MN04_0.75-0.85, BH_MN04_0.95-1.05, BH_MN04_2.0-2.2, BH_MN04_2.8-3.0, BH_MN09_0.8-0.9, BH_MN09_2.0, BH_MN09_3.0, VW_MN01_0.7-0.8, VW_MN01_0.9-1.1	**01-Jun-2019**	**08-Jun-2019**	15-Jun-2019	✓	**14-Jun-2019**	18-Jul-2019	✓
Soil Glass Jar - Unpreserved (EP068) QA500A	**01-Jun-2019**	**11-Jun-2019**	15-Jun-2019	✓	**13-Jun-2019**	21-Jul-2019	✓
Soil Glass Jar - Unpreserved (EP068) BH_MN03_0.75-0.85, BH_MN03_1.3-1.4, BH_MN03_2.9-3.0, BH_MN12_0.5-0.6, BH_MN12_1.0-1.1, BH_MN12_2.0-2.1, BH_MN12_2.9-3.0, VW_MN02_0.5-0.6, VW_MN02_0.75-0.95	**02-Jun-2019**	**08-Jun-2019**	16-Jun-2019	✓	**14-Jun-2019**	18-Jul-2019	✓
Soil Glass Jar - Unpreserved (EP068) BH_MN03_0.25, VW_MN02_1.0-1.1, VW_MN02_2.0-2.1, VW_MN02_3.0-3.1, VW_MN02_4.0-4.1, QA501A	**02-Jun-2019**	**11-Jun-2019**	16-Jun-2019	✓	**13-Jun-2019**	21-Jul-2019	✓
EP074A: Monocyclic Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP074) BH_MN04_0.4-0.6, BH_MN04_0.75-0.85, BH_MN04_0.95-1.05, BH_MN04_2.0-2.2, BH_MN04_2.8-3.0, BH_MN09_0.8-0.9, BH_MN09_2.0, BH_MN09_3.0, VW_MN01_0.7-0.8, VW_MN01_0.9-1.1, QA500A	**01-Jun-2019**	**08-Jun-2019**	08-Jun-2019	✓	**08-Jun-2019**	08-Jun-2019	✓
Soil Glass Jar - Unpreserved (EP074) BH_MN03_0.25, BH_MN03_0.75-0.85, BH_MN03_1.3-1.4, BH_MN03_2.9-3.0, BH_MN12_0.5-0.6, BH_MN12_1.0-1.1, BH_MN12_2.0-2.1, BH_MN12_2.9-3.0, VW_MN02_0.5-0.6, VW_MN02_0.75-0.95, VW_MN02_1.0-1.1, VW_MN02_2.0-2.1, VW_MN02_3.0-3.1, VW_MN02_4.0-4.1, QA501A	**02-Jun-2019**	**08-Jun-2019**	09-Jun-2019	✓	**08-Jun-2019**	09-Jun-2019	✓

Matrix: **SOIL**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP074B: Oxygenated Compounds							
Soil Glass Jar - Unpreserved (EP074)							
BH_MN04_0.4-0.6, BH_MN04_0.75-0.85, BH_MN04_0.95-1.05, BH_MN04_2.0-2.2, BH_MN04_2.8-3.0, BH_MN09_0.8-0.9, BH_MN09_2.0, BH_MN09_3.0, VW_MN01_0.7-0.8, VW_MN01_0.9-1.1, QA500A	**01-Jun-2019**	**08-Jun-2019**	08-Jun-2019	✓	**08-Jun-2019**	08-Jun-2019	✓
Soil Glass Jar - Unpreserved (EP074)							
BH_MN03_0.25, BH_MN03_0.75-0.85, BH_MN03_1.3-1.4, BH_MN03_2.9-3.0, BH_MN12_0.5-0.6, BH_MN12_1.0-1.1, BH_MN12_2.0-2.1, BH_MN12_2.9-3.0, VW_MN02_0.5-0.6, VW_MN02_0.75-0.95, VW_MN02_1.0-1.1, VW_MN02_2.0-2.1, VW_MN02_3.0-3.1, VW_MN02_4.0-4.1, QA501A	**02-Jun-2019**	**08-Jun-2019**	09-Jun-2019	✓	**08-Jun-2019**	09-Jun-2019	✓
EP074C: Sulfonated Compounds							
Soil Glass Jar - Unpreserved (EP074)							
BH_MN04_0.4-0.6, BH_MN04_0.75-0.85, BH_MN04_0.95-1.05, BH_MN04_2.0-2.2, BH_MN04_2.8-3.0, BH_MN09_0.8-0.9, BH_MN09_2.0, BH_MN09_3.0, VW_MN01_0.7-0.8, VW_MN01_0.9-1.1, QA500A	**01-Jun-2019**	**08-Jun-2019**	08-Jun-2019	✓	**08-Jun-2019**	08-Jun-2019	✓
Soil Glass Jar - Unpreserved (EP074)							
BH_MN03_0.25, BH_MN03_0.75-0.85, BH_MN03_1.3-1.4, BH_MN03_2.9-3.0, BH_MN12_0.5-0.6, BH_MN12_1.0-1.1, BH_MN12_2.0-2.1, BH_MN12_2.9-3.0, VW_MN02_0.5-0.6, VW_MN02_0.75-0.95, VW_MN02_1.0-1.1, VW_MN02_2.0-2.1, VW_MN02_3.0-3.1, VW_MN02_4.0-4.1, QA501A	**02-Jun-2019**	**08-Jun-2019**	09-Jun-2019	✓	**08-Jun-2019**	09-Jun-2019	✓

Matrix: **SOIL**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP074D: Fumigants							
Soil Glass Jar - Unpreserved (EP074)							
BH_MN04_0.4-0.6, BH_MN04_0.75-0.85, BH_MN04_0.95-1.05, BH_MN04_2.0-2.2, BH_MN04_2.8-3.0, BH_MN09_0.8-0.9, BH_MN09_2.0, BH_MN09_3.0, VW_MN01_0.7-0.8, VW_MN01_0.9-1.1, QA500A	**01-Jun-2019**	**08-Jun-2019**	08-Jun-2019	✓	**08-Jun-2019**	08-Jun-2019	✓
Soil Glass Jar - Unpreserved (EP074)							
BH_MN03_0.25, BH_MN03_0.75-0.85, BH_MN03_1.3-1.4, BH_MN03_2.9-3.0, BH_MN12_0.5-0.6, BH_MN12_1.0-1.1, BH_MN12_2.0-2.1, BH_MN12_2.9-3.0, VW_MN02_0.5-0.6, VW_MN02_0.75-0.95, VW_MN02_1.0-1.1, VW_MN02_2.0-2.1, VW_MN02_3.0-3.1, VW_MN02_4.0-4.1, QA501A	**02-Jun-2019**	**08-Jun-2019**	09-Jun-2019	✓	**08-Jun-2019**	09-Jun-2019	✓
EP074E: Halogenated Aliphatic Compounds							
Soil Glass Jar - Unpreserved (EP074)							
BH_MN04_0.4-0.6, BH_MN04_0.75-0.85, BH_MN04_0.95-1.05, BH_MN04_2.0-2.2, BH_MN04_2.8-3.0, BH_MN09_0.8-0.9, BH_MN09_2.0, BH_MN09_3.0, VW_MN01_0.7-0.8, VW_MN01_0.9-1.1, QA500A	**01-Jun-2019**	**08-Jun-2019**	08-Jun-2019	✓	**08-Jun-2019**	08-Jun-2019	✓
Soil Glass Jar - Unpreserved (EP074)							
BH_MN03_0.25, BH_MN03_0.75-0.85, BH_MN03_1.3-1.4, BH_MN03_2.9-3.0, BH_MN12_0.5-0.6, BH_MN12_1.0-1.1, BH_MN12_2.0-2.1, BH_MN12_2.9-3.0, VW_MN02_0.5-0.6, VW_MN02_0.75-0.95, VW_MN02_1.0-1.1, VW_MN02_2.0-2.1, VW_MN02_3.0-3.1, VW_MN02_4.0-4.1, QA501A	**02-Jun-2019**	**08-Jun-2019**	09-Jun-2019	✓	**08-Jun-2019**	09-Jun-2019	✓

Matrix: **SOIL**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP074F: Halogenated Aromatic Compounds							
Soil Glass Jar - Unpreserved (EP074)							
BH_MN04_0.4-0.6, BH_MN04_0.75-0.85, BH_MN04_0.95-1.05, BH_MN04_2.0-2.2, BH_MN04_2.8-3.0, BH_MN09_0.8-0.9, BH_MN09_2.0, BH_MN09_3.0, VW_MN01_0.7-0.8, VW_MN01_0.9-1.1, QA500A	**01-Jun-2019**	**08-Jun-2019**	08-Jun-2019	✓	**08-Jun-2019**	08-Jun-2019	✓
Soil Glass Jar - Unpreserved (EP074)							
BH_MN03_0.25, BH_MN03_0.75-0.85, BH_MN03_1.3-1.4, BH_MN03_2.9-3.0, BH_MN12_0.5-0.6, BH_MN12_1.0-1.1, BH_MN12_2.0-2.1, BH_MN12_2.9-3.0, VW_MN02_0.5-0.6, VW_MN02_0.75-0.95, VW_MN02_1.0-1.1, VW_MN02_2.0-2.1, VW_MN02_3.0-3.1, VW_MN02_4.0-4.1, QA501A	**02-Jun-2019**	**08-Jun-2019**	09-Jun-2019	✓	**08-Jun-2019**	09-Jun-2019	✓
EP074G: Trihalomethanes							
Soil Glass Jar - Unpreserved (EP074)							
BH_MN04_0.4-0.6, BH_MN04_0.75-0.85, BH_MN04_0.95-1.05, BH_MN04_2.0-2.2, BH_MN04_2.8-3.0, BH_MN09_0.8-0.9, BH_MN09_2.0, BH_MN09_3.0, VW_MN01_0.7-0.8, VW_MN01_0.9-1.1, QA500A	**01-Jun-2019**	**08-Jun-2019**	08-Jun-2019	✓	**08-Jun-2019**	08-Jun-2019	✓
Soil Glass Jar - Unpreserved (EP074)							
BH_MN03_0.25, BH_MN03_0.75-0.85, BH_MN03_1.3-1.4, BH_MN03_2.9-3.0, BH_MN12_0.5-0.6, BH_MN12_1.0-1.1, BH_MN12_2.0-2.1, BH_MN12_2.9-3.0, VW_MN02_0.5-0.6, VW_MN02_0.75-0.95, VW_MN02_1.0-1.1, VW_MN02_2.0-2.1, VW_MN02_3.0-3.1, VW_MN02_4.0-4.1, QA501A	**02-Jun-2019**	**08-Jun-2019**	09-Jun-2019	✓	**08-Jun-2019**	09-Jun-2019	✓

Matrix: **SOIL**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM))							
BH_MN04_0.4-0.6, BH_MN04_0.75-0.85, BH_MN04_0.95-1.05, BH_MN04_2.0-2.2, BH_MN04_2.8-3.0, BH_MN09_0.8-0.9, BH_MN09_2.0, BH_MN09_3.0, VW_MN01_0.7-0.8, VW_MN01_0.9-1.1	**01-Jun-2019**	**08-Jun-2019**	15-Jun-2019	✓	**13-Jun-2019**	18-Jul-2019	✓
Soil Glass Jar - Unpreserved (EP075(SIM))							
QA500A	**01-Jun-2019**	**11-Jun-2019**	15-Jun-2019	✓	**13-Jun-2019**	21-Jul-2019	✓
Soil Glass Jar - Unpreserved (EP075(SIM))							
BH_MN03_0.75-0.85, BH_MN03_1.3-1.4, BH_MN03_2.9-3.0, BH_MN12_0.5-0.6, BH_MN12_1.0-1.1, BH_MN12_2.0-2.1, BH_MN12_2.9-3.0, VW_MN02_0.5-0.6, VW_MN02_0.75-0.95	**02-Jun-2019**	**08-Jun-2019**	16-Jun-2019	✓	**13-Jun-2019**	18-Jul-2019	✓
Soil Glass Jar - Unpreserved (EP075(SIM))							
BH_MN03_0.25, VW_MN02_1.0-1.1, VW_MN02_2.0-2.1, VW_MN02_3.0-3.1, VW_MN02_4.0-4.1, QA501A	**02-Jun-2019**	**11-Jun-2019**	16-Jun-2019	✓	**13-Jun-2019**	21-Jul-2019	✓

Matrix: **SOIL**

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

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons								
Soil Glass Jar - Unpreserved (EP080)								
BH_MN04_0.4-0.6,	BH_MN04_0.75-0.85,	**01-Jun-2019**	**08-Jun-2019**	15-Jun-2019	✓	**08-Jun-2019**	15-Jun-2019	✓
BH_MN04_0.95-1.05,	BH_MN04_2.0-2.2,							
BH_MN04_2.8-3.0,	BH_MN09_0.8-0.9,							
BH_MN09_2.0,	BH_MN09_3.0,							
VW_MN01_0.7-0.8,	VW_MN01_0.9-1.1,							
QA500A								
Soil Glass Jar - Unpreserved (EP071)								
BH_MN04_0.4-0.6,	BH_MN04_0.75-0.85,	**01-Jun-2019**	**08-Jun-2019**	15-Jun-2019	✓	**13-Jun-2019**	18-Jul-2019	✓
BH_MN04_0.95-1.05,	BH_MN04_2.0-2.2,							
BH_MN04_2.8-3.0,	BH_MN09_0.8-0.9,							
BH_MN09_2.0,	BH_MN09_3.0,							
VW_MN01_0.7-0.8,	VW_MN01_0.9-1.1							
Soil Glass Jar - Unpreserved (EP071)								
QA500A		**01-Jun-2019**	**11-Jun-2019**	15-Jun-2019	✓	**13-Jun-2019**	21-Jul-2019	✓
Soil Glass Jar - Unpreserved (EP080)								
BH_MN03_0.25,	BH_MN03_0.75-0.85,	**02-Jun-2019**	**08-Jun-2019**	16-Jun-2019	✓	**08-Jun-2019**	16-Jun-2019	✓
BH_MN03_1.3-1.4,	BH_MN03_2.9-3.0,							
BH_MN12_0.5-0.6,	BH_MN12_1.0-1.1,							
BH_MN12_2.0-2.1,	BH_MN12_2.9-3.0,							
VW_MN02_0.5-0.6,	VW_MN02_0.75-0.95,							
VW_MN02_1.0-1.1,	VW_MN02_2.0-2.1,							
VW_MN02_3.0-3.1,	VW_MN02_4.0-4.1,							
QA501A								
Soil Glass Jar - Unpreserved (EP071)								
BH_MN03_0.75-0.85,	BH_MN03_1.3-1.4,	**02-Jun-2019**	**08-Jun-2019**	16-Jun-2019	✓	**13-Jun-2019**	18-Jul-2019	✓
BH_MN03_2.9-3.0,	BH_MN12_0.5-0.6,							
BH_MN12_1.0-1.1,	BH_MN12_2.0-2.1,							
BH_MN12_2.9-3.0,	VW_MN02_0.5-0.6,							
VW_MN02_0.75-0.95								
Soil Glass Jar - Unpreserved (EP071)								
BH_MN03_0.25,	VW_MN02_1.0-1.1,	**02-Jun-2019**	**11-Jun-2019**	16-Jun-2019	✓	**13-Jun-2019**	21-Jul-2019	✓
VW_MN02_2.0-2.1,	VW_MN02_3.0-3.1,							
VW_MN02_4.0-4.1,	QA501A							
Soil Glass Jar - Unpreserved (EP080)								
Trip blank - 1/06/19,	Trip spike-2,	**30-May-2019**	**13-Jun-2019**	13-Jun-2019	✓	**13-Jun-2019**	13-Jun-2019	✓
Trip blank - 2/06/19,	Trip spike-3,							
TSC2,	TSC3							

Matrix: **SOIL**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP080)							
BH_MN04_0.4-0.6, BH_MN04_0.75-0.85, BH_MN04_0.95-1.05, BH_MN04_2.0-2.2, BH_MN04_2.8-3.0, BH_MN09_0.8-0.9, BH_MN09_2.0, BH_MN09_3.0, VW_MN01_0.7-0.8, VW_MN01_0.9-1.1, QA500A	**01-Jun-2019**	**08-Jun-2019**	15-Jun-2019	✓	**08-Jun-2019**	15-Jun-2019	✓
Soil Glass Jar - Unpreserved (EP071)							
BH_MN04_0.4-0.6, BH_MN04_0.75-0.85, BH_MN04_0.95-1.05, BH_MN04_2.0-2.2, BH_MN04_2.8-3.0, BH_MN09_0.8-0.9, BH_MN09_2.0, BH_MN09_3.0, VW_MN01_0.7-0.8, VW_MN01_0.9-1.1	**01-Jun-2019**	**08-Jun-2019**	15-Jun-2019	✓	**13-Jun-2019**	18-Jul-2019	✓
Soil Glass Jar - Unpreserved (EP071)							
QA500A	**01-Jun-2019**	**11-Jun-2019**	15-Jun-2019	✓	**13-Jun-2019**	21-Jul-2019	✓
Soil Glass Jar - Unpreserved (EP080)							
BH_MN03_0.25, BH_MN03_0.75-0.85, BH_MN03_1.3-1.4, BH_MN03_2.9-3.0, BH_MN12_0.5-0.6, BH_MN12_1.0-1.1, BH_MN12_2.0-2.1, BH_MN12_2.9-3.0, VW_MN02_0.5-0.6, VW_MN02_0.75-0.95, VW_MN02_1.0-1.1, VW_MN02_2.0-2.1, VW_MN02_3.0-3.1, VW_MN02_4.0-4.1, QA501A	**02-Jun-2019**	**08-Jun-2019**	16-Jun-2019	✓	**08-Jun-2019**	16-Jun-2019	✓
Soil Glass Jar - Unpreserved (EP071)							
BH_MN03_0.75-0.85, BH_MN03_1.3-1.4, BH_MN03_2.9-3.0, BH_MN12_0.5-0.6, BH_MN12_1.0-1.1, BH_MN12_2.0-2.1, BH_MN12_2.9-3.0, VW_MN02_0.5-0.6, VW_MN02_0.75-0.95	**02-Jun-2019**	**08-Jun-2019**	16-Jun-2019	✓	**13-Jun-2019**	18-Jul-2019	✓
Soil Glass Jar - Unpreserved (EP071)							
BH_MN03_0.25, VW_MN02_1.0-1.1, VW_MN02_2.0-2.1, VW_MN02_3.0-3.1, VW_MN02_4.0-4.1, QA501A	**02-Jun-2019**	**11-Jun-2019**	16-Jun-2019	✓	**13-Jun-2019**	21-Jul-2019	✓
Soil Glass Jar - Unpreserved (EP080)							
Trip blank - 1/06/19, Trip spike-2, Trip blank - 2/06/19, Trip spike-3, TSC2, TSC3	**30-May-2019**	**13-Jun-2019**	13-Jun-2019	✓	**13-Jun-2019**	13-Jun-2019	✓

Matrix: **SOIL**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080)							
BH_MN04_0.4-0.6, BH_MN04_0.75-0.85, BH_MN04_0.95-1.05, BH_MN04_2.0-2.2, BH_MN04_2.8-3.0, BH_MN09_0.8-0.9, BH_MN09_2.0, BH_MN09_3.0, VW_MN01_0.7-0.8, VW_MN01_0.9-1.1, QA500A	**01-Jun-2019**	**08-Jun-2019**	15-Jun-2019	✓	**08-Jun-2019**	15-Jun-2019	✓
Soil Glass Jar - Unpreserved (EP080)							
BH_MN03_0.25, BH_MN03_0.75-0.85, BH_MN03_1.3-1.4, BH_MN03_2.9-3.0, BH_MN12_0.5-0.6, BH_MN12_1.0-1.1, BH_MN12_2.0-2.1, BH_MN12_2.9-3.0, VW_MN02_0.5-0.6, VW_MN02_0.75-0.95, VW_MN02_1.0-1.1, VW_MN02_2.0-2.1, VW_MN02_3.0-3.1, VW_MN02_4.0-4.1, QA501A	**02-Jun-2019**	**08-Jun-2019**	16-Jun-2019	✓	**08-Jun-2019**	16-Jun-2019	✓
Soil Glass Jar - Unpreserved (EP080)							
Trip blank - 1/06/19, Trip spike-2, Trip blank - 2/06/19, Trip spike-3, TSC2, TSC3	**30-May-2019**	**13-Jun-2019**	13-Jun-2019	✓	**13-Jun-2019**	13-Jun-2019	✓
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE Soil Jar (EP231X)							
BH_MN04_0.4-0.6, BH_MN04_0.75-0.85, BH_MN04_0.95-1.05, BH_MN09_0.8-0.9, BH_MN09_2.0, VW_MN01_0.7-0.8, VW_MN01_0.9-1.1	**01-Jun-2019**	**12-Jun-2019**	28-Nov-2019	✓	**12-Jun-2019**	22-Jul-2019	✓
HDPE Soil Jar (EP231X)							
BH_MN03_0.75-0.85, BH_MN12_0.5-0.6, BH_MN12_1.0-1.1, BH_MN12_2.0-2.1, VW_MN02_0.5-0.6, VW_MN02_2.0-2.1, QA501A	**02-Jun-2019**	**12-Jun-2019**	29-Nov-2019	✓	**12-Jun-2019**	22-Jul-2019	✓
Soil Glass Jar - Unpreserved (EP231X)							
QA500A	**01-Jun-2019**	**14-Jun-2019**	28-Nov-2019	✓	**14-Jun-2019**	24-Jul-2019	✓

Matrix: **SOIL**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE Soil Jar (EP231X) BH_MN04_0.4-0.6, BH_MN04_0.75-0.85, BH_MN04_0.95-1.05, BH_MN09_0.8-0.9, BH_MN09_2.0, VW_MN01_0.7-0.8, VW_MN01_0.9-1.1	**01-Jun-2019**	**12-Jun-2019**	28-Nov-2019	✓	**12-Jun-2019**	22-Jul-2019	✓
HDPE Soil Jar (EP231X) BH_MN03_0.75-0.85, BH_MN12_0.5-0.6, BH_MN12_1.0-1.1, BH_MN12_2.0-2.1, VW_MN02_0.5-0.6, VW_MN02_2.0-2.1, QA501A	**02-Jun-2019**	**12-Jun-2019**	29-Nov-2019	✓	**12-Jun-2019**	22-Jul-2019	✓
Soil Glass Jar - Unpreserved (EP231X) QA500A	**01-Jun-2019**	**14-Jun-2019**	28-Nov-2019	✓	**14-Jun-2019**	24-Jul-2019	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE Soil Jar (EP231X) BH_MN04_0.4-0.6, BH_MN04_0.75-0.85, BH_MN04_0.95-1.05, BH_MN09_0.8-0.9, BH_MN09_2.0, VW_MN01_0.7-0.8, VW_MN01_0.9-1.1	**01-Jun-2019**	**12-Jun-2019**	28-Nov-2019	✓	**12-Jun-2019**	22-Jul-2019	✓
HDPE Soil Jar (EP231X) BH_MN03_0.75-0.85, BH_MN12_0.5-0.6, BH_MN12_1.0-1.1, BH_MN12_2.0-2.1, VW_MN02_0.5-0.6, VW_MN02_2.0-2.1, QA501A	**02-Jun-2019**	**12-Jun-2019**	29-Nov-2019	✓	**12-Jun-2019**	22-Jul-2019	✓
Soil Glass Jar - Unpreserved (EP231X) QA500A	**01-Jun-2019**	**14-Jun-2019**	28-Nov-2019	✓	**14-Jun-2019**	24-Jul-2019	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE Soil Jar (EP231X) BH_MN04_0.4-0.6, BH_MN04_0.75-0.85, BH_MN04_0.95-1.05, BH_MN09_0.8-0.9, BH_MN09_2.0, VW_MN01_0.7-0.8, VW_MN01_0.9-1.1	**01-Jun-2019**	**12-Jun-2019**	28-Nov-2019	✓	**12-Jun-2019**	22-Jul-2019	✓
HDPE Soil Jar (EP231X) BH_MN03_0.75-0.85, BH_MN12_0.5-0.6, BH_MN12_1.0-1.1, BH_MN12_2.0-2.1, VW_MN02_0.5-0.6, VW_MN02_2.0-2.1, QA501A	**02-Jun-2019**	**12-Jun-2019**	29-Nov-2019	✓	**12-Jun-2019**	22-Jul-2019	✓
Soil Glass Jar - Unpreserved (EP231X) QA500A	**01-Jun-2019**	**14-Jun-2019**	28-Nov-2019	✓	**14-Jun-2019**	24-Jul-2019	✓

Matrix: **SOIL**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231P: PFAS Sums							
HDPE Soil Jar (EP231X) BH_MN04_0.4-0.6, BH_MN04_0.75-0.85, BH_MN04_0.95-1.05, BH_MN09_0.8-0.9, BH_MN09_2.0, VW_MN01_0.7-0.8, VW_MN01_0.9-1.1	**01-Jun-2019**	**12-Jun-2019**	28-Nov-2019	✓	**12-Jun-2019**	22-Jul-2019	✓
HDPE Soil Jar (EP231X) BH_MN03_0.75-0.85, BH_MN12_0.5-0.6, BH_MN12_1.0-1.1, BH_MN12_2.0-2.1, VW_MN02_0.5-0.6, VW_MN02_2.0-2.1, QA501A	**02-Jun-2019**	**12-Jun-2019**	29-Nov-2019	✓	**12-Jun-2019**	22-Jul-2019	✓
Soil Glass Jar - Unpreserved (EP231X) QA500A	**01-Jun-2019**	**14-Jun-2019**	28-Nov-2019	✓	**14-Jun-2019**	24-Jul-2019	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) Rinsate_BH_MN04	**01-Jun-2019**	**12-Jun-2019**	28-Nov-2019	✓	**12-Jun-2019**	28-Nov-2019	✓
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T) Rinsate_BH_MN04	**01-Jun-2019**	**----**	----	----	**14-Jun-2019**	29-Jun-2019	✓
EP066: Polychlorinated Biphenyls (PCB)							
Amber Glass Bottle - Unpreserved (EP066) Rinsate_BH_MN04	**01-Jun-2019**	**08-Jun-2019**	08-Jun-2019	✓	**08-Jun-2019**	18-Jul-2019	✓
EP068A: Organochlorine Pesticides (OC)							
Amber Glass Bottle - Unpreserved (EP068) Rinsate_BH_MN04	**01-Jun-2019**	**08-Jun-2019**	08-Jun-2019	✓	**08-Jun-2019**	18-Jul-2019	✓
EP068B: Organophosphorus Pesticides (OP)							
Amber Glass Bottle - Unpreserved (EP068) Rinsate_BH_MN04	**01-Jun-2019**	**08-Jun-2019**	08-Jun-2019	✓	**08-Jun-2019**	18-Jul-2019	✓
EP074A: Monocyclic Aromatic Hydrocarbons							
Amber VOC Vial - Sulfuric Acid (EP074) Rinsate_BH_MN04	**01-Jun-2019**	**13-Jun-2019**	15-Jun-2019	✓	**13-Jun-2019**	15-Jun-2019	✓
EP074B: Oxygenated Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) Rinsate_BH_MN04	**01-Jun-2019**	**13-Jun-2019**	15-Jun-2019	✓	**13-Jun-2019**	15-Jun-2019	✓
EP074C: Sulfonated Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) Rinsate_BH_MN04	**01-Jun-2019**	**13-Jun-2019**	15-Jun-2019	✓	**13-Jun-2019**	15-Jun-2019	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP074D: Fumigants							
Amber VOC Vial - Sulfuric Acid (EP074)							
Rinsate_BH_MN04	**01-Jun-2019**	**13-Jun-2019**	15-Jun-2019	✓	**13-Jun-2019**	15-Jun-2019	✓
EP074E: Halogenated Aliphatic Compounds							
Amber VOC Vial - Sulfuric Acid (EP074)							
Rinsate_BH_MN04	**01-Jun-2019**	**13-Jun-2019**	15-Jun-2019	✓	**13-Jun-2019**	15-Jun-2019	✓
EP074F: Halogenated Aromatic Compounds							
Amber VOC Vial - Sulfuric Acid (EP074)							
Rinsate_BH_MN04	**01-Jun-2019**	**13-Jun-2019**	15-Jun-2019	✓	**13-Jun-2019**	15-Jun-2019	✓
EP074G: Trihalomethanes							
Amber VOC Vial - Sulfuric Acid (EP074)							
Rinsate_BH_MN04	**01-Jun-2019**	**13-Jun-2019**	15-Jun-2019	✓	**13-Jun-2019**	15-Jun-2019	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM))							
Rinsate_BH_MN04	**01-Jun-2019**	**08-Jun-2019**	08-Jun-2019	✓	**11-Jun-2019**	18-Jul-2019	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071)							
Rinsate_BH_MN04	**01-Jun-2019**	**08-Jun-2019**	08-Jun-2019	✓	**08-Jun-2019**	18-Jul-2019	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
Rinsate_BH_MN04	**01-Jun-2019**	**13-Jun-2019**	15-Jun-2019	✓	**13-Jun-2019**	15-Jun-2019	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071)							
Rinsate_BH_MN04	**01-Jun-2019**	**08-Jun-2019**	08-Jun-2019	✓	**08-Jun-2019**	18-Jul-2019	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
Rinsate_BH_MN04	**01-Jun-2019**	**13-Jun-2019**	15-Jun-2019	✓	**13-Jun-2019**	15-Jun-2019	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080)							
Rinsate_BH_MN04	**01-Jun-2019**	**13-Jun-2019**	15-Jun-2019	✓	**13-Jun-2019**	15-Jun-2019	✓
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
Rinsate_BH_MN04	**01-Jun-2019**	**12-Jun-2019**	28-Nov-2019	✓	**12-Jun-2019**	28-Nov-2019	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X)							
Rinsate_BH_MN04	**01-Jun-2019**	**12-Jun-2019**	28-Nov-2019	✓	**12-Jun-2019**	28-Nov-2019	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X)							
Rinsate_BH_MN04	**01-Jun-2019**	**12-Jun-2019**	28-Nov-2019	✓	**12-Jun-2019**	28-Nov-2019	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
Rinsate_BH_MN04	**01-Jun-2019**	**12-Jun-2019**	28-Nov-2019	✓	**12-Jun-2019**	28-Nov-2019	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X)							
Rinsate_BH_MN04	**01-Jun-2019**	**12-Jun-2019**	28-Nov-2019	✓	**12-Jun-2019**	28-Nov-2019	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	4	35	**11.43**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	4	34	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	3	20	**15.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	4	30	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	4	30	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	4	36	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	4	35	**11.43**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phenol By Discrete Analyser	EP035G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	4	35	**11.43**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	6	59	**10.17**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	4	34	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	2	34	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	20	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	2	30	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	2	30	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	36	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	35	**5.71**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phenol By Discrete Analyser	EP035G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	35	**5.71**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	3	59	**5.08**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	2	34	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	2	34	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	20	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	2	30	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	2	30	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	36	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	35	**5.71**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phenol By Discrete Analyser	EP035G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	35	**5.71**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	3	59	**5.08**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	2	34	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	2	34	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	20	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Matrix Spikes (MS) - Continued							
Pesticides by GCMS	EP068	2	30	6.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	2	30	6.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	36	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	35	5.71	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Phenol By Discrete Analyser	EP035G	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	35	5.71	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	3	59	5.08	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	2	34	5.88	5.00	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	13	0.00	10.00	×	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	8	0.00	10.00	×	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	13	0.00	10.00	×	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	19	10.53	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	11	18.18	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	14	0.00	10.00	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	2	16	12.50	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	13	7.69	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	8	12.50	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	13	7.69	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	11	9.09	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	14	7.14	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	16	6.25	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	13	7.69	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	8	12.50	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	13	7.69	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	11	9.09	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	14	7.14	5.00	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Method Blanks (MB) - Continued							
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	13	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	8	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	13	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	14	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	16	**6.25**	**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 (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Asbestos Identification in Soils	EA200	SOIL	AS 4964 - 2004 Method for the qualitative identification of asbestos in bulk samples Analysis by Polarised Light Microscopy including dispersion staining
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 (2013) 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 (2013) Schedule B(3)
Total Phenol By Discrete Analyser	EP035G	SOIL	In house: Referenced to APHA 5530 B&D Steam distillable Phenols are reacted with 4-aminoantipyrine. The resultant colour intensity is measured by Seal
Polychlorinated Biphenyls (PCB)	EP066	SOIL	In house: Referenced to USEPA SW 846 - 8270D 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 (2013) Schedule B(3) (Method 504)
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270D 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 (2013) Schedule B(3) (Method 504,505)
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM amended 2013.
Volatile Organic Compounds	EP074	SOIL	In house: Referenced to USEPA SW 846 - 8260B Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270D. 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 (2013) Schedule B(3) (Method 502 and 507)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260B. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM amended 2013.

Analytical Methods	Method	Matrix	Method Descriptions
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	SOIL	In-House. A portion of soil is extracted with MTBE. The extract is taken to dryness, made up in mobile phase. Analysis is by LC/MSMS, ESI Negative Mode using MRM. Where commercially available, isotopically labelled analogues of the target analytes are used as internal standards for quantification. Where a labelled analogue is not commercially available, the internal standard with similar chemistry and the closest retention time to the target is used for quantification. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. This method complies with the quality control definitions as stated in QSM 5.1. Data is reviewed in line with the DQOs as stated in QSM5.1
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	WATER	In house: Referenced to USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Pesticides by GCMS	EP068	WATER	In house: Referenced to USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)
Volatile Organic Compounds	EP074	WATER	In house: Referenced to USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	In house: Referenced to USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)

Analytical Methods	Method	Matrix	Method Descriptions
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In house: Direct injection analysis of fresh waters after dilution (1:1) with methanol. Analysis by LC-Electrospray-MS-MS, Negative Mode using MRM. Where commercially available, isotopically labelled analogues of the target analytes are used as internal standards for quantification. Where a labelled analogue is not commercially available, the internal standard with similar chemistry and the closest retention time to the target is used for quantification. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. This method complies with the quality control definitions as stated in QSM 5.1. Data is reviewed in line with the DQOs as stated in QSM5.1

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 (2013) Schedule B(3) (Method 202)
Phenols After Microdistillation	EP035D	SOIL	In house: Referenced to APHA 5530 A, B&D. pH adjusted Steam distillable Phenolic compounds. The resultant colour intensity is measured by Discrete Analyser.
Sample Extraction for PFAS	EP231-PR	SOIL	In house
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.
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
Preparation for PFAS in water.	EP231-PR	WATER	Method presumes direct injection without workup. Preparation includes addition of internal standard and surrogate, and filtration prior to anaylsis.
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.

GOLDER Golder Associates

	1791865		ALS
	Marrickville		SY-698-17 C V4
	Golder-Douglas		PCOC63

24hrs ☐ 48hrs ☐ Standard ■
36hrs ☐ 6 Days ☐ Date Required By:
HARD ☐ DISK ☐ EMAIL ■ BULLETIN BOARD ☐
PDF ■ EXCEL ■ ESDAT ■

GOLDER ASSOCIATES PTY LTD
124 Pacific Highway, Greenwich
Project Manager: Ben Seaford
Job Contact: Barry Houston
Phone: : (02) 9478 2900
Fax: : (02) 9478 2901
Reviewed:
Phone: 0416 828 175 Email: bhouston@golder.com.au

Comments/Special Instructions:

Include PCOC63 on SRN

ES1917591

ESDAT format results please
Please freeze ASS sample bags on ASAP.

Thanks!

ANALYSIS REQUIRED

LAB ID	SAMPLE ID	SAMPLE TIME	SAMPLE DATE	SAMPLE TYPE	SAMPLE MATRIX	No CONTAINERS	Level of Contamination (Low/High/Unknown)	Asbestos (presence / absence)	Soils suite (TRH C6-C40, BTEXN, PAHs, PCBs/OCPs/OPPs, 8 heavy metals (As, Cd, Cr, Cu, Ni, Pb, Hg, Zn, total phenols, VOCs)	PFAS	BTEXN	Soils suite (TRH C6-C40, BTEXN, PAHs, PCBs/OCPs/OPPs, 8 heavy metals (As, Cd, Cr, Cu, Ni, Pb, Hg, Zn, VOCs)	ON HOLD
	BH_MN03_0.25		2/06/2019	DS	Soil	1 jar, 1 pfas jar, 1 asb ID bag	U	X	X				
	BH_MN03_0.5		2/06/2019	DS	Soil	1 jar, 1 pfas jar, 1 asb ID bag	U						X
	BH_MN03_0.75-0.85		2/06/2019	DS	Soil	1 jar, 1 pfas jar, 1 asb ID bag	U	X	X	X			
	BH_MN03_1.0-1.1		2/06/2019	DS	Soil	1 jar, 1 pfas jar, 1 asb ID bag	U						X
	BH_MN03_1.3-1.4		2/06/2019	DS	Soil	1 jar, 1 pfas jar, 1 asb ID bag	U					X	
	BH_MN03_2.0-2.1		2/06/2019	DS	Soil	1 jar, 1 pfas jar, 1 asb ID bag	U						X
	BH_MN03_2.9-3.0		2/06/2019	DS	Soil	1 jar, 1 pfas jar, 1 asb ID bag	U					X	
	BH_MN04_0.4-0.6		1/06/2019	DS	Soil	1 jar, 1 pfas jar, 1 asb ID bag	U	X	X	X			
	BH_MN04_0.75-0.85		1/06/2019	DS	Soil	1 jar, 1 pfas jar, 1 asb ID bag	U	X	X	X			
	BH_MN04_0.95-1.05		1/06/2019	DS	Soil	1 jar, 1 pfas jar, 1 asb ID bag	U		X	X			
	BH_MN04_2.0-2.2		1/06/2019	DS	Soil	1 jar, 1 pfas jar, 1 asb ID bag	U					X	
	BH_MN04_2.8-3.0		1/06/2019	DS	Soil	1 jar, 1 pfas jar, 1 asb ID bag	U					X	
	BH_MN09_0.8-0.9		1/06/2019	DS	Soil	1 jar, 1 pfas jar, 1 asb ID bag	U	X	X	X			
	BH_MN09_1.0-1.1		1/06/2019	DS	Soil	1 jar, 1 pfas jar, 1 asb ID bag	U						X
	BH_MN09_2.0		1/06/2019	DS	Soil	1 jar, 1 pfas jar, 1 asb ID bag	U			X		X	
	BH_MN09_3.0		1/06/2019	DS	Soil	1 jar, 1 pfas jar, 1 asb ID bag	U					X	
	BH_MN12_0.5-0.6		2/06/2019	DS	Soil	1 jar, 1 pfas jar, 1 asb ID bag	U	X	X	X			
	BH_MN12_0.75-0.85		2/06/2019	DS	Soil	1 jar, 1 pfas jar, 1 asb ID bag	U						X
	BH_MN12_1.0-1.1		2/06/2019	DS	Soil	1 jar, 1 pfas jar, 1 asb ID bag	U	X	X	X			
	BH_MN12_2.0-2.1		2/06/2019	DS	Soil	1 jar, 1 pfas jar, 1 asb ID bag	U		X	X			
	BH_MN12_2.9-3.0		2/06/2019	DS	Soil	1 jar, 1 pfas jar, 1 asb ID bag	U					X	
	VW_MN01_0.7-0.8		1/06/2019	DS	Soil	1 jar, 1 pfas jar, 1 asb ID bag	U	X	X	X			
	VW_MN01_0.9-1.1		1/06/2019	DS	Soil	1 jar, 1 pfas jar, 1 asb ID bag	U		X	X			
	VW_MN02_0.5-0.6		2/06/2019	DS	Soil	1 jar, 1 pfas jar, 1 asb ID bag	U	X	X	X			
	VW_MN02_0.75-0.95		2/06/2019	DS	Soil	1 jar, 1 pfas jar, 1 asb ID bag	U	X	X				
	VW_MN02_1.0-1.1		2/06/2019	DS	Soil	1 jar, 1 pfas jar, 1 asb ID bag	U		X				
	VW_MN02_2.0-2.1		2/06/2019	DS	Soil	1 jar, 1 pfas jar, 1 asb ID bag	U			X		X	
	VW_MN02_3.0-3.1		2/06/2019	DS	Soil	1 jar, 1 pfas jar, 1 asb ID bag	U					X	
	VW_MN02_4.0-4.1		2/06/2019	DS	Soil	1 jar, 1 pfas jar, 1 asb ID bag	U					X	
	QA500A		1/06/2019	DS	Soil		U	X	X	X			
	QC501A		2/06/2019	DS	Soil		U	X	X	X			
	Trip blank				Soil	1 x jar	L				X		
	Trip spike				Soil	1 x jar	L				X		
	Trip blank				Soil	1 x jar	L				X		
	Trip spike				Soil	1 x jar	L				X		
	Rinsate_BH_MN04		1/06/2019	W	Water		L		X	X			
	Rinsate		2/06/2019	W	Water		L		X	X			

Environmental Division
Sydney
Work Order Reference
ES1917591

Telephone : +61-2-8784 8555

SAMPLE MATRIX = Soil/Sediment/Fill/Water/Other
SAMPLE TYPE = Composite(C)/Discrete(DC)/Disturbed(DS)/Core(CR), Grab Sample (GS)
HIGH CONCENTRATION: circle expected parameters in analysis bar

	SIGNATURE	COMPANY	DATE	TIME
RELEASED BY	Lisa Teng	Golder-Douglas	7/06/2019	12:00
RECEIVED BY				
RELEASED BY				
RECEIVED BY				
RELEASED BY				
RECEIVED BY				

	SIGNATURE	COMPANY	DATE	TIME	Method of Shipment
RELEASED BY					Shipping Ref:
RECEIVED BY					

For Laboratory Use Only (Analysing Laboratory)

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **ES1918532**	Page	: 1 of 20
Client	: **GOLDER ASSOCIATES**	Laboratory	: Environmental Division Sydney
Contact	: MR BARRY HOUSTON	Contact	: Customer Services ES
Address	: LEVEL 1, 124 PACIFIC HIGHWAY ST LEONARDS NSW, AUSTRALIA 2065	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 9478 3900	Telephone	: +61-2-8784 8555
Project	: 1791865	Date Samples Received	: 17-Jun-2019 14:20
Order number	: PCOC65	Date Analysis Commenced	: 21-Jun-2019
C-O-C number	: ----	Issue Date	: 26-Jun-2019 17:05
Sampler	: GOLDER-DOUGLAS		
Site	: Marrickville		
Quote number	: SY/698/17 C V4		
No. of samples received	: 12		
No. of samples analysed	: 10		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
Alana Smylie	Asbestos Identifier	Newcastle - Asbestos, Mayfield West, NSW
Ankit Joshi	Inorganic Chemist	Sydney Inorganics, Smithfield, NSW
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Franco Lentini		Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by 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.
- EP231X: Surrogate recovery bias low due to sample matrix interferences, confirmed by re-extraction and re-analysis .
- EP080: The trip spike and its control have been analysed for volatile TPH and BTEX only. The trip spike and control were prepared in the lab using reagent grade sand spiked with petrol. The spike was dispatched from the lab and the control retained.
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Trace' - Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EA200 Legend
- EA200 'Ch' Chrysotile (white asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EA200: Negative results for vinyl tiles should be confirmed by an independent analytical technique.
- EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2
- EA200: 'Yes' - Asbestos detected by polarised light microscopy including dispersion staining.
- EA200: 'No*' - No asbestos found, at the reporting limit of 0.1g/kg, by polarised light microscopy including dispersion staining. Asbestos material was detected and positively identified at concentrations estimated to be below 0.1g/kg.
- EA200: 'No' - No asbestos found at the reporting limit 0.1g/kg, by polarised light microscopy including dispersion staining.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH_MN06_0.25-0.35	BH_MN06_0.5-0.6	BH_MN11_0.25-0.35	BH_MN13_0.25-0.35	BH_MN13_0.4-0.5
				Client sampling date / time	11-Jun-2019 00:00	11-Jun-2019 00:00	11-Jun-2019 00:00	11-Jun-2019 00:00	11-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1918532-001	ES1918532-002	ES1918532-003	ES1918532-004	ES1918532-005
					Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		----	13.6	11.4	----	12.2
EA200: AS 4964 - 2004 Identification of Asbestos in Soils									
Asbestos Detected	1332-21-4	0.1	g/kg		No	No	No	No	No
Asbestos (Trace)	1332-21-4	5	Fibres		No	No	No	No	No
Asbestos Type	1332-21-4	-	--		-	-	-	-	-
Sample weight (dry)	----	0.01	g		120	81.9	52.7	153	112
APPROVED IDENTIFIER:	----	-	--		A. SMYLIE	A. SMYLIE	A. SMYLIE	A. SMYLIE	A. SMYLIE
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		----	8	7	----	6
Cadmium	7440-43-9	1	mg/kg		----	1	<1	----	<1
Chromium	7440-47-3	2	mg/kg		----	16	26	----	19
Copper	7440-50-8	5	mg/kg		----	66	26	----	12
Lead	7439-92-1	5	mg/kg		----	1300	92	----	31
Nickel	7440-02-0	2	mg/kg		----	10	30	----	4
Zinc	7440-66-6	5	mg/kg		----	1020	130	----	45
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		----	0.4	0.1	----	<0.1
EP035G: Total Phenol by Discrete Analyser									
Phenols (Total)	----	1	mg/kg		----	<1	<1	----	<1
EP066: Polychlorinated Biphenyls (PCB)									
Total Polychlorinated biphenyls	----	0.1	mg/kg		----	<0.1	<0.1	----	<0.1
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		----	<0.05	<0.05	----	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		----	<0.05	<0.05	----	<0.05
beta-BHC	319-85-7	0.05	mg/kg		----	<0.05	<0.05	----	<0.05
gamma-BHC	58-89-9	0.05	mg/kg		----	<0.05	<0.05	----	<0.05
delta-BHC	319-86-8	0.05	mg/kg		----	<0.05	<0.05	----	<0.05
Heptachlor	76-44-8	0.05	mg/kg		----	<0.05	<0.05	----	<0.05
Aldrin	309-00-2	0.05	mg/kg		----	<0.05	<0.05	----	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg		----	<0.05	<0.05	----	<0.05
^ Total Chlordane (sum)	----	0.05	mg/kg		----	<0.05	<0.05	----	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg		----	<0.05	<0.05	----	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg		----	<0.05	<0.05	----	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg		----	<0.05	<0.05	----	<0.05

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH_MN06_0.25-0.35	BH_MN06_0.5-0.6	BH_MN11_0.25-0.35	BH_MN13_0.25-0.35	BH_MN13_0.4-0.5
				Client sampling date / time	11-Jun-2019 00:00	11-Jun-2019 00:00	11-Jun-2019 00:00	11-Jun-2019 00:00	11-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1918532-001	ES1918532-002	ES1918532-003	ES1918532-004	ES1918532-005
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
Dieldrin	60-57-1	0.05	mg/kg		----	**1.70**	**0.16**	----	<0.05
4.4`-DDE	72-55-9	0.05	mg/kg		----	<0.05	<0.05	----	<0.05
Endrin	72-20-8	0.05	mg/kg		----	<0.05	<0.05	----	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg		----	<0.05	<0.05	----	<0.05
^ **Endosulfan (sum)**	115-29-7	0.05	mg/kg		----	<0.05	<0.05	----	<0.05
4.4`-DDD	72-54-8	0.05	mg/kg		----	<0.05	<0.05	----	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg		----	<0.05	<0.05	----	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg		----	<0.05	<0.05	----	<0.05
4.4`-DDT	50-29-3	0.2	mg/kg		----	<0.2	<0.2	----	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg		----	<0.05	<0.05	----	<0.05
Methoxychlor	72-43-5	0.2	mg/kg		----	<0.2	<0.2	----	<0.2
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.05	mg/kg		----	**1.70**	**0.16**	----	<0.05
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.05	mg/kg		----	<0.05	<0.05	----	<0.05
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		----	<0.05	<0.05	----	<0.05
Demeton-S-methyl	919-86-8	0.05	mg/kg		----	<0.05	<0.05	----	<0.05
Monocrotophos	6923-22-4	0.2	mg/kg		----	<0.2	<0.2	----	<0.2
Dimethoate	60-51-5	0.05	mg/kg		----	<0.05	<0.05	----	<0.05
Diazinon	333-41-5	0.05	mg/kg		----	<0.05	<0.05	----	<0.05
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		----	<0.05	<0.05	----	<0.05
Parathion-methyl	298-00-0	0.2	mg/kg		----	<0.2	<0.2	----	<0.2
Malathion	121-75-5	0.05	mg/kg		----	<0.05	<0.05	----	<0.05
Fenthion	55-38-9	0.05	mg/kg		----	<0.05	<0.05	----	<0.05
Chlorpyrifos	2921-88-2	0.05	mg/kg		----	<0.05	<0.05	----	<0.05
Parathion	56-38-2	0.2	mg/kg		----	<0.2	<0.2	----	<0.2
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		----	<0.05	<0.05	----	<0.05
Chlorfenvinphos	470-90-6	0.05	mg/kg		----	<0.05	<0.05	----	<0.05
Bromophos-ethyl	4824-78-6	0.05	mg/kg		----	<0.05	<0.05	----	<0.05
Fenamiphos	22224-92-6	0.05	mg/kg		----	<0.05	<0.05	----	<0.05
Prothiofos	34643-46-4	0.05	mg/kg		----	<0.05	<0.05	----	<0.05
Ethion	563-12-2	0.05	mg/kg		----	<0.05	<0.05	----	<0.05
Carbophenothion	786-19-6	0.05	mg/kg		----	<0.05	<0.05	----	<0.05
Azinphos Methyl	86-50-0	0.05	mg/kg		----	<0.05	<0.05	----	<0.05
EP074A: Monocyclic Aromatic Hydrocarbons									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH_MN06_0.25-0.35	BH_MN06_0.5-0.6	BH_MN11_0.25-0.35	BH_MN13_0.25-0.35	BH_MN13_0.4-0.5
				Client sampling date / time	11-Jun-2019 00:00	11-Jun-2019 00:00	11-Jun-2019 00:00	11-Jun-2019 00:00	11-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1918532-001	ES1918532-002	ES1918532-003	ES1918532-004	ES1918532-005
					Result	Result	Result	Result	Result
EP074A: Monocyclic Aromatic Hydrocarbons - Continued									
Benzene	71-43-2	0.2	mg/kg		----	<0.2	<0.2	----	<0.2
Toluene	108-88-3	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
Styrene	100-42-5	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
Isopropylbenzene	98-82-8	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
n-Propylbenzene	103-65-1	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
sec-Butylbenzene	135-98-8	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
tert-Butylbenzene	98-06-6	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
p-Isopropyltoluene	99-87-6	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
n-Butylbenzene	104-51-8	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
EP074B: Oxygenated Compounds									
Vinyl Acetate	108-05-4	5	mg/kg		----	<5	<5	----	<5
2-Butanone (MEK)	78-93-3	5	mg/kg		----	<5	<5	----	<5
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg		----	<5	<5	----	<5
2-Hexanone (MBK)	591-78-6	5	mg/kg		----	<5	<5	----	<5
EP074C: Sulfonated Compounds									
Carbon disulfide	75-15-0	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
EP074D: Fumigants									
2.2-Dichloropropane	594-20-7	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
1.2-Dichloropropane	78-87-5	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
EP074E: Halogenated Aliphatic Compounds									
Dichlorodifluoromethane	75-71-8	5	mg/kg		----	<5	<5	----	<5
Chloromethane	74-87-3	5	mg/kg		----	<5	<5	----	<5
Vinyl chloride	75-01-4	5	mg/kg		----	<5	<5	----	<5
Bromomethane	74-83-9	5	mg/kg		----	<5	<5	----	<5
Chloroethane	75-00-3	5	mg/kg		----	<5	<5	----	<5
Trichlorofluoromethane	75-69-4	5	mg/kg		----	<5	<5	----	<5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH_MN06_0.25-0.35	BH_MN06_0.5-0.6	BH_MN11_0.25-0.35	BH_MN13_0.25-0.35	BH_MN13_0.4-0.5
				Client sampling date / time	11-Jun-2019 00:00	11-Jun-2019 00:00	11-Jun-2019 00:00	11-Jun-2019 00:00	11-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1918532-001	ES1918532-002	ES1918532-003	ES1918532-004	ES1918532-005
					Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds - Continued									
1.1-Dichloroethene	75-35-4	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
Iodomethane	74-88-4	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
1.1-Dichloroethane	75-34-3	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
1.1-Dichloropropylene	563-58-6	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
Carbon Tetrachloride	56-23-5	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
1.2-Dichloroethane	107-06-2	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
Trichloroethene	79-01-6	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
Dibromomethane	74-95-3	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
1.3-Dichloropropane	142-28-9	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
Tetrachloroethene	127-18-4	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
Pentachloroethane	76-01-7	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
Hexachlorobutadiene	87-68-3	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
EP074F: Halogenated Aromatic Compounds									
Chlorobenzene	108-90-7	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
Bromobenzene	108-86-1	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
2-Chlorotoluene	95-49-8	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
4-Chlorotoluene	106-43-4	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
EP074G: Trihalomethanes									
Chloroform	67-66-3	0.5	mg/kg		----	<0.5	<0.5	----	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH_MN06_0.25-0.35	BH_MN06_0.5-0.6	BH_MN11_0.25-0.35	BH_MN13_0.25-0.35	BH_MN13_0.4-0.5
				Client sampling date / time	11-Jun-2019 00:00	11-Jun-2019 00:00	11-Jun-2019 00:00	11-Jun-2019 00:00	11-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1918532-001	ES1918532-002	ES1918532-003	ES1918532-004	ES1918532-005
					Result	Result	Result	Result	Result
EP074G: Trihalomethanes - Continued									
Bromodichloromethane	75-27-4	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
Dibromochloromethane	124-48-1	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
Bromoform	75-25-2	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
EP074H: Naphthalene									
Naphthalene	91-20-3	1	mg/kg		----	<1	<1	----	<1
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		----	**0.9**	<0.5	----	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
Fluorene	86-73-7	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		----	**3.9**	**0.7**	----	**2.6**
Anthracene	120-12-7	0.5	mg/kg		----	**0.9**	<0.5	----	**0.6**
Fluoranthene	206-44-0	0.5	mg/kg		----	**8.4**	**1.3**	----	**4.3**
Pyrene	129-00-0	0.5	mg/kg		----	**8.0**	**1.2**	----	**4.0**
Benz(a)anthracene	56-55-3	0.5	mg/kg		----	**4.4**	**0.6**	----	**2.0**
Chrysene	218-01-9	0.5	mg/kg		----	**4.0**	**0.6**	----	**1.8**
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		----	**5.3**	**0.7**	----	**2.5**
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		----	**1.9**	<0.5	----	**1.1**
Benzo(a)pyrene	50-32-8	0.5	mg/kg		----	**4.8**	**0.6**	----	**2.1**
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		----	**2.5**	<0.5	----	**1.0**
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		----	**0.6**	<0.5	----	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		----	**3.1**	<0.5	----	**1.2**
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		----	**48.7**	**5.7**	----	**23.2**
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		----	**6.9**	**0.7**	----	**2.8**
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		----	**6.9**	**1.0**	----	**3.0**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		----	**6.9**	**1.3**	----	**3.3**
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		----	<10	<10	----	<10
C10 - C14 Fraction	----	50	mg/kg		----	<50	<50	----	<50
C15 - C28 Fraction	----	100	mg/kg		----	**140**	<100	----	<100
C29 - C36 Fraction	----	100	mg/kg		----	**110**	<100	----	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		----	**250**	<50	----	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		----	<10	<10	----	<10

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH_MN06_0.25-0.35	BH_MN06_0.5-0.6	BH_MN11_0.25-0.35	BH_MN13_0.25-0.35	BH_MN13_0.4-0.5
				Client sampling date / time	11-Jun-2019 00:00	11-Jun-2019 00:00	11-Jun-2019 00:00	11-Jun-2019 00:00	11-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1918532-001	ES1918532-002	ES1918532-003	ES1918532-004	ES1918532-005
					Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg		----	<10	<10	----	<10
>C10 - C16 Fraction	----	50	mg/kg		----	<50	<50	----	<50
>C16 - C34 Fraction	----	100	mg/kg		----	**210**	<100	----	<100
>C34 - C40 Fraction	----	100	mg/kg		----	<100	<100	----	<100
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		----	**210**	<50	----	<50
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	50	mg/kg		----	<50	<50	----	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		----	<0.2	<0.2	----	<0.2
Toluene	108-88-3	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
^ **Sum of BTEX**	----	0.2	mg/kg		----	<0.2	<0.2	----	<0.2
^ **Total Xylenes**	----	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
Naphthalene	91-20-3	1	mg/kg		----	<1	<1	----	<1
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		----	<0.0002	<0.0002	----	<0.0002
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg		----	<0.0002	<0.0002	----	<0.0002
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		----	**0.0002**	<0.0002	----	<0.0002
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg		----	<0.0002	<0.0002	----	<0.0002
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		----	**0.0008**	<0.0002	----	<0.0002
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg		----	<0.0002	<0.0002	----	<0.0002
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		----	<0.001	<0.001	----	<0.001
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		----	<0.0002	<0.0002	----	<0.0002
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		----	<0.0002	<0.0002	----	<0.0002
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		----	<0.0002	<0.0002	----	<0.0002

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH_MN06_0.25-0.35	BH_MN06_0.5-0.6	BH_MN11_0.25-0.35	BH_MN13_0.25-0.35	BH_MN13_0.4-0.5
				Client sampling date / time	11-Jun-2019 00:00	11-Jun-2019 00:00	11-Jun-2019 00:00	11-Jun-2019 00:00	11-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1918532-001	ES1918532-002	ES1918532-003	ES1918532-004	ES1918532-005
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		----	**0.0004**	<0.0002	----	<0.0002
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg		----	<0.0002	<0.0002	----	<0.0002
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg		----	<0.0002	<0.0002	----	<0.0002
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg		----	<0.0002	<0.0002	----	<0.0002
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg		----	<0.0002	<0.0002	----	<0.0002
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg		----	<0.0002	<0.0002	----	<0.0002
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg		----	<0.0005	<0.0005	----	<0.0005
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg		----	<0.0002	<0.0002	----	<0.0002
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg		----	<0.0005	<0.0005	----	<0.0005
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg		----	<0.0005	<0.0005	----	<0.0005
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg		----	<0.0005	<0.0005	----	<0.0005
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg		----	<0.0005	<0.0005	----	<0.0005
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg		----	<0.0002	<0.0002	----	<0.0002
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg		----	<0.0002	<0.0002	----	<0.0002
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		----	<0.0005	<0.0005	----	<0.0005
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		----	<0.0005	<0.0005	----	<0.0005
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		----	<0.0005	<0.0005	----	<0.0005

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH_MN06_0.25-0.35	BH_MN06_0.5-0.6	BH_MN11_0.25-0.35	BH_MN13_0.25-0.35	BH_MN13_0.4-0.5
				Client sampling date / time	11-Jun-2019 00:00	11-Jun-2019 00:00	11-Jun-2019 00:00	11-Jun-2019 00:00	11-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1918532-001	ES1918532-002	ES1918532-003	ES1918532-004	ES1918532-005
					Result	Result	Result	Result	Result
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		----	<0.0005	<0.0005	----	<0.0005
EP231P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg		----	**0.0014**	<0.0002	----	<0.0002
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		----	**0.0010**	<0.0002	----	<0.0002
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		----	**0.0014**	<0.0002	----	<0.0002
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		----	**105**	**104**	----	**107**
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		----	**66.9**	**81.2**	----	**93.6**
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		----	**72.2**	**67.7**	----	**78.2**
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.5	%		----	**99.2**	**101**	----	**106**
Toluene-D8	2037-26-5	0.5	%		----	**103**	**102**	----	**110**
4-Bromofluorobenzene	460-00-4	0.5	%		----	**98.8**	**97.3**	----	**104**
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		----	**86.3**	**77.1**	----	**76.8**
2-Chlorophenol-D4	93951-73-6	0.5	%		----	**91.5**	**84.2**	----	**83.4**
2.4.6-Tribromophenol	118-79-6	0.5	%		----	**87.2**	**63.6**	----	**76.0**
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		----	**111**	**96.8**	----	**101**
Anthracene-d10	1719-06-8	0.5	%		----	**99.1**	**86.6**	----	**91.4**
4-Terphenyl-d14	1718-51-0	0.5	%		----	**110**	**100.0**	----	**104**
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		----	**95.7**	**96.7**	----	**102**
Toluene-D8	2037-26-5	0.2	%		----	**100**	**99.4**	----	**107**
4-Bromofluorobenzene	460-00-4	0.2	%		----	**99.6**	**96.1**	----	**102**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		----	**93.0**	**65.0**	----	**91.5**
13C8-PFOA	----	0.0002	%		----	**80.0**	**61.5**	----	**81.0**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	QA502A	QA504A	Trip Blank	Trip Spike	Trip Spike Control
				Client sampling date / time	11-Jun-2019 00:00	11-Jun-2019 00:00	07-Jun-2019 00:00	04-Jun-2019 00:00	04-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1918532-006	ES1918532-008	ES1918532-009	ES1918532-010	ES1918532-012
					Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		15.0	19.2	----	----	----
EA200: AS 4964 - 2004 Identification of Asbestos in Soils									
Asbestos Detected	1332-21-4	0.1	g/kg		No	No	----	----	----
Asbestos (Trace)	1332-21-4	5	Fibres		No	No	----	----	----
Asbestos Type	1332-21-4	-	--		-	-	----	----	----
Sample weight (dry)	----	0.01	g		27.9	30.8	----	----	----
APPROVED IDENTIFIER:	----	-	--		A. SMYLIE	A. SMYLIE	----	----	----
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		9	9	----	----	----
Cadmium	7440-43-9	1	mg/kg		<1	<1	----	----	----
Chromium	7440-47-3	2	mg/kg		36	29	----	----	----
Copper	7440-50-8	5	mg/kg		36	12	----	----	----
Lead	7439-92-1	5	mg/kg		93	32	----	----	----
Nickel	7440-02-0	2	mg/kg		48	4	----	----	----
Zinc	7440-66-6	5	mg/kg		108	42	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		0.2	<0.1	----	----	----
EP035G: Total Phenol by Discrete Analyser									
Phenols (Total)	----	1	mg/kg		<1	<1	----	----	----
EP066: Polychlorinated Biphenyls (PCB)									
Total Polychlorinated biphenyls	----	0.1	mg/kg		<0.1	<0.1	----	----	----
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		<0.05	<0.05	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		<0.05	<0.05	----	----	----
beta-BHC	319-85-7	0.05	mg/kg		<0.05	<0.05	----	----	----
gamma-BHC	58-89-9	0.05	mg/kg		<0.05	<0.05	----	----	----
delta-BHC	319-86-8	0.05	mg/kg		<0.05	<0.05	----	----	----
Heptachlor	76-44-8	0.05	mg/kg		<0.05	<0.05	----	----	----
Aldrin	309-00-2	0.05	mg/kg		<0.05	<0.05	----	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg		<0.05	<0.05	----	----	----
^ Total Chlordane (sum)	----	0.05	mg/kg		<0.05	<0.05	----	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg		<0.05	<0.05	----	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg		<0.05	<0.05	----	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg		<0.05	<0.05	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	QA502A	QA504A	Trip Blank	Trip Spike	Trip Spike Control
				Client sampling date / time	11-Jun-2019 00:00	11-Jun-2019 00:00	07-Jun-2019 00:00	04-Jun-2019 00:00	04-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1918532-006	ES1918532-008	ES1918532-009	ES1918532-010	ES1918532-012
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
Dieldrin	60-57-1	0.05	mg/kg		**0.15**	<0.05	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	<0.05	----	----	----
Endrin	72-20-8	0.05	mg/kg		<0.05	<0.05	----	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	<0.05	----	----	----
^ **Endosulfan (sum)**	115-29-7	0.05	mg/kg		<0.05	<0.05	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	<0.05	----	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	<0.05	----	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	<0.05	----	----	----
4.4`-DDT	50-29-3	0.2	mg/kg		<0.2	<0.2	----	----	----
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	<0.05	----	----	----
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	<0.2	----	----	----
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.05	mg/kg		**0.15**	<0.05	----	----	----
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	<0.05	----	----	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		<0.05	<0.05	----	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg		<0.05	<0.05	----	----	----
Monocrotophos	6923-22-4	0.2	mg/kg		<0.2	<0.2	----	----	----
Dimethoate	60-51-5	0.05	mg/kg		<0.05	<0.05	----	----	----
Diazinon	333-41-5	0.05	mg/kg		<0.05	<0.05	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		<0.05	<0.05	----	----	----
Parathion-methyl	298-00-0	0.2	mg/kg		<0.2	<0.2	----	----	----
Malathion	121-75-5	0.05	mg/kg		<0.05	<0.05	----	----	----
Fenthion	55-38-9	0.05	mg/kg		<0.05	<0.05	----	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg		<0.05	<0.05	----	----	----
Parathion	56-38-2	0.2	mg/kg		<0.2	<0.2	----	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		<0.05	<0.05	----	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg		<0.05	<0.05	----	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg		<0.05	<0.05	----	----	----
Fenamiphos	22224-92-6	0.05	mg/kg		<0.05	<0.05	----	----	----
Prothiofos	34643-46-4	0.05	mg/kg		<0.05	<0.05	----	----	----
Ethion	563-12-2	0.05	mg/kg		<0.05	<0.05	----	----	----
Carbophenothion	786-19-6	0.05	mg/kg		<0.05	<0.05	----	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg		<0.05	<0.05	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	QA502A	QA504A	Trip Blank	Trip Spike	Trip Spike Control
				Client sampling date / time	11-Jun-2019 00:00	11-Jun-2019 00:00	07-Jun-2019 00:00	04-Jun-2019 00:00	04-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1918532-006	ES1918532-008	ES1918532-009	ES1918532-010	ES1918532-012
					Result	Result	Result	Result	Result
EP074A: Monocyclic Aromatic Hydrocarbons - Continued									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	----	----	----
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	----	----	----
Styrene	100-42-5	0.5	mg/kg		<0.5	<0.5	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	----	----	----
Isopropylbenzene	98-82-8	0.5	mg/kg		<0.5	<0.5	----	----	----
n-Propylbenzene	103-65-1	0.5	mg/kg		<0.5	<0.5	----	----	----
1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg		<0.5	<0.5	----	----	----
sec-Butylbenzene	135-98-8	0.5	mg/kg		<0.5	<0.5	----	----	----
1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg		<0.5	<0.5	----	----	----
tert-Butylbenzene	98-06-6	0.5	mg/kg		<0.5	<0.5	----	----	----
p-Isopropyltoluene	99-87-6	0.5	mg/kg		<0.5	<0.5	----	----	----
n-Butylbenzene	104-51-8	0.5	mg/kg		<0.5	<0.5	----	----	----
EP074B: Oxygenated Compounds									
Vinyl Acetate	108-05-4	5	mg/kg		<5	<5	----	----	----
2-Butanone (MEK)	78-93-3	5	mg/kg		<5	<5	----	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg		<5	<5	----	----	----
2-Hexanone (MBK)	591-78-6	5	mg/kg		<5	<5	----	----	----
EP074C: Sulfonated Compounds									
Carbon disulfide	75-15-0	0.5	mg/kg		<0.5	<0.5	----	----	----
EP074D: Fumigants									
2.2-Dichloropropane	594-20-7	0.5	mg/kg		<0.5	<0.5	----	----	----
1.2-Dichloropropane	78-87-5	0.5	mg/kg		<0.5	<0.5	----	----	----
cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg		<0.5	<0.5	----	----	----
trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg		<0.5	<0.5	----	----	----
1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg		<0.5	<0.5	----	----	----
EP074E: Halogenated Aliphatic Compounds									
Dichlorodifluoromethane	75-71-8	5	mg/kg		<5	<5	----	----	----
Chloromethane	74-87-3	5	mg/kg		<5	<5	----	----	----
Vinyl chloride	75-01-4	5	mg/kg		<5	<5	----	----	----
Bromomethane	74-83-9	5	mg/kg		<5	<5	----	----	----
Chloroethane	75-00-3	5	mg/kg		<5	<5	----	----	----
Trichlorofluoromethane	75-69-4	5	mg/kg		<5	<5	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	QA502A	QA504A	Trip Blank	Trip Spike	Trip Spike Control
				Client sampling date / time	11-Jun-2019 00:00	11-Jun-2019 00:00	07-Jun-2019 00:00	04-Jun-2019 00:00	04-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1918532-006	ES1918532-008	ES1918532-009	ES1918532-010	ES1918532-012
					Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds - Continued									
1.1-Dichloroethene	75-35-4	0.5	mg/kg		<0.5	<0.5	----	----	----
Iodomethane	74-88-4	0.5	mg/kg		<0.5	<0.5	----	----	----
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg		<0.5	<0.5	----	----	----
1.1-Dichloroethane	75-34-3	0.5	mg/kg		<0.5	<0.5	----	----	----
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg		<0.5	<0.5	----	----	----
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg		<0.5	<0.5	----	----	----
1.1-Dichloropropylene	563-58-6	0.5	mg/kg		<0.5	<0.5	----	----	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg		<0.5	<0.5	----	----	----
1.2-Dichloroethane	107-06-2	0.5	mg/kg		<0.5	<0.5	----	----	----
Trichloroethene	79-01-6	0.5	mg/kg		<0.5	<0.5	----	----	----
Dibromomethane	74-95-3	0.5	mg/kg		<0.5	<0.5	----	----	----
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg		<0.5	<0.5	----	----	----
1.3-Dichloropropane	142-28-9	0.5	mg/kg		<0.5	<0.5	----	----	----
Tetrachloroethene	127-18-4	0.5	mg/kg		<0.5	<0.5	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg		<0.5	<0.5	----	----	----
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg		<0.5	<0.5	----	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg		<0.5	<0.5	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg		<0.5	<0.5	----	----	----
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg		<0.5	<0.5	----	----	----
Pentachloroethane	76-01-7	0.5	mg/kg		<0.5	<0.5	----	----	----
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg		<0.5	<0.5	----	----	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg		<0.5	<0.5	----	----	----
EP074F: Halogenated Aromatic Compounds									
Chlorobenzene	108-90-7	0.5	mg/kg		<0.5	<0.5	----	----	----
Bromobenzene	108-86-1	0.5	mg/kg		<0.5	<0.5	----	----	----
2-Chlorotoluene	95-49-8	0.5	mg/kg		<0.5	<0.5	----	----	----
4-Chlorotoluene	106-43-4	0.5	mg/kg		<0.5	<0.5	----	----	----
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg		<0.5	<0.5	----	----	----
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg		<0.5	<0.5	----	----	----
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg		<0.5	<0.5	----	----	----
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg		<0.5	<0.5	----	----	----
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg		<0.5	<0.5	----	----	----
EP074G: Trihalomethanes									
Chloroform	67-66-3	0.5	mg/kg		<0.5	<0.5	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	QA502A	QA504A	Trip Blank	Trip Spike	Trip Spike Control
				Client sampling date / time	11-Jun-2019 00:00	11-Jun-2019 00:00	07-Jun-2019 00:00	04-Jun-2019 00:00	04-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1918532-006	ES1918532-008	ES1918532-009	ES1918532-010	ES1918532-012
					Result	Result	Result	Result	Result
EP074G: Trihalomethanes - Continued									
Bromodichloromethane	75-27-4	0.5	mg/kg		<0.5	<0.5	----	----	----
Dibromochloromethane	124-48-1	0.5	mg/kg		<0.5	<0.5	----	----	----
Bromoform	75-25-2	0.5	mg/kg		<0.5	<0.5	----	----	----
EP074H: Naphthalene									
Naphthalene	91-20-3	1	mg/kg		<1	<1	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	----	----	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg		**0.9**	**0.7**	----	----	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg		**1.8**	**1.2**	----	----	----
Pyrene	129-00-0	0.5	mg/kg		**1.7**	**1.1**	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		**0.9**	**0.6**	----	----	----
Chrysene	218-01-9	0.5	mg/kg		**0.9**	**0.5**	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		**1.2**	**0.7**	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		**1.0**	**0.6**	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		**0.6**	<0.5	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		**9.0**	**5.4**	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		**1.2**	**0.7**	----	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**1.5**	**1.0**	----	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.8**	**1.3**	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	**95**	**100**
C10 - C14 Fraction	----	50	mg/kg		<50	<50	----	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	<100	----	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	<100	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	**110**	**116**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	QA502A	QA504A	Trip Blank	Trip Spike	Trip Spike Control
				Client sampling date / time	11-Jun-2019 00:00	11-Jun-2019 00:00	07-Jun-2019 00:00	04-Jun-2019 00:00	04-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1918532-006	ES1918532-008	ES1918532-009	ES1918532-010	ES1918532-012
					Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg		<10	<10	<10	**54**	**57**
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	----	----	----
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		<50	<50	----	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	50	mg/kg		<50	<50	----	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	**0.6**	**0.6**
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	**26.5**	**27.8**
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	**3.6**	**3.8**
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	**18.5**	**19.1**
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	**7.3**	**7.6**
^ **Sum of BTEX**	----	0.2	mg/kg		<0.2	<0.2	<0.2	**56.5**	**58.9**
^ **Total Xylenes**	----	0.5	mg/kg		<0.5	<0.5	<0.5	**25.8**	**26.7**
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		<0.001	<0.001	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		<0.0002	<0.0002	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	QA502A	QA504A	Trip Blank	Trip Spike	Trip Spike Control
				Client sampling date / time	11-Jun-2019 00:00	11-Jun-2019 00:00	07-Jun-2019 00:00	04-Jun-2019 00:00	04-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1918532-006	ES1918532-008	ES1918532-009	ES1918532-010	ES1918532-012
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg		<0.0005	<0.0005	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg		<0.0005	<0.0005	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg		<0.0005	<0.0005	----	----	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg		<0.0005	<0.0005	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg		<0.0005	<0.0005	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		<0.0005	<0.0005	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		<0.0005	<0.0005	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		<0.0005	<0.0005	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	QA502A	QA504A	Trip Blank	Trip Spike	Trip Spike Control
				Client sampling date / time	11-Jun-2019 00:00	11-Jun-2019 00:00	07-Jun-2019 00:00	04-Jun-2019 00:00	04-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1918532-006	ES1918532-008	ES1918532-009	ES1918532-010	ES1918532-012
					Result	Result	Result	Result	Result
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		<0.0005	<0.0005	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		110	107	----	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		87.6	89.0	----	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		71.6	82.4	----	----	----
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.5	%		108	103	----	----	----
Toluene-D8	2037-26-5	0.5	%		109	101	----	----	----
4-Bromofluorobenzene	460-00-4	0.5	%		102	99.6	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		74.0	76.9	----	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		78.3	82.9	----	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%		63.5	73.1	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		102	99.1	----	----	----
Anthracene-d10	1719-06-8	0.5	%		90.3	90.6	----	----	----
4-Terphenyl-d14	1718-51-0	0.5	%		104	104	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		104	99.4	104	98.0	100
Toluene-D8	2037-26-5	0.2	%		106	98.6	102	100	104
4-Bromofluorobenzene	460-00-4	0.2	%		99.7	98.8	100	97.3	102
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		37.5	77.5	----	----	----
13C8-PFOA	----	0.0002	%		60.5	79.0	----	----	----

Analytical Results

Descriptive Results

Sub-Matrix: **SOIL**

Method: Compound	Client sample ID - Client sampling date / time	Analytical Results
EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	BH_MN06_0.25-0.35 - 11-Jun-2019 00:00	Mid brown soil.
EA200: Description	BH_MN06_0.5-0.6 - 11-Jun-2019 00:00	Mid brown soil.
EA200: Description	BH_MN11_0.25-0.35 - 11-Jun-2019 00:00	Mid brown soil.
EA200: Description	BH_MN13_0.25-0.35 - 11-Jun-2019 00:00	Mid grey soil.
EA200: Description	BH_MN13_0.4-0.5 - 11-Jun-2019 00:00	Mid brown soil.
EA200: Description	QA502A - 11-Jun-2019 00:00	Mid brown soil.
EA200: Description	QA504A - 11-Jun-2019 00:00	Mid brown soil.

Surrogate Control Limits

Sub-Matrix: **SOIL**

Compound	CAS Number	Recovery Limits (%) 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
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	64	130
Toluene-D8	2037-26-5	66	136
4-Bromofluorobenzene	460-00-4	60	122
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	73	133
Toluene-D8	2037-26-5	74	132
4-Bromofluorobenzene	460-00-4	72	130
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

QUALITY CONTROL REPORT

Work Order	: **ES1918532**	Page	: 1 of 19
Client	: **GOLDER ASSOCIATES**	Laboratory	: Environmental Division Sydney
Contact	: MR BARRY HOUSTON	Contact	: Customer Services ES
Address	: LEVEL 1, 124 PACIFIC HIGHWAY ST LEONARDS NSW, AUSTRALIA 2065	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 9478 3900	Telephone	: +61-2-8784 8555
Project	: 1791865	Date Samples Received	: 17-Jun-2019
Order number	: PCOC65	Date Analysis Commenced	: 21-Jun-2019
C-O-C number	: ----	Issue Date	: 26-Jun-2019
Sampler	: GOLDER-DOUGLAS		
Site	: Marrickville		
Quote number	: SY/698/17 C V4		
No. of samples received	: 12		
No. of samples analysed	: 10		

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

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

This Quality Control Report contains the following information:

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
Alana Smylie	Asbestos Identifier	Newcastle - Asbestos, Mayfield West, NSW
Ankit Joshi	Inorganic Chemist	Sydney Inorganics, Smithfield, NSW
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Franco Lentini		Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by 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

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	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 2418656)									
ES1917963-002	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	23	24	0.00	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	10	10	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	9	10	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	70	67	3.96	0% - 50%
		EG005T: Lead	7439-92-1	5	mg/kg	49	49	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	233	232	0.484	0% - 20%
ES1918065-003	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	4	4	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	222	215	3.22	0% - 20%
		EG005T: Lead	7439-92-1	5	mg/kg	13	13	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	58	55	5.13	0% - 50%
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 2418659)									
ES1918532-005	BH_MN13_0.4-0.5	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	19	15	22.8	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	4	5	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	6	5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	12	15	22.7	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	31	29	7.69	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	45	55	20.9	0% - 50%
ES1918836-002	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	15	21	34.5	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	17	14	16.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 2418659) - continued									
ES1918836-002	Anonymous	EG005T: Arsenic	7440-38-2	5	mg/kg	5	6	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	30	26	11.5	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	62	63	1.93	0% - 50%
		EG005T: Zinc	7440-66-6	5	mg/kg	128	111	14.4	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 2420047)									
EM1909558-023	Anonymous	EA055: Moisture Content	----	0.1	%	24.9	24.3	2.13	0% - 20%
ES1918828-005	Anonymous	EA055: Moisture Content	----	0.1	%	7.7	7.6	2.05	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 2418657)									
ES1917963-002	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
ES1918065-003	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 2418658)									
ES1918532-005	BH_MN13_0.4-0.5	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
ES1918836-002	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP035G: Total Phenol by Discrete Analyser (QC Lot: 2425531)									
EP1905984-001	Anonymous	EP035G: Phenols (Total)	----	1	mg/kg	<1	<1	0.00	No Limit
ES1918828-002	Anonymous	EP035G: Phenols (Total)	----	1	mg/kg	<1	<1	0.00	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 2417572)									
ES1918532-002	BH_MN06_0.5-0.6	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 2417573)									
ES1918532-002	BH_MN06_0.5-0.6	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	1.70	1.55	9.32	0% - 20%
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP068A: Organochlorine Pesticides (OC) (QC Lot: 2417573) - continued									
ES1918532-002	BH_MN06_0.5-0.6	EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 2417573)									
ES1918532-002	BH_MN06_0.5-0.6	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 2418440)									
ES1918532-002	BH_MN06_0.5-0.6	EP074: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP074: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP074B: Oxygenated Compounds (QC Lot: 2418440)									
ES1918532-002	BH_MN06_0.5-0.6	EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	0.00	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP074B: Oxygenated Compounds (QC Lot: 2418440) - continued									
ES1918532-002	BH_MN06_0.5-0.6	EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	0.00	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.00	No Limit
EP074C: Sulfonated Compounds (QC Lot: 2418440)									
ES1918532-002	BH_MN06_0.5-0.6	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP074D: Fumigants (QC Lot: 2418440)									
ES1918532-002	BH_MN06_0.5-0.6	EP074: 2.2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 2418440)									
ES1918532-002	BH_MN06_0.5-0.6	EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP074F: Halogenated Aromatic Compounds (QC Lot: 2418440)									
ES1918532-002	BH_MN06_0.5-0.6	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP074G: Trihalomethanes (QC Lot: 2418440)									
ES1918532-002	BH_MN06_0.5-0.6	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP074H: Naphthalene (QC Lot: 2418440)									
ES1918532-002	BH_MN06_0.5-0.6	EP074: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 2417574)									
EW1902612-002	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
ES1918532-002	BH_MN06_0.5-0.6	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	0.9	0.7	28.8	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 2417574) - continued									
ES1918532-002	BH_MN06_0.5-0.6	EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	3.9	3.8	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	0.9	0.9	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	8.4	8.1	3.93	0% - 50%
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	8.0	7.6	4.80	0% - 50%
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	4.4	4.6	4.13	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	4.0	4.1	3.74	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	5.3	5.0	4.56	0% - 50%
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	1.9	2.1	9.82	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	4.8	4.6	4.90	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	2.5	2.2	9.82	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	0.6	0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	3.1	2.9	4.86	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	48.7	47.1	3.34	0% - 20%
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	6.9	6.6	4.78	0% - 50%
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2417575)									
EW1902612-002	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
ES1918532-002	BH_MN06_0.5-0.6	EP071: C15 - C28 Fraction	----	100	mg/kg	140	140	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	110	100	11.5	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2418439)									
ES1918532-002	BH_MN06_0.5-0.6	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
ES1918920-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2417575)									
EW1902612-002	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
ES1918532-002	BH_MN06_0.5-0.6	EP071: >C16 - C34 Fraction	----	100	mg/kg	210	220	5.54	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2418439)									
ES1918532-002	BH_MN06_0.5-0.6	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
ES1918920-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EP080: BTEXN (QC Lot: 2418439)									
ES1918532-002	BH_MN06_0.5-0.6	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP080: BTEXN (QC Lot: 2418439) - continued									
ES1918532-002	BH_MN06_0.5-0.6	EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
ES1918920-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 2420731)									
EB1915905-001	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	0.0007	0.0006	18.7	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	0.0062	0.0057	8.44	0% - 20%
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
EM1909535-037	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	0.0002	0.0002	0.00	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	0.0065	0.0075	13.9	0% - 20%
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	0.0027	0.0026	0.00	0% - 50%
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 2420731)									
EB1915905-001	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.00	No Limit
EM1909535-037	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	0.0004	0.0004	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 2420731) - continued									
EM1909535-037	Anonymous	EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	0.0004	0.0005	27.3	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.00	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 2420731)									
EB1915905-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit
EM1909535-037	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 2420731)									
EB1915905-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 2420731) - continued									
EB1915905-001	Anonymous	EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit
EM1909535-037	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit

Method Blank (MB) and Laboratory Control Spike (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 Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 2418656)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	100	86	126
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	99.2	83	113
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	112	76	128
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	98.4	86	120
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	103	80	114
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	109	87	123
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	109	80	122
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 2418659)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	118	86	126
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	106	83	113
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	120	76	128
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	105	86	120
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	108	80	114
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	117	87	123
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	119	80	122
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2418657)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	82.5	70	105
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2418658)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	98.1	70	105
EP035G: Total Phenol by Discrete Analyser (QCLot: 2425531)								
EP035G: Phenols (Total)	----	1	mg/kg	<1	2.5 mg/kg	99.4	60	102
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 2417572)								
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	100.0	62	126
EP068A: Organochlorine Pesticides (OC) (QCLot: 2417573)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	89.5	69	113
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	87.8	65	117
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	83.6	67	119
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	94.8	68	116
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	88.4	65	117
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	81.8	67	115
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	90.1	69	115
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	85.9	62	118
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	83.6	63	117

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP068A: Organochlorine Pesticides (OC) (QCLot: 2417573) - continued								
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	91.8	66	116
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	82.1	64	116
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	84.2	66	116
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	99.6	67	115
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	78.4	67	123
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	87.9	69	115
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	88.1	69	121
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	82.6	56	120
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	83.0	62	124
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	77.3	66	120
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	78.2	64	122
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	75.1	54	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2417573)								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	95.7	59	119
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	91.6	62	128
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	103	54	126
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	87.5	67	119
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	96.6	70	120
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	92.4	72	120
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	87.1	68	120
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	91.7	68	122
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	87.8	69	117
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	91.2	76	118
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	104	64	122
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	85.1	70	116
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	89.0	69	121
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	85.0	66	118
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	104	68	124
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	87.6	62	112
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	83.0	68	120
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	81.5	65	127
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	85.3	41	123
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 2418440)								
EP074: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	103	71	121
EP074: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	106	65	131
EP074: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	107	72	114
EP074: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	106	70	116
EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	1 mg/kg	105	67	113

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 2418440) - continued								
EP074: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	107	75	115
EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	1 mg/kg	107	65	117
EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	1 mg/kg	104	66	122
EP074: 1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	1 mg/kg	107	68	118
EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	1 mg/kg	108	69	119
EP074: 1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	1 mg/kg	103	69	117
EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	1 mg/kg	106	69	115
EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	1 mg/kg	104	66	118
EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	1 mg/kg	103	59	125
EP074B: Oxygenated Compounds (QCLot: 2418440)								
EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	10 mg/kg	74.2	30	156
EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	10 mg/kg	103	58	136
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	10 mg/kg	106	62	132
EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	10 mg/kg	110	54	136
EP074C: Sulfonated Compounds (QCLot: 2418440)								
EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	1 mg/kg	79.1	54	126
EP074D: Fumigants (QCLot: 2418440)								
EP074: 2.2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	1 mg/kg	101	60	126
EP074: 1.2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	1 mg/kg	104	68	124
EP074: cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	1 mg/kg	97.8	51	119
EP074: trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	1 mg/kg	96.6	52	114
EP074: 1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	1 mg/kg	108	63	115
EP074E: Halogenated Aliphatic Compounds (QCLot: 2418440)								
EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	10 mg/kg	76.3	30	148
EP074: Chloromethane	74-87-3	5	mg/kg	<5	10 mg/kg	75.3	41	141
EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	10 mg/kg	86.4	43	147
EP074: Bromomethane	74-83-9	5	mg/kg	<5	10 mg/kg	81.6	47	141
EP074: Chloroethane	75-00-3	5	mg/kg	<5	10 mg/kg	91.8	49	143
EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	10 mg/kg	94.4	49	135
EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	93.0	54	126
EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	1 mg/kg	62.6	43	129
EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	1 mg/kg	95.8	64	120
EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	1 mg/kg	98.4	67	125
EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	1 mg/kg	103	69	121
EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	1 mg/kg	107	65	117
EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	1 mg/kg	106	65	123
EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	1 mg/kg	106	59	125
EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	1 mg/kg	104	65	125

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP074E: Halogenated Aliphatic Compounds (QCLot: 2418440) - continued								
EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	1 mg/kg	103	70	118
EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	1 mg/kg	104	68	118
EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	1 mg/kg	107	64	126
EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	1 mg/kg	108	68	122
EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	1 mg/kg	104	67	143
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	1 mg/kg	107	62	122
EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	1 mg/kg	103	54	128
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	1 mg/kg	104	55	129
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1 mg/kg	108	65	121
EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	1 mg/kg	110	61	125
EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	1 mg/kg	104	20	134
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	1 mg/kg	106	53	129
EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	1 mg/kg	107	50	128
EP074F: Halogenated Aromatic Compounds (QCLot: 2418440)								
EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1 mg/kg	106	68	116
EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	1 mg/kg	106	70	114
EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	1 mg/kg	105	68	122
EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	1 mg/kg	105	67	123
EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	1 mg/kg	103	70	116
EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1 mg/kg	102	67	117
EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	1 mg/kg	102	70	114
EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	1 mg/kg	98.4	48	122
EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	1 mg/kg	102	52	122
EP074G: Trihalomethanes (QCLot: 2418440)								
EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	1 mg/kg	99.8	66	124
EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	1 mg/kg	103	61	121
EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	1 mg/kg	102	63	121
EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	1 mg/kg	98.8	60	126
EP074H: Naphthalene (QCLot: 2418440)								
EP074: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	105	67	129
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2417574)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	107	77	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	96.0	72	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	94.9	73	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	102	72	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	106	75	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	104	77	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	106	73	127

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2417574) - continued								
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	105	74	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	103	69	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	108	75	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	99.2	68	116
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	110	74	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	107	70	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	102	61	121
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	99.8	62	118
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	102	63	121
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2417575)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	93.0	75	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	97.6	77	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	105	71	129
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2418439)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	103	68	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2417575)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	94.1	77	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	98.8	74	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	80.3	63	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2418439)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	104	68	128
EP080: BTEXN (QCLot: 2418439)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	97.6	62	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	99.0	67	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	101	65	117
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	101	66	118
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	104	68	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	98.0	63	119
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 2420731)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.00125 mg/kg	90.8	57	121
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	76.4	55	125
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	81.6	52	126
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	78.0	54	123
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	74.4	55	127
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	114	54	125
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 2420731)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 2420731) - continued								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	79.8	52	128
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	82.4	54	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	92.0	58	127
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	78.0	57	128
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	78.8	60	134
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	70.8	63	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	0.00125 mg/kg	63.6	55	130
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	72.4	62	130
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	94.4	53	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	84.8	49	129
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	67.1	59	129
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 2420731)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	89.6	52	132
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	0.00312 mg/kg	70.2	65	126
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	77.1	64	126
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	66.5	63	124
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	67.6	58	125
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	116	61	130
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	70.4	55	130
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 2420731)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00125 mg/kg	86.0	54	130
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00125 mg/kg	77.6	61	130
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	0.00125 mg/kg	77.6	62	130
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	0.00125 mg/kg	76.8	60	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**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
				Concentration	MS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 2418656)							
ES1917963-002	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	99.2	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	97.2	70	130

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 2418656) - continued							
ES1917963-002	Anonymous	EG005T: Chromium	7440-47-3	50 mg/kg	97.7	70	130
		EG005T: Copper	7440-50-8	250 mg/kg	91.5	70	130
		EG005T: Lead	7439-92-1	250 mg/kg	95.1	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	99.0	70	130
		EG005T: Zinc	7440-66-6	250 mg/kg	96.1	70	130
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 2418659)							
ES1918532-005	BH_MN13_0.4-0.5	EG005T: Arsenic	7440-38-2	50 mg/kg	100	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	100	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	111	70	130
		EG005T: Copper	7440-50-8	250 mg/kg	102	70	130
		EG005T: Lead	7439-92-1	250 mg/kg	117	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	106	70	130
		EG005T: Zinc	7440-66-6	250 mg/kg	109	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2418657)							
ES1917963-002	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	91.9	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2418658)							
ES1918532-005	BH_MN13_0.4-0.5	EG035T: Mercury	7439-97-6	5 mg/kg	100	70	130
EP035G: Total Phenol by Discrete Analyser (QCLot: 2425531)							
EP1905984-001	Anonymous	EP035G: Phenols (Total)	----	2 mg/kg	104	70	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 2417572)							
ES1918532-002	BH_MN06_0.5-0.6	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	85.0	70	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 2417573)							
ES1918532-002	BH_MN06_0.5-0.6	EP068: gamma-BHC	58-89-9	0.5 mg/kg	117	70	130
		EP068: Heptachlor	76-44-8	0.5 mg/kg	95.6	70	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	109	70	130
		EP068: Dieldrin	60-57-1	0.5 mg/kg	90.8	70	130
		EP068: Endrin	72-20-8	2 mg/kg	113	70	130
		EP068: 4.4`-DDT	50-29-3	2 mg/kg	109	70	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2417573)							
ES1918532-002	BH_MN06_0.5-0.6	EP068: Diazinon	333-41-5	0.5 mg/kg	109	70	130
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	116	70	130
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	103	70	130
		EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	108	70	130
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	114	70	130
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 2418440)							
ES1918532-002	BH_MN06_0.5-0.6	EP074: Benzene	71-43-2	2.5 mg/kg	85.4	70	130

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 2418440) - continued							
ES1918532-002	BH_MN06_0.5-0.6	EP074: Toluene	108-88-3	2.5 mg/kg	88.6	70	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 2418440)							
ES1918532-002	BH_MN06_0.5-0.6	EP074: 1.1-Dichloroethene	75-35-4	2.5 mg/kg	72.4	70	130
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	83.5	70	130
EP074F: Halogenated Aromatic Compounds (QCLot: 2418440)							
ES1918532-002	BH_MN06_0.5-0.6	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	89.5	70	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2417574)							
ES1918532-002	BH_MN06_0.5-0.6	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	93.9	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	118	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2417575)							
ES1918532-002	BH_MN06_0.5-0.6	EP071: C10 - C14 Fraction	----	523 mg/kg	106	73	137
		EP071: C15 - C28 Fraction	----	2319 mg/kg	117	53	131
		EP071: C29 - C36 Fraction	----	1714 mg/kg	118	52	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2418439)							
ES1918532-002	BH_MN06_0.5-0.6	EP080: C6 - C9 Fraction	----	32.5 mg/kg	89.2	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2417575)							
ES1918532-002	BH_MN06_0.5-0.6	EP071: >C10 - C16 Fraction	----	860 mg/kg	98.4	73	137
		EP071: >C16 - C34 Fraction	----	3223 mg/kg	119	53	131
		EP071: >C34 - C40 Fraction	----	1058 mg/kg	112	52	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2418439)							
ES1918532-002	BH_MN06_0.5-0.6	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	89.7	70	130
EP080: BTEXN (QCLot: 2418439)							
ES1918532-002	BH_MN06_0.5-0.6	EP080: Benzene	71-43-2	2.5 mg/kg	81.6	70	130
		EP080: Toluene	108-88-3	2.5 mg/kg	85.1	70	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	87.2	70	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	86.9	70	130
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	90.5	70	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	82.1	70	130
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 2420731)							
EB1915905-001	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.00125 mg/kg	96.4	50	130
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.00125 mg/kg	74.4	50	130
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00125 mg/kg	83.2	50	130
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.00125 mg/kg	90.4	50	130
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00125 mg/kg	# Not Determined	50	130

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 2420731) - continued							
EB1915905-001	Anonymous	EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.00125 mg/kg	102	50	130
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 2420731)							
EB1915905-001	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	64.7	30	130
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	92.8	50	130
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	94.0	50	130
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	81.2	50	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	76.0	50	130
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.00125 mg/kg	72.8	50	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.00125 mg/kg	64.0	50	130
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.00125 mg/kg	72.4	50	130
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.00125 mg/kg	93.6	50	130
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.00125 mg/kg	84.4	30	130
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.00312 mg/kg	58.0	30	130
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 2420731)							
EB1915905-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.00125 mg/kg	88.8	50	130
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.00312 mg/kg	84.8	30	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.00312 mg/kg	75.0	30	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.00312 mg/kg	94.9	30	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.00312 mg/kg	76.0	30	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.00125 mg/kg	112	30	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.00125 mg/kg	73.2	30	130
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 2420731)							
EB1915905-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00125 mg/kg	84.0	50	130
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00125 mg/kg	72.4	50	130
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.00125 mg/kg	77.2	50	130
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.00125 mg/kg	71.2	50	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES1918532**	Page	: 1 of 11
Client	: **GOLDER ASSOCIATES**	Laboratory	: Environmental Division Sydney
Contact	: MR BARRY HOUSTON	Telephone	: +61-2-8784 8555
Project	: 1791865	Date Samples Received	: 17-Jun-2019
Site	: Marrickville	Issue Date	: 26-Jun-2019
Sampler	: GOLDER-DOUGLAS	No. of samples received	: 12
Order number	: PCOC65	No. of samples analysed	: 10

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **Surrogate recovery outliers exist for all regular sample matrices - please see following pages for full details.**

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

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

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EP231A: Perfluoroalkyl Sulfonic Acids	EB1915905--001	Anonymous	**Perfluorooctane sulfonic acid (PFOS)**	1763-23-1	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Regular Sample Surrogates

Sub-Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Samples Submitted							
EP231S: PFAS Surrogate	ES1918532-006	QA502A	**13C4-PFOS**	----	37.5 %	60-120 %	**Recovery less than lower data quality objective**

Outliers : Analysis Holding Time Compliance

Matrix: **SOIL**

Method / Container / Client Sample ID(s)		Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EP074A: Monocyclic Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved							
BH_MN06_0.5-0.6, BH_MN13_0.4-0.5, QA504A	BH_MN11_0.25-0.35, QA502A,	21-Jun-2019	18-Jun-2019	**3**	21-Jun-2019	18-Jun-2019	**3**
EP074B: Oxygenated Compounds							
Soil Glass Jar - Unpreserved							
BH_MN06_0.5-0.6, BH_MN13_0.4-0.5, QA504A	BH_MN11_0.25-0.35, QA502A,	21-Jun-2019	18-Jun-2019	**3**	21-Jun-2019	18-Jun-2019	**3**
EP074C: Sulfonated Compounds							
Soil Glass Jar - Unpreserved							
BH_MN06_0.5-0.6, BH_MN13_0.4-0.5, QA504A	BH_MN11_0.25-0.35, QA502A,	21-Jun-2019	18-Jun-2019	**3**	21-Jun-2019	18-Jun-2019	**3**
EP074D: Fumigants							
Soil Glass Jar - Unpreserved							
BH_MN06_0.5-0.6, BH_MN13_0.4-0.5, QA504A	BH_MN11_0.25-0.35, QA502A,	21-Jun-2019	18-Jun-2019	**3**	21-Jun-2019	18-Jun-2019	**3**
EP074E: Halogenated Aliphatic Compounds							

Matrix: **SOIL**

Method / Container / Client Sample ID(s)		Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EP074E: Halogenated Aliphatic Compounds - Analysis Holding Time Compliance							
Soil Glass Jar - Unpreserved							
BH_MN06_0.5-0.6, BH_MN13_0.4-0.5, QA504A	BH_MN11_0.25-0.35, QA502A,	21-Jun-2019	18-Jun-2019	3	21-Jun-2019	18-Jun-2019	3
EP074F: Halogenated Aromatic Compounds							
Soil Glass Jar - Unpreserved							
BH_MN06_0.5-0.6, BH_MN13_0.4-0.5, QA504A	BH_MN11_0.25-0.35, QA502A,	21-Jun-2019	18-Jun-2019	3	21-Jun-2019	18-Jun-2019	3
EP074G: Trihalomethanes							
Soil Glass Jar - Unpreserved							
BH_MN06_0.5-0.6, BH_MN13_0.4-0.5, QA504A	BH_MN11_0.25-0.35, QA502A,	21-Jun-2019	18-Jun-2019	3	21-Jun-2019	18-Jun-2019	3
EP074H: Naphthalene							
Soil Glass Jar - Unpreserved							
BH_MN06_0.5-0.6, BH_MN13_0.4-0.5, QA504A	BH_MN11_0.25-0.35, QA502A,	21-Jun-2019	18-Jun-2019	3	21-Jun-2019	18-Jun-2019	3
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved							
Trip Spike,	Trip Spike Control	21-Jun-2019	18-Jun-2019	3	21-Jun-2019	18-Jun-2019	3
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved							
Trip Spike,	Trip Spike Control	21-Jun-2019	18-Jun-2019	3	21-Jun-2019	18-Jun-2019	3
EP080: BTEXN							
Soil Glass Jar - Unpreserved							
Trip Spike,	Trip Spike Control	21-Jun-2019	18-Jun-2019	3	21-Jun-2019	18-Jun-2019	3

Analysis Holding Time Compliance

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

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

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

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

Matrix: **SOIL**

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

Matrix: **SOIL**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055)							
BH_MN06_0.5-0.6, BH_MN11_0.25-0.35, BH_MN13_0.4-0.5, QA502A, QA504A	**11-Jun-2019**	**----**	----	----	**21-Jun-2019**	25-Jun-2019	✓
EA200: AS 4964 - 2004 Identification of Asbestos in Soils							
Snap Lock Bag (EA200)							
BH_MN06_0.25-0.35, BH_MN06_0.5-0.6, BH_MN11_0.25-0.35, BH_MN13_0.25-0.35, BH_MN13_0.4-0.5	**11-Jun-2019**	**----**	----	----	**24-Jun-2019**	08-Dec-2019	✓
Snap Lock Bag - Subsampled by ALS (EA200)							
QA502A, QA504A	**11-Jun-2019**	**----**	----	----	**24-Jun-2019**	08-Dec-2019	✓
EG005(ED093)T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
BH_MN06_0.5-0.6, BH_MN11_0.25-0.35, BH_MN13_0.4-0.5, QA502A, QA504A	**11-Jun-2019**	**21-Jun-2019**	08-Dec-2019	✓	**21-Jun-2019**	08-Dec-2019	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
BH_MN06_0.5-0.6, BH_MN11_0.25-0.35, BH_MN13_0.4-0.5, QA502A, QA504A	**11-Jun-2019**	**21-Jun-2019**	09-Jul-2019	✓	**21-Jun-2019**	09-Jul-2019	✓
EP035G: Total Phenol by Discrete Analyser							
Soil Glass Jar - Unpreserved (EP035G)							
BH_MN06_0.5-0.6, BH_MN11_0.25-0.35, BH_MN13_0.4-0.5, QA502A, QA504A	**11-Jun-2019**	**25-Jun-2019**	25-Jun-2019	✓	**25-Jun-2019**	25-Jun-2019	✓
EP066: Polychlorinated Biphenyls (PCB)							
Soil Glass Jar - Unpreserved (EP066)							
BH_MN06_0.5-0.6, BH_MN11_0.25-0.35, BH_MN13_0.4-0.5, QA502A, QA504A	**11-Jun-2019**	**24-Jun-2019**	25-Jun-2019	✓	**24-Jun-2019**	03-Aug-2019	✓
EP068A: Organochlorine Pesticides (OC)							
Soil Glass Jar - Unpreserved (EP068)							
BH_MN06_0.5-0.6, BH_MN11_0.25-0.35, BH_MN13_0.4-0.5, QA502A, QA504A	**11-Jun-2019**	**24-Jun-2019**	25-Jun-2019	✓	**24-Jun-2019**	03-Aug-2019	✓
EP068B: Organophosphorus Pesticides (OP)							
Soil Glass Jar - Unpreserved (EP068)							
BH_MN06_0.5-0.6, BH_MN11_0.25-0.35, BH_MN13_0.4-0.5, QA502A, QA504A	**11-Jun-2019**	**24-Jun-2019**	25-Jun-2019	✓	**24-Jun-2019**	03-Aug-2019	✓

Matrix: **SOIL**

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

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP074A: Monocyclic Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP074)								
BH_MN06_0.5-0.6, BH_MN13_0.4-0.5, QA504A	BH_MN11_0.25-0.35, QA502A,	**11-Jun-2019**	**21-Jun-2019**	18-Jun-2019	×	**21-Jun-2019**	18-Jun-2019	×
EP074B: Oxygenated Compounds								
Soil Glass Jar - Unpreserved (EP074)								
BH_MN06_0.5-0.6, BH_MN13_0.4-0.5, QA504A	BH_MN11_0.25-0.35, QA502A,	**11-Jun-2019**	**21-Jun-2019**	18-Jun-2019	×	**21-Jun-2019**	18-Jun-2019	×
EP074C: Sulfonated Compounds								
Soil Glass Jar - Unpreserved (EP074)								
BH_MN06_0.5-0.6, BH_MN13_0.4-0.5, QA504A	BH_MN11_0.25-0.35, QA502A,	**11-Jun-2019**	**21-Jun-2019**	18-Jun-2019	×	**21-Jun-2019**	18-Jun-2019	×
EP074D: Fumigants								
Soil Glass Jar - Unpreserved (EP074)								
BH_MN06_0.5-0.6, BH_MN13_0.4-0.5, QA504A	BH_MN11_0.25-0.35, QA502A,	**11-Jun-2019**	**21-Jun-2019**	18-Jun-2019	×	**21-Jun-2019**	18-Jun-2019	×
EP074E: Halogenated Aliphatic Compounds								
Soil Glass Jar - Unpreserved (EP074)								
BH_MN06_0.5-0.6, BH_MN13_0.4-0.5, QA504A	BH_MN11_0.25-0.35, QA502A,	**11-Jun-2019**	**21-Jun-2019**	18-Jun-2019	×	**21-Jun-2019**	18-Jun-2019	×
EP074F: Halogenated Aromatic Compounds								
Soil Glass Jar - Unpreserved (EP074)								
BH_MN06_0.5-0.6, BH_MN13_0.4-0.5, QA504A	BH_MN11_0.25-0.35, QA502A,	**11-Jun-2019**	**21-Jun-2019**	18-Jun-2019	×	**21-Jun-2019**	18-Jun-2019	×
EP074G: Trihalomethanes								
Soil Glass Jar - Unpreserved (EP074)								
BH_MN06_0.5-0.6, BH_MN13_0.4-0.5, QA504A	BH_MN11_0.25-0.35, QA502A,	**11-Jun-2019**	**21-Jun-2019**	18-Jun-2019	×	**21-Jun-2019**	18-Jun-2019	×
EP074H: Naphthalene								
Soil Glass Jar - Unpreserved (EP074)								
BH_MN06_0.5-0.6, BH_MN13_0.4-0.5, QA504A	BH_MN11_0.25-0.35, QA502A,	**11-Jun-2019**	**21-Jun-2019**	18-Jun-2019	×	**21-Jun-2019**	18-Jun-2019	×

Matrix: **SOIL**

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

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP075(SIM))								
BH_MN06_0.5-0.6, BH_MN13_0.4-0.5, QA504A	BH_MN11_0.25-0.35, QA502A,	**11-Jun-2019**	**24-Jun-2019**	25-Jun-2019	✓	**24-Jun-2019**	03-Aug-2019	✓
EP080/071: Total Petroleum Hydrocarbons								
Soil Glass Jar - Unpreserved (EP080)								
Trip Spike,	Trip Spike Control	**04-Jun-2019**	**21-Jun-2019**	18-Jun-2019	×	**21-Jun-2019**	18-Jun-2019	×
Soil Glass Jar - Unpreserved (EP080)								
Trip Blank		**07-Jun-2019**	**21-Jun-2019**	21-Jun-2019	✓	**21-Jun-2019**	21-Jun-2019	✓
Soil Glass Jar - Unpreserved (EP080)								
BH_MN06_0.5-0.6, BH_MN13_0.4-0.5, QA504A	BH_MN11_0.25-0.35, QA502A,	**11-Jun-2019**	**21-Jun-2019**	25-Jun-2019	✓	**21-Jun-2019**	25-Jun-2019	✓
Soil Glass Jar - Unpreserved (EP071)								
BH_MN06_0.5-0.6, BH_MN13_0.4-0.5, QA504A	BH_MN11_0.25-0.35, QA502A,	**11-Jun-2019**	**24-Jun-2019**	25-Jun-2019	✓	**24-Jun-2019**	03-Aug-2019	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
Soil Glass Jar - Unpreserved (EP080)								
Trip Spike,	Trip Spike Control	**04-Jun-2019**	**21-Jun-2019**	18-Jun-2019	×	**21-Jun-2019**	18-Jun-2019	×
Soil Glass Jar - Unpreserved (EP080)								
Trip Blank		**07-Jun-2019**	**21-Jun-2019**	21-Jun-2019	✓	**21-Jun-2019**	21-Jun-2019	✓
Soil Glass Jar - Unpreserved (EP080)								
BH_MN06_0.5-0.6, BH_MN13_0.4-0.5, QA504A	BH_MN11_0.25-0.35, QA502A,	**11-Jun-2019**	**21-Jun-2019**	25-Jun-2019	✓	**21-Jun-2019**	25-Jun-2019	✓
Soil Glass Jar - Unpreserved (EP071)								
BH_MN06_0.5-0.6, BH_MN13_0.4-0.5, QA504A	BH_MN11_0.25-0.35, QA502A,	**11-Jun-2019**	**24-Jun-2019**	25-Jun-2019	✓	**24-Jun-2019**	03-Aug-2019	✓
EP080: BTEXN								
Soil Glass Jar - Unpreserved (EP080)								
Trip Spike,	Trip Spike Control	**04-Jun-2019**	**21-Jun-2019**	18-Jun-2019	×	**21-Jun-2019**	18-Jun-2019	×
Soil Glass Jar - Unpreserved (EP080)								
Trip Blank		**07-Jun-2019**	**21-Jun-2019**	21-Jun-2019	✓	**21-Jun-2019**	21-Jun-2019	✓
Soil Glass Jar - Unpreserved (EP080)								
BH_MN06_0.5-0.6, BH_MN13_0.4-0.5, QA504A	BH_MN11_0.25-0.35, QA502A,	**11-Jun-2019**	**21-Jun-2019**	25-Jun-2019	✓	**21-Jun-2019**	25-Jun-2019	✓

Matrix: **SOIL**

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

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231A: Perfluoroalkyl Sulfonic Acids								
HDPE Soil Jar (EP231X)								
BH_MN06_0.5-0.6, BH_MN13_0.4-0.5	BH_MN11_0.25-0.35,	**11-Jun-2019**	**24-Jun-2019**	08-Dec-2019	✓	**24-Jun-2019**	03-Aug-2019	✓
Soil Glass Jar - Unpreserved (EP231X)								
QA502A,	QA504A	**11-Jun-2019**	**24-Jun-2019**	08-Dec-2019	✓	**24-Jun-2019**	03-Aug-2019	✓
EP231B: Perfluoroalkyl Carboxylic Acids								
HDPE Soil Jar (EP231X)								
BH_MN06_0.5-0.6, BH_MN13_0.4-0.5	BH_MN11_0.25-0.35,	**11-Jun-2019**	**24-Jun-2019**	08-Dec-2019	✓	**24-Jun-2019**	03-Aug-2019	✓
Soil Glass Jar - Unpreserved (EP231X)								
QA502A,	QA504A	**11-Jun-2019**	**24-Jun-2019**	08-Dec-2019	✓	**24-Jun-2019**	03-Aug-2019	✓
EP231C: Perfluoroalkyl Sulfonamides								
HDPE Soil Jar (EP231X)								
BH_MN06_0.5-0.6, BH_MN13_0.4-0.5	BH_MN11_0.25-0.35,	**11-Jun-2019**	**24-Jun-2019**	08-Dec-2019	✓	**24-Jun-2019**	03-Aug-2019	✓
Soil Glass Jar - Unpreserved (EP231X)								
QA502A,	QA504A	**11-Jun-2019**	**24-Jun-2019**	08-Dec-2019	✓	**24-Jun-2019**	03-Aug-2019	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
HDPE Soil Jar (EP231X)								
BH_MN06_0.5-0.6, BH_MN13_0.4-0.5	BH_MN11_0.25-0.35,	**11-Jun-2019**	**24-Jun-2019**	08-Dec-2019	✓	**24-Jun-2019**	03-Aug-2019	✓
Soil Glass Jar - Unpreserved (EP231X)								
QA502A,	QA504A	**11-Jun-2019**	**24-Jun-2019**	08-Dec-2019	✓	**24-Jun-2019**	03-Aug-2019	✓
EP231P: PFAS Sums								
HDPE Soil Jar (EP231X)								
BH_MN06_0.5-0.6, BH_MN13_0.4-0.5	BH_MN11_0.25-0.35,	**11-Jun-2019**	**24-Jun-2019**	08-Dec-2019	✓	**24-Jun-2019**	03-Aug-2019	✓
Soil Glass Jar - Unpreserved (EP231X)								
QA502A,	QA504A	**11-Jun-2019**	**24-Jun-2019**	08-Dec-2019	✓	**24-Jun-2019**	03-Aug-2019	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	5	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	5	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	4	36	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	4	40	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phenol By Discrete Analyser	EP035G	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	7	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	36	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phenol By Discrete Analyser	EP035G	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	36	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phenol By Discrete Analyser	EP035G	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Matrix Spikes (MS) - Continued							
Pesticides by GCMS	EP068	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	36	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phenol By Discrete Analyser	EP035G	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	7	**14.29**	**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 (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Asbestos Identification in Soils	EA200	SOIL	AS 4964 - 2004 Method for the qualitative identification of asbestos in bulk samples Analysis by Polarised Light Microscopy including dispersion staining
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 (2013) 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 (2013) Schedule B(3)
Total Phenol By Discrete Analyser	EP035G	SOIL	In house: Referenced to APHA 5530 B&D Steam distillable Phenols are reacted with 4-aminoantipyrine. The resultant colour intensity is measured by Seal
Polychlorinated Biphenyls (PCB)	EP066	SOIL	In house: Referenced to USEPA SW 846 - 8270D 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 (2013) Schedule B(3) (Method 504)
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270D 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 (2013) Schedule B(3) (Method 504,505)
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM amended 2013.
Volatile Organic Compounds	EP074	SOIL	In house: Referenced to USEPA SW 846 - 8260B Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270D. 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 (2013) Schedule B(3) (Method 502 and 507)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260B. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM amended 2013.

Analytical Methods	Method	Matrix	Method Descriptions
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	SOIL	In-House. A portion of soil is extracted with MTBE. The extract is taken to dryness, made up in mobile phase. Analysis is by LC/MSMS, ESI Negative Mode using MRM. Where commercially available, isotopically labelled analogues of the target analytes are used as internal standards for quantification. Where a labelled analogue is not commercially available, the internal standard with similar chemistry and the closest retention time to the target is used for quantification. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. This method complies with the quality control definitions as stated in QSM 5.1. Data is reviewed in line with the DQOs as stated in QSM5.1

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 (2013) Schedule B(3) (Method 202)
Phenols After Microdistillation	EP035D	SOIL	In house: Referenced to APHA 5530 A, B&D. pH adjusted Steam distillable Phenolic compounds. The resultant colour intensity is measured by Discrete Analyser.
Sample Extraction for PFAS	EP231-PR	SOIL	In house
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.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES1918532**

Client	: **GOLDER ASSOCIATES**	Laboratory	: Environmental Division Sydney
Contact	: MR BARRY HOUSTON	Contact	: Customer Services ES
Address	: LEVEL 1, 124 PACIFIC HIGHWAY ST LEONARDS NSW, AUSTRALIA 2065	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: bhouston@golder.com.au	E-mail	: ALSEnviro.Sydney@ALSGlobal.com
Telephone	: +61 02 9478 3900	Telephone	: +61-2-8784 8555
Facsimile	: +61 02 9478 3901	Facsimile	: +61-2-8784 8500
Project	: 1791865	Page	: 1 of 3
Order number	: PCOC65	Quote number	: ES2017GOLASS0019 (SY/698/17 C V4)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Marrickville		
Sampler	: GOLDER-DOUGLAS		

Dates

Date Samples Received	: 17-Jun-2019 14:20	Issue Date	: 20-Jun-2019
Client Requested Due Date	: 26-Jun-2019	Scheduled Reporting Date	: **26-Jun-2019**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 1.9 - Ice Bricks present
Receipt Detail	:	No. of samples received / analysed	: 12 / 10

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- This is an updated SRN which indicates the addition of tests to samples Trip blank, Trip spike and Trip spike control for this work order.
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- **Asbestos analysis will be conducted by ALS Newcastle.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

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

Method Client sample ID	Sample Container Received	Preferred Sample Container for Analysis
Asbestos Identification in Soils : EA200		
QA502A	- Snap Lock Bag - Subsampled by ALS	- Snap Lock Bag - ACM/Asbestos Grab Bag
QA504A	- Snap Lock Bag - Subsampled by ALS	- Snap Lock Bag - ACM/Asbestos Grab Bag

Summary of Sample(s) and Requested Analysis

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

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EA055-103 Moisture Content	SOIL - EA200 Asbestos Identification in Soils -	SOIL - EP035G (solids) Total Phenol by Discrete Analyser	SOIL - EP066 (solids) Polychlorinated Biphenyls by GCMS	SOIL - EP074 (solids) Volatile Organic Compounds	SOIL - S-12 OC/OP Pesticides	SOIL - S-26 8 metals/TRH/BTEXN/PAH
ES1918532-001	11-Jun-2019 00:00	BH_MN06_0.25-0.35		✓					
ES1918532-002	11-Jun-2019 00:00	BH_MN06_0.5-0.6	✓	✓	✓	✓	✓	✓	✓
ES1918532-003	11-Jun-2019 00:00	BH_MN11_0.25-0.35	✓	✓	✓	✓	✓	✓	✓
ES1918532-004	11-Jun-2019 00:00	BH_MN13_0.25-0.35		✓					
ES1918532-005	11-Jun-2019 00:00	BH_MN13_0.4-0.5	✓	✓	✓	✓	✓	✓	✓
ES1918532-006	11-Jun-2019 00:00	QA502A	✓	✓	✓	✓	✓	✓	✓
ES1918532-008	11-Jun-2019 00:00	QA504A	✓	✓	✓	✓	✓	✓	✓

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	(On Hold) SOIL No analysis requested	SOIL - EP231X (solids) PFAS - Full Suite (28 analytes)	SOIL - S-18 TRH(C6-C9)/BTEXN
ES1918532-002	11-Jun-2019 00:00	BH_MN06_0.5-0.6		✓	
ES1918532-003	11-Jun-2019 00:00	BH_MN11_0.25-0.35		✓	
ES1918532-005	11-Jun-2019 00:00	BH_MN13_0.4-0.5		✓	
ES1918532-006	11-Jun-2019 00:00	QA502A		✓	
ES1918532-007	11-Jun-2019 00:00	QC503A	✓		
ES1918532-008	11-Jun-2019 00:00	QA504A		✓	
ES1918532-009	07-Jun-2019 00:00	Trip Blank			✓
ES1918532-010	04-Jun-2019 00:00	Trip Spike			✓
ES1918532-012	04-Jun-2019 00:00	Trip Spike Control			✓

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	(On Hold) WATER No analysis requested
ES1918532-011	11-Jun-2019 00:00	R_BH_MN13	✓

Proactive Holding Time Report

The following table summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory.

Matrix: **SOIL**

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

Method / Client Sample ID(s)	Container	Due for extraction	Due for analysis	Samples Received		Instructions Received	
				Date	Evaluation	Date	Evaluation
EP074: Volatile Organic Compounds							
BH_MN06_0.5-0.6	Soil Glass Jar - Unpreserved	18-Jun-2019	18-Jun-2019	17-Jun-2019	✓	20-Jun-2019	×
BH_MN11_0.25-0.35	Soil Glass Jar - Unpreserved	18-Jun-2019	18-Jun-2019	17-Jun-2019	✓	20-Jun-2019	×
BH_MN13_0.4-0.5	Soil Glass Jar - Unpreserved	18-Jun-2019	18-Jun-2019	17-Jun-2019	✓	20-Jun-2019	×
QA502A	Soil Glass Jar - Unpreserved	18-Jun-2019	18-Jun-2019	17-Jun-2019	✓	20-Jun-2019	×
QA504A	Soil Glass Jar - Unpreserved	18-Jun-2019	18-Jun-2019	17-Jun-2019	✓	20-Jun-2019	×
EP080: TRH Volatiles/BTEX							
Trip Spike Control	Soil Glass Jar - Unpreserved	18-Jun-2019	18-Jun-2019	17-Jun-2019	✓	20-Jun-2019	×
Trip Spike	Soil Glass Jar - Unpreserved	18-Jun-2019	18-Jun-2019	17-Jun-2019	✓	20-Jun-2019	×

Requested Deliverables

ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	au_accountspayable@golder.com.au

BARRY HOUSTON

- *AU Certificate of Analysis - NATA (COA)	Email	bhouston@golder.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	bhouston@golder.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	bhouston@golder.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	bhouston@golder.com.au
- Chain of Custody (CoC) (COC)	Email	bhouston@golder.com.au
- EDI Format - ENMRG (ENMRG)	Email	bhouston@golder.com.au
- EDI Format - ESDAT (ESDAT)	Email	bhouston@golder.com.au

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	ALS
	SY-698-17 C V4
	PCOC65

BULLETIN BOARD ☐

SDAT ■

GOLDER ASSOCIATES PTY LTD
124 Pacific Highway, Greenwich
Project Manager: Ben Seaford
Job Contact : Barry Houston

Phone: : (02) 9478 3900
Fax : (02) 9478 3901
Reviewed:
Phone: 0416 826 175 Email: bhouston@golder.com.au

ANALYSIS REQUIRED

Thanks!

SAMPLE TYPE	SAMPLE MATRIX	No CONTAINERS	Level of Contamination (Low/High/Unknown)	Asbestos (presence / absence)	Soils suite (TRH C6-C40, BTEXN, PAHs, PCBs/OCPs/OPPs, 8 heavy metals (As, Cd, Cr, Cu, Ni, Pb, Hg, Zn, total phenols, VOCs)	PFAS	BTEXN	Soils suite (TRH C6-C40, BTEXN, PAHs, PCBs/OCPs/OPPs, 8 heavy metals (As, Cd, Cr, Cu, Ni, Pb, Hg, Zn, VOCs)	ON HOLD
DS	Soil	1 jar, 1 pfas jar, 1 asb ID bag	U	X					
DS	Soil	1 jar, 1 pfas jar, 1 asb ID bag	U	X	X	X			
DS	Soil	1 jar, 1 pfas jar, 1 asb ID bag	U	X	X	X			
DS	Soil	1 jar, 1 pfas jar, 1 asb ID bag	U	X					
DS	Soil	1 jar, 1 pfas jar, 1 asb ID bag	U	X	X	X			
DS	Soil		U	X	X	X			
DS	Soil		U						X
DS	Soil		U	X	X	X			
	Soil	1 x jar	L				X		
	Soil	1 x jar	L				X		
W	Water	multiple	L		X	X			

Environmental Division Sydney
Work Order Reference
ES1918532

Telephone : +61-2-8784 8555

AMPLE TYPE = Composite(C)/Discrete(DC)/Disturbed(DS)/Core(CR), Grab Sample (GS)

HIGH CONCENTRATION: circle expected parameters in analysis list

	DATE	TIME
	7/06/2019	12:00
	20.6.19	6:55pm

	SIGNATURE	COMPANY	DATE	TIME	Method of Shipment
RELEASED BY					Shipping Ref:
RECEIVED BY					

To Be Filled Out By Analysing Laboratory

LAB; BATCH NUMBER

Security Seal		Chilled	Bill to:
Suitable Containers		Frozen	Address
Cool Box		Ambient	

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES1920095**

Client	: **GOLDER ASSOCIATES**	Laboratory	: Environmental Division Sydney
Contact	: MR BEN SEAFORD	Contact	: Customer Services ES
Address	: LEVEL 1, 124 PACIFIC HIGHWAY ST LEONARDS NSW, AUSTRALIA 2065	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: bseaford@golder.com.au	E-mail	: ALSEnviro.Sydney@ALSGlobal.com
Telephone	: +61 02 9478 3900	Telephone	: +61-2-8784 8555
Facsimile	: +61 02 9478 3901	Facsimile	: +61-2-8784 8500
Project	: 1791865	Page	: 1 of 4
Order number	: PCOC68	Quote number	: ES2017GOLASS0019 (SY/698/17 C V4)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: MARRICKVILLE		
Sampler	: GOLDER-DOUGLAS		

Dates

Date Samples Received	: 27-Jun-2019 13:00	Issue Date	: 02-Jul-2019
Client Requested Due Date	: 04-Jul-2019	Scheduled Reporting Date	: **04-Jul-2019**

Delivery Details

Mode of Delivery	: Undefined	Security Seal	: Not Available
No. of coolers/boxes	: 3	Temperature	: 1'c - Ice present
Receipt Detail	:	No. of samples received / analysed	: 37 / 21

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **ES1920095-031-035 received extra and placed on hold, please confirm.**
- **Sample BH MN13 0.9 was not received.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

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

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

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

ES1920095-017 : [23-Jun-2019] : BH VMN03 1 .1-1 .2

Summary of Sample(s) and Requested Analysis

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

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	(On Hold) SOIL No analysis requested	SOIL - EA055-103 Moisture Content	SOIL - EA200 Asbestos Identification in Soils -	SOIL - EP035G (solids) Total Phenol by Discrete Analyser	SOIL - EP074 (solids) Volatile Organic Compounds	SOIL - S-13 OC/OP/PCB	SOIL - S-26 8 metals/TRH/BTEXN/PAH
ES1920095-001	22-Jun-2019 00:00	BH MN06 0.75-0.85	✓						
ES1920095-002	22-Jun-2019 00:00	BH MN06 0.9-1.0		✓	✓	✓	✓	✓	✓
ES1920095-003	22-Jun-2019 00:00	BH MN06 1.4-1.5	✓						
ES1920095-004	22-Jun-2019 00:00	BH MN06 2.0-2.1		✓			✓	✓	✓
ES1920095-005	22-Jun-2019 00:00	BH MN06 2.9-3.0	✓						
ES1920095-006	23-Jun-2019 00:00	BH MN11 1.5-1.6		✓	✓	✓	✓	✓	✓
ES1920095-007	23-Jun-2019 00:00	BH MN11 2.0-2.1		✓			✓	✓	✓
ES1920095-008	23-Jun-2019 00:00	BH MN11 2.9-3.0		✓			✓	✓	✓
ES1920095-010	23-Jun-2019 00:00	BH MN13 0.9-1.2		✓	✓	✓	✓	✓	✓
ES1920095-011	23-Jun-2019 00:00	BH MN13 2.0-2.2	✓						
ES1920095-012	23-Jun-2019 00:00	BH MN13 3.0-3.2		✓			✓	✓	✓
ES1920095-013	23-Jun-2019 00:00	BH VMN03 025-0.35	✓						
ES1920095-014	23-Jun-2019 00:00	BH VMN03 0.4-0.5		✓	✓	✓	✓	✓	✓
ES1920095-015	23-Jun-2019 00:00	BH VMN03 0.75-0.85	✓						
ES1920095-016	23-Jun-2019 00:00	BH VMN03 0.9-1.0		✓	✓	✓	✓	✓	✓
ES1920095-017	23-Jun-2019 00:00	BH VMN03 1 .1-1 .2		✓			✓	✓	✓
ES1920095-018	23-Jun-2019 00:00	BH VMN03_2.0-2.2		✓			✓	✓	✓
ES1920095-019	23-Jun-2019 00:00	BH_VW_MN01_2.0-2.1		✓			✓	✓	✓
ES1920095-020	23-Jun-2019 00:00	BH_VW_MN01_3.0-3.1		✓			✓	✓	✓
ES1920095-024	22-Jun-2019 00:00	QA506a		✓		✓	✓	✓	✓
ES1920095-025	23-Jun-2019 00:00	QA507a		✓		✓	✓	✓	✓
ES1920095-026	23-Jun-2019 00:00	QA508a		✓		✓	✓	✓	✓
ES1920095-027	22-Jun-2019 00:00	TRIP BLANK	✓						
ES1920095-028	22-Jun-2019 00:00	Trip Spike 2	✓						
ES1920095-029	22-Jun-2019 00:00	TSC 2	✓						
ES1920095-030	22-Jun-2019 00:00	TRIP SPIKE 11	✓						
ES1920095-033	19-Jun-2019 00:00	QA602A	✓						
ES1920095-034	19-Jun-2019 00:00	BH_C001S/0.4-0.5	✓						
ES1920095-035	19-Jun-2019 00:00	BH_C001S/0.25-0.35	✓						
ES1920095-036	11-Jun-2019 00:00	TRIP BLANK	✓						
ES1920095-037	12-Jun-2019 00:00	TSC 11	✓						

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EP080 BTEXN	SOIL - EP231X (solids) PFAS - Full Suite (28 analytes)
ES1920095-002	22-Jun-2019 00:00	BH MN06 0.9-1.0		✓
ES1920095-006	23-Jun-2019 00:00	BH MN11 1.5-1.6		✓
ES1920095-010	23-Jun-2019 00:00	BH MN13 0.9-1.2		✓
ES1920095-014	23-Jun-2019 00:00	BH VMN03 0.4-0.5		✓
ES1920095-016	23-Jun-2019 00:00	BH VMN03 0.9-1.0		✓
ES1920095-022	23-Jun-2019 00:00	TS 4	✓	
ES1920095-023	23-Jun-2019 00:00	TB	✓	
ES1920095-024	22-Jun-2019 00:00	QA506a		✓
ES1920095-025	23-Jun-2019 00:00	QA507a		✓
ES1920095-026	23-Jun-2019 00:00	QA508a		✓
ES1920095-038	23-Jun-2019 00:00	TSC 4	✓	

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	(On Hold) WATER No analysis requested	WATER - EP074 (water) Volatile Organic Compounds	WATER - EP231X PFAS - Full Suite (28 analytes)	WATER - W-13 OC/OP/PCB	WATER - W-26T TRH/BTEXN/PAH/Total 8 Metals
ES1920095-021	28-Jun-2019 00:00	RB_VW-MN03		✓		✓	✓
ES1920095-031	19-Jun-2019 00:00	R_BH_C001S	✓				
ES1920095-032	22-Jun-2019 00:00	R_BH_MW02		✓	✓	✓	✓

Proactive Holding Time Report

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

Requested Deliverables

ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	au_accountspayable@golder.com.au

BARRY HOUSTON

- *AU Certificate of Analysis - NATA (COA)	Email	bhouston@golder.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	bhouston@golder.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	bhouston@golder.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	bhouston@golder.com.au
- Chain of Custody (CoC) (COC)	Email	bhouston@golder.com.au
- EDI Format - ENMRG (ENMRG)	Email	bhouston@golder.com.au
- EDI Format - ESDAT (ESDAT)	Email	bhouston@golder.com.au

BEN SEAFORD

- *AU Certificate of Analysis - NATA (COA)	Email	bseaford@golder.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	bseaford@golder.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	bseaford@golder.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	bseaford@golder.com.au
- Chain of Custody (CoC) (COC)	Email	bseaford@golder.com.au
- EDI Format - ENMRG (ENMRG)	Email	bseaford@golder.com.au
- EDI Format - ESDAT (ESDAT)	Email	bseaford@golder.com.au

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **ES1920095**	Page	: 1 of 42
Amendment	: **1**		
Client	: **GOLDER ASSOCIATES**	Laboratory	: Environmental Division Sydney
Contact	: MR BEN SEAFORD	Contact	: Customer Services ES
Address	: LEVEL 1, 124 PACIFIC HIGHWAY ST LEONARDS NSW, AUSTRALIA 2065	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 9478 3900	Telephone	: +61-2-8784 8555
Project	: 1791865	Date Samples Received	: 27-Jun-2019 13:00
Order number	: PCOC68	Date Analysis Commenced	: 29-Jun-2019
C-O-C number	: ----	Issue Date	: 09-Jul-2019 11:52
Sampler	: GOLDER-DOUGLAS		
Site	: MARRICKVILLE		
Quote number	: SY/698/17 C V4		
No. of samples received	: 37		
No. of samples analysed	: 21		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
Alex Rossi	Organic Chemist	Sydney Organics, Smithfield, NSW
Ankit Joshi	Inorganic Chemist	Sydney Inorganics, Smithfield, NSW
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics, Smithfield, NSW
Christopher Owler	Team Leader - Asbestos	Newcastle - Asbestos, Mayfield West, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Peter Wu		Sydney Inorganics, Smithfield, NSW

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by 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.
- 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.
- EG005: Poor precision was obtained for Lead for sample ES1920095-14. Results have been confirmed by re-extraction and re-analysis.
- EP068: Positive rersult has been confirmed by re-extraction and re-analysis.
- EG035: Positive Hg result for ES1920095 #10 has been confirmed by reanalysis.
- Amendment (09/07/2019): This report has been amended as a result of a request to correct sample identification numbers (IDs) as per the COC, received by ALS from Bianca Underwood on 9/7/19. All analysis results are as per the previous report.
- EP080: The trip spike and its control have been analysed for volatile TPH and BTEX only. The trip spike and control were prepared in the lab using reagent grade sand spiked with petrol. The spike was dispatched from the lab and the control retained.
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Trace' - Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EA200 Legend
- EA200 'Ch' Chrysotile (white asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2
- EA200: 'Yes' - Asbestos detected by polarised light microscopy including dispersion staining.
- EA200: 'No*' - No asbestos found, at the reporting limit of 0.1g/kg, by polarised light microscopy including dispersion staining. Asbestos material was detected and positively identified at concentrations estimated to be below 0.1g/kg.
- EA200: 'No' - No asbestos found at the reporting limit 0.1g/kg, by polarised light microscopy including dispersion staining.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH_MN06_0.9-1.0	BH_MN06_2.0-2.1	BH_MN11_1.5-1.6	BH_MN11_2.0-2.1	BH_MN11_2.9-3.0
				Client sampling date / time	22-Jun-2019 00:00	22-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1920095-002	ES1920095-004	ES1920095-006	ES1920095-007	ES1920095-008
					Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		43.0	13.6	19.5	18.5	26.0
EA200: AS 4964 - 2004 Identification of Asbestos in Soils									
Asbestos Detected	1332-21-4	0.1	g/kg		No	----	No	----	----
Asbestos (Trace)	1332-21-4	5	Fibres		No	----	No	----	----
Asbestos Type	1332-21-4	-	--		-	----	-	----	----
Sample weight (dry)	----	0.01	g		90.4	----	87.3	----	----
APPROVED IDENTIFIER:	----	-	--		C.OWLER	----	C.OWLER	----	----
Synthetic Mineral Fibre	----	0.1	g/kg		No	----	No	----	----
Organic Fibre	----	0.1	g/kg		No	----	No	----	----
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		5	<5	<5	6	<5
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg		26	9	11	21	8
Copper	7440-50-8	5	mg/kg		7	6	14	<5	5
Lead	7439-92-1	5	mg/kg		31	9	30	11	15
Nickel	7440-02-0	2	mg/kg		16	4	6	5	<2
Zinc	7440-66-6	5	mg/kg		12	5	43	7	10
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EP035G: Total Phenol by Discrete Analyser									
Phenols (Total)	----	1	mg/kg		<1	----	<1	----	----
EP066: Polychlorinated Biphenyls (PCB)									
Total Polychlorinated biphenyls	----	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ Total Chlordane (sum)	----	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH_MN06_0.9-1.0	BH_MN06_2.0-2.1	BH_MN11_1.5-1.6	BH_MN11_2.0-2.1	BH_MN11_2.9-3.0
				Client sampling date / time	22-Jun-2019 00:00	22-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1920095-002	ES1920095-004	ES1920095-006	ES1920095-007	ES1920095-008
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
alpha-Endosulfan	959-98-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ Endosulfan (sum)	115-29-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDT	50-29-3	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Demeton-S-methyl	919-86-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Monocrotophos	6923-22-4	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Dimethoate	60-51-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Diazinon	333-41-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Parathion-methyl	298-00-0	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	121-75-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Fenthion	55-38-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos	2921-88-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Parathion	56-38-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Chlorfenvinphos	470-90-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Bromophos-ethyl	4824-78-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Fenamiphos	22224-92-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Prothiofos	34643-46-4	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Ethion	563-12-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Carbophenothion	786-19-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH_MN06_0.9-1.0	BH_MN06_2.0-2.1	BH_MN11_1.5-1.6	BH_MN11_2.0-2.1	BH_MN11_2.9-3.0
				Client sampling date / time	22-Jun-2019 00:00	22-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1920095-002	ES1920095-004	ES1920095-006	ES1920095-007	ES1920095-008
					Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued									
Azinphos Methyl	86-50-0	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
EP074A: Monocyclic Aromatic Hydrocarbons									
Styrene	100-42-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Isopropylbenzene	98-82-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
n-Propylbenzene	103-65-1	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
sec-Butylbenzene	135-98-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
tert-Butylbenzene	98-06-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
p-Isopropyltoluene	99-87-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
n-Butylbenzene	104-51-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
EP074B: Oxygenated Compounds									
Vinyl Acetate	108-05-4	5	mg/kg		<5	<5	<5	<5	<5
2-Butanone (MEK)	78-93-3	5	mg/kg		<5	<5	<5	<5	<5
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg		<5	<5	<5	<5	<5
2-Hexanone (MBK)	591-78-6	5	mg/kg		<5	<5	<5	<5	<5
EP074C: Sulfonated Compounds									
Carbon disulfide	75-15-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
EP074D: Fumigants									
2.2-Dichloropropane	594-20-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.2-Dichloropropane	78-87-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
EP074E: Halogenated Aliphatic Compounds									
Dichlorodifluoromethane	75-71-8	5	mg/kg		<5	<5	<5	<5	<5
Chloromethane	74-87-3	5	mg/kg		<5	<5	<5	<5	<5
Vinyl chloride	75-01-4	5	mg/kg		<5	<5	<5	<5	<5
Bromomethane	74-83-9	5	mg/kg		<5	<5	<5	<5	<5
Chloroethane	75-00-3	5	mg/kg		<5	<5	<5	<5	<5
Trichlorofluoromethane	75-69-4	5	mg/kg		<5	<5	<5	<5	<5
1.1-Dichloroethene	75-35-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Iodomethane	74-88-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH_MN06_0.9-1.0	BH_MN06_2.0-2.1	BH_MN11_1.5-1.6	BH_MN11_2.0-2.1	BH_MN11_2.9-3.0
				Client sampling date / time	22-Jun-2019 00:00	22-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1920095-002	ES1920095-004	ES1920095-006	ES1920095-007	ES1920095-008
					Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds - Continued									
1.1-Dichloroethane	75-34-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.1-Dichloropropylene	563-58-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Carbon Tetrachloride	56-23-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.2-Dichloroethane	107-06-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Trichloroethene	79-01-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Dibromomethane	74-95-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.3-Dichloropropane	142-28-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Tetrachloroethene	127-18-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Pentachloroethane	76-01-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Hexachlorobutadiene	87-68-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
EP074F: Halogenated Aromatic Compounds									
Chlorobenzene	108-90-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Bromobenzene	108-86-1	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorotoluene	95-49-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
4-Chlorotoluene	106-43-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
EP074G: Trihalomethanes									
Chloroform	67-66-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Bromodichloromethane	75-27-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Dibromochloromethane	124-48-1	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Bromoform	75-25-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH_MN06_0.9-1.0	BH_MN06_2.0-2.1	BH_MN11_1.5-1.6	BH_MN11_2.0-2.1	BH_MN11_2.9-3.0
				Client sampling date / time	22-Jun-2019 00:00	22-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1920095-002	ES1920095-004	ES1920095-006	ES1920095-007	ES1920095-008
					Result	Result	Result	Result	Result
EP074H: Naphthalene									
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	**0.8**	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	**0.8**	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	mg/kg		<0.5	<0.5	**1.6**	<0.5	<0.5
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ **Benzo(a)pyrene TEQ (half LOR)**	----	0.5	mg/kg		**0.6**	**0.6**	**0.6**	**0.6**	**0.6**
^ **Benzo(a)pyrene TEQ (LOR)**	----	0.5	mg/kg		**1.2**	**1.2**	**1.2**	**1.2**	**1.2**
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ **C10 - C36 Fraction (sum)**	----	50	mg/kg		<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH_MN06_0.9-1.0	BH_MN06_2.0-2.1	BH_MN11_1.5-1.6	BH_MN11_2.0-2.1	BH_MN11_2.9-3.0
				Client sampling date / time	22-Jun-2019 00:00	22-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1920095-002	ES1920095-004	ES1920095-006	ES1920095-007	ES1920095-008
					Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		<0.0002	----	<0.0002	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg		<0.0002	----	<0.0002	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		<0.0002	----	<0.0002	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg		<0.0002	----	<0.0002	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		**0.0002**	----	<0.0002	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg		<0.0002	----	<0.0002	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		<0.001	----	<0.001	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		<0.0002	----	<0.0002	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		<0.0002	----	<0.0002	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		<0.0002	----	<0.0002	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		<0.0002	----	<0.0002	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg		<0.0002	----	<0.0002	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg		<0.0002	----	<0.0002	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH_MN06_0.9-1.0	BH_MN06_2.0-2.1	BH_MN11_1.5-1.6	BH_MN11_2.0-2.1	BH_MN11_2.9-3.0
				Client sampling date / time	22-Jun-2019 00:00	22-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1920095-002	ES1920095-004	ES1920095-006	ES1920095-007	ES1920095-008
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg		<0.0002	----	<0.0002	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg		<0.0002	----	<0.0002	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg		<0.0002	----	<0.0002	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg		<0.0005	----	<0.0005	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg		<0.0002	----	<0.0002	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg		<0.0005	----	<0.0005	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg		<0.0005	----	<0.0005	----	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg		<0.0005	----	<0.0005	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg		<0.0005	----	<0.0005	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg		<0.0002	----	<0.0002	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg		<0.0002	----	<0.0002	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		<0.0005	----	<0.0005	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		<0.0005	----	<0.0005	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		<0.0005	----	<0.0005	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		<0.0005	----	<0.0005	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg		**0.0002**	----	<0.0002	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH_MN06_0.9-1.0	BH_MN06_2.0-2.1	BH_MN11_1.5-1.6	BH_MN11_2.0-2.1	BH_MN11_2.9-3.0
				Client sampling date / time	22-Jun-2019 00:00	22-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1920095-002	ES1920095-004	ES1920095-006	ES1920095-007	ES1920095-008
					Result	Result	Result	Result	Result
EP231P: PFAS Sums - Continued									
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		**0.0002**	----	<0.0002	----	----
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		**0.0002**	----	<0.0002	----	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		**89.4**	**95.3**	**90.6**	**101**	**97.6**
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		**106**	**108**	**94.4**	**105**	**109**
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		**86.2**	**92.9**	**104**	**88.0**	**109**
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.5	%		**81.1**	**86.1**	**86.0**	**76.5**	**82.9**
Toluene-D8	2037-26-5	0.5	%		**97.6**	**99.7**	**97.6**	**91.9**	**94.6**
4-Bromofluorobenzene	460-00-4	0.5	%		**83.4**	**85.0**	**78.7**	**81.4**	**80.8**
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**83.6**	**81.5**	**84.1**	**83.0**	**75.5**
2-Chlorophenol-D4	93951-73-6	0.5	%		**82.8**	**82.2**	**84.4**	**83.7**	**82.8**
2.4.6-Tribromophenol	118-79-6	0.5	%		**57.2**	**54.2**	**56.0**	**55.2**	**56.6**
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		**99.3**	**99.1**	**100**	**100**	**99.4**
Anthracene-d10	1719-06-8	0.5	%		**96.7**	**96.9**	**95.7**	**98.6**	**96.4**
4-Terphenyl-d14	1718-51-0	0.5	%		**102**	**101**	**103**	**104**	**102**
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**82.6**	**88.6**	**88.5**	**78.8**	**85.2**
Toluene-D8	2037-26-5	0.2	%		**97.8**	**101**	**98.3**	**92.7**	**95.5**
4-Bromofluorobenzene	460-00-4	0.2	%		**84.1**	**86.1**	**79.2**	**82.1**	**81.9**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		**85.0**	----	**69.0**	----	----
13C8-PFOA	----	0.0002	%		**87.0**	----	**69.0**	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	BH_MN13_0.9-1.2	BH_MN13_3.0-3.2	BH_VMN03_0.4-0.5	BH_VMN03_0.9-1.0	BH_VMN03_1 .1-1 .2
			Client sampling date / time	23-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00
Compound	CAS Number	LOR	Unit	ES1920095-010	ES1920095-012	ES1920095-014	ES1920095-016	ES1920095-017
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	24.6	13.1	21.5	18.5	25.3
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	No	----	Yes	No	----
Asbestos (Trace)	1332-21-4	5	Fibres	No	----	No	No	----
Asbestos Type	1332-21-4	-	--	-	----	Ch + Cr	-	----
Sample weight (dry)	----	0.01	g	46.9	----	34.2	30.1	----
APPROVED IDENTIFIER:	----	-	--	C.OWLER	----	C.OWLER	C.OWLER	----
Synthetic Mineral Fibre	----	0.1	g/kg	No	----	No	No	----
Organic Fibre	----	0.1	g/kg	No	----	No	No	----
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	7	<5	19	8	8
Cadmium	7440-43-9	1	mg/kg	<1	<1	1	<1	<1
Chromium	7440-47-3	2	mg/kg	24	26	66	45	24
Copper	7440-50-8	5	mg/kg	14	6	154	66	<5
Lead	7439-92-1	5	mg/kg	64	12	147	80	105
Nickel	7440-02-0	2	mg/kg	8	6	69	13	<2
Zinc	7440-66-6	5	mg/kg	82	<5	948	229	180
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	0.2	<0.1	<0.1	<0.1	<0.1
EP035G: Total Phenol by Discrete Analyser								
Phenols (Total)	----	1	mg/kg	<1	----	<1	<1	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
^ Total Chlordane (sum)	----	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH_MN13_0.9-1.2	BH_MN13_3.0-3.2	BH_VMN03_0.4-0.5	BH_VMN03_0.9-1.0	BH_VMN03_1 .1-1 .2
				Client sampling date / time	23-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1920095-010	ES1920095-012	ES1920095-014	ES1920095-016	ES1920095-017
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
alpha-Endosulfan	959-98-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.05	mg/kg		<0.05	<0.05	**0.14**	<0.05	<0.05
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ Endosulfan (sum)	115-29-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDT	50-29-3	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		<0.05	<0.05	**0.14**	<0.05	<0.05
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Demeton-S-methyl	919-86-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Monocrotophos	6923-22-4	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Dimethoate	60-51-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Diazinon	333-41-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Parathion-methyl	298-00-0	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	121-75-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Fenthion	55-38-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos	2921-88-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Parathion	56-38-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Chlorfenvinphos	470-90-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Bromophos-ethyl	4824-78-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Fenamiphos	22224-92-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Prothiofos	34643-46-4	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Ethion	563-12-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Carbophenothion	786-19-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH_MN13_0.9-1.2	BH_MN13_3.0-3.2	BH_VMN03_0.4-0.5	BH_VMN03_0.9-1.0	BH_VMN03_1 .1-1 .2
				Client sampling date / time	23-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1920095-010	ES1920095-012	ES1920095-014	ES1920095-016	ES1920095-017
					Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued									
Azinphos Methyl	86-50-0	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
EP074A: Monocyclic Aromatic Hydrocarbons									
Styrene	100-42-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Isopropylbenzene	98-82-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
n-Propylbenzene	103-65-1	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
sec-Butylbenzene	135-98-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
tert-Butylbenzene	98-06-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
p-Isopropyltoluene	99-87-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
n-Butylbenzene	104-51-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
EP074B: Oxygenated Compounds									
Vinyl Acetate	108-05-4	5	mg/kg		<5	<5	<5	<5	<5
2-Butanone (MEK)	78-93-3	5	mg/kg		<5	<5	<5	<5	<5
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg		<5	<5	<5	<5	<5
2-Hexanone (MBK)	591-78-6	5	mg/kg		<5	<5	<5	<5	<5
EP074C: Sulfonated Compounds									
Carbon disulfide	75-15-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
EP074D: Fumigants									
2.2-Dichloropropane	594-20-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.2-Dichloropropane	78-87-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
EP074E: Halogenated Aliphatic Compounds									
Dichlorodifluoromethane	75-71-8	5	mg/kg		<5	<5	<5	<5	<5
Chloromethane	74-87-3	5	mg/kg		<5	<5	<5	<5	<5
Vinyl chloride	75-01-4	5	mg/kg		<5	<5	<5	<5	<5
Bromomethane	74-83-9	5	mg/kg		<5	<5	<5	<5	<5
Chloroethane	75-00-3	5	mg/kg		<5	<5	<5	<5	<5
Trichlorofluoromethane	75-69-4	5	mg/kg		<5	<5	<5	<5	<5
1.1-Dichloroethene	75-35-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Iodomethane	74-88-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH_MN13_0.9-1.2	BH_MN13_3.0-3.2	BH_VMN03_0.4-0.5	BH_VMN03_0.9-1.0	BH_VMN03_1 .1-1 .2
				Client sampling date / time	23-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1920095-010	ES1920095-012	ES1920095-014	ES1920095-016	ES1920095-017
					Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds - Continued									
1.1-Dichloroethane	75-34-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.1-Dichloropropylene	563-58-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Carbon Tetrachloride	56-23-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.2-Dichloroethane	107-06-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Trichloroethene	79-01-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Dibromomethane	74-95-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.3-Dichloropropane	142-28-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Tetrachloroethene	127-18-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Pentachloroethane	76-01-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Hexachlorobutadiene	87-68-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
EP074F: Halogenated Aromatic Compounds									
Chlorobenzene	108-90-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Bromobenzene	108-86-1	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorotoluene	95-49-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
4-Chlorotoluene	106-43-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
EP074G: Trihalomethanes									
Chloroform	67-66-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Bromodichloromethane	75-27-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Dibromochloromethane	124-48-1	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Bromoform	75-25-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH_MN13_0.9-1.2	BH_MN13_3.0-3.2	BH_VMN03_0.4-0.5	BH_VMN03_0.9-1.0	BH_VMN03_1 .1-1 .2
				Client sampling date / time	23-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1920095-010	ES1920095-012	ES1920095-014	ES1920095-016	ES1920095-017
					Result	Result	Result	Result	Result
EP074H: Naphthalene									
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		**2.0**	**1.8**	**0.8**	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg		**0.6**	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		**3.2**	**3.0**	**1.6**	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg		**3.2**	**3.1**	**1.5**	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg		**1.8**	**1.6**	**0.6**	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg		**1.7**	**1.4**	**0.6**	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		**2.1**	**1.8**	**0.8**	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		**0.9**	**0.9**	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		**1.7**	**1.5**	**0.7**	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		**0.9**	**1.1**	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		**1.1**	**1.4**	**0.6**	<0.5	<0.5
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	mg/kg		**19.2**	**17.6**	**7.2**	<0.5	<0.5
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	mg/kg		**2.3**	**2.1**	**0.8**	<0.5	<0.5
^ **Benzo(a)pyrene TEQ (half LOR)**	----	0.5	mg/kg		**2.5**	**2.3**	**1.2**	**0.6**	**0.6**
^ **Benzo(a)pyrene TEQ (LOR)**	----	0.5	mg/kg		**2.8**	**2.6**	**1.4**	**1.2**	**1.2**
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg		<100	<100	**170**	<100	<100
C29 - C36 Fraction	----	100	mg/kg		<100	<100	**140**	<100	<100
^ **C10 - C36 Fraction (sum)**	----	50	mg/kg		<50	<50	**310**	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		**130**	**120**	**280**	<100	<100

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH_MN13_0.9-1.2	BH_MN13_3.0-3.2	BH_VMN03_0.4-0.5	BH_VMN03_0.9-1.0	BH_VMN03_1 .1-1 .2
				Client sampling date / time	23-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1920095-010	ES1920095-012	ES1920095-014	ES1920095-016	ES1920095-017
					Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		**130**	**120**	**280**	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		<0.0002	----	<0.0002	<0.0002	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg		<0.0002	----	<0.0002	<0.0002	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		<0.0002	----	<0.0002	<0.0002	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg		<0.0002	----	<0.0002	<0.0002	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		<0.0002	----	<0.0002	<0.0002	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg		<0.0002	----	<0.0002	<0.0002	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		<0.001	----	<0.001	<0.001	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		<0.0002	----	<0.0002	<0.0002	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		<0.0002	----	<0.0002	<0.0002	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		<0.0002	----	<0.0002	<0.0002	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		<0.0002	----	<0.0002	<0.0002	----
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg		<0.0002	----	<0.0002	<0.0002	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg		<0.0002	----	<0.0002	<0.0002	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH_MN13_0.9-1.2	BH_MN13_3.0-3.2	BH_VMN03_0.4-0.5	BH_VMN03_0.9-1.0	BH_VMN03_1 .1-1 .2
				Client sampling date / time	23-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1920095-010	ES1920095-012	ES1920095-014	ES1920095-016	ES1920095-017
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg		<0.0002	----	<0.0002	<0.0002	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg		<0.0002	----	<0.0002	<0.0002	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg		<0.0002	----	<0.0002	<0.0002	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg		<0.0005	----	<0.0005	<0.0005	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg		<0.0002	----	<0.0002	<0.0002	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg		<0.0005	----	<0.0005	<0.0005	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg		<0.0005	----	<0.0005	<0.0005	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg		<0.0005	----	<0.0005	<0.0005	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg		<0.0005	----	<0.0005	<0.0005	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg		<0.0002	----	<0.0002	<0.0002	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg		<0.0002	----	<0.0002	<0.0002	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		<0.0005	----	<0.0005	<0.0005	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		<0.0005	----	<0.0005	<0.0005	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		<0.0005	----	<0.0005	<0.0005	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		<0.0005	----	<0.0005	<0.0005	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg		<0.0002	----	<0.0002	<0.0002	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH_MN13_0.9-1.2	BH_MN13_3.0-3.2	BH_VMN03_0.4-0.5	BH_VMN03_0.9-1.0	BH_VMN03_1 .1-1 .2
				Client sampling date / time	23-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1920095-010	ES1920095-012	ES1920095-014	ES1920095-016	ES1920095-017
					Result	Result	Result	Result	Result
EP231P: PFAS Sums - Continued									
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		<0.0002	----	<0.0002	<0.0002	----
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		<0.0002	----	<0.0002	<0.0002	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		92.1	93.5	84.3	92.5	103
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		107	133	62.8	123	131
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		130	104	81.2	113	99.0
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.5	%		80.8	86.8	90.5	83.8	77.4
Toluene-D8	2037-26-5	0.5	%		92.4	100	103	89.6	83.2
4-Bromofluorobenzene	460-00-4	0.5	%		78.5	87.3	85.6	85.3	78.5
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		80.4	78.0	78.0	77.2	75.0
2-Chlorophenol-D4	93951-73-6	0.5	%		81.3	81.4	80.0	79.1	77.8
2.4.6-Tribromophenol	118-79-6	0.5	%		62.3	70.7	64.8	67.8	63.3
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		95.6	91.9	93.2	91.0	91.0
Anthracene-d10	1719-06-8	0.5	%		91.7	79.5	84.9	81.7	81.5
4-Terphenyl-d14	1718-51-0	0.5	%		99.4	83.0	85.0	85.8	87.0
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		82.7	89.3	93.1	76.2	79.5
Toluene-D8	2037-26-5	0.2	%		93.4	101	104	90.4	83.9
4-Bromofluorobenzene	460-00-4	0.2	%		79.2	87.1	85.2	89.9	77.6
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		77.5	----	88.0	80.0	----
13C8-PFOA	----	0.0002	%		75.5	----	87.0	80.5	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH_VMN03_2.0-2.2	BH_VW_MN01_2.0-2.1	BH_VW_MN01_3.0-3.1	TS 4	TB
				Client sampling date / time	23-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1920095-018	ES1920095-019	ES1920095-020	ES1920095-022	ES1920095-023
					Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		19.0	20.5	24.1	----	----
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		<5	<5	22	----	----
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	----	----
Chromium	7440-47-3	2	mg/kg		22	9	47	----	----
Copper	7440-50-8	5	mg/kg		<5	<5	18	----	----
Lead	7439-92-1	5	mg/kg		15	8	30	----	----
Nickel	7440-02-0	2	mg/kg		3	2	3	----	----
Zinc	7440-66-6	5	mg/kg		<5	6	<5	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	<0.1	----	----
EP066: Polychlorinated Biphenyls (PCB)									
Total Polychlorinated biphenyls	----	0.1	mg/kg		<0.1	<0.1	<0.1	----	----
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
beta-BHC	319-85-7	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
gamma-BHC	58-89-9	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
delta-BHC	319-86-8	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Heptachlor	76-44-8	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Aldrin	309-00-2	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
^ Total Chlordane (sum)	----	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Dieldrin	60-57-1	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Endrin	72-20-8	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	<0.05	<0.05	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH_VMN03_2.0-2.2	BH_VW_MN01_2.0-2.1	BH_VW_MN01_3.0-3.1	TS 4	TB
				Client sampling date / time	23-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1920095-018	ES1920095-019	ES1920095-020	ES1920095-022	ES1920095-023
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
4.4`-DDT	50-29-3	0.2	mg/kg		<0.2	<0.2	<0.2	----	----
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	<0.2	<0.2	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Monocrotophos	6923-22-4	0.2	mg/kg		<0.2	<0.2	<0.2	----	----
Dimethoate	60-51-5	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Diazinon	333-41-5	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Parathion-methyl	298-00-0	0.2	mg/kg		<0.2	<0.2	<0.2	----	----
Malathion	121-75-5	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Fenthion	55-38-9	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Parathion	56-38-2	0.2	mg/kg		<0.2	<0.2	<0.2	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Fenamiphos	22224-92-6	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Prothiofos	34643-46-4	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Ethion	563-12-2	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Carbophenothion	786-19-6	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
EP074A: Monocyclic Aromatic Hydrocarbons									
Styrene	100-42-5	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Isopropylbenzene	98-82-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
n-Propylbenzene	103-65-1	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
sec-Butylbenzene	135-98-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
tert-Butylbenzene	98-06-6	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
p-Isopropyltoluene	99-87-6	0.5	mg/kg		<0.5	<0.5	<0.5	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH_VMN03_2.0-2.2	BH_VW_MN01_2.0-2.1	BH_VW_MN01_3.0-3.1	TS 4	TB
				Client sampling date / time	23-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1920095-018	ES1920095-019	ES1920095-020	ES1920095-022	ES1920095-023
					Result	Result	Result	Result	Result
EP074A: Monocyclic Aromatic Hydrocarbons - Continued									
n-Butylbenzene	104-51-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
EP074B: Oxygenated Compounds									
Vinyl Acetate	108-05-4	5	mg/kg		<5	<5	<5	----	----
2-Butanone (MEK)	78-93-3	5	mg/kg		<5	<5	<5	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg		<5	<5	<5	----	----
2-Hexanone (MBK)	591-78-6	5	mg/kg		<5	<5	<5	----	----
EP074C: Sulfonated Compounds									
Carbon disulfide	75-15-0	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
EP074D: Fumigants									
2.2-Dichloropropane	594-20-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.2-Dichloropropane	78-87-5	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
EP074E: Halogenated Aliphatic Compounds									
Dichlorodifluoromethane	75-71-8	5	mg/kg		<5	<5	<5	----	----
Chloromethane	74-87-3	5	mg/kg		<5	<5	<5	----	----
Vinyl chloride	75-01-4	5	mg/kg		<5	<5	<5	----	----
Bromomethane	74-83-9	5	mg/kg		<5	<5	<5	----	----
Chloroethane	75-00-3	5	mg/kg		<5	<5	<5	----	----
Trichlorofluoromethane	75-69-4	5	mg/kg		<5	<5	<5	----	----
1.1-Dichloroethene	75-35-4	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Iodomethane	74-88-4	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.1-Dichloroethane	75-34-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.1-Dichloropropylene	563-58-6	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.2-Dichloroethane	107-06-2	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Trichloroethene	79-01-6	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Dibromomethane	74-95-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.3-Dichloropropane	142-28-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH_VMN03_2.0-2.2	BH_VW_MN01_2.0-2.1	BH_VW_MN01_3.0-3.1	TS 4	TB
				Client sampling date / time	23-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1920095-018	ES1920095-019	ES1920095-020	ES1920095-022	ES1920095-023
					Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds - Continued									
Tetrachloroethene	127-18-4	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Pentachloroethane	76-01-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
EP074F: Halogenated Aromatic Compounds									
Chlorobenzene	108-90-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Bromobenzene	108-86-1	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
2-Chlorotoluene	95-49-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
4-Chlorotoluene	106-43-4	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
EP074G: Trihalomethanes									
Chloroform	67-66-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Bromodichloromethane	75-27-4	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Dibromochloromethane	124-48-1	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Bromoform	75-25-2	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
EP074H: Naphthalene									
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	<0.5	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH_VMN03_2.0-2.2	BH_VW_MN01_2.0-2.1	BH_VW_MN01_3.0-3.1	TS 4	TB
				Client sampling date / time	23-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1920095-018	ES1920095-019	ES1920095-020	ES1920095-022	ES1920095-023
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	**0.6**	**0.6**	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**1.2**	**1.2**	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	----	----
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	<50	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	----	----
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	----	----
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	<50	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	**0.5**	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	**22.9**	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	**3.2**	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	**15.7**	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	**6.2**	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH_VMN03_2.0-2.2	BH_VW_MN01_2.0-2.1	BH_VW_MN01_3.0-3.1	TS 4	TB
				Client sampling date / time	23-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1920095-018	ES1920095-019	ES1920095-020	ES1920095-022	ES1920095-023
					Result	Result	Result	Result	Result
EP080: BTEXN - Continued									
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	**48.5**	<0.2
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	<0.5	**21.9**	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		**99.7**	**91.0**	**92.0**	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		**99.8**	**96.2**	**97.5**	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		**97.2**	**85.5**	**85.7**	----	----
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.5	%		**74.2**	**87.0**	**85.3**	----	----
Toluene-D8	2037-26-5	0.5	%		**82.5**	**96.6**	**94.8**	----	----
4-Bromofluorobenzene	460-00-4	0.5	%		**76.9**	**79.5**	**81.4**	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**75.0**	**77.1**	**77.6**	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		**78.4**	**77.3**	**78.4**	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%		**60.4**	**57.9**	**53.2**	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		**90.9**	**90.3**	**87.8**	----	----
Anthracene-d10	1719-06-8	0.5	%		**82.5**	**82.0**	**81.7**	----	----
4-Terphenyl-d14	1718-51-0	0.5	%		**87.8**	**86.9**	**83.9**	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**76.4**	**89.6**	**87.8**	**97.0**	**96.1**
Toluene-D8	2037-26-5	0.2	%		**83.2**	**97.3**	**95.9**	**103**	**101**
4-Bromofluorobenzene	460-00-4	0.2	%		**75.9**	**80.2**	**82.0**	**86.2**	**84.2**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	QA506a	QA507a	QA508a	TSC 4	----
				Client sampling date / time	22-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00	----
Compound	CAS Number	LOR	Unit		ES1920095-024	ES1920095-025	ES1920095-026	ES1920095-038	--------
					Result	Result	Result	Result	----
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		23.8	20.0	25.0	----	----
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		<5	7	<5	----	----
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	----	----
Chromium	7440-47-3	2	mg/kg		18	28	23	----	----
Copper	7440-50-8	5	mg/kg		<5	28	6	----	----
Lead	7439-92-1	5	mg/kg		18	64	31	----	----
Nickel	7440-02-0	2	mg/kg		4	10	5	----	----
Zinc	7440-66-6	5	mg/kg		13	263	22	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	<0.1	----	----
EP035G: Total Phenol by Discrete Analyser									
Phenols (Total)	----	1	mg/kg		<1	<1	<1	----	----
EP066: Polychlorinated Biphenyls (PCB)									
Total Polychlorinated biphenyls	----	0.1	mg/kg		<0.1	<0.1	<0.1	----	----
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
beta-BHC	319-85-7	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
gamma-BHC	58-89-9	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
delta-BHC	319-86-8	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Heptachlor	76-44-8	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Aldrin	309-00-2	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
^ Total Chlordane (sum)	----	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Dieldrin	60-57-1	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Endrin	72-20-8	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	<0.05	<0.05	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	QA506a	QA507a	QA508a	TSC 4	----
				Client sampling date / time	22-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00	----
Compound	CAS Number	LOR	Unit		ES1920095-024	ES1920095-025	ES1920095-026	ES1920095-038	--------
					Result	Result	Result	Result	----
EP068A: Organochlorine Pesticides (OC) - Continued									
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
4.4`-DDT	50-29-3	0.2	mg/kg		<0.2	<0.2	<0.2	----	----
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	<0.2	<0.2	----	----
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Monocrotophos	6923-22-4	0.2	mg/kg		<0.2	<0.2	<0.2	----	----
Dimethoate	60-51-5	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Diazinon	333-41-5	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Parathion-methyl	298-00-0	0.2	mg/kg		<0.2	<0.2	<0.2	----	----
Malathion	121-75-5	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Fenthion	55-38-9	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Parathion	56-38-2	0.2	mg/kg		<0.2	<0.2	<0.2	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Fenamiphos	22224-92-6	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Prothiofos	34643-46-4	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Ethion	563-12-2	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Carbophenothion	786-19-6	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
EP074A: Monocyclic Aromatic Hydrocarbons									
Styrene	100-42-5	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Isopropylbenzene	98-82-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
n-Propylbenzene	103-65-1	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
sec-Butylbenzene	135-98-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg		<0.5	<0.5	<0.5	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	QA506a	QA507a	QA508a	TSC 4	----
				Client sampling date / time	22-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00	----
Compound	CAS Number	LOR	Unit		ES1920095-024	ES1920095-025	ES1920095-026	ES1920095-038	--------
					Result	Result	Result	Result	----
EP074A: Monocyclic Aromatic Hydrocarbons - Continued									
tert-Butylbenzene	98-06-6	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
p-Isopropyltoluene	99-87-6	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
n-Butylbenzene	104-51-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
EP074B: Oxygenated Compounds									
Vinyl Acetate	108-05-4	5	mg/kg		<5	<5	<5	----	----
2-Butanone (MEK)	78-93-3	5	mg/kg		<5	<5	<5	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg		<5	<5	<5	----	----
2-Hexanone (MBK)	591-78-6	5	mg/kg		<5	<5	<5	----	----
EP074C: Sulfonated Compounds									
Carbon disulfide	75-15-0	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
EP074D: Fumigants									
2.2-Dichloropropane	594-20-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.2-Dichloropropane	78-87-5	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
EP074E: Halogenated Aliphatic Compounds									
Dichlorodifluoromethane	75-71-8	5	mg/kg		<5	<5	<5	----	----
Chloromethane	74-87-3	5	mg/kg		<5	<5	<5	----	----
Vinyl chloride	75-01-4	5	mg/kg		<5	<5	<5	----	----
Bromomethane	74-83-9	5	mg/kg		<5	<5	<5	----	----
Chloroethane	75-00-3	5	mg/kg		<5	<5	<5	----	----
Trichlorofluoromethane	75-69-4	5	mg/kg		<5	<5	<5	----	----
1.1-Dichloroethene	75-35-4	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Iodomethane	74-88-4	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.1-Dichloroethane	75-34-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.1-Dichloropropylene	563-58-6	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.2-Dichloroethane	107-06-2	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Trichloroethene	79-01-6	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Dibromomethane	74-95-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	QA506a	QA507a	QA508a	TSC 4	----
				Client sampling date / time	22-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00	----
Compound	CAS Number	LOR	Unit		ES1920095-024	ES1920095-025	ES1920095-026	ES1920095-038	--------
					Result	Result	Result	Result	----
EP074E: Halogenated Aliphatic Compounds - Continued									
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.3-Dichloropropane	142-28-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Tetrachloroethene	127-18-4	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Pentachloroethane	76-01-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
EP074F: Halogenated Aromatic Compounds									
Chlorobenzene	108-90-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Bromobenzene	108-86-1	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
2-Chlorotoluene	95-49-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
4-Chlorotoluene	106-43-4	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
EP074G: Trihalomethanes									
Chloroform	67-66-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Bromodichloromethane	75-27-4	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Dibromochloromethane	124-48-1	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Bromoform	75-25-2	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
EP074H: Naphthalene									
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	**0.5**	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	QA506a	QA507a	QA508a	TSC 4	----
				Client sampling date / time	22-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00	----
Compound	CAS Number	LOR	Unit		ES1920095-024	ES1920095-025	ES1920095-026	ES1920095-038	--------
					Result	Result	Result	Result	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	**0.5**	**1.0**	----	----
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	**1.0**	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	<0.5	**0.7**	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	**0.5**	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	**0.5**	**3.7**	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	**0.6**	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	**0.6**	**0.9**	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**1.2**	**1.2**	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	----	----
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	<50	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	----	----
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	----	----
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	<50	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	**0.6**	----
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	**25.3**	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	**3.5**	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	QA506a	QA507a	QA508a	TSC 4	----
				Client sampling date / time	22-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00	----
Compound	CAS Number	LOR	Unit		ES1920095-024	ES1920095-025	ES1920095-026	ES1920095-038	--------
					Result	Result	Result	Result	----
EP080: BTEXN - Continued									
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	**17.0**	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	**6.7**	----
^ **Sum of BTEX**	----	0.2	mg/kg		<0.2	<0.2	<0.2	**53.1**	----
^ **Total Xylenes**	----	0.5	mg/kg		<0.5	<0.5	<0.5	**23.7**	----
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		<0.001	<0.001	<0.001	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	----	----
EP231C: Perfluoroalkyl Sulfonamides									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	QA506a	QA507a	QA508a	TSC 4	----
				Client sampling date / time	22-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00	----
Compound	CAS Number	LOR	Unit		ES1920095-024	ES1920095-025	ES1920095-026	ES1920095-038	--------
					Result	Result	Result	Result	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	----	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	----	----
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	----	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		**101**	**90.5**	**92.7**	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		**104**	**100**	**129**	----	----
EP068T: Organophosphorus Pesticide Surrogate									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	QA506a	QA507a	QA508a	TSC 4	----
				Client sampling date / time	22-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00	----
Compound	CAS Number	LOR	Unit		ES1920095-024	ES1920095-025	ES1920095-026	ES1920095-038	--------
					Result	Result	Result	Result	----
EP068T: Organophosphorus Pesticide Surrogate - Continued									
DEF	78-48-8	0.05	%		98.5	119	114	----	----
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.5	%		88.7	87.6	87.9	----	----
Toluene-D8	2037-26-5	0.5	%		96.1	92.6	93.5	----	----
4-Bromofluorobenzene	460-00-4	0.5	%		82.8	78.8	78.9	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		79.2	73.7	73.0	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		77.9	72.4	76.4	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%		59.9	64.3	69.7	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		92.9	90.7	89.3	----	----
Anthracene-d10	1719-06-8	0.5	%		88.9	78.5	77.8	----	----
4-Terphenyl-d14	1718-51-0	0.5	%		91.8	82.4	82.8	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		91.2	90.2	90.4	91.0	----
Toluene-D8	2037-26-5	0.2	%		96.9	93.3	94.3	97.1	----
4-Bromofluorobenzene	460-00-4	0.2	%		82.0	77.4	77.2	81.7	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		77.5	77.0	84.0	----	----
13C8-PFOA	----	0.0002	%		79.0	79.0	83.0	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Client sample ID	RB_VW_MN03	R_BH_MW02	----	----	----
			Client sampling date / time	28-Jun-2019 00:00	22-Jun-2019 00:00	----	----	----
Compound	CAS Number	LOR	Unit	ES1920095-021	ES1920095-032	--------	--------	--------
				Result	Result	----	----	----
EG020T: Total Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	----	----	----
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	----	----	----
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	----	----	----
Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	----	----	----
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	----	----	----
Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	----	----	----
Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	----	----	----
EP066: Polychlorinated Biphenyls (PCB)								
^ Total Polychlorinated biphenyls	----	1	µg/L	<1	<1	----	----	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.5	µg/L	<0.5	<0.5	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	<0.5	----	----	----
beta-BHC	319-85-7	0.5	µg/L	<0.5	<0.5	----	----	----
gamma-BHC	58-89-9	0.5	µg/L	<0.5	<0.5	----	----	----
delta-BHC	319-86-8	0.5	µg/L	<0.5	<0.5	----	----	----
Heptachlor	76-44-8	0.5	µg/L	<0.5	<0.5	----	----	----
Aldrin	309-00-2	0.5	µg/L	<0.5	<0.5	----	----	----
Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	<0.5	----	----	----
trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	<0.5	----	----	----
alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	<0.5	----	----	----
cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	<0.5	----	----	----
Dieldrin	60-57-1	0.5	µg/L	<0.5	<0.5	----	----	----
4.4`-DDE	72-55-9	0.5	µg/L	<0.5	<0.5	----	----	----
Endrin	72-20-8	0.5	µg/L	<0.5	<0.5	----	----	----
beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	<0.5	----	----	----
4.4`-DDD	72-54-8	0.5	µg/L	<0.5	<0.5	----	----	----
Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	<0.5	----	----	----
Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	<0.5	----	----	----
4.4`-DDT	50-29-3	2.0	µg/L	<2.0	<2.0	----	----	----
Endrin ketone	53494-70-5	0.5	µg/L	<0.5	<0.5	----	----	----
Methoxychlor	72-43-5	2.0	µg/L	<2.0	<2.0	----	----	----
^ Total Chlordane (sum)	----	0.5	µg/L	<0.5	<0.5	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	RB_VW_MN03	R_BH_MW02	----	----	----
				Client sampling date / time	28-Jun-2019 00:00	22-Jun-2019 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES1920095-021	ES1920095-032	--------	--------	--------
					Result	Result	----	----	----
EP068A: Organochlorine Pesticides (OC) - Continued									
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.5	µg/L		<0.5	<0.5	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.5	µg/L		<0.5	<0.5	----	----	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.5	µg/L		<0.5	<0.5	----	----	----
Demeton-S-methyl	919-86-8	0.5	µg/L		<0.5	<0.5	----	----	----
Monocrotophos	6923-22-4	2.0	µg/L		<2.0	<2.0	----	----	----
Dimethoate	60-51-5	0.5	µg/L		<0.5	<0.5	----	----	----
Diazinon	333-41-5	0.5	µg/L		<0.5	<0.5	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.5	µg/L		<0.5	<0.5	----	----	----
Parathion-methyl	298-00-0	2.0	µg/L		<2.0	<2.0	----	----	----
Malathion	121-75-5	0.5	µg/L		<0.5	<0.5	----	----	----
Fenthion	55-38-9	0.5	µg/L		<0.5	<0.5	----	----	----
Chlorpyrifos	2921-88-2	0.5	µg/L		<0.5	<0.5	----	----	----
Parathion	56-38-2	2.0	µg/L		<2.0	<2.0	----	----	----
Pirimphos-ethyl	23505-41-1	0.5	µg/L		<0.5	<0.5	----	----	----
Chlorfenvinphos	470-90-6	0.5	µg/L		<0.5	<0.5	----	----	----
Bromophos-ethyl	4824-78-6	0.5	µg/L		<0.5	<0.5	----	----	----
Fenamiphos	22224-92-6	0.5	µg/L		<0.5	<0.5	----	----	----
Prothiofos	34643-46-4	0.5	µg/L		<0.5	<0.5	----	----	----
Ethion	563-12-2	0.5	µg/L		<0.5	<0.5	----	----	----
Carbophenothion	786-19-6	0.5	µg/L		<0.5	<0.5	----	----	----
Azinphos Methyl	86-50-0	0.5	µg/L		<0.5	<0.5	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons									
Styrene	100-42-5	5	µg/L		<5	<5	----	----	----
Isopropylbenzene	98-82-8	5	µg/L		<5	<5	----	----	----
n-Propylbenzene	103-65-1	5	µg/L		<5	<5	----	----	----
1.3.5-Trimethylbenzene	108-67-8	5	µg/L		<5	<5	----	----	----
sec-Butylbenzene	135-98-8	5	µg/L		<5	<5	----	----	----
1.2.4-Trimethylbenzene	95-63-6	5	µg/L		<5	<5	----	----	----
tert-Butylbenzene	98-06-6	5	µg/L		<5	<5	----	----	----
p-Isopropyltoluene	99-87-6	5	µg/L		<5	<5	----	----	----
n-Butylbenzene	104-51-8	5	µg/L		<5	<5	----	----	----
EP074B: Oxygenated Compounds									

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	RB_VW_MN03	R_BH_MW02	----	----	----
				Client sampling date / time	28-Jun-2019 00:00	22-Jun-2019 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES1920095-021	ES1920095-032	--------	--------	--------
					Result	Result	----	----	----
EP074B: Oxygenated Compounds - Continued									
Vinyl Acetate	108-05-4	50	µg/L		<50	<50	----	----	----
2-Butanone (MEK)	78-93-3	50	µg/L		<50	<50	----	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L		<50	<50	----	----	----
2-Hexanone (MBK)	591-78-6	50	µg/L		<50	<50	----	----	----
EP074C: Sulfonated Compounds									
Carbon disulfide	75-15-0	5	µg/L		<5	<5	----	----	----
EP074D: Fumigants									
2.2-Dichloropropane	594-20-7	5	µg/L		<5	<5	----	----	----
1.2-Dichloropropane	78-87-5	5	µg/L		<5	<5	----	----	----
cis-1.3-Dichloropropylene	10061-01-5	5	µg/L		<5	<5	----	----	----
trans-1.3-Dichloropropylene	10061-02-6	5	µg/L		<5	<5	----	----	----
1.2-Dibromoethane (EDB)	106-93-4	5	µg/L		<5	<5	----	----	----
EP074E: Halogenated Aliphatic Compounds									
Dichlorodifluoromethane	75-71-8	50	µg/L		<50	<50	----	----	----
Chloromethane	74-87-3	50	µg/L		<50	<50	----	----	----
Vinyl chloride	75-01-4	50	µg/L		<50	<50	----	----	----
Bromomethane	74-83-9	50	µg/L		<50	<50	----	----	----
Chloroethane	75-00-3	50	µg/L		<50	<50	----	----	----
Trichlorofluoromethane	75-69-4	50	µg/L		<50	<50	----	----	----
1.1-Dichloroethene	75-35-4	5	µg/L		<5	<5	----	----	----
Iodomethane	74-88-4	5	µg/L		<5	<5	----	----	----
trans-1.2-Dichloroethene	156-60-5	5	µg/L		<5	<5	----	----	----
1.1-Dichloroethane	75-34-3	5	µg/L		<5	<5	----	----	----
cis-1.2-Dichloroethene	156-59-2	5	µg/L		<5	<5	----	----	----
1.1.1-Trichloroethane	71-55-6	5	µg/L		<5	<5	----	----	----
1.1-Dichloropropylene	563-58-6	5	µg/L		<5	<5	----	----	----
Carbon Tetrachloride	56-23-5	5	µg/L		<5	<5	----	----	----
1.2-Dichloroethane	107-06-2	5	µg/L		<5	<5	----	----	----
Trichloroethene	79-01-6	5	µg/L		<5	<5	----	----	----
Dibromomethane	74-95-3	5	µg/L		<5	<5	----	----	----
1.1.2-Trichloroethane	79-00-5	5	µg/L		<5	<5	----	----	----
1.3-Dichloropropane	142-28-9	5	µg/L		<5	<5	----	----	----
Tetrachloroethene	127-18-4	5	µg/L		<5	<5	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L		<5	<5	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	RB_VW_MN03	R_BH_MW02	----	----	----
				Client sampling date / time	28-Jun-2019 00:00	22-Jun-2019 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES1920095-021	ES1920095-032	--------	--------	--------
					Result	Result	----	----	----
EP074E: Halogenated Aliphatic Compounds - Continued									
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L		<5	<5	----	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L		<5	<5	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L		<5	<5	----	----	----
1.2.3-Trichloropropane	96-18-4	5	µg/L		<5	<5	----	----	----
Pentachloroethane	76-01-7	5	µg/L		<5	<5	----	----	----
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L		<5	<5	----	----	----
Hexachlorobutadiene	87-68-3	5	µg/L		<5	<5	----	----	----
EP074F: Halogenated Aromatic Compounds									
Chlorobenzene	108-90-7	5	µg/L		<5	<5	----	----	----
Bromobenzene	108-86-1	5	µg/L		<5	<5	----	----	----
2-Chlorotoluene	95-49-8	5	µg/L		<5	<5	----	----	----
4-Chlorotoluene	106-43-4	5	µg/L		<5	<5	----	----	----
1.3-Dichlorobenzene	541-73-1	5	µg/L		<5	<5	----	----	----
1.4-Dichlorobenzene	106-46-7	5	µg/L		<5	<5	----	----	----
1.2-Dichlorobenzene	95-50-1	5	µg/L		<5	<5	----	----	----
1.2.4-Trichlorobenzene	120-82-1	5	µg/L		<5	<5	----	----	----
1.2.3-Trichlorobenzene	87-61-6	5	µg/L		<5	<5	----	----	----
EP074G: Trihalomethanes									
Chloroform	67-66-3	5	µg/L		<5	<5	----	----	----
Bromodichloromethane	75-27-4	5	µg/L		<5	<5	----	----	----
Dibromochloromethane	124-48-1	5	µg/L		<5	<5	----	----	----
Bromoform	75-25-2	5	µg/L		<5	<5	----	----	----
EP074H: Naphthalene									
Naphthalene	91-20-3	5	µg/L		<5	<5	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	1.0	µg/L		<1.0	<1.0	----	----	----
Acenaphthylene	208-96-8	1.0	µg/L		<1.0	<1.0	----	----	----
Acenaphthene	83-32-9	1.0	µg/L		<1.0	<1.0	----	----	----
Fluorene	86-73-7	1.0	µg/L		<1.0	<1.0	----	----	----
Phenanthrene	85-01-8	1.0	µg/L		<1.0	<1.0	----	----	----
Anthracene	120-12-7	1.0	µg/L		<1.0	<1.0	----	----	----
Fluoranthene	206-44-0	1.0	µg/L		<1.0	<1.0	----	----	----
Pyrene	129-00-0	1.0	µg/L		<1.0	<1.0	----	----	----
Benz(a)anthracene	56-55-3	1.0	µg/L		<1.0	<1.0	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	RB_VW_MN03	R_BH_MW02	----	----	----
				Client sampling date / time	28-Jun-2019 00:00	22-Jun-2019 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES1920095-021	ES1920095-032	--------	--------	--------
					Result	Result	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Chrysene	218-01-9	1.0	µg/L		<1.0	<1.0	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L		<1.0	<1.0	----	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L		<1.0	<1.0	----	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L		<0.5	<0.5	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L		<1.0	<1.0	----	----	----
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L		<1.0	<1.0	----	----	----
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L		<1.0	<1.0	----	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	µg/L		<0.5	<0.5	----	----	----
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	µg/L		<0.5	<0.5	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	<20	----	----	----
C10 - C14 Fraction	----	50	µg/L		<50	<50	----	----	----
C15 - C28 Fraction	----	100	µg/L		<100	<100	----	----	----
C29 - C36 Fraction	----	50	µg/L		<50	<50	----	----	----
^ **C10 - C36 Fraction (sum)**	----	50	µg/L		<50	<50	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	<20	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L		<20	<20	----	----	----
>C10 - C16 Fraction	----	100	µg/L		<100	<100	----	----	----
>C16 - C34 Fraction	----	100	µg/L		<100	<100	----	----	----
>C34 - C40 Fraction	----	100	µg/L		<100	<100	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	100	µg/L		<100	<100	----	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	100	µg/L		<100	<100	----	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	<1	----	----	----
Toluene	108-88-3	2	µg/L		<2	<2	----	----	----
Ethylbenzene	100-41-4	2	µg/L		<2	<2	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	<2	----	----	----
ortho-Xylene	95-47-6	2	µg/L		<2	<2	----	----	----
^ **Total Xylenes**	----	2	µg/L		<2	<2	----	----	----
^ **Sum of BTEX**	----	1	µg/L		<1	<1	----	----	----
Naphthalene	91-20-3	5	µg/L		<5	<5	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	RB_VW_MN03	R_BH_MW02	----	----	----
				Client sampling date / time	28-Jun-2019 00:00	22-Jun-2019 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES1920095-021	ES1920095-032	--------	--------	--------
					Result	Result	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		----	<0.02	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		----	<0.02	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L		----	<0.02	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		----	<0.02	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		----	<0.01	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		----	<0.02	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		----	<0.1	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		----	<0.02	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		----	<0.02	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		----	<0.02	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		----	<0.01	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		----	<0.02	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		----	<0.02	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		----	<0.02	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		----	<0.02	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		----	<0.02	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		----	<0.05	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		----	<0.02	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		----	<0.05	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		----	<0.05	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	RB_VW_MN03	R_BH_MW02	----	----	----
				Client sampling date / time	28-Jun-2019 00:00	22-Jun-2019 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES1920095-021	ES1920095-032	--------	--------	--------
					Result	Result	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		----	<0.05	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		----	<0.05	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		----	<0.02	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		----	<0.02	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		----	<0.05	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		----	<0.05	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		----	<0.05	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		----	<0.05	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		----	<0.01	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		----	<0.01	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		----	<0.01	----	----	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	1	%		**108**	**105**	----	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.5	%		**108**	**95.0**	----	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.5	%		**81.6**	**74.5**	----	----	----
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	5	%		**80.2**	**89.6**	----	----	----
Toluene-D8	2037-26-5	5	%		**94.3**	**99.7**	----	----	----
4-Bromofluorobenzene	460-00-4	5	%		**92.0**	**91.4**	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	RB_VW_MN03	R_BH_MW02	----	----	----
				Client sampling date / time	28-Jun-2019 00:00	22-Jun-2019 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES1920095-021	ES1920095-032	--------	--------	--------
					Result	Result	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates - Continued									
Phenol-d6	13127-88-3	1.0	%		**28.0**	**31.9**	**----**	**----**	**----**
2-Chlorophenol-D4	93951-73-6	1.0	%		**62.1**	**60.8**	**----**	**----**	**----**
2.4.6-Tribromophenol	118-79-6	1.0	%		**82.4**	**64.1**	**----**	**----**	**----**
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		**85.5**	**72.4**	**----**	**----**	**----**
Anthracene-d10	1719-06-8	1.0	%		**94.2**	**86.7**	**----**	**----**	**----**
4-Terphenyl-d14	1718-51-0	1.0	%		**95.2**	**87.5**	**----**	**----**	**----**
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		**100**	**112**	**----**	**----**	**----**
Toluene-D8	2037-26-5	2	%		**103**	**108**	**----**	**----**	**----**
4-Bromofluorobenzene	460-00-4	2	%		**106**	**111**	**----**	**----**	**----**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**----**	**100**	**----**	**----**	**----**
13C8-PFOA	----	0.02	%		**----**	**97.9**	**----**	**----**	**----**

Analytical Results

Descriptive Results

Sub-Matrix: **SOIL**

Method: Compound	Client sample ID - Client sampling date / time	Analytical Results
EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	BH_MN06_0.9-1.0 - 22-Jun-2019 00:00	Mid brown soil.
EA200: Description	BH_MN11_1.5-1.6 - 23-Jun-2019 00:00	Mid brown soil.
EA200: Description	BH_MN13_0.9-1.2 - 23-Jun-2019 00:00	Mid brown soil.
EA200: Description	BH_VMN03_0.4-0.5 - 23-Jun-2019 00:00	Mid brown soil plus one asbestos fibre bundle approx. 6 x 2 x 2mm.
EA200: Description	BH_VMN03_0.9-1.0 - 23-Jun-2019 00:00	Mid brown soil.

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
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	64	130
Toluene-D8	2037-26-5	66	136
4-Bromofluorobenzene	460-00-4	60	122
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	73	133
Toluene-D8	2037-26-5	74	132
4-Bromofluorobenzene	460-00-4	72	130
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	29	129
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	67	111
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	67	111
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	78	133
Toluene-D8	2037-26-5	79	129
4-Bromofluorobenzene	460-00-4	81	124

Sub-Matrix: **WATER**

Compound	CAS Number	Recovery Limits (%) Low	Recovery Limits (%) High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	32	112
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **ES1920095**	Page	: 1 of 40
Amendment	: **1**		
Client	: **GOLDER ASSOCIATES**	Laboratory	: Environmental Division Sydney
Contact	: MR BEN SEAFORD	Contact	: Customer Services ES
Address	: LEVEL 1, 124 PACIFIC HIGHWAY ST LEONARDS NSW, AUSTRALIA 2065	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 9478 3900	Telephone	: +61-2-8784 8555
Project	: 1791865	Date Samples Received	: 27-Jun-2019
Order number	: PCOC68	Date Analysis Commenced	: 29-Jun-2019
C-O-C number	: ----	Issue Date	: 09-Jul-2019
Sampler	: GOLDER-DOUGLAS		
Site	: MARRICKVILLE		
Quote number	: SY/698/17 C V4		
No. of samples received	: 37		
No. of samples analysed	: 21		

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

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. 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*
Alex Rossi	Organic Chemist	Sydney Organics, Smithfield, NSW
Ankit Joshi	Inorganic Chemist	Sydney Inorganics, Smithfield, NSW
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics, Smithfield, NSW
Christopher Owler	Team Leader - Asbestos	Newcastle - Asbestos, Mayfield West, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Peter Wu		Sydney Inorganics, Smithfield, NSW

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by 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

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	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 2435782)									
ES1920095-014	BH_VMN03_0.4-0.5	EG005T: Zinc	7440-66-6	5	mg/kg	948	932	1.79	0% - 20%
ES1920095-014	BH_VMN03_0.4-0.5	EG005T: Cadmium	7440-43-9	1	mg/kg	1	2	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	66	71	6.49	0% - 20%
		EG005T: Nickel	7440-02-0	2	mg/kg	69	66	3.63	0% - 20%
		EG005T: Arsenic	7440-38-2	5	mg/kg	19	25	24.8	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	154	143	7.37	0% - 20%
		EG005T: Lead	7439-92-1	5	mg/kg	147	# 320	74.2	0% - 20%
ES1920239-101	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	37	38	3.59	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	65	56	14.2	0% - 20%
		EG005T: Arsenic	7440-38-2	5	mg/kg	10	9	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	64	61	4.99	0% - 50%
		EG005T: Lead	7439-92-1	5	mg/kg	164	164	0.00	0% - 20%
		EG005T: Zinc	7440-66-6	5	mg/kg	194	182	6.28	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 2435785)									
ES1920095-006	BH_MN11_1.5-1.6	EA055: Moisture Content	----	0.1	%	19.5	19.4	0.570	0% - 50%
ES1920095-024	QA506a	EA055: Moisture Content	----	0.1	%	23.8	20.6	14.4	0% - 20%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 2435779)									
ES1920093-003	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.2	0.00	No Limit
ES1920083-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 2435783)									
ES1920095-014	BH_VMN03_0.4-0.5	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
ES1920239-101	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	0.5	0.5	0.00	No Limit
EP035G: Total Phenol by Discrete Analyser (QC Lot: 2440048)									

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP035G: Total Phenol by Discrete Analyser (QC Lot: 2440048) - continued									
EP1906147-001	Anonymous	EP035G: Phenols (Total)	----	1	mg/kg	<1	1	0.00	No Limit
ES1920095-026	QA508a	EP035G: Phenols (Total)	----	1	mg/kg	<1	<1	0.00	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 2435136)									
ES1920095-002	BH_MN06_0.9-1.0	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
ES1920095-018	BH_VMN03_2.0-2.2	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 2435133)									
ES1920095-002	BH_MN06_0.9-1.0	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
ES1920095-018	BH_VMN03_2.0-2.2	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP068A: Organochlorine Pesticides (OC) (QC Lot: 2435133) - continued									
ES1920095-018	BH_VMN03_2.0-2.2	EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 2435133)									
ES1920095-002	BH_MN06_0.9-1.0	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
ES1920095-018	BH_VMN03_2.0-2.2	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 2435133) - continued									
ES1920095-018	BH_VMN03_2.0-2.2	EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 2435545)									
ES1920095-002	BH_MN06_0.9-1.0	EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
ES1920095-017	BH_VMN03_1 .1-1 .2	EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP074B: Oxygenated Compounds (QC Lot: 2435545)									
ES1920095-002	BH_MN06_0.9-1.0	EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	0.00	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.00	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	0.00	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.00	No Limit
ES1920095-017	BH_VMN03_1 .1-1 .2	EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	0.00	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.00	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	0.00	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.00	No Limit
EP074C: Sulfonated Compounds (QC Lot: 2435545)									
ES1920095-002	BH_MN06_0.9-1.0	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
ES1920095-017	BH_VMN03_1 .1-1 .2	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP074D: Fumigants (QC Lot: 2435545)									

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP074D: Fumigants (QC Lot: 2435545) - continued									
ES1920095-002	BH_MN06_0.9-1.0	EP074: 2.2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
ES1920095-017	BH_VMN03_1 .1-1 .2	EP074: 2.2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 2435545)									
ES1920095-002	BH_MN06_0.9-1.0	EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.00	No Limit
ES1920095-017	BH_VMN03_1 .1-1 .2	EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP074E: Halogenated Aliphatic Compounds (QC Lot: 2435545) - continued									
ES1920095-017	BH_VMN03_1 .1-1 .2	EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.00	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 2435545)									
ES1920095-002	BH_MN06_0.9-1.0	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
ES1920095-017	BH_VMN03_1 .1-1 .2	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP074F: Halogenated Aromatic Compounds (QC Lot: 2435545) - continued									
ES1920095-017	BH_VMN03_1 .1-1 .2	EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP074G: Trihalomethanes (QC Lot: 2435545)									
ES1920095-002	BH_MN06_0.9-1.0	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
ES1920095-017	BH_VMN03_1 .1-1 .2	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP074H: Naphthalene (QC Lot: 2435545)									
ES1920095-002	BH_MN06_0.9-1.0	EP074: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
ES1920095-017	BH_VMN03_1 .1-1 .2	EP074: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 2435135)									
ES1920095-002	BH_MN06_0.9-1.0	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
ES1920095-018	BH_VMN03_2.0-2.2	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 2435135) - continued									
ES1920095-018	BH_VMN03_2.0-2.2	EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2435134)									
ES1920095-002	BH_MN06_0.9-1.0	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
ES1920095-018	BH_VMN03_2.0-2.2	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2435544)									
ES1920095-002	BH_MN06_0.9-1.0	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
ES1920095-017	BH_VMN03_1 .1-1 .2	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2435134)									
ES1920095-002	BH_MN06_0.9-1.0	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
ES1920095-018	BH_VMN03_2.0-2.2	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2435544)									
ES1920095-002	BH_MN06_0.9-1.0	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
ES1920095-017	BH_VMN03_1 .1-1 .2	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP080: BTEXN (QC Lot: 2435544)									
ES1920095-002	BH_MN06_0.9-1.0	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
ES1920095-017	BH_VMN03_1 .1-1 .2	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 2436312)									
ES1919569-038	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
ES1920095-002	BH_MN06_0.9-1.0	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 2436312)									
ES1919569-038	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.00	No Limit
ES1920095-002	BH_MN06_0.9-1.0	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 2436312) - continued									
ES1920095-002	BH_MN06_0.9-1.0	EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.00	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 2436312)									
ES1919569-038	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit
ES1920095-002	BH_MN06_0.9-1.0	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 2436312)									
ES1919569-038	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 2436312) - continued									
ES1919569-038	Anonymous	EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit
ES1920095-002	BH_MN06_0.9-1.0	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG020T: Total Metals by ICP-MS (QC Lot: 2439073)									
ES1919908-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.001	<0.001	0.00	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.001	0.00	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.008	0.008	0.00	No Limit
ES1920116-002	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	0.001	0.002	0.00	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.009	0.011	22.0	0% - 50%
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.002	0.00	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.017	0.016	0.00	No Limit
EG020T: Total Metals by ICP-MS (QC Lot: 2441691)									
ES1919883-001	Anonymous	EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.006	0.00	No Limit
ES1920123-063	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG020T: Total Metals by ICP-MS (QC Lot: 2441691) - continued									
ES1920123-063	Anonymous	EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.00	No Limit
ES1919883-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.001	<0.001	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 2439079)									
ES1920055-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
ES1920148-002	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 2441702)									
ES1920095-032	R_BH_MW02	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
ES1920123-080	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 2436449)									
ES1919774-001	Anonymous	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.00	No Limit
ES1920165-005	Anonymous	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.00	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 2445755)									
ES1920095-032	R_BH_MW02	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 2445755) - continued									
ES1920095-032	R_BH_MW02	EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.00	No Limit
EP074B: Oxygenated Compounds (QC Lot: 2436449)									
ES1919774-001	Anonymous	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.00	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	160	180	8.20	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.00	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.00	No Limit
ES1920165-005	Anonymous	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.00	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.00	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.00	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.00	No Limit
EP074B: Oxygenated Compounds (QC Lot: 2445755)									
ES1920095-032	R_BH_MW02	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.00	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.00	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.00	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.00	No Limit
EP074C: Sulfonated Compounds (QC Lot: 2436449)									
ES1919774-001	Anonymous	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.00	No Limit
ES1920165-005	Anonymous	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.00	No Limit
EP074C: Sulfonated Compounds (QC Lot: 2445755)									
ES1920095-032	R_BH_MW02	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.00	No Limit
EP074D: Fumigants (QC Lot: 2436449)									
ES1919774-001	Anonymous	EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.00	No Limit
ES1920165-005	Anonymous	EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.00	No Limit
EP074D: Fumigants (QC Lot: 2445755)									
ES1920095-032	R_BH_MW02	EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.00	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 2436449)									

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP074E: Halogenated Aliphatic Compounds (QC Lot: 2436449) - continued									
ES1919774-001	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.00	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.00	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.00	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.00	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.00	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.00	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.00	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.00	No Limit
ES1920165-005	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.00	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP074E: Halogenated Aliphatic Compounds (QC Lot: 2436449) - continued									
ES1920165-005	Anonymous	EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.00	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.00	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.00	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.00	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.00	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.00	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.00	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 2445755)									
ES1920095-032	R_BH_MW02	EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.00	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.00	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP074E: Halogenated Aliphatic Compounds (QC Lot: 2445755) - continued									
ES1920095-032	R_BH_MW02	EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.00	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.00	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.00	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.00	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.00	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 2436449)									
ES1919774-001	Anonymous	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.00	No Limit
ES1920165-005	Anonymous	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.00	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 2445755)									
ES1920095-032	R_BH_MW02	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.00	No Limit
EP074G: Trihalomethanes (QC Lot: 2436449)									
ES1919774-001	Anonymous	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.00	No Limit
ES1920165-005	Anonymous	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP074G: Trihalomethanes (QC Lot: 2436449) - continued									
ES1920165-005	Anonymous	EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.00	No Limit
EP074G: Trihalomethanes (QC Lot: 2445755)									
ES1920095-032	R_BH_MW02	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.00	No Limit
EP074H: Naphthalene (QC Lot: 2436449)									
ES1919774-001	Anonymous	EP074: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit
ES1920165-005	Anonymous	EP074: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit
EP074H: Naphthalene (QC Lot: 2445755)									
ES1920095-032	R_BH_MW02	EP074: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2436448)									
ES1919774-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	40	40	0.00	No Limit
ES1920165-005	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2445754)									
ES1920095-032	R_BH_MW02	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2436448)									
ES1919774-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	40	40	0.00	No Limit
ES1920165-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2445754)									
ES1920095-032	R_BH_MW02	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EP080: BTEXN (QC Lot: 2436448)									
ES1919774-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	6	6	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	3	3	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit
ES1920165-005	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit
EP080: BTEXN (QC Lot: 2445754)									

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP080: BTEXN (QC Lot: 2445754) - continued									
ES1920095-032	R_BH_MW02	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 2441362)									
ES1919901-001	Anonymous	EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	0.00	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.00	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 2441362)									
ES1919901-001	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.00	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.00	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 2441362)									
ES1919901-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 2441362)									
ES1919901-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.00	No Limit
EP231P: PFAS Sums (QC Lot: 2441362)									
ES1919901-001	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.00	No Limit

Method Blank (MB) and Laboratory Control Spike (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 Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 2435782)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	97.0	86	126
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	97.0	83	113
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	94.8	76	128
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	96.2	86	120
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	95.4	80	114
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	100	87	123
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	105	80	122
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2435779)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	76.7	70	105
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2435783)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	79.8	70	105
EP035G: Total Phenol by Discrete Analyser (QCLot: 2440048)								
EP035G: Phenols (Total)	----	1	mg/kg	<1	5 mg/kg	89.8	60	102
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 2435136)								
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	95.0	62	126
EP068A: Organochlorine Pesticides (OC) (QCLot: 2435133)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	102	69	113
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	103	65	117
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	91.8	67	119
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	100	68	116
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	100	65	117
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	107	67	115
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	104	69	115
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	100	62	118
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	98.3	63	117
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	101	66	116
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	98.0	64	116
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	99.1	66	116
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	101	67	115
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	96.2	67	123
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	102	69	115
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	102	69	121
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	82.2	56	120
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	92.4	62	124

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP068A: Organochlorine Pesticides (OC) (QCLot: 2435133) - continued								
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	90.0	66	120
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	102	64	122
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	95.2	54	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2435133)								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	99.1	59	119
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	100	62	128
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	81.4	54	126
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	104	67	119
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	98.4	70	120
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	99.7	72	120
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	98.7	68	120
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	101	68	122
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	99.4	69	117
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	101	76	118
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	97.5	64	122
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	98.6	70	116
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	102	69	121
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	100	66	118
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	97.2	68	124
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	104	62	112
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	101	68	120
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	91.7	65	127
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	72.9	41	123
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 2435545)								
EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	1 mg/kg	84.5	67	113
EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	1 mg/kg	84.6	65	117
EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	1 mg/kg	86.8	66	122
EP074: 1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	1 mg/kg	87.7	68	118
EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	1 mg/kg	87.9	69	119
EP074: 1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	1 mg/kg	87.3	69	117
EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	1 mg/kg	86.4	69	115
EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	1 mg/kg	85.9	66	118
EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	1 mg/kg	88.9	59	125
EP074B: Oxygenated Compounds (QCLot: 2435545)								
EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	10 mg/kg	36.0	30	156
EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	10 mg/kg	63.1	58	136
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	10 mg/kg	83.2	62	132
EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	10 mg/kg	64.2	54	136

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP074C: Sulfonated Compounds (QCLot: 2435545)								
EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	1 mg/kg	87.1	54	126
EP074D: Fumigants (QCLot: 2435545)								
EP074: 2.2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	1 mg/kg	84.9	60	126
EP074: 1.2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	1 mg/kg	89.0	68	124
EP074: cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	1 mg/kg	85.2	51	119
EP074: trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	1 mg/kg	84.7	52	114
EP074: 1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	1 mg/kg	90.2	63	115
EP074E: Halogenated Aliphatic Compounds (QCLot: 2435545)								
EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	10 mg/kg	113	30	148
EP074: Chloromethane	74-87-3	5	mg/kg	<5	10 mg/kg	102	41	141
EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	10 mg/kg	101	43	147
EP074: Bromomethane	74-83-9	5	mg/kg	<5	10 mg/kg	97.5	47	141
EP074: Chloroethane	75-00-3	5	mg/kg	<5	10 mg/kg	94.7	49	143
EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	10 mg/kg	95.3	49	135
EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	88.9	54	126
EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	1 mg/kg	80.8	43	129
EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	1 mg/kg	86.4	64	120
EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	1 mg/kg	86.7	67	125
EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	1 mg/kg	86.0	69	121
EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	1 mg/kg	84.1	65	117
EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	1 mg/kg	86.7	65	123
EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	1 mg/kg	87.8	59	125
EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	1 mg/kg	95.8	65	125
EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	1 mg/kg	89.2	70	118
EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	1 mg/kg	87.9	68	118
EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	1 mg/kg	88.1	64	126
EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	1 mg/kg	89.7	68	122
EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	1 mg/kg	111	67	143
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	1 mg/kg	84.4	62	122
EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	1 mg/kg	76.0	54	128
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	1 mg/kg	76.4	55	129
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1 mg/kg	83.7	65	121
EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	1 mg/kg	81.3	61	125
EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	1 mg/kg	58.7	20	134
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	1 mg/kg	78.9	53	129
EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	1 mg/kg	91.4	50	128
EP074F: Halogenated Aromatic Compounds (QCLot: 2435545)								
EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1 mg/kg	88.9	68	116

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP074F: Halogenated Aromatic Compounds (QCLot: 2435545) - continued								
EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	1 mg/kg	86.7	70	114
EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	1 mg/kg	89.4	68	122
EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	1 mg/kg	89.1	67	123
EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	1 mg/kg	88.4	70	116
EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1 mg/kg	90.7	67	117
EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	1 mg/kg	89.6	70	114
EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	1 mg/kg	86.9	48	122
EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	1 mg/kg	90.0	52	122
EP074G: Trihalomethanes (QCLot: 2435545)								
EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	1 mg/kg	86.8	66	124
EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	1 mg/kg	86.2	61	121
EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	1 mg/kg	82.9	63	121
EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	1 mg/kg	79.3	60	126
EP074H: Naphthalene (QCLot: 2435545)								
EP074: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	90.0	67	129
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2435135)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	91.4	77	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	92.9	72	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	86.9	73	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	92.8	72	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	96.1	75	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	95.2	77	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	96.4	73	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	95.3	74	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	93.0	69	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	93.9	75	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	97.2	68	116
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	96.6	74	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	94.2	70	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	89.1	61	121
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	86.3	62	118
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	87.8	63	121
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2435134)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	108	75	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	102	77	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	105	71	129
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2435544)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2435544) - continued								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	95.9	68	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2435134)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	107	77	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	101	74	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	107	63	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2435544)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	96.0	68	128
EP080: BTEXN (QCLot: 2435544)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	94.2	62	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	93.0	67	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	92.4	65	117
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	91.5	66	118
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	92.1	68	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	88.2	63	119
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 2436312)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.00125 mg/kg	63.6	57	121
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	71.6	55	125
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	67.6	52	126
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	80.4	54	123
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	73.6	55	127
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	86.0	54	125
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 2436312)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	59.9	52	128
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	84.8	54	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	66.0	58	127
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	74.0	57	128
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	76.8	60	134
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	76.4	63	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	0.00125 mg/kg	73.6	55	130
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	113	62	130
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	86.8	53	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	79.2	49	129
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	91.7	59	129
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 2436312)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	67.2	52	132
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	0.00312 mg/kg	80.1	65	126
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	78.2	64	126

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 2436312) - continued								
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	71.0	63	124
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	73.2	58	125
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	102	61	130
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	99.2	55	130
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 2436312)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00125 mg/kg	94.0	54	130
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00125 mg/kg	86.4	61	130
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	0.00125 mg/kg	75.6	62	130
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	0.00125 mg/kg	89.6	60	130

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EG020T: Total Metals by ICP-MS (QCLot: 2439073)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	102	82	114
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	102	84	112
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	97.5	86	116
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	97.9	83	118
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	96.2	85	115
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	97.7	84	116
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	98.8	79	117
EG020T: Total Metals by ICP-MS (QCLot: 2441691)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	103	82	114
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	101	84	112
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	100.0	86	116
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	98.8	83	118
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	98.8	85	115
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	98.8	84	116
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	105	79	117
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2439079)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	103	77	111
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2441702)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	92.1	77	111
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 2435496)								
EP066: Total Polychlorinated biphenyls	----	1	µg/L	<1	10 µg/L	100	62	107

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 2440300)								
EP066: Total Polychlorinated biphenyls	----	1	µg/L	<1	10 µg/L	91.0	62	107
EP068A: Organochlorine Pesticides (OC) (QCLot: 2435493)								
EP068: alpha-BHC	319-84-6	0.5	µg/L	<0.5	5 µg/L	81.7	65	107
EP068: Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	5 µg/L	82.0	58	111
EP068: beta-BHC	319-85-7	0.5	µg/L	<0.5	5 µg/L	85.1	69	117
EP068: gamma-BHC	58-89-9	0.5	µg/L	<0.5	5 µg/L	85.4	70	112
EP068: delta-BHC	319-86-8	0.5	µg/L	<0.5	5 µg/L	83.2	69	110
EP068: Heptachlor	76-44-8	0.5	µg/L	<0.5	5 µg/L	79.8	65	108
EP068: Aldrin	309-00-2	0.5	µg/L	<0.5	5 µg/L	79.3	66	109
EP068: Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	5 µg/L	75.4	67	107
EP068: trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	5 µg/L	92.7	64	110
EP068: alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	5 µg/L	79.2	67	112
EP068: cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	5 µg/L	97.7	63	111
EP068: Dieldrin	60-57-1	0.5	µg/L	<0.5	5 µg/L	76.9	65	113
EP068: 4.4`-DDE	72-55-9	0.5	µg/L	<0.5	5 µg/L	82.8	66	112
EP068: Endrin	72-20-8	0.5	µg/L	<0.5	5 µg/L	77.1	65	113
EP068: beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	5 µg/L	81.2	67	114
EP068: 4.4`-DDD	72-54-8	0.5	µg/L	<0.5	5 µg/L	78.8	72	122
EP068: Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	5 µg/L	86.7	67	109
EP068: Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	5 µg/L	83.9	65	112
EP068: 4.4`-DDT	50-29-3	2	µg/L	<2.0	5 µg/L	81.0	65	112
EP068: Endrin ketone	53494-70-5	0.5	µg/L	<0.5	5 µg/L	77.8	64	110
EP068: Methoxychlor	72-43-5	2	µg/L	<2.0	5 µg/L	83.0	61	114
EP068A: Organochlorine Pesticides (OC) (QCLot: 2440299)								
EP068: alpha-BHC	319-84-6	0.5	µg/L	<0.5	5 µg/L	81.1	65	107
EP068: Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	5 µg/L	89.5	58	111
EP068: beta-BHC	319-85-7	0.5	µg/L	<0.5	5 µg/L	82.4	69	117
EP068: gamma-BHC	58-89-9	0.5	µg/L	<0.5	5 µg/L	79.4	70	112
EP068: delta-BHC	319-86-8	0.5	µg/L	<0.5	5 µg/L	83.0	69	110
EP068: Heptachlor	76-44-8	0.5	µg/L	<0.5	5 µg/L	78.2	65	108
EP068: Aldrin	309-00-2	0.5	µg/L	<0.5	5 µg/L	78.0	66	109
EP068: Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	5 µg/L	77.3	67	107
EP068: trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	5 µg/L	97.9	64	110
EP068: alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	5 µg/L	82.6	67	112
EP068: cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	5 µg/L	95.5	63	111
EP068: Dieldrin	60-57-1	0.5	µg/L	<0.5	5 µg/L	79.8	65	113
EP068: 4.4`-DDE	72-55-9	0.5	µg/L	<0.5	5 µg/L	77.7	66	112
EP068: Endrin	72-20-8	0.5	µg/L	<0.5	5 µg/L	81.1	65	113
EP068: beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	5 µg/L	84.4	67	114

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP068A: Organochlorine Pesticides (OC) (QCLot: 2440299) - continued								
EP068: 4.4`-DDD	72-54-8	0.5	µg/L	<0.5	5 µg/L	81.1	72	122
EP068: Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	5 µg/L	81.7	67	109
EP068: Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	5 µg/L	83.4	65	112
EP068: 4.4`-DDT	50-29-3	2	µg/L	<2.0	5 µg/L	81.9	65	112
EP068: Endrin ketone	53494-70-5	0.5	µg/L	<0.5	5 µg/L	76.5	64	110
EP068: Methoxychlor	72-43-5	2	µg/L	<2.0	5 µg/L	83.1	61	114
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2435493)								
EP068: Dichlorvos	62-73-7	0.5	µg/L	<0.5	5 µg/L	80.0	66	114
EP068: Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	5 µg/L	94.1	64	113
EP068: Monocrotophos	6923-22-4	2	µg/L	<2.0	5 µg/L	23.9	20	48
EP068: Dimethoate	60-51-5	0.5	µg/L	<0.5	5 µg/L	95.3	70	110
EP068: Diazinon	333-41-5	0.5	µg/L	<0.5	5 µg/L	84.0	71	110
EP068: Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	5 µg/L	81.7	77	119
EP068: Parathion-methyl	298-00-0	2	µg/L	<2.0	5 µg/L	78.2	70	124
EP068: Malathion	121-75-5	0.5	µg/L	<0.5	5 µg/L	88.8	68	116
EP068: Fenthion	55-38-9	0.5	µg/L	<0.5	5 µg/L	78.6	69	112
EP068: Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	5 µg/L	80.4	75	119
EP068: Parathion	56-38-2	2	µg/L	<2.0	5 µg/L	81.0	67	121
EP068: Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	5 µg/L	77.2	69	121
EP068: Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	5 µg/L	100.0	72	110
EP068: Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	5 µg/L	77.8	68	112
EP068: Fenamiphos	22224-92-6	0.5	µg/L	<0.5	5 µg/L	88.1	64	116
EP068: Prothiofos	34643-46-4	0.5	µg/L	<0.5	5 µg/L	78.7	68	114
EP068: Ethion	563-12-2	0.5	µg/L	<0.5	5 µg/L	80.7	74	120
EP068: Carbophenothion	786-19-6	0.5	µg/L	<0.5	5 µg/L	85.6	66	114
EP068: Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	5 µg/L	103	52	128
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2440299)								
EP068: Dichlorvos	62-73-7	0.5	µg/L	<0.5	5 µg/L	94.4	66	114
EP068: Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	5 µg/L	90.4	64	113
EP068: Monocrotophos	6923-22-4	2	µg/L	<2.0	5 µg/L	24.2	20	48
EP068: Dimethoate	60-51-5	0.5	µg/L	<0.5	5 µg/L	96.1	70	110
EP068: Diazinon	333-41-5	0.5	µg/L	<0.5	5 µg/L	87.6	71	110
EP068: Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	5 µg/L	84.5	77	119
EP068: Parathion-methyl	298-00-0	2	µg/L	<2.0	5 µg/L	80.0	70	124
EP068: Malathion	121-75-5	0.5	µg/L	<0.5	5 µg/L	93.0	68	116
EP068: Fenthion	55-38-9	0.5	µg/L	<0.5	5 µg/L	81.8	69	112
EP068: Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	5 µg/L	83.6	75	119
EP068: Parathion	56-38-2	2	µg/L	<2.0	5 µg/L	84.6	67	121
EP068: Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	5 µg/L	79.9	69	121

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2440299) - continued								
EP068: Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	5 µg/L	104	72	110
EP068: Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	5 µg/L	81.1	68	112
EP068: Fenamiphos	22224-92-6	0.5	µg/L	<0.5	5 µg/L	95.7	64	116
EP068: Prothiofos	34643-46-4	0.5	µg/L	<0.5	5 µg/L	81.9	68	114
EP068: Ethion	563-12-2	0.5	µg/L	<0.5	5 µg/L	84.2	74	120
EP068: Carbophenothion	786-19-6	0.5	µg/L	<0.5	5 µg/L	82.9	66	114
EP068: Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	5 µg/L	101	52	128
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 2436449)								
EP074: Styrene	100-42-5	5	µg/L	<5	10 µg/L	97.2	73	119
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	10 µg/L	104	76	118
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	10 µg/L	104	69	119
EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	10 µg/L	103	74	116
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	10 µg/L	106	73	119
EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	10 µg/L	101	74	116
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	10 µg/L	106	72	116
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	10 µg/L	104	71	119
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	10 µg/L	103	65	123
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 2445755)								
EP074: Styrene	100-42-5	5	µg/L	<5	10 µg/L	103	73	119
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	10 µg/L	110	76	118
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	10 µg/L	102	69	119
EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	10 µg/L	99.3	74	116
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	10 µg/L	104	73	119
EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	10 µg/L	99.9	74	116
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	10 µg/L	103	72	116
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	10 µg/L	99.5	71	119
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	10 µg/L	97.7	65	123
EP074B: Oxygenated Compounds (QCLot: 2436449)								
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	100 µg/L	92.0	61	134
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	116	74	130
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	100 µg/L	108	66	132
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	100 µg/L	105	65	137
EP074B: Oxygenated Compounds (QCLot: 2445755)								
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	100 µg/L	116	61	134
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	126	74	130
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	100 µg/L	121	66	132
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	100 µg/L	132	65	137
EP074C: Sulfonated Compounds (QCLot: 2436449)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP074C: Sulfonated Compounds (QCLot: 2436449) - continued								
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	10 µg/L	104	73	127
EP074C: Sulfonated Compounds (QCLot: 2445755)								
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	10 µg/L	103	73	127
EP074D: Fumigants (QCLot: 2436449)								
EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	104	68	122
EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	102	76	118
EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	10 µg/L	97.4	62	120
EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	10 µg/L	100.0	60	114
EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	107	69	117
EP074D: Fumigants (QCLot: 2445755)								
EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	101	68	122
EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	107	76	118
EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	10 µg/L	98.8	62	120
EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	10 µg/L	94.7	60	114
EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	# 121	69	117
EP074E: Halogenated Aliphatic Compounds (QCLot: 2436449)								
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	129	61	138
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	113	67	130
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	118	69	129
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	112	56	140
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	110	61	139
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	110	69	131
EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	105	70	124
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	81.0	70	128
EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	112	74	118
EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	103	74	120
EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	104	77	119
EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	10 µg/L	103	67	119
EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	110	73	119
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	101	62	120
EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	10 µg/L	107	73	123
EP074: Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	107	76	118
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	105	73	119
EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	108	72	126
EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	109	71	129
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	# 125	72	124
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	10 µg/L	97.1	66	114
EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	93.2	60	120

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP074E: Halogenated Aliphatic Compounds (QCLot: 2436449) - continued								
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	98.8	71	128
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	105	70	124
EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	115	74	126
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	# 71.5	72	126
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	100.0	66	136
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	10 µg/L	106	58	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 2445755)								
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	100	61	138
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	108	67	130
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	97.6	69	129
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	104	56	140
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	108	61	139
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	103	69	131
EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	108	70	124
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	75.4	70	128
EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	103	74	118
EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	108	74	120
EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	103	77	119
EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	10 µg/L	101	67	119
EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	105	73	119
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	96.0	62	120
EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	10 µg/L	103	73	123
EP074: Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	104	76	118
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	107	73	119
EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	120	72	126
EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	114	71	129
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	107	72	124
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	10 µg/L	104	66	114
EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	90.9	60	120
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	94.4	71	128
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	116	70	124
EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	115	74	126
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	96.7	72	126
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	108	66	136
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	10 µg/L	83.6	58	130
EP074F: Halogenated Aromatic Compounds (QCLot: 2436449)								
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	104	79	117
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	104	76	116
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	104	73	119

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP074F: Halogenated Aromatic Compounds (QCLot: 2436449) - continued								
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	104	73	119
EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	10 µg/L	103	75	117
EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	10 µg/L	104	74	118
EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	10 µg/L	102	75	117
EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	10 µg/L	96.4	61	125
EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	97.7	67	123
EP074F: Halogenated Aromatic Compounds (QCLot: 2445755)								
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	110	79	117
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	104	76	116
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	103	73	119
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	101	73	119
EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	10 µg/L	98.0	75	117
EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	10 µg/L	98.0	74	118
EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	10 µg/L	101	75	117
EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	10 µg/L	81.1	61	125
EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	85.7	67	123
EP074G: Trihalomethanes (QCLot: 2436449)								
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	101	72	120
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	99.9	64	118
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	99.2	65	115
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	98.6	74	126
EP074G: Trihalomethanes (QCLot: 2445755)								
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	103	72	120
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	96.3	64	118
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	103	65	115
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	110	74	126
EP074H: Naphthalene (QCLot: 2436449)								
EP074: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	107	72	122
EP074H: Naphthalene (QCLot: 2445755)								
EP074: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	97.0	72	122
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2435495)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	73.8	50	94
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	93.3	64	114
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	89.0	62	113
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	95.9	64	115
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	90.0	63	116
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	89.6	64	116
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	92.9	64	118

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2435495) - continued								
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	99.6	63	118
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	95.1	64	117
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	101	63	116
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	87.0	62	119
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	79.2	63	115
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	89.1	63	117
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	90.1	60	118
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	90.7	61	117
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	91.3	59	118
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2440298)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	62.0	50	94
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	71.5	64	114
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	84.2	62	113
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	76.5	64	115
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	90.1	63	116
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	96.4	64	116
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	110	64	118
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	105	63	118
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	106	64	117
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	106	63	116
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	112	62	119
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	100	63	115
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	108	63	117
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	102	60	118
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	96.1	61	117
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	91.7	59	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2435494)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	70.8	56	112
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	87.2	72	113
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	91.5	56	121
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2436448)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	84.4	75	127
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2440297)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	57.9	56	112
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	98.8	72	113
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	96.4	56	121

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2445754)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	76.5	75	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2435494)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	2500 µg/L	73.3	58	119
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	98.6	63	110
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	1500 µg/L	64.8	62	121
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2436448)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	86.7	75	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2440297)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	2500 µg/L	74.4	58	119
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	96.5	63	110
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	1500 µg/L	103	62	121
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2445754)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	82.0	75	127
EP080: BTEXN (QCLot: 2436448)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	86.5	70	122
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	88.7	69	123
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	89.8	70	120
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	88.3	69	121
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	91.0	72	122
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	98.3	70	120
EP080: BTEXN (QCLot: 2445754)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	83.0	70	122
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	86.6	69	123
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	87.6	70	120
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	89.2	69	121
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	88.8	72	122
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	87.1	70	120
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 2441362)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.5 µg/L	76.4	70	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.5 µg/L	74.6	70	130
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L	<0.02	0.5 µg/L	78.2	70	130
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.5 µg/L	83.4	70	130
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.5 µg/L	83.8	70	130
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.5 µg/L	89.6	70	130
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 2441362)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	2.5 µg/L	84.6	70	130

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 2441362) - continued								
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.5 µg/L	84.8	70	130
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.5 µg/L	79.8	70	130
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.5 µg/L	85.2	70	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.5 µg/L	88.6	70	130
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.5 µg/L	85.8	70	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.5 µg/L	90.6	70	130
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.5 µg/L	117	70	130
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.5 µg/L	102	70	130
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.5 µg/L	99.0	70	130
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	1.25 µg/L	104	70	150
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 2441362)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.5 µg/L	79.4	70	130
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	1.25 µg/L	92.8	70	150
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	1.25 µg/L	107	70	150
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	1.25 µg/L	76.8	70	150
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	1.25 µg/L	79.3	70	150
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.5 µg/L	107	70	130
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.5 µg/L	114	70	130
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 2441362)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.5 µg/L	109	70	130
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.5 µg/L	95.0	70	130
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.5 µg/L	102	70	130
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.5 µg/L	113	70	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**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
				Concentration	MS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 2435782)							
ES1920095-014	BH_VMN03_0.4-0.5	EG005T: Arsenic	7440-38-2	50 mg/kg	79.0	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	91.8	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	73.8	70	130

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 2435782) - continued							
ES1920095-014	BH_VMN03_0.4-0.5	EG005T: Copper	7440-50-8	250 mg/kg	77.2	70	130
		EG005T: Lead	7439-92-1	250 mg/kg	103	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	76.1	70	130
		EG005T: Zinc	7440-66-6	250 mg/kg	82.5	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2435779)							
EM1909961-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	84.8	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2435783)							
ES1920095-014	BH_VMN03_0.4-0.5	EG035T: Mercury	7439-97-6	5 mg/kg	90.9	70	130
EP035G: Total Phenol by Discrete Analyser (QCLot: 2440048)							
EP1906147-001	Anonymous	EP035G: Phenols (Total)	----	4 mg/kg	70.0	70	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 2435136)							
ES1920095-002	BH_MN06_0.9-1.0	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	91.0	70	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 2435133)							
ES1920095-002	BH_MN06_0.9-1.0	EP068: gamma-BHC	58-89-9	0.5 mg/kg	94.5	70	130
		EP068: Heptachlor	76-44-8	0.5 mg/kg	72.1	70	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	85.7	70	130
		EP068: Dieldrin	60-57-1	0.5 mg/kg	79.1	70	130
		EP068: Endrin	72-20-8	2 mg/kg	119	70	130
		EP068: 4.4`-DDT	50-29-3	2 mg/kg	87.2	70	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2435133)							
ES1920095-002	BH_MN06_0.9-1.0	EP068: Diazinon	333-41-5	0.5 mg/kg	83.8	70	130
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	81.3	70	130
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	77.6	70	130
		EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	82.8	70	130
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	77.7	70	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 2435545)							
ES1920095-002	BH_MN06_0.9-1.0	EP074: 1.1-Dichloroethene	75-35-4	2.5 mg/kg	75.2	70	130
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	74.5	70	130
EP074F: Halogenated Aromatic Compounds (QCLot: 2435545)							
ES1920095-002	BH_MN06_0.9-1.0	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	83.4	70	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2435135)							
ES1920095-002	BH_MN06_0.9-1.0	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	92.8	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	102	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2435134)							
ES1920095-002	BH_MN06_0.9-1.0	EP071: C10 - C14 Fraction	----	523 mg/kg	75.4	73	137

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2435134) - continued							
ES1920095-002	BH_MN06_0.9-1.0	EP071: C15 - C28 Fraction	----	2319 mg/kg	87.3	53	131
		EP071: C29 - C36 Fraction	----	1714 mg/kg	86.1	52	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2435544)							
ES1920095-002	BH_MN06_0.9-1.0	EP080: C6 - C9 Fraction	----	32.5 mg/kg	101	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2435134)							
ES1920095-002	BH_MN06_0.9-1.0	EP071: >C10 - C16 Fraction	----	860 mg/kg	89.7	73	137
		EP071: >C16 - C34 Fraction	----	3223 mg/kg	86.3	53	131
		EP071: >C34 - C40 Fraction	----	1058 mg/kg	80.5	52	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2435544)							
ES1920095-002	BH_MN06_0.9-1.0	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	102	70	130
EP080: BTEXN (QCLot: 2435544)							
ES1920095-002	BH_MN06_0.9-1.0	EP080: Benzene	71-43-2	2.5 mg/kg	90.0	70	130
		EP080: Toluene	108-88-3	2.5 mg/kg	97.2	70	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	98.2	70	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	99.7	70	130
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	97.8	70	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	100	70	130
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 2436312)							
ES1919569-038	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.00125 mg/kg	72.8	50	130
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.00125 mg/kg	68.8	50	130
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00125 mg/kg	69.6	50	130
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.00125 mg/kg	74.8	50	130
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00125 mg/kg	72.4	50	130
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.00125 mg/kg	72.4	50	130
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 2436312)							
ES1919569-038	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	61.0	30	130
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	90.0	50	130
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	66.0	50	130
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	76.0	50	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	82.4	50	130
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.00125 mg/kg	74.4	50	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.00125 mg/kg	83.6	50	130
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.00125 mg/kg	81.6	50	130
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.00125 mg/kg	78.0	50	130
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.00125 mg/kg	77.6	30	130
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.00312 mg/kg	84.0	30	130

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	Matrix Spike (MS) Report: SpikeRecovery(%) MS	Recovery Limits (%): Low	Recovery Limits (%): High
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 2436312)							
ES1919569-038	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.00125 mg/kg	69.2	50	130
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.00312 mg/kg	78.0	30	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.00312 mg/kg	83.8	30	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.00312 mg/kg	66.8	30	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.00312 mg/kg	79.5	30	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.00125 mg/kg	90.4	30	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.00125 mg/kg	80.8	30	130
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 2436312)							
ES1919569-038	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00125 mg/kg	98.4	50	130
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00125 mg/kg	77.2	50	130
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.00125 mg/kg	77.6	50	130
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.00125 mg/kg	85.2	50	130

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	Matrix Spike (MS) Report: SpikeRecovery(%) MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG020T: Total Metals by ICP-MS (QCLot: 2439073)							
ES1919909-001	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	105	70	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	104	70	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	103	70	130
		EG020A-T: Copper	7440-50-8	1 mg/L	103	70	130
		EG020A-T: Lead	7439-92-1	1 mg/L	109	70	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	100	70	130
		EG020A-T: Zinc	7440-66-6	1 mg/L	105	70	130
EG020T: Total Metals by ICP-MS (QCLot: 2441691)							
ES1919849-001	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	103	70	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	104	70	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	107	70	130
		EG020A-T: Copper	7440-50-8	1 mg/L	99.7	70	130
		EG020A-T: Lead	7439-92-1	1 mg/L	112	70	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	101	70	130
		EG020A-T: Zinc	7440-66-6	1 mg/L	104	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2439079)							
ES1920055-002	Anonymous	EG035T: Mercury	7439-97-6	0.01 mg/L	95.3	70	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2441702)							
ES1920123-029	Anonymous	EG035T: Mercury	7439-97-6	0.01 mg/L	78.8	70	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 2436449)							
ES1919774-001	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	25 µg/L	91.7	70	130
		EP074: Trichloroethene	79-01-6	25 µg/L	91.3	70	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 2445755)							
ES1920095-032	R_BH_MW02	EP074: 1.1-Dichloroethene	75-35-4	25 µg/L	95.4	70	130
		EP074: Trichloroethene	79-01-6	25 µg/L	86.8	70	130
EP074F: Halogenated Aromatic Compounds (QCLot: 2436449)							
ES1919774-001	Anonymous	EP074: Chlorobenzene	108-90-7	25 µg/L	106	70	130
EP074F: Halogenated Aromatic Compounds (QCLot: 2445755)							
ES1920095-032	R_BH_MW02	EP074: Chlorobenzene	108-90-7	25 µg/L	100	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2436448)							
ES1919774-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	113	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2445754)							
ES1920095-032	R_BH_MW02	EP080: C6 - C9 Fraction	----	325 µg/L	81.3	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2436448)							
ES1919774-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	111	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2445754)							
ES1920095-032	R_BH_MW02	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	93.7	70	130
EP080: BTEXN (QCLot: 2436448)							
ES1919774-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	98.9	70	130
		EP080: Toluene	108-88-3	25 µg/L	101	70	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	105	70	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	104	70	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	106	70	130
		EP080: Naphthalene	91-20-3	25 µg/L	96.5	70	130
EP080: BTEXN (QCLot: 2445754)							
ES1920095-032	R_BH_MW02	EP080: Benzene	71-43-2	25 µg/L	78.8	70	130
		EP080: Toluene	108-88-3	25 µg/L	89.5	70	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	96.8	70	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	98.3	70	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	102	70	130
		EP080: Naphthalene	91-20-3	25 µg/L	89.3	70	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 2441362)							
ES1919901-001	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.5 µg/L	77.0	50	130
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.5 µg/L	70.2	50	130
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.5 µg/L	65.6	50	130
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.5 µg/L	81.0	50	130
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.5 µg/L	100	50	130
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.5 µg/L	78.8	50	130
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 2441362)							
ES1919901-001	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	2.5 µg/L	64.7	50	130
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.5 µg/L	81.8	50	130
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.5 µg/L	95.8	50	130
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.5 µg/L	68.4	50	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.5 µg/L	94.2	50	130
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.5 µg/L	87.8	50	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.5 µg/L	83.2	50	130
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.5 µg/L	104	50	130
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.5 µg/L	106	50	130
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.5 µg/L	94.6	50	130
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	1.25 µg/L	117	50	150
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 2441362)							
ES1919901-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.5 µg/L	87.0	50	130
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	1.25 µg/L	95.7	50	150
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	1.25 µg/L	112	50	150
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	1.25 µg/L	85.8	50	150
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	1.25 µg/L	93.6	50	150
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.5 µg/L	91.8	50	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.5 µg/L	109	50	130
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 2441362)							
ES1919901-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.5 µg/L	98.8	50	130
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.5 µg/L	90.8	50	130
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.5 µg/L	91.8	50	130
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.5 µg/L	115	50	130

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES1920095**	Page	: 1 of 22
Amendment	: **1**		
Client	: **GOLDER ASSOCIATES**	Laboratory	: Environmental Division Sydney
Contact	: MR BEN SEAFORD	Telephone	: +61-2-8784 8555
Project	: 1791865	Date Samples Received	: 27-Jun-2019
Site	: MARRICKVILLE	Issue Date	: 09-Jul-2019
Sampler	: GOLDER-DOUGLAS	No. of samples received	: 37
Order number	: PCOC68	No. of samples analysed	: 21

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

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

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Duplicate (DUP) RPDs							
EG005(ED093)T: Total Metals by ICP-AES	ES1920095--014	BH_VMN03_0.4-0.5	**Lead**	7439-92-1	74.2 %	0% - 20%	**RPD exceeds LOR based limits**

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Laboratory Control Spike (LCS) Recoveries							
EP074D: Fumigants	QC-2445755-002	----	**1.2-Dibromoethane (EDB)**	106-93-4	121 %	69-117%	**Recovery greater than upper control limit**
EP074E: Halogenated Aliphatic Compounds	QC-2436449-002	----	**Tetrachloroethene**	127-18-4	125 %	72-124%	**Recovery greater than upper control limit**
EP074E: Halogenated Aliphatic Compounds	QC-2436449-002	----	**Pentachloroethane**	76-01-7	71.5 %	72-126%	**Recovery less than lower control limit**

Outliers : Analysis Holding Time Compliance

Matrix: **SOIL**

Method / Container / Client Sample ID(s)		Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EP074A: Monocyclic Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved							
BH_MN06_0.9-1.0, QA506a	BH_MN06_2.0-2.1,	----	----	----	03-Jul-2019	29-Jun-2019	**4**
Soil Glass Jar - Unpreserved							
BH_MN11_1.5-1.6, BH_MN11_2.9-3.0, BH_MN13_3.0-3.2, BH_VMN03_0.9-1.0, BH_VMN03_2.0-2.2, BH_VW_MN01_3.0-3.1, QA508a	BH_MN11_2.0-2.1, BH_MN13_0.9-1.2, BH_VMN03_0.4-0.5, BH_VMN03_1 .1-1 .2, BH_VW_MN01_2.0-2.1, QA507a,	----	----	----	03-Jul-2019	30-Jun-2019	**3**
EP074B: Oxygenated Compounds							
Soil Glass Jar - Unpreserved							
BH_MN06_0.9-1.0, QA506a	BH_MN06_2.0-2.1,	----	----	----	03-Jul-2019	29-Jun-2019	**4**
Soil Glass Jar - Unpreserved							
BH_MN11_1.5-1.6, BH_MN11_2.9-3.0, BH_MN13_3.0-3.2, BH_VMN03_0.9-1.0, BH_VMN03_2.0-2.2, BH_VW_MN01_3.0-3.1, QA508a	BH_MN11_2.0-2.1, BH_MN13_0.9-1.2, BH_VMN03_0.4-0.5, BH_VMN03_1 .1-1 .2, BH_VW_MN01_2.0-2.1, QA507a,	----	----	----	03-Jul-2019	30-Jun-2019	**3**
EP074C: Sulfonated Compounds							

Matrix: **SOIL**

Method / Container / Client Sample ID(s)		Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EP074C: Sulfonated Compounds - Analysis Holding Time Compliance							
Soil Glass Jar - Unpreserved							
BH_MN06_0.9-1.0, QA506a	BH_MN06_2.0-2.1,	----	----	----	03-Jul-2019	29-Jun-2019	**4**
Soil Glass Jar - Unpreserved							
BH_MN11_1.5-1.6, BH_MN11_2.9-3.0, BH_MN13_3.0-3.2, BH_VMN03_0.9-1.0, BH_VMN03_2.0-2.2, BH_VW_MN01_3.0-3.1, QA508a	BH_MN11_2.0-2.1, BH_MN13_0.9-1.2, BH_VMN03_0.4-0.5, BH_VMN03_1 .1-1 .2, BH_VW_MN01_2.0-2.1, QA507a,	----	----	----	03-Jul-2019	30-Jun-2019	**3**
EP074D: Fumigants							
Soil Glass Jar - Unpreserved							
BH_MN06_0.9-1.0, QA506a	BH_MN06_2.0-2.1,	----	----	----	03-Jul-2019	29-Jun-2019	**4**
Soil Glass Jar - Unpreserved							
BH_MN11_1.5-1.6, BH_MN11_2.9-3.0, BH_MN13_3.0-3.2, BH_VMN03_0.9-1.0, BH_VMN03_2.0-2.2, BH_VW_MN01_3.0-3.1, QA508a	BH_MN11_2.0-2.1, BH_MN13_0.9-1.2, BH_VMN03_0.4-0.5, BH_VMN03_1 .1-1 .2, BH_VW_MN01_2.0-2.1, QA507a,	----	----	----	03-Jul-2019	30-Jun-2019	**3**
EP074E: Halogenated Aliphatic Compounds							
Soil Glass Jar - Unpreserved							
BH_MN06_0.9-1.0, QA506a	BH_MN06_2.0-2.1,	----	----	----	03-Jul-2019	29-Jun-2019	**4**
Soil Glass Jar - Unpreserved							
BH_MN11_1.5-1.6, BH_MN11_2.9-3.0, BH_MN13_3.0-3.2, BH_VMN03_0.9-1.0, BH_VMN03_2.0-2.2, BH_VW_MN01_3.0-3.1, QA508a	BH_MN11_2.0-2.1, BH_MN13_0.9-1.2, BH_VMN03_0.4-0.5, BH_VMN03_1 .1-1 .2, BH_VW_MN01_2.0-2.1, QA507a,	----	----	----	03-Jul-2019	30-Jun-2019	**3**
EP074F: Halogenated Aromatic Compounds							
Soil Glass Jar - Unpreserved							
BH_MN06_0.9-1.0, QA506a	BH_MN06_2.0-2.1,	----	----	----	03-Jul-2019	29-Jun-2019	**4**

Matrix: **SOIL**

Method / Container / Client Sample ID(s)	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Days overdue	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Days overdue
EP074F: Halogenated Aromatic Compounds - Analysis Holding Time Compliance						
Soil Glass Jar - Unpreserved						
BH_MN11_1.5-1.6, BH_MN11_2.0-2.1, BH_MN11_2.9-3.0, BH_MN13_0.9-1.2, BH_MN13_3.0-3.2, BH_VMN03_0.4-0.5, BH_VMN03_0.9-1.0, BH_VMN03_1 .1-1 .2, BH_VMN03_2.0-2.2, BH_VW_MN01_2.0-2.1, BH_VW_MN01_3.0-3.1, QA507a, QA508a	----	----	----	03-Jul-2019	30-Jun-2019	**3**
EP074G: Trihalomethanes						
Soil Glass Jar - Unpreserved						
BH_MN06_0.9-1.0, BH_MN06_2.0-2.1, QA506a	----	----	----	03-Jul-2019	29-Jun-2019	**4**
Soil Glass Jar - Unpreserved						
BH_MN11_1.5-1.6, BH_MN11_2.0-2.1, BH_MN11_2.9-3.0, BH_MN13_0.9-1.2, BH_MN13_3.0-3.2, BH_VMN03_0.4-0.5, BH_VMN03_0.9-1.0, BH_VMN03_1 .1-1 .2, BH_VMN03_2.0-2.2, BH_VW_MN01_2.0-2.1, BH_VW_MN01_3.0-3.1, QA507a, QA508a	----	----	----	03-Jul-2019	30-Jun-2019	**3**
EP074H: Naphthalene						
Soil Glass Jar - Unpreserved						
BH_MN06_0.9-1.0, BH_MN06_2.0-2.1, QA506a	----	----	----	03-Jul-2019	29-Jun-2019	**4**
Soil Glass Jar - Unpreserved						
BH_MN11_1.5-1.6, BH_MN11_2.0-2.1, BH_MN11_2.9-3.0, BH_MN13_0.9-1.2, BH_MN13_3.0-3.2, BH_VMN03_0.4-0.5, BH_VMN03_0.9-1.0, BH_VMN03_1 .1-1 .2, BH_VMN03_2.0-2.2, BH_VW_MN01_2.0-2.1, BH_VW_MN01_3.0-3.1, QA507a, QA508a	----	----	----	03-Jul-2019	30-Jun-2019	**3**

Matrix: **WATER**

Method / Container / Client Sample ID(s)	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Days overdue	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Days overdue
EP066: Polychlorinated Biphenyls (PCB)						
Amber Glass Bottle - Unpreserved						
R_BH_MW02	02-Jul-2019	29-Jun-2019	**3**	----	----	----
EP068A: Organochlorine Pesticides (OC)						

Matrix: **WATER**

Method / Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EP068A: Organochlorine Pesticides (OC) - Analysis Holding Time Compliance						
Amber Glass Bottle - Unpreserved						
R_BH_MW02	02-Jul-2019	29-Jun-2019	**3**	----	----	----
EP068B: Organophosphorus Pesticides (OP)						
Amber Glass Bottle - Unpreserved						
R_BH_MW02	02-Jul-2019	29-Jun-2019	**3**	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons						
Amber Glass Bottle - Unpreserved						
R_BH_MW02	02-Jul-2019	29-Jun-2019	**3**	----	----	----
EP080/071: Total Petroleum Hydrocarbons						
Amber Glass Bottle - Unpreserved						
R_BH_MW02	02-Jul-2019	29-Jun-2019	**3**	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions						
Amber Glass Bottle - Unpreserved						
R_BH_MW02	02-Jul-2019	29-Jun-2019	**3**	----	----	----

Outliers : Frequency of Quality Control Samples

Matrix: **SOIL**

Quality Control Sample Type / Method	Count		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
Laboratory Control Samples (LCS)					
Total Metals by ICP-AES	1	22	4.55	5.00	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)					
Total Metals by ICP-AES	1	22	4.55	5.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Total Metals by ICP-AES	1	22	4.55	5.00	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Quality Control Sample Type / Method	Count		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)					
PAH/Phenols (GC/MS - SIM)	0	11	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	0	11	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	0	11	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	14	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
PAH/Phenols (GC/MS - SIM)	0	11	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	0	11	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	0	11	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	14	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

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

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

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

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

Matrix: **SOIL**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055)							
BH_MN06_0.9-1.0, BH_MN06_2.0-2.1, QA506a	**22-Jun-2019**	**----**	----	----	**29-Jun-2019**	06-Jul-2019	✓
Soil Glass Jar - Unpreserved (EA055)							
BH_MN11_1.5-1.6, BH_MN11_2.0-2.1, BH_MN11_2.9-3.0, BH_MN13_0.9-1.2, BH_MN13_3.0-3.2, BH_VMN03_0.4-0.5, BH_VMN03_0.9-1.0, BH_VMN03_1 .1-1 .2, BH_VMN03_2.0-2.2, BH_VW_MN01_2.0-2.1, BH_VW_MN01_3.0-3.1, QA507a, QA508a	**23-Jun-2019**	**----**	----	----	**29-Jun-2019**	07-Jul-2019	✓
EA200: AS 4964 - 2004 Identification of Asbestos in Soils							
Snap Lock Bag - ACM/Asbestos Grab Bag (EA200)							
BH_MN06_0.9-1.0	**22-Jun-2019**	**----**	----	----	**02-Jul-2019**	19-Dec-2019	✓
Snap Lock Bag - ACM/Asbestos Grab Bag (EA200)							
BH_MN11_1.5-1.6, BH_MN13_0.9-1.2, BH_VMN03_0.4-0.5, BH_VMN03_0.9-1.0	**23-Jun-2019**	**----**	----	----	**02-Jul-2019**	20-Dec-2019	✓
EG005(ED093)T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
BH_MN06_0.9-1.0, BH_MN06_2.0-2.1, QA506a	**22-Jun-2019**	**01-Jul-2019**	19-Dec-2019	✓	**01-Jul-2019**	19-Dec-2019	✓
Soil Glass Jar - Unpreserved (EG005T)							
BH_MN11_1.5-1.6, BH_MN11_2.0-2.1, BH_MN11_2.9-3.0, BH_MN13_0.9-1.2, BH_MN13_3.0-3.2, BH_VMN03_0.4-0.5, BH_VMN03_0.9-1.0, BH_VMN03_1 .1-1 .2, BH_VMN03_2.0-2.2, BH_VW_MN01_2.0-2.1, BH_VW_MN01_3.0-3.1, QA507a, QA508a	**23-Jun-2019**	**01-Jul-2019**	20-Dec-2019	✓	**01-Jul-2019**	20-Dec-2019	✓

Matrix: **SOIL**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
BH_MN06_0.9-1.0, BH_MN06_2.0-2.1, QA506a	**22-Jun-2019**	**01-Jul-2019**	20-Jul-2019	✓	**02-Jul-2019**	20-Jul-2019	✓
Soil Glass Jar - Unpreserved (EG035T)							
BH_MN11_1.5-1.6, BH_MN11_2.0-2.1, BH_MN11_2.9-3.0, BH_MN13_0.9-1.2, BH_MN13_3.0-3.2, BH_VMN03_0.4-0.5, BH_VMN03_0.9-1.0, BH_VMN03_1 .1-1 .2, BH_VMN03_2.0-2.2, BH_VW_MN01_2.0-2.1, BH_VW_MN01_3.0-3.1, QA507a, QA508a	**23-Jun-2019**	**01-Jul-2019**	21-Jul-2019	✓	**02-Jul-2019**	21-Jul-2019	✓
EP035G: Total Phenol by Discrete Analyser							
Soil Glass Jar - Unpreserved (EP035G)							
BH_MN06_0.9-1.0, QA506a	**22-Jun-2019**	**02-Jul-2019**	06-Jul-2019	✓	**02-Jul-2019**	06-Jul-2019	✓
Soil Glass Jar - Unpreserved (EP035G)							
BH_MN11_1.5-1.6, BH_MN13_0.9-1.2, BH_VMN03_0.4-0.5, BH_VMN03_0.9-1.0, QA507a, QA508a	**23-Jun-2019**	**02-Jul-2019**	07-Jul-2019	✓	**02-Jul-2019**	07-Jul-2019	✓
EP066: Polychlorinated Biphenyls (PCB)							
Soil Glass Jar - Unpreserved (EP066)							
BH_MN06_0.9-1.0, BH_MN06_2.0-2.1, QA506a	**22-Jun-2019**	**02-Jul-2019**	06-Jul-2019	✓	**02-Jul-2019**	11-Aug-2019	✓
Soil Glass Jar - Unpreserved (EP066)							
BH_MN11_1.5-1.6, BH_MN11_2.0-2.1, BH_MN11_2.9-3.0, BH_MN13_0.9-1.2, BH_MN13_3.0-3.2, BH_VMN03_0.4-0.5, BH_VMN03_0.9-1.0, BH_VMN03_1 .1-1 .2, BH_VMN03_2.0-2.2, BH_VW_MN01_2.0-2.1, BH_VW_MN01_3.0-3.1, QA507a, QA508a	**23-Jun-2019**	**02-Jul-2019**	07-Jul-2019	✓	**02-Jul-2019**	11-Aug-2019	✓
EP068A: Organochlorine Pesticides (OC)							
Soil Glass Jar - Unpreserved (EP068)							
BH_MN06_0.9-1.0, BH_MN06_2.0-2.1, QA506a	**22-Jun-2019**	**02-Jul-2019**	06-Jul-2019	✓	**02-Jul-2019**	11-Aug-2019	✓
Soil Glass Jar - Unpreserved (EP068)							
BH_MN11_1.5-1.6, BH_MN11_2.0-2.1, BH_MN11_2.9-3.0, BH_MN13_0.9-1.2, BH_MN13_3.0-3.2, BH_VMN03_0.4-0.5, BH_VMN03_0.9-1.0, BH_VMN03_1 .1-1 .2, BH_VMN03_2.0-2.2, BH_VW_MN01_2.0-2.1, BH_VW_MN01_3.0-3.1, QA507a, QA508a	**23-Jun-2019**	**02-Jul-2019**	07-Jul-2019	✓	**02-Jul-2019**	11-Aug-2019	✓

Matrix: **SOIL**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP068B: Organophosphorus Pesticides (OP)							
Soil Glass Jar - Unpreserved (EP068)							
BH_MN06_0.9-1.0, BH_MN06_2.0-2.1, QA506a	**22-Jun-2019**	**02-Jul-2019**	06-Jul-2019	✓	**02-Jul-2019**	11-Aug-2019	✓
Soil Glass Jar - Unpreserved (EP068)							
BH_MN11_1.5-1.6, BH_MN11_2.0-2.1, BH_MN11_2.9-3.0, BH_MN13_0.9-1.2, BH_MN13_3.0-3.2, BH_VMN03_0.4-0.5, BH_VMN03_0.9-1.0, BH_VMN03_1 .1-1 .2, BH_VMN03_2.0-2.2, BH_VW_MN01_2.0-2.1, BH_VW_MN01_3.0-3.1, QA507a, QA508a	**23-Jun-2019**	**02-Jul-2019**	07-Jul-2019	✓	**02-Jul-2019**	11-Aug-2019	✓
EP074A: Monocyclic Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP074)							
BH_MN06_0.9-1.0, BH_MN06_2.0-2.1, QA506a	**22-Jun-2019**	**29-Jun-2019**	29-Jun-2019	✓	**03-Jul-2019**	29-Jun-2019	×
Soil Glass Jar - Unpreserved (EP074)							
BH_MN11_1.5-1.6, BH_MN11_2.0-2.1, BH_MN11_2.9-3.0, BH_MN13_0.9-1.2, BH_MN13_3.0-3.2, BH_VMN03_0.4-0.5, BH_VMN03_0.9-1.0, BH_VMN03_1 .1-1 .2, BH_VMN03_2.0-2.2, BH_VW_MN01_2.0-2.1, BH_VW_MN01_3.0-3.1, QA507a, QA508a	**23-Jun-2019**	**29-Jun-2019**	30-Jun-2019	✓	**03-Jul-2019**	30-Jun-2019	×
EP074B: Oxygenated Compounds							
Soil Glass Jar - Unpreserved (EP074)							
BH_MN06_0.9-1.0, BH_MN06_2.0-2.1, QA506a	**22-Jun-2019**	**29-Jun-2019**	29-Jun-2019	✓	**03-Jul-2019**	29-Jun-2019	×
Soil Glass Jar - Unpreserved (EP074)							
BH_MN11_1.5-1.6, BH_MN11_2.0-2.1, BH_MN11_2.9-3.0, BH_MN13_0.9-1.2, BH_MN13_3.0-3.2, BH_VMN03_0.4-0.5, BH_VMN03_0.9-1.0, BH_VMN03_1 .1-1 .2, BH_VMN03_2.0-2.2, BH_VW_MN01_2.0-2.1, BH_VW_MN01_3.0-3.1, QA507a, QA508a	**23-Jun-2019**	**29-Jun-2019**	30-Jun-2019	✓	**03-Jul-2019**	30-Jun-2019	×

Matrix: **SOIL**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP074C: Sulfonated Compounds							
Soil Glass Jar - Unpreserved (EP074)							
BH_MN06_0.9-1.0, BH_MN06_2.0-2.1, QA506a	**22-Jun-2019**	**29-Jun-2019**	29-Jun-2019	✓	**03-Jul-2019**	29-Jun-2019	×
Soil Glass Jar - Unpreserved (EP074)							
BH_MN11_1.5-1.6, BH_MN11_2.0-2.1, BH_MN11_2.9-3.0, BH_MN13_0.9-1.2, BH_MN13_3.0-3.2, BH_VMN03_0.4-0.5, BH_VMN03_0.9-1.0, BH_VMN03_1 .1-1 .2, BH_VMN03_2.0-2.2, BH_VW_MN01_2.0-2.1, BH_VW_MN01_3.0-3.1, QA507a, QA508a	**23-Jun-2019**	**29-Jun-2019**	30-Jun-2019	✓	**03-Jul-2019**	30-Jun-2019	×
EP074D: Fumigants							
Soil Glass Jar - Unpreserved (EP074)							
BH_MN06_0.9-1.0, BH_MN06_2.0-2.1, QA506a	**22-Jun-2019**	**29-Jun-2019**	29-Jun-2019	✓	**03-Jul-2019**	29-Jun-2019	×
Soil Glass Jar - Unpreserved (EP074)							
BH_MN11_1.5-1.6, BH_MN11_2.0-2.1, BH_MN11_2.9-3.0, BH_MN13_0.9-1.2, BH_MN13_3.0-3.2, BH_VMN03_0.4-0.5, BH_VMN03_0.9-1.0, BH_VMN03_1 .1-1 .2, BH_VMN03_2.0-2.2, BH_VW_MN01_2.0-2.1, BH_VW_MN01_3.0-3.1, QA507a, QA508a	**23-Jun-2019**	**29-Jun-2019**	30-Jun-2019	✓	**03-Jul-2019**	30-Jun-2019	×
EP074E: Halogenated Aliphatic Compounds							
Soil Glass Jar - Unpreserved (EP074)							
BH_MN06_0.9-1.0, BH_MN06_2.0-2.1, QA506a	**22-Jun-2019**	**29-Jun-2019**	29-Jun-2019	✓	**03-Jul-2019**	29-Jun-2019	×
Soil Glass Jar - Unpreserved (EP074)							
BH_MN11_1.5-1.6, BH_MN11_2.0-2.1, BH_MN11_2.9-3.0, BH_MN13_0.9-1.2, BH_MN13_3.0-3.2, BH_VMN03_0.4-0.5, BH_VMN03_0.9-1.0, BH_VMN03_1 .1-1 .2, BH_VMN03_2.0-2.2, BH_VW_MN01_2.0-2.1, BH_VW_MN01_3.0-3.1, QA507a, QA508a	**23-Jun-2019**	**29-Jun-2019**	30-Jun-2019	✓	**03-Jul-2019**	30-Jun-2019	×

Matrix: **SOIL**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP074F: Halogenated Aromatic Compounds							
Soil Glass Jar - Unpreserved (EP074) BH_MN06_0.9-1.0, BH_MN06_2.0-2.1, QA506a	**22-Jun-2019**	**29-Jun-2019**	29-Jun-2019	✓	**03-Jul-2019**	29-Jun-2019	×
Soil Glass Jar - Unpreserved (EP074) BH_MN11_1.5-1.6, BH_MN11_2.0-2.1, BH_MN11_2.9-3.0, BH_MN13_0.9-1.2, BH_MN13_3.0-3.2, BH_VMN03_0.4-0.5, BH_VMN03_0.9-1.0, BH_VMN03_1 .1-1 .2, BH_VMN03_2.0-2.2, BH_VW_MN01_2.0-2.1, BH_VW_MN01_3.0-3.1, QA507a, QA508a	**23-Jun-2019**	**29-Jun-2019**	30-Jun-2019	✓	**03-Jul-2019**	30-Jun-2019	×
EP074G: Trihalomethanes							
Soil Glass Jar - Unpreserved (EP074) BH_MN06_0.9-1.0, BH_MN06_2.0-2.1, QA506a	**22-Jun-2019**	**29-Jun-2019**	29-Jun-2019	✓	**03-Jul-2019**	29-Jun-2019	×
Soil Glass Jar - Unpreserved (EP074) BH_MN11_1.5-1.6, BH_MN11_2.0-2.1, BH_MN11_2.9-3.0, BH_MN13_0.9-1.2, BH_MN13_3.0-3.2, BH_VMN03_0.4-0.5, BH_VMN03_0.9-1.0, BH_VMN03_1 .1-1 .2, BH_VMN03_2.0-2.2, BH_VW_MN01_2.0-2.1, BH_VW_MN01_3.0-3.1, QA507a, QA508a	**23-Jun-2019**	**29-Jun-2019**	30-Jun-2019	✓	**03-Jul-2019**	30-Jun-2019	×
EP074H: Naphthalene							
Soil Glass Jar - Unpreserved (EP074) BH_MN06_0.9-1.0, BH_MN06_2.0-2.1, QA506a	**22-Jun-2019**	**29-Jun-2019**	29-Jun-2019	✓	**03-Jul-2019**	29-Jun-2019	×
Soil Glass Jar - Unpreserved (EP074) BH_MN11_1.5-1.6, BH_MN11_2.0-2.1, BH_MN11_2.9-3.0, BH_MN13_0.9-1.2, BH_MN13_3.0-3.2, BH_VMN03_0.4-0.5, BH_VMN03_0.9-1.0, BH_VMN03_1 .1-1 .2, BH_VMN03_2.0-2.2, BH_VW_MN01_2.0-2.1, BH_VW_MN01_3.0-3.1, QA507a, QA508a	**23-Jun-2019**	**29-Jun-2019**	30-Jun-2019	✓	**03-Jul-2019**	30-Jun-2019	×

Matrix: **SOIL**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM)) BH_MN06_0.9-1.0, BH_MN06_2.0-2.1, QA506a	**22-Jun-2019**	**02-Jul-2019**	06-Jul-2019	✓	**02-Jul-2019**	11-Aug-2019	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) BH_MN11_1.5-1.6, BH_MN11_2.0-2.1, BH_MN11_2.9-3.0, BH_MN13_0.9-1.2, BH_MN13_3.0-3.2, BH_VMN03_0.4-0.5, BH_VMN03_0.9-1.0, BH_VMN03_1 .1-1 .2, BH_VMN03_2.0-2.2, BH_VW_MN01_2.0-2.1, BH_VW_MN01_3.0-3.1, QA507a, QA508a	**23-Jun-2019**	**02-Jul-2019**	07-Jul-2019	✓	**02-Jul-2019**	11-Aug-2019	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP071) BH_MN06_0.9-1.0, BH_MN06_2.0-2.1, QA506a	**22-Jun-2019**	**02-Jul-2019**	06-Jul-2019	✓	**02-Jul-2019**	11-Aug-2019	✓
Soil Glass Jar - Unpreserved (EP080) BH_MN06_0.9-1.0, BH_MN06_2.0-2.1, QA506a	**22-Jun-2019**	**29-Jun-2019**	06-Jul-2019	✓	**03-Jul-2019**	06-Jul-2019	✓
Soil Glass Jar - Unpreserved (EP071) BH_MN11_1.5-1.6, BH_MN11_2.0-2.1, BH_MN11_2.9-3.0, BH_MN13_0.9-1.2, BH_MN13_3.0-3.2, BH_VMN03_0.4-0.5, BH_VMN03_0.9-1.0, BH_VMN03_1 .1-1 .2, BH_VMN03_2.0-2.2, BH_VW_MN01_2.0-2.1, BH_VW_MN01_3.0-3.1, QA507a, QA508a	**23-Jun-2019**	**02-Jul-2019**	07-Jul-2019	✓	**02-Jul-2019**	11-Aug-2019	✓
Soil Glass Jar - Unpreserved (EP080) BH_MN11_1.5-1.6, BH_MN11_2.0-2.1, BH_MN11_2.9-3.0, BH_MN13_0.9-1.2, BH_MN13_3.0-3.2, BH_VMN03_0.4-0.5, BH_VMN03_0.9-1.0, BH_VMN03_1 .1-1 .2, BH_VMN03_2.0-2.2, BH_VW_MN01_2.0-2.1, BH_VW_MN01_3.0-3.1, QA507a, QA508a	**23-Jun-2019**	**29-Jun-2019**	07-Jul-2019	✓	**03-Jul-2019**	07-Jul-2019	✓

Matrix: **SOIL**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP071) BH_MN06_0.9-1.0, BH_MN06_2.0-2.1, QA506a	**22-Jun-2019**	**02-Jul-2019**	06-Jul-2019	✓	**02-Jul-2019**	11-Aug-2019	✓
Soil Glass Jar - Unpreserved (EP080) BH_MN06_0.9-1.0, BH_MN06_2.0-2.1, QA506a	**22-Jun-2019**	**29-Jun-2019**	06-Jul-2019	✓	**03-Jul-2019**	06-Jul-2019	✓
Soil Glass Jar - Unpreserved (EP071) BH_MN11_1.5-1.6, BH_MN11_2.0-2.1, BH_MN11_2.9-3.0, BH_MN13_0.9-1.2, BH_MN13_3.0-3.2, BH_VMN03_0.4-0.5, BH_VMN03_0.9-1.0, BH_VMN03_1 .1-1 .2, BH_VMN03_2.0-2.2, BH_VW_MN01_2.0-2.1, BH_VW_MN01_3.0-3.1, QA507a, QA508a	**23-Jun-2019**	**02-Jul-2019**	07-Jul-2019	✓	**02-Jul-2019**	11-Aug-2019	✓
Soil Glass Jar - Unpreserved (EP080) BH_MN11_1.5-1.6, BH_MN11_2.0-2.1, BH_MN11_2.9-3.0, BH_MN13_0.9-1.2, BH_MN13_3.0-3.2, BH_VMN03_0.4-0.5, BH_VMN03_0.9-1.0, BH_VMN03_1 .1-1 .2, BH_VMN03_2.0-2.2, BH_VW_MN01_2.0-2.1, BH_VW_MN01_3.0-3.1, QA507a, QA508a	**23-Jun-2019**	**29-Jun-2019**	07-Jul-2019	✓	**03-Jul-2019**	07-Jul-2019	✓
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080) BH_MN06_0.9-1.0, BH_MN06_2.0-2.1, QA506a	**22-Jun-2019**	**29-Jun-2019**	06-Jul-2019	✓	**03-Jul-2019**	06-Jul-2019	✓
Soil Glass Jar - Unpreserved (EP080) BH_MN11_1.5-1.6, BH_MN11_2.0-2.1, BH_MN11_2.9-3.0, BH_MN13_0.9-1.2, BH_MN13_3.0-3.2, BH_VMN03_0.4-0.5, BH_VMN03_0.9-1.0, BH_VMN03_1 .1-1 .2, BH_VMN03_2.0-2.2, BH_VW_MN01_2.0-2.1, BH_VW_MN01_3.0-3.1, TS 4, TB, QA507a, QA508a, TSC 4	**23-Jun-2019**	**29-Jun-2019**	07-Jul-2019	✓	**03-Jul-2019**	07-Jul-2019	✓

Matrix: **SOIL**

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

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231A: Perfluoroalkyl Sulfonic Acids								
HDPE Soil Jar (EP231X)								
BH_MN06_0.9-1.0		**22-Jun-2019**	**01-Jul-2019**	19-Dec-2019	✓	**03-Jul-2019**	10-Aug-2019	✓
HDPE Soil Jar (EP231X)								
BH_MN11_1.5-1.6,	BH_MN13_0.9-1.2,	**23-Jun-2019**	**01-Jul-2019**	20-Dec-2019	✓	**03-Jul-2019**	10-Aug-2019	✓
BH_VMN03_0.4-0.5,	BH_VMN03_0.9-1.0							
Soil Glass Jar - Unpreserved (EP231X)								
QA506a		**22-Jun-2019**	**01-Jul-2019**	19-Dec-2019	✓	**03-Jul-2019**	10-Aug-2019	✓
Soil Glass Jar - Unpreserved (EP231X)								
QA507a,	QA508a	**23-Jun-2019**	**01-Jul-2019**	20-Dec-2019	✓	**03-Jul-2019**	10-Aug-2019	✓
EP231B: Perfluoroalkyl Carboxylic Acids								
HDPE Soil Jar (EP231X)								
BH_MN06_0.9-1.0		**22-Jun-2019**	**01-Jul-2019**	19-Dec-2019	✓	**03-Jul-2019**	10-Aug-2019	✓
HDPE Soil Jar (EP231X)								
BH_MN11_1.5-1.6,	BH_MN13_0.9-1.2,	**23-Jun-2019**	**01-Jul-2019**	20-Dec-2019	✓	**03-Jul-2019**	10-Aug-2019	✓
BH_VMN03_0.4-0.5,	BH_VMN03_0.9-1.0							
Soil Glass Jar - Unpreserved (EP231X)								
QA506a		**22-Jun-2019**	**01-Jul-2019**	19-Dec-2019	✓	**03-Jul-2019**	10-Aug-2019	✓
Soil Glass Jar - Unpreserved (EP231X)								
QA507a,	QA508a	**23-Jun-2019**	**01-Jul-2019**	20-Dec-2019	✓	**03-Jul-2019**	10-Aug-2019	✓
EP231C: Perfluoroalkyl Sulfonamides								
HDPE Soil Jar (EP231X)								
BH_MN06_0.9-1.0		**22-Jun-2019**	**01-Jul-2019**	19-Dec-2019	✓	**03-Jul-2019**	10-Aug-2019	✓
HDPE Soil Jar (EP231X)								
BH_MN11_1.5-1.6,	BH_MN13_0.9-1.2,	**23-Jun-2019**	**01-Jul-2019**	20-Dec-2019	✓	**03-Jul-2019**	10-Aug-2019	✓
BH_VMN03_0.4-0.5,	BH_VMN03_0.9-1.0							
Soil Glass Jar - Unpreserved (EP231X)								
QA506a		**22-Jun-2019**	**01-Jul-2019**	19-Dec-2019	✓	**03-Jul-2019**	10-Aug-2019	✓
Soil Glass Jar - Unpreserved (EP231X)								
QA507a,	QA508a	**23-Jun-2019**	**01-Jul-2019**	20-Dec-2019	✓	**03-Jul-2019**	10-Aug-2019	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
HDPE Soil Jar (EP231X)								
BH_MN06_0.9-1.0		**22-Jun-2019**	**01-Jul-2019**	19-Dec-2019	✓	**03-Jul-2019**	10-Aug-2019	✓
HDPE Soil Jar (EP231X)								
BH_MN11_1.5-1.6,	BH_MN13_0.9-1.2,	**23-Jun-2019**	**01-Jul-2019**	20-Dec-2019	✓	**03-Jul-2019**	10-Aug-2019	✓
BH_VMN03_0.4-0.5,	BH_VMN03_0.9-1.0							
Soil Glass Jar - Unpreserved (EP231X)								
QA506a		**22-Jun-2019**	**01-Jul-2019**	19-Dec-2019	✓	**03-Jul-2019**	10-Aug-2019	✓
Soil Glass Jar - Unpreserved (EP231X)								
QA507a,	QA508a	**23-Jun-2019**	**01-Jul-2019**	20-Dec-2019	✓	**03-Jul-2019**	10-Aug-2019	✓

Matrix: **SOIL**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231P: PFAS Sums							
HDPE Soil Jar (EP231X)							
BH_MN06_0.9-1.0	**22-Jun-2019**	**01-Jul-2019**	19-Dec-2019	✓	**03-Jul-2019**	10-Aug-2019	✓
HDPE Soil Jar (EP231X)							
BH_MN11_1.5-1.6, BH_MN13_0.9-1.2, BH_VMN03_0.4-0.5, BH_VMN03_0.9-1.0	**23-Jun-2019**	**01-Jul-2019**	20-Dec-2019	✓	**03-Jul-2019**	10-Aug-2019	✓
Soil Glass Jar - Unpreserved (EP231X)							
QA506a	**22-Jun-2019**	**01-Jul-2019**	19-Dec-2019	✓	**03-Jul-2019**	10-Aug-2019	✓
Soil Glass Jar - Unpreserved (EP231X)							
QA507a, QA508a	**23-Jun-2019**	**01-Jul-2019**	20-Dec-2019	✓	**03-Jul-2019**	10-Aug-2019	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T)							
RB_VW_MN03	**28-Jun-2019**	**02-Jul-2019**	25-Dec-2019	✓	**02-Jul-2019**	25-Dec-2019	✓
Clear Plastic Bottle - Nitric Acid; Unspecified (EG020A-T)							
R_BH_MW02	**22-Jun-2019**	**03-Jul-2019**	19-Dec-2019	✓	**03-Jul-2019**	19-Dec-2019	✓
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T)							
RB_VW_MN03	**28-Jun-2019**	**----**	----	----	**02-Jul-2019**	26-Jul-2019	✓
Clear Plastic Bottle - Nitric Acid; Unspecified (EG035T)							
R_BH_MW02	**22-Jun-2019**	**----**	----	----	**03-Jul-2019**	20-Jul-2019	✓
EP066: Polychlorinated Biphenyls (PCB)							
Amber Glass Bottle - Unpreserved (EP066)							
R_BH_MW02	**22-Jun-2019**	**02-Jul-2019**	29-Jun-2019	×	**03-Jul-2019**	11-Aug-2019	✓
Amber Glass Bottle - Unpreserved (EP066)							
RB_VW_MN03	**28-Jun-2019**	**02-Jul-2019**	05-Jul-2019	✓	**03-Jul-2019**	11-Aug-2019	✓
EP068A: Organochlorine Pesticides (OC)							
Amber Glass Bottle - Unpreserved (EP068)							
R_BH_MW02	**22-Jun-2019**	**02-Jul-2019**	29-Jun-2019	×	**03-Jul-2019**	11-Aug-2019	✓
Amber Glass Bottle - Unpreserved (EP068)							
RB_VW_MN03	**28-Jun-2019**	**02-Jul-2019**	05-Jul-2019	✓	**03-Jul-2019**	11-Aug-2019	✓
EP068B: Organophosphorus Pesticides (OP)							
Amber Glass Bottle - Unpreserved (EP068)							
R_BH_MW02	**22-Jun-2019**	**02-Jul-2019**	29-Jun-2019	×	**03-Jul-2019**	11-Aug-2019	✓
Amber Glass Bottle - Unpreserved (EP068)							
RB_VW_MN03	**28-Jun-2019**	**02-Jul-2019**	05-Jul-2019	✓	**03-Jul-2019**	11-Aug-2019	✓
EP074A: Monocyclic Aromatic Hydrocarbons							
Amber VOC Vial - Sulfuric Acid (EP074)							
R_BH_MW02	**22-Jun-2019**	**04-Jul-2019**	06-Jul-2019	✓	**04-Jul-2019**	06-Jul-2019	✓
Amber VOC Vial - Sulfuric Acid (EP074)							
RB_VW_MN03	**28-Jun-2019**	**01-Jul-2019**	12-Jul-2019	✓	**01-Jul-2019**	12-Jul-2019	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP074B: Oxygenated Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) R_BH_MW02	**22-Jun-2019**	**04-Jul-2019**	06-Jul-2019	✓	**04-Jul-2019**	06-Jul-2019	✓
Amber VOC Vial - Sulfuric Acid (EP074) RB_VW_MN03	**28-Jun-2019**	**01-Jul-2019**	12-Jul-2019	✓	**01-Jul-2019**	12-Jul-2019	✓
EP074C: Sulfonated Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) R_BH_MW02	**22-Jun-2019**	**04-Jul-2019**	06-Jul-2019	✓	**04-Jul-2019**	06-Jul-2019	✓
Amber VOC Vial - Sulfuric Acid (EP074) RB_VW_MN03	**28-Jun-2019**	**01-Jul-2019**	12-Jul-2019	✓	**01-Jul-2019**	12-Jul-2019	✓
EP074D: Fumigants							
Amber VOC Vial - Sulfuric Acid (EP074) R_BH_MW02	**22-Jun-2019**	**04-Jul-2019**	06-Jul-2019	✓	**04-Jul-2019**	06-Jul-2019	✓
Amber VOC Vial - Sulfuric Acid (EP074) RB_VW_MN03	**28-Jun-2019**	**01-Jul-2019**	12-Jul-2019	✓	**01-Jul-2019**	12-Jul-2019	✓
EP074E: Halogenated Aliphatic Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) R_BH_MW02	**22-Jun-2019**	**04-Jul-2019**	06-Jul-2019	✓	**04-Jul-2019**	06-Jul-2019	✓
Amber VOC Vial - Sulfuric Acid (EP074) RB_VW_MN03	**28-Jun-2019**	**01-Jul-2019**	12-Jul-2019	✓	**01-Jul-2019**	12-Jul-2019	✓
EP074F: Halogenated Aromatic Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) R_BH_MW02	**22-Jun-2019**	**04-Jul-2019**	06-Jul-2019	✓	**04-Jul-2019**	06-Jul-2019	✓
Amber VOC Vial - Sulfuric Acid (EP074) RB_VW_MN03	**28-Jun-2019**	**01-Jul-2019**	12-Jul-2019	✓	**01-Jul-2019**	12-Jul-2019	✓
EP074G: Trihalomethanes							
Amber VOC Vial - Sulfuric Acid (EP074) R_BH_MW02	**22-Jun-2019**	**04-Jul-2019**	06-Jul-2019	✓	**04-Jul-2019**	06-Jul-2019	✓
Amber VOC Vial - Sulfuric Acid (EP074) RB_VW_MN03	**28-Jun-2019**	**01-Jul-2019**	12-Jul-2019	✓	**01-Jul-2019**	12-Jul-2019	✓
EP074H: Naphthalene							
Amber VOC Vial - Sulfuric Acid (EP074) R_BH_MW02	**22-Jun-2019**	**04-Jul-2019**	06-Jul-2019	✓	**04-Jul-2019**	06-Jul-2019	✓
Amber VOC Vial - Sulfuric Acid (EP074) RB_VW_MN03	**28-Jun-2019**	**01-Jul-2019**	12-Jul-2019	✓	**01-Jul-2019**	12-Jul-2019	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM)) R_BH_MW02	**22-Jun-2019**	**02-Jul-2019**	29-Jun-2019	×	**04-Jul-2019**	11-Aug-2019	✓
Amber Glass Bottle - Unpreserved (EP075(SIM)) RB_VW_MN03	**28-Jun-2019**	**02-Jul-2019**	05-Jul-2019	✓	**03-Jul-2019**	11-Aug-2019	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071)							
R_BH_MW02	**22-Jun-2019**	**02-Jul-2019**	29-Jun-2019	×	**04-Jul-2019**	11-Aug-2019	✓
Amber Glass Bottle - Unpreserved (EP071)							
RB_VW_MN03	**28-Jun-2019**	**02-Jul-2019**	05-Jul-2019	✓	**03-Jul-2019**	11-Aug-2019	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
R_BH_MW02	**22-Jun-2019**	**04-Jul-2019**	06-Jul-2019	✓	**04-Jul-2019**	06-Jul-2019	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
RB_VW_MN03	**28-Jun-2019**	**01-Jul-2019**	12-Jul-2019	✓	**01-Jul-2019**	12-Jul-2019	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071)							
R_BH_MW02	**22-Jun-2019**	**02-Jul-2019**	29-Jun-2019	×	**04-Jul-2019**	11-Aug-2019	✓
Amber Glass Bottle - Unpreserved (EP071)							
RB_VW_MN03	**28-Jun-2019**	**02-Jul-2019**	05-Jul-2019	✓	**03-Jul-2019**	11-Aug-2019	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
R_BH_MW02	**22-Jun-2019**	**04-Jul-2019**	06-Jul-2019	✓	**04-Jul-2019**	06-Jul-2019	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
RB_VW_MN03	**28-Jun-2019**	**01-Jul-2019**	12-Jul-2019	✓	**01-Jul-2019**	12-Jul-2019	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080)							
R_BH_MW02	**22-Jun-2019**	**04-Jul-2019**	06-Jul-2019	✓	**04-Jul-2019**	06-Jul-2019	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
RB_VW_MN03	**28-Jun-2019**	**01-Jul-2019**	12-Jul-2019	✓	**01-Jul-2019**	12-Jul-2019	✓
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
R_BH_MW02	**22-Jun-2019**	**02-Jul-2019**	19-Dec-2019	✓	**03-Jul-2019**	19-Dec-2019	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X)							
R_BH_MW02	**22-Jun-2019**	**02-Jul-2019**	19-Dec-2019	✓	**03-Jul-2019**	19-Dec-2019	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X)							
R_BH_MW02	**22-Jun-2019**	**02-Jul-2019**	19-Dec-2019	✓	**03-Jul-2019**	19-Dec-2019	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
R_BH_MW02	**22-Jun-2019**	**02-Jul-2019**	19-Dec-2019	✓	**03-Jul-2019**	19-Dec-2019	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X)							
R_BH_MW02	**22-Jun-2019**	**02-Jul-2019**	19-Dec-2019	✓	**03-Jul-2019**	19-Dec-2019	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	2	16	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	2	16	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	2	16	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	4	32	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	3	22	**13.64**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phenol By Discrete Analyser	EP035G	2	10	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	16	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	32	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	22	**4.55**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Total Phenol By Discrete Analyser	EP035G	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	32	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	22	**4.55**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Total Phenol By Discrete Analyser	EP035G	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Matrix Spikes (MS) - Continued							
Pesticides by GCMS	EP068	1	16	6.25	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	16	6.25	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	32	6.25	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	22	4.55	5.00	×	NEPM 2013 B3 & ALS QC Standard
Total Phenol By Discrete Analyser	EP035G	1	10	10.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	16	6.25	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	17	5.88	5.00	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	11	0.00	10.00	×	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	7	14.29	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	11	0.00	10.00	×	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	11	0.00	10.00	×	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	4	40	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	5	30	16.67	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	14	0.00	10.00	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	3	25	12.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	3	21	14.29	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	2	11	18.18	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	7	14.29	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	2	11	18.18	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	2	11	18.18	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	40	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	30	6.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	14	14.29	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	25	8.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	2	21	9.52	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	2	11	18.18	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	7	14.29	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	2	11	18.18	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	2	11	18.18	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	40	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	30	6.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	14	14.29	5.00	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Method Blanks (MB) - Continued							
TRH Volatiles/BTEX	EP080	2	25	**8.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	2	21	**9.52**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	11	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	11	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	11	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	30	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	14	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	25	**8.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	2	21	**9.52**	**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 (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Asbestos Identification in Soils	EA200	SOIL	AS 4964 - 2004 Method for the qualitative identification of asbestos in bulk samples Analysis by Polarised Light Microscopy including dispersion staining
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 (2013) 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 (2013) Schedule B(3)
Total Phenol By Discrete Analyser	EP035G	SOIL	In house: Referenced to APHA 5530 B&D Steam distillable Phenols are reacted with 4-aminoantipyrine. The resultant colour intensity is measured by Seal
Polychlorinated Biphenyls (PCB)	EP066	SOIL	In house: Referenced to USEPA SW 846 - 8270D 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 (2013) Schedule B(3) (Method 504)
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270D 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 (2013) Schedule B(3) (Method 504,505)
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM amended 2013.
Volatile Organic Compounds	EP074	SOIL	In house: Referenced to USEPA SW 846 - 8260B Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270D. 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 (2013) Schedule B(3) (Method 502 and 507)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260B. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM amended 2013.

Analytical Methods	Method	Matrix	Method Descriptions
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	SOIL	In-House. A portion of soil is extracted with MTBE. The extract is taken to dryness, made up in mobile phase. Analysis is by LC/MSMS, ESI Negative Mode using MRM. Where commercially available, isotopically labelled analogues of the target analytes are used as internal standards for quantification. Where a labelled analogue is not commercially available, the internal standard with similar chemistry and the closest retention time to the target is used for quantification. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. This method complies with the quality control definitions as stated in QSM 5.1. Data is reviewed in line with the DQOs as stated in QSM5.1
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	WATER	In house: Referenced to USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Pesticides by GCMS	EP068	WATER	In house: Referenced to USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)
Volatile Organic Compounds	EP074	WATER	In house: Referenced to USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	In house: Referenced to USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)

Analytical Methods	Method	Matrix	Method Descriptions
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In house: Direct injection analysis of fresh waters after dilution (1:1) with methanol. Analysis by LC-Electrospray-MS-MS, Negative Mode using MRM. Where commercially available, isotopically labelled analogues of the target analytes are used as internal standards for quantification. Where a labelled analogue is not commercially available, the internal standard with similar chemistry and the closest retention time to the target is used for quantification. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. This method complies with the quality control definitions as stated in QSM 5.1. Data is reviewed in line with the DQOs as stated in QSM5.1

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 (2013) Schedule B(3) (Method 202)
Phenols After Microdistillation	EP035D	SOIL	In house: Referenced to APHA 5530 A, B&D. pH adjusted Steam distillable Phenolic compounds. The resultant colour intensity is measured by Discrete Analyser.
Sample Extraction for PFAS	EP231-PR	SOIL	In house
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.
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
Preparation for PFAS in water.	EP231-PR	WATER	Method presumes direct injection without workup. Preparation includes addition of internal standard and surrogate, and filtration prior to anaylsis.
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.

GOLDER Douglas Partners

1791865		ALS	
Marrickville		SY-698-17 C V4	
Golder-Douglas		PCOC68	
24hrs ☐	48hrs ☐	Standard ■	
36hrs ☐	5 Days ☐	Date Required By:	
HARD ☐	DISK ☐	EMAIL ■	BULLETIN BOARD ☐
PDF ■	EXCEL ■	ESDAT ■	

GOLDER ASSOCIATES PTY LTD
124 Pacific Highway, Greenwich
Project Manager: Ben Seaford
Job Contact: Barry Houston
Phone: : (02) 9478 3900
Fax: : (02) 9478 3901
Reviewed:
Phone: 0416 826 175 Email: bhouston@golder.com.au

Comments/Special Instructions:

Include PCOC68 on SRN
Re water samples - total metals please
ESDAT format results please
Please freeze ASS sample bags on ASAP.

Thanks!

ANALYSIS REQUIRED

LAB ID	SAMPLE ID	SAMPLE TIME	SAMPLE DATE	SAMPLE TYPE	SAMPLE MATRIX	No CONTAINERS	Level of Contamination (Low/High/Unknown)	Asbestos (presence / absence)	Soils suite (TRH C6-C40, BTEXN, PAHs, PCBs/OCPs/OPPs, 8 heavy metals (As, Cd, Cr, Cu, Ni, Pb, Hg, Zn, total phenols, VOCs)	PFAS	BTEXN	Soils suite (TRH C6-C40, BTEXN, PAHs, PCBs/OCPs/OPPs, 8 heavy metals (As, Cd, Cr, Cu, Ni, Pb, Hg, Zn, VOCs)	ON HOLD
1	BH_MN06_0.75-0.85		22/06/2019	DS	Soil	1 jar, 1 pfas, 1 asb bag	U						X
2	BH_MN06_0.9-1.0		22/06/2019	DS	Soil	1 jar, 1 pfas, 1 asb bag	U	X	X	X			
3	BH_MN06_1.4-1.5		22/06/2019	DS	Soil	1 jar, 1 pfas, 1 asb bag	U						X
4	BH_MN06_2.0-2.1		22/06/2019	DS	Soil	1 jar, 1 pfas, 1 asb bag	U					X	
5	BH_MN06_2.9-3.0		22/06/2019	DS	Soil	1 jar, 1 pfas, 1 asb bag	U						X
6	BH_MN11_1.5-1.6		23/06/2019	DS	Soil	1 jar, 1 pfas, 1 asb bag	U	X	X	X			
7	BH_MN11_2.0-2.1		23/06/2019	DS	Soil	1 jar, 1 pfas, 1 asb bag	U					X	
8	BH_MN11_2.9-3.0		23/06/2019	DS	Soil	1 jar, 1 pfas, 1 asb bag	U					X	
9	BH_MN13_0.9		23/06/2019	DS	Soil	1 jar, 1 pfas, 1 asb bag	U						X
10	BH_MN13_0.9-1.2		23/06/2019	DS	Soil	1 jar, 1 pfas, 1 asb bag	U	X	X	X			
11	BH_MN13_2.0-2.2		23/06/2019	DS	Soil	1 jar, 1 pfas, 1 asb bag	U						X
12	BH_MN13_3.0-3.2		23/06/2019	DS	Soil	1 jar, 1 pfas, 1 asb bag	U					X	
13	BH_VMN03_0.25-0.35		23/06/2019	DS	Soil	1 jar, 1 pfas, 1 asb bag	U						X
14	BH_VMN03_0.4-0.5		23/06/2019	DS	Soil	1 jar, 1 pfas, 1 asb bag	U	X	X	X			
15	BH_VMN03_0.75-0.85		23/06/2019	DS	Soil	1 jar, 1 pfas, 1 asb bag	U						X
16	BH_VMN03_0.9-1.0		23/06/2019	DS	Soil	1 jar, 1 pfas, 1 asb bag	U	X	X	X			
17	BH_VMN03_1.1-1.2		23/06/2019	DS	Soil	1 jar, 1 pfas, 1 asb bag	U					X	
18	BH_VMN03_2.0-2.2		23/06/2019	DS	Soil	1 jar, 1 pfas, 1 asb bag	U					X	
19	BH_VW_MN01_2.0-2.1		23/06/2019	DS	Soil	1 jar, 1 pfas, 1 asb bag	U					X	
20	BH_VW_MN01_3.0-3.1		23/06/2019	DS	Soil	1 jar, 1 pfas, 1 asb bag	U					X	
21	RB_VW_MN03		23/06/2019	GS	Water	2 x vials, 1 x pl, 1 x metals, 1 x pfas	L					X	
22	TS		23/06/2019	QA	Soil	1 jar	L				X		
23	TB		23/06/2019	QA	Soil	1 jar	L				X		
24	QA506A		22/06/2019	DS	Soil	1 jar	U		X	X			
25	QA507A		23/06/2019	DS	Soil	1 jar	U		X	X			
26	QA508a		23/06/2019		Soil	1 jar	U		X	X			
27	Trip Spike		22/06/2019		Soil	1 jar	U						
28	Trip Blank		22/06/2019		Soil	1 jar	U						
29	TCL												

Environmental Division
Sydney
Work Order Reference
ES1920095

Telephone : +61-2-8784 8555

Subcon / Forward Lab / Split WO:
Lab / Analysis: Newcastle
Organised By / Date:
Relinquished By / Date: Adelaide
Connote / Courier:
WO No:
Attached By PO / Internal Sheet:

SAMPLE MATRIX = Soil/Sediment/Fill/Water/Other
SAMPLE TYPE = Composite(C)/Discrete(DC)/Disturbed(DS)/Core(CR), Grab Sample (GS)
HIGH CONCENTRATION: circle expected parameters in analysis list

	SIGNATURE	COMPANY	DATE	TIME
RELEASED BY	Lisa Teng	Golder-Douglas	24/06/2019	14:00
RECEIVED BY		ALS	27/6/19	13:00.
RELEASED BY				
RECEIVED BY				
RELEASED BY				
RECEIVED BY				

	SIGNATURE	COMPANY	DATE	TIME	Method of Shipment
RELEASED BY					Shipping Ref:
RECEIVED BY					

To be Filled Out By Analytical Laboratory
LAB BATCH NUMBER

Helen Simpson

From: Houston, Barry <bhouston@golder.com.au>
Sent: Tuesday, 2 July 2019 12:24 PM
To: Helen Simpson; Seaford, Ben
Subject: [EXTERNAL] - RE: ALS Workorder ES1920095, Client GOLASS, Project 1791865
Attachments: Chain of Custody_1791865_PCOC68_27062019 (Marrickville)_Rev0.pdf; Chain of Custody_1791865_PCOC68_27062019 (Marrickville)_Rev0.xls

Hi Helen

Thanks for the email – please ignore MN13_0.9 – think its been added in error.

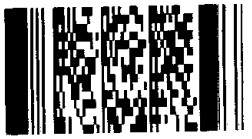
Regarding the remainder of the samples:

- Ignore – TRIP SPIKE 11, R_BH_C001s, BH_C001s/0.4-0.5, C001s/0.25-0.35, TRIP BLANK.
- Please schedule R_BH_MW02 for TRHC6-C40, BTEXN, PAHs, PCBs/OCPs/OPPs, 8 x heavy metals (total), VOCs and PFAS.

I've attached an updated COC to reflect the additional water sample – plus the inclusion of PFAS on the RB_VW_MN03.

QC602A is associated with PCOC67 however the corresponding primary sample is on hold, so in this instance please ignore.

Regards
Barry



Telephone : + 61-2-8784 8555

From: Helen Simpson <helen.simpson@alsglobal.com>
Sent: Tuesday, 2 July 2019 12:11 PM
To: Seaford, Ben <BSeaford@golder.com.au>; Houston, Barry <bhouston@golder.com.au>
Subject: ALS Workorder ES1920095, Client GOLASS, Project 1791865

EXTERNAL EMAIL

Hi Barry.

For the attached COC, PCOC68, we did not receive sample BH_MN13_0.9.

We did however, receive a number of extra samples which have been placed on hold. Please let me know if any require analysis.

030	SOIL	Logged	22/06/2019	☐	TRIP SPIKE 11
031	WATER	Logged	19/06/2019	☐	R_BH_C001S
032	WATER	Logged	22/06/2019	☐	R_BH_MW02
033	SOIL	Logged	19/06/2019	☐	QA602A
034	SOIL	Logged	19/06/2019	☐	BH_C001S/0.4-0.5
035	SOIL	Logged	19/06/2019	☐	BH_C001S/0.25-0.35
036	SOIL	Logged	11/06/2019	☐	TRIP BLANK

Kind Regards,

Helen Simpson
Sample Admin, Environmental
Sydney

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Smithfield NSW 2164 AUSTRALIA

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ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **ES1920368**	Page	: 1 of 12
Client	: **GOLDER ASSOCIATES**	Laboratory	: Environmental Division Sydney
Contact	: MR BEN SEAFORD	Contact	: Customer Services ES
Address	: LEVEL 1, 124 PACIFIC HIGHWAY ST LEONARDS NSW, AUSTRALIA 2065	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 9478 3900	Telephone	: +61-2-8784 8555
Project	: 1791865	Date Samples Received	: 01-Jul-2019 18:50
Order number	: PCOC69	Date Analysis Commenced	: 04-Jul-2019
C-O-C number	: ----	Issue Date	: 09-Jul-2019 18:24
Sampler	: GOLDER-DOULGAS		
Site	: ----		
Quote number	: SY/698/17 C V4		
No. of samples received	: 6		
No. of samples analysed	: 6		

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

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. 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*
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Franco Lentini		Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by 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.
- EP231: Particular samples required dilution due to sample matrix (conductivity) . LOR values have been adjusted accordingly.
- EP080: Sample TRIP SPIKE contains volatile compounds spiked into the sample containers prior to dispatch from the laboratory. BTEX compounds spiked at 20 ug/L. Confirmed by re-analysis.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	BH_MN01A	BH_MN02	BH_MN08	WQA500A	TS 28/6
				Client sampling date / time	28-Jun-2019 00:00	28-Jun-2019 00:00	28-Jun-2019 00:00	28-Jun-2019 00:00	25-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1920368-001	ES1920368-002	ES1920368-003	ES1920368-004	ES1920368-005
					Result	Result	Result	Result	Result
EG020F: Dissolved Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	**0.0013**	**0.0002**	<0.0001	----
Chromium	7440-47-3	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	----
Copper	7440-50-8	0.001	mg/L		**0.011**	**0.026**	<0.001	**0.015**	----
Nickel	7440-02-0	0.001	mg/L		**0.002**	**0.022**	**0.031**	**0.003**	----
Lead	7439-92-1	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	----
Zinc	7440-66-6	0.005	mg/L		**0.017**	**0.120**	**0.150**	**0.021**	----
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	----
EP066: Polychlorinated Biphenyls (PCB)									
^ **Total Polychlorinated biphenyls**	----	1	µg/L		<1	<1	<1	<1	----
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	----
Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	----
beta-BHC	319-85-7	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	----
gamma-BHC	58-89-9	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	----
delta-BHC	319-86-8	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	----
Heptachlor	76-44-8	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	----
Aldrin	309-00-2	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	----
Heptachlor epoxide	1024-57-3	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	----
trans-Chlordane	5103-74-2	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	----
alpha-Endosulfan	959-98-8	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	----
cis-Chlordane	5103-71-9	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	----
Dieldrin	60-57-1	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	----
4.4`-DDE	72-55-9	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	----
Endrin	72-20-8	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	----
beta-Endosulfan	33213-65-9	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	----
4.4`-DDD	72-54-8	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	----
Endrin aldehyde	7421-93-4	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	----
Endosulfan sulfate	1031-07-8	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	----
4.4`-DDT	50-29-3	2.0	µg/L		<2.0	<2.0	<2.0	<2.0	----
Endrin ketone	53494-70-5	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	----
Methoxychlor	72-43-5	2.0	µg/L		<2.0	<2.0	<2.0	<2.0	----
^ **Total Chlordane (sum)**	----	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	BH_MN01A	BH_MN02	BH_MN08	WQA500A	TS 28/6
				Client sampling date / time	28-Jun-2019 00:00	28-Jun-2019 00:00	28-Jun-2019 00:00	28-Jun-2019 00:00	25-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1920368-001	ES1920368-002	ES1920368-003	ES1920368-004	ES1920368-005
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	----
Demeton-S-methyl	919-86-8	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	----
Monocrotophos	6923-22-4	2.0	µg/L		<2.0	<2.0	<2.0	<2.0	----
Dimethoate	60-51-5	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	----
Diazinon	333-41-5	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	----
Chlorpyrifos-methyl	5598-13-0	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	----
Parathion-methyl	298-00-0	2.0	µg/L		<2.0	<2.0	<2.0	<2.0	----
Malathion	121-75-5	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	----
Fenthion	55-38-9	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	----
Chlorpyrifos	2921-88-2	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	----
Parathion	56-38-2	2.0	µg/L		<2.0	<2.0	<2.0	<2.0	----
Pirimphos-ethyl	23505-41-1	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	----
Chlorfenvinphos	470-90-6	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	----
Bromophos-ethyl	4824-78-6	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	----
Fenamiphos	22224-92-6	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	----
Prothiofos	34643-46-4	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	----
Ethion	563-12-2	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	----
Carbophenothion	786-19-6	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	----
Azinphos Methyl	86-50-0	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	----
EP074A: Monocyclic Aromatic Hydrocarbons									
Styrene	100-42-5	5	µg/L		<5	<5	<5	<5	----
Isopropylbenzene	98-82-8	5	µg/L		<5	<5	<5	<5	----
n-Propylbenzene	103-65-1	5	µg/L		<5	<5	<5	<5	----
1.3.5-Trimethylbenzene	108-67-8	5	µg/L		<5	<5	<5	<5	----
sec-Butylbenzene	135-98-8	5	µg/L		<5	<5	<5	<5	----
1.2.4-Trimethylbenzene	95-63-6	5	µg/L		<5	<5	<5	<5	----
tert-Butylbenzene	98-06-6	5	µg/L		<5	<5	<5	<5	----
p-Isopropyltoluene	99-87-6	5	µg/L		<5	<5	<5	<5	----
n-Butylbenzene	104-51-8	5	µg/L		<5	<5	<5	<5	----
EP074B: Oxygenated Compounds									

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	BH_MN01A	BH_MN02	BH_MN08	WQA500A	TS 28/6
				Client sampling date / time	28-Jun-2019 00:00	28-Jun-2019 00:00	28-Jun-2019 00:00	28-Jun-2019 00:00	25-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1920368-001	ES1920368-002	ES1920368-003	ES1920368-004	ES1920368-005
					Result	Result	Result	Result	Result
EP074B: Oxygenated Compounds - Continued									
Vinyl Acetate	108-05-4	50	µg/L		<50	<50	<50	<50	----
2-Butanone (MEK)	78-93-3	50	µg/L		<50	<50	<50	<50	----
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L		<50	<50	<50	<50	----
2-Hexanone (MBK)	591-78-6	50	µg/L		<50	<50	<50	<50	----
EP074C: Sulfonated Compounds									
Carbon disulfide	75-15-0	5	µg/L		<5	<5	<5	<5	----
EP074D: Fumigants									
2.2-Dichloropropane	594-20-7	5	µg/L		<5	<5	<5	<5	----
1.2-Dichloropropane	78-87-5	5	µg/L		<5	<5	<5	<5	----
cis-1.3-Dichloropropylene	10061-01-5	5	µg/L		<5	<5	<5	<5	----
trans-1.3-Dichloropropylene	10061-02-6	5	µg/L		<5	<5	<5	<5	----
1.2-Dibromoethane (EDB)	106-93-4	5	µg/L		<5	<5	<5	<5	----
EP074E: Halogenated Aliphatic Compounds									
Dichlorodifluoromethane	75-71-8	50	µg/L		<50	<50	<50	<50	----
Chloromethane	74-87-3	50	µg/L		<50	<50	<50	<50	----
Vinyl chloride	75-01-4	50	µg/L		<50	<50	<50	<50	----
Bromomethane	74-83-9	50	µg/L		<50	<50	<50	<50	----
Chloroethane	75-00-3	50	µg/L		<50	<50	<50	<50	----
Trichlorofluoromethane	75-69-4	50	µg/L		<50	<50	<50	<50	----
1.1-Dichloroethene	75-35-4	5	µg/L		<5	<5	<5	<5	----
Iodomethane	74-88-4	5	µg/L		<5	<5	<5	<5	----
trans-1.2-Dichloroethene	156-60-5	5	µg/L		<5	<5	<5	<5	----
1.1-Dichloroethane	75-34-3	5	µg/L		<5	<5	<5	<5	----
cis-1.2-Dichloroethene	156-59-2	5	µg/L		<5	<5	<5	<5	----
1.1.1-Trichloroethane	71-55-6	5	µg/L		<5	<5	<5	<5	----
1.1-Dichloropropylene	563-58-6	5	µg/L		<5	<5	<5	<5	----
Carbon Tetrachloride	56-23-5	5	µg/L		<5	<5	<5	<5	----
1.2-Dichloroethane	107-06-2	5	µg/L		<5	<5	<5	<5	----
Trichloroethene	79-01-6	5	µg/L		<5	<5	<5	<5	----
Dibromomethane	74-95-3	5	µg/L		<5	<5	<5	<5	----
1.1.2-Trichloroethane	79-00-5	5	µg/L		<5	<5	<5	<5	----
1.3-Dichloropropane	142-28-9	5	µg/L		<5	<5	<5	<5	----
Tetrachloroethene	127-18-4	5	µg/L		<5	<5	<5	<5	----
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L		<5	<5	<5	<5	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	BH_MN01A	BH_MN02	BH_MN08	WQA500A	TS 28/6
				Client sampling date / time	28-Jun-2019 00:00	28-Jun-2019 00:00	28-Jun-2019 00:00	28-Jun-2019 00:00	25-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1920368-001	ES1920368-002	ES1920368-003	ES1920368-004	ES1920368-005
					Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds - Continued									
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L		<5	<5	<5	<5	----
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L		<5	<5	<5	<5	----
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L		<5	<5	<5	<5	----
1.2.3-Trichloropropane	96-18-4	5	µg/L		<5	<5	<5	<5	----
Pentachloroethane	76-01-7	5	µg/L		<5	<5	<5	<5	----
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L		<5	<5	<5	<5	----
Hexachlorobutadiene	87-68-3	5	µg/L		<5	<5	<5	<5	----
EP074F: Halogenated Aromatic Compounds									
Chlorobenzene	108-90-7	5	µg/L		<5	<5	<5	<5	----
Bromobenzene	108-86-1	5	µg/L		<5	<5	<5	<5	----
2-Chlorotoluene	95-49-8	5	µg/L		<5	<5	<5	<5	----
4-Chlorotoluene	106-43-4	5	µg/L		<5	<5	<5	<5	----
1.3-Dichlorobenzene	541-73-1	5	µg/L		<5	<5	<5	<5	----
1.4-Dichlorobenzene	106-46-7	5	µg/L		<5	<5	<5	<5	----
1.2-Dichlorobenzene	95-50-1	5	µg/L		<5	<5	<5	<5	----
1.2.4-Trichlorobenzene	120-82-1	5	µg/L		<5	<5	<5	<5	----
1.2.3-Trichlorobenzene	87-61-6	5	µg/L		<5	<5	<5	<5	----
EP074G: Trihalomethanes									
Chloroform	67-66-3	5	µg/L		<5	<5	<5	<5	----
Bromodichloromethane	75-27-4	5	µg/L		<5	<5	<5	<5	----
Dibromochloromethane	124-48-1	5	µg/L		<5	<5	<5	<5	----
Bromoform	75-25-2	5	µg/L		<5	<5	<5	<5	----
EP074H: Naphthalene									
Naphthalene	91-20-3	5	µg/L		<5	<5	<5	<5	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	----
2-Chlorophenol	95-57-8	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	----
2-Methylphenol	95-48-7	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	----
3- & 4-Methylphenol	1319-77-3	2.0	µg/L		<2.0	<2.0	<2.0	<2.0	----
2-Nitrophenol	88-75-5	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	----
2.4-Dimethylphenol	105-67-9	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	----
2.4-Dichlorophenol	120-83-2	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	----
2.6-Dichlorophenol	87-65-0	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	----
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	BH_MN01A	BH_MN02	BH_MN08	WQA500A	TS 28/6
				Client sampling date / time	28-Jun-2019 00:00	28-Jun-2019 00:00	28-Jun-2019 00:00	28-Jun-2019 00:00	25-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1920368-001	ES1920368-002	ES1920368-003	ES1920368-004	ES1920368-005
					Result	Result	Result	Result	Result
EP075(SIM)A: Phenolic Compounds - Continued									
2.4.6-Trichlorophenol	88-06-2	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	----
2.4.5-Trichlorophenol	95-95-4	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	----
Pentachlorophenol	87-86-5	2.0	µg/L		<2.0	<2.0	<2.0	<2.0	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	----
Acenaphthylene	208-96-8	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	----
Acenaphthene	83-32-9	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	----
Fluorene	86-73-7	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	----
Phenanthrene	85-01-8	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	----
Anthracene	120-12-7	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	----
Fluoranthene	206-44-0	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	----
Pyrene	129-00-0	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	----
Benz(a)anthracene	56-55-3	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	----
Chrysene	218-01-9	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	----
Benzo(a)pyrene	50-32-8	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	----
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	----
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	<20	<20	<20	----
C10 - C14 Fraction	----	50	µg/L		<50	<50	<50	<50	----
C15 - C28 Fraction	----	100	µg/L		<100	<100	<100	<100	----
C29 - C36 Fraction	----	50	µg/L		<50	<50	<50	<50	----
^ C10 - C36 Fraction (sum)	----	50	µg/L		<50	<50	<50	<50	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	<20	<20	<20	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L		<20	<20	<20	<20	----
>C10 - C16 Fraction	----	100	µg/L		<100	<100	<100	<100	----
>C16 - C34 Fraction	----	100	µg/L		<100	<100	<100	<100	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	BH_MN01A	BH_MN02	BH_MN08	WQA500A	TS 28/6
				Client sampling date / time	28-Jun-2019 00:00	28-Jun-2019 00:00	28-Jun-2019 00:00	28-Jun-2019 00:00	25-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1920368-001	ES1920368-002	ES1920368-003	ES1920368-004	ES1920368-005
					Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
>C34 - C40 Fraction	----	100	µg/L		<100	<100	<100	<100	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L		<100	<100	<100	<100	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L		<100	<100	<100	<100	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	<1	<1	<1	13
Toluene	108-88-3	2	µg/L		<2	<2	<2	<2	13
Ethylbenzene	100-41-4	2	µg/L		<2	<2	<2	<2	13
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	<2	<2	<2	12
ortho-Xylene	95-47-6	2	µg/L		<2	<2	<2	<2	14
^ Total Xylenes	----	2	µg/L		<2	<2	<2	<2	26
^ Sum of BTEX	----	1	µg/L		<1	<1	<1	<1	65
Naphthalene	91-20-3	5	µg/L		<5	<5	<5	<5	16
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	<0.05	<0.02	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	<0.05	<0.02	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L		<0.02	<0.02	<0.05	<0.02	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	<0.05	<0.02	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**0.02**	<0.01	<0.05	**0.02**	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.05	<0.02	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	<0.2	<0.1	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	<0.02	<0.05	<0.02	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	<0.02	<0.05	<0.02	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	<0.05	<0.02	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.02**	<0.01	<0.05	**0.02**	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	<0.05	<0.02	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.05	<0.02	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	BH_MN01A	BH_MN02	BH_MN08	WQA500A	TS 28/6
				Client sampling date / time	28-Jun-2019 00:00	28-Jun-2019 00:00	28-Jun-2019 00:00	28-Jun-2019 00:00	25-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1920368-001	ES1920368-002	ES1920368-003	ES1920368-004	ES1920368-005
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.05	<0.02	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.05	<0.02	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.05	<0.02	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.12	<0.05	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.05	<0.02	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.12	<0.05	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.12	<0.05	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.12	<0.05	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.12	<0.05	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.05	<0.02	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.05	<0.02	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**0.04**	<0.01	<0.05	**0.04**	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	BH_MN01A	BH_MN02	BH_MN08	WQA500A	TS 28/6
				Client sampling date / time	28-Jun-2019 00:00	28-Jun-2019 00:00	28-Jun-2019 00:00	28-Jun-2019 00:00	25-Jun-2019 00:00
Compound	CAS Number	LOR	Unit		ES1920368-001	ES1920368-002	ES1920368-003	ES1920368-004	ES1920368-005
					Result	Result	Result	Result	Result
EP231P: PFAS Sums - Continued									
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.02**	<0.01	<0.05	**0.02**	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.04**	<0.01	<0.05	**0.04**	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	1	%		**114**	**116**	**111**	**110**	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.5	%		**81.0**	**79.6**	**73.5**	**92.6**	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.5	%		**80.7**	**74.3**	**79.7**	**94.1**	----
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	5	%		**92.2**	**104**	**99.7**	**99.4**	----
Toluene-D8	2037-26-5	5	%		**100**	**113**	**109**	**110**	----
4-Bromofluorobenzene	460-00-4	5	%		**91.0**	**98.3**	**99.3**	**101**	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1.0	%		**25.0**	**16.8**	**23.2**	**29.4**	----
2-Chlorophenol-D4	93951-73-6	1.0	%		**51.4**	**35.8**	**50.4**	**59.6**	----
2.4.6-Tribromophenol	118-79-6	1.0	%		**58.9**	**62.1**	**56.4**	**70.8**	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		**59.4**	**47.1**	**60.8**	**68.9**	----
Anthracene-d10	1719-06-8	1.0	%		**69.4**	**66.6**	**65.5**	**74.6**	----
4-Terphenyl-d14	1718-51-0	1.0	%		**70.5**	**71.4**	**66.1**	**78.2**	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		**96.0**	**108**	**104**	**103**	**105**
Toluene-D8	2037-26-5	2	%		**83.9**	**95.1**	**92.0**	**92.7**	**110**
4-Bromofluorobenzene	460-00-4	2	%		**91.0**	**99.5**	**102**	**101**	**103**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**92.1**	**94.9**	**89.9**	**95.3**	----
13C8-PFOA	----	0.02	%		**98.0**	**97.7**	**92.9**	**92.1**	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	TB 28/6	----	----	----	----
				Client sampling date / time	27-Jun-2019 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES1920368-006	--------	--------	--------	--------
					Result	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	----	----	----	----
Toluene	108-88-3	2	µg/L		<2	----	----	----	----
Ethylbenzene	100-41-4	2	µg/L		<2	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L		<2	----	----	----	----
^ **Total Xylenes**	----	2	µg/L		<2	----	----	----	----
^ **Sum of BTEX**	----	1	µg/L		<1	----	----	----	----
Naphthalene	91-20-3	5	µg/L		<5	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		**96.2**	----	----	----	----
Toluene-D8	2037-26-5	2	%		**83.8**	----	----	----	----
4-Bromofluorobenzene	460-00-4	2	%		**96.5**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **WATER**

Compound	CAS Number	Recovery Limits (%) Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	29	129
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	67	111
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	67	111
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	78	133
Toluene-D8	2037-26-5	79	129
4-Bromofluorobenzene	460-00-4	81	124
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	32	112
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

QUALITY CONTROL REPORT

Work Order	: **ES1920368**	Page	: 1 of 16
Client	: **GOLDER ASSOCIATES**	Laboratory	: Environmental Division Sydney
Contact	: MR BEN SEAFORD	Contact	: Customer Services ES
Address	: LEVEL 1, 124 PACIFIC HIGHWAY ST LEONARDS NSW, AUSTRALIA 2065	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 9478 3900	Telephone	: +61-2-8784 8555
Project	: 1791865	Date Samples Received	: 01-Jul-2019
Order number	: PCOC69	Date Analysis Commenced	: 04-Jul-2019
C-O-C number	: ----	Issue Date	: 09-Jul-2019
Sampler	: GOLDER-DOULGAS		
Site	: ----		
Quote number	: SY/698/17 C V4		
No. of samples received	: 6		
No. of samples analysed	: 6		

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

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. 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*
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Franco Lentini		Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by 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

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG020F: Dissolved Metals by ICP-MS (QC Lot: 2447294)									
ES1920386-001	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	0.004	0.004	0.00	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.005	0.005	0.00	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.031	0.030	3.31	0% - 20%
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.050	0.050	0.00	0% - 50%
ES1920801-002	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	0.002	0.002	0.00	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.002	0.001	0.00	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.00	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 2447295)									
ES1919892-001	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
ES1920386-004	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 2446632)									
EP1906542-001	Anonymous	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 2446632) - continued									
EP1906542-001	Anonymous	EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.00	No Limit
ES1920733-003	Anonymous	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.00	No Limit
EP074B: Oxygenated Compounds (QC Lot: 2446632)									
EP1906542-001	Anonymous	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.00	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.00	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.00	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.00	No Limit
ES1920733-003	Anonymous	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.00	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.00	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.00	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.00	No Limit
EP074C: Sulfonated Compounds (QC Lot: 2446632)									
EP1906542-001	Anonymous	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.00	No Limit
ES1920733-003	Anonymous	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.00	No Limit
EP074D: Fumigants (QC Lot: 2446632)									
EP1906542-001	Anonymous	EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.00	No Limit
ES1920733-003	Anonymous	EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.00	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 2446632)									
EP1906542-001	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP074E: Halogenated Aliphatic Compounds (QC Lot: 2446632) - continued									
EP1906542-001	Anonymous	EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.00	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.00	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.00	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.00	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.00	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.00	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.00	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.00	No Limit
ES1920733-003	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.00	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.00	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP074E: Halogenated Aliphatic Compounds (QC Lot: 2446632) - continued									
ES1920733-003	Anonymous	EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.00	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.00	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.00	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.00	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.00	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.00	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 2446632)									
EP1906542-001	Anonymous	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.00	No Limit
ES1920733-003	Anonymous	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.00	No Limit
EP074G: Trihalomethanes (QC Lot: 2446632)									
EP1906542-001	Anonymous	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.00	No Limit
ES1920733-003	Anonymous	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP074G: Trihalomethanes (QC Lot: 2446632) - continued									
ES1920733-003	Anonymous	EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.00	No Limit
EP074H: Naphthalene (QC Lot: 2446632)									
EP1906542-001	Anonymous	EP074: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit
ES1920733-003	Anonymous	EP074: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2446625)									
EP1906542-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
ES1920733-003	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2446625)									
EP1906542-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
ES1920733-003	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EP080: BTEXN (QC Lot: 2446625)									
EP1906542-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit
ES1920733-003	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 2448056)									
EP1906336-061	Anonymous	EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	0.00	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.00	No Limit
ES1920471-001	Anonymous	EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	0.37	0.37	0.00	0% - 20%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L	0.20	0.23	10.6	0% - 50%
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.00	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 2448056)									

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 2448056) - continued									
EP1906336-061	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.00	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.00	No Limit
ES1920471-001	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.00	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	0.05	0.05	0.00	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.00	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 2448056)									
EP1906336-061	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.00	No Limit
ES1920471-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 2448056) - continued									
ES1920471-001	Anonymous	EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.00	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 2448056)									
EP1906336-061	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.00	No Limit
ES1920471-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.00	No Limit
EP231P: PFAS Sums (QC Lot: 2448056)									
EP1906336-061	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.00	No Limit
ES1920471-001	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	0.62	0.65	4.72	0% - 20%

Method Blank (MB) and Laboratory Control Spike (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 Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG020F: Dissolved Metals by ICP-MS (QCLot: 2447294)								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	92.8	85	114
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	95.6	84	110
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	92.3	85	111
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	90.6	81	111
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	90.1	83	111
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	89.2	82	112
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	93.4	81	117
EG035F: Dissolved Mercury by FIMS (QCLot: 2447295)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	87.5	83	105
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 2445212)								
EP066: Total Polychlorinated biphenyls	----	1	µg/L	<1	10 µg/L	101	62	107
EP068A: Organochlorine Pesticides (OC) (QCLot: 2445210)								
EP068: alpha-BHC	319-84-6	0.5	µg/L	<0.5	5 µg/L	78.2	65	107
EP068: Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	5 µg/L	79.0	58	111
EP068: beta-BHC	319-85-7	0.5	µg/L	<0.5	5 µg/L	85.6	69	117
EP068: gamma-BHC	58-89-9	0.5	µg/L	<0.5	5 µg/L	81.8	70	112
EP068: delta-BHC	319-86-8	0.5	µg/L	<0.5	5 µg/L	87.5	69	110
EP068: Heptachlor	76-44-8	0.5	µg/L	<0.5	5 µg/L	81.1	65	108
EP068: Aldrin	309-00-2	0.5	µg/L	<0.5	5 µg/L	82.3	66	109
EP068: Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	5 µg/L	82.0	67	107
EP068: trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	5 µg/L	79.9	64	110
EP068: alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	5 µg/L	82.9	67	112
EP068: cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	5 µg/L	76.1	63	111
EP068: Dieldrin	60-57-1	0.5	µg/L	<0.5	5 µg/L	82.1	65	113
EP068: 4.4`-DDE	72-55-9	0.5	µg/L	<0.5	5 µg/L	79.1	66	112
EP068: Endrin	72-20-8	0.5	µg/L	<0.5	5 µg/L	87.3	65	113
EP068: beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	5 µg/L	84.1	67	114
EP068: 4.4`-DDD	72-54-8	0.5	µg/L	<0.5	5 µg/L	80.7	72	122
EP068: Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	5 µg/L	84.0	67	109
EP068: Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	5 µg/L	90.0	65	112
EP068: 4.4`-DDT	50-29-3	2	µg/L	<2.0	5 µg/L	89.5	65	112
EP068: Endrin ketone	53494-70-5	0.5	µg/L	<0.5	5 µg/L	79.3	64	110
EP068: Methoxychlor	72-43-5	2	µg/L	<2.0	5 µg/L	97.1	61	114
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2445210)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2445210) - continued								
EP068: Dichlorvos	62-73-7	0.5	µg/L	<0.5	5 µg/L	81.7	66	114
EP068: Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	5 µg/L	97.6	64	113
EP068: Monocrotophos	6923-22-4	2	µg/L	<2.0	5 µg/L	25.3	20	48
EP068: Dimethoate	60-51-5	0.5	µg/L	<0.5	5 µg/L	91.0	70	110
EP068: Diazinon	333-41-5	0.5	µg/L	<0.5	5 µg/L	95.3	71	110
EP068: Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	5 µg/L	89.2	77	119
EP068: Parathion-methyl	298-00-0	2	µg/L	<2.0	5 µg/L	92.6	70	124
EP068: Malathion	121-75-5	0.5	µg/L	<0.5	5 µg/L	101	68	116
EP068: Fenthion	55-38-9	0.5	µg/L	<0.5	5 µg/L	86.6	69	112
EP068: Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	5 µg/L	87.8	75	119
EP068: Parathion	56-38-2	2	µg/L	<2.0	5 µg/L	88.5	67	121
EP068: Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	5 µg/L	85.9	69	121
EP068: Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	5 µg/L	93.8	72	110
EP068: Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	5 µg/L	84.4	68	112
EP068: Fenamiphos	22224-92-6	0.5	µg/L	<0.5	5 µg/L	98.4	64	116
EP068: Prothiofos	34643-46-4	0.5	µg/L	<0.5	5 µg/L	84.0	68	114
EP068: Ethion	563-12-2	0.5	µg/L	<0.5	5 µg/L	86.6	74	120
EP068: Carbophenothion	786-19-6	0.5	µg/L	<0.5	5 µg/L	91.9	66	114
EP068: Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	5 µg/L	101	52	128
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 2446632)								
EP074: Styrene	100-42-5	5	µg/L	<5	10 µg/L	94.7	73	119
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	10 µg/L	95.7	76	118
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	10 µg/L	97.0	69	119
EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	10 µg/L	95.7	74	116
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	10 µg/L	95.8	73	119
EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	10 µg/L	96.5	74	116
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	10 µg/L	98.6	72	116
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	10 µg/L	96.6	71	119
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	10 µg/L	97.5	65	123
EP074B: Oxygenated Compounds (QCLot: 2446632)								
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	100 µg/L	98.9	61	134
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	110	74	130
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	100 µg/L	102	66	132
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	100 µg/L	108	65	137
EP074C: Sulfonated Compounds (QCLot: 2446632)								
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	10 µg/L	93.6	73	127
EP074D: Fumigants (QCLot: 2446632)								
EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	94.0	68	122

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP074D: Fumigants (QCLot: 2446632) - continued								
EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	95.8	76	118
EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	10 µg/L	92.9	62	120
EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	10 µg/L	93.5	60	114
EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	101	69	117
EP074E: Halogenated Aliphatic Compounds (QCLot: 2446632)								
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	98.5	61	138
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	102	67	130
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	98.9	69	129
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	102	56	140
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	99.3	61	139
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	99.0	69	131
EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	101	70	124
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	75.4	70	128
EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	97.9	74	118
EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	99.1	74	120
EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	99.5	77	119
EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	10 µg/L	94.3	67	119
EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	95.4	73	119
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	92.2	62	120
EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	10 µg/L	97.6	73	123
EP074: Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	95.3	76	118
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	98.8	73	119
EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	101	72	126
EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	100	71	129
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	95.1	72	124
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	10 µg/L	92.3	66	114
EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	90.9	60	120
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	95.5	71	128
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	101	70	124
EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	110	74	126
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	95.5	72	126
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	107	66	136
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	10 µg/L	98.0	58	130
EP074F: Halogenated Aromatic Compounds (QCLot: 2446632)								
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	97.2	79	117
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	96.5	76	116
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	96.2	73	119
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	99.6	73	119
EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	10 µg/L	96.5	75	117

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP074F: Halogenated Aromatic Compounds (QCLot: 2446632) - continued								
EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	10 µg/L	99.1	74	118
EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	10 µg/L	98.9	75	117
EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	10 µg/L	98.6	61	125
EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	101	67	123
EP074G: Trihalomethanes (QCLot: 2446632)								
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	94.4	72	120
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	92.1	64	118
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	94.9	65	115
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	93.0	74	126
EP074H: Naphthalene (QCLot: 2446632)								
EP074: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	109	72	122
EP075(SIM)A: Phenolic Compounds (QCLot: 2445211)								
EP075(SIM): Phenol	108-95-2	1	µg/L	<1.0	5 µg/L	36.3	25	62
EP075(SIM): 2-Chlorophenol	95-57-8	1	µg/L	<1.0	5 µg/L	59.8	52	90
EP075(SIM): 2-Methylphenol	95-48-7	1	µg/L	<1.0	5 µg/L	53.6	51	91
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2	µg/L	<2.0	10 µg/L	50.2	44	88
EP075(SIM): 2-Nitrophenol	88-75-5	1	µg/L	<1.0	5 µg/L	65.4	48	100
EP075(SIM): 2.4-Dimethylphenol	105-67-9	1	µg/L	<1.0	5 µg/L	76.6	49	99
EP075(SIM): 2.4-Dichlorophenol	120-83-2	1	µg/L	<1.0	5 µg/L	66.3	53	105
EP075(SIM): 2.6-Dichlorophenol	87-65-0	1	µg/L	<1.0	5 µg/L	65.4	57	105
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1	µg/L	<1.0	5 µg/L	67.5	53	99
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	1	µg/L	<1.0	5 µg/L	65.4	50	106
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	1	µg/L	<1.0	5 µg/L	74.4	51	105
EP075(SIM): Pentachlorophenol	87-86-5	2	µg/L	<2.0	10 µg/L	55.1	10	95
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2445211)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	60.8	50	94
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	67.0	64	114
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	66.0	62	113
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	69.2	64	115
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	76.8	63	116
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	76.8	64	116
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	88.8	64	118
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	86.4	63	118
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	87.0	64	117
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	81.5	63	116
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	87.5	62	119
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	80.3	63	115

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2445211) - continued								
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	86.4	63	117
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	88.6	60	118
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	87.1	61	117
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	91.6	59	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2445209)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	63.7	56	112
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	84.8	72	113
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	108	56	121
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2446625)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	82.4	75	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2445209)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	2500 µg/L	65.9	58	119
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	88.2	63	110
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	1500 µg/L	88.1	62	121
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2446625)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	81.8	75	127
EP080: BTEXN (QCLot: 2446625)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	82.3	70	122
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	84.1	69	123
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	79.1	70	120
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	86.0	69	121
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	79.4	72	122
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	118	70	120
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 2448056)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.5 µg/L	80.8	70	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.5 µg/L	85.2	70	130
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L	<0.02	0.5 µg/L	88.4	70	130
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.5 µg/L	85.2	70	130
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.5 µg/L	78.4	70	130
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.5 µg/L	83.6	70	130
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 2448056)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	2.5 µg/L	97.9	70	130
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.5 µg/L	91.6	70	130
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.5 µg/L	98.6	70	130
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.5 µg/L	93.0	70	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.5 µg/L	91.6	70	130
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.5 µg/L	95.4	70	130

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 2448056) - continued								
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.5 µg/L	82.2	70	130
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.5 µg/L	97.8	70	130
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.5 µg/L	89.2	70	130
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.5 µg/L	95.0	70	130
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	1.25 µg/L	88.6	70	150
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 2448056)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.5 µg/L	98.2	70	130
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	1.25 µg/L	96.4	70	150
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	1.25 µg/L	82.9	70	150
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	1.25 µg/L	84.7	70	150
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	1.25 µg/L	103	70	150
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.5 µg/L	83.4	70	130
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.5 µg/L	78.6	70	130
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 2448056)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.5 µg/L	103	70	130
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.5 µg/L	103	70	130
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.5 µg/L	115	70	130
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.5 µg/L	93.2	70	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: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG020F: Dissolved Metals by ICP-MS (QCLot: 2447294)							
ES1920368-001	BH_MN01A	EG020A-F: Arsenic	7440-38-2	1 mg/L	91.6	70	130
		EG020A-F: Cadmium	7440-43-9	0.25 mg/L	94.6	70	130
		EG020A-F: Chromium	7440-47-3	1 mg/L	96.3	70	130
		EG020A-F: Copper	7440-50-8	1 mg/L	93.1	70	130
		EG020A-F: Lead	7439-92-1	1 mg/L	108	70	130
		EG020A-F: Nickel	7440-02-0	1 mg/L	89.2	70	130
		EG020A-F: Zinc	7440-66-6	1 mg/L	120	70	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG035F: Dissolved Mercury by FIMS (QCLot: 2447295)							
ES1919890-001	Anonymous	EG035F: Mercury	7439-97-6	0.01 mg/L	91.9	70	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 2446632)							
EP1906542-001	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	25 µg/L	103	70	130
		EP074: Trichloroethene	79-01-6	25 µg/L	108	70	130
EP074F: Halogenated Aromatic Compounds (QCLot: 2446632)							
EP1906542-001	Anonymous	EP074: Chlorobenzene	108-90-7	25 µg/L	118	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2446625)							
EP1906542-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	106	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2446625)							
EP1906542-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	106	70	130
EP080: BTEXN (QCLot: 2446625)							
EP1906542-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	93.9	70	130
		EP080: Toluene	108-88-3	25 µg/L	92.0	70	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	98.6	70	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	94.8	70	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	99.0	70	130
		EP080: Naphthalene	91-20-3	25 µg/L	94.3	70	130
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 2448056)							
EP1906336-061	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.5 µg/L	78.8	50	130
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.5 µg/L	88.8	50	130
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.5 µg/L	86.2	50	130
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.5 µg/L	88.0	50	130
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.5 µg/L	87.0	50	130
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.5 µg/L	92.2	50	130
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 2448056)							
EP1906336-061	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	2.5 µg/L	94.0	50	130
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.5 µg/L	97.8	50	130
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.5 µg/L	120	50	130
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.5 µg/L	101	50	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.5 µg/L	100	50	130
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.5 µg/L	99.8	50	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.5 µg/L	93.2	50	130
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.5 µg/L	106	50	130
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.5 µg/L	118	50	130
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.5 µg/L	120	50	130
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	1.25 µg/L	115	50	150

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 2448056)							
EP1906336-061	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.5 µg/L	89.0	50	130
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	1.25 µg/L	103	50	150
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	1.25 µg/L	126	50	150
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	1.25 µg/L	107	50	150
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	1.25 µg/L	108	50	150
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.5 µg/L	102	50	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.5 µg/L	114	50	130
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 2448056)							
EP1906336-061	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.5 µg/L	117	50	130
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.5 µg/L	113	50	130
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.5 µg/L	117	50	130
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.5 µg/L	114	50	130

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES1920368**	Page	: 1 of 9
Client	: **GOLDER ASSOCIATES**	Laboratory	: Environmental Division Sydney
Contact	: MR BEN SEAFORD	Telephone	: +61-2-8784 8555
Project	: 1791865	Date Samples Received	: 01-Jul-2019
Site	: ----	Issue Date	: 09-Jul-2019
Sampler	: GOLDER-DOULGAS	No. of samples received	: 6
Order number	: PCOC69	No. of samples analysed	: 6

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Method	Count QC	Count Regular	Rate (%) Actual	Rate (%) Expected	Quality Control Specification
Laboratory Duplicates (DUP)					
PAH/Phenols (GC/MS - SIM)	0	10	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	0	4	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	0	4	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	18	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
PAH/Phenols (GC/MS - SIM)	0	10	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	0	4	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	0	4	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	18	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

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

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

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

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

Matrix: **WATER**

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

Method / *Container* / Client Sample ID(s)		*Sample Date*	*Extraction / Preparation* Date extracted	Due for extraction	Evaluation	*Analysis* Date analysed	Due for analysis	Evaluation
EG020F: Dissolved Metals by ICP-MS								
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F)								
BH_MN01A,	BH_MN02,	**28-Jun-2019**	**----**	----	----	**05-Jul-2019**	25-Dec-2019	✓
BH_MN08,	WQA500A							
EG035F: Dissolved Mercury by FIMS								
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F)								
BH_MN01A,	BH_MN02,	**28-Jun-2019**	**----**	----	----	**05-Jul-2019**	26-Jul-2019	✓
BH_MN08,	WQA500A							
EP066: Polychlorinated Biphenyls (PCB)								
Amber Glass Bottle - Unpreserved (EP066)								
BH_MN01A,	BH_MN02,	**28-Jun-2019**	**04-Jul-2019**	05-Jul-2019	✓	**07-Jul-2019**	13-Aug-2019	✓
BH_MN08,	WQA500A							
EP068A: Organochlorine Pesticides (OC)								
Amber Glass Bottle - Unpreserved (EP068)								
BH_MN01A,	BH_MN02,	**28-Jun-2019**	**04-Jul-2019**	05-Jul-2019	✓	**07-Jul-2019**	13-Aug-2019	✓
BH_MN08,	WQA500A							

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP068B: Organophosphorus Pesticides (OP)							
Amber Glass Bottle - Unpreserved (EP068)							
BH_MN01A, BH_MN02, BH_MN08, WQA500A	**28-Jun-2019**	**04-Jul-2019**	05-Jul-2019	✓	**07-Jul-2019**	13-Aug-2019	✓
EP074A: Monocyclic Aromatic Hydrocarbons							
Clear glass VOC vial - HCl (EP074)							
BH_MN01A, BH_MN02, BH_MN08, WQA500A	**28-Jun-2019**	**07-Jul-2019**	12-Jul-2019	✓	**07-Jul-2019**	12-Jul-2019	✓
EP074B: Oxygenated Compounds							
Clear glass VOC vial - HCl (EP074)							
BH_MN01A, BH_MN02, BH_MN08, WQA500A	**28-Jun-2019**	**07-Jul-2019**	12-Jul-2019	✓	**07-Jul-2019**	12-Jul-2019	✓
EP074C: Sulfonated Compounds							
Clear glass VOC vial - HCl (EP074)							
BH_MN01A, BH_MN02, BH_MN08, WQA500A	**28-Jun-2019**	**07-Jul-2019**	12-Jul-2019	✓	**07-Jul-2019**	12-Jul-2019	✓
EP074D: Fumigants							
Clear glass VOC vial - HCl (EP074)							
BH_MN01A, BH_MN02, BH_MN08, WQA500A	**28-Jun-2019**	**07-Jul-2019**	12-Jul-2019	✓	**07-Jul-2019**	12-Jul-2019	✓
EP074E: Halogenated Aliphatic Compounds							
Clear glass VOC vial - HCl (EP074)							
BH_MN01A, BH_MN02, BH_MN08, WQA500A	**28-Jun-2019**	**07-Jul-2019**	12-Jul-2019	✓	**07-Jul-2019**	12-Jul-2019	✓
EP074F: Halogenated Aromatic Compounds							
Clear glass VOC vial - HCl (EP074)							
BH_MN01A, BH_MN02, BH_MN08, WQA500A	**28-Jun-2019**	**07-Jul-2019**	12-Jul-2019	✓	**07-Jul-2019**	12-Jul-2019	✓
EP074G: Trihalomethanes							
Clear glass VOC vial - HCl (EP074)							
BH_MN01A, BH_MN02, BH_MN08, WQA500A	**28-Jun-2019**	**07-Jul-2019**	12-Jul-2019	✓	**07-Jul-2019**	12-Jul-2019	✓
EP074H: Naphthalene							
Clear glass VOC vial - HCl (EP074)							
BH_MN01A, BH_MN02, BH_MN08, WQA500A	**28-Jun-2019**	**07-Jul-2019**	12-Jul-2019	✓	**07-Jul-2019**	12-Jul-2019	✓
EP075(SIM)A: Phenolic Compounds							
Amber Glass Bottle - Unpreserved (EP075(SIM))							
BH_MN01A, BH_MN02, BH_MN08, WQA500A	**28-Jun-2019**	**04-Jul-2019**	05-Jul-2019	✓	**06-Jul-2019**	13-Aug-2019	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM))							
BH_MN01A, BH_MN02, BH_MN08, WQA500A	**28-Jun-2019**	**04-Jul-2019**	05-Jul-2019	✓	**06-Jul-2019**	13-Aug-2019	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071)							
BH_MN01A, BH_MN02, BH_MN08, WQA500A	**28-Jun-2019**	**04-Jul-2019**	05-Jul-2019	✓	**06-Jul-2019**	13-Aug-2019	✓
Clear glass VOC vial - HCl (EP080)							
BH_MN01A, BH_MN02, BH_MN08, WQA500A	**28-Jun-2019**	**07-Jul-2019**	12-Jul-2019	✓	**07-Jul-2019**	12-Jul-2019	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071)							
BH_MN01A, BH_MN02, BH_MN08, WQA500A	**28-Jun-2019**	**04-Jul-2019**	05-Jul-2019	✓	**06-Jul-2019**	13-Aug-2019	✓
Clear glass VOC vial - HCl (EP080)							
BH_MN01A, BH_MN02, BH_MN08, WQA500A	**28-Jun-2019**	**07-Jul-2019**	12-Jul-2019	✓	**07-Jul-2019**	12-Jul-2019	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080)							
TS 28/6	**25-Jun-2019**	**07-Jul-2019**	09-Jul-2019	✓	**07-Jul-2019**	09-Jul-2019	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
TB 28/6	**27-Jun-2019**	**07-Jul-2019**	11-Jul-2019	✓	**07-Jul-2019**	11-Jul-2019	✓
Clear glass VOC vial - HCl (EP080)							
BH_MN01A, BH_MN02, BH_MN08, WQA500A	**28-Jun-2019**	**07-Jul-2019**	12-Jul-2019	✓	**07-Jul-2019**	12-Jul-2019	✓
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
BH_MN01A, BH_MN02, BH_MN08, WQA500A	**28-Jun-2019**	**05-Jul-2019**	25-Dec-2019	✓	**05-Jul-2019**	25-Dec-2019	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X)							
BH_MN01A, BH_MN02, BH_MN08, WQA500A	**28-Jun-2019**	**05-Jul-2019**	25-Dec-2019	✓	**05-Jul-2019**	25-Dec-2019	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X)							
BH_MN01A, BH_MN02, BH_MN08, WQA500A	**28-Jun-2019**	**05-Jul-2019**	25-Dec-2019	✓	**05-Jul-2019**	25-Dec-2019	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
BH_MN01A, BH_MN02, BH_MN08, WQA500A	**28-Jun-2019**	**05-Jul-2019**	25-Dec-2019	✓	**05-Jul-2019**	25-Dec-2019	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X)							
BH_MN01A, BH_MN02, BH_MN08, WQA500A	**28-Jun-2019**	**05-Jul-2019**	25-Dec-2019	✓	**05-Jul-2019**	25-Dec-2019	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Dissolved Mercury by FIMS	EG035F	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	10	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	4	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	4	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	18	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	2	11	**18.18**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Dissolved Mercury by FIMS	EG035F	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Dissolved Mercury by FIMS	EG035F	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Dissolved Mercury by FIMS	EG035F	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	10	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	4	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	4	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Matrix Spikes (MS) - Continued							
TRH - Semivolatile Fraction	EP071	0	18	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	11	**9.09**	**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
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. Samples are 0.45µm filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) Samples are 0.45µm filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by 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 (2013) Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	WATER	In house: Referenced to USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Pesticides by GCMS	EP068	WATER	In house: Referenced to USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)
Volatile Organic Compounds	EP074	WATER	In house: Referenced to USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	In house: Referenced to USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In house: Direct injection analysis of fresh waters after dilution (1:1) with methanol. Analysis by LC-Electrospray-MS-MS, Negative Mode using MRM. Where commercially available, isotopically labelled analogues of the target analytes are used as internal standards for quantification. Where a labelled analogue is not commercially available, the internal standard with similar chemistry and the closest retention time to the target is used for quantification. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. This method complies with the quality control definitions as stated in QSM 5.1. Data is reviewed in line with the DQOs as stated in QSM5.1

Preparation Methods	Method	Matrix	Method Descriptions
Preparation for PFAS in water.	EP231-PR	WATER	Method presumes direct injection without workup. Preparation includes addition of internal standard and surrogate, and filtration prior to anaylsis.
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES1920368**

Client	: **GOLDER ASSOCIATES**	Laboratory	: Environmental Division Sydney
Contact	: MR BEN SEAFORD	Contact	: Customer Services ES
Address	: LEVEL 1, 124 PACIFIC HIGHWAY ST LEONARDS NSW, AUSTRALIA 2065	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
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Facsimile	: +61 02 9478 3901	Facsimile	: +61-2-8784 8500
Project	: 1791865	Page	: 1 of 2
Order number	: PCOC69	Quote number	: ES2017GOLASS0019 (SY/698/17 C V4)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: GOLDER-DOULGAS		

Dates

Date Samples Received	: 01-Jul-2019 18:50	Issue Date	: 04-Jul-2019
Client Requested Due Date	: 09-Jul-2019	Scheduled Reporting Date	: **09-Jul-2019**

Delivery Details

Mode of Delivery	: Undefined	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 4'C - Ice Bricks present
Receipt Detail	:	No. of samples received / analysed	: 6 / 6

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

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

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

Summary of Sample(s) and Requested Analysis

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

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EP074 (water) Volatile Organic Compounds	WATER - EP080 BTEXN	WATER - EP231X PFAS - Full Suite (28 analytes)	WATER - W-19 TRH/BTEXN/PAH/Phenols/OC/OP/PCB/8 metals
ES1920368-001	28-Jun-2019 00:00	BH_MN01A	✓		✓	✓
ES1920368-002	28-Jun-2019 00:00	BH_MN02	✓		✓	✓
ES1920368-003	28-Jun-2019 00:00	BH_MN08	✓		✓	✓
ES1920368-004	28-Jun-2019 00:00	WQA500A	✓		✓	✓
ES1920368-005	25-Jun-2019 00:00	TS 28/6		✓		
ES1920368-006	27-Jun-2019 00:00	TB 28/6		✓		

Proactive Holding Time Report

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

Requested Deliverables

ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	au_accountspayable@golder.com.au

BARRY HOUSTON

- *AU Certificate of Analysis - NATA (COA)	Email	bhouston@golder.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	bhouston@golder.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	bhouston@golder.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	bhouston@golder.com.au
- Chain of Custody (CoC) (COC)	Email	bhouston@golder.com.au
- EDI Format - ENMRG (ENMRG)	Email	bhouston@golder.com.au
- EDI Format - ESDAT (ESDAT)	Email	bhouston@golder.com.au

BEN SEAFORD

- *AU Certificate of Analysis - NATA (COA)	Email	bseaford@golder.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	bseaford@golder.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	bseaford@golder.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	bseaford@golder.com.au
- Chain of Custody (CoC) (COC)	Email	bseaford@golder.com.au
- EDI Format - ENMRG (ENMRG)	Email	bseaford@golder.com.au
- EDI Format - ESDAT (ESDAT)	Email	bseaford@golder.com.au

updated COC

ES1920368

GOLDER Douglas Partners
Geotechnics | Environment | Groundwater

Project No:	1791865	Lab Name:	ALS
Site Location:		Quote No:	SY-698-17 C V4
Sampled By:	Golder-Douglas	Order No:	PCOC69
Turnaround Time:	24hrs ☐ 48hrs ☐ Standard ■		
	36hrs ☐ 5 Days ☐ Date Required By:		
Delivery Options:	HARD ☐ DISK ☐ EMAIL ■ BULLETIN BOARD ☐		
Report Format:	PDF ■ EXCEL ■ ESDAT ■		

GOLDER ASSOCIATES PTY LTD
Level 8, 40 Mount Street, North Sydney 2060
Project Manager: Ben Seaford
Job Contact : Barry Houston
Phone: : (02) 9478 3900
Fax : (02) 9478 3901
Reviewed:
Phone: 0416 826 175 Email: bhouston@golder.com.au

Comments/Special Instructions:

Include PCOC69 on SRN

ESDAT format results please
Please freeze ASS sample bags on ASAP.

Thanks!

ANALYSIS REQUIRED

LAB ID	SAMPLE ID	SAMPLE TIME	SAMPLE DATE	SAMPLE TYPE	SAMPLE MATRIX	No CONTAINERS	Level of Contamination (Low/High/Unknown)	W-19 (TRHC6-C40, BTEXN, PAH, PHENOLS, OC/OP/PCBs, 8 heavy metals)	VOCs (EP074 A to H)	PFAS	BTEXN
1	BH_MN01A		28/06/2019		Water	1 amber bottle, 1 non preserved bottle, 1 pfas, 3 vials, 1 metals, 1 total phenol,	U	x	x	x	
2	BH_MN02		28/06/2019		Water	1 amber bottle, 1 non preserved bottle, 1 pfas, 3 vials, 1 metals, 1 total phenol,	U	x	x	x	
3	BH_MN08		28/06/2019		Water	1 amber bottle, 1 non preserved bottle, 1 pfas, 3 vials, 1 metals, 1 total phenol,	U	x	x	x	
4	WQA500A					1 amber bottle, 1 non preserved bottle, 1 pfas, 3 vials, 1 metals, 1 total phenol,		x	x	x	
5	TS 28/6					1 jar	Low				X
6	TB 28/6					1 jar	Low				X

Environmental Division Sydney
Work Order Reference
ES1920368

Telephone : +61-2-8784 8555

SAMPLE MATRIX = Soil/Sediment/Fill/Water/Other SAMPLE TYPE = Composite(C)/Discrete(DC)/Disturbed(DS)/Core(CR), Grab Sample (GS) HIGH CONCENTRATION: circle expected parameters in analysis list

	SIGNATURE	COMPANY	DATE	TIME
RELEASED BY	Lisa Teng	Golder-Douglas	28/06/2019	13:55
RECEIVED BY	[illegible]	AMS	2/7/19	12:14p
RELEASED BY				
RECEIVED BY				
RELEASED BY				
RECEIVED BY				

	SIGNATURE	COMPANY	DATE	TIME	Method of Shipment
RELEASED BY					Shipping Ref:
RECEIVED BY					

To Be Filled Out By Analysing Laboratory — LAB BATCH NUMBER

Security Seal: Intact ☐ Broken ☐ Chilled ☐
Suitable Containers: Yes ☐ No ☐ Frozen ☐
Cool Box: Yes ☐ No ☐ Ambient ☐

Bill to:
Address

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **ES1920426**	Page	: 1 of 12
Client	: **GOLDER ASSOCIATES**	Laboratory	: Environmental Division Sydney
Contact	: MR BARRY HOUSTON	Contact	: Customer Services ES
Address	: LEVEL 1, 124 PACIFIC HIGHWAY ST LEONARDS NSW, AUSTRALIA 2065	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 9478 3900	Telephone	: +61-2-8784 8555
Project	: 1791865	Date Samples Received	: 02-Jul-2019 14:30
Order number	: PC0C63, PC0C65	Date Analysis Commenced	: 09-Jul-2019
C-O-C number	: ----	Issue Date	: 12-Jul-2019 21:51
Sampler	: GOLDER -DOUGLAS		
Site	: MARRICKVILLE		
Quote number	: SY/698/17 C V4		
No. of samples received	: 12		
No. of samples analysed	: 12		

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

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. 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*
Alex Rossi	Organic Chemist	Sydney Organics, Smithfield, NSW
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by 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.

Analytical Results

Sub-Matrix: ASLP LEACHATE (Matrix: WATER)				Client sample ID	VW_MN02_0.5-0.6 ASLP LEACH PH5	BH_MN06_0.5-0.6 ASLP LEACH PH5	----	----	----
				Client sampling date / time	02-Jul-2019 00:00	11-Jun-2019 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES1920426-005	ES1920426-011	--------	--------	--------
					Result	Result	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**0.04**	<0.01	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	<0.01	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	----	----	----

Analytical Results

Sub-Matrix: ASLP LEACHATE (Matrix: WATER)				Client sample ID	VW_MN02_0.5-0.6 ASLP LEACH PH5	BH_MN06_0.5-0.6 ASLP LEACH PH5	----	----	----
				Client sampling date / time	02-Jul-2019 00:00	11-Jun-2019 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES1920426-005	ES1920426-011	--------	--------	--------
					Result	Result	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**0.04**	<0.01	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.04**	<0.01	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.04**	<0.01	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**106**	**102**	----	----	----
13C8-PFOA	----	0.02	%		**89.7**	**87.0**	----	----	----

Analytical Results

Sub-Matrix: DI WATER LEACHATE (Matrix: WATER)				Client sample ID	VW_MN02_0.5-0.6 DI WATER LEACH	BH_MN06_0.5-0.6 DI WATER LEACH	----	----	----
				Client sampling date / time	02-Jul-2019 00:00	11-Jun-2019 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES1920426-010	ES1920426-012	--------	--------	--------
					Result	Result	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**0.06**	**0.01**	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.01**	<0.01	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	----	----	----

Analytical Results

Sub-Matrix: DI WATER LEACHATE (Matrix: WATER)				Client sample ID	VW_MN02_0.5-0.6 DI WATER LEACH	BH_MN06_0.5-0.6 DI WATER LEACH	----	----	----
				Client sampling date / time	02-Jul-2019 00:00	11-Jun-2019 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES1920426-010	ES1920426-012	--------	--------	--------
					Result	Result	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**0.07**	**0.01**	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.06**	**0.01**	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.07**	**0.01**	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**101**	**104**	----	----	----
13C8-PFOA	----	0.02	%		**88.7**	**93.2**	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	BH_MN04_0.4-0.6	BH_MN04_0.75-0.85	BH_MN12_0.5-0.6	VW_MN01_0.7-0.8	VW_MN02_0.5-0.6 ASLP LEACH PH5
			Client sampling date / time	01-Jul-2019 00:00	01-Jul-2019 00:00	02-Jul-2019 00:00	01-Jul-2019 00:00	02-Jul-2019 00:00
Compound	CAS Number	LOR	Unit	ES1920426-001	ES1920426-002	ES1920426-003	ES1920426-004	ES1920426-005
				Result	Result	Result	Result	Result
EN33: TCLP Leach								
Initial pH	----	0.1	pH Unit	**10.1**	**8.2**	**8.8**	**7.4**	**----**
After HCl pH	----	0.1	pH Unit	**2.7**	**1.9**	**1.9**	**1.9**	**----**
Extraction Fluid Number	----	1	-	**1**	**1**	**1**	**1**	**----**
Final pH	----	0.1	pH Unit	**6.0**	**4.9**	**5.1**	**4.8**	**----**
EN60: ASLP Leaching Procedure								
Extraction Fluid pH	----	0.1	pH Unit	**----**	**----**	**----**	**----**	**4.9**
Final pH	----	0.1	pH Unit	**----**	**----**	**----**	**----**	**5.1**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	QA500A	BH_MN06_0.5-0.6 TCLP LEACH	QA502A	BH_MN13_0.4-0.5	VW_MN02_0.5-0.6 DI WATER LEACH
			Client sampling date / time	01-Jul-2019 00:00	11-Jun-2019 00:00	11-Jun-2019 00:00	11-Jun-2019 00:00	02-Jul-2019 00:00
Compound	CAS Number	LOR	Unit	ES1920426-006	ES1920426-007	ES1920426-008	ES1920426-009	ES1920426-010
				Result	Result	Result	Result	Result
EN33: TCLP Leach								
Initial pH	----	0.1	pH Unit	**3.8**	**9.2**	**8.4**	**7.1**	**----**
After HCl pH	----	0.1	pH Unit	**----**	**2.2**	**1.9**	**1.9**	**----**
Extraction Fluid Number	----	1	-	**1**	**1**	**1**	**1**	**----**
Final pH	----	0.1	pH Unit	**6.3**	**5.4**	**4.9**	**4.8**	**----**
EN60: Bottle Leaching Procedure								
Final pH	----	0.1	pH Unit	**----**	**----**	**----**	**----**	**8.0**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	BH_MN06_0.5-0.6 ASLP LEACH PH5	BH_MN06_0.5-0.6 DI WATER LEACH	----	----	----
			Client sampling date / time	11-Jun-2019 00:00	11-Jun-2019 00:00	----	----	----
Compound	CAS Number	LOR	Unit	ES1920426-011	ES1920426-012	--------	--------	--------
				Result	Result	----	----	----
EN60: ASLP Leaching Procedure								
Extraction Fluid pH	----	0.1	pH Unit	**4.9**	**----**	**----**	**----**	**----**
Final pH	----	0.1	pH Unit	**5.4**	**----**	**----**	**----**	**----**
EN60: Bottle Leaching Procedure								
Final pH	----	0.1	pH Unit	**----**	**8.1**	**----**	**----**	**----**

Analytical Results

Sub-Matrix: **TCLP LEACHATE** (Matrix: **WATER**)

Compound	CAS Number	LOR	Unit	Client sample ID	BH_MN04_0.4-0.6	BH_MN04_0.75-0.85	BH_MN12_0.5-0.6	VW_MN01_0.7-0.8	QA500A
				Client sampling date / time	01-Jul-2019 00:00	01-Jul-2019 00:00	02-Jul-2019 00:00	01-Jul-2019 00:00	01-Jul-2019 00:00
					ES1920426-001	ES1920426-002	ES1920426-003	ES1920426-004	ES1920426-006
					Result	Result	Result	Result	Result
EG005(ED093)C: Leachable Metals by ICPAES									
Lead	7439-92-1	0.1	mg/L		----	<0.1	**4.2**	----	<0.1
Nickel	7440-02-0	0.1	mg/L		----	----	----	----	<0.1
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Benzo(a)pyrene	50-32-8	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1.0	%		**28.8**	**26.2**	**26.0**	**28.7**	----
2-Chlorophenol-D4	93951-73-6	1.0	%		**68.3**	**61.4**	**62.6**	**65.3**	----
2.4.6-Tribromophenol	118-79-6	1.0	%		**95.6**	**93.7**	**83.8**	**92.1**	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		**89.9**	**89.8**	**90.0**	**94.8**	----
Anthracene-d10	1719-06-8	1.0	%		**85.0**	**92.5**	**95.2**	**84.0**	----
4-Terphenyl-d14	1718-51-0	1.0	%		**89.1**	**84.6**	**86.6**	**92.6**	----

Analytical Results

Sub-Matrix: TCLP LEACHATE (Matrix: WATER)				Client sample ID	BH_MN06_0.5-0.6 TCLP LEACH	QA502A	BH_MN13_0.4-0.5	----	----
				Client sampling date / time	11-Jun-2019 00:00	11-Jun-2019 00:00	11-Jun-2019 00:00	----	----
Compound	CAS Number	LOR	Unit		ES1920426-007	ES1920426-008	ES1920426-009	--------	--------
					Result	Result	Result	----	----
EG005(ED093)C: Leachable Metals by ICPAES									
Lead	7439-92-1	0.1	mg/L		**3.5**	----	----	----	----
Nickel	7440-02-0	0.1	mg/L		----	<0.1	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Benzo(a)pyrene	50-32-8	0.5	µg/L		<0.5	<0.5	<0.5	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1.0	%		**24.5**	**28.8**	**23.8**	----	----
2-Chlorophenol-D4	93951-73-6	1.0	%		**57.4**	**66.3**	**53.2**	----	----
2.4.6-Tribromophenol	118-79-6	1.0	%		**78.8**	**86.4**	**90.8**	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		**83.0**	**90.5**	**79.7**	----	----
Anthracene-d10	1719-06-8	1.0	%		**92.1**	**96.6**	**100**	----	----
4-Terphenyl-d14	1718-51-0	1.0	%		**84.1**	**90.8**	**98.6**	----	----

Surrogate Control Limits

Sub-Matrix: ASLP LEACHATE		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

Sub-Matrix: DI WATER LEACHATE		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

Sub-Matrix: TCLP LEACHATE		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	32	112

QUALITY CONTROL REPORT

Work Order	: **ES1920426**	Page	: 1 of 6
Client	: **GOLDER ASSOCIATES**	Laboratory	: Environmental Division Sydney
Contact	: MR BARRY HOUSTON	Contact	: Customer Services ES
Address	: LEVEL 1, 124 PACIFIC HIGHWAY ST LEONARDS NSW, AUSTRALIA 2065	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 9478 3900	Telephone	: +61-2-8784 8555
Project	: 1791865	Date Samples Received	: 02-Jul-2019
Order number	: PC0C63, PC0C65	Date Analysis Commenced	: 09-Jul-2019
C-O-C number	: ----	Issue Date	: 12-Jul-2019
Sampler	: GOLDER -DOUGLAS		
Site	: MARRICKVILLE		
Quote number	: SY/698/17 C V4		
No. of samples received	: 12		
No. of samples analysed	: 12		

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

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. 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*
Alex Rossi	Organic Chemist	Sydney Organics, Smithfield, NSW
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by 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

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG005(ED093)C: Leachable Metals by ICPAES (QC Lot: 2457809)									
ES1920393-001	Anonymous	EG005C: Lead	7439-92-1	0.1	mg/L	<0.1	<0.1	0.00	No Limit
		EG005C: Nickel	7440-02-0	0.1	mg/L	<0.1	<0.1	0.00	No Limit
ES1920609-001	Anonymous	EG005C: Lead	7439-92-1	0.1	mg/L	<0.1	<0.1	0.00	No Limit
		EG005C: Nickel	7440-02-0	0.1	mg/L	0.1	0.2	0.00	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 2458110)									
ES1920294-003	Anonymous	EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	0.06	0.06	0.00	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.00	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 2458110)									
ES1920294-003	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.00	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.00	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 2458110)									

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 2458110) - continued									
ES1920294-003	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.00	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 2458110)									
ES1920294-003	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.00	No Limit
EP231P: PFAS Sums (QC Lot: 2458110)									
ES1920294-003	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	0.06	0.06	0.00	No Limit

Method Blank (MB) and Laboratory Control Spike (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 Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EN33: TCLP Leach (QCLot: 2454177)								
EN33a: Initial pH	----	0.1	pH Unit	1.0	----	----	----	----
EN33a: After HCl pH	----	0.1	pH Unit	1.0	----	----	----	----
EN33a: Final pH	----	0.1	pH Unit	1.0	----	----	----	----
EN33: TCLP Leach (QCLot: 2454178)								
EN33a: Initial pH	----	0.1	pH Unit	1.0	----	----	----	----
EN33a: After HCl pH	----	0.1	pH Unit	1.0	----	----	----	----
EN33a: Final pH	----	0.1	pH Unit	1.0	----	----	----	----
EN60: ASLP Leaching Procedure (QCLot: 2455500)								
EN60a: Final pH	----	0.1	pH Unit	1.0	----	----	----	----

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)C: Leachable Metals by ICPAES (QCLot: 2457809)								
EG005C: Lead	7439-92-1	0.1	mg/L	<0.1	0.1 mg/L	105	80	118
EG005C: Nickel	7440-02-0	0.1	mg/L	<0.1	0.1 mg/L	100.0	83	115
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2457675)								
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	89.5	63	117
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 2458110)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.5 µg/L	85.6	70	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.5 µg/L	93.2	70	130
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L	<0.02	0.5 µg/L	91.4	70	130
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.5 µg/L	89.4	70	130
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.5 µg/L	86.2	70	130
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.5 µg/L	84.2	70	130
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 2458110)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	2.5 µg/L	93.4	70	130
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.5 µg/L	102	70	130
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.5 µg/L	97.8	70	130
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.5 µg/L	101	70	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.5 µg/L	94.6	70	130
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.5 µg/L	94.6	70	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.5 µg/L	91.8	70	130
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.5 µg/L	113	70	130

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 2458110) - continued								
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.5 µg/L	103	70	130
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.5 µg/L	101	70	130
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	1.25 µg/L	107	70	150
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 2458110)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.5 µg/L	96.4	70	130
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	1.25 µg/L	106	70	150
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	1.25 µg/L	102	70	150
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	1.25 µg/L	105	70	150
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	1.25 µg/L	103	70	150
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.5 µg/L	97.8	70	130
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.5 µg/L	98.2	70	130
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 2458110)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.5 µg/L	91.4	70	130
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.5 µg/L	105	70	130
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.5 µg/L	103	70	130
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.5 µg/L	107	70	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: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG005(ED093)C: Leachable Metals by ICPAES (QCLot: 2457809)							
ES1920393-002	Anonymous	EG005C: Lead	7439-92-1	1 mg/L	106	70	130
		EG005C: Nickel	7440-02-0	1 mg/L	106	70	130
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 2458110)							
ES1920294-003	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.5 µg/L	86.0	50	130
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.5 µg/L	91.4	50	130
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.5 µg/L	72.0	50	130
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.5 µg/L	87.2	50	130
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.5 µg/L	56.4	50	130
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.5 µg/L	84.0	50	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 2458110)							
ES1920294-003	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	2.5 µg/L	91.9	50	130
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.5 µg/L	101	50	130
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.5 µg/L	99.2	50	130
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.5 µg/L	95.4	50	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.5 µg/L	95.8	50	130
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.5 µg/L	99.0	50	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.5 µg/L	92.6	50	130
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.5 µg/L	110	50	130
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.5 µg/L	101	50	130
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.5 µg/L	92.4	50	130
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	1.25 µg/L	109	50	150
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 2458110)							
ES1920294-003	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.5 µg/L	97.4	50	130
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	1.25 µg/L	108	50	150
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	1.25 µg/L	104	50	150
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	1.25 µg/L	103	50	150
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	1.25 µg/L	109	50	150
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.5 µg/L	98.4	50	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.5 µg/L	92.2	50	130
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 2458110)							
ES1920294-003	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.5 µg/L	90.4	50	130
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.5 µg/L	107	50	130
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.5 µg/L	103	50	130
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.5 µg/L	110	50	130

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES1920426**	Page	: 1 of 5
Client	: **GOLDER ASSOCIATES**	Laboratory	: Environmental Division Sydney
Contact	: MR BARRY HOUSTON	Telephone	: +61-2-8784 8555
Project	: 1791865	Date Samples Received	: 02-Jul-2019
Site	: MARRICKVILLE	Issue Date	: 12-Jul-2019
Sampler	: GOLDER -DOUGLAS	No. of samples received	: 12
Order number	: PC0C63, PC0C65	No. of samples analysed	: 12

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Analysis Holding Time Compliance

Matrix: **SOIL**

Method / Container / Client Sample ID(s)		Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EN33: TCLP Leach							
Non-Volatile Leach: 14 day HT(e.g. SV organics)							
BH_MN06_0.5-0.6 - TCLP LEACH, BH_MN13_0.4-0.5	QA502A,	09-Jul-2019	25-Jun-2019	**14**	----	----	----

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Method	Count		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)					
PAH/Phenols (GC/MS - SIM)	0	17	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
PAH/Phenols (GC/MS - SIM)	0	17	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

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

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

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

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

Matrix: **SOIL**

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

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EN33: TCLP Leach								
Non-Volatile Leach: 14 day HT(e.g. SV organics) (EN33a)								
BH_MN04_0.4-0.6, VW_MN01_0.7-0.8,	BH_MN04_0.75-0.85, QA500A	**01-Jul-2019**	**09-Jul-2019**	15-Jul-2019	✓	**----**	----	----
Non-Volatile Leach: 14 day HT(e.g. SV organics) (EN33a)								
BH_MN12_0.5-0.6		**02-Jul-2019**	**09-Jul-2019**	16-Jul-2019	✓	**----**	----	----
Non-Volatile Leach: 14 day HT(e.g. SV organics) (EN33a)								
BH_MN06_0.5-0.6 - TCLP LEACH, BH_MN13_0.4-0.5	QA502A,	**11-Jun-2019**	**09-Jul-2019**	25-Jun-2019	×	**----**	----	----
EN60: ASLP Leaching Procedure								
Non-Volatile Leach: 180 day HT (e.g. PFAS, metals ex.Hg) (EN60a)								
VW_MN02_0.5-0.6 - ASLP LEACH PH5		**02-Jul-2019**	**09-Jul-2019**	29-Dec-2019	✓	**----**	----	----
Non-Volatile Leach: 180 day HT (e.g. PFAS, metals ex.Hg) (EN60a)								
BH_MN06_0.5-0.6 - ASLP LEACH PH5		**11-Jun-2019**	**09-Jul-2019**	08-Dec-2019	✓	**----**	----	----

Matrix: **SOIL**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EN60: Bottle Leaching Procedure							
Non-Volatile Leach: 180 day HT (e.g. PFAS, metals ex.Hg) (EN60-Dla)							
VW_MN02_0.5-0.6 - DI WATER LEACH	**02-Jul-2019**	**09-Jul-2019**	29-Dec-2019	✓	**----**	----	----
Non-Volatile Leach: 180 day HT (e.g. PFAS, metals ex.Hg) (EN60-Dla)							
BH_MN06_0.5-0.6 - DI WATER LEACH	**11-Jun-2019**	**09-Jul-2019**	08-Dec-2019	✓	**----**	----	----

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG005(ED093)C: Leachable Metals by ICPAES							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG005C)							
BH_MN04_0.75-0.85, BH_MN12_0.5-0.6, QA500A, BH_MN06_0.5-0.6 - TCLP LEACH, QA502A	**09-Jul-2019**	**10-Jul-2019**	05-Jan-2020	✓	**10-Jul-2019**	05-Jan-2020	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM))							
BH_MN04_0.4-0.6, BH_MN04_0.75-0.85, BH_MN12_0.5-0.6, VW_MN01_0.7-0.8, BH_MN06_0.5-0.6 - TCLP LEACH, QA502A, BH_MN13_0.4-0.5	**09-Jul-2019**	**10-Jul-2019**	16-Jul-2019	✓	**10-Jul-2019**	19-Aug-2019	✓
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
VW_MN02_0.5-0.6 - ASLP LEACH PH5, VW_MN02_0.5-0.6 - DI WATER LEACH, BH_MN06_0.5-0.6 - ASLP LEACH PH5, BH_MN06_0.5-0.6 - DI WATER LEACH	**09-Jul-2019**	**10-Jul-2019**	05-Jan-2020	✓	**11-Jul-2019**	05-Jan-2020	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X)							
VW_MN02_0.5-0.6 - ASLP LEACH PH5, VW_MN02_0.5-0.6 - DI WATER LEACH, BH_MN06_0.5-0.6 - ASLP LEACH PH5, BH_MN06_0.5-0.6 - DI WATER LEACH	**09-Jul-2019**	**10-Jul-2019**	05-Jan-2020	✓	**11-Jul-2019**	05-Jan-2020	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X)							
VW_MN02_0.5-0.6 - ASLP LEACH PH5, VW_MN02_0.5-0.6 - DI WATER LEACH, BH_MN06_0.5-0.6 - ASLP LEACH PH5, BH_MN06_0.5-0.6 - DI WATER LEACH	**09-Jul-2019**	**10-Jul-2019**	05-Jan-2020	✓	**11-Jul-2019**	05-Jan-2020	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
VW_MN02_0.5-0.6 - ASLP LEACH PH5, VW_MN02_0.5-0.6 - DI WATER LEACH, BH_MN06_0.5-0.6 - ASLP LEACH PH5, BH_MN06_0.5-0.6 - DI WATER LEACH	**09-Jul-2019**	**10-Jul-2019**	05-Jan-2020	✓	**11-Jul-2019**	05-Jan-2020	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X)							
VW_MN02_0.5-0.6 - ASLP LEACH PH5, VW_MN02_0.5-0.6 - DI WATER LEACH, BH_MN06_0.5-0.6 - ASLP LEACH PH5, BH_MN06_0.5-0.6 - DI WATER LEACH	**09-Jul-2019**	**10-Jul-2019**	05-Jan-2020	✓	**11-Jul-2019**	05-Jan-2020	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Method Blanks (MB)							
ASLP for Non & Semivolatile Analytes	EN60a	1	2	50.00	9.09	✓	NEPM 2013 B3 & ALS QC Standard
TCLP for Non & Semivolatile Analytes	EN33a	2	22	9.09	9.09	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Leachable Metals by ICPAES	EG005C	2	19	10.53	10.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	17	0.00	10.00	×	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	5	20.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Leachable Metals by ICPAES	EG005C	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	17	5.88	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	5	20.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Leachable Metals by ICPAES	EG005C	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	17	5.88	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	5	20.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Leachable Metals by ICPAES	EG005C	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	17	0.00	5.00	×	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	5	20.00	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
Leachable Metals by ICPAES	EG005C	SOIL	In house: referenced to APHA 3120; USEPA SW 846 - 6010: The ICPAES technique ionises leachate sample atoms emitting a characteristic spectrum. This spectrum is then compared against matrix matched standards for quantification. This method is compliant with NEPM (2013) Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	SOIL	In house: Direct injection analysis of fresh waters after dilution (1:1) with methanol. Analysis by LC-Electrospray-MS-MS, Negative Mode using MRM. Where commercially available, isotopically labelled analogues of the target analytes are used as internal standards for quantification. Where a labelled analogue is not commercially available, the internal standard with similar chemistry and the closest retention time to the target is used for quantification. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. This method complies with the quality control definitions as stated in QSM 5.1. Data is reviewed in line with the DQOs as stated in QSM5.1

Preparation Methods	Method	Matrix	Method Descriptions
Digestion for Total Recoverable Metals in TCLP Leachate	EN25C	SOIL	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
TCLP for Non & Semivolatile Analytes	EN33a	SOIL	In house QWI-EN/33 referenced to USEPA SW846-1311: The TCLP procedure is designed to determine the mobility of both organic and inorganic analytes present in wastes. The standard TCLP leach is for non-volatile and Semivolatile test parameters.
ASLP for Non & Semivolatile Analytes	EN60a	SOIL	In house QWI-EN/60 referenced to AS4439.3 Preparation of Leachates
Deionised Water Leach	EN60-DIa	SOIL	In house QWI-EN/60 referenced to AS4439.3 Preparation of Leachates
Preparation for PFAS in water.	EP231-PR	SOIL	Method presumes direct injection without workup. Preparation includes addition of internal standard and surrogate, and filtration prior to anaylsis.
Separatory Funnel Extraction of Liquids	ORG14	SOIL	In house: Referenced to USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES1920426**

Client	: **GOLDER ASSOCIATES**	Laboratory	: Environmental Division Sydney
Contact	: MR BARRY HOUSTON	Contact	: Customer Services ES
Address	: LEVEL 1, 124 PACIFIC HIGHWAY ST LEONARDS NSW, AUSTRALIA 2065	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: bhouston@golder.com.au	E-mail	: ALSEnviro.Sydney@ALSGlobal.com
Telephone	: +61 02 9478 3900	Telephone	: +61-2-8784 8555
Facsimile	: +61 02 9478 3901	Facsimile	: +61-2-8784 8500
Project	: 1791865	Page	: 1 of 3
Order number	: PC0C63, PC0C65	Quote number	: ES2017GOLASS0019 (SY/698/17 C V4)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: MARRICKVILLE		
Sampler	: GOLDER -DOUGLAS		

Dates

Date Samples Received	: 02-Jul-2019 14:30	Issue Date	: 04-Jul-2019
Client Requested Due Date	: 10-Jul-2019	Scheduled Reporting Date	: **10-Jul-2019**

Delivery Details

Mode of Delivery	: Undefined	Security Seal	: Not Available
No. of coolers/boxes	: ----	Temperature	: 4.1'C
Receipt Detail	: Rebatch of ES1917591 and ES1918232.	No. of samples received / analysed	: 12 / 12

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Rebatch of ES1917591 and ES1918232.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

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

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

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

ES1920426-005	: [02-Jul-2019]	: VW_MN02_0.5-0.6 - ASLP LEACH PH5
ES1920426-007	: [11-Jun-2019]	: BH_MN06_0.5-0.6 - TCLP LEACH
ES1920426-010	: [02-Jul-2019]	: VW_MN02_0.5-0.6 - DI WATER LEACH
ES1920426-011	: [11-Jun-2019]	: BH_MN06_0.5-0.6 - ASLP LEACH PH5
ES1920426-012	: [11-Jun-2019]	: BH_MN06_0.5-0.6 - DI WATER LEACH

Summary of Sample(s) and Requested Analysis

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

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EG005C Leachable Metals by ICPAES	SOIL - EN33a TCLP Leachate	SOIL - EN60a ASLP Leachate Procedure	SOIL - EN60-Dla Deionised Water Leach	SOIL - EP075 SIM PAH only SIM - PAH only	SOIL - EP231X PFAS - Full Suite (28 analytes)
ES1920426-001	01-Jul-2019 00:00	BH_MN04_0.4-0.6		✓			✓	
ES1920426-002	01-Jul-2019 00:00	BH_MN04_0.75-0.85	✓	✓			✓	
ES1920426-003	02-Jul-2019 00:00	BH_MN12_0.5-0.6	✓	✓			✓	
ES1920426-004	01-Jul-2019 00:00	VW_MN01_0.7-0.8		✓			✓	
ES1920426-005	02-Jul-2019 00:00	VW_MN02_0.5-0.6 ASL...			✓			✓
ES1920426-006	01-Jul-2019 00:00	QA500A	✓	✓				
ES1920426-007	11-Jun-2019 00:00	BH_MN06_0.5-0.6 TCL...	✓	✓			✓	
ES1920426-008	11-Jun-2019 00:00	QA502A	✓	✓			✓	
ES1920426-009	11-Jun-2019 00:00	BH_MN13_0.4-0.5		✓			✓	
ES1920426-010	02-Jul-2019 00:00	VW_MN02_0.5-0.6 DI ...				✓		✓
ES1920426-011	11-Jun-2019 00:00	BH_MN06_0.5-0.6 ASL...			✓			✓
ES1920426-012	11-Jun-2019 00:00	BH_MN06_0.5-0.6 DI ...				✓		✓

Proactive Holding Time Report

The following table summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory.

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

Method / Client Sample ID(s)	Container	Due for extraction	Due for analysis	Samples Received Date	Samples Received Evaluation	Instructions Received Date	Instructions Received Evaluation
EN33a: TCLP for Non & Semivolatile Analytes							
BH_MN06_0.5-0.6	Non-Volatile Leach: 14 day HT(e	25-Jun-2019	----	02-Jul-2019	×	----	----
BH_MN13_0.4-0.5	Non-Volatile Leach: 14 day HT(e	25-Jun-2019	----	02-Jul-2019	×	----	----
QA502A	Non-Volatile Leach: 14 day HT(e	25-Jun-2019	----	02-Jul-2019	×	----	----

Requested Deliverables

ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	au_accountspayable@golder.com.au

BARRY HOUSTON

- *AU Certificate of Analysis - NATA (COA)	Email	bhouston@golder.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	bhouston@golder.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	bhouston@golder.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	bhouston@golder.com.au
- Chain of Custody (CoC) (COC)	Email	bhouston@golder.com.au
- EDI Format - ENMRG (ENMRG)	Email	bhouston@golder.com.au
- EDI Format - ESDAT (ESDAT)	Email	bhouston@golder.com.au

BEN SEAFORD

- *AU Certificate of Analysis - NATA (COA)	Email	bseaford@golder.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	bseaford@golder.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	bseaford@golder.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	bseaford@golder.com.au
- Chain of Custody (CoC) (COC)	Email	bseaford@golder.com.au
- EDI Format - ENMRG (ENMRG)	Email	bseaford@golder.com.au
- EDI Format - ESDAT (ESDAT)	Email	bseaford@golder.com.au

Tyler Cachia

From: Tyler Cachia
Sent: Tuesday, 2 July 2019 2:02 PM
To: Samples Sydney; Loren Schiavon
Subject: FW: [EXTERNAL] - Rebatches
Attachments: Rebatches of COCs_02_07_2019 (Marrickville).xlsx

Hi team,

Please organise attached rebatches.

Kind Regards,

Tyler Cachia
Client Services Officer, Environmental Sydney

T +61 2 8784 8555 F +61 2 8784 8500
D +61 2 8784 8501
tyler.cachia@alsglobal.com
277-289 Woodpark Road
Smithfield NSW 2164 AUSTRALIA

From: Houston, Barry [mailto:bhouston@golder.com.au]
Sent: Tuesday, 2 July 2019 1:08 PM
To: ALSEnviro Sydney <ALSEnviro.Sydney@ALSGlobal.com>
Cc: Loren Schiavon <loren.schiavon@alsglobal.com>; Helen Simpson <helen.simpson@alsglobal.com>; Doyle, Shane <SDoyle@golder.com.au>
Subject: [EXTERNAL] - Rebatches

Hi

Can we the samples identified in the excel attached analysed for TCLP / ASLP as indicated? These relate to PCOC63 and PCOC65

ASLP is to be done according to NEMP as shown on the worksheet.

Please let us know if there are any queries

Kind regards
Barry

Barry Houston (BSc. Msc.)
Senior Environmental Scientist

GOLDER Golder Associates Pty Ltd
Level 8, 40 Mount Street, North Sydney, New South Wales 2060, Australia (PO Box 1302, Crows Nest NSW 1585)
T: +61 2 9478 3900 | D: +61 2 9478 3945 | M: +61 416 826 175 | golder.com
LinkedIn | Instagram | Facebook | Twitter

Work Safe, Home Safe

PCOC63	Work Order and sample ref	Analyte	Concentration	Analysis
BH_MN04_0.4-0.6	ES1917591008	benzo(a)pyrene	2.9 mg/kg	TCLP
BH_MN04_0.75-0.85	ES1917591009	Lead	159 mg/kg	TCLP
		benzo(a)pyrene	1.1 mg/kg	TCLP
BH_MN12_0.5-0.6	ES1917591017	Lead	849 mg/kg	TCLP
		benzo(a)pyrene	5.3 mg/kg	TCLP
VW_MN01_0.7-0.8	ES1917591022	benzo(a)pyrene	1.5 mg/kg	TCLP
VW_MN02_0.5-0.6		PFAS	various	**ASLP as per NEMP**
QA500A	ES1917591030	lead	188 mg/kg	TCLP
		nickel	41 mg/kg	TCLP
PCOC65	Work Order and sample ref			
BH_MN06_0.5-0.6	ES1918532002	Lead	1300 mg/kg	TCLP
		benzo(a)pyrene	4.8 mg/kg	TCLP
		PFAS	various	**ASLP as per NEMP**
QA502A	ES1918532006	Nickel	48 mg/kg	TCLP
		benzo(a)pyrene	1 mg/kg	TCLP
BH_MN13_0.4-0.5	ES1918532005	benzo(a)pyrene	2.1 mg/kg	TCLP

The PFAS ASLP requested is the "*Australian Standard Leaching Procedure (ASLP) conducted at both pH 5 and u*
buffered reagent water – approximating "worst case" for leaching conditions" (as specified within the NEMP,
section 14.6)

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **ES1921384**	Page	: 1 of 10
Amendment	: **1**		
Client	: **GOLDER ASSOCIATES**	Laboratory	: Environmental Division Sydney
Contact	: MR BEN SEAFORD	Contact	: Customer Services ES
Address	: LEVEL 1, 124 PACIFIC HIGHWAY ST LEONARDS NSW, AUSTRALIA 2065	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 9478 3900	Telephone	: +61-2-8784 8555
Project	: 1791865	Date Samples Received	: 10-Jul-2019 09:45
Order number	: PCOC68	Date Analysis Commenced	: 13-Jul-2019
C-O-C number	: ----	Issue Date	: 26-Jul-2019 09:29
Sampler	: GOLDER - DOUGLAS		
Site	: MARRICKVILLE		
Quote number	: SY/698/17 C V4		
No. of samples received	: 6		
No. of samples analysed	: 6		

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

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. 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
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by 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.
- Amendment (26/07/2019): This report has been amended as a result of a request to correct sample identification numbers (IDs) received by ALS from Barry Houston on 26/7/19. All analysis results are as per the previous report.

Analytical Results

Sub-Matrix: ASLP LEACHATE (Matrix: WATER)				Client sample ID	BH_MN06 0.9-1.0 ASLP PH 5	----	----	----	----
				Client sampling date / time	22-Jun-2019 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES1921384-001	--------	--------	--------	--------
					Result	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	----	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L		<0.02	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	----	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	----	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	----	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	----	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	----	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	----	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	----	----	----	----

Analytical Results

Sub-Matrix: ASLP LEACHATE (Matrix: WATER)				Client sample ID	BH_MN06 0.9-1.0 ASLP PH 5	----	----	----	----
				Client sampling date / time	22-Jun-2019 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES1921384-001	--------	--------	--------	--------
					Result	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	----	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	----	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		<0.01	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**116**	----	----	----	----
13C8-PFOA	----	0.02	%		**91.5**	----	----	----	----

Analytical Results

Sub-Matrix: DI WATER LEACHATE (Matrix: WATER)				Client sample ID	BH_MN06 0.9-1.0 DI WATER LEACH	----	----	----	----
				Client sampling date / time	22-Jun-2019 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES1921384-006	--------	--------	--------	--------
					Result	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	----	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L		<0.02	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	----	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	----	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	----	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	----	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	----	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	----	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	----	----	----	----

Analytical Results

Sub-Matrix: DI WATER LEACHATE (Matrix: WATER)				Client sample ID	BH_MN06 0.9-1.0 DI WATER LEACH	----	----	----	----
				Client sampling date / time	22-Jun-2019 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES1921384-006	--------	--------	--------	--------
					Result	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	----	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	----	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		<0.01	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**114**	----	----	----	----
13C8-PFOA	----	0.02	%		**87.0**	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	BH_MN06 0.9-1.0 ASLP PH 5	BH_VMN03 0.4-0.5	BH_VMN03_1.1-1.2	BH_MN13_0.9-1.2	BH_MN13_3.0-3.2
			Client sampling date / time	22-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00
Compound	CAS Number	LOR	Unit	ES1921384-001	ES1921384-002	ES1921384-003	ES1921384-004	ES1921384-005
				Result	Result	Result	Result	Result
EN33: TCLP Leach								
Initial pH	----	0.1	pH Unit	**----**	**7.7**	**7.6**	**6.7**	**6.9**
After HCl pH	----	0.1	pH Unit	**----**	**1.6**	**1.6**	**1.6**	**1.5**
Extraction Fluid Number	----	1	-	**----**	**1**	**1**	**1**	**1**
Final pH	----	0.1	pH Unit	**----**	**5.0**	**4.9**	**5.0**	**4.9**
EN60: ASLP Leaching Procedure								
Extraction Fluid pH	----	0.1	pH Unit	**1.0**	**----**	**----**	**----**	**----**
Final pH	----	0.1	pH Unit	**5.0**	**----**	**----**	**----**	**----**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH_MN06 0.9-1.0 DI WATER LEACH	----	----	----	----
				Client sampling date / time	22-Jun-2019 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES1921384-006	--------	--------	--------	--------
					Result	----	----	----	----
EN60: Bottle Leaching Procedure									
Final pH	----	0.1	pH Unit		**8.4**	**----**	**----**	**----**	**----**

Analytical Results

Sub-Matrix: **TCLP LEACHATE** (Matrix: **WATER**)

Compound	CAS Number	LOR	Unit	Client sample ID	BH_VMN03 0.4-0.5	BH_VMN03_1.1-1.2	BH_MN13_0.9-1.2	BH_MN13_3.0-3.2	----
				Client sampling date / time	23-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00	23-Jun-2019 00:00	----
					ES1921384-002	ES1921384-003	ES1921384-004	ES1921384-005	--------
					Result	Result	Result	Result	----
EG005(ED093)C: Leachable Metals by ICPAES									
Lead	7439-92-1	0.1	mg/L		**0.1**	<0.1	----	----	----
Nickel	7440-02-0	0.1	mg/L		<0.1	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Benzo(a)pyrene	50-32-8	0.5	µg/L		----	----	<0.5	<0.5	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1.0	%		----	----	**26.2**	**23.0**	----
2-Chlorophenol-D4	93951-73-6	1.0	%		----	----	**65.5**	**51.3**	----
2.4.6-Tribromophenol	118-79-6	1.0	%		----	----	**65.6**	**87.9**	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		----	----	**84.2**	**85.5**	----
Anthracene-d10	1719-06-8	1.0	%		----	----	**90.5**	**89.4**	----
4-Terphenyl-d14	1718-51-0	1.0	%		----	----	**96.4**	**85.7**	----

Surrogate Control Limits

Sub-Matrix: ASLP LEACHATE		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

Sub-Matrix: DI WATER LEACHATE		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

Sub-Matrix: TCLP LEACHATE		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	32	112

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **ES1921384**	Page	: 1 of 7
Amendment	: **1**		
Client	: **GOLDER ASSOCIATES**	Laboratory	: Environmental Division Sydney
Contact	: MR BEN SEAFORD	Contact	: Customer Services ES
Address	: LEVEL 1, 124 PACIFIC HIGHWAY ST LEONARDS NSW, AUSTRALIA 2065	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 9478 3900	Telephone	: +61-2-8784 8555
Project	: 1791865	Date Samples Received	: 10-Jul-2019
Order number	: PCOC68	Date Analysis Commenced	: 13-Jul-2019
C-O-C number	: ----	Issue Date	: 26-Jul-2019
Sampler	: GOLDER - DOUGLAS		
Site	: MARRICKVILLE		
Quote number	: SY/698/17 C V4		
No. of samples received	: 6		
No. of samples analysed	: 6		

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

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. 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
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by 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

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG005(ED093)C: Leachable Metals by ICPAES (QC Lot: 2465255)									
EB1917863-001	Anonymous	EG005C: Lead	7439-92-1	0.1	mg/L	<0.1	<0.1	0.00	No Limit
		EG005C: Nickel	7440-02-0	0.1	mg/L	1.6	1.6	0.00	0% - 50%
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 2465238)									
EM1910788-001	Anonymous	EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	0.00	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.00	No Limit
ES1921384-006	BH_MN06 0.9-1.0 DI WATER LEACH	EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	0.00	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.00	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 2465238)									
EM1910788-001	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.00	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 2465238) - continued									
EM1910788-001	Anonymous	EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.00	No Limit
ES1921384-006	BH_MN06 0.9-1.0 DI WATER LEACH	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.00	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.00	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 2465238)									
EM1910788-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.00	No Limit
ES1921384-006	BH_MN06 0.9-1.0 DI WATER LEACH	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 2465238) - continued									
ES1921384-006	BH_MN06 0.9-1.0 DI WATER LEACH	EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.00	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 2465238)									
EM1910788-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.00	No Limit
ES1921384-006	BH_MN06 0.9-1.0 DI WATER LEACH	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.00	No Limit
EP231P: PFAS Sums (QC Lot: 2465238)									
EM1910788-001	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.00	No Limit
ES1921384-006	BH_MN06 0.9-1.0 DI WATER LEACH	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.00	No Limit

Method Blank (MB) and Laboratory Control Spike (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 Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EN33: TCLP Leach (QCLot: 2463630)								
EN33a: Initial pH	----	0.1	pH Unit	1.0	----	----	----	----
EN33a: After HCl pH	----	0.1	pH Unit	1.0	----	----	----	----
EN33a: Final pH	----	0.1	pH Unit	1.0	----	----	----	----
EN60: ASLP Leaching Procedure (QCLot: 2463632)								
EN60a: Final pH	----	0.1	pH Unit	1.0	----	----	----	----

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EG005(ED093)C: Leachable Metals by ICPAES (QCLot: 2465255)								
EG005C: Lead	7439-92-1	0.1	mg/L	<0.1	0.1 mg/L	113	80	118
EG005C: Nickel	7440-02-0	0.1	mg/L	<0.1	0.1 mg/L	107	83	115
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2465136)								
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	84.9	63	117
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 2465238)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.5 µg/L	93.0	70	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.5 µg/L	89.8	70	130
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L	<0.02	0.5 µg/L	95.2	70	130
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.5 µg/L	86.8	70	130
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.5 µg/L	86.0	70	130
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.5 µg/L	112	70	130
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 2465238)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	2.5 µg/L	97.2	70	130
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.5 µg/L	107	70	130
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.5 µg/L	110	70	130
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.5 µg/L	95.8	70	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.5 µg/L	99.6	70	130
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.5 µg/L	104	70	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.5 µg/L	92.6	70	130
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.5 µg/L	125	70	130
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.5 µg/L	98.8	70	130
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.5 µg/L	95.0	70	130
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	1.25 µg/L	109	70	150
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 2465238)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 2465238) - continued								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.5 µg/L	121	70	130
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	1.25 µg/L	105	70	150
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	1.25 µg/L	91.4	70	150
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	1.25 µg/L	94.5	70	150
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	1.25 µg/L	103	70	150
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.5 µg/L	112	70	130
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.5 µg/L	115	70	130
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 2465238)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.5 µg/L	93.2	70	130
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.5 µg/L	96.6	70	130
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.5 µg/L	101	70	130
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.5 µg/L	124	70	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: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG005(ED093)C: Leachable Metals by ICPAES (QCLot: 2465255)							
ES1921205-001	Anonymous	EG005C: Lead	7439-92-1	1 mg/L	112	70	130
		EG005C: Nickel	7440-02-0	1 mg/L	104	70	130
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 2465238)							
EM1910788-001	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.5 µg/L	107	50	130
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.5 µg/L	89.4	50	130
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.5 µg/L	97.4	50	130
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.5 µg/L	91.6	50	130
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.5 µg/L	94.2	50	130
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.5 µg/L	126	50	130
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 2465238)							
EM1910788-001	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	2.5 µg/L	116	50	130
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.5 µg/L	123	50	130
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.5 µg/L	122	50	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 2465238) - continued							
EM1910788-001	Anonymous	EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.5 µg/L	105	50	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.5 µg/L	103	50	130
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.5 µg/L	113	50	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.5 µg/L	116	50	130
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.5 µg/L	116	50	130
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.5 µg/L	95.8	50	130
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.5 µg/L	87.2	50	130
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	1.25 µg/L	124	50	150
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 2465238)							
EM1910788-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.5 µg/L	125	50	130
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	1.25 µg/L	112	50	150
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	1.25 µg/L	105	50	150
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	1.25 µg/L	116	50	150
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	1.25 µg/L	108	50	150
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.5 µg/L	126	50	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.5 µg/L	118	50	130
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 2465238)							
EM1910788-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.5 µg/L	103	50	130
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.5 µg/L	106	50	130
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.5 µg/L	120	50	130
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.5 µg/L	123	50	130

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES1921384**	Page	: 1 of 5
Amendment	: **1**		
Client	: **GOLDER ASSOCIATES**	Laboratory	: Environmental Division Sydney
Contact	: MR BEN SEAFORD	Telephone	: +61-2-8784 8555
Project	: 1791865	Date Samples Received	: 10-Jul-2019
Site	: MARRICKVILLE	Issue Date	: 26-Jul-2019
Sampler	: GOLDER - DOUGLAS	No. of samples received	: 6
Order number	: PCOC68	No. of samples analysed	: 6

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Analysis Holding Time Compliance

Matrix: **SOIL**

Method / Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EN33: TCLP Leach						
Non-Volatile Leach: 14 day HT(e.g. SV organics)						
BH_MN13_0.9-1.2, BH_MN13_3.0-3.2	13-Jul-2019	07-Jul-2019	**6**	----	----	----

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Method	Count		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)					
PAH/Phenols (GC/MS - SIM)	0	17	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
PAH/Phenols (GC/MS - SIM)	0	17	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

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

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

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

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

Matrix: **SOIL**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EN33: TCLP Leach							
Non-Volatile Leach: 14 day HT(e.g. SV organics) (EN33a)							
BH_MN13_0.9-1.2, BH_MN13_3.0-3.2	**23-Jun-2019**	**13-Jul-2019**	07-Jul-2019	×	**----**	----	----
Non-Volatile Leach: 180 day HT (e.g. PFAS, metals ex.Hg) (EN33a)							
BH_VMN03 0.4-0.5, BH_VMN03_1.1-1.2	**23-Jun-2019**	**13-Jul-2019**	20-Dec-2019	✓	**----**	----	----
EN60: ASLP Leaching Procedure							
Non-Volatile Leach: 180 day HT (e.g. PFAS, metals ex.Hg) (EN60a)							
BH_MN06 0.9-1.0 - ASLP PH 5	**22-Jun-2019**	**13-Jul-2019**	19-Dec-2019	✓	**----**	----	----
EN60: Bottle Leaching Procedure							
Non-Volatile Leach: 180 day HT (e.g. PFAS, metals ex.Hg) (EN60-Dla)							
BH_MN06 0.9-1.0 - DI WATER LEACH	**22-Jun-2019**	**13-Jul-2019**	19-Dec-2019	✓	**----**	----	----

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG005(ED093)C: Leachable Metals by ICPAES								
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG005C)								
BH_VMN03 0.4-0.5,	BH_VMN03_1.1-1.2	**13-Jul-2019**	**15-Jul-2019**	09-Jan-2020	✓	**15-Jul-2019**	09-Jan-2020	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP075(SIM))								
BH_MN13_0.9-1.2,	BH_MN13_3.0-3.2	**13-Jul-2019**	**15-Jul-2019**	20-Jul-2019	✓	**15-Jul-2019**	24-Aug-2019	✓
EP231A: Perfluoroalkyl Sulfonic Acids								
HDPE (no PTFE) (EP231X)								
BH_MN06 0.9-1.0 - ASLP PH 5,	BH_MN06 0.9-1.0 - DI WATER LEACH	**13-Jul-2019**	**15-Jul-2019**	09-Jan-2020	✓	**15-Jul-2019**	09-Jan-2020	✓
EP231B: Perfluoroalkyl Carboxylic Acids								
HDPE (no PTFE) (EP231X)								
BH_MN06 0.9-1.0 - ASLP PH 5,	BH_MN06 0.9-1.0 - DI WATER LEACH	**13-Jul-2019**	**15-Jul-2019**	09-Jan-2020	✓	**15-Jul-2019**	09-Jan-2020	✓
EP231C: Perfluoroalkyl Sulfonamides								
HDPE (no PTFE) (EP231X)								
BH_MN06 0.9-1.0 - ASLP PH 5,	BH_MN06 0.9-1.0 - DI WATER LEACH	**13-Jul-2019**	**15-Jul-2019**	09-Jan-2020	✓	**15-Jul-2019**	09-Jan-2020	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
HDPE (no PTFE) (EP231X)								
BH_MN06 0.9-1.0 - ASLP PH 5,	BH_MN06 0.9-1.0 - DI WATER LEACH	**13-Jul-2019**	**15-Jul-2019**	09-Jan-2020	✓	**15-Jul-2019**	09-Jan-2020	✓
EP231P: PFAS Sums								
HDPE (no PTFE) (EP231X)								
BH_MN06 0.9-1.0 - ASLP PH 5,	BH_MN06 0.9-1.0 - DI WATER LEACH	**13-Jul-2019**	**15-Jul-2019**	09-Jan-2020	✓	**15-Jul-2019**	09-Jan-2020	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Method Blanks (MB)							
ASLP for Non & Semivolatile Analytes	EN60a	1	6	**16.67**	**9.09**	✓	NEPM 2013 B3 & ALS QC Standard
TCLP for Non & Semivolatile Analytes	EN33a	1	11	**9.09**	**9.09**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Leachable Metals by ICPAES	EG005C	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	17	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Leachable Metals by ICPAES	EG005C	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Leachable Metals by ICPAES	EG005C	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Leachable Metals by ICPAES	EG005C	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	17	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Leachable Metals by ICPAES	EG005C	SOIL	In house: referenced to APHA 3120; USEPA SW 846 - 6010: The ICPAES technique ionises leachate sample atoms emitting a characteristic spectrum. This spectrum is then compared against matrix matched standards for quantification. This method is compliant with NEPM (2013) Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	SOIL	In house: Direct injection analysis of fresh waters after dilution (1:1) with methanol. Analysis by LC-Electrospray-MS-MS, Negative Mode using MRM. Where commercially available, isotopically labelled analogues of the target analytes are used as internal standards for quantification. Where a labelled analogue is not commercially available, the internal standard with similar chemistry and the closest retention time to the target is used for quantification. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. This method complies with the quality control definitions as stated in QSM 5.1. Data is reviewed in line with the DQOs as stated in QSM5.1

Preparation Methods	Method	Matrix	Method Descriptions
Digestion for Total Recoverable Metals in TCLP Leachate	EN25C	SOIL	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
TCLP for Non & Semivolatile Analytes	EN33a	SOIL	In house QWI-EN/33 referenced to USEPA SW846-1311: The TCLP procedure is designed to determine the mobility of both organic and inorganic analytes present in wastes. The standard TCLP leach is for non-volatile and Semivolatile test parameters.
ASLP for Non & Semivolatile Analytes	EN60a	SOIL	In house QWI-EN/60 referenced to AS4439.3 Preparation of Leachates
Deionised Water Leach	EN60-DIa	SOIL	In house QWI-EN/60 referenced to AS4439.3 Preparation of Leachates
Preparation for PFAS in water.	EP231-PR	SOIL	Method presumes direct injection without workup. Preparation includes addition of internal standard and surrogate, and filtration prior to anaylsis.
Separatory Funnel Extraction of Liquids	ORG14	SOIL	In house: Referenced to USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.

Fadi Soro

Fadi 10/7/19 9:45

From: Angus Harding
Sent: Tuesday, 9 July 2019 4:55 PM
To: Samples Sydney
Cc: Loren Schiavon
Subject: FW: [EXTERNAL] - Rebatch - ES1920095 / PCOC68
Attachments: Rebatches of PCOC68_09_07_2019 (Marrickville).xlsx

Hey Fadi,

Could I get you to organise a rebatch of the above work order according to the attached excel file.

Let me know if you have any questions.

Cheers.

Kind Regards,

Environmental Division Sydney
Work Order Reference
ES1921384

Telephone : +61-2-8784 8555

Angus Harding
Client Services Officer, Environmental Sydney

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Smithfield NSW 2164 AUSTRALIA

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From: Houston, Barry [mailto:bhouston@golder.com.au]
Sent: Tuesday, 9 July 2019 4:45 PM
To: ALSEnviro Sydney <ALSEnviro.Sydney@ALSGlobal.com>
Subject: [EXTERNAL] - Rebatch - ES1920095 / PCOC68

CAUTION: This email originated from outside of ALS. Do not click links or open attachments unless you recognize the sender and are sure content is relevant to you.

Hi

Can we get the samples analysed as per the details in the spreadsheet attached?

Regards
Barry

Barry Houston (BSc. Msc.)
Senior Environmental Scientist

GOLDER Golder Associates Pty Ltd
Level 8, 40 Mount Street, North Sydney, New South Wales 2060, Australia (PO Box 1302, Crows Nest NSW 1585)
T: +61 2 9478 3900 | **D:** +61 2 9478 3945 | **M:** +61 416 826 175 | **golder.com**
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Work Safe, Home Safe

FINANCIAL REVIEW

CLIENT CHOICE AWARDS 2019

WINNER beaton

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Best Consulting Engineering Firm (revenue > A$200m)

Winner of 29 Financial Review Client Choice Awards

	PCOC68	Work Order and sample ref	Analyte	Concentration	Analysis
	ES1920095				
5 ①	BH_MN06 0.9-1.0 2206	ES1920095-002	PFAS	Various	**ASLP as per NEMP**
②	BH_VMN03 0.4-0.5 2306	ES1920095-14	Lead	147 mg/kg	TCLP
			Nickel	69 mg/kg	TCLP
3	BH_VMN03_1.1-1.2 2306	ES1920095-17	Lead	105 mg/kg	TCLP
④	BH_MN13 0.9-1.2 2306	ES1920095-010	benzo(a)pyrene	1.7 mg/kg	TCLP
⑤	BH_MN13 3.0-3.2 2306.	ES1920095-012	benzo(a)pyrene	1.5 mg/kg	TCLP

S1033-1037
* 2, 10, 12, 14, 17

The PFAS ASLP requested is the *"Australian Standard Leaching Procedure (ASLP) conducted at both pH 5 and un-buffered reagent water – approximating "worst case" for leaching conditions"* (as specified within the NEMP, section 14.6)

STATEMENT OF QA/QC PERFORMANCE

SE194695 R0

CLIENT DETAILS

Contact	Barry Houston
Client	GOLDER ASSOCIATES PTY LTD
Address	Level 8 Mount Street North Sydney NSW 2065
Telephone	0416 826 175
Facsimile	02 9478 3901
Email	bhouston@golder.com.au
Project	**1791865 Marrickville**
Order Number	**SCOC**
Samples	1

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE194695 R0**
Date Received	28 Jun 2019
Date Reported	15 Jul 2019

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document.
This QA/QC Statement must be read in conjunction with the referenced Analytical Report.
The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met with the exception of the following:

Extraction Date	OC Pesticides in Water	1 item
	OP Pesticides in Water	1 item
	PAH (Polynuclear Aromatic Hydrocarbons) in Water	1 item
	PCBs in Water	1 item
	TRH (Total Recoverable Hydrocarbons) in Water	1 item
	VOCs in Water	1 item
	Volatile Petroleum Hydrocarbons in Water	1 item

SAMPLE SUMMARY

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	Client	Sample cooling method	Ice
Samples received in correct containers	Yes	Sample counts by matrix	1 Water
Date documentation received	28/6/2019	Type of documentation received	COC
Samples received in good order	Yes	Samples received without headspace	Yes
Sample temperature upon receipt	4°C	Sufficient sample for analysis	Yes
Turnaround time requested	On Hold		

HOLDING TIME SUMMARY

SE194695 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS “Field Sampling Guide for Containers and Holding Time” (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
WQA500B	SE194695.001	LB178300	28 Jun 2019	28 Jun 2019	26 Jul 2019	12 Jul 2019	26 Jul 2019	12 Jul 2019

OC Pesticides in Water

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
WQA500B	SE194695.001	LB178052	28 Jun 2019	28 Jun 2019	05 Jul 2019	09 Jul 2019†	18 Aug 2019	11 Jul 2019

OP Pesticides in Water

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
WQA500B	SE194695.001	LB178052	28 Jun 2019	28 Jun 2019	05 Jul 2019	09 Jul 2019†	18 Aug 2019	10 Jul 2019

PAH (Polynuclear Aromatic Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
WQA500B	SE194695.001	LB178052	28 Jun 2019	28 Jun 2019	05 Jul 2019	09 Jul 2019†	18 Aug 2019	10 Jul 2019

PCBs in Water

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
WQA500B	SE194695.001	LB178052	28 Jun 2019	28 Jun 2019	05 Jul 2019	09 Jul 2019†	18 Aug 2019	11 Jul 2019

Speciated Phenols in Water

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
WQA500B	SE194695.001	LB178052	28 Jun 2019	28 Jun 2019	19 Jul 2019	09 Jul 2019	18 Aug 2019	10 Jul 2019

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
WQA500B	SE194695.001	LB178009	28 Jun 2019	28 Jun 2019	25 Dec 2019	09 Jul 2019	25 Dec 2019	09 Jul 2019

TRH (Total Recoverable Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN403

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
WQA500B	SE194695.001	LB178052	28 Jun 2019	28 Jun 2019	05 Jul 2019	09 Jul 2019†	18 Aug 2019	10 Jul 2019

VOCs in Water

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
WQA500B	SE194695.001	LB178291	28 Jun 2019	28 Jun 2019	05 Jul 2019	11 Jul 2019†	20 Aug 2019	15 Jul 2019

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
WQA500B	SE194695.001	LB178291	28 Jun 2019	28 Jun 2019	05 Jul 2019	11 Jul 2019†	20 Aug 2019	15 Jul 2019

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides in Water

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	WQA500B	SE194695.001	%	40 - 130%	80

OP Pesticides in Water

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	WQA500B	SE194695.001	%	40 - 130%	64
d14-p-terphenyl (Surrogate)	WQA500B	SE194695.001	%	40 - 130%	84

PAH (Polynuclear Aromatic Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	WQA500B	SE194695.001	%	40 - 130%	64
d14-p-terphenyl (Surrogate)	WQA500B	SE194695.001	%	40 - 130%	84
d5-nitrobenzene (Surrogate)	WQA500B	SE194695.001	%	40 - 130%	58

PCBs in Water

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (Surrogate)	WQA500B	SE194695.001	%	40 - 130%	80

Speciated Phenols in Water

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2,4,6-Tribromophenol (Surrogate)	WQA500B	SE194695.001	%	40 - 130%	61
d5-phenol (Surrogate)	WQA500B	SE194695.001	%	20 - 90%	51

VOCs in Water

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	WQA500B	SE194695.001	%	40 - 130%	107
d4-1,2-dichloroethane (Surrogate)	WQA500B	SE194695.001	%	40 - 130%	113
d8-toluene (Surrogate)	WQA500B	SE194695.001	%	40 - 130%	111
Dibromofluoromethane (Surrogate)	WQA500B	SE194695.001	%	40 - 130%	118

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	WQA500B	SE194695.001	%	40 - 130%	107
d4-1,2-dichloroethane (Surrogate)	WQA500B	SE194695.001	%	60 - 130%	113
d8-toluene (Surrogate)	WQA500B	SE194695.001	%	40 - 130%	111
Dibromofluoromethane (Surrogate)	WQA500B	SE194695.001	%	40 - 130%	118

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

Sample Number	Parameter	Units	LOR	Result
LB178300.001	Mercury	mg/L	0.0001	<0.0001

OC Pesticides in Water

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB178052.001		Alpha BHC	µg/L	0.1	<0.1
		Hexachlorobenzene (HCB)	µg/L	0.1	<0.1
		Beta BHC	µg/L	0.1	<0.1
		Lindane (gamma BHC)	µg/L	0.1	<0.1
		Delta BHC	µg/L	0.1	<0.1
		Heptachlor	µg/L	0.1	<0.1
		Aldrin	µg/L	0.1	<0.1
		Heptachlor epoxide	µg/L	0.1	<0.1
		Gamma Chlordane	µg/L	0.1	<0.1
		Alpha Chlordane	µg/L	0.1	<0.1
		Alpha Endosulfan	µg/L	0.1	<0.1
		p,p'-DDE	µg/L	0.1	<0.1
		Dieldrin	µg/L	0.1	<0.1
		Endrin	µg/L	0.1	<0.1
		Beta Endosulfan	µg/L	0.1	<0.1
		p,p'-DDD	µg/L	0.1	<0.1
		Endosulfan sulphate	µg/L	0.1	<0.1
		p,p'-DDT	µg/L	0.1	<0.1
		Endrin ketone	µg/L	0.1	<0.1
		Methoxychlor	µg/L	0.1	<0.1
		Endrin aldehyde	µg/L	0.1	<0.1
		Isodrin	µg/L	0.1	<0.1
		Mirex	µg/L	0.1	<0.1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	67

OP Pesticides in Water

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB178052.001		Dichlorvos	µg/L	0.5	<0.5
		Dimethoate	µg/L	0.5	<0.5
		Diazinon (Dimpylate)	µg/L	0.5	<0.5
		Fenitrothion	µg/L	0.2	<0.2
		Malathion	µg/L	0.2	<0.2
		Chlorpyrifos (Chlorpyrifos Ethyl)	µg/L	0.2	<0.2
		Parathion-ethyl (Parathion)	µg/L	0.2	<0.2
		Bromophos Ethyl	µg/L	0.2	<0.2
		Methidathion	µg/L	0.5	<0.5
		Ethion	µg/L	0.2	<0.2
		Azinphos-methyl	µg/L	0.2	<0.2
	Surrogates	2-fluorobiphenyl (Surrogate)	%	-	60
		d14-p-terphenyl (Surrogate)	%	-	76

PAH (Polynuclear Aromatic Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result
LB178052.001	Naphthalene	µg/L	0.1	<0.1
	2-methylnaphthalene	µg/L	0.1	<0.1
	1-methylnaphthalene	µg/L	0.1	<0.1
	Acenaphthylene	µg/L	0.1	<0.1
	Acenaphthene	µg/L	0.1	<0.1
	Fluorene	µg/L	0.1	<0.1
	Phenanthrene	µg/L	0.1	<0.1
	Anthracene	µg/L	0.1	<0.1
	Fluoranthene	µg/L	0.1	<0.1
	Pyrene	µg/L	0.1	<0.1
	Benzo(a)anthracene	µg/L	0.1	<0.1
	Chrysene	µg/L	0.1	<0.1
	Benzo(a)pyrene	µg/L	0.1	<0.1

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

PAH (Polynuclear Aromatic Hydrocarbons) in Water (continued)

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB178052.001		Indeno(1,2,3-cd)pyrene	µg/L	0.1	<0.1
		Dibenzo(ah)anthracene	µg/L	0.1	<0.1
		Benzo(ghi)perylene	µg/L	0.1	<0.1
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	64
		2-fluorobiphenyl (Surrogate)	%	-	60
		d14-p-terphenyl (Surrogate)	%	-	76

PCBs in Water

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result
LB178052.001	Arochlor 1016	µg/L	1	<1
	Arochlor 1221	µg/L	1	<1
	Arochlor 1232	µg/L	1	<1
	Arochlor 1242	µg/L	1	<1
	Arochlor 1248	µg/L	1	<1
	Arochlor 1254	µg/L	1	<1
	Arochlor 1260	µg/L	1	<1
	Arochlor 1262	µg/L	1	<1
	Arochlor 1268	µg/L	1	<1

Speciated Phenols in Water

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB178052.001		Phenol	µg/L	0.5	<0.5
		2-methyl phenol (o-cresol)	µg/L	0.5	<0.5
		3/4-methyl phenol (m/p-cresol)	µg/L	1	<1
		2-chlorophenol	µg/L	0.5	<0.5
		2,4-dimethylphenol	µg/L	0.5	<0.5
		2,6-dichlorophenol	µg/L	0.5	<0.5
		2,4-dichlorophenol	µg/L	0.5	<0.5
		2,4,6-trichlorophenol	µg/L	0.5	<0.5
		2-nitrophenol	µg/L	0.5	<0.5
		4-nitrophenol	µg/L	1	<1
		2,4,5-trichlorophenol	µg/L	0.5	<0.5
		2,3,4,6/2,3,5,6-tetrachlorophenol	µg/L	1	<1
		Pentachlorophenol	µg/L	0.5	<0.5
		2,4-dinitrophenol	µg/L	2	<2
		4-chloro-3-methylphenol	µg/L	2	<2
	Surrogates	2,4,6-Tribromophenol (Surrogate)	%	-	78
		d5-phenol (Surrogate)	%	-	116

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result
LB178009.001	Arsenic, As	µg/L	1	<1
	Cadmium, Cd	µg/L	0.1	<0.1
	Chromium, Cr	µg/L	1	<1
	Copper, Cu	µg/L	1	<1
	Lead, Pb	µg/L	1	<1
	Nickel, Ni	µg/L	1	<1
	Zinc, Zn	µg/L	5	<5

TRH (Total Recoverable Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR	Result
LB178052.001	TRH C10-C14	µg/L	50	<50
	TRH C15-C28	µg/L	200	<200
	TRH C29-C36	µg/L	200	<200
	TRH C37-C40	µg/L	200	<200

VOCs in Water

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB178291.001	Fumigants	2,2-dichloropropane	µg/L	0.5	<0.5
		1,2-dichloropropane	µg/L	0.5	<0.5
		cis-1,3-dichloropropene	µg/L	0.5	<0.5
		trans-1,3-dichloropropene	µg/L	0.5	<0.5
		1,2-dibromoethane (EDB)	µg/L	0.5	<0.5

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

VOCs in Water (continued)

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB178291.001	Halogenated Aliphatics	Dichlorodifluoromethane (CFC-12)	µg/L	5	<5
		Chloromethane	µg/L	5	<5
		Vinyl chloride (Chloroethene)	µg/L	0.3	<0.3
		Bromomethane	µg/L	10	<10
		Chloroethane	µg/L	5	<5
		Trichlorofluoromethane	µg/L	1	<1
		Iodomethane	µg/L	5	<5
		1,1-dichloroethene	µg/L	0.5	<0.5
		Dichloromethane (Methylene chloride)	µg/L	5	<5
		Allyl chloride	µg/L	2	<2
		trans-1,2-dichloroethene	µg/L	0.5	<0.5
		1,1-dichloroethane	µg/L	0.5	<0.5
		cis-1,2-dichloroethene	µg/L	0.5	<0.5
		Bromochloromethane	µg/L	0.5	<0.5
		1,2-dichloroethane	µg/L	0.5	<0.5
		1,1,1-trichloroethane	µg/L	0.5	<0.5
		1,1-dichloropropene	µg/L	0.5	<0.5
		Carbon tetrachloride	µg/L	0.5	<0.5
		Dibromomethane	µg/L	0.5	<0.5
		Trichloroethene (Trichloroethylene,TCE)	µg/L	0.5	<0.5
		1,1,2-trichloroethane	µg/L	0.5	<0.5
		1,3-dichloropropane	µg/L	0.5	<0.5
		Tetrachloroethene (Perchloroethylene,PCE)	µg/L	0.5	<0.5
		1,1,1,2-tetrachloroethane	µg/L	0.5	<0.5
		cis-1,4-dichloro-2-butene	µg/L	1	<1
		1,1,2,2-tetrachloroethane	µg/L	0.5	<0.5
		1,2,3-trichloropropane	µg/L	0.5	<0.5
		trans-1,4-dichloro-2-butene	µg/L	1	<1
		1,2-dibromo-3-chloropropane	µg/L	0.5	<0.5
		Hexachlorobutadiene	µg/L	0.5	<0.5
	Halogenated Aromatics	Chlorobenzene	µg/L	0.5	<0.5
		Bromobenzene	µg/L	0.5	<0.5
		2-chlorotoluene	µg/L	0.5	<0.5
		4-chlorotoluene	µg/L	0.5	<0.5
		1,3-dichlorobenzene	µg/L	0.5	<0.5
		1,4-dichlorobenzene	µg/L	0.3	<0.3
		1,2-dichlorobenzene	µg/L	0.5	<0.5
		1,2,4-trichlorobenzene	µg/L	0.5	<0.5
		1,2,3-trichlorobenzene	µg/L	0.5	<0.5
	Monocyclic Aromatic Hydrocarbons	Benzene	µg/L	0.5	<0.5
		Toluene	µg/L	0.5	<0.5
		Ethylbenzene	µg/L	0.5	<0.5
		m/p-xylene	µg/L	1	<1
		o-xylene	µg/L	0.5	<0.5
		Styrene (Vinyl benzene)	µg/L	0.5	<0.5
		Isopropylbenzene (Cumene)	µg/L	0.5	<0.5
		n-propylbenzene	µg/L	0.5	<0.5
		1,3,5-trimethylbenzene	µg/L	0.5	<0.5
		tert-butylbenzene	µg/L	0.5	<0.5
		1,2,4-trimethylbenzene	µg/L	0.5	<0.5
		sec-butylbenzene	µg/L	0.5	<0.5
		p-isopropyltoluene	µg/L	0.5	<0.5
		n-butylbenzene	µg/L	0.5	<0.5
	Nitrogenous Compounds	Acrylonitrile	µg/L	0.5	<0.5
	Oxygenated Compounds	Acetone (2-propanone)	µg/L	10	<10
		MtBE (Methyl-tert-butyl ether)	µg/L	2	<1
		Vinyl acetate	µg/L	10	<10
		MEK (2-butanone)	µg/L	10	<10
		MIBK (4-methyl-2-pentanone)	µg/L	5	<5
		2-hexanone (MBK)	µg/L	5	<5
	Polycyclic VOCs	Naphthalene	µg/L	0.5	<0.5

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

VOCs in Water (continued)

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB178291.001	Sulphonated	Carbon disulfide	µg/L	2	<2
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	116
		d4-1,2-dichloroethane (Surrogate)	%	-	125
		d8-toluene (Surrogate)	%	-	111
		Bromofluorobenzene (Surrogate)	%	-	115
	Trihalomethanes	Chloroform (THM)	µg/L	0.5	<0.5
		Bromodichloromethane (THM)	µg/L	0.5	<0.5
		Dibromochloromethane (THM)	µg/L	0.5	<0.5
		Bromoform (THM)	µg/L	0.5	<0.5

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB178291.001		TRH C6-C9	µg/L	40	<40
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	116
		d4-1,2-dichloroethane (Surrogate)	%	-	125
		d8-toluene (Surrogate)	%	-	111
		Bromofluorobenzene (Surrogate)	%	-	115

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE195219.022	LB178300.017	Mercury	µg/L	0.0001	<0.0001	0.0000	200	62

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE194695.001	LB178009.004	Arsenic, As	µg/L	1	<1	<1	200	0
		Cadmium, Cd	µg/L	0.1	<0.1	<0.1	200	0
		Chromium, Cr	µg/L	1	<1	<1	200	0
		Copper, Cu	µg/L	1	15	15	22	1
		Lead, Pb	µg/L	1	<1	<1	200	0
		Nickel, Ni	µg/L	1	3	3	50	2
		Zinc, Zn	µg/L	5	19	18	42	2

TRH (Total Recoverable Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN403

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE195043.004	LB178052.015		TRH C10-C14	µg/L	50	NVL	<50	200	0
			TRH C15-C28	µg/L	200	NVL	<200	200	0
			TRH C29-C36	µg/L	200	NVL	<200	200	0
			TRH C37-C40	µg/L	200	NVL	<200	200	0
			TRH C10-C36	µg/L	450	NVL	<450	200	0
			TRH C10-C40	µg/L	650	NVL	<650	200	0
		TRH F Bands	TRH >C10-C16	µg/L	60	NVL	<60	200	0
			TRH >C10-C16 - Naphthalene (F2)	µg/L	60	NVL	<60	200	0
			TRH >C16-C34 (F3)	µg/L	500	NVL	<500	200	0
			TRH >C34-C40 (F4)	µg/L	500	NVL	<500	200	0

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

OC Pesticides in Water

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB178052.002		Delta BHC	µg/L	0.1	0.2	0.2	60 - 140	108
		Heptachlor	µg/L	0.1	0.2	0.2	60 - 140	103
		Aldrin	µg/L	0.1	0.2	0.2	60 - 140	78
		Dieldrin	µg/L	0.1	0.2	0.2	60 - 140	110
		Endrin	µg/L	0.1	0.2	0.2	60 - 140	110
		p,p'-DDT	µg/L	0.1	0.2	0.2	60 - 140	110
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	µg/L	-	0.10	0.15	40 - 130	68

OP Pesticides in Water

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB178052.002		Dichlorvos	µg/L	0.5	8.9	8	60 - 140	111
		Diazinon (Dimpylate)	µg/L	0.5	9.4	8	60 - 140	118
		Chlorpyrifos (Chlorpyrifos Ethyl)	µg/L	0.2	8.9	8	60 - 140	111
		Ethion	µg/L	0.2	9.7	8	60 - 140	121
	Surrogates	2-fluorobiphenyl (Surrogate)	µg/L	-	0.3	0.5	40 - 130	62
		d14-p-terphenyl (Surrogate)	µg/L	-	0.3	0.5	40 - 130	60

PAH (Polynuclear Aromatic Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB178052.002		Naphthalene	µg/L	0.1	28	40	60 - 140	71
		Acenaphthylene	µg/L	0.1	30	40	60 - 140	76
		Acenaphthene	µg/L	0.1	30	40	60 - 140	75
		Phenanthrene	µg/L	0.1	36	40	60 - 140	89
		Anthracene	µg/L	0.1	31	40	60 - 140	77
		Fluoranthene	µg/L	0.1	32	40	60 - 140	81
		Pyrene	µg/L	0.1	36	40	60 - 140	89
		Benzo(a)pyrene	µg/L	0.1	34	40	60 - 140	86
	Surrogates	d5-nitrobenzene (Surrogate)	µg/L	-	0.3	0.5	40 - 130	62
		2-fluorobiphenyl (Surrogate)	µg/L	-	0.3	0.5	40 - 130	62
		d14-p-terphenyl (Surrogate)	µg/L	-	0.3	0.5	40 - 130	60

PCBs in Water

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB178052.002	Arochlor 1260	µg/L	1	<1	0.4	60 - 140	110

Speciated Phenols in Water

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB178052.002		Phenol	µg/L	0.5	48	40	60 - 140	119
		2,4-dichlorophenol	µg/L	0.5	43	40	60 - 140	108
		2,4,6-trichlorophenol	µg/L	0.5	40	40	60 - 140	100
		Pentachlorophenol	µg/L	0.5	26	40	60 - 140	65
	Surrogates	2,4,6-Tribromophenol (Surrogate)	µg/L	-	4.5	5	40 - 130	90
		d5-phenol (Surrogate)	µg/L	-	2.4	2	40 - 130	119

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB178009.002	Arsenic, As	µg/L	1	20	20	80 - 120	101
	Cadmium, Cd	µg/L	0.1	20	20	80 - 120	98
	Chromium, Cr	µg/L	1	22	20	80 - 120	110
	Copper, Cu	µg/L	1	21	20	80 - 120	107
	Lead, Pb	µg/L	1	19	20	80 - 120	96
	Nickel, Ni	µg/L	1	21	20	80 - 120	105
	Zinc, Zn	µg/L	5	21	20	80 - 120	105

TRH (Total Recoverable Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN403

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB178052.002		TRH C10-C14	µg/L	50	1200	1200	60 - 140	101
		TRH C15-C28	µg/L	200	1400	1200	60 - 140	121
		TRH C29-C36	µg/L	200	1500	1200	60 - 140	126
	TRH F Bands	TRH >C10-C16	µg/L	60	1300	1200	60 - 140	112
		TRH >C16-C34 (F3)	µg/L	500	1500	1200	60 - 140	122
		TRH >C34-C40 (F4)	µg/L	500	800	600	60 - 140	133

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

VOCs in Water

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB178291.002	Halogenated	1,1-dichloroethene	µg/L	0.5	46	45.45	60 - 140	101
	Aliphatics	1,2-dichloroethane	µg/L	0.5	45	45.45	60 - 140	98
		Trichloroethene (Trichloroethylene,TCE)	µg/L	0.5	43	45.45	60 - 140	94
	Halogenated	Chlorobenzene	µg/L	0.5	52	45.45	60 - 140	114
	Monocyclic	Benzene	µg/L	0.5	51	45.45	60 - 140	113
	Aromatic	Toluene	µg/L	0.5	54	45.45	60 - 140	120
		Ethylbenzene	µg/L	0.5	49	45.45	60 - 140	108
		m/p-xylene	µg/L	1	98	90.9	60 - 140	108
		o-xylene	µg/L	0.5	50	45.45	60 - 140	109
	Trihalomethan	Chloroform (THM)	µg/L	0.5	52	45.45	60 - 140	115

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB178291.002		TRH C6-C10	µg/L	50	1100	946.63	60 - 140	112
		TRH C6-C9	µg/L	40	920	818.71	60 - 140	113
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	µg/L	50	760	639.67	60 - 140	118

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury (dissolved) in Water — **Method: ME-(AU)-[ENV]AN311(Perth)/AN312**

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE194695.001	LB178300.004	Mercury	mg/L	0.0001	0.0081	<0.0001	0.008	101

MATRIX SPIKE DUPLICATES

SE194695 R0

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here: https://www.sgs.com.au/~/media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022 QA QC Plan.pdf

*	NATA accreditation does not cover the performance of this service.
**	Indicative data, theoretical holding time exceeded.
-	Sample not analysed for this analyte.
IS	Insufficient sample for analysis.
LNR	Sample listed, but not received.
LOR	Limit of reporting.
QFH	QC result is above the upper tolerance.
QFL	QC result is below the lower tolerance.

①	At least 2 of 3 surrogates are within acceptance criteria.
②	RPD failed acceptance criteria due to sample heterogeneity.
③	Results less than 5 times LOR preclude acceptance criteria for RPD.
④	Recovery failed acceptance criteria due to matrix interference.
⑤	Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
⑥	LOR was raised due to sample matrix interference.
⑦	LOR was raised due to dilution of significantly high concentration of analyte in sample.
⑧	Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
⑨	Recovery failed acceptance criteria due to sample heterogeneity.
⑩	LOR was raised due to high conductivity of the sample (required dilution).
†	Refer to Analytical Report comments for further information.

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS		LABORATORY DETAILS	
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Project	**SE194250**	SGS Reference	**ME310973 R0**
Order Number	**SE194250**	Date Received	24 Jun 2019
Samples	2	Date Reported	27 Jun 2019

COMMENTS

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

Surrogate results are outside of the acceptance criteria due to sample matrix interference.

SIGNATORIES

Adam Atkinson
Australian Chemistry Manager

Parameter	Units	LOR	Sample Number: ME310973.001 Sample Matrix: Soil Sample Date: 11 Jun 2019 Sample Name: SE194250.001	Sample Number: ME310973.002 Sample Matrix: Soil Sample Date: 11 Jun 2019 Sample Name: SE194250.002
Per- and Polyfluoroalkyl Substances (PFAS) in Solid Samples- Low level	**Method: MA-1523**	**Tested: 24/6/2019**		
Perfluorobutanoic acid (PFBA)	mg/kg	0.0001	<0.0001	<0.0001
Perfluoropentanoic acid (PFPeA)	mg/kg	0.0005	<0.0005	<0.0005
Perfluorohexanoic acid (PFHxA)	mg/kg	0.0001	**0.0002**	<0.0001
Perfluoroheptanoic acid (PFHpA)	mg/kg	0.0001	**0.0001**	<0.0001
Perfluorooctanoic Acid (PFOA)	mg/kg	0.0001	**0.0004**	<0.0001
Perfluorononanoic acid (PFNA)	mg/kg	0.0001	<0.0001	<0.0001
Perfluorodecanoic acid (PFDA)	mg/kg	0.0001	<0.0001	<0.0001
Perfluoroundecanoic acid (PFUnA)	mg/kg	0.0001	<0.0001	<0.0001
Perfluorododecanoic acid (PFDoA)	mg/kg	0.0001	<0.0001	<0.0001
Perfluorotridecanoic acid (PFTrDA)	mg/kg	0.0001	<0.0001	<0.0001
Perfluorotetradecanoic acid (PFTeDA)	mg/kg	0.0001	<0.0001	<0.0001
Perfluorohexadecanoic acid (PFHxDA)	mg/kg	0.0001	<0.0001	<0.0001
Perfluorobutane sulfonate (PFBS)	mg/kg	0.0001	<0.0001	<0.0001
Perfluoropentane sulfonate (PFPeS)	mg/kg	0.0001	<0.0001	<0.0001
Perfluorohexane sulfonate (PFHxS)	mg/kg	0.0001	<0.0001	<0.0001
Perfluoroheptane sulfonate (PFHpS)	mg/kg	0.0001	<0.0001	<0.0001
Perfluorooctane sulfonate (PFOS)	mg/kg	0.0001	**0.0006**	<0.0001
Sum PFOS and PFHXS	mg/kg	0.0001	**0.0006**	<0.0001
Perfluorononane sulfonate (PFNS)	mg/kg	0.0001	<0.0001	<0.0001
Perfluorodecane sulfonate (PFDS)	mg/kg	0.0001	<0.0001	<0.0001
Perfluorododecane sulfonate (PFDoS)	mg/kg	0.0001	<0.0001	<0.0001
1H,1H,2H,2H-Perfluorohexane sulfonate (4:2) (4:2 FTS)	mg/kg	0.001	<0.001	<0.001
1H,1H,2H,2H-Perfluorooctane sulfonate (6:2) (6:2 FTS)	mg/kg	0.001	<0.001	<0.001
1H,1H,2H,2H-Perfluorodecane sulfonate (8:2) (8:2 FTS)	mg/kg	0.001	<0.001	<0.001
Perfluorooctane sulfonamide (PFOSA)	mg/kg	0.001	<0.001	<0.001
N-Methylperfluorooctane sulfonamide (N-MeFOSA)	mg/kg	0.001	<0.001	<0.001
N-Ethylperfluorooctane sulfonamide (N-EtFOSA)	mg/kg	0.001	<0.001	<0.001
2-(N-Methylperfluorooctane sulfonamido)-ethanol (N-MeFOSE)	mg/kg	0.002	<0.002	<0.002
2-(N-Ethylperfluorooctane sulfonamido)-ethanol (N-EtFOSE)	mg/kg	0.002	<0.002	<0.002
N-Methylperfluorooctanesulfonamidoacetic acid (N_MeFOSAA)	mg/kg	0.001	<0.001	<0.001
N-Ethylperfluorooctanesulfonamidoacetic Acid (N-EtFOSAA)	mg/kg	0.001	<0.001	<0.001
(13C4-PFBA) Surrogate	%	-	**99**	**100**
(13C5_PFPeA) Surrogate	%	-	**75**	**74**
(13C5-PFHxA) Surrogate	%	-	**98**	**112**
(13C4-PFHpA) Surrogate	%	-	**93**	**98**
(13C4-PFOA) Surrogate	%	-	**90**	**108**
(13C9-PFNA) Surrogate	%	-	**104**	**105**
(13C6-PFDA) Surrogate	%	-	**97**	**108**
(13C7-PFUdA) Surrogate	%	-	**83**	**101**
(13C2-PFDoA) Surrogate	%	-	**62**	**73**
(13C2-PFTeDA) Surrogate	%	-	**22**	**51**
(13C2-PFHxDA) Surrogate	%	-	**0**	**23**
(13C3-PFBS) Surrogate	%	-	**114**	**111**
(13C3-PFHxS) Surrogate	%	-	**105**	**109**
(13C8-PFOS) Surrogate	%	-	**112**	**109**
(13C2-4:2FTS) Surrogate	%	-	**131**	**143**
(13C2-6:2FTS) Surrogate	%	-	**157**	**181**
(13C2-8:2FTS) Surrogate	%	-	**163**	**172**
(13C8-PFOSA) Surrogate	%	-	**71**	**78**
(D3-N-MeFOSA) Surrogate	%	-	**15**	**42**
(D5-N-EtFOSA) Surrogate	%	-	**10**	**27**
(D7-N-MeFOSE) Surrogate	%	-	**52**	**50**
(D9-N-EtFOSE) Surrogate	%	-	**26**	**36**
(D3-N-MeFOSAA) Surrogate	%	-	**105**	**84**
(D5-N-EtFOSAA) Surrogate	%	-	**144**	**84**

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

Per- and Polyfluoroalkyl Substances (PFAS) in Solid Samples- Low level Method: MA-1523

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Perfluorobutanoic acid (PFBA)	LB027286	mg/kg	0.0001	<0.0001	0 - 49%	NA
Perfluoropentanoic acid (PFPeA)	LB027286	mg/kg	0.0005	<0.0005	0%	NA
Perfluorohexanoic acid (PFHxA)	LB027286	mg/kg	0.0001	<0.0001	0 - 54%	NA
Perfluoroheptanoic acid (PFHpA)	LB027286	mg/kg	0.0001	<0.0001	0 - 10%	102%
Perfluorooctanoic Acid (PFOA)	LB027286	mg/kg	0.0001	<0.0001	0 - 48%	99%
Perfluorononanoic acid (PFNA)	LB027286	mg/kg	0.0001	<0.0001	0%	91%
Perfluorodecanoic acid (PFDA)	LB027286	mg/kg	0.0001	<0.0001	0%	105%
Perfluoroundecanoic acid (PFUnA)	LB027286	mg/kg	0.0001	<0.0001	0%	87%
Perfluorododecanoic acid (PFDoA)	LB027286	mg/kg	0.0001	<0.0001	0%	104%
Perfluorotridecanoic acid (PFTrDA)	LB027286	mg/kg	0.0001	<0.0001	0%	124%
Perfluorotetradecanoic acid (PFTeDA)	LB027286	mg/kg	0.0001	<0.0001	0%	102%
Perfluorohexadecanoic acid (PFHxDA)	LB027286	mg/kg	0.0001	<0.0001	0%	NA
Perfluorobutane sulfonate (PFBS)	LB027286	mg/kg	0.0001	<0.0001	0%	NA
Perfluoropentane sulfonate (PFPeS)	LB027286	mg/kg	0.0001	<0.0001	0%	NA
Perfluorohexane sulfonate (PFHxS)	LB027286	mg/kg	0.0001	<0.0001	0%	NA
Perfluoroheptane sulfonate (PFHpS)	LB027286	mg/kg	0.0001	<0.0001	0%	NA
Perfluorooctane sulfonate (PFOS)	LB027286	mg/kg	0.0001	<0.0001	36 - 67%	108%
Sum PFOS and PFHXS	LB027286	mg/kg	0.0001	<0.0001	36 - 67%	NA
Perfluorononane sulfonate (PFNS)	LB027286	mg/kg	0.0001	<0.0001	0%	NA
Perfluorodecane sulfonate (PFDS)	LB027286	mg/kg	0.0001	<0.0001	0%	NA
Perfluorododecane sulfonate (PFDoS)	LB027286	mg/kg	0.0001	<0.0001	0%	NA
1H,1H,2H,2H-Perfluorohexane sulfonate (4:2) (4:2 FTS)	LB027286	mg/kg	0.001	<0.001	0%	NA
1H,1H,2H,2H-Perfluorooctane sulfonate (6:2) (6:2 FTS)	LB027286	mg/kg	0.001	<0.001	0%	NA
1H,1H,2H,2H-Perfluorodecane sulfonate (8:2) (8:2 FTS)	LB027286	mg/kg	0.001	<0.001	0%	NA
Perfluorooctane sulfonamide (PFOSA)	LB027286	mg/kg	0.001	<0.001	0%	
N-Methylperfluorooctane sulfonamide (N-MeFOSA)	LB027286	mg/kg	0.001	<0.001	0%	NA
N-Ethylperfluorooctane sulfonamide (N-EtFOSA)	LB027286	mg/kg	0.001	<0.001	0%	NA
2-(N-Methylperfluorooctane sulfonamido)-ethanol (N-MeFOSE)	LB027286	mg/kg	0.002	<0.002	0%	NA
2-(N-Ethylperfluorooctane sulfonamido)-ethanol (N-EtFOSE)	LB027286	mg/kg	0.002	<0.002	0%	NA
N-Methylperfluorooctanesulfonamidoacetic acid (N_MeFOSAA)	LB027286	mg/kg	0.001	<0.001	0%	NA
N-Ethylperfluorooctanesulfonamidoacetic Acid (N-EtFOSAA)	LB027286	mg/kg	0.001	<0.001	0%	NA
(13C4-PFBA) Surrogate	LB027286	%	-	99%	2 - 3%	102%
(13C5_PFPeA) Surrogate	LB027286	%	-	76%	1 - 3%	79%
(13C5-PFHxA) Surrogate	LB027286	%	-	86%	4 - 12%	85%
(13C4-PFHpA) Surrogate	LB027286	%	-	91%	3 - 14%	89%
(13C4-PFOA) Surrogate	LB027286	%	-	102%	3 - 13%	112%
(13C9-PFNA) Surrogate	LB027286	%	-	112%	2 - 5%	106%
(13C6-PFDA) Surrogate	LB027286	%	-	110%	9 - 20%	92%
(13C7-PFUdA) Surrogate	LB027286	%	-	123%	2 - 6%	112%
(13C2-PFDoA) Surrogate	LB027286	%	-	114%	12 - 37%	108%
(13C2-PFTeDA) Surrogate	LB027286	%	-	67%	10 - 72%	96%
(13C2-PFHxDA) Surrogate	LB027286	%	-	27%	19 - 192%	86%
(13C3-PFBS) Surrogate	LB027286	%	-	94%	6 - 8%	92%
(13C3-PFHxS) Surrogate	LB027286	%	-	104%	2 - 17%	113%
(13C8-PFOS) Surrogate	LB027286	%	-	106%	11 - 16%	120%
(13C2-4:2FTS) Surrogate	LB027286	%	-	102%	0 - 1%	93%
(13C2-6:2FTS) Surrogate	LB027286	%	-	147%	10 - 19%	148%
(13C2-8:2FTS) Surrogate	LB027286	%	-	199%	9 - 10%	194%
(13C8-PFOSA) Surrogate	LB027286	%	-	148%	15 - 19%	156%
(D3-N-MeFOSA) Surrogate	LB027286	%	-	116%	25 - 116%	106%
(D5-N-EtFOSA) Surrogate	LB027286	%	-	159%	17 - 140%	151%
(D7-N-MeFOSE) Surrogate	LB027286	%	-	141%	6 - 60%	180%
(D9-N-EtFOSE) Surrogate	LB027286	%	-	167%	19 - 108%	172%
(D3-N-MeFOSAA) Surrogate	LB027286	%	-	120%	2 - 11%	116%
(D5-N-EtFOSAA) Surrogate	LB027286	%	-	156%	2 - 5%	162%

METHOD SUMMARY

ME310973 R0

METHOD	METHODOLOGY SUMMARY
MA-1523	This method covers the analysis of per- and polyfluoroalkyl substances (PFAS) in aqueous, solid and biosolid samples and solvent extracts, determined as the total of linear and branched isomers. After spiking with isotopically labelled quantification surrogates and clean-up via SPE cartridges sample extracts are analysed by liquid chromatography/mass spectrometry (LC-MS/MS). PFAS concentrations are determined by isotope dilution quantification.

FOOTNOTES

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

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

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

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

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

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

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

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

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

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	Barry Houston
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Project	**1791865 Marrickville**
Order Number	**SCOC10**
Samples	2

LABORATORY DETAILS

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SGS Reference	**SE193855 R0**
Date Received	7/6/2019
Date Reported	18/6/2019

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(4354).

SIGNATORIES

Akheeqar Beniameen
Chemist

Dong Liang
Metals/Inorganics Team Leader

Kamrul Ahsan
Senior Chemist

Ly Kim Ha
Organic Section Head

VOC's in Soil [AN433] Tested: 11/6/2019

PARAMETER	UOM	LOR	QA500B SOIL - 1/6/2019 SE193855.001	QA501B SOIL - 2/6/2019 SE193855.002
Benzene	mg/kg	0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1
Total Xylenes	mg/kg	0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.1
Dichlorodifluoromethane (CFC-12)	mg/kg	1	<1	<1
Chloromethane	mg/kg	1	<1	<1
Vinyl chloride (Chloroethene)	mg/kg	0.1	<0.1	<0.1
Bromomethane	mg/kg	1	<1	<1
Chloroethane	mg/kg	1	<1	<1
Trichlorofluoromethane	mg/kg	1	<1	<1
Acetone (2-propanone)	mg/kg	10	<10	<10
Iodomethane	mg/kg	5	<5	<5
1,1-dichloroethene	mg/kg	0.1	<0.1	<0.1
Acrylonitrile	mg/kg	0.1	<0.1	<0.1
Dichloromethane (Methylene chloride)	mg/kg	0.5	<0.5	<0.5
Allyl chloride	mg/kg	0.1	<0.1	<0.1
Carbon disulfide	mg/kg	0.5	<0.5	<0.5
trans-1,2-dichloroethene	mg/kg	0.1	<0.1	<0.1
MtBE (Methyl-tert-butyl ether)	mg/kg	0.1	<0.1	<0.1
1,1-dichloroethane	mg/kg	0.1	<0.1	<0.1
Vinyl acetate	mg/kg	10	<10	<10
MEK (2-butanone)	mg/kg	10	<10	<10
cis-1,2-dichloroethene	mg/kg	0.1	<0.1	<0.1
Bromochloromethane	mg/kg	0.1	<0.1	<0.1
Chloroform	mg/kg	0.1	<0.1	<0.1
2,2-dichloropropane	mg/kg	0.1	<0.1	<0.1
1,2-dichloroethane	mg/kg	0.1	<0.1	<0.1
1,1,1-trichloroethane	mg/kg	0.1	<0.1	<0.1
1,1-dichloropropene	mg/kg	0.1	<0.1	<0.1
Carbon tetrachloride	mg/kg	0.1	<0.1	<0.1
Dibromomethane	mg/kg	0.1	<0.1	<0.1
1,2-dichloropropane	mg/kg	0.1	<0.1	<0.1
Trichloroethene (Trichloroethylene -TCE)	mg/kg	0.1	<0.1	<0.1
2-nitropropane	mg/kg	10	<10	<10
Bromodichloromethane	mg/kg	0.1	<0.1	<0.1
MIBK (4-methyl-2-pentanone)	mg/kg	1	<1	<1
cis-1,3-dichloropropene	mg/kg	0.1	<0.1	<0.1
trans-1,3-dichloropropene	mg/kg	0.1	<0.1	<0.1
1,1,2-trichloroethane	mg/kg	0.1	<0.1	<0.1
1,3-dichloropropane	mg/kg	0.1	<0.1	<0.1
Chlorodibromomethane	mg/kg	0.1	<0.1	<0.1
2-hexanone (MBK)	mg/kg	5	<5	<5
1,2-dibromoethane (EDB)	mg/kg	0.1	<0.1	<0.1
Tetrachloroethene (Perchloroethylene,PCE)	mg/kg	0.1	<0.1	<0.1
1,1,1,2-tetrachloroethane	mg/kg	0.1	<0.1	<0.1
Chlorobenzene	mg/kg	0.1	<0.1	<0.1
Bromoform	mg/kg	0.1	<0.1	<0.1
cis-1,4-dichloro-2-butene	mg/kg	1	<1	<1
Styrene (Vinyl benzene)	mg/kg	0.1	<0.1	<0.1
1,1,2,2-tetrachloroethane	mg/kg	0.1	<0.1	<0.1
1,2,3-trichloropropane	mg/kg	0.1	<0.1	<0.1
trans-1,4-dichloro-2-butene	mg/kg	1	<1	<1

VOC's in Soil [AN433] Tested: 11/6/2019 (continued)

PARAMETER	UOM	LOR	QA500B SOIL - 1/6/2019 SE193855.001	QA501B SOIL - 2/6/2019 SE193855.002
Isopropylbenzene (Cumene)	mg/kg	0.1	<0.1	<0.1
Bromobenzene	mg/kg	0.1	<0.1	<0.1
n-propylbenzene	mg/kg	0.1	<0.1	<0.1
2-chlorotoluene	mg/kg	0.1	<0.1	<0.1
4-chlorotoluene	mg/kg	0.1	<0.1	<0.1
1,3,5-trimethylbenzene	mg/kg	0.1	<0.1	<0.1
tert-butylbenzene	mg/kg	0.1	<0.1	<0.1
1,2,4-trimethylbenzene	mg/kg	0.1	<0.1	<0.1
sec-butylbenzene	mg/kg	0.1	<0.1	<0.1
1,3-dichlorobenzene	mg/kg	0.1	<0.1	<0.1
1,4-dichlorobenzene	mg/kg	0.1	<0.1	<0.1
p-isopropyltoluene	mg/kg	0.1	<0.1	<0.1
1,2-dichlorobenzene	mg/kg	0.1	<0.1	<0.1
n-butylbenzene	mg/kg	0.1	<0.1	<0.1
1,2-dibromo-3-chloropropane	mg/kg	0.1	<0.1	<0.1
1,2,4-trichlorobenzene	mg/kg	0.1	<0.1	<0.1
Hexachlorobutadiene	mg/kg	0.1	<0.1	<0.1
1,2,3-trichlorobenzene	mg/kg	0.1	<0.1	<0.1
Total VOC*	mg/kg	24	<24	<24
Total Volatile Chlorinated Hydrocarbons*	mg/kg	3	<3.0	<3.0
Total Chlorinated Hydrocarbons VIC EPA*	mg/kg	1.8	<1.8	<1.8
Total Other Chlorinated Hydrocarbons VIC EPA*	mg/kg	1.8	<1.8	<1.8

Volatile Petroleum Hydrocarbons in Soil [AN433] Tested: 11/6/2019

PARAMETER	UOM	LOR	QA500B SOIL - 1/6/2019 SE193855.001	QA501B SOIL - 2/6/2019 SE193855.002
TRH C6-C9	mg/kg	20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 11/6/2019

PARAMETER	UOM	LOR	QA500B SOIL - 1/6/2019 SE193855.001	QA501B SOIL - 2/6/2019 SE193855.002
TRH C10-C14	mg/kg	20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100
TRH >C10-C16	mg/kg	25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110
TRH C10-C40 Total (F bands)	mg/kg	210	<210	<210

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 11/6/2019

PARAMETER	UOM	LOR	QA500B SOIL - 1/6/2019 SE193855.001	QA501B SOIL - 2/6/2019 SE193855.002
Naphthalene	mg/kg	0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	**0.3**	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	**0.6**	<0.1
Pyrene	mg/kg	0.1	**0.6**	<0.1
Benzo(a)anthracene	mg/kg	0.1	**0.4**	<0.1
Chrysene	mg/kg	0.1	**0.5**	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	**0.6**	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	**0.3**	<0.1
Benzo(a)pyrene	mg/kg	0.1	**0.6**	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	**0.3**	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	**0.3**	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	**0.7**	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	**0.8**	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	**0.8**	<0.2
Total PAH (18)	mg/kg	0.8	**4.5**	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	**4.5**	<0.8

OC Pesticides in Soil [AN420] Tested: 11/6/2019

PARAMETER	UOM	LOR	QA500B SOIL - 1/6/2019 SE193855.001	QA501B SOIL - 2/6/2019 SE193855.002
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	**0.2**
Endrin	mg/kg	0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1
Total CLP OC Pesticides	mg/kg	1	<1	<1

OP Pesticides in Soil [AN420] Tested: 11/6/2019

PARAMETER	UOM	LOR	QA500B SOIL - 1/6/2019 SE193855.001	QA501B SOIL - 2/6/2019 SE193855.002
Dichlorvos	mg/kg	0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2
Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7

PCBs in Soil [AN420] Tested: 11/6/2019

PARAMETER	UOM	LOR	QA500B SOIL - 1/6/2019 SE193855.001	QA501B SOIL - 2/6/2019 SE193855.002
Arochlor 1016	mg/kg	0.2	<0.2	<0.2
Arochlor 1221	mg/kg	0.2	<0.2	<0.2
Arochlor 1232	mg/kg	0.2	<0.2	<0.2
Arochlor 1242	mg/kg	0.2	<0.2	<0.2
Arochlor 1248	mg/kg	0.2	<0.2	<0.2
Arochlor 1254	mg/kg	0.2	<0.2	<0.2
Arochlor 1260	mg/kg	0.2	<0.2	<0.2
Arochlor 1262	mg/kg	0.2	<0.2	<0.2
Arochlor 1268	mg/kg	0.2	<0.2	<0.2
Total PCBs (Arochlors)	mg/kg	1	<1	<1

Total Phenolics in Soil [AN289] Tested: 14/6/2019

PARAMETER	UOM	LOR	QA500B SOIL - 1/6/2019 SE193855.001	QA501B SOIL - 2/6/2019 SE193855.002
Total Phenols	mg/kg	0.1	<0.1	<0.1

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 13/6/2019

PARAMETER	UOM	LOR	QA500B SOIL - 1/6/2019 SE193855.001	QA501B SOIL - 2/6/2019 SE193855.002
Arsenic, As	mg/kg	1	**8**	**3**
Cadmium, Cd	mg/kg	0.3	**0.4**	<0.3
Chromium, Cr	mg/kg	0.3	**24**	**5.2**
Copper, Cu	mg/kg	0.5	**64**	**18**
Lead, Pb	mg/kg	1	**69**	**19**
Nickel, Ni	mg/kg	0.5	**17**	**11**
Zinc, Zn	mg/kg	2	**220**	**79**

Mercury in Soil [AN312] Tested: 13/6/2019

PARAMETER	UOM	LOR	QA500B SOIL - 1/6/2019 SE193855.001	QA501B SOIL - 2/6/2019 SE193855.002
Mercury	mg/kg	0.05	**0.37**	<0.05

Moisture Content [AN002] Tested: 13/6/2019

PARAMETER	UOM	LOR	QA500B SOIL - 1/6/2019 SE193855.001	QA501B SOIL - 2/6/2019 SE193855.002
% Moisture	%w/w	0.5	**14**	**12**

METHOD	METHODOLOGY SUMMARY
AN002	The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.
AN040/AN320	A portion of sample is digested with nitric acid to decompose organic matter and hydrochloric acid to complete the digestion of metals. The digest is then analysed by ICP OES with metals results reported on the dried sample basis. Based on USEPA method 200.8 and 6010C.
AN040	A portion of sample is digested with Nitric acid to decompose organic matter and Hydrochloric acid to complete the digestion of metals and then filtered for analysis by ASS or ICP as per USEPA Method 200.8.
AN289	Analysis of Total Phenols in Soil Sediment and Water: Steam distillable phenols react with 4-aminoantipyrine at pH 7.9±0.1 in the presence of potassium ferricyanide to form a coloured antipyrine dye analysed by Discrete Analyser. Reference APHA 5530 B/D.
AN312	Mercury by Cold Vapour AAS in Soils: After digestion with nitric acid, hydrogen peroxide and hydrochloric acid, mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser. Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500
AN403	Total Recoverable Hydrocarbons: Determination of Hydrocarbons by gas chromatography after a solvent extraction. Detection is by flame ionisation detector (FID) that produces an electronic signal in proportion to the combustible matter passing through it. Total Recoverable Hydrocarbons (TRH) are routinely reported as four alkane groupings based on the carbon chain length of the compounds: C6-C9, C10-C14, C15-C28 and C29-C36 and in recognition of the NEPM 1999 (2013), >C10-C16 (F2), >C16-C34 (F3) and >C34-C40 (F4). F2 is reported directly and also corrected by subtracting Naphthalene (from VOC method AN433) where available.
AN403	Additionally, the volatile C6-C9 fraction may be determined by a purge and trap technique and GC/MS because of the potential for volatiles loss. Total Recoverable Hydrocarbons - Silica (TRH-Si) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with differential polarity of the eluent solvents .
AN403	The GC/FID method is not well suited to the analysis of refined high boiling point materials (ie lubricating oils or greases) but is particularly suited for measuring diesel, kerosene and petrol if care to control volatility is taken. This method will detect naturally occurring hydrocarbons, lipids, animal fats, phenols and PAHs if they are present at sufficient levels, dependent on the use of specific cleanup/fractionation techniques. Reference USEPA 3510B, 8015B.
AN420	(SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols (etc) in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN420	SVOC Compounds: Semi-Volatile Organic Compounds (SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN433	VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC`s are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.

FOOTNOTES

*	NATA accreditation does not cover the performance of this service.	-	Not analysed.	UOM	Unit of Measure.
		NVL	Not validated.	LOR	Limit of Reporting.
**	Indicative data, theoretical holding time exceeded.	IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
		LNR	Sample listed, but not received.		

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

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

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

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

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

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

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

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

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STATEMENT OF QA/QC PERFORMANCE

SE193855 R0

CLIENT DETAILS

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Facsimile	02 9478 3901
Email	bhouston@golder.com.au
Project	**1791865 Marrickville**
Order Number	**SCOC10**
Samples	2

LABORATORY DETAILS

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Laboratory	SGS Alexandria Environmental
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Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE193855 R0**
Date Received	07 Jun 2019
Date Reported	18 Jun 2019

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document.
This QA/QC Statement must be read in conjunction with the referenced Analytical Report.
The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met with the exception of the following:

Analysis Date	Total Phenolics in Soil	2 items
Duplicate	Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES	1 item
Matrix Spike	Total Phenolics in Soil	1 item
	Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES	3 items

SAMPLE SUMMARY

HOLDING TIME SUMMARY

SE193855 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS “Field Sampling Guide for Containers and Holding Time” (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
QA500B	SE193855.001	LB176099	01 Jun 2019	07 Jun 2019	29 Jun 2019	13 Jun 2019	29 Jun 2019	17 Jun 2019
QA501B	SE193855.002	LB176099	02 Jun 2019	07 Jun 2019	30 Jun 2019	13 Jun 2019	30 Jun 2019	17 Jun 2019

Moisture Content

Method: ME-(AU)-[ENV]AN002

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
QA500B	SE193855.001	LB176097	01 Jun 2019	07 Jun 2019	15 Jun 2019	13 Jun 2019	18 Jun 2019	17 Jun 2019
QA501B	SE193855.002	LB176097	02 Jun 2019	07 Jun 2019	16 Jun 2019	13 Jun 2019	18 Jun 2019	17 Jun 2019

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
QA500B	SE193855.001	LB175965	01 Jun 2019	07 Jun 2019	15 Jun 2019	11 Jun 2019	21 Jul 2019	17 Jun 2019
QA501B	SE193855.002	LB175965	02 Jun 2019	07 Jun 2019	16 Jun 2019	11 Jun 2019	21 Jul 2019	17 Jun 2019

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
QA500B	SE193855.001	LB175965	01 Jun 2019	07 Jun 2019	15 Jun 2019	11 Jun 2019	21 Jul 2019	17 Jun 2019
QA501B	SE193855.002	LB175965	02 Jun 2019	07 Jun 2019	16 Jun 2019	11 Jun 2019	21 Jul 2019	17 Jun 2019

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
QA500B	SE193855.001	LB175965	01 Jun 2019	07 Jun 2019	15 Jun 2019	11 Jun 2019	21 Jul 2019	17 Jun 2019
QA501B	SE193855.002	LB175965	02 Jun 2019	07 Jun 2019	16 Jun 2019	11 Jun 2019	21 Jul 2019	17 Jun 2019

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
QA500B	SE193855.001	LB175965	01 Jun 2019	07 Jun 2019	15 Jun 2019	11 Jun 2019	21 Jul 2019	17 Jun 2019
QA501B	SE193855.002	LB175965	02 Jun 2019	07 Jun 2019	16 Jun 2019	11 Jun 2019	21 Jul 2019	17 Jun 2019

Total Phenolics in Soil

Method: ME-(AU)-[ENV]AN289

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
QA500B	SE193855.001	LB176177	01 Jun 2019	07 Jun 2019	15 Jun 2019	14 Jun 2019	15 Jun 2019	17 Jun 2019†
QA501B	SE193855.002	LB176177	02 Jun 2019	07 Jun 2019	16 Jun 2019	14 Jun 2019	16 Jun 2019	17 Jun 2019†

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
QA500B	SE193855.001	LB176098	01 Jun 2019	07 Jun 2019	28 Nov 2019	13 Jun 2019	28 Nov 2019	17 Jun 2019
QA501B	SE193855.002	LB176098	02 Jun 2019	07 Jun 2019	29 Nov 2019	13 Jun 2019	29 Nov 2019	17 Jun 2019

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
QA500B	SE193855.001	LB175965	01 Jun 2019	07 Jun 2019	15 Jun 2019	11 Jun 2019	21 Jul 2019	17 Jun 2019
QA501B	SE193855.002	LB175965	02 Jun 2019	07 Jun 2019	16 Jun 2019	11 Jun 2019	21 Jul 2019	17 Jun 2019

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
QA500B	SE193855.001	LB175958	01 Jun 2019	07 Jun 2019	15 Jun 2019	11 Jun 2019	21 Jul 2019	18 Jun 2019
QA501B	SE193855.002	LB175958	02 Jun 2019	07 Jun 2019	16 Jun 2019	11 Jun 2019	21 Jul 2019	18 Jun 2019

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
QA500B	SE193855.001	LB175958	01 Jun 2019	07 Jun 2019	15 Jun 2019	11 Jun 2019	21 Jul 2019	18 Jun 2019
QA501B	SE193855.002	LB175958	02 Jun 2019	07 Jun 2019	16 Jun 2019	11 Jun 2019	21 Jul 2019	18 Jun 2019

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	QA500B	SE193855.001	%	60 - 130%	112
	QA501B	SE193855.002	%	60 - 130%	115

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	QA500B	SE193855.001	%	60 - 130%	86
	QA501B	SE193855.002	%	60 - 130%	82
d14-p-terphenyl (Surrogate)	QA500B	SE193855.001	%	60 - 130%	90
	QA501B	SE193855.002	%	60 - 130%	80

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	QA500B	SE193855.001	%	70 - 130%	86
	QA501B	SE193855.002	%	70 - 130%	82
d14-p-terphenyl (Surrogate)	QA500B	SE193855.001	%	70 - 130%	90
	QA501B	SE193855.002	%	70 - 130%	80
d5-nitrobenzene (Surrogate)	QA500B	SE193855.001	%	70 - 130%	90
	QA501B	SE193855.002	%	70 - 130%	84

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	QA500B	SE193855.001	%	60 - 130%	112
	QA501B	SE193855.002	%	60 - 130%	115

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	QA500B	SE193855.001	%	60 - 130%	76
	QA501B	SE193855.002	%	60 - 130%	76
d4-1,2-dichloroethane (Surrogate)	QA500B	SE193855.001	%	60 - 130%	85
	QA501B	SE193855.002	%	60 - 130%	90
d8-toluene (Surrogate)	QA500B	SE193855.001	%	60 - 130%	77
	QA501B	SE193855.002	%	60 - 130%	80
Dibromofluoromethane (Surrogate)	QA500B	SE193855.001	%	60 - 130%	72
	QA501B	SE193855.002	%	60 - 130%	77

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	QA500B	SE193855.001	%	60 - 130%	76
	QA501B	SE193855.002	%	60 - 130%	76
d4-1,2-dichloroethane (Surrogate)	QA500B	SE193855.001	%	60 - 130%	85
	QA501B	SE193855.002	%	60 - 130%	90
d8-toluene (Surrogate)	QA500B	SE193855.001	%	60 - 130%	77
	QA501B	SE193855.002	%	60 - 130%	80
Dibromofluoromethane (Surrogate)	QA500B	SE193855.001	%	60 - 130%	72
	QA501B	SE193855.002	%	60 - 130%	77

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result
LB176099.001	Mercury	mg/kg	0.05	<0.05

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB175965.001		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1
		Alpha BHC	mg/kg	0.1	<0.1
		Lindane	mg/kg	0.1	<0.1
		Heptachlor	mg/kg	0.1	<0.1
		Aldrin	mg/kg	0.1	<0.1
		Beta BHC	mg/kg	0.1	<0.1
		Delta BHC	mg/kg	0.1	<0.1
		Heptachlor epoxide	mg/kg	0.1	<0.1
		Alpha Endosulfan	mg/kg	0.2	<0.2
		Gamma Chlordane	mg/kg	0.1	<0.1
		Alpha Chlordane	mg/kg	0.1	<0.1
		p,p'-DDE	mg/kg	0.1	<0.1
		Dieldrin	mg/kg	0.2	<0.2
		Endrin	mg/kg	0.2	<0.2
		Beta Endosulfan	mg/kg	0.2	<0.2
		p,p'-DDD	mg/kg	0.1	<0.1
		p,p'-DDT	mg/kg	0.1	<0.1
		Endosulfan sulphate	mg/kg	0.1	<0.1
		Endrin Aldehyde	mg/kg	0.1	<0.1
		Methoxychlor	mg/kg	0.1	<0.1
		Endrin Ketone	mg/kg	0.1	<0.1
		Isodrin	mg/kg	0.1	<0.1
		Mirex	mg/kg	0.1	<0.1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	105

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB175965.001		Dichlorvos	mg/kg	0.5	<0.5
		Dimethoate	mg/kg	0.5	<0.5
		Diazinon (Dimpylate)	mg/kg	0.5	<0.5
		Fenitrothion	mg/kg	0.2	<0.2
		Malathion	mg/kg	0.2	<0.2
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2
		Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2
		Bromophos Ethyl	mg/kg	0.2	<0.2
		Methidathion	mg/kg	0.5	<0.5
		Ethion	mg/kg	0.2	<0.2
		Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2
	Surrogates	2-fluorobiphenyl (Surrogate)	%	-	94
		d14-p-terphenyl (Surrogate)	%	-	82

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result
LB175965.001	Naphthalene	mg/kg	0.1	<0.1
	2-methylnaphthalene	mg/kg	0.1	<0.1
	1-methylnaphthalene	mg/kg	0.1	<0.1
	Acenaphthylene	mg/kg	0.1	<0.1
	Acenaphthene	mg/kg	0.1	<0.1
	Fluorene	mg/kg	0.1	<0.1
	Phenanthrene	mg/kg	0.1	<0.1
	Anthracene	mg/kg	0.1	<0.1
	Fluoranthene	mg/kg	0.1	<0.1
	Pyrene	mg/kg	0.1	<0.1
	Benzo(a)anthracene	mg/kg	0.1	<0.1
	Chrysene	mg/kg	0.1	<0.1
	Benzo(a)pyrene	mg/kg	0.1	<0.1

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB175965.001		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1
		Dibenzo(ah)anthracene	mg/kg	0.1	<0.1
		Benzo(ghi)perylene	mg/kg	0.1	<0.1
		Total PAH (18)	mg/kg	0.8	<0.8
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	98
		2-fluorobiphenyl (Surrogate)	%	-	94
		d14-p-terphenyl (Surrogate)	%	-	82

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB175965.001		Arochlor 1016	mg/kg	0.2	<0.2
		Arochlor 1221	mg/kg	0.2	<0.2
		Arochlor 1232	mg/kg	0.2	<0.2
		Arochlor 1242	mg/kg	0.2	<0.2
		Arochlor 1248	mg/kg	0.2	<0.2
		Arochlor 1254	mg/kg	0.2	<0.2
		Arochlor 1260	mg/kg	0.2	<0.2
		Arochlor 1262	mg/kg	0.2	<0.2
		Arochlor 1268	mg/kg	0.2	<0.2
		Total PCBs (Arochlors)	mg/kg	1	<1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	105

Total Phenolics in Soil

Method: ME-(AU)-[ENV]AN289

Sample Number	Parameter	Units	LOR	Result
LB176177.001	Total Phenols	mg/kg	0.1	<0.1

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result
LB176098.001	Arsenic, As	mg/kg	1	<1
	Cadmium, Cd	mg/kg	0.3	<0.3
	Chromium, Cr	mg/kg	0.3	<0.3
	Copper, Cu	mg/kg	0.5	<0.5
	Nickel, Ni	mg/kg	0.5	<0.5
	Lead, Pb	mg/kg	1	<1
	Zinc, Zn	mg/kg	2	<2.0

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR	Result
LB175965.001	TRH C10-C14	mg/kg	20	<20
	TRH C15-C28	mg/kg	45	<45
	TRH C29-C36	mg/kg	45	<45
	TRH C37-C40	mg/kg	100	<100
	TRH C10-C36 Total	mg/kg	110	<110

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB175958.001	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1
	Hydrocarbons	Toluene	mg/kg	0.1	<0.1
		Ethylbenzene	mg/kg	0.1	<0.1
		m/p-xylene	mg/kg	0.2	<0.2
		o-xylene	mg/kg	0.1	<0.1
	Polycyclic VOCs	Naphthalene	mg/kg	0.1	<0.1
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	73
		d4-1,2-dichloroethane (Surrogate)	%	-	89
		d8-toluene (Surrogate)	%	-	78
		Bromofluorobenzene (Surrogate)	%	-	72
	Totals	Total BTEX	mg/kg	0.6	<0.6

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number	Parameter	Units	LOR

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Volatile Petroleum Hydrocarbons in Soil (continued) — **Method: ME-(AU)-[ENV]AN433**

Sample Number		Parameter	Units	LOR	Result
LB175958.001		TRH C6-C9	mg/kg	20	<20
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	73
		d4-1,2-dichloroethane (Surrogate)	%	-	89
		d8-toluene (Surrogate)	%	-	78

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE193841.005	LB176099.014	Mercury	mg/kg	0.05	<0.05	<0.05	200	0
SE193855.002	LB176099.017	Mercury	mg/kg	0.05	<0.05	<0.05	200	0

Moisture Content

Method: ME-(AU)-[ENV]AN002

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE193825.002	LB176097.011	% Moisture	%w/w	0.5	23.426061493	21.1480362537	34	10
SE193855.002	LB176097.032	% Moisture	%w/w	0.5	12	9.4	39	23
SE193856.002	LB176097.022	% Moisture	%w/w	0.5	5.7	6.1	47	7

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE193827.008	LB175965.027		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Lindane	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor	mg/kg	0.1	<0.1	<0.1	200	0
			Aldrin	mg/kg	0.1	<0.1	<0.1	200	0
			Beta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Delta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Dieldrin	mg/kg	0.2	<0.2	<0.2	200	0
			Endrin	mg/kg	0.2	<0.2	<0.2	200	0
			o,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			p,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	200	0
			Methoxychlor	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Ketone	mg/kg	0.1	<0.1	<0.1	200	0
			Isodrin	mg/kg	0.1	<0.1	<0.1	200	0
			Mirex	mg/kg	0.1	<0.1	<0.1	200	0
			Total CLP OC Pesticides	mg/kg	1	<1	<1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.15	0.15	30	3
SE193897.008	LB175965.023		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Lindane	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor	mg/kg	0.1	<0.1	<0.1	200	0
			Aldrin	mg/kg	0.1	<0.1	<0.1	200	0
			Beta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Delta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Dieldrin	mg/kg	0.2	<0.2	<0.2	200	0
			Endrin	mg/kg	0.2	<0.2	<0.2	200	0
			o,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			p,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE193897.008	LB175965.023		p,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	200	0
			Methoxychlor	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Ketone	mg/kg	0.1	<0.1	<0.1	200	0
			Isodrin	mg/kg	0.1	<0.1	<0.1	200	0
			Mirex	mg/kg	0.1	<0.1	<0.1	200	0
			Total CLP OC Pesticides	mg/kg	1	<1	<1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.16	0.16	30	2

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE193827.009	LB175965.025		Dichlorvos	mg/kg	0.5	<0.5	<0.5	200	0
			Dimethoate	mg/kg	0.5	<0.5	<0.5	200	0
			Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	200	0
			Fenitrothion	mg/kg	0.2	<0.2	<0.2	200	0
			Malathion	mg/kg	0.2	<0.2	<0.2	200	0
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	200	0
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	200	0
			Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	200	0
			Methidathion	mg/kg	0.5	<0.5	<0.5	200	0
			Ethion	mg/kg	0.2	<0.2	<0.2	200	0
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	200	0
			Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	200	0
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	30	11
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	6
SE193897.008	LB175965.023		Dichlorvos	mg/kg	0.5	<0.5	<0.5	200	0
			Dimethoate	mg/kg	0.5	<0.5	<0.5	200	0
			Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	200	0
			Fenitrothion	mg/kg	0.2	<0.2	<0.2	200	0
			Malathion	mg/kg	0.2	<0.2	<0.2	200	0
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	200	0
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	200	0
			Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	200	0
			Methidathion	mg/kg	0.5	<0.5	<0.5	200	0
			Ethion	mg/kg	0.2	<0.2	<0.2	200	0
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	200	0
			Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	200	0
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4	30	2
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.4	30	0

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE193827.009	LB175965.025	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		Acenaphthylene	mg/kg	0.1	<0.1	<0.1	200	0
		Acenaphthene	mg/kg	0.1	<0.1	<0.1	200	0
		Fluorene	mg/kg	0.1	<0.1	<0.1	200	0
		Phenanthrene	mg/kg	0.1	<0.1	<0.1	200	0
		Anthracene	mg/kg	0.1	<0.1	<0.1	200	0
		Fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
		Pyrene	mg/kg	0.1	<0.1	<0.1	200	0
		Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
		Chrysene	mg/kg	0.1	<0.1	<0.1	200	0
		Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
		Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
		Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
		Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
		Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	200	0
		Carcinogenic PAHs, BaP TEQ <LOR=0	mg/kg	0.2	<0.2	<0.2	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE193827.009	LB175965.025		Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	mg/kg	0.3	<0.3	<0.3	134	0
				TEQ (mg/kg)	0.3	<0.3	<0.3	134	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	mg/kg	0.2	<0.2	<0.2	175	0
				TEQ (mg/kg)	0.2	<0.2	<0.2	175	0
			Total PAH (18)	mg/kg	0.8	<0.8	<0.8	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.4	30	7
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	30	11
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	6
SE193897.008	LB175965.023		Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthylene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluorene	mg/kg	0.1	<0.1	<0.1	200	0
			Phenanthrene	mg/kg	0.1	<0.1	<0.1	200	0
			Anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Chrysene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=0	mg/kg	0.2	<0.2	<0.2	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	mg/kg	0.3	<0.3	<0.3	134	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	mg/kg	0.2	<0.2	<0.2	175	0
			Total PAH (18)	mg/kg	0.8	<0.8	<0.8	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.4	30	5
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4	30	2
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.4	30	0

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE193827.008	LB175965.025		Arochlor 1016	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1221	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1232	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1242	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1248	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1254	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1260	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1262	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1268	mg/kg	0.2	<0.2	<0.2	200	0
			Total PCBs (Arochlors)	mg/kg	1	<1	<1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0	0	30	3
SE193897.008	LB175965.023		Arochlor 1016	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1221	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1232	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1242	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1248	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1254	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1260	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1262	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1268	mg/kg	0.2	<0.2	<0.2	200	0
			Total PCBs (Arochlors)	mg/kg	1	<1	<1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0	0	30	2

Total Phenolics in Soil

Method: ME-(AU)-[ENV]AN289

Original	Duplicate	Parameter	Units	LOR

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Total Phenolics in Soil (continued)

Method: ME-(AU)-[ENV]AN289

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE193855.001	LB176177.004	Total Phenols	mg/kg	0.1	<0.1	<0.1	131	0

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE193841.005	LB176098.014	Arsenic, As	mg/kg	1	<3	<3	200	0
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
		Chromium, Cr	mg/kg	0.3	1.5	1.3	65	13
		Copper, Cu	mg/kg	0.5	1.5	1.6	63	11
		Nickel, Ni	mg/kg	0.5	0.8	1.1	82	37
		Lead, Pb	mg/kg	1	1	1	103	0
		Zinc, Zn	mg/kg	2	11	15	46	32
SE193855.002	LB176098.017	Arsenic, As	mg/kg	1	3	5	54	40
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
		Chromium, Cr	mg/kg	0.3	5.2	5.4	39	3
		Copper, Cu	mg/kg	0.5	18	27	32	39 ②
		Nickel, Ni	mg/kg	0.5	11	14	34	20
		Lead, Pb	mg/kg	1	19	19	35	4
		Zinc, Zn	mg/kg	2	79	82	32	5

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE193827.009	LB175965.025		TRH C10-C14	mg/kg	20	<20	<20	200	0
			TRH C15-C28	mg/kg	45	<45	<45	200	0
			TRH C29-C36	mg/kg	45	<45	<45	200	0
			TRH C37-C40	mg/kg	100	<100	<100	200	0
			TRH C10-C36 Total	mg/kg	110	<110	<110	200	0
			TRH C10-C40 Total (F bands)	mg/kg	210	<210	<210	200	0
		TRH F Bands	TRH >C10-C16	mg/kg	25	<25	<25	200	0
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	200	0
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	200	0
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	200	0
SE193897.008	LB175965.023		TRH C10-C14	mg/kg	20	<20	<20	200	0
			TRH C15-C28	mg/kg	45	<45	54	125	18
			TRH C29-C36	mg/kg	45	<45	<45	200	0
			TRH C37-C40	mg/kg	100	<100	<100	200	0
			TRH C10-C36 Total	mg/kg	110	<110	<110	200	0
			TRH C10-C40 Total (F bands)	mg/kg	210	<210	<210	200	0
		TRH F Bands	TRH >C10-C16	mg/kg	25	<25	<25	200	0
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	200	0
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	200	0
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	200	0

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE193897.008	LB175958.025	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
		Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.7	3.5	50	6
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.7	4.4	50	8
			d8-toluene (Surrogate)	mg/kg	-	4.3	3.8	50	14
			Bromofluorobenzene (Surrogate)	mg/kg	-	3.8	3.8	50	1
		Totals	Total Xylenes	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX	mg/kg	0.6	<0.6	<0.6	200	0

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Volatile Petroleum Hydrocarbons in Soil (continued) — **Method: ME-(AU)-[ENV]AN433**

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE193897.008	LB175958.025		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.7	3.5	30	6
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.7	4.4	30	8
			d8-toluene (Surrogate)	mg/kg	-	4.3	3.8	30	14
			Bromofluorobenzene (Surrogate)	mg/kg	-	3.8	3.8	30	1
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB176099.002	Mercury	mg/kg	0.05	0.24	0.2	70 - 130	118

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB175965.002		Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	105
		Aldrin	mg/kg	0.1	0.2	0.2	60 - 140	114
		Delta BHC	mg/kg	0.1	0.2	0.2	60 - 140	102
		Dieldrin	mg/kg	0.2	0.2	0.2	60 - 140	104
		Endrin	mg/kg	0.2	<0.2	0.2	60 - 140	96
		p,p'-DDT	mg/kg	0.1	0.2	0.2	60 - 140	85
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.16	0.15	40 - 130	104

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB175965.002		Dichlorvos	mg/kg	0.5	2.5	2	60 - 140	127
		Diazinon (Dimpylate)	mg/kg	0.5	2.2	2	60 - 140	109
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	2.1	2	60 - 140	105
		Ethion	mg/kg	0.2	1.8	2	60 - 140	88
	Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	80
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	72

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB175965.002		Naphthalene	mg/kg	0.1	4.0	4	60 - 140	100
		Acenaphthylene	mg/kg	0.1	3.9	4	60 - 140	97
		Acenaphthene	mg/kg	0.1	4.3	4	60 - 140	106
		Phenanthrene	mg/kg	0.1	4.5	4	60 - 140	113
		Anthracene	mg/kg	0.1	4.2	4	60 - 140	105
		Fluoranthene	mg/kg	0.1	3.9	4	60 - 140	99
		Pyrene	mg/kg	0.1	4.3	4	60 - 140	109
		Benzo(a)pyrene	mg/kg	0.1	4.8	4	60 - 140	120
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	94
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	80
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	72

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB175965.002	Arochlor 1260	mg/kg	0.2	0.4	0.4	60 - 140	94

Total Phenolics in Soil

Method: ME-(AU)-[ENV]AN289

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB176177.002	Total Phenols	mg/kg	0.1	2.5	2.5	70 - 130	99

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB176098.002	Arsenic, As	mg/kg	1	340	336.32	79 - 120	100
	Cadmium, Cd	mg/kg	0.3	420	416.6	69 - 131	102
	Chromium, Cr	mg/kg	0.3	32	35.2	80 - 120	90
	Copper, Cu	mg/kg	0.5	320	370.46	80 - 120	86
	Nickel, Ni	mg/kg	0.5	180	210.88	79 - 120	85
	Lead, Pb	mg/kg	1	92	107.87	79 - 120	86
	Zinc, Zn	mg/kg	2	280	301.27	80 - 121	93

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB175965.002	TRH C10-C14	mg/kg	20	33	40	60 - 140	83
	TRH C15-C28	mg/kg	45	<45	40	60 - 140	78
	TRH C29-C36	mg/kg	45	<45	40	60 - 140	85

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

TRH (Total Recoverable Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN403

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB175965.002	TRH F Bands	TRH >C10-C16	mg/kg	25	32	40	60 - 140	80
		TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	85
		TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	85

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB175958.002	Monocyclic	Benzene	mg/kg	0.1	1.9	2.9	60 - 140	67
	Aromatic	Toluene	mg/kg	0.1	1.9	2.9	60 - 140	66
		Ethylbenzene	mg/kg	0.1	1.9	2.9	60 - 140	66
		m/p-xylene	mg/kg	0.2	4.1	5.8	60 - 140	71
		o-xylene	mg/kg	0.1	2.0	2.9	60 - 140	69
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.6	5	60 - 140	73
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.5	5	60 - 140	89
		d8-toluene (Surrogate)	mg/kg	-	3.9	5	60 - 140	78
		Bromofluorobenzene (Surrogate)	mg/kg	-	3.8	5	60 - 140	76

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB175958.002		TRH C6-C10	mg/kg	25	<25	24.65	60 - 140	85
		TRH C6-C9	mg/kg	20	21	23.2	60 - 140	90
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.6	5	60 - 140	73
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.5	5	60 - 140	89
		d8-toluene (Surrogate)	mg/kg	-	3.9	5	60 - 140	78
		Bromofluorobenzene (Surrogate)	mg/kg	-	3.8	5	60 - 140	76
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	7.25	60 - 140	126

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE193825.001	LB176099.004	Mercury	mg/kg	0.05	0.26	0.05504721938	0.2	101

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE193827.003	LB175965.026		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	-	-
			Alpha BHC	mg/kg	0.1	<0.1	<0.1	-	-
			Lindane	mg/kg	0.1	<0.1	<0.1	-	-
			Heptachlor	mg/kg	0.1	0.2	<0.1	0.2	111
			Aldrin	mg/kg	0.1	0.2	<0.1	0.2	106
			Beta BHC	mg/kg	0.1	<0.1	<0.1	-	-
			Delta BHC	mg/kg	0.1	0.2	<0.1	0.2	99
			Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	-	-
			o,p'-DDE	mg/kg	0.1	<0.1	<0.1	-	-
			Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	-	-
			Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	-	-
			Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	-	-
			trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	-	-
			p,p'-DDE	mg/kg	0.1	<0.1	<0.1	-	-
			Dieldrin	mg/kg	0.2	<0.2	<0.2	0.2	93
			Endrin	mg/kg	0.2	0.2	<0.2	0.2	102
			o,p'-DDD	mg/kg	0.1	<0.1	<0.1	-	-
			o,p'-DDT	mg/kg	0.1	<0.1	<0.1	-	-
			Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	-	-
			p,p'-DDD	mg/kg	0.1	<0.1	<0.1	-	-
			p,p'-DDT	mg/kg	0.1	0.2	<0.1	0.2	102
			Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	-	-
			Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	-	-
			Methoxychlor	mg/kg	0.1	<0.1	<0.1	-	-
			Endrin Ketone	mg/kg	0.1	<0.1	<0.1	-	-
			Isodrin	mg/kg	0.1	<0.1	<0.1	-	-
			Mirex	mg/kg	0.1	<0.1	<0.1	-	-
			Total CLP OC Pesticides	mg/kg	1	1	<1	-	-
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.14	0.15	-	93

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE193827.002	LB175965.024		Dichlorvos	mg/kg	0.5	2.5	<0.5	2	123
			Dimethoate	mg/kg	0.5	<0.5	<0.5	-	-
			Diazinon (Dimpylate)	mg/kg	0.5	2.0	<0.5	2	101
			Fenitrothion	mg/kg	0.2	<0.2	<0.2	-	-
			Malathion	mg/kg	0.2	0.5	<0.2	-	-
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	1.9	<0.2	2	95
			Parathion-ethyl (Parathion)	mg/kg	0.2	0.4	<0.2	-	-
			Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	-	-
			Methidathion	mg/kg	0.5	<0.5	<0.5	-	-
			Ethion	mg/kg	0.2	2.1	<0.2	2	107
			Azinphos-methyl (Guthion)	mg/kg	0.2	3.5	<0.2	-	-
			Total OP Pesticides*	mg/kg	1.7	13	<1.7	-	-
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	-	80
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	-	90

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE193827.002	LB175965.024	Naphthalene	mg/kg	0.1	4.4	<0.1	4	110
		2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	-	-
		1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	-	-
		Acenaphthylene	mg/kg	0.1	4.9	<0.1	4	121
		Acenaphthene	mg/kg	0.1	4.6	<0.1	4	114
		Fluorene	mg/kg	0.1	<0.1	<0.1	-	-
		Phenanthrene	mg/kg	0.1	5.0	<0.1	4	125

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE193827.002	LB175965.024		Anthracene	mg/kg	0.1	4.4	<0.1	4	111
			Fluoranthene	mg/kg	0.1	4.1	<0.1	4	102
			Pyrene	mg/kg	0.1	4.5	<0.1	4	112
			Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	-	-
			Chrysene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(a)pyrene	mg/kg	0.1	4.6	<0.1	4	115
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	-	-
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	4.6	<0.2	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	4.7	<0.3	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	4.7	<0.2	-	-
			Total PAH (18)	mg/kg	0.8	36	<0.8	-	-
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.4	-	82
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	-	80
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	-	90

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE193827.003	LB175965.024		Arochlor 1016	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1221	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1232	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1242	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1248	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1254	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1260	mg/kg	0.2	0.4	<0.2	0.4	95
			Arochlor 1262	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1268	mg/kg	0.2	<0.2	<0.2	-	-
			Total PCBs (Arochlors)	mg/kg	1	<1	<1	-	-
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0	0	-	99

Total Phenolics in Soil

Method: ME-(AU)-[ENV]AN289

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE193855.002	LB176177.006	Total Phenols	mg/kg	0.1	1.3	<0.1	2.5	50 ④

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE193825.001	LB176098.004	Arsenic, As	mg/kg	1	54	8.18902230379	50	92
		Cadmium, Cd	mg/kg	0.3	49	0.28274800136	50	97
		Chromium, Cr	mg/kg	0.3	57	12.8623666283(	50	88
		Copper, Cu	mg/kg	0.5	110	34.39922854387	50	159 ④
		Nickel, Ni	mg/kg	0.5	50	7.22341120477	50	85
		Lead, Pb	mg/kg	1	70	35.15144492487	50	69 ④
		Zinc, Zn	mg/kg	2	190	111.4741655519	50	-47 ⑨

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE193827.002	LB175965.024		TRH C10-C14	mg/kg	20	37	<20	40	93
			TRH C15-C28	mg/kg	45	<45	<45	40	95
			TRH C29-C36	mg/kg	45	<45	<45	40	100
			TRH C37-C40	mg/kg	100	<100	<100	-	-
			TRH C10-C36 Total	mg/kg	110	<110	<110	-	-
			TRH C10-C40 Total (F bands)	mg/kg	210	<210	<210	-	-
		TRH F Bands	TRH >C10-C16	mg/kg	25	38	<25	40	95
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	38	<25	-	-
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	40	100
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	-	-

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE193897.001	LB175958.026	Monocyclic	Benzene	mg/kg	0.1	1.8	<0.1	2.9	62
		Aromatic	Toluene	mg/kg	0.1	1.9	<0.1	2.9	65
			Ethylbenzene	mg/kg	0.1	1.8	<0.1	2.9	63
			m/p-xylene	mg/kg	0.2	4.0	<0.2	5.8	68
			o-xylene	mg/kg	0.1	2.0	<0.1	2.9	67
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	-	-
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.5	3.5	-	70
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.3	4.3	-	85
			d8-toluene (Surrogate)	mg/kg	-	3.8	3.9	-	77
			Bromofluorobenzene (Surrogate)	mg/kg	-	3.8	3.5	-	75
		Totals	Total Xylenes	mg/kg	0.3	5.9	<0.3	-	-
			Total BTEX	mg/kg	0.6	11	<0.6	-	-

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE193897.001	LB175958.026		TRH C6-C10	mg/kg	25	<25	<25	24.65	70
			TRH C6-C9	mg/kg	20	<20	<20	23.2	69
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.5	3.5	-	70
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.3	4.3	-	85
			d8-toluene (Surrogate)	mg/kg	-	3.8	3.9	-	77
			Bromofluorobenzene (Surrogate)	mg/kg	-	3.8	3.5	-	75
		VPH F	Benzene (F0)	mg/kg	0.1	1.8	<0.1	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	7.25	80

MATRIX SPIKE DUPLICATES

SE193855 R0

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here: https://www.sgs.com.au/~/media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022 QA QC Plan.pdf

*	NATA accreditation does not cover the performance of this service.
**	Indicative data, theoretical holding time exceeded.
-	Sample not analysed for this analyte.
IS	Insufficient sample for analysis.
LNR	Sample listed, but not received.
LOR	Limit of reporting.
QFH	QC result is above the upper tolerance.
QFL	QC result is below the lower tolerance.

①	At least 2 of 3 surrogates are within acceptance criteria.
②	RPD failed acceptance criteria due to sample heterogeneity.
③	Results less than 5 times LOR preclude acceptance criteria for RPD.
④	Recovery failed acceptance criteria due to matrix interference.
⑤	Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
⑥	LOR was raised due to sample matrix interference.
⑦	LOR was raised due to dilution of significantly high concentration of analyte in sample.
⑧	Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
⑨	Recovery failed acceptance criteria due to sample heterogeneity.
⑩	LOR was raised due to high conductivity of the sample (required dilution).
†	Refer to Analytical Report comments for further information.

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

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Address	PO BOX 1302 CROWS NEST NSW 1585
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Project	**1791865 Marrickville**
Order Number	(Not specified)
Samples	3

LABORATORY DETAILS

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SGS Reference	**SE194250 R0**
Date Received	17/6/2019
Date Reported	28/6/2019

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(4354).

PFAS subcontracted to SGS Melbourne, 10/585 Blackburn Road, Notting Hill, VIC, NATA Accreditation Numbe. 2562/14420. Report Number ME310973

SIGNATORIES

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VOC's in Soil [AN433] Tested: 24/6/2019

PARAMETER	UOM	LOR	QA502B SOIL - 11/6/2019 SE194250.001	QA504B SOIL - 11/6/2019 SE194250.003
Benzene	mg/kg	0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1
Total Xylenes	mg/kg	0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.1

Volatile Petroleum Hydrocarbons in Soil [AN433] Tested: 24/6/2019

PARAMETER	UOM	LOR	QA502B SOIL - 11/6/2019 SE194250.001	QA504B SOIL - 11/6/2019 SE194250.003
TRH C6-C9	mg/kg	20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 24/6/2019

PARAMETER	UOM	LOR	QA502B SOIL - 11/6/2019 SE194250.001	QA504B SOIL - 11/6/2019 SE194250.003
TRH C10-C14	mg/kg	20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100
TRH >C10-C16	mg/kg	25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110
TRH C10-C40 Total (F bands)	mg/kg	210	<210	<210

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 24/6/2019

PARAMETER	UOM	LOR	QA502B SOIL - 11/6/2019 SE194250.001	QA504B SOIL - 11/6/2019 SE194250.003
Naphthalene	mg/kg	0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	**0.2**	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	**1.4**	**0.2**
Anthracene	mg/kg	0.1	**0.4**	<0.1
Fluoranthene	mg/kg	0.1	**2.0**	**0.5**
Pyrene	mg/kg	0.1	**2.1**	**0.6**
Benzo(a)anthracene	mg/kg	0.1	**0.8**	**0.2**
Chrysene	mg/kg	0.1	**0.8**	**0.2**
Benzo(b&j)fluoranthene	mg/kg	0.1	**0.8**	**0.3**
Benzo(k)fluoranthene	mg/kg	0.1	**0.4**	**0.2**
Benzo(a)pyrene	mg/kg	0.1	**0.9**	**0.2**
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	**0.7**	**0.2**
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	**0.4**	**0.2**
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	**1.1**	**0.3**
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	**1.2**	**0.4**
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	**1.2**	**0.4**
Total PAH (18)	mg/kg	0.8	**11**	**2.8**
Total PAH (NEPM/WHO 16)	mg/kg	0.8	**11**	**2.8**

OC Pesticides in Soil [AN420] Tested: 24/6/2019

PARAMETER	UOM	LOR	QA502B SOIL - 11/6/2019 SE194250.001	QA504B SOIL - 11/6/2019 SE194250.003
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1
Total CLP OC Pesticides	mg/kg	1	<1	<1

OP Pesticides in Soil [AN420] Tested: 24/6/2019

PARAMETER	UOM	LOR	QA502B SOIL - 11/6/2019 SE194250.001	QA504B SOIL - 11/6/2019 SE194250.003
Dichlorvos	mg/kg	0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2
Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 25/6/2019

PARAMETER	UOM	LOR	QA502B SOIL - 11/6/2019 SE194250.001	QA504B SOIL - 11/6/2019 SE194250.003
Arsenic, As	mg/kg	1	**7**	**8**
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.3	**19**	**26**
Copper, Cu	mg/kg	0.5	**30**	**4.5**
Lead, Pb	mg/kg	1	**83**	**19**
Nickel, Ni	mg/kg	0.5	**38**	**1.6**
Zinc, Zn	mg/kg	2	**110**	**22**

Mercury in Soil [AN312] Tested: 25/6/2019

PARAMETER	UOM	LOR	QA502B SOIL - 11/6/2019 SE194250.001	QA504B SOIL - 11/6/2019 SE194250.003
Mercury	mg/kg	0.05	**0.10**	<0.05

Moisture Content [AN002] Tested: 25/6/2019

PARAMETER	UOM	LOR	QA502B SOIL - 11/6/2019 SE194250.001	QA504B SOIL - 11/6/2019 SE194250.003
% Moisture	%w/w	0.5	16	20

Sample Subcontracted [] Tested: 27/6/2019

PARAMETER	UOM	LOR	QA502B SOIL - 11/6/2019 SE194250.001	QA504B SOIL - 11/6/2019 SE194250.003
SGS Melbourne*	No unit	-	Subcontracted	Subcontracted

METHOD	METHODOLOGY SUMMARY
AN002	The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.
AN040/AN320	A portion of sample is digested with nitric acid to decompose organic matter and hydrochloric acid to complete the digestion of metals. The digest is then analysed by ICP OES with metals results reported on the dried sample basis. Based on USEPA method 200.8 and 6010C.
AN040	A portion of sample is digested with Nitric acid to decompose organic matter and Hydrochloric acid to complete the digestion of metals and then filtered for analysis by ASS or ICP as per USEPA Method 200.8.
AN312	Mercury by Cold Vapour AAS in Soils: After digestion with nitric acid, hydrogen peroxide and hydrochloric acid, mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser. Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500
AN403	Total Recoverable Hydrocarbons: Determination of Hydrocarbons by gas chromatography after a solvent extraction. Detection is by flame ionisation detector (FID) that produces an electronic signal in proportion to the combustible matter passing through it. Total Recoverable Hydrocarbons (TRH) are routinely reported as four alkane groupings based on the carbon chain length of the compounds: C6-C9, C10-C14, C15-C28 and C29-C36 and in recognition of the NEPM 1999 (2013), >C10-C16 (F2), >C16-C34 (F3) and >C34-C40 (F4). F2 is reported directly and also corrected by subtracting Naphthalene (from VOC method AN433) where available.
AN403	Additionally, the volatile C6-C9 fraction may be determined by a purge and trap technique and GC/MS because of the potential for volatiles loss. Total Recoverable Hydrocarbons - Silica (TRH-Si) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with differential polarity of the eluent solvents .
AN403	The GC/FID method is not well suited to the analysis of refined high boiling point materials (ie lubricating oils or greases) but is particularly suited for measuring diesel, kerosene and petrol if care to control volatility is taken. This method will detect naturally occurring hydrocarbons, lipids, animal fats, phenols and PAHs if they are present at sufficient levels, dependent on the use of specific cleanup/fractionation techniques. Reference USEPA 3510B, 8015B.
AN420	(SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols (etc) in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN420	SVOC Compounds: Semi-Volatile Organic Compounds (SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN433	VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC`s are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.

FOOTNOTES

*	NATA accreditation does not cover the performance of this service.	-	Not analysed.	UOM	Unit of Measure.
		NVL	Not validated.	LOR	Limit of Reporting.
**	Indicative data, theoretical holding time exceeded.	IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
		LNR	Sample listed, but not received.		

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

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

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

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

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

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

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

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

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STATEMENT OF QA/QC PERFORMANCE

SE194250 R0

CLIENT DETAILS

Contact	Barry Houston
Client	GOLDER ASSOCIATES PTY LTD
Address	PO BOX 1302 CROWS NEST NSW 1585
Telephone	02 9478 3900
Facsimile	02 9478 3901
Email	bhouston@golder.com.au
Project	**1791865 Marrickville**
Order Number	(Not specified)
Samples	3

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE194250 R0**
Date Received	17 Jun 2019
Date Reported	28 Jun 2019

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document.
This QA/QC Statement must be read in conjunction with the referenced Analytical Report.
The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met with the exception of the following:

Surrogate	VOC's in Soil	2 items
	Volatile Petroleum Hydrocarbons in Soil	2 items
Duplicate	Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES	1 item
Matrix Spike	Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES	2 items
	TRH (Total Recoverable Hydrocarbons) in Soil	3 items
	Volatile Petroleum Hydrocarbons in Soil	1 item

SAMPLE SUMMARY

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	Other Lab	Sample cooling method	Ice
Samples received in correct containers	Yes	Sample counts by matrix	3 Soils
Date documentation received	20/6/19@4:18pm	Type of documentation received	COC
Samples received in good order	Yes	Samples received without headspace	Yes
Sample temperature upon receipt	2.1°C	Sufficient sample for analysis	Yes
Turnaround time requested	Standard		

HOLDING TIME SUMMARY

SE194250 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS “Field Sampling Guide for Containers and Holding Time” (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
QA502B	SE194250.001	LB176883	11 Jun 2019	17 Jun 2019	09 Jul 2019	25 Jun 2019	09 Jul 2019	27 Jun 2019
QA504B	SE194250.003	LB176883	11 Jun 2019	17 Jun 2019	09 Jul 2019	25 Jun 2019	09 Jul 2019	27 Jun 2019

Moisture Content

Method: ME-(AU)-[ENV]AN002

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
QA502B	SE194250.001	LB176884	11 Jun 2019	17 Jun 2019	25 Jun 2019	25 Jun 2019	30 Jun 2019	27 Jun 2019
QA504B	SE194250.003	LB176884	11 Jun 2019	17 Jun 2019	25 Jun 2019	25 Jun 2019	30 Jun 2019	27 Jun 2019

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
QA502B	SE194250.001	LB176776	11 Jun 2019	17 Jun 2019	25 Jun 2019	24 Jun 2019	03 Aug 2019	26 Jun 2019
QA504B	SE194250.003	LB176776	11 Jun 2019	17 Jun 2019	25 Jun 2019	24 Jun 2019	03 Aug 2019	26 Jun 2019

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
QA502B	SE194250.001	LB176776	11 Jun 2019	17 Jun 2019	25 Jun 2019	24 Jun 2019	03 Aug 2019	27 Jun 2019
QA504B	SE194250.003	LB176776	11 Jun 2019	17 Jun 2019	25 Jun 2019	24 Jun 2019	03 Aug 2019	27 Jun 2019

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
QA502B	SE194250.001	LB176776	11 Jun 2019	17 Jun 2019	25 Jun 2019	24 Jun 2019	03 Aug 2019	27 Jun 2019
QA504B	SE194250.003	LB176776	11 Jun 2019	17 Jun 2019	25 Jun 2019	24 Jun 2019	03 Aug 2019	27 Jun 2019

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
QA502B	SE194250.001	LB176882	11 Jun 2019	17 Jun 2019	08 Dec 2019	25 Jun 2019	08 Dec 2019	27 Jun 2019
QA504B	SE194250.003	LB176882	11 Jun 2019	17 Jun 2019	08 Dec 2019	25 Jun 2019	08 Dec 2019	27 Jun 2019

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
QA502B	SE194250.001	LB176776	11 Jun 2019	17 Jun 2019	25 Jun 2019	24 Jun 2019	03 Aug 2019	27 Jun 2019
QA504B	SE194250.003	LB176776	11 Jun 2019	17 Jun 2019	25 Jun 2019	24 Jun 2019	03 Aug 2019	27 Jun 2019

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
QA502B	SE194250.001	LB176775	11 Jun 2019	17 Jun 2019	25 Jun 2019	24 Jun 2019	03 Aug 2019	27 Jun 2019
QA504B	SE194250.003	LB176775	11 Jun 2019	17 Jun 2019	25 Jun 2019	24 Jun 2019	03 Aug 2019	27 Jun 2019

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
QA502B	SE194250.001	LB176775	11 Jun 2019	17 Jun 2019	25 Jun 2019	24 Jun 2019	03 Aug 2019	27 Jun 2019
QA504B	SE194250.003	LB176775	11 Jun 2019	17 Jun 2019	25 Jun 2019	24 Jun 2019	03 Aug 2019	27 Jun 2019

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	QA502B	SE194250.001	%	60 - 130%	114
	QA504B	SE194250.003	%	60 - 130%	122

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	QA502B	SE194250.001	%	60 - 130%	96
	QA504B	SE194250.003	%	60 - 130%	78
d14-p-terphenyl (Surrogate)	QA502B	SE194250.001	%	60 - 130%	94
	QA504B	SE194250.003	%	60 - 130%	100

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	QA502B	SE194250.001	%	70 - 130%	96
	QA504B	SE194250.003	%	70 - 130%	78
d14-p-terphenyl (Surrogate)	QA502B	SE194250.001	%	70 - 130%	94
	QA504B	SE194250.003	%	70 - 130%	100
d5-nitrobenzene (Surrogate)	QA502B	SE194250.001	%	70 - 130%	88
	QA504B	SE194250.003	%	70 - 130%	82

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	QA502B	SE194250.001	%	60 - 130%	53 ①
	QA504B	SE194250.003	%	60 - 130%	55 ①
d4-1,2-dichloroethane (Surrogate)	QA502B	SE194250.001	%	60 - 130%	80
	QA504B	SE194250.003	%	60 - 130%	87
d8-toluene (Surrogate)	QA502B	SE194250.001	%	60 - 130%	72
	QA504B	SE194250.003	%	60 - 130%	81
Dibromofluoromethane (Surrogate)	QA502B	SE194250.001	%	60 - 130%	60
	QA504B	SE194250.003	%	60 - 130%	74

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	QA502B	SE194250.001	%	60 - 130%	53 ①
	QA504B	SE194250.003	%	60 - 130%	55 ①
d4-1,2-dichloroethane (Surrogate)	QA502B	SE194250.001	%	60 - 130%	80
	QA504B	SE194250.003	%	60 - 130%	87
d8-toluene (Surrogate)	QA502B	SE194250.001	%	60 - 130%	72
	QA504B	SE194250.003	%	60 - 130%	81
Dibromofluoromethane (Surrogate)	QA502B	SE194250.001	%	60 - 130%	60
	QA504B	SE194250.003	%	60 - 130%	74

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result
LB176883.001	Mercury	mg/kg	0.05	<0.05

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB176776.001		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1
		Alpha BHC	mg/kg	0.1	<0.1
		Lindane	mg/kg	0.1	<0.1
		Heptachlor	mg/kg	0.1	<0.1
		Aldrin	mg/kg	0.1	<0.1
		Beta BHC	mg/kg	0.1	<0.1
		Delta BHC	mg/kg	0.1	<0.1
		Heptachlor epoxide	mg/kg	0.1	<0.1
		Alpha Endosulfan	mg/kg	0.2	<0.2
		Gamma Chlordane	mg/kg	0.1	<0.1
		Alpha Chlordane	mg/kg	0.1	<0.1
		p,p'-DDE	mg/kg	0.1	<0.1
		Dieldrin	mg/kg	0.2	<0.2
		Endrin	mg/kg	0.2	<0.2
		Beta Endosulfan	mg/kg	0.2	<0.2
		p,p'-DDD	mg/kg	0.1	<0.1
		p,p'-DDT	mg/kg	0.1	<0.1
		Endosulfan sulphate	mg/kg	0.1	<0.1
		Endrin Aldehyde	mg/kg	0.1	<0.1
		Methoxychlor	mg/kg	0.1	<0.1
		Endrin Ketone	mg/kg	0.1	<0.1
		Isodrin	mg/kg	0.1	<0.1
		Mirex	mg/kg	0.1	<0.1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	88

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB176776.001		Dichlorvos	mg/kg	0.5	<0.5
		Dimethoate	mg/kg	0.5	<0.5
		Diazinon (Dimpylate)	mg/kg	0.5	<0.5
		Fenitrothion	mg/kg	0.2	<0.2
		Malathion	mg/kg	0.2	<0.2
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2
		Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2
		Bromophos Ethyl	mg/kg	0.2	<0.2
		Methidathion	mg/kg	0.5	<0.5
		Ethion	mg/kg	0.2	<0.2
		Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2
	Surrogates	2-fluorobiphenyl (Surrogate)	%	-	94
		d14-p-terphenyl (Surrogate)	%	-	108

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result
LB176776.001	Naphthalene	mg/kg	0.1	<0.1
	2-methylnaphthalene	mg/kg	0.1	<0.1
	1-methylnaphthalene	mg/kg	0.1	<0.1
	Acenaphthylene	mg/kg	0.1	<0.1
	Acenaphthene	mg/kg	0.1	<0.1
	Fluorene	mg/kg	0.1	<0.1
	Phenanthrene	mg/kg	0.1	<0.1
	Anthracene	mg/kg	0.1	<0.1
	Fluoranthene	mg/kg	0.1	<0.1
	Pyrene	mg/kg	0.1	<0.1
	Benzo(a)anthracene	mg/kg	0.1	<0.1
	Chrysene	mg/kg	0.1	<0.1
	Benzo(a)pyrene	mg/kg	0.1	<0.1

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB176776.001		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1
		Dibenzo(ah)anthracene	mg/kg	0.1	<0.1
		Benzo(ghi)perylene	mg/kg	0.1	<0.1
		Total PAH (18)	mg/kg	0.8	<0.8
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	96
		2-fluorobiphenyl (Surrogate)	%	-	94
		d14-p-terphenyl (Surrogate)	%	-	108

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result
LB176882.001	Arsenic, As	mg/kg	1	<1
	Cadmium, Cd	mg/kg	0.3	<0.3
	Chromium, Cr	mg/kg	0.3	<0.3
	Copper, Cu	mg/kg	0.5	<0.5
	Nickel, Ni	mg/kg	0.5	<0.5
	Lead, Pb	mg/kg	1	<1
	Zinc, Zn	mg/kg	2	<2.0

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR	Result
LB176776.001	TRH C10-C14	mg/kg	20	<20
	TRH C15-C28	mg/kg	45	<45
	TRH C29-C36	mg/kg	45	<45
	TRH C37-C40	mg/kg	100	<100
	TRH C10-C36 Total	mg/kg	110	<110

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB176775.001	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1
	Hydrocarbons	Toluene	mg/kg	0.1	<0.1
		Ethylbenzene	mg/kg	0.1	<0.1
		m/p-xylene	mg/kg	0.2	<0.2
		o-xylene	mg/kg	0.1	<0.1
	Polycyclic VOCs	Naphthalene	mg/kg	0.1	<0.1
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	73
		d4-1,2-dichloroethane (Surrogate)	%	-	83
		d8-toluene (Surrogate)	%	-	78
		Bromofluorobenzene (Surrogate)	%	-	71
	Totals	Total BTEX	mg/kg	0.6	<0.6

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB176775.001		TRH C6-C9	mg/kg	20	<20
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	73
		d4-1,2-dichloroethane (Surrogate)	%	-	83
		d8-toluene (Surrogate)	%	-	78

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE194407.002	LB176883.014	Mercury	mg/kg	0.05	<0.05	<0.05	200	0
SE194407.007	LB176883.020	Mercury	mg/kg	0.05	<0.05	<0.05	200	0

Moisture Content

Method: ME-(AU)-[ENV]AN002

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE194407.011	LB176884.025	% Moisture	%w/w	0.5	21	22	35	8

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE194123A.053	LB176776.025		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Lindane	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor	mg/kg	0.1	<0.1	<0.1	200	0
			Aldrin	mg/kg	0.1	<0.1	<0.1	200	0
			Beta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Delta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Dieldrin	mg/kg	0.2	<0.2	<0.2	200	0
			Endrin	mg/kg	0.2	<0.2	<0.2	200	0
			o,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			p,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	200	0
			Methoxychlor	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Ketone	mg/kg	0.1	<0.1	<0.1	200	0
			Isodrin	mg/kg	0.1	<0.1	<0.1	200	0
			Mirex	mg/kg	0.1	<0.1	<0.1	200	0
			Total CLP OC Pesticides	mg/kg	1	<1	<1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.15	0.14	30	3

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE194123A.049	LB176776.026		Dichlorvos	mg/kg	0.5	<0.5	<0.5	200	0
			Dimethoate	mg/kg	0.5	<0.5	<0.5	200	0
			Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	200	0
			Fenitrothion	mg/kg	0.2	<0.2	<0.2	200	0
			Malathion	mg/kg	0.2	<0.2	<0.2	200	0
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	200	0
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	200	0
			Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	200	0
			Methidathion	mg/kg	0.5	<0.5	<0.5	200	0
			Ethion	mg/kg	0.2	<0.2	<0.2	200	0
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	200	0
			Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	200	0
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.4	30	30
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	30	19

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate	Parameter	Units	LOR

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE194123A.049	LB176776.026		Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthylene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluorene	mg/kg	0.1	<0.1	<0.1	200	0
			Phenanthrene	mg/kg	0.1	<0.1	<0.1	200	0
			Anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Chrysene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=0	mg/kg	0.2	<0.2	<0.2	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	mg/kg	0.3	<0.3	<0.3	134	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	mg/kg	0.2	<0.2	<0.2	175	0
			Total PAH (18)	mg/kg	0.8	<0.8	<0.8	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	30	2
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.4	30	30
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	30	19

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE194407.002	LB176882.017		Arsenic, As	mg/kg	1	6	13.817332035(	40	76 ②
			Cadmium, Cd	mg/kg	0.3	<0.3	0.1690360272	200	0
			Chromium, Cr	mg/kg	0.3	16	13.3811100292	33	20
			Copper, Cu	mg/kg	0.5	25	19.1774099318	32	25
			Nickel, Ni	mg/kg	0.5	9.4	7.0831548198	36	28
			Lead, Pb	mg/kg	1	14	10.2239532619	38	34
			Zinc, Zn	mg/kg	2	37	28.9324245374	36	25
SE194407.011	LB176882.025		Copper, Cu	mg/kg	0.5	26	23	32	12

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE194123A.055	LB176775.014	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
		Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.4	3.2	50	5
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.5	4.3	50	5
			d8-toluene (Surrogate)	mg/kg	-	4.1	3.9	50	6
			Bromofluorobenzene (Surrogate)	mg/kg	-	2.8	2.7	50	5
		Totals	Total Xylenes	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX	mg/kg	0.6	<0.6	<0.6	200	0
SE194348.005	LB176775.023	Monocyclic	Benzene	mg/kg	0.1	0.00147955130	0.0015471040	200	0
		Aromatic	Toluene	mg/kg	0.1	0.00221768490	0.0021534266	200	0
			Ethylbenzene	mg/kg	0.1	0.00081438540	0.0009842845	200	0
			m/p-xylene	mg/kg	0.2	0.0011016442	0	200	0
			o-xylene	mg/kg	0.1	0.00068086190	0.0005822062	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	0.00299378380	0.0031263484	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	2.77390459512	2.8699715285	50	3
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	3.94653356364	4.0795230361	50	3
			d8-toluene (Surrogate)	mg/kg	-	4.20595205834	4.0163184586	50	5
			Bromofluorobenzene (Surrogate)	mg/kg	-	2.81245012432	2.7542872842	50	2
		Totals	Total Xylenes	mg/kg	0.3	0.00178250610	0.0005822062	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE194348.005	LB176775.023	Totals	Total BTEX	mg/kg	0.6	0.00629412790	0.0052670215	200	0

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE194123A.055	LB176775.014		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.4	3.2	30	5
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.5	4.3	30	5
			d8-toluene (Surrogate)	mg/kg	-	4.1	3.9	30	6
			Bromofluorobenzene (Surrogate)	mg/kg	-	2.8	2.7	30	5
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0
SE194348.005	LB176775.023		TRH C6-C10	mg/kg	25	0	0	200	0
			TRH C6-C9	mg/kg	20	0	0	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	2.77390459512	2.8699715285	30	3
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	3.94653356364	4.0795230361	30	3
			d8-toluene (Surrogate)	mg/kg	-	4.20595205834	4.0163184586	30	5
			Bromofluorobenzene (Surrogate)	mg/kg	-	2.81245012432	2.7542872842	30	2
		VPH F Bands	Benzene (F0)	mg/kg	0.1	0.00147955130	0.0015471040	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	-0.00629412790	0.0052670215	200	0

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB176883.002	Mercury	mg/kg	0.05	0.22	0.2	70 - 130	110

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB176776.002		Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	107
		Aldrin	mg/kg	0.1	0.2	0.2	60 - 140	95
		Delta BHC	mg/kg	0.1	0.2	0.2	60 - 140	95
		Dieldrin	mg/kg	0.2	<0.2	0.2	60 - 140	85
		Endrin	mg/kg	0.2	<0.2	0.2	60 - 140	92
		p,p'-DDT	mg/kg	0.1	0.2	0.2	60 - 140	107
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.12	0.15	40 - 130	79

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB176776.002		Dichlorvos	mg/kg	0.5	2.2	2	60 - 140	112
		Diazinon (Dimpylate)	mg/kg	0.5	2.2	2	60 - 140	109
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	2.4	2	60 - 140	119
		Ethion	mg/kg	0.2	2.4	2	60 - 140	120
	Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	92
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	92

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB176776.002		Naphthalene	mg/kg	0.1	4.5	4	60 - 140	113
		Acenaphthylene	mg/kg	0.1	4.7	4	60 - 140	118
		Acenaphthene	mg/kg	0.1	4.6	4	60 - 140	115
		Phenanthrene	mg/kg	0.1	4.8	4	60 - 140	120
		Anthracene	mg/kg	0.1	4.7	4	60 - 140	117
		Fluoranthene	mg/kg	0.1	4.4	4	60 - 140	111
		Pyrene	mg/kg	0.1	4.7	4	60 - 140	117
		Benzo(a)pyrene	mg/kg	0.1	4.8	4	60 - 140	119
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	86
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	92
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	92

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB176882.002	Arsenic, As	mg/kg	1	320	336.32	79 - 120	95
	Cadmium, Cd	mg/kg	0.3	420	416.6	69 - 131	100
	Chromium, Cr	mg/kg	0.3	33	35.2	80 - 120	93
	Copper, Cu	mg/kg	0.5	310	370.46	80 - 120	83
	Nickel, Ni	mg/kg	0.5	180	210.88	79 - 120	83
	Lead, Pb	mg/kg	1	88	107.87	79 - 120	82
	Zinc, Zn	mg/kg	2	270	301.27	80 - 121	90

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB176776.002		TRH C10-C14	mg/kg	20	39	40	60 - 140	98
		TRH C15-C28	mg/kg	45	<45	40	60 - 140	90
		TRH C29-C36	mg/kg	45	<45	40	60 - 140	78
	TRH F Bands	TRH >C10-C16	mg/kg	25	39	40	60 - 140	98
		TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	90
		TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	70

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB176775.002	Monocyclic	Benzene	mg/kg	0.1	2.0	2.9	60 - 140	69
	Aromatic	Toluene	mg/kg	0.1	2.1	2.9	60 - 140	72
		Ethylbenzene	mg/kg	0.1	2.1	2.9	60 - 140	72
		m/p-xylene	mg/kg	0.2	4.5	5.8	60 - 140	77
		o-xylene	mg/kg	0.1	2.2	2.9	60 - 140	75
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.8	5	60 - 140	76

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB176775.002	Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.2	5	60 - 140	83
		d8-toluene (Surrogate)	mg/kg	-	4.1	5	60 - 140	83
		Bromofluorobenzene (Surrogate)	mg/kg	-	4.2	5	60 - 140	84

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB176775.002		TRH C6-C10	mg/kg	25	<25	24.65	60 - 140	92
		TRH C6-C9	mg/kg	20	23	23.2	60 - 140	97
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.8	5	60 - 140	76
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.2	5	60 - 140	83
		d8-toluene (Surrogate)	mg/kg	-	4.1	5	60 - 140	83
		Bromofluorobenzene (Surrogate)	mg/kg	-	4.2	5	60 - 140	84
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	7.25	60 - 140	137

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE194250.001	LB176883.004	Mercury	mg/kg	0.05	0.33	0.10	0.2	115

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE194338.001	LB176776.025		Naphthalene	mg/kg	0.1	4.4	0	4	109
			2-methylnaphthalene	mg/kg	0.1	<0.1	0	-	-
			1-methylnaphthalene	mg/kg	0.1	<0.1	0	-	-
			Acenaphthylene	mg/kg	0.1	4.0	0	4	99
			Acenaphthene	mg/kg	0.1	4.5	0	4	112
			Fluorene	mg/kg	0.1	<0.1	0	-	-
			Phenanthrene	mg/kg	0.1	4.6	0	4	114
			Anthracene	mg/kg	0.1	4.4	0	4	111
			Fluoranthene	mg/kg	0.1	4.2	0	4	104
			Pyrene	mg/kg	0.1	4.5	0	4	112
			Benzo(a)anthracene	mg/kg	0.1	<0.1	0	-	-
			Chrysene	mg/kg	0.1	<0.1	0	-	-
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	0	-	-
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	0	-	-
			Benzo(a)pyrene	mg/kg	0.1	4.6	0	4	115
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	0	-	-
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	0	-	-
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	0	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	4.6	0	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	4.7	0.242	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	4.7	0.121	-	-
			Total PAH (18)	mg/kg	0.8	35	0	-	-
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.45	-	78
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.42	-	84
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.42	-	88

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE194250.001	LB176882.004	Arsenic, As	mg/kg	1	48	7	50	83
		Cadmium, Cd	mg/kg	0.3	46	<0.3	50	92
		Chromium, Cr	mg/kg	0.3	55	19	50	73
		Copper, Cu	mg/kg	0.5	71	30	50	83
		Nickel, Ni	mg/kg	0.5	73	38	50	70
		Lead, Pb	mg/kg	1	110	83	50	56 ④
		Zinc, Zn	mg/kg	2	130	110	50	40 ④

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE194338.001	LB176776.025		TRH C10-C14	mg/kg	20	280	423	40	-370 ⑤
			TRH C15-C28	mg/kg	45	120	112	40	25 ⑤
			TRH C29-C36	mg/kg	45	<45	0	40	83
			TRH C37-C40	mg/kg	100	<100	0	-	-
			TRH C10-C36 Total	mg/kg	110	400	535	-	-
			TRH C10-C40 Total (F bands)	mg/kg	210	320	508	-	-
		TRH F Bands	TRH >C10-C16	mg/kg	25	320	508	40	-460 ⑤
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	320	508	-	-
			TRH >C16-C34 (F3)	mg/kg	90	<90	30	40	80
			TRH >C34-C40 (F4)	mg/kg	120	<120	0	-	-

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE194338.001	LB176775.024		TRH C6-C10	mg/kg	25	27	0.22807258033	24.65	107
			TRH C6-C9	mg/kg	20	25	0.22694244092	23.2	108
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.8	3.69899968756	-	75
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.2	4.13747310235	-	84
			d8-toluene (Surrogate)	mg/kg	-	4.1	3.94806380549	-	82

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Volatile Petroleum Hydrocarbons in Soil (continued) — **Method: ME-(AU)-[ENV]AN433**

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE194338.001	LB176775.024	Surrogates	Bromofluorobenzene (Surrogate)	mg/kg	-	4.2	3.56779306718	-	85
		VPH F	Benzene (F0)	mg/kg	0.1	2.0	0.00118120327	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	0.21867555431	7.25	187 ④

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here: https://www.sgs.com.au/~/media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022 QA QC Plan.pdf

*	NATA accreditation does not cover the performance of this service.
**	Indicative data, theoretical holding time exceeded.
-	Sample not analysed for this analyte.
IS	Insufficient sample for analysis.
LNR	Sample listed, but not received.
LOR	Limit of reporting.
QFH	QC result is above the upper tolerance.
QFL	QC result is below the lower tolerance.

①	At least 2 of 3 surrogates are within acceptance criteria.
②	RPD failed acceptance criteria due to sample heterogeneity.
③	Results less than 5 times LOR preclude acceptance criteria for RPD.
④	Recovery failed acceptance criteria due to matrix interference.
⑤	Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
⑥	LOR was raised due to sample matrix interference.
⑦	LOR was raised due to dilution of significantly high concentration of analyte in sample.
⑧	Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
⑨	Recovery failed acceptance criteria due to sample heterogeneity.
⑩	LOR was raised due to high conductivity of the sample (required dilution).
†	Refer to Analytical Report comments for further information.

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

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Order Number	**SCOC14**
Samples	3

LABORATORY DETAILS

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SGS Reference	**SE194568 R0**
Date Received	24/6/2019
Date Reported	5/7/2019

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(4354).

SIGNATORIES

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VOC's in Soil [AN433] Tested: 1/7/2019

PARAMETER	UOM	LOR	QA506B SOIL - 22/6/2019 SE194568.001	QA507B SOIL - 23/6/2019 SE194568.002	QA508B SOIL - 23/6/2019 SE194568.003
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1
Total Xylenes	mg/kg	0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1

Volatile Petroleum Hydrocarbons in Soil [AN433] Tested: 1/7/2019

PARAMETER	UOM	LOR	QA506B SOIL - 22/6/2019 SE194568.001	QA507B SOIL - 23/6/2019 SE194568.002	QA508B SOIL - 23/6/2019 SE194568.003
TRH C6-C9	mg/kg	20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 1/7/2019

PARAMETER	UOM	LOR	QA506B SOIL - 22/6/2019 SE194568.001	QA507B SOIL - 23/6/2019 SE194568.002	QA508B SOIL - 23/6/2019 SE194568.003
TRH C10-C14	mg/kg	20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	**50**	**100**
TRH C29-C36	mg/kg	45	<45	<45	**54**
TRH C37-C40	mg/kg	100	<100	<100	<100
TRH >C10-C16	mg/kg	25	<25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	**150**
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	**160**
TRH C10-C40 Total (F bands)	mg/kg	210	<210	<210	<210

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 1/7/2019

PARAMETER	UOM	LOR	QA506B SOIL - 22/6/2019 SE194568.001	QA507B SOIL - 23/6/2019 SE194568.002	QA508B SOIL - 23/6/2019 SE194568.003
Naphthalene	mg/kg	0.1	<0.1	<0.1	**0.3**
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	**0.1**
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	**0.1**
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	**0.9**
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	**0.2**	**2.8**
Anthracene	mg/kg	0.1	<0.1	<0.1	**1.1**
Fluoranthene	mg/kg	0.1	<0.1	**0.6**	**5.1**
Pyrene	mg/kg	0.1	<0.1	**0.6**	**4.6**
Benzo(a)anthracene	mg/kg	0.1	<0.1	**0.3**	**2.5**
Chrysene	mg/kg	0.1	<0.1	**0.2**	**1.9**
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	**0.3**	**2.4**
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	**0.2**	**1.3**
Benzo(a)pyrene	mg/kg	0.1	<0.1	**0.3**	**2.2**
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	**0.2**	**1.7**
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	**0.3**
Benzo(ghi)perylene	mg/kg	0.1	<0.1	**0.2**	**1.3**
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	**0.4**	**3.3**
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	**0.5**	**3.3**
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	**0.4**	**3.3**
Total PAH (18)	mg/kg	0.8	<0.8	**3.2**	**29**
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	**3.2**	**29**

OC Pesticides in Soil [AN420] Tested: 1/7/2019

PARAMETER	UOM	LOR	QA506B SOIL - 22/6/2019 SE194568.001	QA507B SOIL - 23/6/2019 SE194568.002	QA508B SOIL - 23/6/2019 SE194568.003
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1
Total CLP OC Pesticides	mg/kg	1	<1	<1	<1

OP Pesticides in Soil [AN420] Tested: 1/7/2019

PARAMETER	UOM	LOR	QA506B SOIL - 22/6/2019 SE194568.001	QA507B SOIL - 23/6/2019 SE194568.002	QA508B SOIL - 23/6/2019 SE194568.003
Dichlorvos	mg/kg	0.5	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	<0.2
Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	<1.7

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 2/7/2019

PARAMETER	UOM	LOR	QA506B SOIL - 22/6/2019 SE194568.001	QA507B SOIL - 23/6/2019 SE194568.002	QA508B SOIL - 23/6/2019 SE194568.003
Arsenic, As	mg/kg	1	5	6	7
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.3	10	33	15
Copper, Cu	mg/kg	0.5	2.9	39	24
Lead, Pb	mg/kg	1	8	92	92
Nickel, Ni	mg/kg	0.5	1.2	7.2	4.6
Zinc, Zn	mg/kg	2	7.4	220	110

Mercury in Soil [AN312] Tested: 2/7/2019

PARAMETER	UOM	LOR	QA506B SOIL - 22/6/2019 SE194568.001	QA507B SOIL - 23/6/2019 SE194568.002	QA508B SOIL - 23/6/2019 SE194568.003
Mercury	mg/kg	0.05	<0.05	**0.22**	**0.50**

Moisture Content [AN002] Tested: 2/7/2019

PARAMETER	UOM	LOR	QA506B SOIL - 22/6/2019 SE194568.001	QA507B SOIL - 23/6/2019 SE194568.002	QA508B SOIL - 23/6/2019 SE194568.003
% Moisture	%w/w	0.5	**19**	**23**	**21**

METHOD	METHODOLOGY SUMMARY
AN002	The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.
AN040/AN320	A portion of sample is digested with nitric acid to decompose organic matter and hydrochloric acid to complete the digestion of metals. The digest is then analysed by ICP OES with metals results reported on the dried sample basis. Based on USEPA method 200.8 and 6010C.
AN040	A portion of sample is digested with Nitric acid to decompose organic matter and Hydrochloric acid to complete the digestion of metals and then filtered for analysis by ASS or ICP as per USEPA Method 200.8.
AN312	Mercury by Cold Vapour AAS in Soils: After digestion with nitric acid, hydrogen peroxide and hydrochloric acid, mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser. Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500
AN403	Total Recoverable Hydrocarbons: Determination of Hydrocarbons by gas chromatography after a solvent extraction. Detection is by flame ionisation detector (FID) that produces an electronic signal in proportion to the combustible matter passing through it. Total Recoverable Hydrocarbons (TRH) are routinely reported as four alkane groupings based on the carbon chain length of the compounds: C6-C9, C10-C14, C15-C28 and C29-C36 and in recognition of the NEPM 1999 (2013), >C10-C16 (F2), >C16-C34 (F3) and >C34-C40 (F4). F2 is reported directly and also corrected by subtracting Naphthalene (from VOC method AN433) where available.
AN403	Additionally, the volatile C6-C9 fraction may be determined by a purge and trap technique and GC/MS because of the potential for volatiles loss. Total Recoverable Hydrocarbons - Silica (TRH-Si) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with differential polarity of the eluent solvents .
AN403	The GC/FID method is not well suited to the analysis of refined high boiling point materials (ie lubricating oils or greases) but is particularly suited for measuring diesel, kerosene and petrol if care to control volatility is taken. This method will detect naturally occurring hydrocarbons, lipids, animal fats, phenols and PAHs if they are present at sufficient levels, dependent on the use of specific cleanup/fractionation techniques. Reference USEPA 3510B, 8015B.
AN420	(SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols (etc) in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN420	SVOC Compounds: Semi-Volatile Organic Compounds (SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN433	VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC`s are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.

FOOTNOTES

*	NATA accreditation does not cover the performance of this service.	-	Not analysed.	UOM	Unit of Measure.
		NVL	Not validated.	LOR	Limit of Reporting.
**	Indicative data, theoretical holding time exceeded.	IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
		LNR	Sample listed, but not received.		

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

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

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

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

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

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

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

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

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STATEMENT OF QA/QC PERFORMANCE

SE194568 R0

CLIENT DETAILS

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Project	**1791865 Marrickville**
Order Number	**SCOC14**
Samples	3

LABORATORY DETAILS

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SGS Reference	**SE194568 R0**
Date Received	24 Jun 2019
Date Reported	05 Jul 2019

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document.
This QA/QC Statement must be read in conjunction with the referenced Analytical Report.
The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met (within the SGS Alexandria Environmental laboratory).

SAMPLE SUMMARY

HOLDING TIME SUMMARY

SE194568 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS “Field Sampling Guide for Containers and Holding Time” (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
QA506B	SE194568.001	LB177545	22 Jun 2019	24 Jun 2019	20 Jul 2019	02 Jul 2019	20 Jul 2019	04 Jul 2019
QA507B	SE194568.002	LB177545	23 Jun 2019	24 Jun 2019	21 Jul 2019	02 Jul 2019	21 Jul 2019	04 Jul 2019
QA508B	SE194568.003	LB177545	23 Jun 2019	24 Jun 2019	21 Jul 2019	02 Jul 2019	21 Jul 2019	04 Jul 2019

Moisture Content

Method: ME-(AU)-[ENV]AN002

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
QA506B	SE194568.001	LB177551	22 Jun 2019	24 Jun 2019	06 Jul 2019	02 Jul 2019	07 Jul 2019	04 Jul 2019
QA507B	SE194568.002	LB177551	23 Jun 2019	24 Jun 2019	07 Jul 2019	02 Jul 2019	07 Jul 2019	04 Jul 2019
QA508B	SE194568.003	LB177551	23 Jun 2019	24 Jun 2019	07 Jul 2019	02 Jul 2019	07 Jul 2019	04 Jul 2019

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
QA506B	SE194568.001	LB177409	22 Jun 2019	24 Jun 2019	06 Jul 2019	01 Jul 2019	10 Aug 2019	05 Jul 2019
QA507B	SE194568.002	LB177409	23 Jun 2019	24 Jun 2019	07 Jul 2019	01 Jul 2019	10 Aug 2019	05 Jul 2019
QA508B	SE194568.003	LB177409	23 Jun 2019	24 Jun 2019	07 Jul 2019	01 Jul 2019	10 Aug 2019	05 Jul 2019

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
QA506B	SE194568.001	LB177409	22 Jun 2019	24 Jun 2019	06 Jul 2019	01 Jul 2019	10 Aug 2019	05 Jul 2019
QA507B	SE194568.002	LB177409	23 Jun 2019	24 Jun 2019	07 Jul 2019	01 Jul 2019	10 Aug 2019	05 Jul 2019
QA508B	SE194568.003	LB177409	23 Jun 2019	24 Jun 2019	07 Jul 2019	01 Jul 2019	10 Aug 2019	05 Jul 2019

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
QA506B	SE194568.001	LB177409	22 Jun 2019	24 Jun 2019	06 Jul 2019	01 Jul 2019	10 Aug 2019	05 Jul 2019
QA507B	SE194568.002	LB177409	23 Jun 2019	24 Jun 2019	07 Jul 2019	01 Jul 2019	10 Aug 2019	05 Jul 2019
QA508B	SE194568.003	LB177409	23 Jun 2019	24 Jun 2019	07 Jul 2019	01 Jul 2019	10 Aug 2019	05 Jul 2019

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
QA506B	SE194568.001	LB177539	22 Jun 2019	24 Jun 2019	19 Dec 2019	02 Jul 2019	19 Dec 2019	04 Jul 2019
QA507B	SE194568.002	LB177539	23 Jun 2019	24 Jun 2019	20 Dec 2019	02 Jul 2019	20 Dec 2019	04 Jul 2019
QA508B	SE194568.003	LB177539	23 Jun 2019	24 Jun 2019	20 Dec 2019	02 Jul 2019	20 Dec 2019	04 Jul 2019

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
QA506B	SE194568.001	LB177409	22 Jun 2019	24 Jun 2019	06 Jul 2019	01 Jul 2019	10 Aug 2019	05 Jul 2019
QA507B	SE194568.002	LB177409	23 Jun 2019	24 Jun 2019	07 Jul 2019	01 Jul 2019	10 Aug 2019	05 Jul 2019
QA508B	SE194568.003	LB177409	23 Jun 2019	24 Jun 2019	07 Jul 2019	01 Jul 2019	10 Aug 2019	05 Jul 2019

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
QA506B	SE194568.001	LB177408	22 Jun 2019	24 Jun 2019	06 Jul 2019	01 Jul 2019	10 Aug 2019	04 Jul 2019
QA507B	SE194568.002	LB177408	23 Jun 2019	24 Jun 2019	07 Jul 2019	01 Jul 2019	10 Aug 2019	04 Jul 2019
QA508B	SE194568.003	LB177408	23 Jun 2019	24 Jun 2019	07 Jul 2019	01 Jul 2019	10 Aug 2019	04 Jul 2019

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
QA506B	SE194568.001	LB177408	22 Jun 2019	24 Jun 2019	06 Jul 2019	01 Jul 2019	10 Aug 2019	04 Jul 2019
QA507B	SE194568.002	LB177408	23 Jun 2019	24 Jun 2019	07 Jul 2019	01 Jul 2019	10 Aug 2019	04 Jul 2019
QA508B	SE194568.003	LB177408	23 Jun 2019	24 Jun 2019	07 Jul 2019	01 Jul 2019	10 Aug 2019	04 Jul 2019

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	QA506B	SE194568.001	%	60 - 130%	125
	QA507B	SE194568.002	%	60 - 130%	120
	QA508B	SE194568.003	%	60 - 130%	115

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	QA506B	SE194568.001	%	60 - 130%	80
	QA507B	SE194568.002	%	60 - 130%	84
	QA508B	SE194568.003	%	60 - 130%	90
d14-p-terphenyl (Surrogate)	QA506B	SE194568.001	%	60 - 130%	106
	QA507B	SE194568.002	%	60 - 130%	106
	QA508B	SE194568.003	%	60 - 130%	98

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	QA506B	SE194568.001	%	70 - 130%	80
	QA507B	SE194568.002	%	70 - 130%	84
	QA508B	SE194568.003	%	70 - 130%	90
d14-p-terphenyl (Surrogate)	QA506B	SE194568.001	%	70 - 130%	106
	QA507B	SE194568.002	%	70 - 130%	106
	QA508B	SE194568.003	%	70 - 130%	98
d5-nitrobenzene (Surrogate)	QA506B	SE194568.001	%	70 - 130%	82
	QA507B	SE194568.002	%	70 - 130%	84
	QA508B	SE194568.003	%	70 - 130%	82

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	QA506B	SE194568.001	%	60 - 130%	74
	QA507B	SE194568.002	%	60 - 130%	71
	QA508B	SE194568.003	%	60 - 130%	71
d4-1,2-dichloroethane (Surrogate)	QA506B	SE194568.001	%	60 - 130%	75
	QA507B	SE194568.002	%	60 - 130%	79
	QA508B	SE194568.003	%	60 - 130%	76
d8-toluene (Surrogate)	QA506B	SE194568.001	%	60 - 130%	72
	QA507B	SE194568.002	%	60 - 130%	75
	QA508B	SE194568.003	%	60 - 130%	72
Dibromofluoromethane (Surrogate)	QA506B	SE194568.001	%	60 - 130%	72
	QA507B	SE194568.002	%	60 - 130%	72
	QA508B	SE194568.003	%	60 - 130%	71

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	QA506B	SE194568.001	%	60 - 130%	74
	QA507B	SE194568.002	%	60 - 130%	71
	QA508B	SE194568.003	%	60 - 130%	71
d4-1,2-dichloroethane (Surrogate)	QA506B	SE194568.001	%	60 - 130%	75
	QA507B	SE194568.002	%	60 - 130%	79
	QA508B	SE194568.003	%	60 - 130%	76
d8-toluene (Surrogate)	QA506B	SE194568.001	%	60 - 130%	72
	QA507B	SE194568.002	%	60 - 130%	75
	QA508B	SE194568.003	%	60 - 130%	72
Dibromofluoromethane (Surrogate)	QA506B	SE194568.001	%	60 - 130%	72
	QA507B	SE194568.002	%	60 - 130%	72
	QA508B	SE194568.003	%	60 - 130%	71

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result
LB177545.001	Mercury	mg/kg	0.05	<0.05

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB177409.001		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1
		Alpha BHC	mg/kg	0.1	<0.1
		Lindane	mg/kg	0.1	<0.1
		Heptachlor	mg/kg	0.1	<0.1
		Aldrin	mg/kg	0.1	<0.1
		Beta BHC	mg/kg	0.1	<0.1
		Delta BHC	mg/kg	0.1	<0.1
		Heptachlor epoxide	mg/kg	0.1	<0.1
		Alpha Endosulfan	mg/kg	0.2	<0.2
		Gamma Chlordane	mg/kg	0.1	<0.1
		Alpha Chlordane	mg/kg	0.1	<0.1
		p,p'-DDE	mg/kg	0.1	<0.1
		Dieldrin	mg/kg	0.2	<0.2
		Endrin	mg/kg	0.2	<0.2
		Beta Endosulfan	mg/kg	0.2	<0.2
		p,p'-DDD	mg/kg	0.1	<0.1
		p,p'-DDT	mg/kg	0.1	<0.1
		Endosulfan sulphate	mg/kg	0.1	<0.1
		Endrin Aldehyde	mg/kg	0.1	<0.1
		Methoxychlor	mg/kg	0.1	<0.1
		Endrin Ketone	mg/kg	0.1	<0.1
		Isodrin	mg/kg	0.1	<0.1
		Mirex	mg/kg	0.1	<0.1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	115

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB177409.001		Dichlorvos	mg/kg	0.5	<0.5
		Dimethoate	mg/kg	0.5	<0.5
		Diazinon (Dimpylate)	mg/kg	0.5	<0.5
		Fenitrothion	mg/kg	0.2	<0.2
		Malathion	mg/kg	0.2	<0.2
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2
		Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2
		Bromophos Ethyl	mg/kg	0.2	<0.2
		Methidathion	mg/kg	0.5	<0.5
		Ethion	mg/kg	0.2	<0.2
		Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2
	Surrogates	2-fluorobiphenyl (Surrogate)	%	-	76
		d14-p-terphenyl (Surrogate)	%	-	88

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result
LB177409.001	Naphthalene	mg/kg	0.1	<0.1
	2-methylnaphthalene	mg/kg	0.1	<0.1
	1-methylnaphthalene	mg/kg	0.1	<0.1
	Acenaphthylene	mg/kg	0.1	<0.1
	Acenaphthene	mg/kg	0.1	<0.1
	Fluorene	mg/kg	0.1	<0.1
	Phenanthrene	mg/kg	0.1	<0.1
	Anthracene	mg/kg	0.1	<0.1
	Fluoranthene	mg/kg	0.1	<0.1
	Pyrene	mg/kg	0.1	<0.1
	Benzo(a)anthracene	mg/kg	0.1	<0.1
	Chrysene	mg/kg	0.1	<0.1
	Benzo(a)pyrene	mg/kg	0.1	<0.1

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB177409.001		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1
		Dibenzo(ah)anthracene	mg/kg	0.1	<0.1
		Benzo(ghi)perylene	mg/kg	0.1	<0.1
		Total PAH (18)	mg/kg	0.8	<0.8
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	74
		2-fluorobiphenyl (Surrogate)	%	-	76
		d14-p-terphenyl (Surrogate)	%	-	88

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result
LB177539.001	Arsenic, As	mg/kg	1	<1
	Cadmium, Cd	mg/kg	0.3	<0.3
	Chromium, Cr	mg/kg	0.3	<0.3
	Copper, Cu	mg/kg	0.5	<0.5
	Nickel, Ni	mg/kg	0.5	<0.5
	Lead, Pb	mg/kg	1	<1
	Zinc, Zn	mg/kg	2	<2.0

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR	Result
LB177409.001	TRH C10-C14	mg/kg	20	<20
	TRH C15-C28	mg/kg	45	<45
	TRH C29-C36	mg/kg	45	<45
	TRH C37-C40	mg/kg	100	<100
	TRH C10-C36 Total	mg/kg	110	<110

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB177408.001	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1
	Hydrocarbons	Toluene	mg/kg	0.1	<0.1
		Ethylbenzene	mg/kg	0.1	<0.1
		m/p-xylene	mg/kg	0.2	<0.2
		o-xylene	mg/kg	0.1	<0.1
	Polycyclic VOCs	Naphthalene	mg/kg	0.1	<0.1
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	73
		d4-1,2-dichloroethane (Surrogate)	%	-	86
		d8-toluene (Surrogate)	%	-	82
		Bromofluorobenzene (Surrogate)	%	-	78
	Totals	Total BTEX	mg/kg	0.6	<0.6

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB177408.001		TRH C6-C9	mg/kg	20	<20
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	73
		d4-1,2-dichloroethane (Surrogate)	%	-	86
		d8-toluene (Surrogate)	%	-	82

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE194569.001	LB177545.020	Mercury	mg/kg	0.05	<0.05	<0.05	200	0
SE194720.010	LB177545.014	Mercury	mg/kg	0.05	0.0262683047	0.0275646842	200	0

Moisture Content

Method: ME-(AU)-[ENV]AN002

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE194569.001	LB177551.016	% Moisture	%w/w	0.5	7.0	7.0	44	1
SE194720.010	LB177551.011	% Moisture	%w/w	0.5	9.18774966718	2.2320117	47	11

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE194569.001	LB177409.032		Dichlorvos	mg/kg	0.5	<0.5	0	200	0
			Dimethoate	mg/kg	0.5	<0.5	0	200	0
			Diazinon (Dimpylate)	mg/kg	0.5	<0.5	0	200	0
			Fenitrothion	mg/kg	0.2	<0.2	0	200	0
			Malathion	mg/kg	0.2	<0.2	0	200	0
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	0	200	0
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	0	200	0
			Bromophos Ethyl	mg/kg	0.2	<0.2	0.01	200	0
			Methidathion	mg/kg	0.5	<0.5	0	200	0
			Ethion	mg/kg	0.2	<0.2	0	200	0
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	0.01	200	0
			Total OP Pesticides*	mg/kg	1.7	<1.7	0	200	0
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.45	30	12
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.59	30	11

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE194569.001	LB177409.032		Naphthalene	mg/kg	0.1	<0.1	0	200	0
			2-methylnaphthalene	mg/kg	0.1	<0.1	0	200	0
			1-methylnaphthalene	mg/kg	0.1	<0.1	0	200	0
			Acenaphthylene	mg/kg	0.1	<0.1	0	200	0
			Acenaphthene	mg/kg	0.1	<0.1	0	200	0
			Fluorene	mg/kg	0.1	<0.1	0	200	0
			Phenanthrene	mg/kg	0.1	<0.1	0	200	0
			Anthracene	mg/kg	0.1	<0.1	0	200	0
			Fluoranthene	mg/kg	0.1	<0.1	0	200	0
			Pyrene	mg/kg	0.1	<0.1	0	200	0
			Benzo(a)anthracene	mg/kg	0.1	<0.1	0.01	200	0
			Chrysene	mg/kg	0.1	<0.1	0.01	200	0
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	0	200	0
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	0	200	0
			Benzo(a)pyrene	mg/kg	0.1	<0.1	0	200	0
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	0	200	0
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	0	200	0
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	0	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=0	mg/kg	0.2	<0.2	0	200	0
				TEQ (mg/kg)	0.2	<0.2	0	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	mg/kg	0.3	<0.3	0.242	134	0
				TEQ (mg/kg)	0.3	<0.3	0.242	134	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	mg/kg	0.2	<0.2	0.121	175	0
				TEQ (mg/kg)	0.2	<0.2	0.121	175	0
			Total PAH (18)	mg/kg	0.8	<0.8	0	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.45	30	9
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.45	30	12
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.59	30	11

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Original	Duplicate	Parameter	Units	LOR

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES (continued)

Method: ME-(AU)-[ENV]AN040/AN320

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE194569.001	LB177539.020	Arsenic, As	mg/kg	1	7	6	45	12
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
		Chromium, Cr	mg/kg	0.3	11	12	34	1
		Copper, Cu	mg/kg	0.5	11	11	34	3
		Nickel, Ni	mg/kg	0.5	5.0	5.0	40	0
		Lead, Pb	mg/kg	1	17	17	36	2
		Zinc, Zn	mg/kg	2	15	14	44	9
SE194720.010	LB177539.014	Arsenic, As	mg/kg	1	4.3496334310	6.3319	49	37
		Cadmium, Cd	mg/kg	0.3	0.1009408602	0.1444196721	200	0
		Chromium, Cr	mg/kg	0.3	6.7630376344	6.1333229508	38	10
		Copper, Cu	mg/kg	0.5	32.4524865591	30.6485622950	32	6
		Nickel, Ni	mg/kg	0.5	17.6508858748	16.3149098360	33	8
		Lead, Pb	mg/kg	1	13.1636058162	14.4419672131	37	9
		Zinc, Zn	mg/kg	2	32.3998044965	9.1669344262	33	5

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE194568.003	LB177409.028		TRH C10-C14	mg/kg	20	<20	<20	200	0
			TRH C15-C28	mg/kg	45	100	89	77	16
			TRH C29-C36	mg/kg	45	54	48	118	12
			TRH C37-C40	mg/kg	100	<100	<100	200	0
			TRH C10-C36 Total	mg/kg	110	160	140	105	14
			TRH C10-C40 Total (F bands)	mg/kg	210	<210	<210	184	0
		TRH F Bands	TRH >C10-C16	mg/kg	25	<25	<25	200	0
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	200	0
			TRH >C16-C34 (F3)	mg/kg	90	150	130	96	13
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	200	0
SE194569.001	LB177409.030		TRH C10-C14	mg/kg	20	<20	<20	200	0
			TRH C15-C28	mg/kg	45	<45	<45	200	0
			TRH C29-C36	mg/kg	45	<45	<45	200	0
			TRH C37-C40	mg/kg	100	<100	<100	200	0
			TRH C10-C36 Total	mg/kg	110	<110	<110	200	0
			TRH C10-C40 Total (F bands)	mg/kg	210	<210	<210	200	0
		TRH F Bands	TRH >C10-C16	mg/kg	25	<25	<25	200	0
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	200	0
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	200	0
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	200	0

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE194569.001	LB177408.030	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
			Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.7	3.6	50	3
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.1	4.0	50	3
			d8-toluene (Surrogate)	mg/kg	-	3.9	3.8	50	1
			Bromofluorobenzene (Surrogate)	mg/kg	-	3.7	3.7	50	1
		Totals	Total Xylenes	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX	mg/kg	0.6	<0.6	<0.6	200	0
SE194720.004	LB177408.015	Monocyclic Aromatic	Benzene	mg/kg	0.1	0	0	200	0
			Toluene	mg/kg	0.1	0.06	0.06	197	0
			Ethylbenzene	mg/kg	0.1	0.02	0.02	200	0
			m/p-xylene	mg/kg	0.2	0.19	0.18	138	0
			o-xylene	mg/kg	0.1	0.05	0.18	117	57
		Polycyclic	Naphthalene	mg/kg	0.1	0.11	0.11	121	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.66	3.56	50	3
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	3.99	4.04	50	1
			d8-toluene (Surrogate)	mg/kg	-	3.86	3.9	50	1
			Bromofluorobenzene (Surrogate)	mg/kg	-	3.89	3.88	50	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE194720.004	LB177408.015	Totals	Total Xylenes	mg/kg	0.3	0.24	0.36	130	18
			Total BTEX	mg/kg	0.6	0.32	0.44	109	32

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE194569.001	LB177408.030		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.7	3.6	30	3
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.1	4.0	30	3
			d8-toluene (Surrogate)	mg/kg	-	3.9	3.8	30	1
			Bromofluorobenzene (Surrogate)	mg/kg	-	3.7	3.7	30	1
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0
SE194720.004	LB177408.015		TRH C6-C10	mg/kg	25	4.95	4.39	200	0
			TRH C6-C9	mg/kg	20	3.42	2.91	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.66	3.56	30	3
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	3.99	4.04	30	1
			d8-toluene (Surrogate)	mg/kg	-	3.86	3.9	30	1
			Bromofluorobenzene (Surrogate)	mg/kg	-	3.89	3.88	30	0
		VPH F Bands	Benzene (F0)	mg/kg	0.1	0	0	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	4.63	3.95	200	0

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB177545.002	Mercury	mg/kg	0.05	0.25	0.2	70 - 130	125

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB177409.002		Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	124
		Aldrin	mg/kg	0.1	0.2	0.2	60 - 140	124
		Delta BHC	mg/kg	0.1	0.2	0.2	60 - 140	120
		Dieldrin	mg/kg	0.2	0.2	0.2	60 - 140	124
		Endrin	mg/kg	0.2	0.2	0.2	60 - 140	122
		p,p'-DDT	mg/kg	0.1	0.2	0.2	60 - 140	108
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.18	0.15	40 - 130	121

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB177409.002		Dichlorvos	mg/kg	0.5	1.6	2	60 - 140	78
		Diazinon (Dimpylate)	mg/kg	0.5	1.8	2	60 - 140	89
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	1.6	2	60 - 140	80
		Ethion	mg/kg	0.2	1.5	2	60 - 140	76
	Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	76
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	82

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB177409.002		Naphthalene	mg/kg	0.1	4.5	4	60 - 140	113
		Acenaphthylene	mg/kg	0.1	5.0	4	60 - 140	125
		Acenaphthene	mg/kg	0.1	4.6	4	60 - 140	116
		Phenanthrene	mg/kg	0.1	4.5	4	60 - 140	112
		Anthracene	mg/kg	0.1	4.3	4	60 - 140	109
		Fluoranthene	mg/kg	0.1	4.4	4	60 - 140	110
		Pyrene	mg/kg	0.1	4.8	4	60 - 140	120
		Benzo(a)pyrene	mg/kg	0.1	3.9	4	60 - 140	99
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	72
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	76
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	82

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB177539.002	Arsenic, As	mg/kg	1	310	336.32	79 - 120	92
	Cadmium, Cd	mg/kg	0.3	420	416.6	69 - 131	102
	Chromium, Cr	mg/kg	0.3	32	35.2	80 - 120	90
	Copper, Cu	mg/kg	0.5	300	370.46	80 - 120	80
	Nickel, Ni	mg/kg	0.5	210	210.88	79 - 120	99
	Lead, Pb	mg/kg	1	90	107.87	79 - 120	83
	Zinc, Zn	mg/kg	2	260	301.27	80 - 121	86

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB177409.002		TRH C10-C14	mg/kg	20	37	40	60 - 140	93
		TRH C15-C28	mg/kg	45	<45	40	60 - 140	88
		TRH C29-C36	mg/kg	45	<45	40	60 - 140	98
	TRH F Bands	TRH >C10-C16	mg/kg	25	36	40	60 - 140	90
		TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	98
		TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	100

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB177408.002	Monocyclic	Benzene	mg/kg	0.1	2.1	2.9	60 - 140	72
	Aromatic	Toluene	mg/kg	0.1	2.0	2.9	60 - 140	70
		Ethylbenzene	mg/kg	0.1	2.0	2.9	60 - 140	68
		m/p-xylene	mg/kg	0.2	4.2	5.8	60 - 140	72
		o-xylene	mg/kg	0.1	2.0	2.9	60 - 140	70
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.5	5	60 - 140	70

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB177408.002	Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.1	5	60 - 140	82
		d8-toluene (Surrogate)	mg/kg	-	3.9	5	60 - 140	78
		Bromofluorobenzene (Surrogate)	mg/kg	-	4.2	5	60 - 140	84

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB177408.002		TRH C6-C10	mg/kg	25	<25	24.65	60 - 140	83
		TRH C6-C9	mg/kg	20	<20	23.2	60 - 140	80
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.5	5	60 - 140	70
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.1	5	60 - 140	82
		d8-toluene (Surrogate)	mg/kg	-	3.9	5	60 - 140	78
		Bromofluorobenzene (Surrogate)	mg/kg	-	4.2	5	60 - 140	84
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	7.25	60 - 140	101

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE194720.001	LB177545.004	Mercury	mg/kg	0.05	0.26	0.02317882579	0.2	116

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE194569.001	LB177409.031		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	-	-
			Alpha BHC	mg/kg	0.1	<0.1	-	-
			Lindane	mg/kg	0.1	<0.1	-	-
			Heptachlor	mg/kg	0.1	<0.1	0.2	109
			Aldrin	mg/kg	0.1	<0.1	0.2	123
			Beta BHC	mg/kg	0.1	<0.1	-	-
			Delta BHC	mg/kg	0.1	<0.1	0.2	120
			Heptachlor epoxide	mg/kg	0.1	<0.1	-	-
			o,p'-DDE	mg/kg	0.1	<0.1	-	-
			Alpha Endosulfan	mg/kg	0.2	<0.2	-	-
			Gamma Chlordane	mg/kg	0.1	<0.1	-	-
			Alpha Chlordane	mg/kg	0.1	<0.1	-	-
			trans-Nonachlor	mg/kg	0.1	<0.1	-	-
			p,p'-DDE	mg/kg	0.1	<0.1	-	-
			Dieldrin	mg/kg	0.2	<0.2	0.2	119
			Endrin	mg/kg	0.2	<0.2	0.2	116
			o,p'-DDD	mg/kg	0.1	<0.1	-	-
			o,p'-DDT	mg/kg	0.1	<0.1	-	-
			Beta Endosulfan	mg/kg	0.2	<0.2	-	-
			p,p'-DDD	mg/kg	0.1	<0.1	-	-
			p,p'-DDT	mg/kg	0.1	<0.1	0.2	86
			Endosulfan sulphate	mg/kg	0.1	<0.1	-	-
			Endrin Aldehyde	mg/kg	0.1	<0.1	-	-
			Methoxychlor	mg/kg	0.1	<0.1	-	-
			Endrin Ketone	mg/kg	0.1	<0.1	-	-
			Isodrin	mg/kg	0.1	<0.1	-	-
			Mirex	mg/kg	0.1	<0.1	-	-
			Total CLP OC Pesticides	mg/kg	1	<1	-	-
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.18	-	123

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE194568.001	LB177409.031		Dichlorvos	mg/kg	0.5	<0.5	2	78
			Dimethoate	mg/kg	0.5	<0.5	-	-
			Diazinon (Dimpylate)	mg/kg	0.5	<0.5	2	102
			Fenitrothion	mg/kg	0.2	<0.2	-	-
			Malathion	mg/kg	0.2	<0.2	-	-
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	2	84
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	-	-
			Bromophos Ethyl	mg/kg	0.2	<0.2	-	-
			Methidathion	mg/kg	0.5	<0.5	-	-
			Ethion	mg/kg	0.2	<0.2	2	85
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	-	-
			Total OP Pesticides*	mg/kg	1.7	<1.7	-	-
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	-	84
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	-	96

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number	Parameter	Units	LOR	Original	Spike	Recovery%
SE194568.001	LB177409.031	Naphthalene	mg/kg	0.1	<0.1	4	108
		2-methylnaphthalene	mg/kg	0.1	<0.1	-	-
		1-methylnaphthalene	mg/kg	0.1	<0.1	-	-
		Acenaphthylene	mg/kg	0.1	<0.1	4	118
		Acenaphthene	mg/kg	0.1	<0.1	4	108
		Fluorene	mg/kg	0.1	<0.1	-	-
		Phenanthrene	mg/kg	0.1	<0.1	4	105

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE194568.001	LB177409.031		Anthracene	mg/kg	0.1	<0.1	4	103
			Fluoranthene	mg/kg	0.1	<0.1	4	105
			Pyrene	mg/kg	0.1	<0.1	4	114
			Benzo(a)anthracene	mg/kg	0.1	<0.1	-	-
			Chrysene	mg/kg	0.1	<0.1	-	-
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	-	-
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	-	-
			Benzo(a)pyrene	mg/kg	0.1	<0.1	4	93
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	-	-
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	-	-
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	-	-
			Total PAH (18)	mg/kg	0.8	<0.8	-	-
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	-	82
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	-	84
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	-	96

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE194720.001	LB177539.004	Arsenic, As	mg/kg	1	48	3.91093798549	50	88
		Cadmium, Cd	mg/kg	0.3	45	0.08121073412	50	89
		Chromium, Cr	mg/kg	0.3	49	6.07798231188	50	86
		Copper, Cu	mg/kg	0.5	71	28.6289209036	50	84
		Nickel, Ni	mg/kg	0.5	56	15.5411699620	50	81
		Lead, Pb	mg/kg	1	53	12.4466135669	50	81
		Zinc, Zn	mg/kg	2	91	55.69346661311	50	70

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE194568.001	LB177409.031		TRH C10-C14	mg/kg	20	<20	40	93
			TRH C15-C28	mg/kg	45	<45	40	90
			TRH C29-C36	mg/kg	45	<45	40	93
			TRH C37-C40	mg/kg	100	<100	-	-
			TRH C10-C36 Total	mg/kg	110	<110	-	-
			TRH C10-C40 Total (F bands)	mg/kg	210	<210	-	-
		TRH F Bands	TRH >C10-C16	mg/kg	25	<25	40	103
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	-	-
			TRH >C16-C34 (F3)	mg/kg	90	<90	40	105
			TRH >C34-C40 (F4)	mg/kg	120	<120	-	-

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE194568.002	LB177408.032	Monocyclic	Benzene	mg/kg	0.1	<0.1	2.9	74
		Aromatic	Toluene	mg/kg	0.1	<0.1	2.9	66
			Ethylbenzene	mg/kg	0.1	<0.1	2.9	67
			m/p-xylene	mg/kg	0.2	<0.2	5.8	65
			o-xylene	mg/kg	0.1	<0.1	2.9	66
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	-	-
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.6	-	85
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	3.9	-	112
			d8-toluene (Surrogate)	mg/kg	-	3.7	-	83
			Bromofluorobenzene (Surrogate)	mg/kg	-	3.6	-	94
		Totals	Total Xylenes	mg/kg	0.3	<0.3	-	-
			Total BTEX	mg/kg	0.6	<0.6	-	-

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE194568.002	LB177408.032		TRH C6-C10	mg/kg	25	<25	24.65	71
			TRH C6-C9	mg/kg	20	<20	23.2	69
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.6	-	85
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	3.9	-	112

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Volatile Petroleum Hydrocarbons in Soil (continued) — **Method: ME-(AU)-[ENV]AN433**

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE194568.002	LB177408.032	Surrogates	d8-toluene (Surrogate)	mg/kg	-	3.7	-	83
			Bromofluorobenzene (Surrogate)	mg/kg	-	3.6	-	94
		VPH F	Benzene (F0)	mg/kg	0.1	<0.1	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	7.25	79

MATRIX SPIKE DUPLICATES

SE194568 R0

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

QC Sample	Sample Number	Parameter	Units	LOR

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here: https://www.sgs.com.au/~/media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022 QA QC Plan.pdf

*	NATA accreditation does not cover the performance of this service.
**	Indicative data, theoretical holding time exceeded.
-	Sample not analysed for this analyte.
IS	Insufficient sample for analysis.
LNR	Sample listed, but not received.
LOR	Limit of reporting.
QFH	QC result is above the upper tolerance.
QFL	QC result is below the lower tolerance.

①	At least 2 of 3 surrogates are within acceptance criteria.
②	RPD failed acceptance criteria due to sample heterogeneity.
③	Results less than 5 times LOR preclude acceptance criteria for RPD.
④	Recovery failed acceptance criteria due to matrix interference.
⑤	Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
⑥	LOR was raised due to sample matrix interference.
⑦	LOR was raised due to dilution of significantly high concentration of analyte in sample.
⑧	Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
⑨	Recovery failed acceptance criteria due to sample heterogeneity.
⑩	LOR was raised due to high conductivity of the sample (required dilution).
†	Refer to Analytical Report comments for further information.

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

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Project	**1791865 Marrickville**
Order Number	**SCOC**
Samples	1

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SGS Reference	**SE194695 R0**
Date Received	28/6/2019
Date Reported	15/7/2019

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(4354).

SIGNATORIES

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Chemist

Dong Liang
Metals/Inorganics Team Leader

Kamrul Ahsan
Senior Chemist

Ly Kim Ha
Organic Section Head

VOCs in Water [AN433] Tested: 11/7/2019

PARAMETER	UOM	LOR	WQA500B WATER - 28/6/2019 SE194695.001
Benzene	µg/L	0.5	<0.5
Toluene	µg/L	0.5	<0.5
Ethylbenzene	µg/L	0.5	<0.5
m/p-xylene	µg/L	1	<1
o-xylene	µg/L	0.5	<0.5
Naphthalene	µg/L	0.5	<0.5
Total Xylenes	µg/L	1.5	<1.5
Total BTEX	µg/L	3	<3
Dichlorodifluoromethane (CFC-12)	µg/L	5	<5
Chloromethane	µg/L	5	<5
Vinyl chloride (Chloroethene)	µg/L	0.3	<0.3
Bromomethane	µg/L	10	<10
Chloroethane	µg/L	5	<5
Trichlorofluoromethane	µg/L	1	<1
Acetone (2-propanone)	µg/L	10	<10
Iodomethane	µg/L	5	<5
1,1-dichloroethene	µg/L	0.5	<0.5
Acrylonitrile	µg/L	0.5	<0.5
Dichloromethane (Methylene chloride)	µg/L	5	<5
Allyl chloride	µg/L	2	<2
Carbon disulfide	µg/L	2	<2
trans-1,2-dichloroethene	µg/L	0.5	<0.5
MtBE (Methyl-tert-butyl ether)	µg/L	2	<2
1,1-dichloroethane	µg/L	0.5	<0.5
Vinyl acetate	µg/L	10	<10
MEK (2-butanone)	µg/L	10	<10
cis-1,2-dichloroethene	µg/L	0.5	<0.5
Bromochloromethane	µg/L	0.5	<0.5
Chloroform (THM)	µg/L	0.5	<0.5
2,2-dichloropropane	µg/L	0.5	<0.5
1,2-dichloroethane	µg/L	0.5	<0.5
1,1,1-trichloroethane	µg/L	0.5	<0.5
1,1-dichloropropene	µg/L	0.5	<0.5
Carbon tetrachloride	µg/L	0.5	<0.5
Dibromomethane	µg/L	0.5	<0.5
1,2-dichloropropane	µg/L	0.5	<0.5
Trichloroethene (Trichloroethylene,TCE)	µg/L	0.5	<0.5
2-nitropropane	µg/L	100	<100
Bromodichloromethane (THM)	µg/L	0.5	<0.5
MIBK (4-methyl-2-pentanone)	µg/L	5	<5
cis-1,3-dichloropropene	µg/L	0.5	<0.5
trans-1,3-dichloropropene	µg/L	0.5	<0.5
1,1,2-trichloroethane	µg/L	0.5	<0.5
1,3-dichloropropane	µg/L	0.5	<0.5
Dibromochloromethane (THM)	µg/L	0.5	<0.5
2-hexanone (MBK)	µg/L	5	<5
1,2-dibromoethane (EDB)	µg/L	0.5	<0.5
Tetrachloroethene (Perchloroethylene,PCE)	µg/L	0.5	<0.5
1,1,1,2-tetrachloroethane	µg/L	0.5	<0.5
Chlorobenzene	µg/L	0.5	<0.5
Bromoform (THM)	µg/L	0.5	<0.5
cis-1,4-dichloro-2-butene	µg/L	1	<1
Styrene (Vinyl benzene)	µg/L	0.5	<0.5
1,1,2,2-tetrachloroethane	µg/L	0.5	<0.5
1,2,3-trichloropropane	µg/L	0.5	<0.5
trans-1,4-dichloro-2-butene	µg/L	1	<1

VOCs in Water [AN433] Tested: 11/7/2019 (continued)

PARAMETER	UOM	LOR	WQA500B WATER - 28/6/2019 SE194695.001
Isopropylbenzene (Cumene)	µg/L	0.5	<0.5
Bromobenzene	µg/L	0.5	<0.5
n-propylbenzene	µg/L	0.5	<0.5
2-chlorotoluene	µg/L	0.5	<0.5
4-chlorotoluene	µg/L	0.5	<0.5
1,3,5-trimethylbenzene	µg/L	0.5	<0.5
tert-butylbenzene	µg/L	0.5	<0.5
1,2,4-trimethylbenzene	µg/L	0.5	<0.5
sec-butylbenzene	µg/L	0.5	<0.5
1,3-dichlorobenzene	µg/L	0.5	<0.5
1,4-dichlorobenzene	µg/L	0.3	<0.3
p-isopropyltoluene	µg/L	0.5	<0.5
1,2-dichlorobenzene	µg/L	0.5	<0.5
n-butylbenzene	µg/L	0.5	<0.5
1,2-dibromo-3-chloropropane	µg/L	0.5	<0.5
1,2,4-trichlorobenzene	µg/L	0.5	<0.5
Hexachlorobutadiene	µg/L	0.5	<0.5
1,2,3-trichlorobenzene	µg/L	0.5	<0.5
Total VOC	µg/L	10	<10

Volatile Petroleum Hydrocarbons in Water [AN433] Tested: 11/7/2019

PARAMETER	UOM	LOR	WQA500B WATER - 28/6/2019 SE194695.001
Benzene (F0)	µg/L	0.5	<0.5
TRH C6-C9	µg/L	40	<40
TRH C6-C10	µg/L	50	<50
TRH C6-C10 minus BTEX (F1)	µg/L	50	<50

TRH (Total Recoverable Hydrocarbons) in Water [AN403] Tested: 9/7/2019

PARAMETER	UOM	LOR	WQA500B WATER - 28/6/2019 SE194695.001
TRH C10-C14	µg/L	50	<50
TRH C15-C28	µg/L	200	<200
TRH C29-C36	µg/L	200	<200
TRH C37-C40	µg/L	200	<200
TRH >C10-C16	µg/L	60	<60
TRH >C16-C34 (F3)	µg/L	500	<500
TRH >C34-C40 (F4)	µg/L	500	<500
TRH C10-C36	µg/L	450	<450
TRH C10-C40	µg/L	650	<650
TRH >C10-C16 - Naphthalene (F2)	µg/L	60	<60

PAH (Polynuclear Aromatic Hydrocarbons) in Water [AN420] Tested: 9/7/2019

PARAMETER	UOM	LOR	WQA500B WATER - 28/6/2019 SE194695.001
Naphthalene	µg/L	0.1	<0.1
2-methylnaphthalene	µg/L	0.1	<0.1
1-methylnaphthalene	µg/L	0.1	<0.1
Acenaphthylene	µg/L	0.1	<0.1
Acenaphthene	µg/L	0.1	<0.1
Fluorene	µg/L	0.1	<0.1
Phenanthrene	µg/L	0.1	<0.1
Anthracene	µg/L	0.1	<0.1
Fluoranthene	µg/L	0.1	<0.1
Pyrene	µg/L	0.1	<0.1
Benzo(a)anthracene	µg/L	0.1	<0.1
Chrysene	µg/L	0.1	<0.1
Benzo(b&j)fluoranthene	µg/L	0.1	<0.1
Benzo(k)fluoranthene	µg/L	0.1	<0.1
Benzo(a)pyrene	µg/L	0.1	<0.1
Indeno(1,2,3-cd)pyrene	µg/L	0.1	<0.1
Dibenzo(ah)anthracene	µg/L	0.1	<0.1
Benzo(ghi)perylene	µg/L	0.1	<0.1
Total PAH (18)	µg/L	1	<1

Speciated Phenols in Water [AN420] Tested: 9/7/2019

PARAMETER	UOM	LOR	WQA500B WATER - 28/6/2019 SE194695.001
Phenol	µg/L	0.5	<0.5
2-methyl phenol (o-cresol)	µg/L	0.5	<0.5
3/4-methyl phenol (m/p-cresol)	µg/L	1	<1
Total Cresol	µg/L	1.5	<1.5
2-chlorophenol	µg/L	0.5	<0.5
2,4-dimethylphenol	µg/L	0.5	<0.5
2,6-dichlorophenol	µg/L	0.5	<0.5
2,4-dichlorophenol	µg/L	0.5	<0.5
2,4,6-trichlorophenol	µg/L	0.5	<0.5
2-nitrophenol	µg/L	0.5	<0.5
4-nitrophenol	µg/L	1	<1
2,4,5-trichlorophenol	µg/L	0.5	<0.5
2,3,4,6/2,3,5,6-tetrachlorophenol	µg/L	1	<1
Pentachlorophenol	µg/L	0.5	<0.5
2,4-dinitrophenol	µg/L	2	<2
4-chloro-3-methylphenol	µg/L	2	<2

OC Pesticides in Water [AN420] Tested: 9/7/2019

PARAMETER	UOM	LOR	WQA500B WATER - 28/6/2019 SE194695.001
Alpha BHC	µg/L	0.1	<0.1
Hexachlorobenzene (HCB)	µg/L	0.1	<0.1
Beta BHC	µg/L	0.1	<0.1
Lindane (gamma BHC)	µg/L	0.1	<0.1
Delta BHC	µg/L	0.1	<0.1
Heptachlor	µg/L	0.1	<0.1
Aldrin	µg/L	0.1	<0.1
Heptachlor epoxide	µg/L	0.1	<0.1
Gamma Chlordane	µg/L	0.1	<0.1
Alpha Chlordane	µg/L	0.1	<0.1
Alpha Endosulfan	µg/L	0.1	<0.1
o,p'-DDE	µg/L	0.1	<0.1
p,p'-DDE	µg/L	0.1	<0.1
Dieldrin	µg/L	0.1	<0.1
Endrin	µg/L	0.1	<0.1
Beta Endosulfan	µg/L	0.1	<0.1
o,p'-DDD	µg/L	0.1	<0.1
p,p'-DDD	µg/L	0.1	<0.1
Endosulfan sulphate	µg/L	0.1	<0.1
o,p'-DDT	µg/L	0.1	<0.1
p,p'-DDT	µg/L	0.1	<0.1
Endrin ketone	µg/L	0.1	<0.1
Methoxychlor	µg/L	0.1	<0.1
trans-Nonachlor	µg/L	0.1	<0.1
Endrin aldehyde	µg/L	0.1	<0.1
Isodrin	µg/L	0.1	<0.1
Mirex	µg/L	0.1	<0.1

OP Pesticides in Water [AN420] Tested: 9/7/2019

PARAMETER	UOM	LOR	WQA500B WATER - 28/6/2019 SE194695.001
Dichlorvos	µg/L	0.5	<0.5
Dimethoate	µg/L	0.5	<0.5
Diazinon (Dimpylate)	µg/L	0.5	<0.5
Fenitrothion	µg/L	0.2	<0.2
Malathion	µg/L	0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	µg/L	0.2	<0.2
Parathion-ethyl (Parathion)	µg/L	0.2	<0.2
Bromophos Ethyl	µg/L	0.2	<0.2
Methidathion	µg/L	0.5	<0.5
Ethion	µg/L	0.2	<0.2
Azinphos-methyl	µg/L	0.2	<0.2

PCBs in Water [AN420] Tested: 9/7/2019

PARAMETER	UOM	LOR	WQA500B WATER - 28/6/2019 SE194695.001
Arochlor 1016	µg/L	1	<1
Arochlor 1221	µg/L	1	<1
Arochlor 1232	µg/L	1	<1
Arochlor 1242	µg/L	1	<1
Arochlor 1248	µg/L	1	<1
Arochlor 1254	µg/L	1	<1
Arochlor 1260	µg/L	1	<1
Arochlor 1262	µg/L	1	<1
Arochlor 1268	µg/L	1	<1
Total Arochlors*	µg/L	5	<5

Trace Metals (Dissolved) in Water by ICPMS [AN318] Tested: 9/7/2019

PARAMETER	UOM	LOR	WQA500B WATER - 28/6/2019 SE194695.001
Arsenic, As	µg/L	1	<1
Cadmium, Cd	µg/L	0.1	<0.1
Chromium, Cr	µg/L	1	<1
Copper, Cu	µg/L	1	**15**
Lead, Pb	µg/L	1	<1
Nickel, Ni	µg/L	1	**3**
Zinc, Zn	µg/L	5	**19**

Mercury (dissolved) in Water [AN311(Perth)/AN312] Tested: 12/7/2019

PARAMETER	UOM	LOR	WQA500B WATER - 28/6/2019 SE194695.001
Mercury	mg/L	0.0001	<0.0001

METHOD	METHODOLOGY SUMMARY
AN020	Unpreserved water sample is filtered through a 0.45µm membrane filter and acidified with nitric acid similar to APHA3030B.
AN311(Perth)/AN312	Mercury by Cold Vapour AAS in Waters: Mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser. Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500.
AN318	Determination of elements at trace level in waters by ICP-MS technique, in accordance with USEPA 6020A.
AN403	Total Recoverable Hydrocarbons: Determination of Hydrocarbons by gas chromatography after a solvent extraction. Detection is by flame ionisation detector (FID) that produces an electronic signal in proportion to the combustible matter passing through it. Total Recoverable Hydrocarbons (TRH) are routinely reported as four alkane groupings based on the carbon chain length of the compounds: C6-C9, C10-C14, C15-C28 and C29-C36 and in recognition of the NEPM 1999 (2013), >C10-C16 (F2), >C16-C34 (F3) and >C34-C40 (F4). Where F2 is corrected for Naphthalene, the VOC data for Naphthalene is used.
AN403	Additionally, the volatile C6-C9/C6-C10 fractions may be determined by a purge and trap technique and GC/MS because of the potential for volatiles loss. Total Recoveerable Hydrocarbons - Silica (TRH-Silica) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with differential polarity of the eluent solvents.
AN403	The GC/FID method is not well suited to the analysis of refined high boiling point materials (ie lubricating oils or greases) but is particularly suited for measuring diesel, kerosene and petrol if care to control volatility is taken. This method will detect naturally occurring hydrocarbons, lipids, animal fats, phenols and PAHs if they are present at sufficient levels, dependent on the use of specific cleanup/fractionation techniques. Reference USEPA 3510B, 8015B.
AN420	(SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols (etc) in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN420	SVOC Compounds: Semi-Volatile Organic Compounds (SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN433	VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC`s are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.

FOOTNOTES

*	NATA accreditation does not cover the performance of this service.	-	Not analysed.	UOM	Unit of Measure.
		NVL	Not validated.	LOR	Limit of Reporting.
**	Indicative data, theoretical holding time exceeded.	IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
		LNR	Sample listed, but not received.		

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

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

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

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

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

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

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

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

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ANALYTICAL REPORT

Accreditation No. 2562

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Project	**SE194695**
Order Number	**SE194695**
Samples	1

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SGS Reference	**ME311145 R0**
Date Received	10 Jul 2019
Date Reported	17 Jul 2019

COMMENTS

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

MA1523: Majority of surrogate recoveries are within acceptable criteria

SIGNATORIES

Vanessa Palamara
Chemist

Parameter	Units	LOR	Sample Number ME311145.001 Sample Matrix Water Sample Date 02 Jul 2019 Sample Name SE194695.001
Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples	**Method: MA-1523**		**Tested: 11/7/2019**
Perfluorobutanoic acid (PFBA)	µg/L	0.002	**1.0**
Perfluoropentanoic acid (PFPeA)	µg/L	0.002	**0.012**
Perfluorohexanoic acid (PFHxA)	µg/L	0.002	**0.009**
Perfluoroheptanoic acid (PFHpA)	µg/L	0.002	**0.005**
Perfluorooctanoic Acid (PFOA)	µg/L	0.001	**0.019**
Perfluorononanoic acid (PFNA)	µg/L	0.004	<0.004
Perfluorodecanoic acid (PFDA)	µg/L	0.004	<0.004
Perfluoroundecanoic acid (PFUnA)	µg/L	0.004	<0.004
Perfluorododecanoic acid (PFDoA)	µg/L	0.004	<0.004
Perfluorotridecanoic acid (PFTrDA)	µg/L	0.004	<0.004
Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.004	<0.004
Perfluorohexadecanoic acid (PFHxDA)	µg/L	0.008	<0.008
Perfluorobutane sulfonate (PFBS)	µg/L	0.004	<0.004
Perfluoropentane sulfonate (PFPeS)	µg/L	0.004	<0.004
Perfluorohexane sulfonate (PFHxS)	µg/L	0.002	**0.004**
Perfluoroheptane sulfonate (PFHpS)	µg/L	0.002	<0.002
Perfluorooctane sulfonate (PFOS)	µg/L	0.002	**0.014**
Sum of PFHxS and PFOS	µg/L	0.002	**0.018**
Perfluorononane sulfonate (PFNS)	µg/L	0.002	<0.002
Perfluorodecane sulfonate (PFDS)	µg/L	0.002	<0.002
Perfluorododecane sulfonate (PFDoS)	µg/L	0.002	<0.002
1H,1H,2H,2H-Perfluorohexane sulfonate (4:2) (4:2 FTS)	µg/L	0.002	<0.002
1H,1H,2H,2H-Perfluorooctane sulfonate (6:2) (6:2 FTS)	µg/L	0.002	**0.002**
1H,1H,2H,2H-Perfluorodecane sulfonate (8:2) (8:2 FTS)	µg/L	0.002	<0.002
Perfluorooctane sulfonamide (PFOSA)	µg/L	0.008	<0.008
N-Methylperfluorooctane sulfonamide (N-MeFOSA)	µg/L	0.01	<0.01
N-Ethylperfluorooctane sulfonamide (N-EtFOSA)	µg/L	0.01	<0.01
2-(N-Methylperfluorooctane sulfonamido)-ethanol (N-MeFOSE)	µg/L	0.01	<0.01
2-(N-Ethylperfluorooctane sulfonamido)-ethanol (N-EtFOSE)	µg/L	0.01	<0.01
N-Methylperfluorooctanesulfonamidoacetic acid (N_MeFOSAA)	µg/L	0.01	<0.01
N-Ethylperfluorooctanesulfonamidoacetic Acid (N-EtFOSAA)	µg/L	0.01	<0.01
(13C4-PFBA) Surrogate	%	-	**99**
(13C5-PFPeA) Surrogate	%	-	**100**
(13C5-PFHxA) Surrogate	%	-	**96**
(13C4-PFHpA) Surrogate	%	-	**103**
(13C4_PFOA) Surrogate	%	-	**108**
(13C9-PFNA) Surrogate	%	-	**98**
(13C6-PFDA) Surrogate	%	-	**94**
(13C7-PFUdA) Surrogate	%	-	**99**
(13C2-PFDoA) Surrogate	%	-	**102**
(13C2_PFTeDA) Surrogate	%	-	**64**
(13C2-PFHxDA) Surrogate	%	-	**17**
(13C3-PFBS) Surrogate	%	-	**96**
(13C3-PFHxS) Surrogate	%	-	**93**
(13C8-PFOS) Surrogate	%	-	**114**
(13C2-4:2 FTS) Surrogate	%	-	**91**
(13C2-6:2 FTS) Surrogate	%	-	**95**
(13C2-8:2 FTS) Surrogate	%	-	**95**
(13C8-PFOSA) Surrogate	%	-	**88**
(D3-N-MeFOSA) Surrogate	%	-	**82**
(D5-N-EtFOSA) Surrogate	%	-	**65**
(D7-N-MeFOSE) Surrogate	%	-	**86**
(D9-N-EtFOSE) Surrogate	%	-	**77**
(D3-N-MeFOSAA) Surrogate	%	-	**80**
(D5-N-EtFOSAA) Surrogate	%	-	**84**

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

Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples Method: MA-1523

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Perfluorobutanoic acid (PFBA)	LB027551	µg/L	0.002	<0.002	8%	NA
Perfluoropentanoic acid (PFPeA)	LB027551	µg/L	0.002	<0.002	28%	NA
Perfluorohexanoic acid (PFHxA)	LB027551	µg/L	0.002	<0.002	5%	NA
Perfluoroheptanoic acid (PFHpA)	LB027551	µg/L	0.002	<0.002	6%	88%
Perfluorooctanoic Acid (PFOA)	LB027551	µg/L	0.001	<0.001	13%	89%
Perfluorononanoic acid (PFNA)	LB027551	µg/L	0.004	<0.004	0%	67%
Perfluorodecanoic acid (PFDA)	LB027551	µg/L	0.004	<0.004	0%	65%
Perfluoroundecanoic acid (PFUnA)	LB027551	µg/L	0.004	<0.004	0%	59%
Perfluorododecanoic acid (PFDoA)	LB027551	µg/L	0.004	<0.004	0%	71%
Perfluorotridecanoic acid (PFTrDA)	LB027551	µg/L	0.004	<0.004	0%	50%
Perfluorotetradecanoic acid (PFTeDA)	LB027551	µg/L	0.004	<0.004	0%	14%
Perfluorohexadecanoic acid (PFHxDA)	LB027551	µg/L	0.008	<0.008	0%	NA
Perfluorobutane sulfonate (PFBS)	LB027551	µg/L	0.004	<0.004	0%	NA
Perfluoropentane sulfonate (PFPeS)	LB027551	µg/L	0.004	<0.004	0%	NA
Perfluorohexane sulfonate (PFHxS)	LB027551	µg/L	0.002	<0.002	16%	NA
Perfluoroheptane sulfonate (PFHpS)	LB027551	µg/L	0.002	<0.002	0%	NA
Perfluorooctane sulfonate (PFOS)	LB027551	µg/L	0.002	<0.002	22%	84%
Sum of PFHxS and PFOS	LB027551	µg/L	0.002	<0.002	21%	NA
Perfluorononane sulfonate (PFNS)	LB027551	µg/L	0.002	<0.002	0%	NA
Perfluorodecane sulfonate (PFDS)	LB027551	µg/L	0.002	<0.002	0%	NA
Perfluorododecane sulfonate (PFDoS)	LB027551	µg/L	0.002	<0.002	0%	NA
1H,1H,2H,2H-Perfluorohexane sulfonate (4:2) (4:2 FTS)	LB027551	µg/L	0.002	<0.002	0%	NA
1H,1H,2H,2H-Perfluorooctane sulfonate (6:2) (6:2 FTS)	LB027551	µg/L	0.002	<0.002	72%	NA
1H,1H,2H,2H-Perfluorodecane sulfonate (8:2) (8:2 FTS)	LB027551	µg/L	0.002	<0.002	0%	NA
Perfluorooctane sulfonamide (PFOSA)	LB027551	µg/L	0.008	<0.008	0%	
N-Methylperfluorooctane sulfonamide (N-MeFOSA)	LB027551	µg/L	0.01	<0.01	0%	NA
N-Ethylperfluorooctane sulfonamide (N-EtFOSA)	LB027551	µg/L	0.01	<0.01	0%	NA
2-(N-Methylperfluorooctane sulfonamido)-ethanol (N-MeFOSE)	LB027551	µg/L	0.01	<0.01	0%	NA
2-(N-Ethylperfluorooctane sulfonamido)-ethanol (N-EtFOSE)	LB027551	µg/L	0.01	<0.01	0%	NA
N-Methylperfluorooctanesulfonamidoacetic acid (N_MeFOSAA)	LB027551	µg/L	0.01	<0.01	0%	NA
N-Ethylperfluorooctanesulfonamidoacetic Acid (N-EtFOSAA)	LB027551	µg/L	0.01	<0.01	0%	NA
(13C4-PFBA) Surrogate	LB027551	%	-	101%	2%	101%
(13C5-PFPeA) Surrogate	LB027551	%	-	102%	2%	99%
(13C5-PFHxA) Surrogate	LB027551	%	-	92%	5%	104%
(13C4-PFHpA) Surrogate	LB027551	%	-	94%	3%	99%
(13C4_PFOA) Surrogate	LB027551	%	-	92%	1%	104%
(13C9-PFNA) Surrogate	LB027551	%	-	102%	3%	103%
(13C6-PFDA) Surrogate	LB027551	%	-	107%	8%	102%
(13C7-PFUdA) Surrogate	LB027551	%	-	99%	20%	106%
(13C2-PFDoA) Surrogate	LB027551	%	-	88%	32%	114%
(13C2_PFTeDA) Surrogate	LB027551	%	-	71%	105%	147%
(13C2-PFHxDA) Surrogate	LB027551	%	-	38%	149%	156%
(13C3-PFBS) Surrogate	LB027551	%	-	101%	3%	104%
(13C3-PFHxS) Surrogate	LB027551	%	-	95%	6%	101%
(13C8-PFOS) Surrogate	LB027551	%	-	113%	1%	116%
(13C2-4:2 FTS) Surrogate	LB027551	%	-	98%	7%	100%
(13C2-6:2 FTS) Surrogate	LB027551	%	-	89%	3%	108%
(13C2-8:2 FTS) Surrogate	LB027551	%	-	98%	3%	105%
(13C8-PFOSA) Surrogate	LB027551	%	-	103%	3%	122%
(D3-N-MeFOSA) Surrogate	LB027551	%	-	133%	46%	184%
(D5-N-EtFOSA) Surrogate	LB027551	%	-	172%	74%	223%
(D7-N-MeFOSE) Surrogate	LB027551	%	-	105%	7%	132%
(D9-N-EtFOSE) Surrogate	LB027551	%	-	117%	21%	140%
(D3-N-MeFOSAA) Surrogate	LB027551	%	-	88%	20%	114%
(D5-N-EtFOSAA) Surrogate	LB027551	%	-	98%	23%	148%

METHOD SUMMARY

ME311145 R0

METHOD	METHODOLOGY SUMMARY
MA-1523	This method covers the analysis of per- and polyfluoroalkyl substances (PFAS) in aqueous, solid and biosolid samples and solvent extracts, determined as the total of linear and branched isomers. After spiking with isotopically labelled quantification surrogates and clean-up via SPE cartridges sample extracts are analysed by liquid chromatography/mass spectrometry (LC-MS/MS). PFAS concentrations are determined by isotope dilution quantification.

FOOTNOTES

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

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

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

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

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

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

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

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

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

Project No:	1791865	Lab Name:	SGS Australia
Site Location:	Marrickville	Quote No.	SY-698-17 C V4
Sampled By:	Golder-Douglas	Order No.:	SCOC10

Turnaround Time: 24hrs ☐ 48hrs ☐ Standard ■ | 36hrs ☐ 5 Days ☐ Date Required By:

Delivery Option: HARD ☐ DISK ☐ EMAIL ■ BULLETIN BOARD ☐

Report Format: PDF ■ EXCEL ■ ESDAT ■

GOLDER ASSOCIATES PTY LTD
124 Pacific Highway, Greenwich
Phone : (02) 9478 3900
Fax : (02) 9478 3901
Project Manager: Ben Seaford
Reviewed:
Job Contact : Barry Houston
Phone. 0416 826 175 Email: bhouston@golder.com.au

Comments/Special Instructions:

Include SCOC10 on SRN

ESDAT format results please
Please freeze ASS sample bags on ASAP.

Thanks!

ANALYSIS REQUIRED

LAB ID	SAMPLE ID	SAMPLE TIME	SAMPLE DATE	SAMPLE TYPE	SAMPLE MATRIX	No CONTAINERS	Level of Contamination (Low/High/Unknown)	ph FOX	pH	Asbestos (presence / absence)	Soils suite (TRH C6-C40, BTEXN, PAHs, OCPs/OPPs, 8 heavy metals (As, Cd, Cr, Cu, Ni, Pb, Hg, Zn)	VOCs	PCBs	Phenolics - Total	VHCs (Volatile Chlorinated / Halogenated Hydrocarbons)	Hexavalent Chromium	PFAS	BTEXN	ON HOLD
1	QA500B		1/06/2019	DS	Soil	1 jar	U				X	X	X	X					
2	QA501B		2/06/2019	DS	Soil	1 jar, 1 PFAS JAR	U				X	X	X	X					
R																			

SGS EHS Alexandria Laboratory

SE193855 COC
Received: 07 – Jun – 2019

SAMPLE MATRIX = Soil/Sediment/Fill/Water/Other

SAMPLE TYPE = Composite(C)/Discrete(DC)/Disturbed(DS)/Core(CR), Grab Sample (GS)

HIGH CONCENTRATION: circle expected parameters in analysis list

	SIGNATURE	COMPANY	DATE	TIME
RELEASED BY	Lisa Teng	Golder-Douglas	7/06/2019	11:30
RECEIVED BY		304	07/06/19	3:25
RELEASED BY				
RECEIVED BY				
RELEASED BY				
RECEIVED BY				

	SIGNATURE	COMPANY	DATE	TIME	Method of Shipment
RELEASED BY					Shipping Ref:
RECEIVED BY					

To Be Filled Out By Analysing Laboratory

LAB. BATCH NUMBER

Security Seal		Chilled		Bill to:	
Suitable Containers		Frozen		Address	
Cool Box		Ambient			

SAMPLE RECEIPT ADVICE

SE193855

CLIENT DETAILS

Contact	Barry Houston
Client	GOLDER ASSOCIATES PTY LTD
Address	PO BOX 1302 CROWS NEST NSW 1585
Telephone	02 9478 3900
Facsimile	02 9478 3901
Email	bhouston@golder.com.au
Project	**1791865 Marrickville**
Order Number	**SCOC10**
Samples	2

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
Samples Received	Fri 7/6/2019
Report Due	Mon 17/6/2019
SGS Reference	**SE193855**

SUBMISSION DETAILS

This is to confirm that 2 samples were received on Friday 7/6/2019. Results are expected to be ready by COB Monday 17/6/2019. Please quote SGS reference SE193855 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	Other Lab	Sample cooling method	Ice Bricks
Samples received in correct containers	Yes	Sample counts by matrix	2 Soil
Date documentation received	7/6/2019	Type of documentation received	COC
Samples received in good order	Yes	Samples received without headspace	Yes
Sample temperature upon receipt	4.7°C	Sufficient sample for analysis	Yes
Turnaround time requested	Standard		

Unless otherwise instructed, water and bulk samples will be held for one month from date of report, and soil samples will be held for two months.

COMMENTS

SAMPLE RECEIPT ADVICE

SE193855

CLIENT DETAILS

Client GOLDER ASSOCIATES PTY LTD

Project 1791865 Marrickville

SUMMARY OF ANALYSIS

No.	Sample ID	OC Pesticides in Soil	OP Pesticides in Soil	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	PCBs in Soil	Total Phenolics in Soil	TRH (Total Recoverable Hydrocarbons) in Soil	VOC's in Soil	Volatile Petroleum Hydrocarbons in Soil
001	QA500B	29	14	26	11	1	10	82	8
002	QA501B	29	14	26	11	1	10	82	8

CONTINUED OVERLEAF

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

SAMPLE RECEIPT ADVICE

SE193855

CLIENT DETAILS

Client GOLDER ASSOCIATES PTY LTD

Project 1791865 Marrickville

SUMMARY OF ANALYSIS

No.	Sample ID	Mercury in Soil	Moisture Content	Total Recoverable Elements in Soil/Waste
001	QA500B	1	1	7
002	QA501B	1	1	7

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

source: [Untitled].pdf page: 1 SGS Ref: SE194250_COC

E-MAILED
2016/6/19 04:18 p

Project No:	1791865	Lab Name:	SGS
Site Location:	Marrickville	Quote No.	
Sampled By:	Golder-Douglas	Order No.:	SCOC12
Turnaround Time	24hrs ☐ 48hrs ☐ Standard ■	36hrs ☐ 5 Days ☐ Date Required By:	
Delivery Option	HARD ☐ DISK ☐ EMAIL ■ BULLETIN BOARD ☐		
Report Format	PDF ■ EXCEL ■ ESDAT ■		

GOLDER ASSOCIATES PTY LTD
124 Pacific Highway, Greenwich
Project Manager: Ben Seaford
Job Contact: Barry Houston
Phone: (02) 9478 3900
Fax: (02) 9478 3901
Reviewed:
Phone: 0416 826 175 Email: bhouston@golder.com.au

Comments/Special Instructions:
Include SCOC12 on SRN

ESDAT format results please
Please freeze ASS sample bags on ASAP.

Thanks!

ANALYSIS REQUIRED

LAB ID	SAMPLE ID	SAMPLE TIME	SAMPLE DATE	SAMPLE TYPE	SAMPLE MATRIX	No CONTAINERS	Level of Contamination (Low/High/Unknown)	ph FOX	pH	Asbestos (presence / absence)	Soils suite (TRH C6-C40, BTEXN, PAHs, OCPs/OPPs, 8 heavy metals (As, Cd Cr, Cu, Ni, Pb, Hg, Zn)	VOCs	PCBs	Phenolics - Total	VHCs (Volatile Chlorinated / Halogenated Hydrocarbons)	Tributyltin	PFAS	BTEXN	ON HOLD
1	QA502B		11/06/2019		Soil	1 jar	U				X						X		
2	QA503B		11/06/2019		Soil	1 jar	U												X
3	QA504B		11/06/2019		Soil	1 jar	U				X						X		
R																			

SAMPLE MATRIX = Soil/Sediment/Fill/Water/Other
SAMPLE TYPE = Composite(C)/Discrete(DC)/Disturbed(DS)/Core(CR), Grab Sample (GS)
HIGH CONCENTRATION:circle expected parameters in analysis list

	SIGNATURE	COMPANY	DATE	TIME
RELEASED BY	Celine Li	Golder-Douglas	14/06/2019	13:40:00 PM
RECEIVED BY		SGS	17/6	9:55
RELEASED BY				
RECEIVED BY				
RELEASED BY				
RECEIVED BY				

	SIGNATURE	COMPANY	DATE	TIME	Method of Shipment
RELEASED BY					Shipping Ref:
RECEIVED BY					

To Be Filled Out By Analysing Laboratory

Security Seal	Y	Chilled	
Suitable Containers	Y	Frozen	
Cool Box	Y	Ambient	

LAB. BATCH NUMBER: SE194250
Bill to:
Address

SGS EHS Alexandria Laboratory

SE194250 COC
Received: 17 – Jun – 2019

SAMPLE RECEIPT ADVICE

SE194250

CLIENT DETAILS

Contact	Barry Houston
Client	GOLDER ASSOCIATES PTY LTD
Address	PO BOX 1302 CROWS NEST NSW 1585
Telephone	02 9478 3900
Facsimile	02 9478 3901
Email	bhouston@golder.com.au
Project	**1791865 Marrickville**
Order Number	(Not specified)
Samples	3

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
Samples Received	Mon 17/6/2019
Report Due	Thu 27/6/2019
SGS Reference	**SE194250**

SUBMISSION DETAILS

This is to confirm that 3 samples were received on Monday 17/6/2019. Results are expected to be ready by COB Thursday 27/6/2019. Please quote SGS reference SE194250 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	Other Lab	Sample cooling method	Ice
Samples received in correct containers	Yes	Sample counts by matrix	3 Soils
Date documentation received	20/6/19@4:18pm	Type of documentation received	COC
Samples received in good order	Yes	Samples received without headspace	Yes
Sample temperature upon receipt	2.1°C	Sufficient sample for analysis	Yes
Turnaround time requested	Standard		

Unless otherwise instructed, water and bulk samples will be held for one month from date of report, and soil samples will be held for two months.

COMMENTS

PFAS subcontracted to SGS Melbourne, 10/585 Blackburn Road, Notting Hill, VIC, NATA Accreditation Numbe. 2562/14420.

SAMPLE RECEIPT ADVICE

SE194250

CLIENT DETAILS

Client GOLDER ASSOCIATES PTY LTD

Project 1791865 Marrickville

SUMMARY OF ANALYSIS

No.	Sample ID	OC Pesticides in Soil	OP Pesticides in Soil	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	Total Recoverable Elements in Soil/Waste	TRH (Total Recoverable Hydrocarbons) in Soil	VOC's in Soil	Volatile Petroleum Hydrocarbons in Soil
001	QA502B	29	14	26	7	10	12	8
003	QA504B	29	14	26	7	10	12	8

CONTINUED OVERLEAF

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

SAMPLE RECEIPT ADVICE

SE194250

CLIENT DETAILS

Client GOLDER ASSOCIATES PTY LTD

Project 1791865 Marrickville

SUMMARY OF ANALYSIS

No.	Sample ID	Mercury in Soil	Moisture Content	Sample Subcontracted
001	QA502B	1	1	1
003	QA504B	1	1	1

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

E-MAILED
27/6/19 PG-3L

Project No:	1791865	Lab Name:	SGS
Site Location:	Marrickville	Quote No.	
Sampled By:	Golder-Douglas	Order No.:	SCOC14
Turnaround Time	24hrs ☐ 48hrs ☐ Standard ■	36hrs ☐ 5 Days ☐ Date Required By:	
Delivery Option	HARD ☐ DISK ☐ EMAIL ■ BULLETIN BOARD ☐		
Report Format	PDF ■ EXCEL ■ ESDAT ■		

GOLDER ASSOCIATES PTY LTD
124 Pacific Highway, Greenwich
Project Manager: Ben Seaford
Job Contact: Barry Houston
Phone: (02) 9478 3900
Fax: (02) 9478 3901
Reviewed:
Phone: 0416 826 175 Email: bhouston@golder.com.au

Comments/Special Instructions:

Include SCOC14 on SRN

ESDAT format results please
Please freeze ASS sample bags on ASAP.

Thanks!

ANALYSIS REQUIRED

LAB ID	SAMPLE ID	SAMPLE TIME	SAMPLE DATE	SAMPLE TYPE	SAMPLE MATRIX	No CONTAINERS	Level of Contamination (Low/High/Unknown)	ph FOX	pH	Asbestos (presence / absence)	Soils suite (TRH C6-C40, BTEXN, PAHs, OCPs/OPPs, 8 heavy metals (As, Cd, Cr, Cu, Ni, Pb, Hg, Zn)	VOCs	PCBs	Phenolics - Total	VHCs (Volatile Chlorinated / Halogenated Hydrocarbons)	Tributyltin	PFAS	BTEXN	ON HOLD
1	QA506B		22/06/2019		Soil	1 jar	U				X								
2	QA507B		23/06/2019		Soil	1 jar	U				X								
3	QA508B		23/06/2019		Soil	1 jar	U				X								
R																			

SAMPLE MATRIX = Soil/Sediment/Fill/Water/Other
SAMPLE TYPE = Composite(C)/Discrete(DC)/Disturbed(DS)/Core(CR), Grab Sample (GS)
HIGH CONCENTRATION:circle expected parameters in analysis list

	SIGNATURE	COMPANY	DATE	TIME
RELEASED BY	Celine Li	Golder-Douglas	24/06/2019	13:40:00 PM
RECEIVED BY		SGS	24/6	14:40
RELEASED BY				
RECEIVED BY				
RELEASED BY				
RECEIVED BY				

	SIGNATURE	COMPANY	DATE	TIME	Method of Shipment
RELEASED BY					Shipping Ref.
RECEIVED BY					

To Be Filled Out By Analysing Laboratory

LAB. BATCH NUMBER

Security Seal		Chilled		Bill to:	
Suitable Containers		Frozen		Address	
Cool Box		Ambient			

SGS EHS Alexandria Laboratory
SE194568 COC
Received: 24 – Jun – 2019

Project No:	1791865	Lab Name:	SGS Australia
Site Location:	Marrickville	Quote No.	SY-698-17 C V4
Sampled By:	Golder-Douglas	Order No.:	SCOC (temporary)

Turnaround Time	24hrs ☐	48hrs ☐	Standard ■			
	36hrs ☐	5 Days ☐	Date Required By:			
Delivery Option	HARD ☐	DISK ☐	EMAIL ■	BULLETIN BOARD ☐		
Report Format	PDF ■	EXCEL ■	ESDAT ■			

GOLDER ASSOCIATES PTY LTD
124 Pacific Highway, Greenwich
Phone: : (02) 9478 3900
Fax : (02) 9478 3901
Project Manager: Ben Seaford
Reviewed:
Job Contact : Barry Houston
Phone: 0416 826 175 Email: bhouston@golder.com.au

Comments/Special Instructions:

Include SCOCXXXX on SRN

ESDAT format results please
Please freeze ASS sample bags on ASAP.

Thanks!

ANALYSIS REQUIRED

LAB ID	SAMPLE ID	SAMPLE TIME	SAMPLE DATE	SAMPLE TYPE	SAMPLE MATRIX	No CONTAINERS	Level of Contamination (Low/High/Unknown)	ph FOX	pH	Asbestos (presence / absence)	Soils suite (TRH C6-C40, BTEXN, PAHs, OCPs/OPPs, 8 heavy metals (As, Cd, Cr, Cu, Ni, Pb, Hg, Zn)	VOCs	PCBs	Phenolics - Total	VHCs (Volatile Chlorinated / Halogenated Hydrocarbons)	Hexavalent Chromium	PFAS	BTEXN	ON HOLD
1	QA506B		22/06/2019	DC	Soil	1 jar	U												X
2	QA507B		23/06/2019	DC	Soil	1 jar	U												X
3	QA508B		23/06/2019	DC	Soil	1 jar	U												X
R																			

SAMPLE MATRIX = Soil/Sediment/Fill/Water/Other

SAMPLE TYPE = Composite(C)/Discrete(DC)/Disturbed(DS)/Core(CR), Grab Sample (GS)

HIGH CONCENTRATION: circle expected parameters in analysis list

	SIGNATURE	COMPANY	DATE	TIME
RELEASED BY	Lisa Teng	Golder-Douglas		14:00
RECEIVED BY		SGS	24/06	4:40
RELEASED BY				
RECEIVED BY				
RELEASED BY				
RECEIVED BY				

	SIGNATURE	COMPANY	DATE	TIME	Method of Shipment
RELEASED BY					Shipping Ref:
RECEIVED BY					

To Be Filled Out By Analysing Laboratory

LAB. BATCH NUMBER

Security Seal		Chilled		Bill to:	
Suitable Containers		Frozen		Address	
Cool Box		Ambient			

SAMPLE RECEIPT ADVICE

SE194568

CLIENT DETAILS

Contact	Barry Houston
Client	GOLDER ASSOCIATES PTY LTD
Address	PO BOX 1302 CROWS NEST NSW 1585
Telephone	02 9478 3900
Facsimile	02 9478 3901
Email	bhouston@golder.com.au
Project	**1791865 Marrickville**
Order Number	**SCOC14**
Samples	3

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
Samples Received	Mon 24/6/2019
Report Due	Thu 4/7/2019
SGS Reference	**SE194568**

SUBMISSION DETAILS

This is to confirm that 3 samples were received on Monday 24/6/2019. Results are expected to be ready by COB Thursday 4/7/2019. Please quote SGS reference SE194568 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	Other Lab	Sample cooling method	Ice Bricks
Samples received in correct containers	Yes	Sample counts by matrix	3 Soil
Date documentation received	27/6/19@6:31pm	Type of documentation received	COC
Samples received in good order	Yes	Samples received without headspace	Yes
Sample temperature upon receipt	9.3°C	Sufficient sample for analysis	Yes
Turnaround time requested	Standard		

Unless otherwise instructed, water and bulk samples will be held for one month from date of report, and soil samples will be held for two months.

COMMENTS

SAMPLE RECEIPT ADVICE

SE194568

CLIENT DETAILS

Client GOLDER ASSOCIATES PTY LTD

Project 1791865 Marrickville

SUMMARY OF ANALYSIS

No.	Sample ID	OC Pesticides in Soil	OP Pesticides in Soil	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	Total Recoverable Elements in Soil/Waste	TRH (Total Recoverable Hydrocarbons) in Soil	VOC's in Soil	Volatile Petroleum Hydrocarbons in Soil
001	QA506B	29	14	26	7	10	12	8
002	QA507B	29	14	26	7	10	12	8
003	QA508B	29	14	26	7	10	12	8

CONTINUED OVERLEAF

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

SAMPLE RECEIPT ADVICE

SE194568

CLIENT DETAILS

Client GOLDER ASSOCIATES PTY LTD

Project 1791865 Marrickville

SUMMARY OF ANALYSIS

No.	Sample ID	Mercury in Soil	Moisture Content
001	QA506B	1	1
002	QA507B	1	1
003	QA508B	1	1

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

Project No:	1791865	Lab Name:	SGS Australia
Site Location:	Marrickville	Quote No.	
Sampled By:	Golder-Douglas	Order No.:	SCOC15
Turnaround Time	24hrs ☐ 48hrs ☐ Standard ■	36hrs ☐ 5 Days ☐ Date Required By:	
Delivery Option	HARD ☐ DISK ☐ EMAIL ■ BULLETIN BOARD ☐		
Report Format	PDF ■ EXCEL ■ ESDAT ■		

GOLDER ASSOCIATES PTY LTD
124 Pacific Highway, Greenwich
Phone : (02) 9478 3900
Fax : (02) 9478 3901
Project Manager: Ben Seaford
Reviewed:
Job Contact : Barry Houston
Phone 0416 826 175 Email: bhouston@golder.com.au

Comments/Special Instructions:

Include SCOC15 on SRA

ESDAT format results please
Please freeze ASS sample bags on ASAP.

Thanks!

ANALYSIS REQUIRED

LAB ID	SAMPLE ID	SAMPLE TIME	SAMPLE DATE	SAMPLE TYPE	SAMPLE MATRIX	No CONTAINERS	Level of Contamination (Low/High/Unknown)	CL15 - TRHC6-C40, BTEXN, PAH, PHENOLS, OC/OP/PCBs, 8 heavy metals	VOCs 8260	PFAS	BTEXN
	WQA500B		2/07/2019	Water		8	U	X	X	X	
R											

SGS EHS Alexandria Laboratory
SE194695 COC
Received: 28 – Jun – 2019

SAMPLE MATRIX = Soil/Sediment/Fill/Water/Other

SAMPLE TYPE = Composite(C)/Discrete(DC)/Disturbed(DS)/Core(CR), Grab Sample (GS)

HIGH CONCENTRATION: circle expected parameters in analysis list

	SIGNATURE	COMPANY	DATE	TIME
RELEASED BY	Lisa Teng	Golder-Douglas	28/06/2019	12:45
RECEIVED BY		SGS	28/6/19	12:45
RELEASED BY				
RECEIVED BY				
RELEASED BY				
RECEIVED BY				

	SIGNATURE	COMPANY	DATE	TIME	Method of Shipment
RELEASED BY					Shipping Ref.
RECEIVED BY					

To Be Filled Out By Analysing Laboratory

LAB. BATCH NUMBER

Security Seal		Chilled		Bill to:	
Suitable Containers		Frozen		Address	
Cool Box		Ambient			

Project No:	1791865	Lab Name:	SGS Australia
Site Location:	Marrickville	Quote No.	SY-698-17 C V4
Sampled By:	Golder-Douglas	Order No.:	SCOC (temporary)
Turnaround Time	24hrs ☐ 48hrs ☐ Standard ■		
	36hrs ☐ 5 Days ☐ Date Required By:		
Delivery Option	HARD ☐ DISK ☐ EMAIL ■ BULLETIN BOARD ☐		
Report Format	PDF ■ EXCEL ■ ESDAT ■		

GOLDER ASSOCIATES PTY LTD
124 Pacific Highway, Greenwich
Project Manager: Ben Seaford
Job Contact : Barry Houston
Phone: : (02) 9478 3900
Fax : (02) 9478 3901
Reviewed:
Phone: 0416 826 175 Email: bhouston@golder.com.au

Comments/Special Instructions:

Include SCOCXXXX on SRN

ESDAT format results please
Please freeze ASS sample bags on ASAP.

Thanks!

ANALYSIS REQUIRED

LAB ID	SAMPLE ID	SAMPLE TIME	SAMPLE DATE	SAMPLE TYPE	SAMPLE MATRIX	No CONTAINERS	Level of Contamination (Low/High/Unknown)	ph FOX	pH	Asbestos (presence / absence)	Soils suite (TRH C6-C40, BTEXN, PAHs, OCPs/OPPs, 8 heavy metals (As, Cd, Cr, Cu, Ni, Pb, Hg, Zn)	VOCs	PCBs	Phenolics - Total	VHCs (Volatile Chlorinated / Halogenated Hydrocarbons)	Hexavalent Chromium	PFAS	BTEXN	ON HOLD
1	WQA500B		28/6/19	W		8	U												X
R																			

SAMPLE MATRIX = Soil/Sediment/Fill/Water/Other

SAMPLE TYPE = Composite(C)/Discrete(DC)/Disturbed(DS)/Core(CR), Grab Sample (GS)

HIGH CONCENTRATION: circle expected parameters in analysis list

	SIGNATURE	COMPANY	DATE	TIME
RELEASED BY	Lisa Teng	Golder-Douglas	28/6/19	12:45
RECEIVED BY		SGS	28/6/19	12:45
RELEASED BY				
RECEIVED BY				
RELEASED BY				
RECEIVED BY				

	SIGNATURE	COMPANY	DATE	TIME	Method of Shipment
RELEASED BY					Shipping Ref:
RECEIVED BY					

To Be Filled Out By Analysing Laboratory

LAB. BATCH NUMBER

Security Seal		Chilled		Bill to:	
Suitable Containers		Frozen		Address	
Cool Box		Ambient			

SAMPLE RECEIPT ADVICE

ME311145

CLIENT DETAILS

Contact	Huong Crawford
Client	SGS EHS SYDNEY
Address	Unit 16, 33 Maddox Street Alexandria NSW 2015
Telephone	02 8594 0400
Facsimile	02 8594 0499
Email	au.environmental.sydney@sgs.com
Project	**SE194695**
Order Number	**SE194695**
Samples	1

LABORATORY DETAILS

Manager	Adam Atkinson
Laboratory	SGS Melbourne EH&S
Address	10/585 Blackburn Road Notting Hill Victoria 3168
Telephone	+61395743200
Facsimile	+61395743399
Email	Au.SampleReceipt.Melbourne@sgs.com
Samples Received	Wed 10/7/2019
Report Due	Mon 15/7/2019
SGS Reference	**ME311145**

SUBMISSION DETAILS

This is to confirm that 1 sample was received on Wednesday 10/7/2019. Results are expected to be ready by COB Monday 15/7/2019. Please quote SGS reference ME311145 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	SGS	Sample cooling method	Ice Bricks
Samples received in correct containers	Yes	Sample counts by matrix	1 Water
Date documentation received	10/7/2019	Type of documentation received	COC
Number of eskies/boxes received	1	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	10.1°C
Sufficient sample for analysis	Yes	Turnaround time requested	Three Days

Unless otherwise instructed, water and bulk samples will be held for one month from date of report, and soil samples will be held for two months.

COMMENTS

SAMPLE RECEIPT ADVICE

ME311145

CLIENT DETAILS

Client SGS EHS SYDNEY

Project SE194695

SUMMARY OF ANALYSIS

No.	Sample ID	Per- and Polyfluoroalkyl Substances (PFAS) in
001	SE194695.001	55

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

SAMPLE RECEIPT ADVICE

SE194695

CLIENT DETAILS

Contact	Barry Houston
Client	GOLDER ASSOCIATES PTY LTD
Address	PO BOX 1302 CROWS NEST NSW 1585
Telephone	02 9478 3900
Facsimile	02 9478 3901
Email	bhouston@golder.com.au
Project	**1791865 Marrickville**
Order Number	**SCOC**
Samples	1

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
Samples Received	Fri 28/6/2019
Report Due	Mon 15/7/2019
SGS Reference	**SE194695**

SUBMISSION DETAILS

This is to confirm that 1 sample was received on Friday 28/6/2019. Results are expected to be ready by COB Monday 15/7/2019. Please quote SGS reference SE194695 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	Client	Sample cooling method	Ice
Samples received in correct containers	Yes	Sample counts by matrix	1 Water
Date documentation received	28/6/2019	Type of documentation received	COC
Samples received in good order	Yes	Samples received without headspace	Yes
Sample temperature upon receipt	4°C	Sufficient sample for analysis	Yes
Turnaround time requested	On Hold		

Unless otherwise instructed, water and bulk samples will be held for one month from date of report, and soil samples will be held for two months.

COMMENTS

PFAS subcontracted to SGS Melbourne, 10/585 Blackburn Road, Notting Hill, VIC, NATA Accreditation Numbe. 2562/14420.

SAMPLE RECEIPT ADVICE

SE194695

CLIENT DETAILS

Client GOLDER ASSOCIATES PTY LTD

Project 1791865 Marrickville

SUMMARY OF ANALYSIS

No.	Sample ID	OC Pesticides in Water	OP Pesticides in Water	PAH (Polynuclear Aromatic Hydrocarbons) in Water	PCBs in Water	Speciated Phenols in Water	TRH (Total Recoverable Hydrocarbons) in Water	VOCs in Water	Volatile Petroleum Hydrocarbons in Water
001	WQA500B	28	13	22	11	18	10	79	8

CONTINUED OVERLEAF

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

SAMPLE RECEIPT ADVICE

SE194695

CLIENT DETAILS

Client GOLDER ASSOCIATES PTY LTD

Project 1791865 Marrickville

SUMMARY OF ANALYSIS

No.	Sample ID	Mercury (dissolved) in Water	Trace Metals (Dissolved) in Water by ICPMS
001	WQA500B	1	7

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

STATEMENT OF QA/QC PERFORMANCE

ME311145 R0

CLIENT DETAILS

Contact	Barry Houston
Client	GOLDER ASSOCIATES PTY LTD
Address	Level 8 Mount Street North Sydney NSW 2065
Telephone	0416 826 175
Facsimile	02 9478 3901
Email	au.environmental.sydney@sgs.com
Project	**SE194695**
Order Number	**SE194695**
Samples	1

LABORATORY DETAILS

Manager	Adam Atkinson
Laboratory	SGS Melbourne EH&S
Address	10/585 Blackburn Road Notting Hill Victoria 3168
Telephone	+61395743200
Facsimile	+61395743399
Email	Au.SampleReceipt.Melbourne@sgs.com
SGS Reference	**ME311145 R0**
Date Received	10 Jul 2019
Date Reported	17 Jul 2019

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document.
This QA/QC Statement must be read in conjunction with the referenced Analytical Report.
The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met with the exception of the following:

METHOD BLANK	Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples	1 item
LCS	Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples	3 items

SAMPLE SUMMARY

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	SGS	Sample cooling method	Ice Bricks
Samples received in correct containers	Yes	Sample counts by matrix	1 Water
Date documentation received	10/7/2019	Type of documentation received	COC
Number of eskies/boxes received	1	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	10.1°C
Sufficient sample for analysis	Yes	Turnaround time requested	Three Days

HOLDING TIME SUMMARY

ME311145 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS “Field Sampling Guide for Containers and Holding Time” (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples — **Method: MA-1523**

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
SE194695.001	ME311145.001	LB027551	02 Jul 2019	10 Jul 2019	16 Jul 2019	11 Jul 2019	08 Aug 2019	16 Jul 2019

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples — **Method: MA-1523**

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
(13C2_PFTeDA) Surrogate	SE194695.001	ME311145.001	%	10 - 150%	64
(13C2-4:2 FTS) Surrogate	SE194695.001	ME311145.001	%	10 - 150%	91
(13C2-6:2 FTS) Surrogate	SE194695.001	ME311145.001	%	10 - 150%	95
(13C2-8:2 FTS) Surrogate	SE194695.001	ME311145.001	%	10 - 150%	95
(13C2-PFDoA) Surrogate	SE194695.001	ME311145.001	%	10 - 150%	102
(13C2-PFHxDA) Surrogate	SE194695.001	ME311145.001	%	10 - 150%	17
(13C3-PFBS) Surrogate	SE194695.001	ME311145.001	%	10 - 150%	96
(13C3-PFHxS) Surrogate	SE194695.001	ME311145.001	%	10 - 150%	93
(13C4_PFOA) Surrogate	SE194695.001	ME311145.001	%	10 - 150%	108
(13C4-PFBA) Surrogate	SE194695.001	ME311145.001	%	10 - 150%	99
(13C4-PFHpA) Surrogate	SE194695.001	ME311145.001	%	10 - 150%	103
(13C5-PFHxA) Surrogate	SE194695.001	ME311145.001	%	10 - 150%	96
(13C5-PFPeA) Surrogate	SE194695.001	ME311145.001	%	10 - 150%	100
(13C6-PFDA) Surrogate	SE194695.001	ME311145.001	%	10 - 150%	94
(13C7-PFUdA) Surrogate	SE194695.001	ME311145.001	%	10 - 150%	99
(13C8-PFOS) Surrogate	SE194695.001	ME311145.001	%	10 - 150%	114
(13C8-PFOSA) Surrogate	SE194695.001	ME311145.001	%	10 - 150%	88
(13C9-PFNA) Surrogate	SE194695.001	ME311145.001	%	10 - 150%	98
(D3-N-MeFOSA) Surrogate	SE194695.001	ME311145.001	%	10 - 150%	82
(D3-N-MeFOSAA) Surrogate	SE194695.001	ME311145.001	%	10 - 150%	80
(D5-N-EtFOSA) Surrogate	SE194695.001	ME311145.001	%	10 - 150%	65
(D5-N-EtFOSAA) Surrogate	SE194695.001	ME311145.001	%	10 - 150%	84
(D7-N-MeFOSE) Surrogate	SE194695.001	ME311145.001	%	10 - 150%	86
(D9-N-EtFOSE) Surrogate	SE194695.001	ME311145.001	%	10 - 150%	77

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples — **Method: MA-1523**

Sample Number	Parameter	Units	LOR	Result
LB027551.001	Perfluorobutanoic acid (PFBA)	µg/L	0.002	<0.002
	Perfluoropentanoic acid (PFPeA)	µg/L	0.002	<0.002
	Perfluorohexanoic acid (PFHxA)	µg/L	0.002	<0.002
	Perfluoroheptanoic acid (PFHpA)	µg/L	0.002	<0.002
	Perfluorooctanoic Acid (PFOA)	µg/L	0.001	<0.001
	Perfluorononanoic acid (PFNA)	µg/L	0.004	<0.004
	Perfluorodecanoic acid (PFDA)	µg/L	0.004	<0.004
	Perfluoroundecanoic acid (PFUnA)	µg/L	0.004	<0.004
	Perfluorododecanoic acid (PFDoA)	µg/L	0.004	<0.004
	Perfluorotridecanoic acid (PFTrDA)	µg/L	0.004	<0.004
	Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.004	<0.004
	Perfluorohexadecanoic acid (PFHxDA)	µg/L	0.008	<0.008
	Perfluorobutane sulfonate (PFBS)	µg/L	0.004	<0.004
	Perfluoropentane sulfonate (PFPeS)	µg/L	0.004	<0.004
	Perfluorohexane sulfonate (PFHxS)	µg/L	0.002	<0.002
	Perfluoroheptane sulfonate (PFHpS)	µg/L	0.002	<0.002
	Perfluorooctane sulfonate (PFOS)	µg/L	0.002	<0.002
	Sum of PFHxS and PFOS	µg/L	0.002	<0.002
	Perfluorononane sulfonate (PFNS)	µg/L	0.002	<0.002
	Perfluorodecane sulfonate (PFDS)	µg/L	0.002	<0.002
	Perfluorododecane sulfonate (PFDoS)	µg/L	0.002	<0.002
	1H,1H,2H,2H-Perfluorohexane sulfonate (4:2) (4:2 FTS)	µg/L	0.002	<0.002
	1H,1H,2H,2H-Perfluorooctane sulfonate (6:2) (6:2 FTS)	µg/L	0.002	<0.002
	1H,1H,2H,2H-Perfluorodecane sulfonate (8:2) (8:2 FTS)	µg/L	0.002	<0.002
	Perfluorooctane sulfonamide (PFOSA)	µg/L	0.008	<0.008
	N-Methylperfluorooctane sulfonamide (N-MeFOSA)	µg/L	0.01	<0.01
	N-Ethylperfluorooctane sulfonamide (N-EtFOSA)	µg/L	0.01	<0.01
	2-(N-Methylperfluorooctane sulfonamido)-ethanol (N-MeFOSE)	µg/L	0.01	<0.01
	2-(N-Ethylperfluorooctane sulfonamido)-ethanol (N-EtFOSE)	µg/L	0.01	<0.01
	N-Methylperfluorooctanesulfonamidoacetic acid (N_MeFOSAA)	µg/L	0.01	<0.01
	N-Ethylperfluorooctanesulfonamidoacetic Acid (N-EtFOSAA)	µg/L	0.01	<0.01
	(13C4-PFBA) Surrogate	%	-	101
	(13C5-PFPeA) Surrogate	%	-	102
	(13C5-PFHxA) Surrogate	%	-	92
	(13C4-PFHpA) Surrogate	%	-	94
	(13C4_PFOA) Surrogate	%	-	92
	(13C9-PFNA) Surrogate	%	-	102
	(13C6-PFDA) Surrogate	%	-	107
	(13C7-PFUdA) Surrogate	%	-	99
	(13C2-PFDoA) Surrogate	%	-	88
	(13C2_PFTeDA) Surrogate	%	-	71
	(13C2-PFHxDA) Surrogate	%	-	38
	(13C3-PFBS) Surrogate	%	-	101
	(13C3-PFHxS) Surrogate	%	-	95
	(13C8-PFOS) Surrogate	%	-	113
	(13C2-4:2 FTS) Surrogate	%	-	98
	(13C2-6:2 FTS) Surrogate	%	-	89
	(13C2-8:2 FTS) Surrogate	%	-	98
	(13C8-PFOSA) Surrogate	%	-	103
	(D3-N-MeFOSA) Surrogate	%	-	133
	(D5-N-EtFOSA) Surrogate	%	-	172
	(D7-N-MeFOSE) Surrogate	%	-	105
	(D9-N-EtFOSE) Surrogate	%	-	117
	(D3-N-MeFOSAA) Surrogate	%	-	88
	(D5-N-EtFOSAA) Surrogate	%	-	98

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples — **Method: MA-1523**

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
ME311145.001	LB027551.004	Perfluorobutanoic acid (PFBA)	µg/L	0.002	1.0	0.96	200	8
		Perfluoropentanoic acid (PFPeA)	µg/L	0.002	0.012	0.016	200	28
		Perfluorohexanoic acid (PFHxA)	µg/L	0.002	0.009	0.010	200	5
		Perfluoroheptanoic acid (PFHpA)	µg/L	0.002	0.005	0.005	200	6
		Perfluorooctanoic Acid (PFOA)	µg/L	0.001	0.019	0.021	200	13
		Perfluorononanoic acid (PFNA)	µg/L	0.004	<0.004	<0.004	200	0
		Perfluorodecanoic acid (PFDA)	µg/L	0.004	<0.004	<0.004	200	0
		Perfluoroundecanoic acid (PFUnA)	µg/L	0.004	<0.004	<0.004	200	0
		Perfluorododecanoic acid (PFDoA)	µg/L	0.004	<0.004	<0.004	200	0
		Perfluorotridecanoic acid (PFTrDA)	µg/L	0.004	<0.004	<0.004	200	0
		Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.004	<0.004	<0.004	200	0
		Perfluorohexadecanoic acid (PFHxDA)	µg/L	0.008	<0.008	<0.008	200	0
		Perfluorobutane sulfonate (PFBS)	µg/L	0.004	<0.004	<0.004	200	0
		Perfluoropentane sulfonate (PFPeS)	µg/L	0.004	<0.004	<0.004	200	0
		Perfluorohexane sulfonate (PFHxS)	µg/L	0.002	0.004	0.005	200	16
		Perfluoroheptane sulfonate (PFHpS)	µg/L	0.002	<0.002	<0.002	200	0
		Perfluorooctane sulfonate (PFOS)	µg/L	0.002	0.014	0.017	200	22
		Sum of PFHxS and PFOS	µg/L	0.002	0.018	0.022	200	21
		Perfluorononane sulfonate (PFNS)	µg/L	0.002	<0.002	<0.002	200	0
		Perfluorodecane sulfonate (PFDS)	µg/L	0.002	<0.002	<0.002	200	0
		Perfluorododecane sulfonate (PFDoS)	µg/L	0.002	<0.002	<0.002	200	0
		1H,1H,2H,2H-Perfluorohexane sulfonate (4:2) (4:2 FTS)	µg/L	0.002	<0.002	<0.002	200	0
		1H,1H,2H,2H-Perfluorooctane sulfonate (6:2) (6:2 FTS)	µg/L	0.002	0.002	0.005	200	72
		1H,1H,2H,2H-Perfluorodecane sulfonate (8:2) (8:2 FTS)	µg/L	0.002	<0.002	<0.002	200	0
		Perfluorooctane sulfonamide (PFOSA)	µg/L	0.008	<0.008	<0.008	200	0
		N-Methylperfluorooctane sulfonamide (N-MeFOSA)	µg/L	0.01	<0.01	<0.01	200	0
		N-Ethylperfluorooctane sulfonamide (N-EtFOSA)	µg/L	0.01	<0.01	<0.01	200	0
		2-(N-Methylperfluorooctane sulfonamido)-ethanol	µg/L	0.01	<0.01	<0.01	200	0
		2-(N-Ethylperfluorooctane sulfonamido)-ethanol	µg/L	0.01	<0.01	<0.01	200	0
		N-Methylperfluorooctanesulfonamidoacetic acid	µg/L	0.01	<0.01	<0.01	200	0
		N-Ethylperfluorooctanesulfonamidoacetic Acid	µg/L	0.01	<0.01	<0.01	200	0
		(13C4-PFBA) Surrogate	µg/L	-	9.86	10.1	200	2
		(13C5-PFPeA) Surrogate	µg/L	-	9.97	10.2	200	2
		(13C5-PFHxA) Surrogate	µg/L	-	9.62	10.1	200	5
		(13C4-PFHpA) Surrogate	µg/L	-	10.3	10.1	200	3
		(13C4_PFOA) Surrogate	µg/L	-	10.8	10.9	200	1
		(13C9-PFNA) Surrogate	µg/L	-	9.80	9.54	200	3
		(13C6-PFDA) Surrogate	µg/L	-	9.41	10.2	200	8
		(13C7-PFUdA) Surrogate	µg/L	-	9.92	12.2	200	20
		(13C2-PFDoA) Surrogate	µg/L	-	10.2	14.1	200	32
		(13C2_PFTeDA) Surrogate	µg/L	-	6.39	20.4	200	105
		(13C2-PFHxDA) Surrogate	µg/L	-	1.74	12.0	200	149
		(13C3-PFBS) Surrogate	µg/L	-	8.93	9.24	200	3
		(13C3-PFHxS) Surrogate	µg/L	-	8.83	9.35	200	6
		(13C8-PFOS) Surrogate	µg/L	-	10.6	10.7	200	1
		(13C2-4:2 FTS) Surrogate	µg/L	-	8.52	7.92	200	7
		(13C2-6:2 FTS) Surrogate	µg/L	-	9.00	8.73	200	3
		(13C2-8:2 FTS) Surrogate	µg/L	-	9.09	8.83	200	3
		(13C8-PFOSA) Surrogate	µg/L	-	8.76	9.03	200	3
		(D3-N-MeFOSA) Surrogate	µg/L	-	8.25	13.2	200	46
		(D5-N-EtFOSA) Surrogate	µg/L	-	6.50	14.1	200	74
		(D7-N-MeFOSE) Surrogate	µg/L	-	8.60	9.24	200	7
		(D9-N-EtFOSE) Surrogate	µg/L	-	7.68	9.47	200	21
		(D3-N-MeFOSAA) Surrogate	µg/L	-	8.01	9.83	200	20
		(D5-N-EtFOSAA) Surrogate	µg/L	-	8.44	10.7	200	23

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples — **Method: MA-1523**

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB027551.002	Perfluoroheptanoic acid (PFHpA)	µg/L	0.002	0.18	0.2	40 - 150	88
	Perfluorooctanoic Acid (PFOA)	µg/L	0.001	0.18	0.2	40 - 150	89
	Perfluorononanoic acid (PFNA)	µg/L	0.004	0.13	0.2	40 - 150	67
	Perfluorodecanoic acid (PFDA)	µg/L	0.004	0.13	0.2	40 - 150	65
	Perfluoroundecanoic acid (PFUnA)	µg/L	0.004	0.12	0.2	40 - 150	59
	Perfluorododecanoic acid (PFDoA)	µg/L	0.004	0.14	0.2	40 - 150	71
	Perfluorotridecanoic acid (PFTrDA)	µg/L	0.004	0.10	0.2	10 - 150	50
	Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.004	0.027	0.2	10 - 150	14
	Perfluorooctane sulfonate (PFOS)	µg/L	0.002	0.17	0.2	40 - 150	84
	(13C4-PFBA) Surrogate	µg/L	-	10.1	10	10 - 150	101
	(13C5-PFPeA) Surrogate	µg/L	-	9.94	10	10 - 150	99
	(13C5-PFHxA) Surrogate	µg/L	-	10.4	10	10 - 150	104
	(13C4-PFHpA) Surrogate	µg/L	-	9.86	10	10 - 150	99
	(13C4_PFOA) Surrogate	µg/L	-	10.4	10	10 - 150	104
	(13C9-PFNA) Surrogate	µg/L	-	10.3	10	10 - 150	103
	(13C6-PFDA) Surrogate	µg/L	-	10.2	10	10 - 150	102
	(13C7-PFUdA) Surrogate	µg/L	-	10.6	10	10 - 150	106
	(13C2-PFDoA) Surrogate	µg/L	-	11.4	10	10 - 150	114
	(13C2_PFTeDA) Surrogate	µg/L	-	14.7	10	10 - 150	147
	(13C2-PFHxDA) Surrogate	µg/L	-	15.6	10	10 - 150	156†
	(13C3-PFBS) Surrogate	µg/L	-	9.67	9.3	10 - 150	104
	(13C3-PFHxS) Surrogate	µg/L	-	9.51	9.46	9 - 150	101
	(13C8-PFOS) Surrogate	µg/L	-	10.8	9.28	10 - 150	116
	(13C2-4:2 FTS) Surrogate	µg/L	-	9.32	9.34	10 - 150	100
	(13C2-6:2 FTS) Surrogate	µg/L	-	10.2	9.5	10 - 150	108
	(13C2-8:2 FTS) Surrogate	µg/L	-	10.1	9.58	10 - 150	105
	(13C8-PFOSA) Surrogate	µg/L	-	12.2	10	10 - 150	122
	(D3-N-MeFOSA) Surrogate	µg/L	-	18.4	10	10 - 150	184†
	(D5-N-EtFOSA) Surrogate	µg/L	-	22.3	10	10 - 150	223†
	(D7-N-MeFOSE) Surrogate	µg/L	-	13.2	10	10 - 150	132
	(D9-N-EtFOSE) Surrogate	µg/L	-	14.0	10	10 - 150	140
	(D3-N-MeFOSAA) Surrogate	µg/L	-	11.4	10	10 - 150	114
	(D5-N-EtFOSAA) Surrogate	µg/L	-	14.8	10	10 - 150	148

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

No matrix spikes were required for this job.

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here: https://www.sgs.com.au/~/media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022 QA QC Plan.pdf

*	NATA accreditation does not cover the performance of this service.
**	Indicative data, theoretical holding time exceeded.
-	Sample not analysed for this analyte.
IS	Insufficient sample for analysis.
LNR	Sample listed, but not received.
LOR	Limit of reporting.
QFH	QC result is above the upper tolerance.
QFL	QC result is below the lower tolerance.

①	At least 2 of 3 surrogates are within acceptance criteria.
②	RPD failed acceptance criteria due to sample heterogeneity.
③	Results less than 5 times LOR preclude acceptance criteria for RPD.
④	Recovery failed acceptance criteria due to matrix interference.
⑤	Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
⑥	LOR was raised due to sample matrix interference.
⑦	LOR was raised due to dilution of significantly high concentration of analyte in sample.
⑧	Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
⑨	Recovery failed acceptance criteria due to sample heterogeneity.
⑩	LOR was raised due to high conductivity of the sample (required dilution).
†	Refer to Analytical Report comments for further information.

APPENDIX J

Geotechnical Related Laboratory Based Information

Atterberg and Linear Shrinkage Results

SOIL CLASSIFICATION REPORT

Client	Golder-Douglas	**Source**	BH_MN01 1.50-2.50m
Address	PO Box 1302 Crows Nest NSW 1585	**Sample Description**	Silty CLAY
Project	Sydney Metro West Variation 7 Marrickville (00013 11180)	**Report No**	S50343-PI
Job No	S19330	**Lab No**	S50343

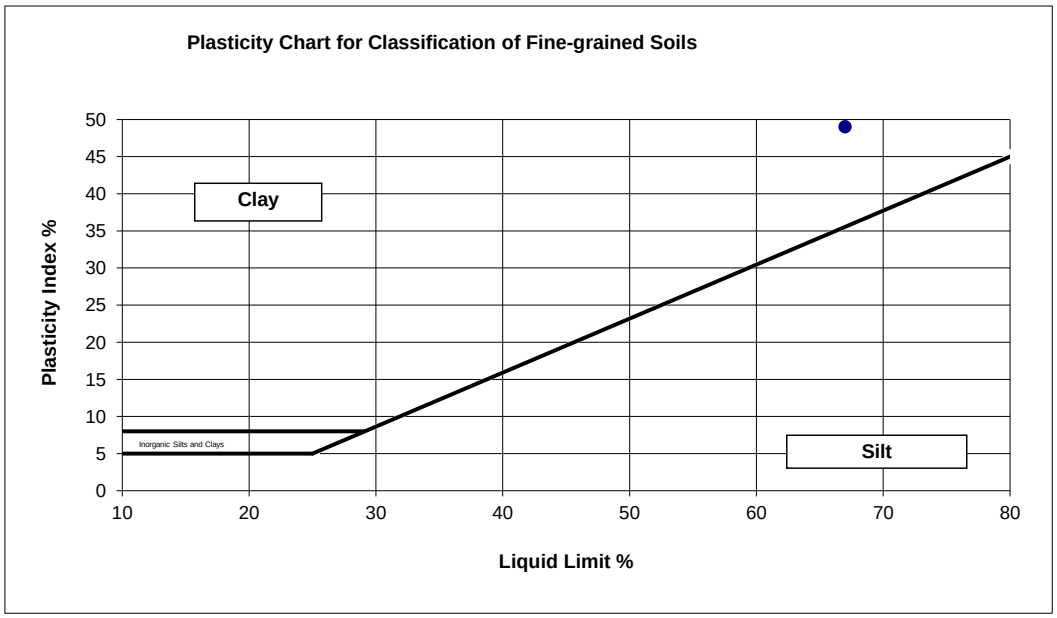
Test Procedure:

- ☐ AS1289 2.1.1 Soil moisture content tests (Oven drying method)
- ☑ AS1289 3.1.1 Soil classification tests - Determination of the liquid limit of a soil - Four point casagrande method
- ☐ AS1289 3.1.2 Soil classification tests - Determination of the liquid limit if a soil - One point Casagrande method (subsidiary method)
- ☑ AS1289 3.2.1 Soil classification tests - Determination of the plastic limit of a soil - Standard method
- ☑ AS1289 3.3.1 Soil classification tests - Calculation of the plasticity Index of a soil
- ☑ AS1289 3.4.1 Soil classification tests - Determination of the linear shrinkage of a soil - Standard method

Sampling: Sampled by Client **Date Sampled:** Unknown

Preparation: Prepared in accordance with the test method

Liquid Limit (%)	67	**Linear Shrinkage (%)**	16.0
Plastic Limit (%)	18	**Plasticity Index**	49



Soil Preparation Method: Dry Sieved
Soil History: Oven Dried
Soil Condition: Linear

Notes

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Authorised Signatory:

Chris Lloyd

2/08/2019

Date:

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U7/8 10 Bradford Street
Alexandria NSW 2015

SOIL CLASSIFICATION REPORT

Client	Golder-Douglas	**Source**	BH_MN01 3.00-4.00m
Address	PO Box 1302 Crows Nest NSW 1585	**Sample Description**	Silty CLAY
Project	Sydney Metro West Variation 7 Marrickville (00013 11180)	**Report No**	S50344-PI
Job No	S19330	**Lab No**	S50344

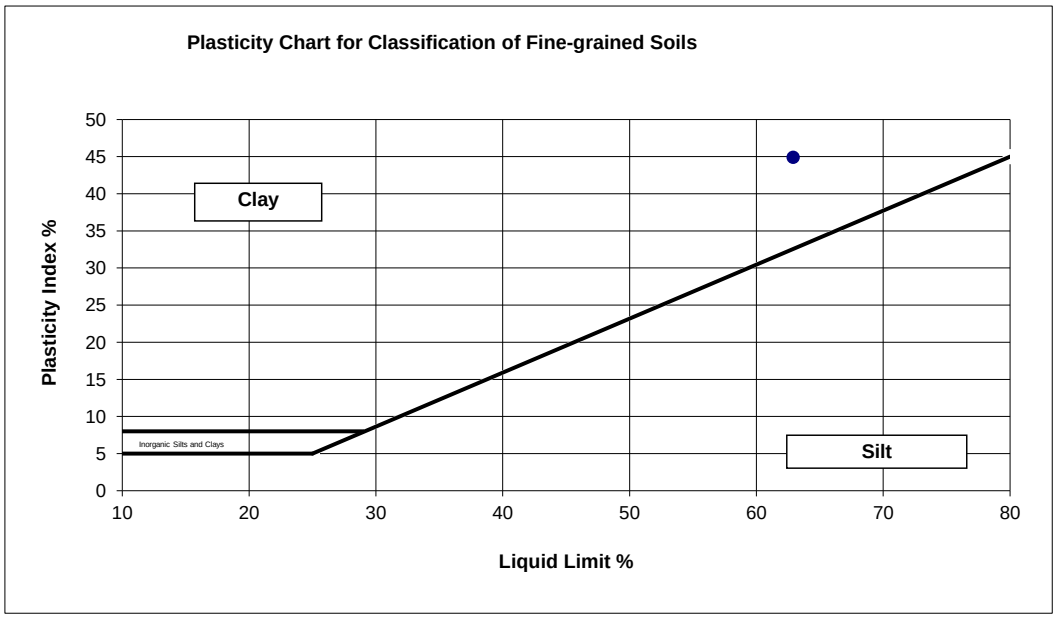
Test Procedure:

- ☑ AS1289 2.1.1 Soil moisture content tests (Oven drying method)
- ☑ AS1289 3.1.1 Soil classification tests - Determination of the liquid limit of a soil - Four point casagrande method
- ☐ AS1289 3.1.2 Soil classification tests - Determination of the liquid limit if a soil - One point Casagrande method (subsidiary method)
- ☑ AS1289 3.2.1 Soil classification tests - Determination of the plastic limit of a soil - Standard method
- ☑ AS1289 3.3.1 Soil classification tests - Calculation of the plasticity Index of a soil
- ☑ AS1289 3.4.1 Soil classification tests - Determination of the linear shrinkage of a soil - Standard method

Sampling: Sampled by Client **Date Sampled:** Unknown

Preparation: Prepared in accordance with the test method

Liquid Limit (%)	63	**Linear Shrinkage (%)**	12.0
Plastic Limit (%)	18	**Plasticity Index**	45



Soil Preparation Method: Dry Sieved
Soil History: Oven Dried
Soil Condition: Cracking Occuring

Notes

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SOIL CLASSIFICATION REPORT

Client	Golder-Douglas	**Source**	BH_MN01 5.50-6.00m
Address	PO Box 1302 Crows Nest NSW 1585	**Sample Description**	Silty CLAY
Project	Sydney Metro West Variation 7 Marrickville (00013 11180)	**Report No**	S50345-PI
Job No	S19330	**Lab No**	S50345

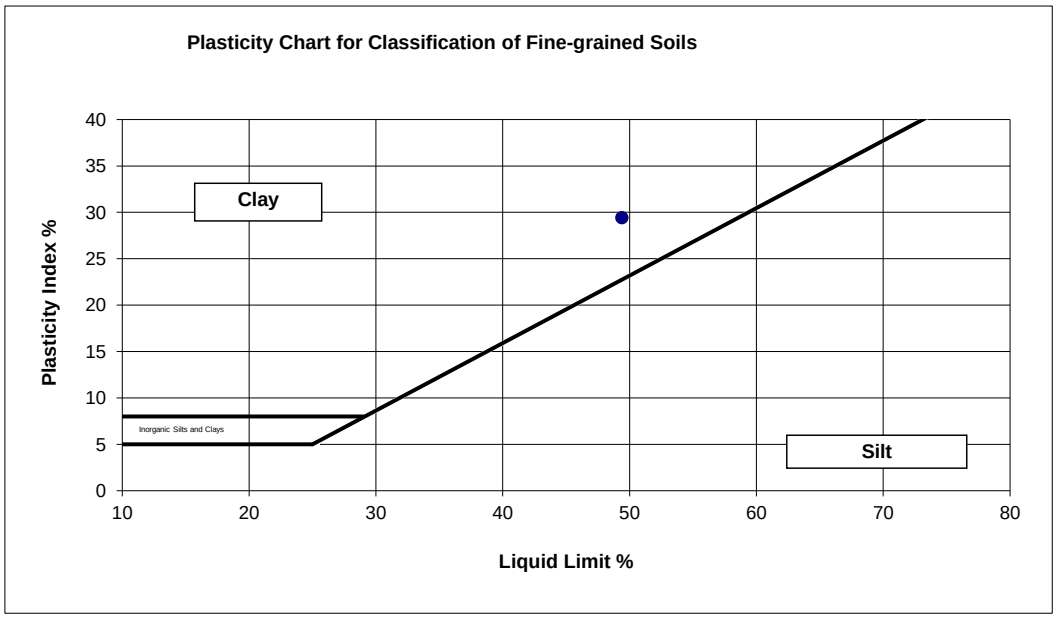
Test Procedure:

- ☐ AS1289 2.1.1 Soil moisture content tests (Oven drying method)
- ☑ AS1289 3.1.1 Soil classification tests - Determination of the liquid limit of a soil - Four point casagrande method
- ☐ AS1289 3.1.2 Soil classification tests - Determination of the liquid limit if a soil - One point Casagrande method (subsidiary method)
- ☑ AS1289 3.2.1 Soil classification tests - Determination of the plastic limit of a soil - Standard method
- ☑ AS1289 3.3.1 Soil classification tests - Calculation of the plasticity Index of a soil
- ☑ AS1289 3.4.1 Soil classification tests - Determination of the linear shrinkage of a soil - Standard method

Sampling: Sampled by Client **Date Sampled:** Unknown

Preparation: Prepared in accordance with the test method

Liquid Limit (%)	49	**Linear Shrinkage (%)**	7.5
Plastic Limit (%)	20	**Plasticity Index**	29



Soil Preparation Method: Dry Sieved
Soil History: Oven Dried
Soil Condition: Curling Occuring

Notes

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SOIL CLASSIFICATION REPORT

Client	Golder-Douglas	**Source**	BH_MN01 4.36-4.81m
Address	PO Box 1302 Crows Nest NSW 1585	**Sample Description**	Sandy CLAY
Project	Sydney Metro West Variation 7 Marrickville (00013 11180)	**Report No**	S50348-PI
Job No	S19330	**Lab No**	S50348

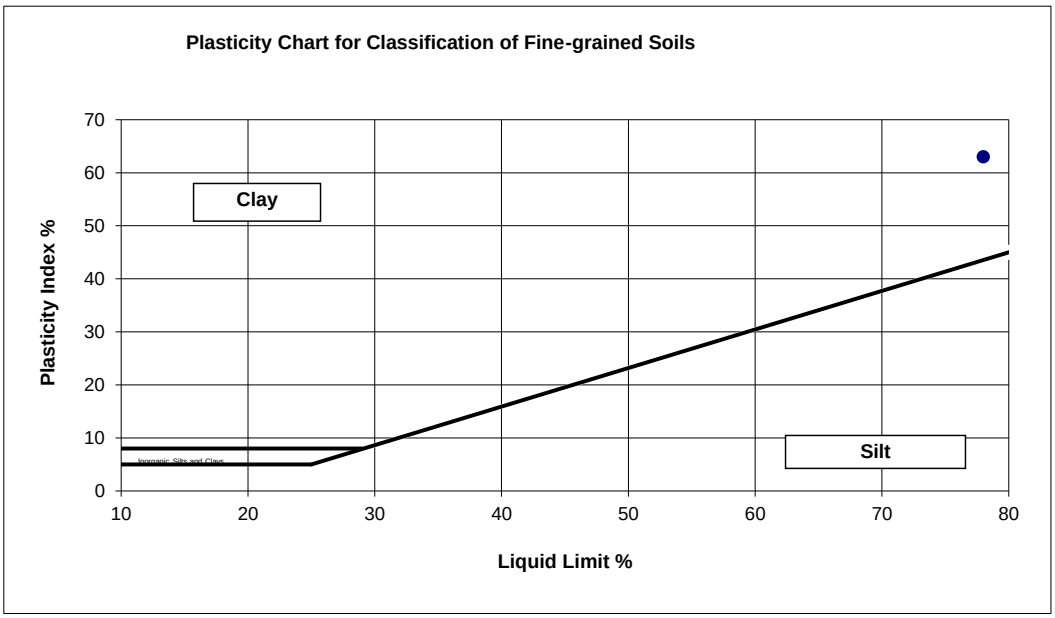
Test Procedure:

- ☐ AS1289 2.1.1 Soil moisture content tests (Oven drying method)
- ☑ AS1289 3.1.1 Soil classification tests - Determination of the liquid limit of a soil - Four point casagrande method
- ☐ AS1289 3.1.2 Soil classification tests - Determination of the liquid limit if a soil - One point Casagrande method (subsidiary method)
- ☑ AS1289 3.2.1 Soil classification tests - Determination of the plastic limit of a soil - Standard method
- ☑ AS1289 3.3.1 Soil classification tests - Calculation of the plasticity Index of a soil
- ☑ AS1289 3.4.1 Soil classification tests - Determination of the linear shrinkage of a soil - Standard method

Sampling: Sampled by Client **Date Sampled:** Unknown

Preparation: Prepared in accordance with the test method

Liquid Limit (%)	78	**Linear Shrinkage (%)**	14.0
Plastic Limit (%)	15	**Plasticity Index**	63



Soil Preparation Method: Dry Sieved
Soil History: Oven Dried
Soil Condition: Curling Occuring

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SOIL CLASSIFICATION REPORT

Client	Golder-Douglas	**Source**	BH_MN01 7.00-7.45m
Address	PO Box 1302 Crows Nest NSW 1585	**Sample Description**	Silty CLAY
Project	Sydney Metro West Variation 7 Marrickville (00013 11180)	**Report No**	S50349-PI
Job No	S19330	**Lab No**	S50349

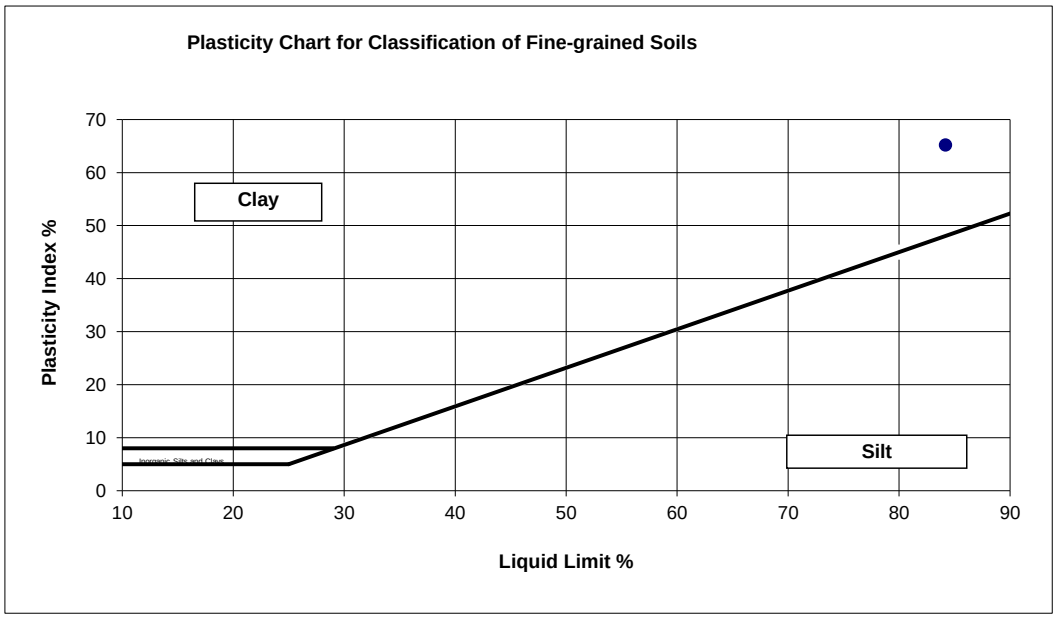
Test Procedure:

- ☑ AS1289 2.1.1 Soil moisture content tests (Oven drying method)
- ☑ AS1289 3.1.1 Soil classification tests - Determination of the liquid limit of a soil - Four point casagrande method
- ☐ AS1289 3.1.2 Soil classification tests - Determination of the liquid limit if a soil - One point Casagrande method (subsidiary method)
- ☑ AS1289 3.2.1 Soil classification tests - Determination of the plastic limit of a soil - Standard method
- ☑ AS1289 3.3.1 Soil classification tests - Calculation of the plasticity Index of a soil
- ☑ AS1289 3.4.1 Soil classification tests - Determination of the linear shrinkage of a soil - Standard method

Sampling: Sampled by Client **Date Sampled:** Unknown

Preparation: Prepared in accordance with the test method

Liquid Limit (%)	84	**Linear Shrinkage (%)**	12.0
Plastic Limit (%)	19	**Plasticity Index**	65



Soil Preparation Method: Dry Sieved
Soil History: Oven Dried
Soil Condition: Curling Occuring

Notes

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SOIL CLASSIFICATION REPORT

Client	Golder-Douglas	**Source**	BH_MN01 8.71-9.10m
Address	PO Box 1302 Crows Nest NSW 1585	**Sample Description**	Sandy CLAY
Project	Sydney Metro West Variation 7 Marrickville (00013 11180)	**Report No**	S50350-PI
Job No	S19330	**Lab No**	S50350

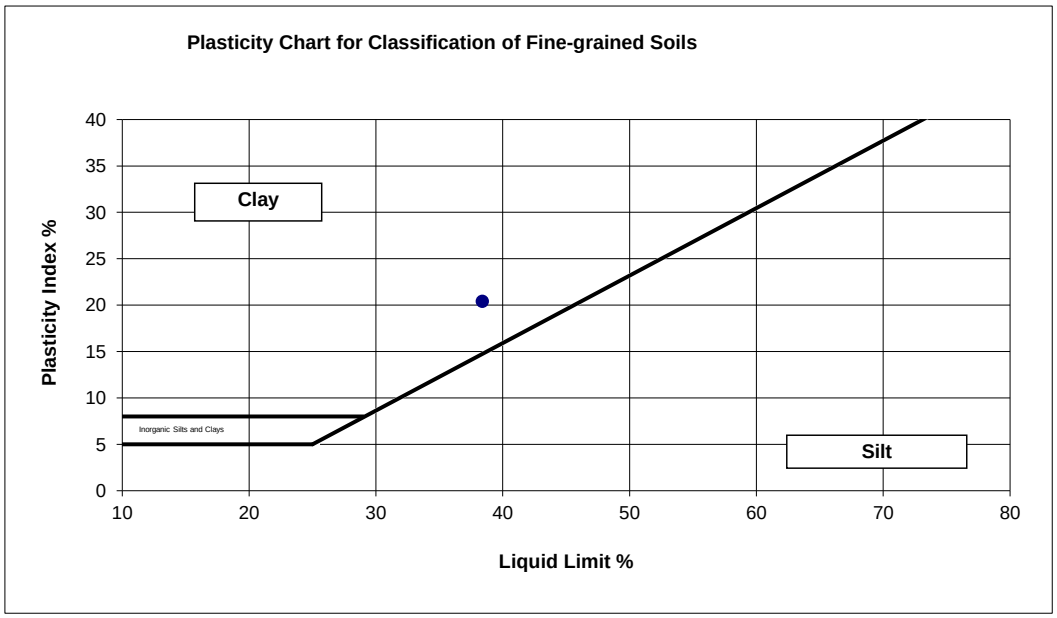
Test Procedure:

- ☑ AS1289 2.1.1 Soil moisture content tests (Oven drying method)
- ☑ AS1289 3.1.1 Soil classification tests - Determination of the liquid limit of a soil - Four point casagrande method
- ☐ AS1289 3.1.2 Soil classification tests - Determination of the liquid limit if a soil - One point Casagrande method (subsidiary method)
- ☑ AS1289 3.2.1 Soil classification tests - Determination of the plastic limit of a soil - Standard method
- ☑ AS1289 3.3.1 Soil classification tests - Calculation of the plasticity Index of a soil
- ☑ AS1289 3.4.1 Soil classification tests - Determination of the linear shrinkage of a soil - Standard method

Sampling: Sampled by Client **Date Sampled:** Unknown

Preparation: Prepared in accordance with the test method

Liquid Limit (%)	38	**Linear Shrinkage (%)**	7.5
Plastic Limit (%)	18	**Plasticity Index**	20



Soil Preparation Method: Dry Sieved
Soil History: Oven Dried
Soil Condition: Linear

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SOIL CLASSIFICATION REPORT

Client	Golder-Douglas	**Source**	BH_MN01 11.50-11.90m
Address	PO Box 1302 Crows Nest NSW 1585	**Sample Description**	Sandy CLAY
Project	Sydney Metro West Variation 7 Marrickville (00013 11180)	**Report No**	S50352-PI
Job No	S19330	**Lab No**	S50352

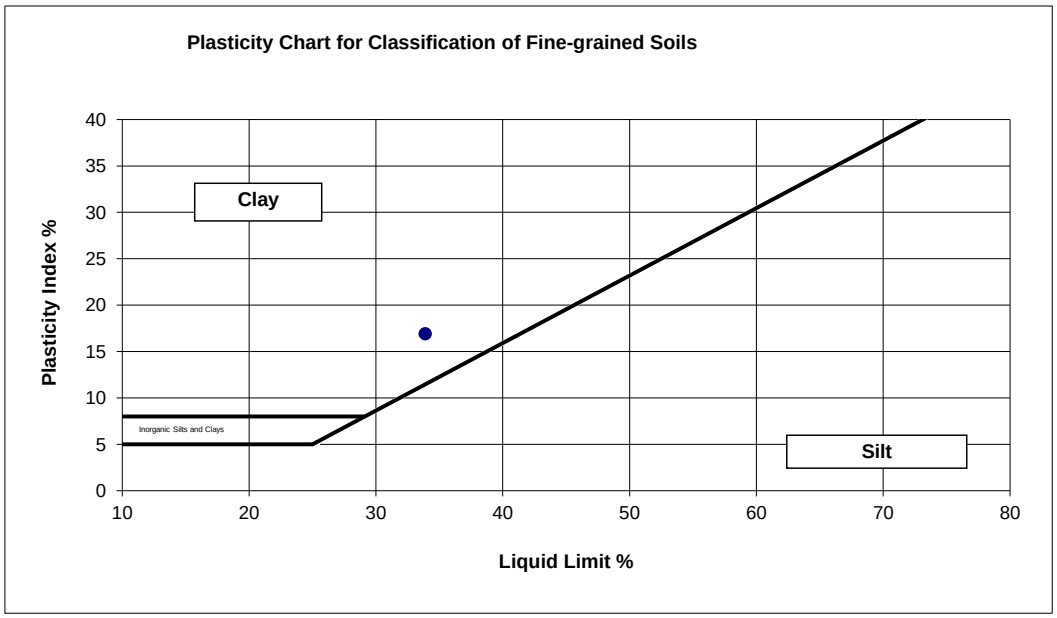
Test Procedure:

- ☑ AS1289 2.1.1 Soil moisture content tests (Oven drying method)
- ☑ AS1289 3.1.1 Soil classification tests - Determination of the liquid limit of a soil - Four point casagrande method
- ☐ AS1289 3.1.2 Soil classification tests - Determination of the liquid limit if a soil - One point Casagrande method (subsidiary method)
- ☑ AS1289 3.2.1 Soil classification tests - Determination of the plastic limit of a soil - Standard method
- ☑ AS1289 3.3.1 Soil classification tests - Calculation of the plasticity Index of a soil
- ☑ AS1289 3.4.1 Soil classification tests - Determination of the linear shrinkage of a soil - Standard method

Sampling: Sampled by Client **Date Sampled:** Unknown

Preparation: Prepared in accordance with the test method

Liquid Limit (%)	34	**Linear Shrinkage (%)**	6.5
Plastic Limit (%)	17	**Plasticity Index**	17



Soil Preparation Method: Dry Sieved
Soil History: Oven Dried
Soil Condition: Linear

Notes

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Chris Lloyd

19/08/2019

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SOIL CLASSIFICATION REPORT

Client	Golder-Douglas	**Source**	BH_MN01 13.00-13.20m
Address	PO Box 1302 Crows Nest NSW 1585	**Sample Description**	Sandy CLAY
Project	Sydney Metro West Variation 7 Marrickville (00013 11180)	**Report No**	S50353-PI
Job No	S19330	**Lab No**	S50353

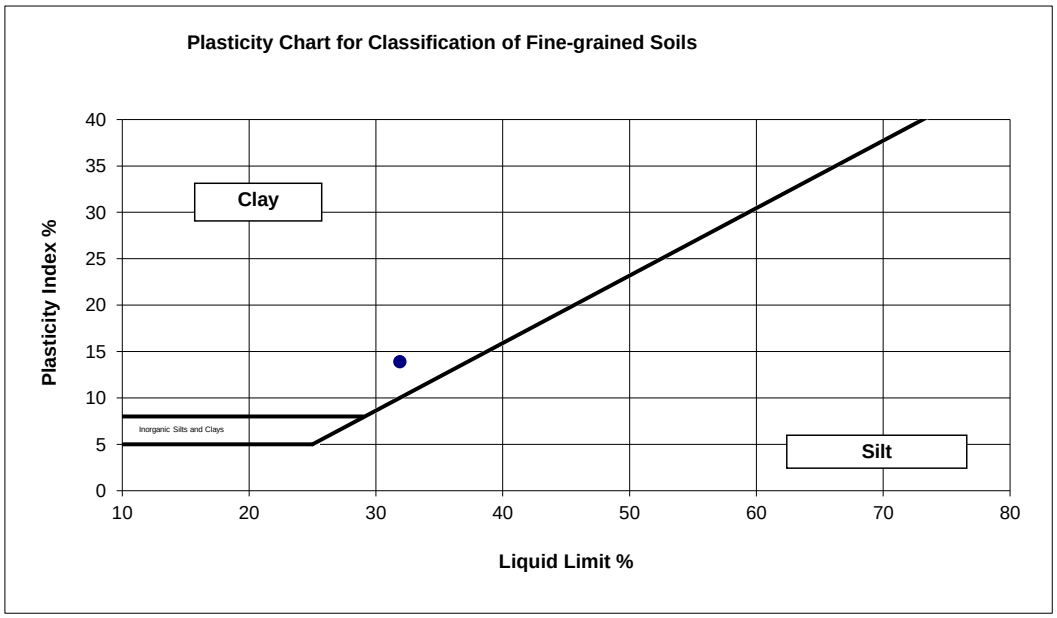
Test Procedure:

- ☑ AS1289 2.1.1 Soil moisture content tests (Oven drying method)
- ☑ AS1289 3.1.1 Soil classification tests - Determination of the liquid limit of a soil - Four point casagrande method
- ☐ AS1289 3.1.2 Soil classification tests - Determination of the liquid limit if a soil - One point Casagrande method (subsidiary method)
- ☑ AS1289 3.2.1 Soil classification tests - Determination of the plastic limit of a soil - Standard method
- ☑ AS1289 3.3.1 Soil classification tests - Calculation of the plasticity Index of a soil
- ☑ AS1289 3.4.1 Soil classification tests - Determination of the linear shrinkage of a soil - Standard method

Sampling: Sampled by Client **Date Sampled:** Unknown

Preparation: Prepared in accordance with the test method

Liquid Limit (%)	32	**Linear Shrinkage (%)**	4.5
Plastic Limit (%)	18	**Plasticity Index**	14



Soil Preparation Method: Dry Sieved
Soil History: Oven Dried
Soil Condition: Linear

Notes

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Authorised Signatory:

Chris Lloyd

22/08/2019

Date:

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U7/8 10 Bradford Street
Alexandria NSW 2015

SOIL CLASSIFICATION REPORT

Client	Golder-Douglas	**Source**	BH-MN02 1.50-2.50m
Address	PO Box 1302 Crows Nest NSW 1585	**Sample Description**	Silty SAND
Project	Sydney Metro West Variation 7 Marrickville (00013 11180)	**Report No**	S50354-PI
Job No	S19330	**Lab No**	S50354

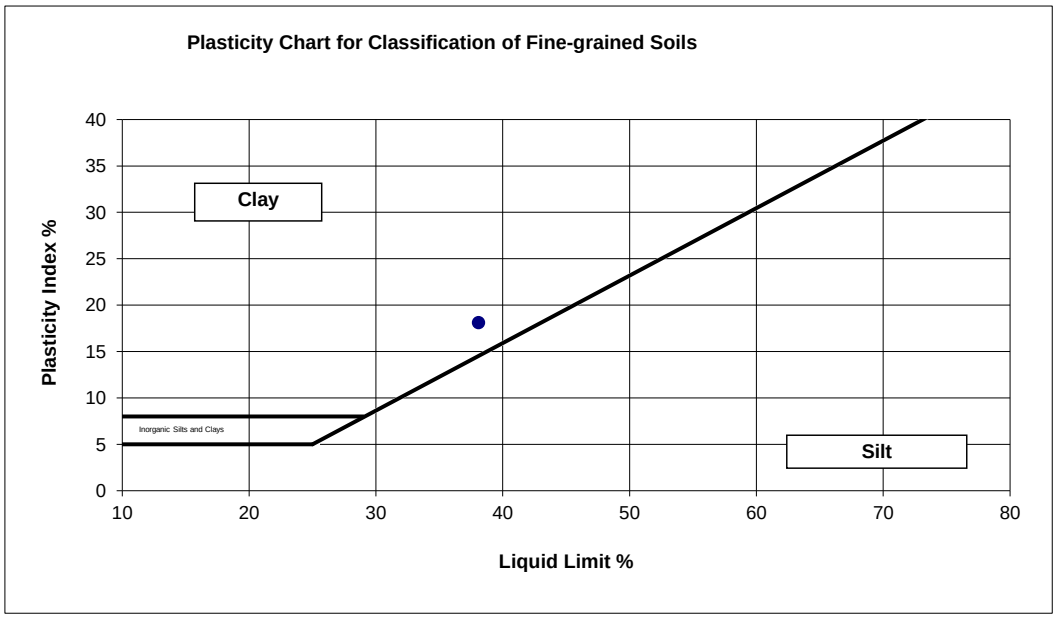
Test Procedure:

- ☑ AS1289 2.1.1 Soil moisture content tests (Oven drying method)
- ☑ AS1289 3.1.1 Soil classification tests - Determination of the liquid limit of a soil - Four point casagrande method
- ☐ AS1289 3.1.2 Soil classification tests - Determination of the liquid limit if a soil - One point Casagrande method (subsidiary method)
- ☑ AS1289 3.2.1 Soil classification tests - Determination of the plastic limit of a soil - Standard method
- ☑ AS1289 3.3.1 Soil classification tests - Calculation of the plasticity Index of a soil
- ☑ AS1289 3.4.1 Soil classification tests - Determination of the linear shrinkage of a soil - Standard method

Sampling: Sampled by Client **Date Sampled:** Unknown

Preparation: Prepared in accordance with the test method

Liquid Limit (%)	38	**Linear Shrinkage (%)**	6.5
Plastic Limit (%)	20	**Plasticity Index**	18



Soil Preparation Method: Dry Sieved
Soil History: Oven Dried
Soil Condition: Linear

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SOIL CLASSIFICATION REPORT

Client	Golder-Douglas	**Source**	BH-MN02 2.50-4.00m
Address	PO Box 1302 Crows Nest NSW 1585	**Sample Description**	Silty Sandy CLAY
Project	Sydney Metro West Variation 7 Marrickville (00013 11180)	**Report No**	S50355-PI
Job No	S19330	**Lab No**	S50355

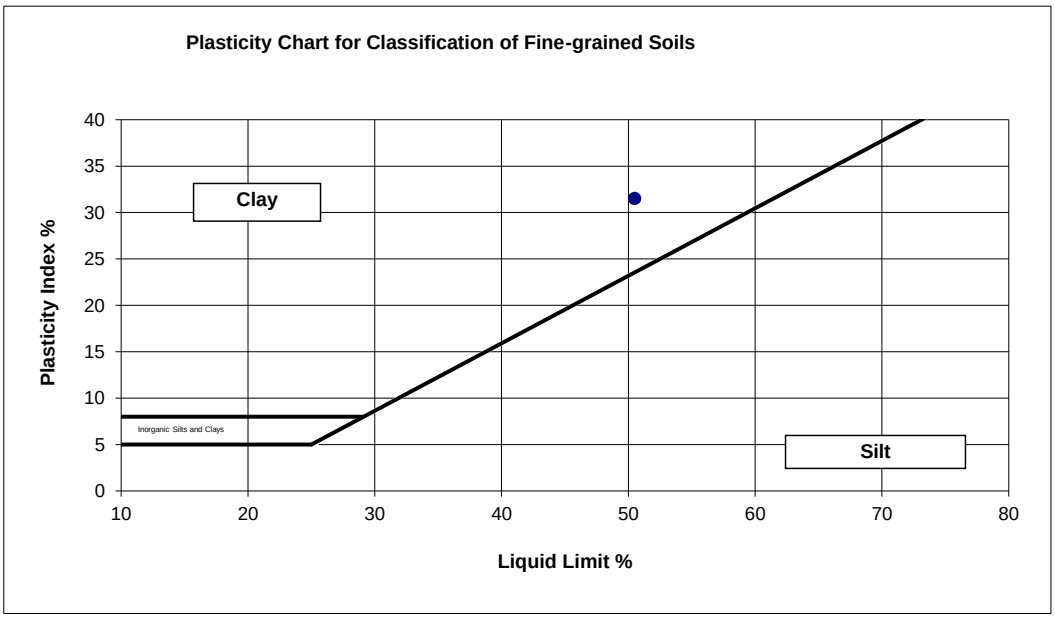
Test Procedure:

- ☐ AS1289 2.1.1 Soil moisture content tests (Oven drying method)
- ☑ AS1289 3.1.1 Soil classification tests - Determination of the liquid limit of a soil - Four point casagrande method
- ☐ AS1289 3.1.2 Soil classification tests - Determination of the liquid limit if a soil - One point Casagrande method (subsidiary method)
- ☑ AS1289 3.2.1 Soil classification tests - Determination of the plastic limit of a soil - Standard method
- ☑ AS1289 3.3.1 Soil classification tests - Calculation of the plasticity Index of a soil
- ☑ AS1289 3.4.1 Soil classification tests - Determination of the linear shrinkage of a soil - Standard method

Sampling: Sampled by Client **Date Sampled:** Unknown

Preparation: Prepared in accordance with the test method

Liquid Limit (%)	51	**Linear Shrinkage (%)**	5.5
Plastic Limit (%)	19	**Plasticity Index**	32



Soil Preparation Method: Dry Sieved
Soil History: Oven Dried
Soil Condition: Linear

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SOIL CLASSIFICATION REPORT

Client	Golder-Douglas	**Source**	BH-MN02 4.00-5.50m
Address	PO Box 1302 Crows Nest NSW 1585	**Sample Description**	Sandy Silty CLAY
Project	Sydney Metro West Variation 7 Marrickville (00013 11180)	**Report No**	S50356-PI
Job No	S19330	**Lab No**	S50356

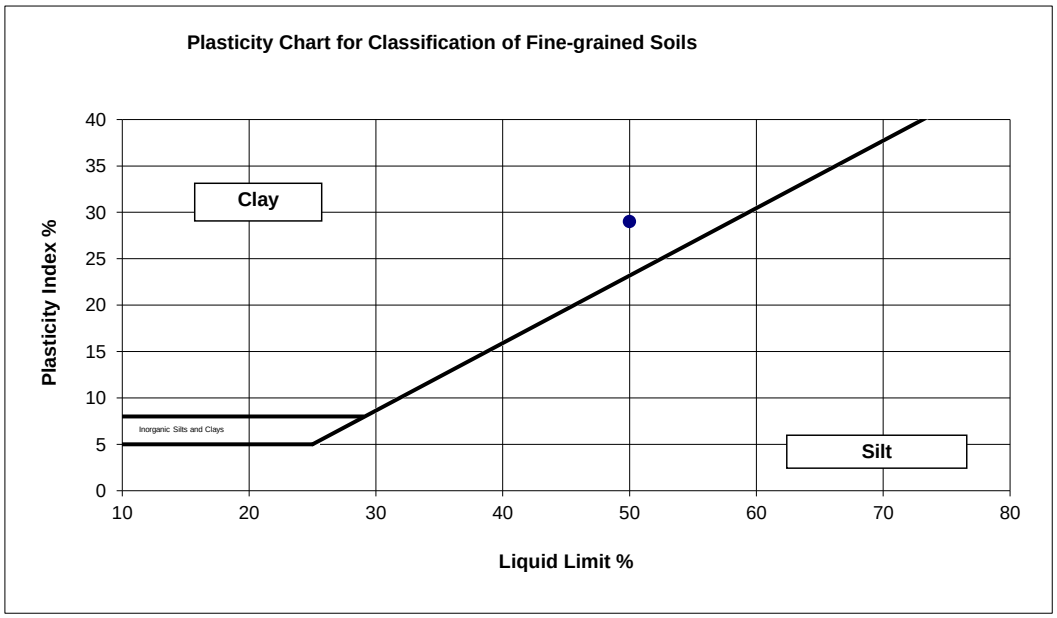
Test Procedure:

- ☑ AS1289 2.1.1 Soil moisture content tests (Oven drying method)
- ☑ AS1289 3.1.1 Soil classification tests - Determination of the liquid limit of a soil - Four point casagrande method
- ☐ AS1289 3.1.2 Soil classification tests - Determination of the liquid limit if a soil - One point Casagrande method (subsidiary method)
- ☑ AS1289 3.2.1 Soil classification tests - Determination of the plastic limit of a soil - Standard method
- ☑ AS1289 3.3.1 Soil classification tests - Calculation of the plasticity Index of a soil
- ☑ AS1289 3.4.1 Soil classification tests - Determination of the linear shrinkage of a soil - Standard method

Sampling: Sampled by Client **Date Sampled:** Unknown

Preparation: Prepared in accordance with the test method

Liquid Limit (%)	50	**Linear Shrinkage (%)**	9.5
Plastic Limit (%)	21	**Plasticity Index**	29



Soil Preparation Method: Dry Sieved
Soil History: Oven Dried
Soil Condition: Linear

Notes

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SOIL CLASSIFICATION REPORT

Client	Golder-Douglas	**Source**	BH-MN02 2.50-2.92m
Address	PO Box 1302 Crows Nest NSW 1585	**Sample Description**	Silty Sandy CLAY
Project	Sydney Metro West Variation 7 Marrickville (00013 11180)	**Report No**	S50358-PI
Job No	S19330	**Lab No**	S50358

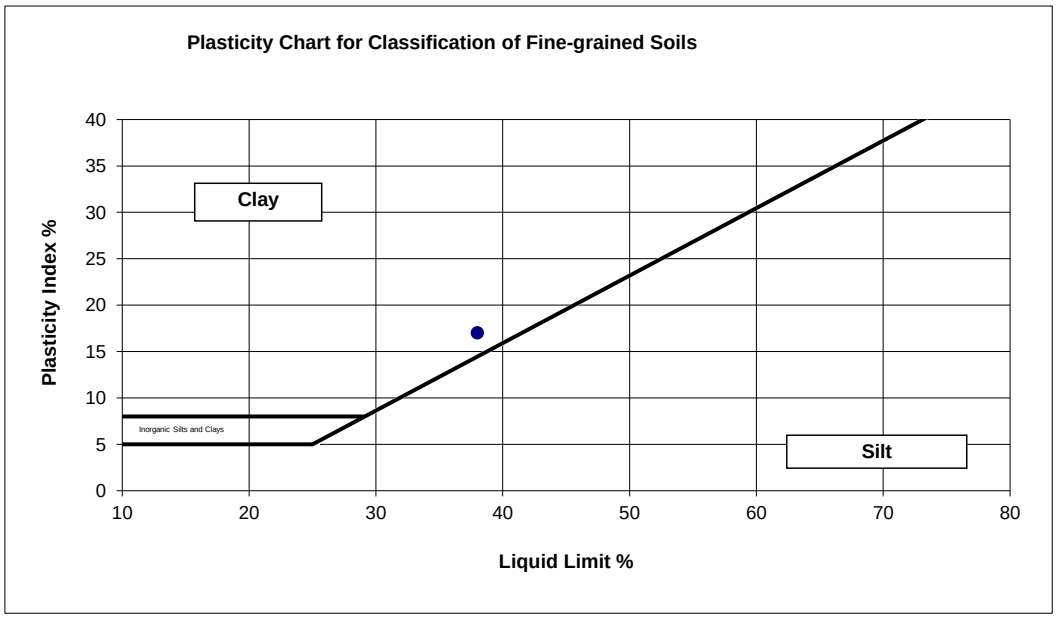
Test Procedure:

- ☑ AS1289 2.1.1 Soil moisture content tests (Oven drying method)
- ☑ AS1289 3.1.1 Soil classification tests - Determination of the liquid limit of a soil - Four point casagrande method
- ☐ AS1289 3.1.2 Soil classification tests - Determination of the liquid limit if a soil - One point Casagrande method (subsidiary method)
- ☑ AS1289 3.2.1 Soil classification tests - Determination of the plastic limit of a soil - Standard method
- ☑ AS1289 3.3.1 Soil classification tests - Calculation of the plasticity Index of a soil
- ☑ AS1289 3.4.1 Soil classification tests - Determination of the linear shrinkage of a soil - Standard method

Sampling: Sampled by Client **Date Sampled:** Unknown

Preparation: Prepared in accordance with the test method

Liquid Limit (%)	38	**Linear Shrinkage (%)**	6.0
Plastic Limit (%)	21	**Plasticity Index**	17



Soil Preparation Method: Dry Sieved
Soil History: Oven Dried
Soil Condition: Linear

Notes

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SOIL CLASSIFICATION REPORT

Client	Golder-Douglas	**Source**	BH-MN02 4.00-4.45m
Address	PO Box 1302 Crows Nest NSW 1585	**Sample Description**	Silty Sandy CLAY
Project	Sydney Metro West Variation 7 Marrickville (00013 11180)	**Report No**	S50359-PI
Job No	S19330	**Lab No**	S50359

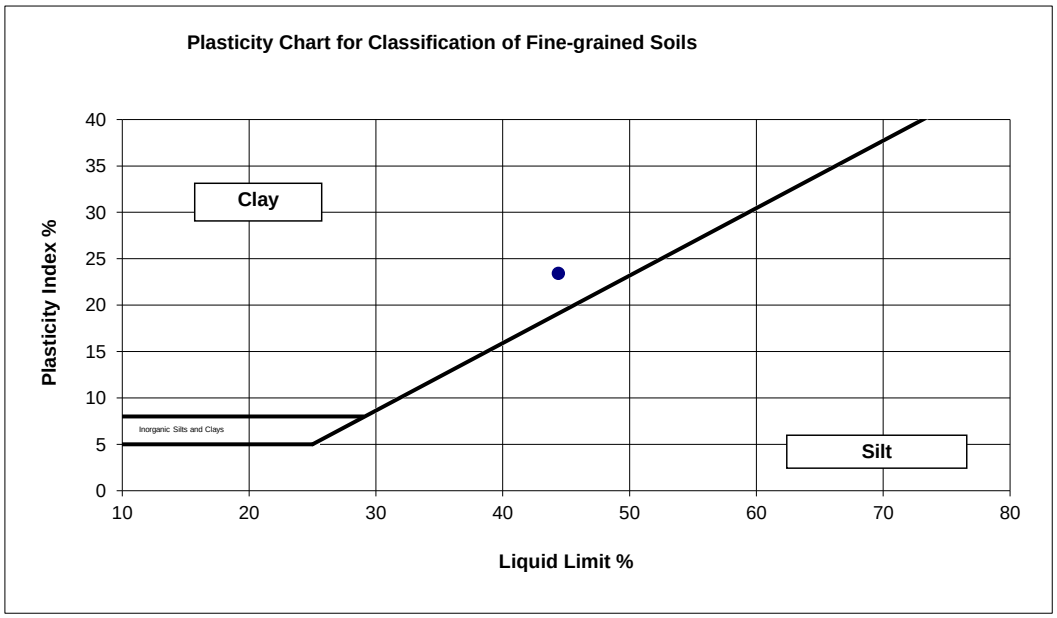
Test Procedure:

- ☑ AS1289 2.1.1 Soil moisture content tests (Oven drying method)
- ☑ AS1289 3.1.1 Soil classification tests - Determination of the liquid limit of a soil - Four point casagrande method
- ☐ AS1289 3.1.2 Soil classification tests - Determination of the liquid limit if a soil - One point Casagrande method (subsidiary method)
- ☑ AS1289 3.2.1 Soil classification tests - Determination of the plastic limit of a soil - Standard method
- ☑ AS1289 3.3.1 Soil classification tests - Calculation of the plasticity Index of a soil
- ☑ AS1289 3.4.1 Soil classification tests - Determination of the linear shrinkage of a soil - Standard method

Sampling: Sampled by Client **Date Sampled:** Unknown

Preparation: Prepared in accordance with the test method

Liquid Limit (%)	44	**Linear Shrinkage (%)**	8.5
Plastic Limit (%)	21	**Plasticity Index**	23



Soil Preparation Method: Dry Sieved
Soil History: Oven Dried
Soil Condition: Linear

Notes

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SOIL CLASSIFICATION REPORT

Client	Golder-Douglas	**Source**	BH-MN08 6.50-7.00m
Address	PO Box 1302 Crows Nest NSW 1585	**Sample Description**	Silty CLAY
Project	Sydney Metro West Variation 7 Marrickville (00013 11180)	**Report No**	S50361-PI
Job No	S19330	**Lab No**	S50361

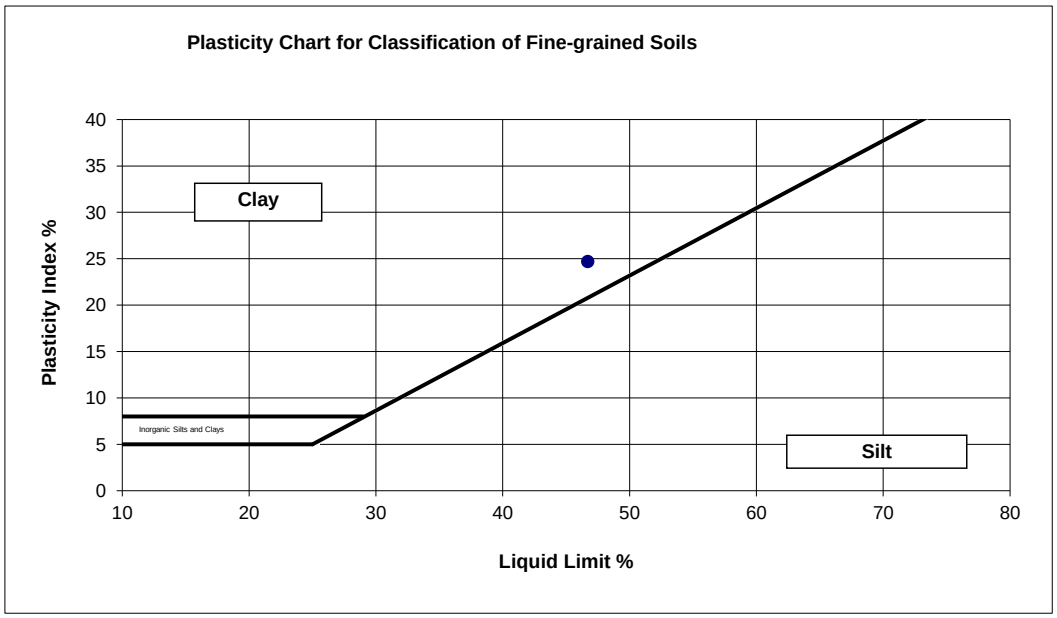
Test Procedure:

- ☑ AS1289 2.1.1 Soil moisture content tests (Oven drying method)
- ☑ AS1289 3.1.1 Soil classification tests - Determination of the liquid limit of a soil - Four point casagrande method
- ☐ AS1289 3.1.2 Soil classification tests - Determination of the liquid limit if a soil - One point Casagrande method (subsidiary method)
- ☑ AS1289 3.2.1 Soil classification tests - Determination of the plastic limit of a soil - Standard method
- ☑ AS1289 3.3.1 Soil classification tests - Calculation of the plasticity Index of a soil
- ☑ AS1289 3.4.1 Soil classification tests - Determination of the linear shrinkage of a soil - Standard method

Sampling: Sampled by Client **Date Sampled:** Unknown

Preparation: Prepared in accordance with the test method

Liquid Limit (%)	47	**Linear Shrinkage (%)**	8.5
Plastic Limit (%)	22	**Plasticity Index**	25



Soil Preparation Method: Dry Sieved
Soil History: Oven Dried
Soil Condition: Linear

Notes

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SOIL CLASSIFICATION REPORT

Client	Golder-Douglas	**Source**	BH-MN08 3.50-4.00m
Address	PO Box 1302 Crows Nest NSW 1585	**Sample Description**	Silty Sandy CLAY
Project	Sydney Metro West Variation 7 Marrickville (00013 11180)	**Report No**	S50362-PI
Job No	S19330	**Lab No**	S50362

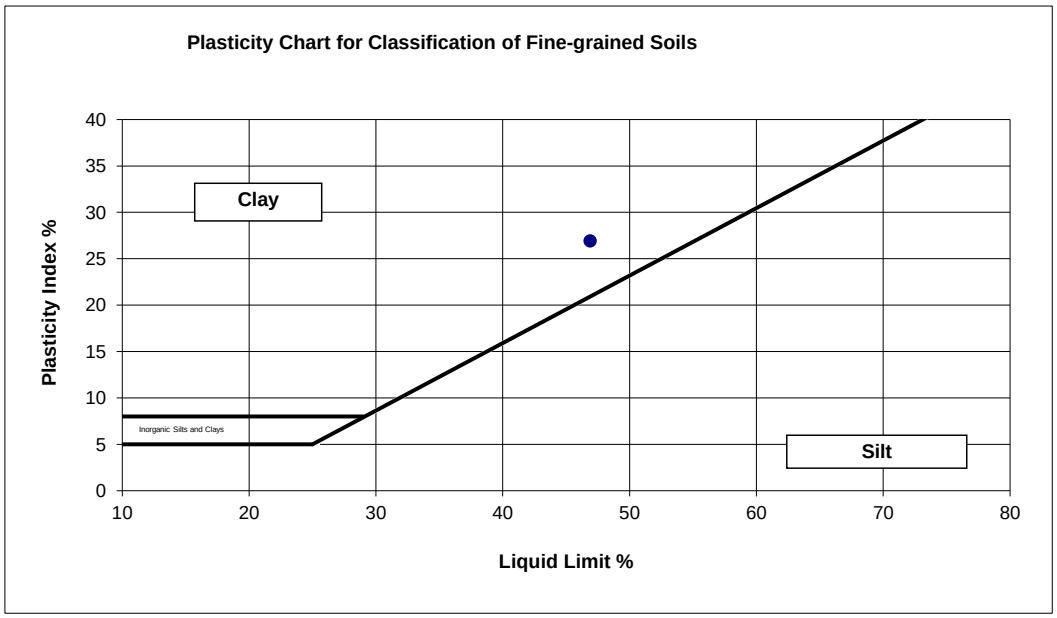
Test Procedure:

- ☑ AS1289 2.1.1 Soil moisture content tests (Oven drying method)
- ☑ AS1289 3.1.1 Soil classification tests - Determination of the liquid limit of a soil - Four point casagrande method
- ☐ AS1289 3.1.2 Soil classification tests - Determination of the liquid limit if a soil - One point Casagrande method (subsidiary method)
- ☑ AS1289 3.2.1 Soil classification tests - Determination of the plastic limit of a soil - Standard method
- ☑ AS1289 3.3.1 Soil classification tests - Calculation of the plasticity Index of a soil
- ☑ AS1289 3.4.1 Soil classification tests - Determination of the linear shrinkage of a soil - Standard method

Sampling: Sampled by Client **Date Sampled:** Unknown

Preparation: Prepared in accordance with the test method

Liquid Limit (%)	47	**Linear Shrinkage (%)**	8.0
Plastic Limit (%)	20	**Plasticity Index**	27



Soil Preparation Method: Dry Sieved
Soil History: Oven Dried
Soil Condition: Linear

Notes

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Alexandria NSW 2015

SOIL CLASSIFICATION REPORT

Client	Golder-Douglas	**Source**	BH-MN08 2.28-2.73m
Address	PO Box 1302 Crows Nest NSW 1585	**Sample Description**	Silty CLAY
Project	Sydney Metro West Variation 7 Marrickville (00013 11180)	**Report No**	S50363-PI
Job No	S19330	**Lab No**	S50363

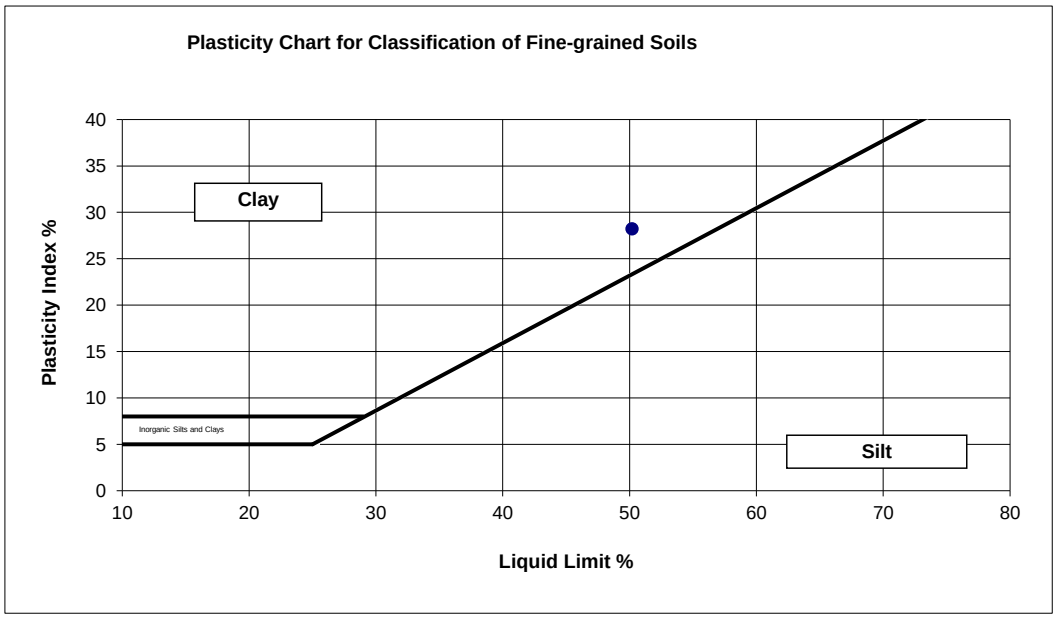
Test Procedure:

- ☑ AS1289 2.1.1 Soil moisture content tests (Oven drying method)
- ☑ AS1289 3.1.1 Soil classification tests - Determination of the liquid limit of a soil - Four point casagrande method
- ☐ AS1289 3.1.2 Soil classification tests - Determination of the liquid limit if a soil - One point Casagrande method (subsidiary method)
- ☑ AS1289 3.2.1 Soil classification tests - Determination of the plastic limit of a soil - Standard method
- ☑ AS1289 3.3.1 Soil classification tests - Calculation of the plasticity Index of a soil
- ☑ AS1289 3.4.1 Soil classification tests - Determination of the linear shrinkage of a soil - Standard method

Sampling: Sampled by Client **Date Sampled:** Unknown

Preparation: Prepared in accordance with the test method

Liquid Limit (%)	50	**Linear Shrinkage (%)**	10.0
Plastic Limit (%)	22	**Plasticity Index**	28



Soil Preparation Method: Dry Sieved
Soil History: Oven Dried
Soil Condition: Linear

Notes

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SOIL CLASSIFICATION REPORT

Client	Golder-Douglas	**Source**	BH-MN08 5.50-5.92m
Address	PO Box 1302 Crows Nest NSW 1585	**Sample Description**	Silty CLAY
Project	Sydney Metro West Variation 7 Marrickville (00013 11180)	**Report No**	S50365-PI
Job No	S19330	**Lab No**	S50365

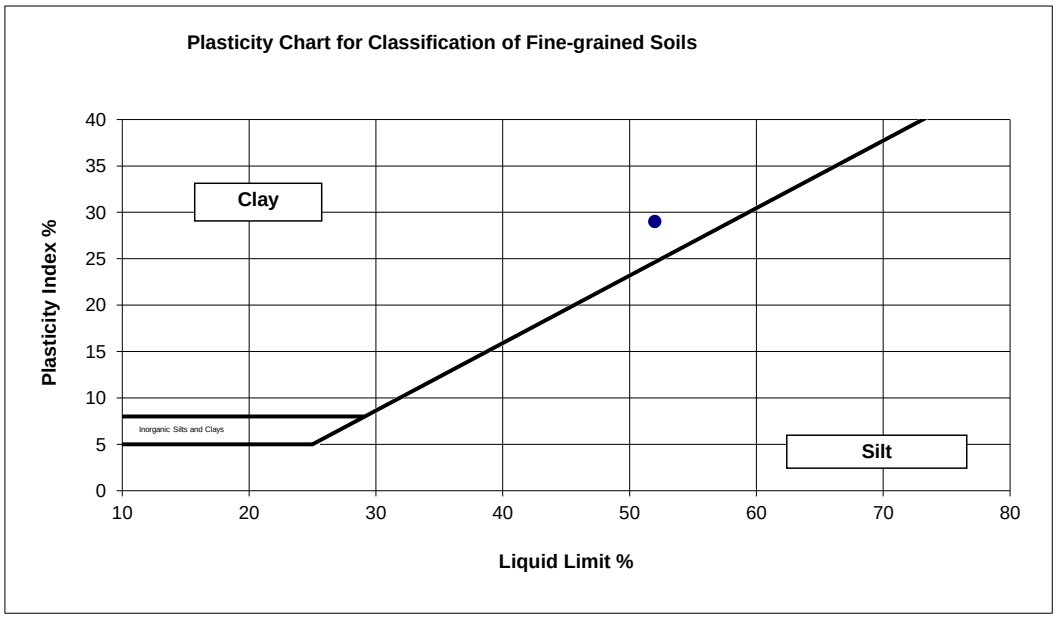
Test Procedure:

- ☑ AS1289 2.1.1 Soil moisture content tests (Oven drying method)
- ☑ AS1289 3.1.1 Soil classification tests - Determination of the liquid limit of a soil - Four point casagrande method
- ☐ AS1289 3.1.2 Soil classification tests - Determination of the liquid limit if a soil - One point Casagrande method (subsidiary method)
- ☑ AS1289 3.2.1 Soil classification tests - Determination of the plastic limit of a soil - Standard method
- ☑ AS1289 3.3.1 Soil classification tests - Calculation of the plasticity Index of a soil
- ☑ AS1289 3.4.1 Soil classification tests - Determination of the linear shrinkage of a soil - Standard method

Sampling: Sampled by Client **Date Sampled:** Unknown

Preparation: Prepared in accordance with the test method

Liquid Limit (%)	52	**Linear Shrinkage (%)**	7.5
Plastic Limit (%)	23	**Plasticity Index**	29



Soil Preparation Method: Dry Sieved
Soil History: Oven Dried
Soil Condition: Linear

Notes

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23/08/2019

Date:

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Alexandria NSW 2015

SOIL CLASSIFICATION REPORT

Client	Golder-Douglas	**Source**	BH-MN08 7.00-7.03m
Address	PO Box 1302 Crows Nest NSW 1585	**Sample Description**	Silty CLAY
Project	Sydney Metro West Variation 7 Marrickville (00013 11180)	**Report No**	S50366-PI
Job No	S19330	**Lab No**	S50366

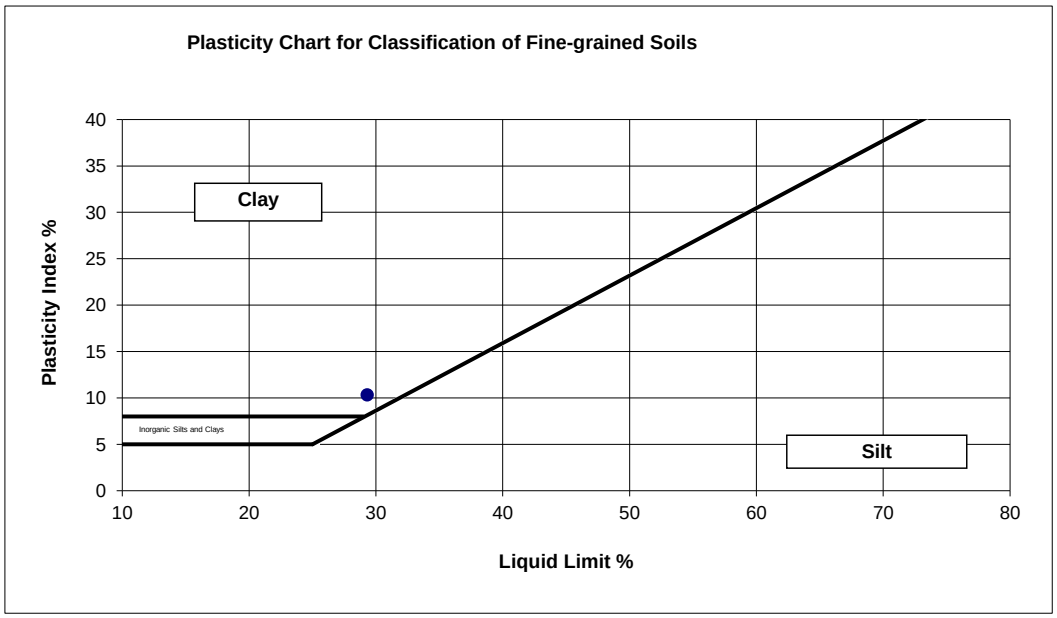
Test Procedure:

- ☑ AS1289 2.1.1 Soil moisture content tests (Oven drying method)
- ☐ AS1289 3.1.1 Soil classification tests - Determination of the liquid limit of a soil - Four point casagrande method
- ☑ AS1289 3.1.2 Soil classification tests - Determination of the liquid limit if a soil - One point Casagrande method (subsidiary method)
- ☑ AS1289 3.2.1 Soil classification tests - Determination of the plastic limit of a soil - Standard method
- ☑ AS1289 3.3.1 Soil classification tests - Calculation of the plasticity Index of a soil
- ☑ AS1289 3.4.1 Soil classification tests - Determination of the linear shrinkage of a soil - Standard method

Sampling: Sampled by Client **Date Sampled:** Unknown

Preparation: Prepared in accordance with the test method

Liquid Limit (%)	29	**Linear Shrinkage (%)**	5.0
Plastic Limit (%)	19	**Plasticity Index**	10



Soil Preparation Method: Dry Sieved
Soil History: Oven Dried
Soil Condition: Linear

Notes **Insufficient Sample for 4 point liquid Limit.**

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Moisture Content Results

MOISTURE CONTENT TEST REPORT

Client:	Golder-Douglas	**Job No:**	S19330
Address:	PO Box 1302 Crows Nest NSW 1585	**Report No:**	S50343-MC
Project:	Sydney Metro West Variation 7 Marrickville (00013 11180)		

Test Procedure:

- ☑ AS 1289 2.1.1 Soil moisture content tests - Determination of the moisture content of a soil - Oven drying method (Standard method).
- ☐ AS4133 1.1.1 Rock moisture content tests - Determination of the moisture content of rock - Oven drying method (standard method)
- ☐ RMS T120 Moisture content of road construction materials (Standard method)
- ☐ RMS T262 Determination of moisture content of aggregates (Standard method)

Sampling:	Sampled by Client	**Date Sampled:**	Unknown
Preparation:	Prepared in accordance with the test method		

Sample No.	Source	Sample Description	Moisture Content %
S50343	BH_MN01 1.50-2.50m	Silty CLAY	**21.4**
S50344	BH_MN01 3.00-4.00m	Silty CLAY	**27.6**
S50345	BH_MN01 5.50-6.00m	Silty CLAY	**24.1**
S50348	BH_MN01 4.36-4.81m	Sandy CLAY	**18.9**
S50349	BH_MN01 7.00-7.45m	Silty CLAY	**23.6**
S50350	BH_MN01 8.71-9.10m	Sandy CLAY	**20.8**
S50352	BH_MN01 11.50-11.90m	Sandy CLAY	**18.8**
S50353	BH_MN01 13.00-13.20m	Sandy CLAY	**17.2**

Notes:

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MOISTURE CONTENT TEST REPORT

Client:	Golder-Douglas	**Job No:**	S19330
Address:	PO Box 1302 Crows Nest NSW 1585	**Report No:**	S50354-MC
Project:	Sydney Metro West Variation 7 Marrickville (00013 11180)		

Test Procedure:

- ☑ AS 1289 2.1.1 Soil moisture content tests - Determination of the moisture content of a soil - Oven drying method (Standard method).
- ☐ AS4133 1.1.1 Rock moisture content tests - Determination of the moisture content of rock - Oven drying method (standard method)
- ☐ RMS T120 Moisture content of road construction materials (Standard method)
- ☐ RMS T262 Determination of moisture content of aggregates (Standard method)

Sampling:	Sampled by Client	**Date Sampled:**	Unknown
Preparation:	Prepared in accordance with the test method		

Sample No.	Source	Sample Description	Moisture Content %
S50354	BH-MN02 1.50-2.50m	Silty SAND	**12.0**
S50355	BH-MN02 2.50-4.00m	Clayey Sandy SILT	**19.0**
S50356	BH-MN02 4.00-5.50m	Sandy Silty CLAY	**21.9**
S50358	BH-MN02 2.50-2.92m	Silty Sandy CLAY	**17.4**
S50359	BH-MN02 4.00-4.45m	Silty Sandy CLAY	**16.7**

Notes:

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MOISTURE CONTENT TEST REPORT

Client:	Golder-Douglas	**Job No:**	S19330
Address:	PO Box 1302 Crows Nest NSW 1585	**Report No:**	S50361-MC
Project:	Sydney Metro West Variation 7 Marrickville (00013 11180)		

Test Procedure:

- ☑ AS 1289 2.1.1 Soil moisture content tests - Determination of the moisture content of a soil - Oven drying method (Standard method).
- ☐ AS4133 1.1.1 Rock moisture content tests - Determination of the moisture content of rock - Oven drying method (standard method)
- ☐ RMS T120 Moisture content of road construction materials (Standard method)
- ☐ RMS T262 Determination of moisture content of aggregates (Standard method)

Sampling:	Sampled by Client	**Date Sampled:**	Unknown
Preparation:	Prepared in accordance with the test method		

Sample No.	Source	Sample Description	Moisture Content %
S50361	BH-MN08 6.50-7.00m	Silty CLAY	**32.1**
S50362	BH-MN08 3.50-4.00m	Silty Sandy CLAY	**30.6**
S50363	BH-MN08 2.28-2.73m	Silty CLAY	**22.9**
S50365	BH-MN08 5.50-5.92m	Silty CLAY	**21.7**
S50366	BH-MN08 7.00-7.03m	Silty CLAY	**14.7**

Notes:

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Authorised Signatory:

Chris Lloyd

9/08/2019

Date:

MACQUARIE GEOTECH

Macquarie Geotechnical
U7/8 10 Bradford Street
Alexandria NSW 2015

Particle Size Distribution Results

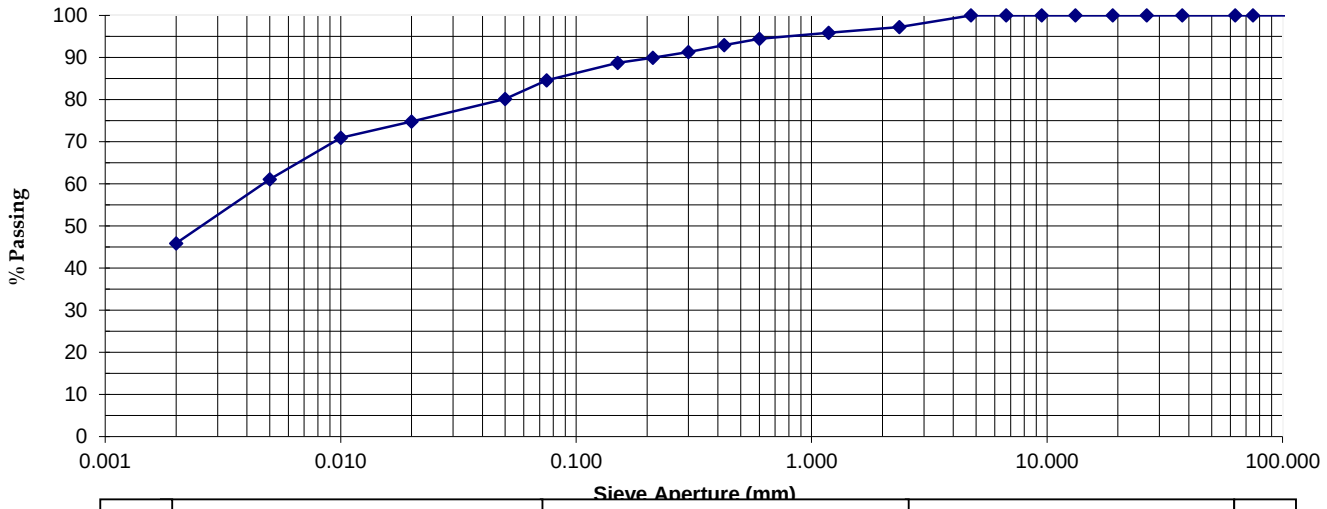
PARTICLE SIZE DISTRIBUTION (HYDROMETER) REPORT

Client:	Golder-Douglas	**Source:**	BH_MN01 1.85-2.30m
Address:	PO Box 1302 Crows Nest NSW 1585	**Sample Description:**	Silty CLAY trace of Sand and Gravel.
Project:	Sydney Metro West Variation 7 Marrickville (00013 11180)	**Report No.:**	S50346-HYD
Job No.:	S19330	**Lab No.:**	S50346

Test Procedure: ☑ AS1289.3.6.3 Soil classification tests - Determination of the particle size distribution of a soil - Standard method of fine analysis using a hydrometer
☑ AS1289.3.6.1 Soil classification tests - Determination of particle size distribution of a soil standard method sieving

Sampling: Sampled by Client | Date Sampled: Unknown

Preparation: Prepared in accordance with the test method



Clay	Silt	Sand	Gravel	Cobbles

Sieve Apperture: (mm)	% Passing	Specification (..) Envelope	Sieve Aperture: (mm)	% Passing	Specification (..) Envelope
200	-		1.180	96	
75	-		0.600	94	
63	-		0.425	93	
37.5	-		0.300	91	
26.5	-		0.212	90	
19.0	-		0.150	89	
13.2	-		0.075	85	
9.5	-		0.050	80	
6.7	-		0.020	75	
4.75	100		0.010	71	
2.36	97		0.005	61	
			0.002	46	

Loss in Pre-treatment of Material (%)	0
Method of Dispersion:	Sodium Hexametaphosphate / Sodium Carbonate
Hydrometer Type:	ASTM

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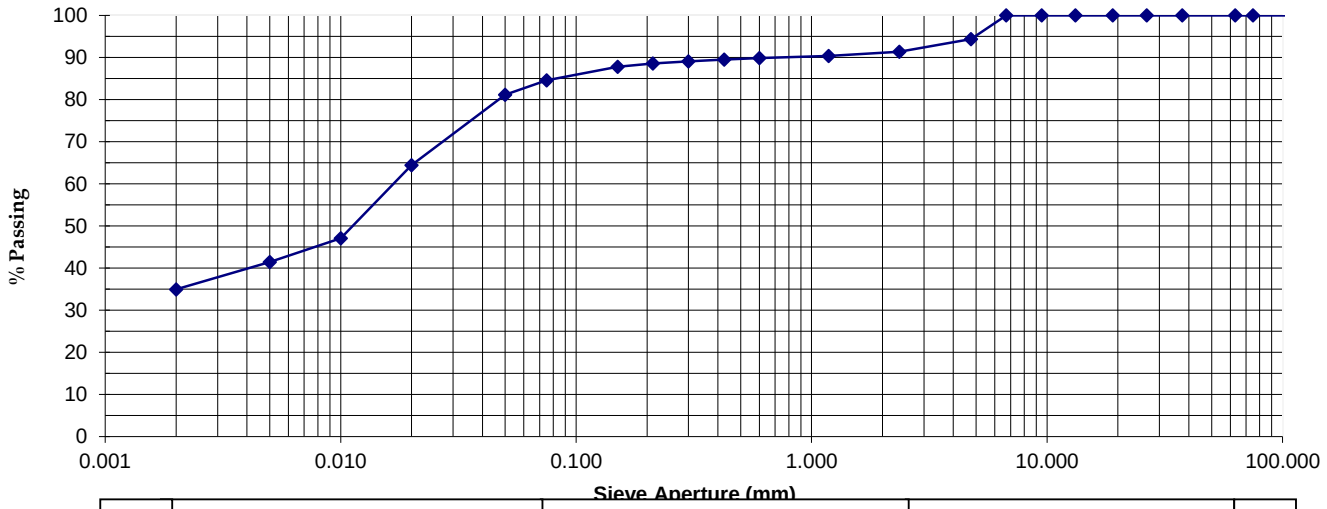
PARTICLE SIZE DISTRIBUTION (HYDROMETER) REPORT

Client:	Golder-Douglas	**Source:**	BH_MN01 2.88-3.33m
Address:	PO Box 1302 Crows Nest NSW 1585	**Sample Description:**	Clayey SILT trace of Gravel and Sand.
Project:	Sydney Metro West Variation 7 Marrickville (00013 11180)	**Report No.:**	S50347-HYD
Job No.:	S19330	**Lab No.:**	S50347

Test Procedure: ☑ AS1289.3.6.3 Soil classification tests - Determination of the particle size distribution of a soil - Standard method of fine analysis using a hydrometer
☑ AS1289.3.6.1 Soil classification tests - Determination of particle size distribution of a soil standard method sieving

Sampling: Sampled by Client | Date Sampled: Unknown

Preparation: Prepared in accordance with the test method



Clay	Silt	Sand	Gravel	Cobbles

Sieve Apperture: (mm)	% Passing	Specification (..) Envelope	Sieve Aperture: (mm)	% Passing	Specification (..) Envelope
200	-		1.180	90	
75	-		0.600	90	
63	-		0.425	90	
37.5	-		0.300	89	
26.5	-		0.212	89	
19.0	-		0.150	88	
13.2	-		0.075	85	
9.5	-		0.050	81	
6.7	100		0.020	64	
4.75	94		0.010	47	
2.36	91		0.005	41	
			0.002	35	

Loss in Pre-treatment of Material (%)	0
Method of Dispersion:	Sodium Hexametaphosphate / Sodium Carbonate
Hydrometer Type:	ASTM

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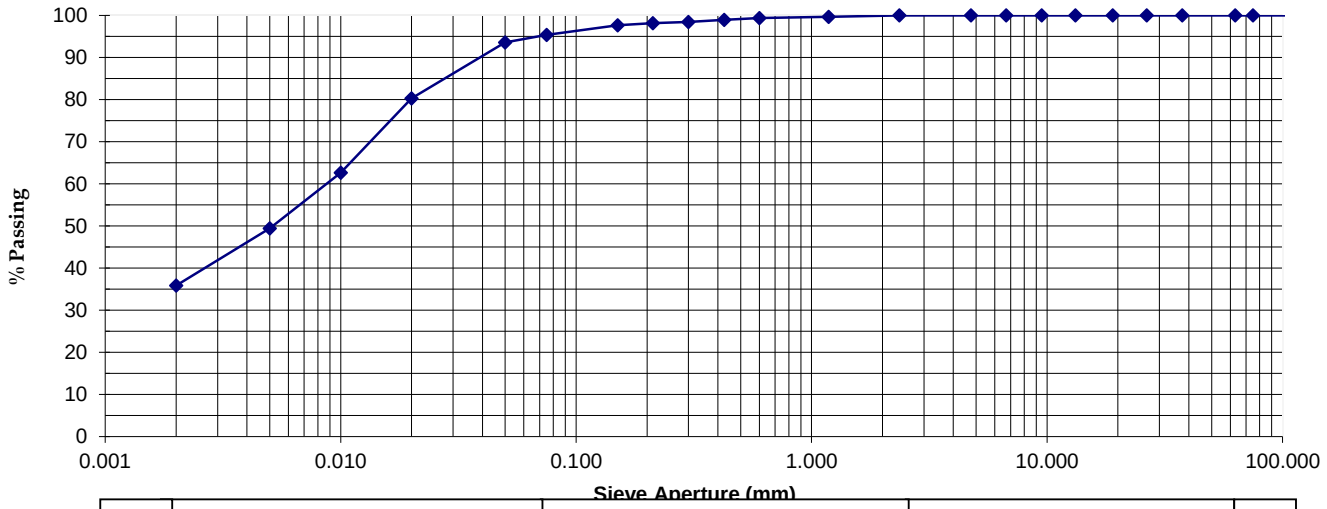
PARTICLE SIZE DISTRIBUTION (HYDROMETER) REPORT

Client:	Golder-Douglas	**Source:**	BH_MN01 10.00-10.45m
Address:	PO Box 1302 Crows Nest NSW 1585	**Sample Description:**	Clayey SILT trace of Sand.
Project:	Sydney Metro West Variation 7 Marrickville (00013 11180)	**Report No.:**	S50351-HYD
Job No.:	S19330	**Lab No.:**	S50351

Test Procedure: ☑ AS1289.3.6.3 Soil classification tests - Determination of the particle size distribution of a soil - Standard method of fine analysis using a hydrometer
☑ AS1289.3.6.1 Soil classification tests - Determination of particle size distribution of a soil standard method sieving

Sampling: Sampled by Client | Date Sampled: Unknown

Preparation: Prepared in accordance with the test method



Clay	Silt	Sand	Gravel	Cobbles

Sieve Apperture: (mm)	% Passing	Specification (..) Envelope	Sieve Aperture: (mm)	% Passing	Specification (..) Envelope
200	-		1.180	100	
75	-		0.600	99	
63	-		0.425	99	
37.5	-		0.300	98	
26.5	-		0.212	98	
19.0	-		0.150	98	
13.2	-		0.075	95	
9.5	-		0.050	94	
6.7	-		0.020	80	
4.75	-		0.010	63	
2.36	100		0.005	49	
			0.002	36	

Loss in Pre-treatment of Material (%)	0
Method of Dispersion:	Sodium Hexametaphosphate / Sodium Carbonate
Hydrometer Type:	ASTM

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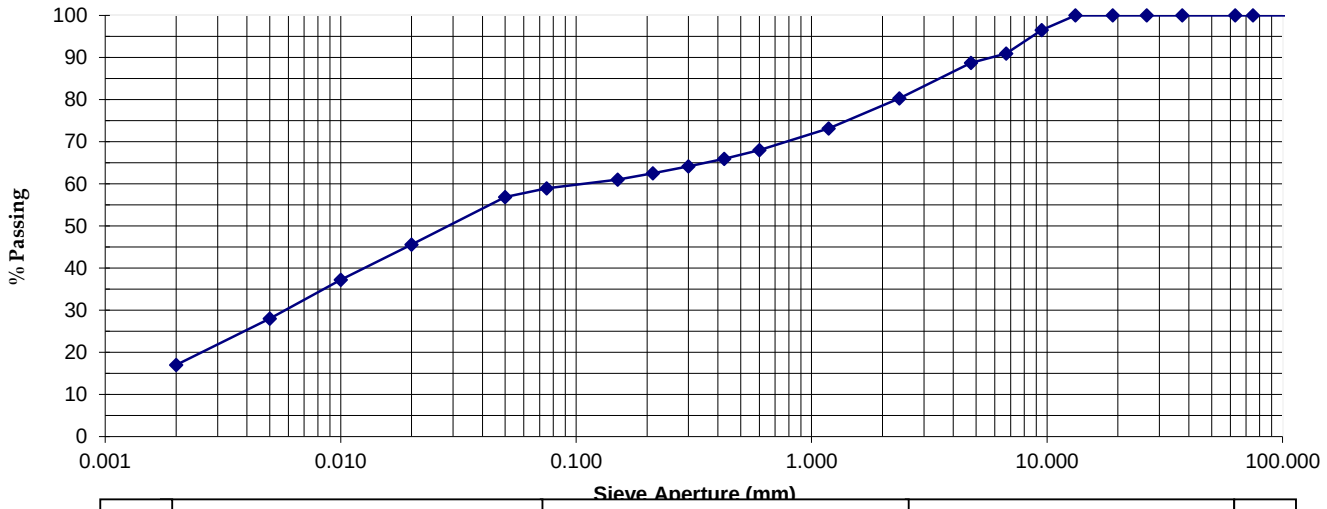
PARTICLE SIZE DISTRIBUTION (HYDROMETER) REPORT

Client:	Golder-Douglas	**Source:**	BH-MN02 1.50-1.78m
Address:	PO Box 1302 Crows Nest NSW 1585	**Sample Description:**	SILT with Sand, Gravel and Clay
Project:	Sydney Metro West Variation 7 Marrickville (00013 11180)	**Report No.:**	S50357-HYD
Job No.:	S19330	**Lab No.:**	S50357

Test Procedure: ☑ AS1289.3.6.3 Soil classification tests - Determination of the particle size distribution of a soil - Standard method of fine analysis using a hydrometer
☑ AS1289.3.6.1 Soil classification tests - Determination of particle size distribution of a soil standard method sieving

Sampling: Sampled by Client | Date Sampled: Unknown

Preparation: Prepared in accordance with the test method



Clay	Silt	Sand	Gravel	Cobbles

Sieve Apperture: (mm)	% Passing	Specification (..) Envelope	Sieve Aperture: (mm)	% Passing	Specification (..) Envelope
200	-		1.180	73	
75	-		0.600	68	
63	-		0.425	66	
37.5	-		0.300	64	
26.5	-		0.212	63	
19.0	-		0.150	61	
13.2	100		0.075	59	
9.5	96		0.050	57	
6.7	91		0.020	46	
4.75	89		0.010	37	
2.36	80		0.005	28	
			0.002	17	

Loss in Pre-treatment of Material (%)	0
Method of Dispersion:	Sodium Hexametaphosphate / Sodium Carbonate
Hydrometer Type:	ASTM

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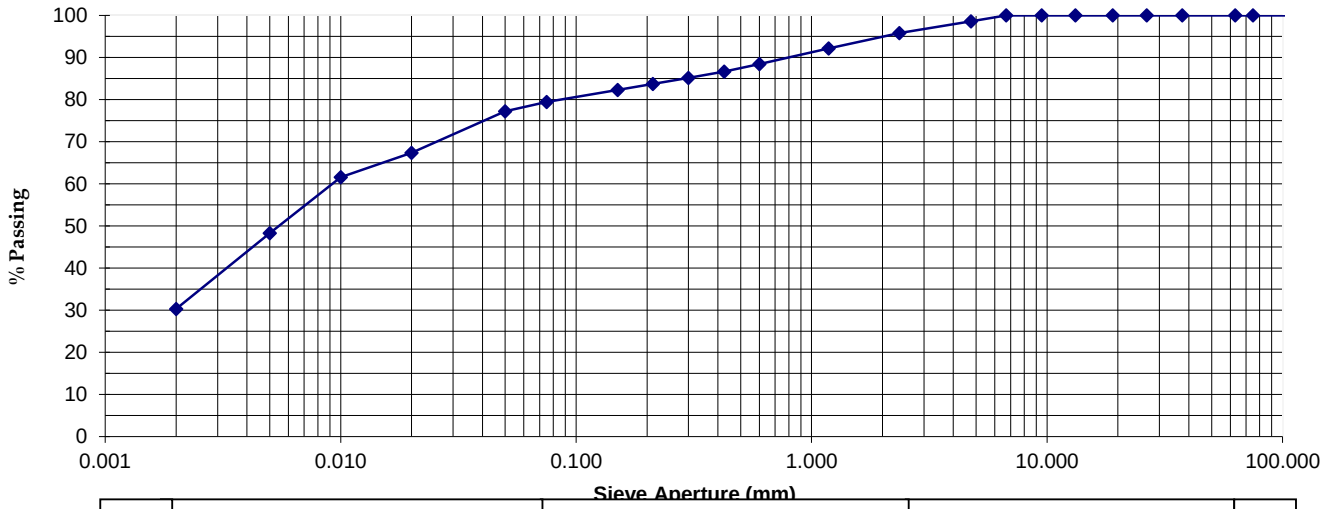
PARTICLE SIZE DISTRIBUTION (HYDROMETER) REPORT

Client:	Golder-Douglas	**Source:**	BH-MN02 5.50-5.65m
Address:	PO Box 1302 Crows Nest NSW 1585	**Sample Description:**	Clayey SILT with Sand, trace of Gravel.
Project:	Sydney Metro West Variation 7 Marrickville (00013 11180)	**Report No.:**	S50360-HYD
Job No.:	S19330	**Lab No.:**	S50360

Test Procedure: ☑ AS1289.3.6.3 Soil classification tests - Determination of the particle size distribution of a soil - Standard method of fine analysis using a hydrometer
☑ AS1289.3.6.1 Soil classification tests - Determination of particle size distribution of a soil standard method sieving

Sampling: Sampled by Client | Date Sampled: Unknown

Preparation: Prepared in accordance with the test method



Clay	Silt	Sand	Gravel	Cobbles

Sieve Apperture: (mm)	% Passing	Specification (..) Envelope	Sieve Aperture: (mm)	% Passing	Specification (..) Envelope
200	-		1.180	92	
75	-		0.600	88	
63	-		0.425	87	
37.5	-		0.300	85	
26.5	-		0.212	84	
19.0	-		0.150	82	
13.2	-		0.075	79	
9.5	-		0.050	77	
6.7	100		0.020	67	
4.75	99		0.010	62	
2.36	96		0.005	48	
			0.002	30	

Loss in Pre-treatment of Material (%)	0
Method of Dispersion:	Sodium Hexametaphosphate / Sodium Carbonate
Hydrometer Type:	ASTM

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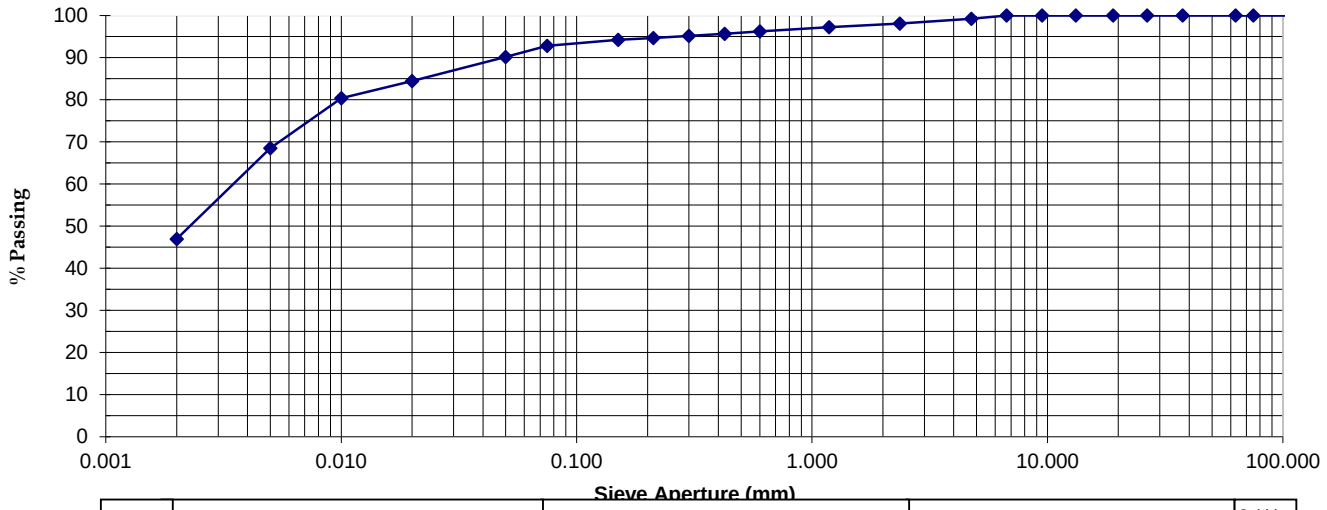
PARTICLE SIZE DISTRIBUTION (HYDROMETER) REPORT

Client:	Golder-Douglas	**Source:**	BH-MN08 4.00-4.45m
Address:	PO Box 1302 Crows Nest NSW 1585	**Sample Description:**	Silty CLAY trace of Sand and Gravel.
Project:	Sydney Metro West Variation 7 Marrickville (00013 11180)	**Report No.:**	S50364-HYD
Job No.:	S19330	**Lab No.:**	S50364

Test Procedure: ☑ AS1289.3.6.3 Soil classification tests - Determination of the particle size distribution of a soil - Standard method of fine analysis using a hydrometer
☑ AS1289.3.6.1 Soil classification tests - Determination of particle size distribution of a soil standard method sieving

Sampling: Sampled by Client | Date Sampled: Unknown

Preparation: Prepared in accordance with the test method



Clay	Silt	Sand	Gravel	Cobbles

Sieve Apperture: (mm)	% Passing	Specification (..) Envelope	Sieve Aperture: (mm)	% Passing	Specification (..) Envelope
200	-		1.180	97	
75	-		0.600	96	
63	-		0.425	96	
37.5	-		0.300	95	
26.5	-		0.212	95	
19.0	-		0.150	94	
13.2	-		0.075	93	
9.5	-		0.050	90	
6.7	100		0.020	84	
4.75	99		0.010	80	
2.36	98		0.005	68	
			0.002	47	

Loss in Pre-treatment of Material (%)	0
Method of Dispersion:	Sodium Hexametaphosphate / Sodium Carbonate
Hydrometer Type:	ASTM

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Strength and Compressibility Results

UNDRAINED TRIAXIAL COMPRESSION TEST REPORT (UU)
Single Stage Test

Client:	Golder-Douglas	**Source:**	BH-MN01 1.50-1.85m
Project:	Sydney Metro West Variation 7 Marrickville (00013 11180)	**Report No.:**	S50368-UU
Address:	PO Box 1302 Crows Nest NSW 1585	**Sample Description:**	Silty CLAY
Job No:	S19330	**Lab No.:**	S50368

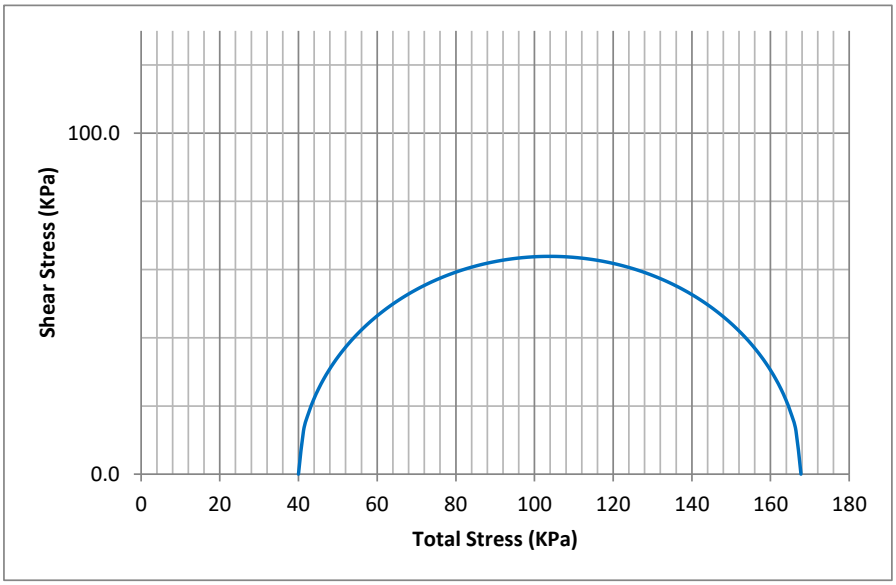
Test Procedure:
☑ AS 1289 6.4.1: Soil strength and consolidation tests - Determination of compressive strength of a soil - Compressive strength of a specimen tested in undrained triaxial compression without measurement of pore water pressure

☑ AS 1289 2.1.1: Soil moisture content tests - Determination of the moisture content of a soil - Oven drying method

Sampling:	Sampled by Client	Date Sampled:	Unknown
Preparation:	Prepared in accordance with AS1289 1.1		

Sample Details	
Sample Condition	Undisturbed
Height (mm)	142.43
Diameter (mm)	72.65
Moisture Content (%)	21.1
Dry Density (t/m^3)	1.71

Test Details	
	Stage 1
Date Tested	24/07/2019
Cell Pressure (kPa)	40
Axial Strain Rate (mm/min)	1.0
Strain at Failure (%)	20.0
Maximum Deviator Stress (kPa)	127.7



Note: Graph for visual representation only

Su = 63.9 kPa

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Date: 9/08/2019

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Alexandria NSW 2015

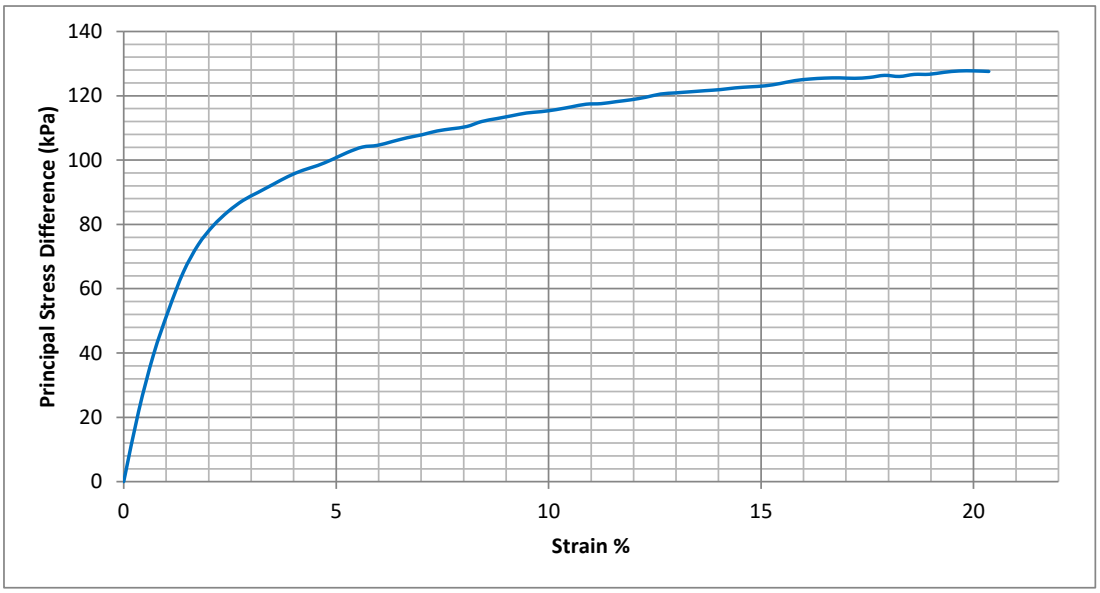
UNDRAINED TRIAXIAL COMPRESSION TEST REPORT
(UU) Single Stage Test

Client:	Golder-Douglas	**Source:**	BH-MN01 1.50-1.85m
Project:	Sydney Metro West Variation 7 Marrickville (00013 11180)	**Report No.:**	S50368-UU
Address:	PO Box 1302 Crows Nest NSW 1585	**Sample Description:**	Silty CLAY
Job No:	S19330	**Lab No.:**	S50368

Test Procedure:
AS 1289 6.4.1: Soil strength and consolidation tests - Determination of compressive strength of a soil - Compressive strength of a specimen tested in undrained triaxial compression without measurement of pore water pressure

AS 1289 2.1.1: Soil moisture content tests - Determination of the moisture content of a soil - Oven drying method

Sampling:	Sampled by Client	Date Sampled:	Unknown
Preparation:	Prepared in accordance with AS1289 1.1		



After Test Photo

Failure Mode
Plastic

Description of the specimen as broken after test
As per sample description

Comments
Unsaturated

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CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST REPORT (CIU)

AS1289 6.4.2

Client:	Golder-Douglas	**Source:**	BH-MN01 2.50-2.88m
Project:	Sydney Metro West Variation 7 Marrickville (00013 11180)	**Report No.:**	S50369-CU
Address:	PO Box 1302 Crows Nest NSW 1585	**Sample Description:**	Silty CLAY
Job No:	S19330	**Lab No.:**	S50369

Test Procedure: AS 1289 6.4.2: Soil strength and consolidation tests - Determination of compressive strength of a soil - Compressive strength of a specimen tested in undrained triaxial compression with measurement of pore water pressure

AS 1289 2.1.1: Soil moisture content tests - Determination of the moisture content of a soil - Oven drying method

Sampling:	By Client	**Date Sampled:**	**Unknown**
Preparation:	Prepared in accordance with the test method		

Specimen Details

	Specimen 1	*Specimen 2*	*Specimen3*	*Specimen 4*	*Specimen 5*
Specimen Condition	**Undisturbed**	-	-	-	-
Initial Height (mm)	**144.3**	-	-	-	-
Initial Diameter (mm)	**72.2**	-	-	-	-
Initial Moisture Content (%)	**26.0**	-	-	-	-
Initial Dry Density (t/m^3)	**1.59**	-	-	-	-

Test Details

	Stage 1	*Stage 2*	*Stage 3*	*Stage 4*	*Stage 5*
Date Tested	**01.08.2019**	-	-	-	-
Cell Pressure (kPa)	**561**	-	-	-	-
Back Pressure (kPa)	**501**	-	-	-	-
Effective Pressure (kPa)	**60**	-	-	-	-
Initial Pore Pressure (kPa)	**500**	-	-	-	-

After Test Photo

After Test Photo of Specimen Broken in Half

Comments : Final test moisture content (%) = 28.4

After saturation specimen height (mm) = 145.1

Axial Straining Rate (mm/min) = 0.007

Filter strips used during consolidation allowing drainage from both ends and radial boundary

Failure Mode: Compound Performed as a single stage test

Description as broken after test : As per sample description

NATA Accredited Laboratory Number: 14874

Authorised Signatory:

Ian Goldschmidt

14/08/2019

Date:

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8/10 Bradford Street

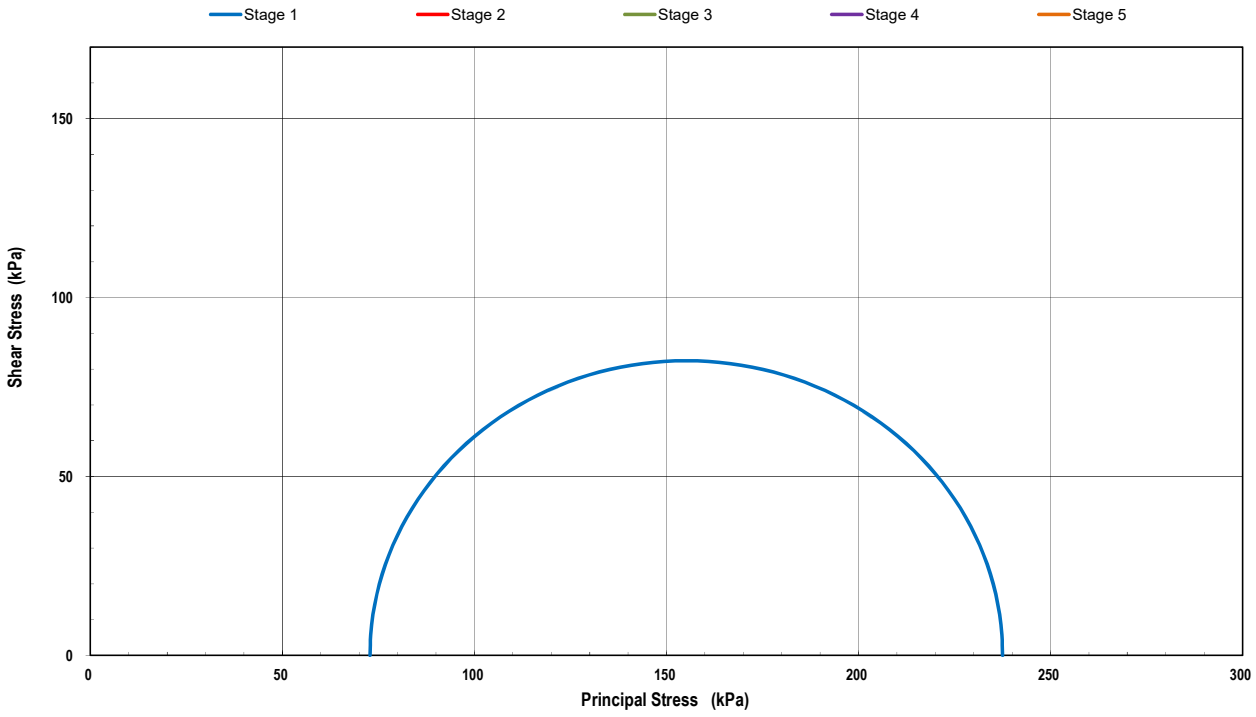
Alexandria NSW 2015

CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST REPORT (CIU)

AS1289 6.4.2

Client:	Golder-Douglas	**Source:**	BH-MN01 2.50-2.88m
Project:	Sydney Metro West Variation 7 Marrickville (00013 1	**Report No.:**	S50369-CU

#1 Failure Criteria - Mohr Circle Diagram



1 Failure Criteria : Peak Deviator Stress

		Stage 1	*Stage 2*	*Stage 3*	*Stage 4*	*Stage 5*
Pore Pressure at Failure (kPa)		**487**	-	-	-	-
Strain at Failure (%)		**10.91**	-	-	-	-
Max Deviator Stress at Failure (kPa)		**165**	-	-	-	-
Principal Effective Stresses	s'_1	**238**	-	-	-	-
	s'_3	**73**	-	-	-	-
	s'_1 / s'_3	**3.263**	-	-	-	-

Mohr Circle Interpretation

Interpretation between stages :	N/A
Cohesion C' (kPa) :	N/A
Angle of Shear Resistance Φ' (Degrees) :	N/A
Correlation Coefficient:	N/A

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Authorised Signatory:

Ian Goldschmidt

14/08/2019

Date:

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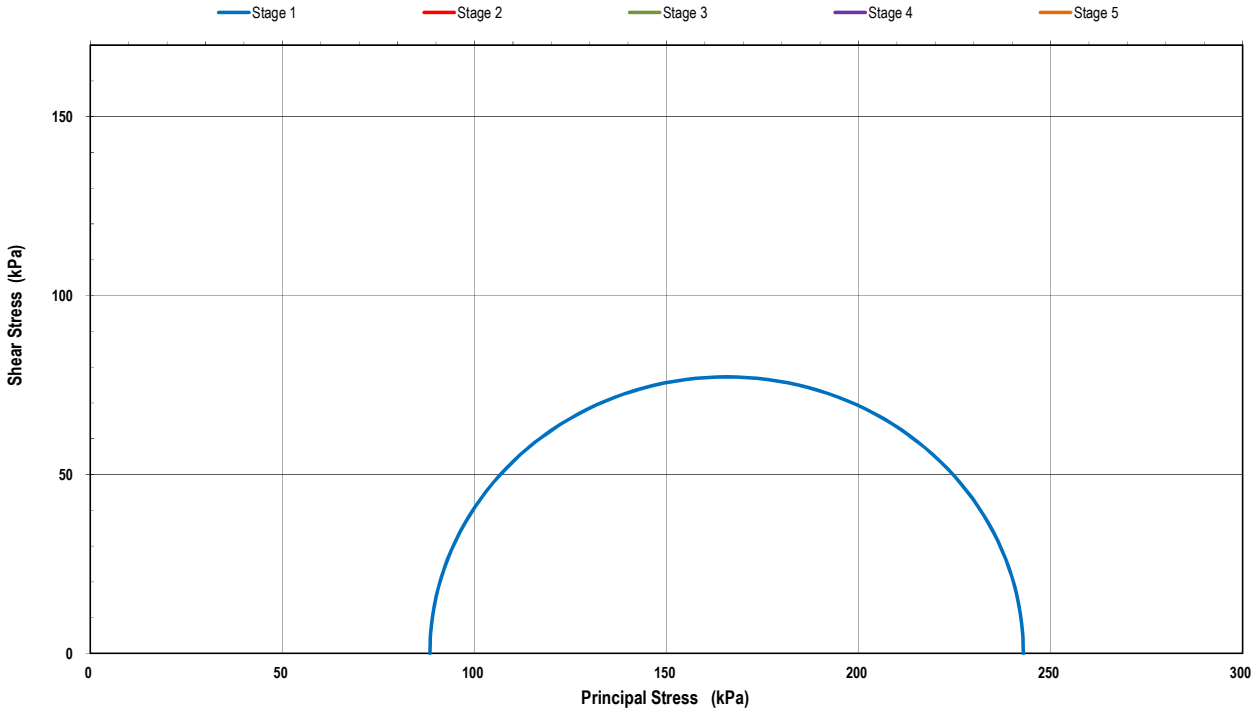
Alexandria NSW 2015

CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST REPORT (CIU)

AS1289 6.4.2

Client:	Golder-Douglas	**Source:**	BH-MN01 2.50-2.88m
Project:	Sydney Metro West Variation 7 Marrickville (00013 1	**Report No.:**	S50369-CU

#2 Failure Criteria - Mohr Circle Diagram



2 Failure Criteria : % Strain Value

		Stage 1	*Stage 2*	*Stage 3*	*Stage 4*	*Stage 5*
Pore Pressure at Failure (kPa)		**473**	-	-	-	-
Strain at Failure (%)		**20.0**	-	-	-	-
Maximum Deviator Stress (kPa)		**155**	-	-	-	-
Principal Effective Stresses	s'_1	**243**	-	-	-	-
	s'_3	**88**	-	-	-	-
	s'_1 / s'_3	**2.748**	-	-	-	-

Mohr Circle Interpretation

Interpretation between stages :	N/A
Cohesion C' (kPa) :	N/A
Angle of Shear Resistance Φ' (Degrees) :	N/A
Correlation Coefficient:	N/A

NATA Accredited Laboratory Number: 14874

Authorised Signatory:

Ian Goldschmidt

14/08/2019

Date:

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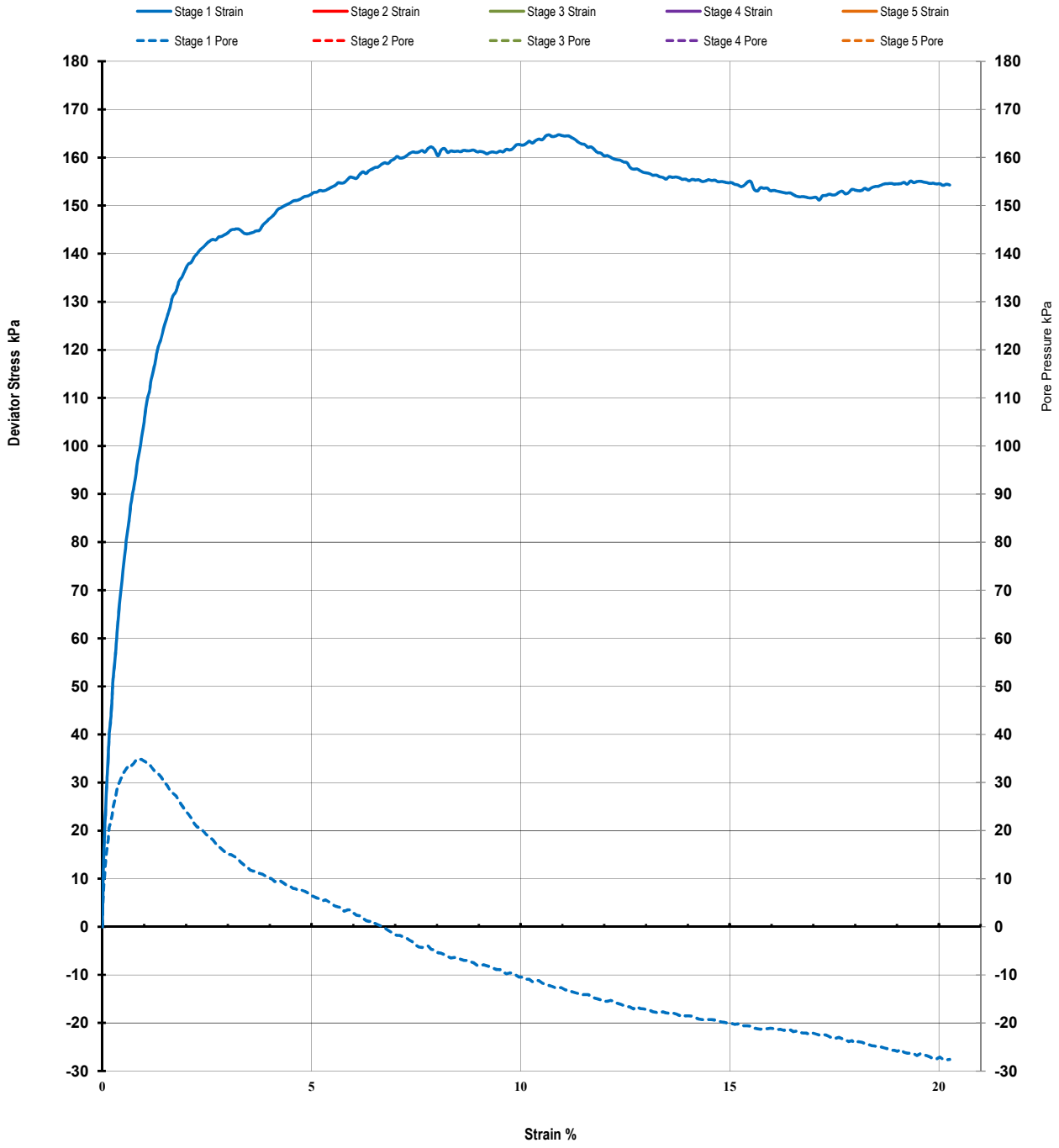
8/10 Bradford Street
Alexandria NSW 2015

CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST REPORT (CIU)

AS1289 6.4.2

Client:	Golder-Douglas	**Source:**	BH-MN01 2.50-2.88m
Project:	Sydney Metro West Variation 7 Marrickville (00013 1	**Report No.:**	S50369-CU

Stress/Strain & PorePressure/Strain Diagram



NATA Accredited Laboratory Number: 14874

Authorised Signatory:

Ian Goldschmidt

14/08/2019

Date:

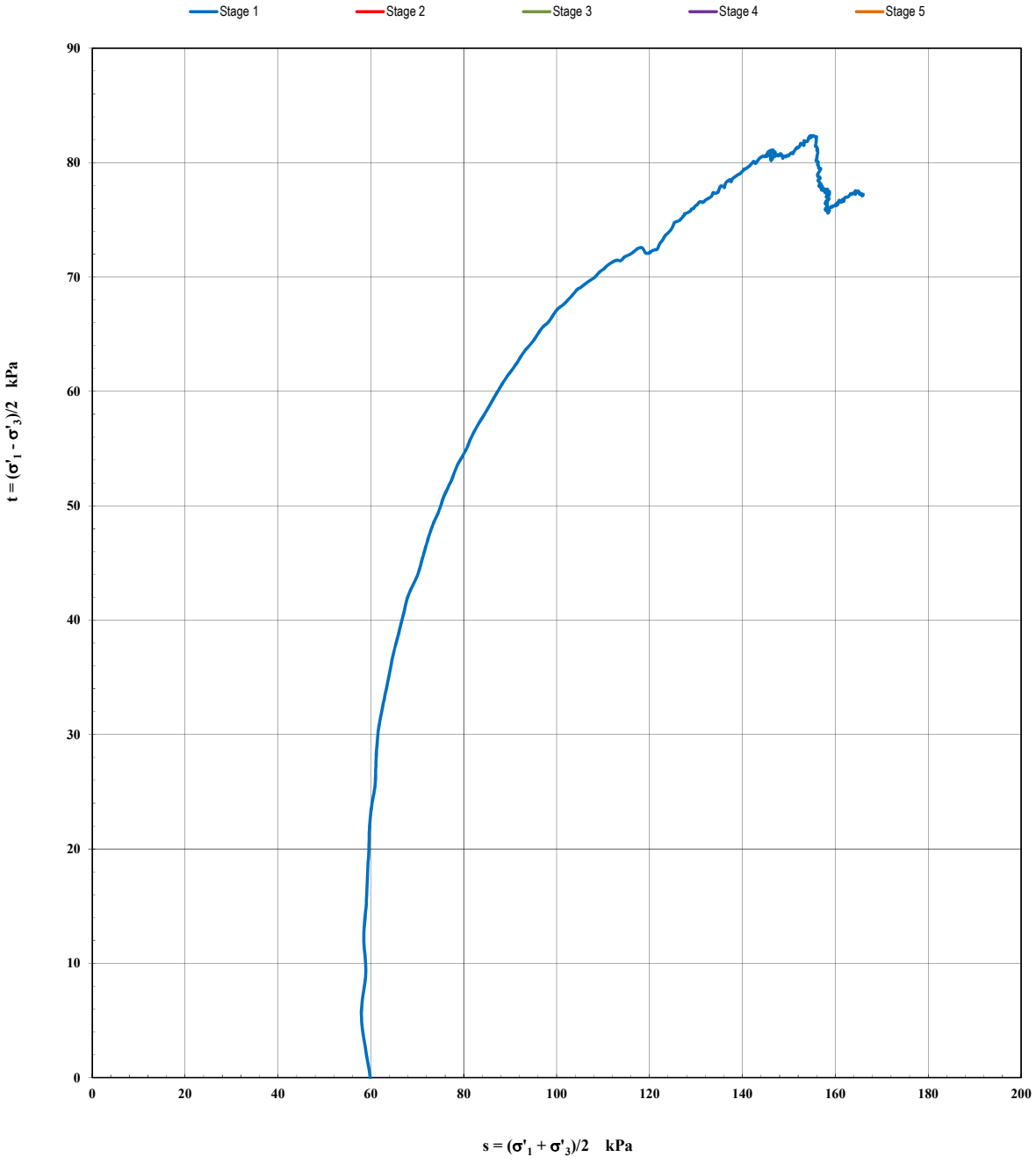
MACQUARIE GEOTECH
8/10 Bradford Street
Alexandria NSW 2015

CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST REPORT (CIU)

AS1289 6.4.2

Client:	Golder-Douglas	**Source:**	BH-MN01 2.50-2.88m
Project:	Sydney Metro West Variation 7 Marrickville (00013 1	**Report No.:**	S50369-CU

MIT Method - Effective Stress Path



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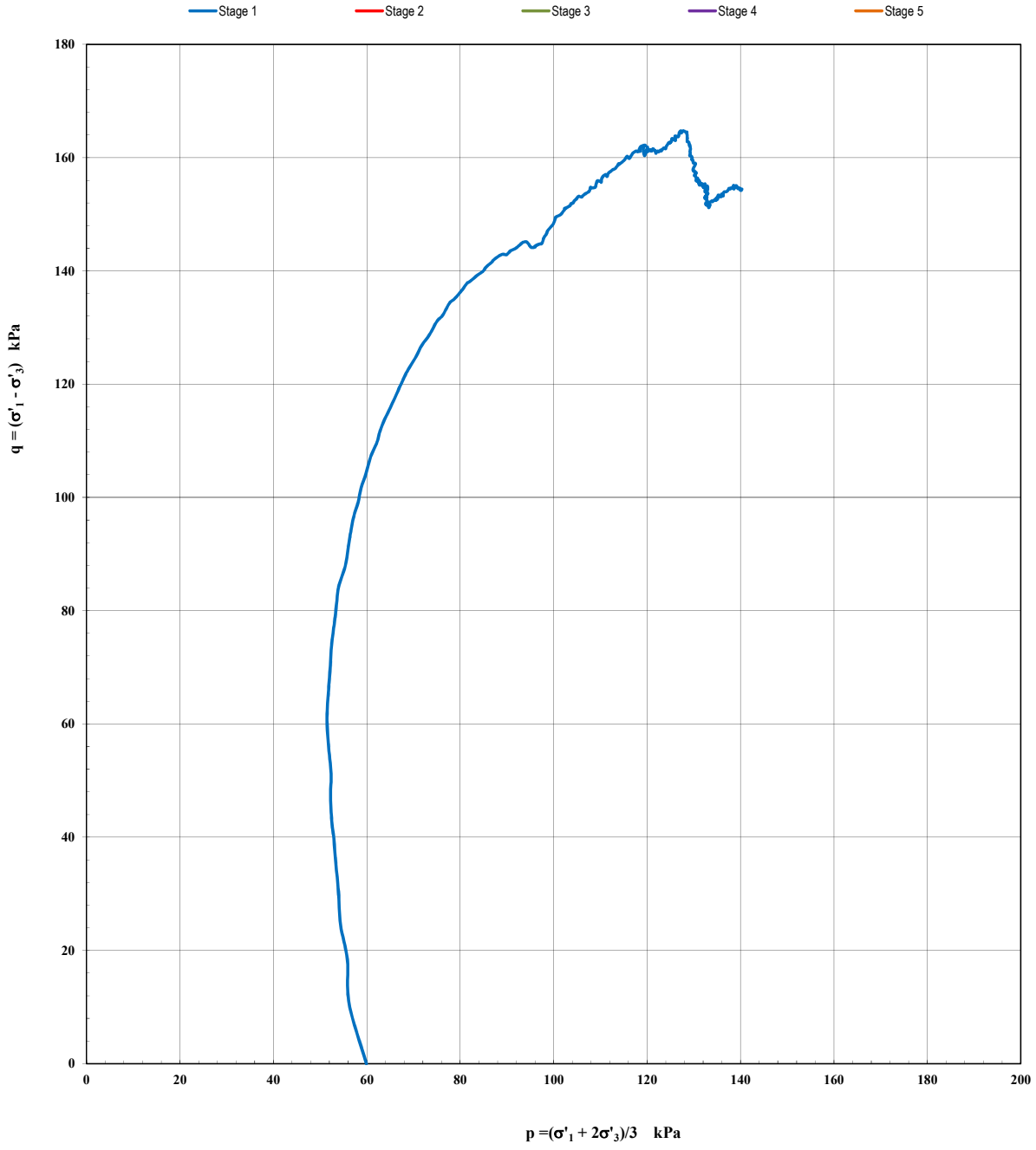
CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST REPORT (CIU)

AS1289 6.4.2

Client:	Golder-Douglas	**Source:**	BH-MN01 2.50-2.88m
Project:	Sydney Metro West Variation 7 Marrickville (00013 1	**Report No.:**	S50369-CU

Cambridge Method - Effective Stress Path



NATA Accredited Laboratory Number: 14874

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14/08/2019

Date:

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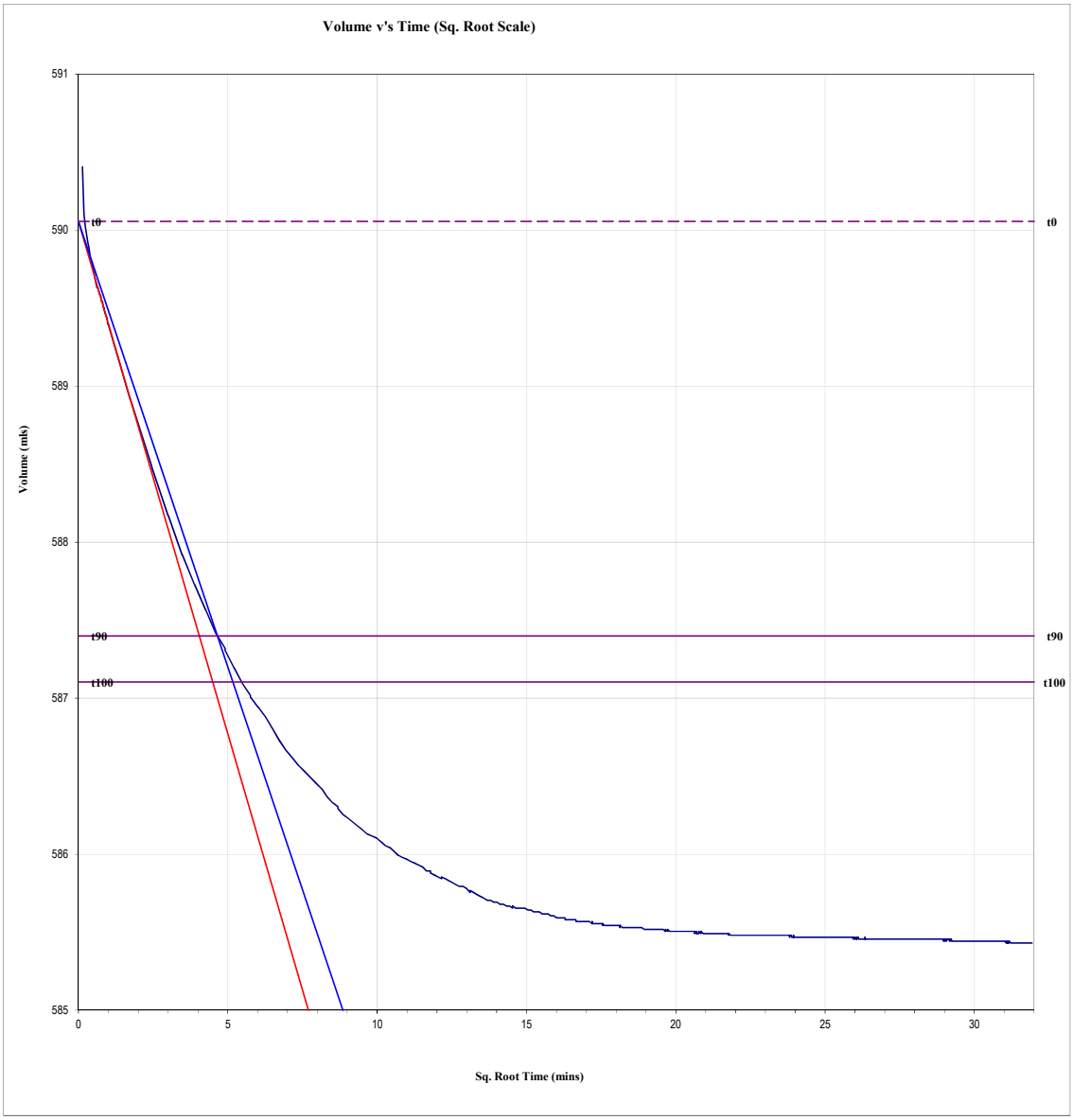
Alexandria NSW 2015

CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST REPORT (CIU)

AS1289 6.4.2

Client:	Golder-Douglas	**Source:**	BH-MN01 2.50-2.88m
Project:	Sydney Metro West Variation 7 Marrickville (00013 1	**Report No.:**	S50369-CU

Stage 1: **60** **kPa**



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Authorised Signatory:

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14/08/2019

Date:

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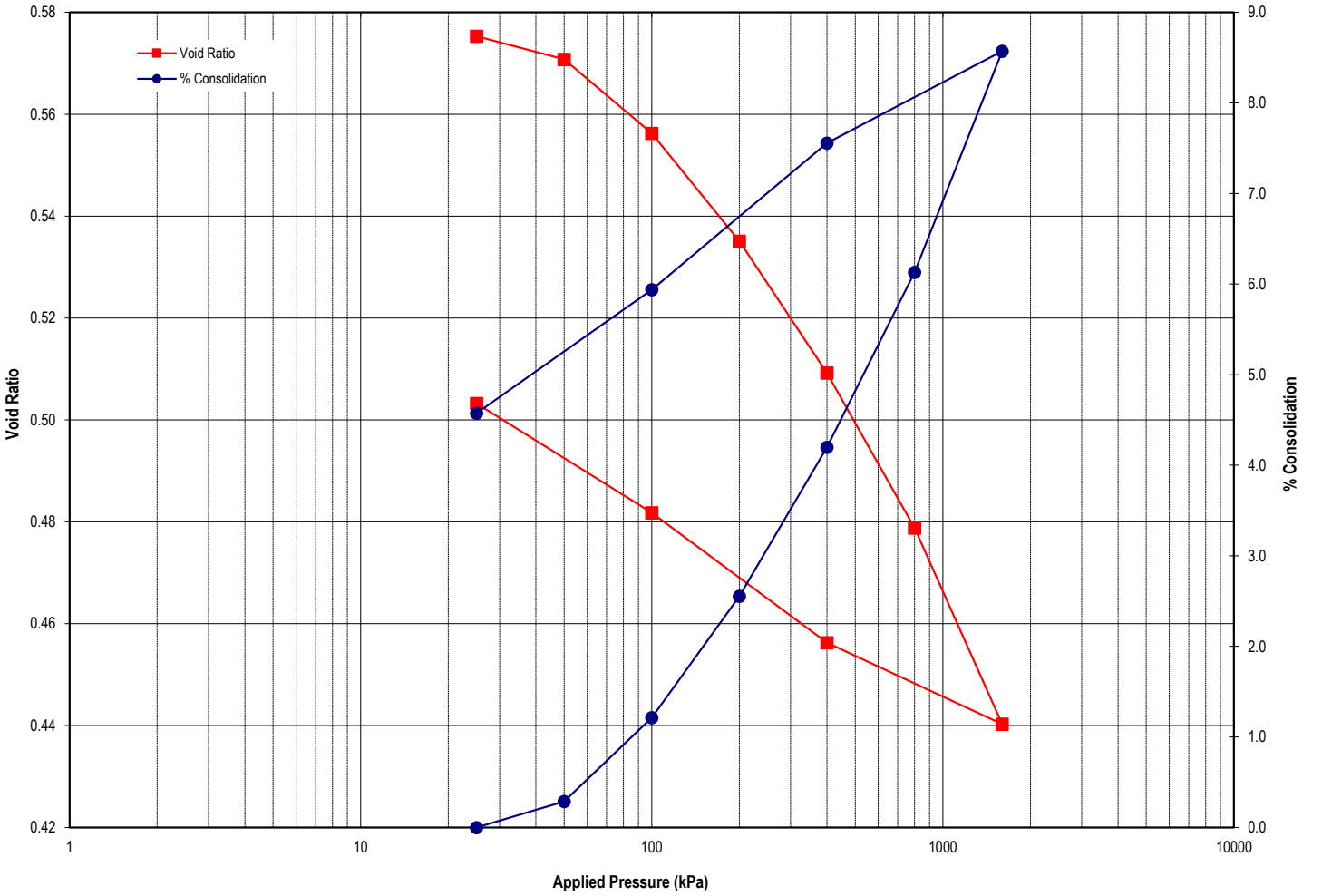
Alexandria NSW 2015

OEDOMETER TEST REPORT

Test Method: AS1 289.6.6.1

Client:	Golder-Douglas	**Job No:**	S19330
Client Address:	PO Box 1302 Crows Nest NSW 1585	**Sample No:**	S50370
Project:	Sydney Metro West Variation 7 Marrickville (00013 11	**Report No:**	S50370-CON
		Date Tested:	25.07.19
Sample Description:	Silty CLAY	**Sample Source:**	BH-MN01 4.00-4.36m



Dry Density (t/m^3):	1.68	Initial Moisture (%):	20.3	Test Condition:	Inundated on load
Particle Density (t/m^3):	2.65	Initial Voids Ratio:	0.579	Initial Degree of Saturation (%):	93.2

Remarks: Specimen swelled at 25 kPa

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Authorised Signatory:

Chris Lloyd

6/08/2019

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Bradford Street
Alexandria NSW 2015

OEDOMETER TEST REPORT

Test Method: AS 1289.6.6.1

Client:	Golder-Douglas	**Job No:**	S19330
Client Address:	PO Box 1302 Crows Nest NSW 1585	**Sample No:**	S50370
Project:	Sydney Metro West Variation 7 Marrickville (00013 11	**Report No:**	S50370-CON
		Date Tested:	25.07.19
Sample Description:	Silty CLAY	**Sample Source:**	BH-MN01 4.00-4.36m

TEST RESULTS

Stage	Load (kPa)	Cc	Cv (m^2/yr) t_{50}	Cv (m^2/yr) t_{90}	Mv ($kPa^{-1}x10^{-3}$)	C_a x 10^{-3}	% Consolidation
1	25-50	0.015	1.55	20.39	0.115	0.00	0.3
2	50-100	0.048	1.11	17.79	0.186	0.00	1.2
3	100-200	0.070	1.71	9.23	0.136	0.00	2.6
4	200-400	0.086	1.25	2.62	0.084	0.81	4.2
5	400-800	0.101	0.92	2.32	0.050	0.00	6.1
6	800-1600	0.128	1.24	2.03	0.033	0.00	8.6
7	1600-400	-	-	-	-	-	7.6
8	400-100	-	-	-	-	-	5.9
9	100-25	-	-	-	-	-	4.6

Remarks:

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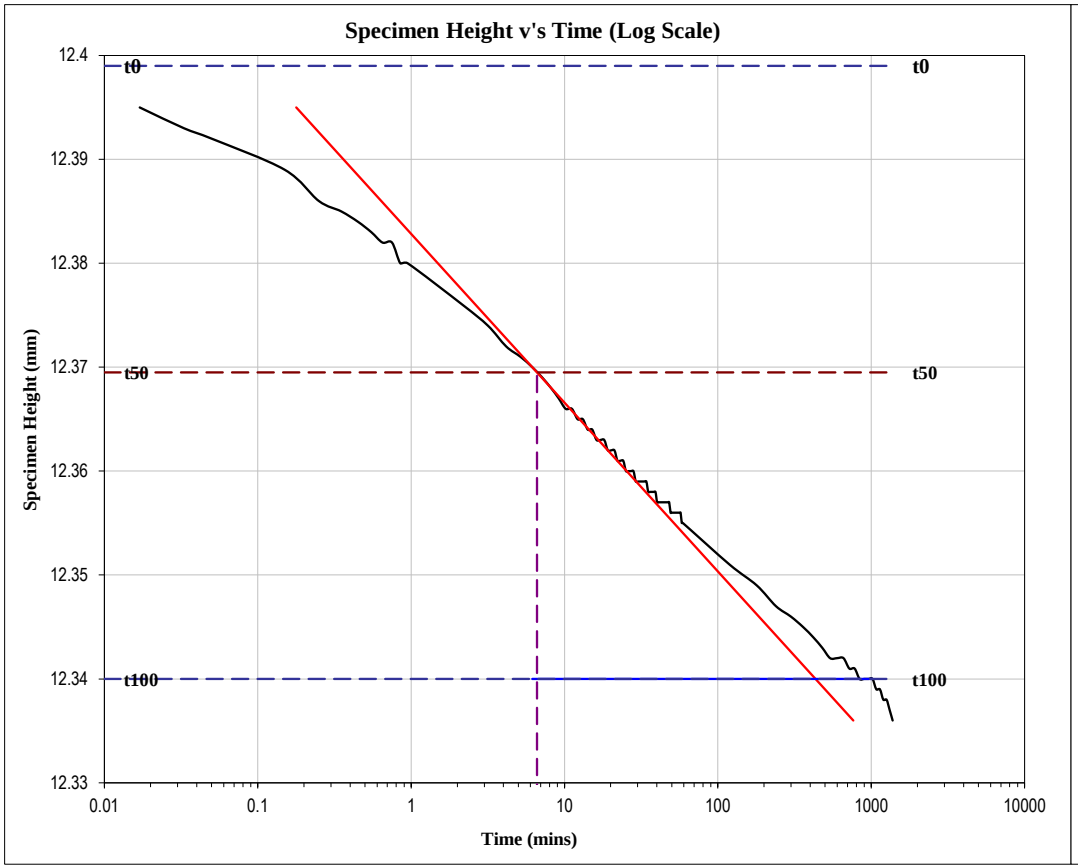
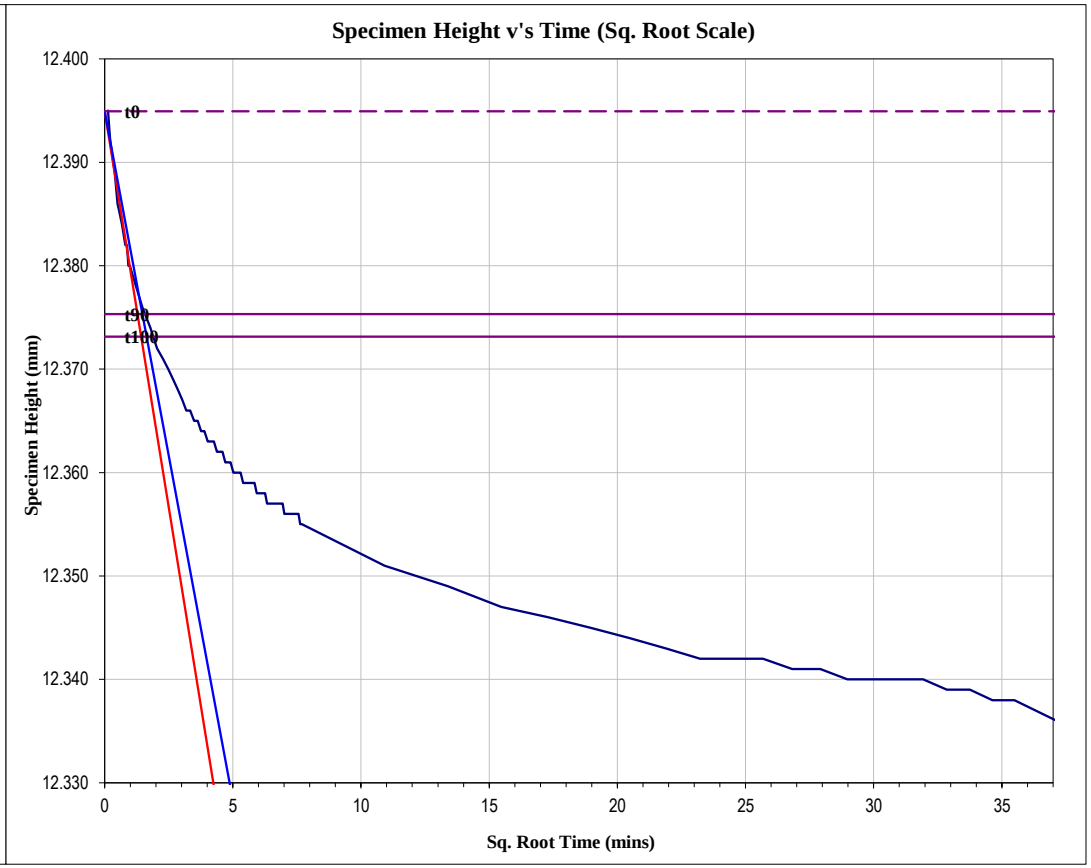
Stage Load :	50 kPa	**Stage 1**	**Report No:** S50370-CON	**Sample No:** S50370
Rig Number :	3			
Stage :	1			





Stage Load :	**100** kPa	**Stage 2**	**Report No:** S50370-CON	**Sample No:** S50370
Rig Number :	**3**			
Stage :	**50 - 100**			

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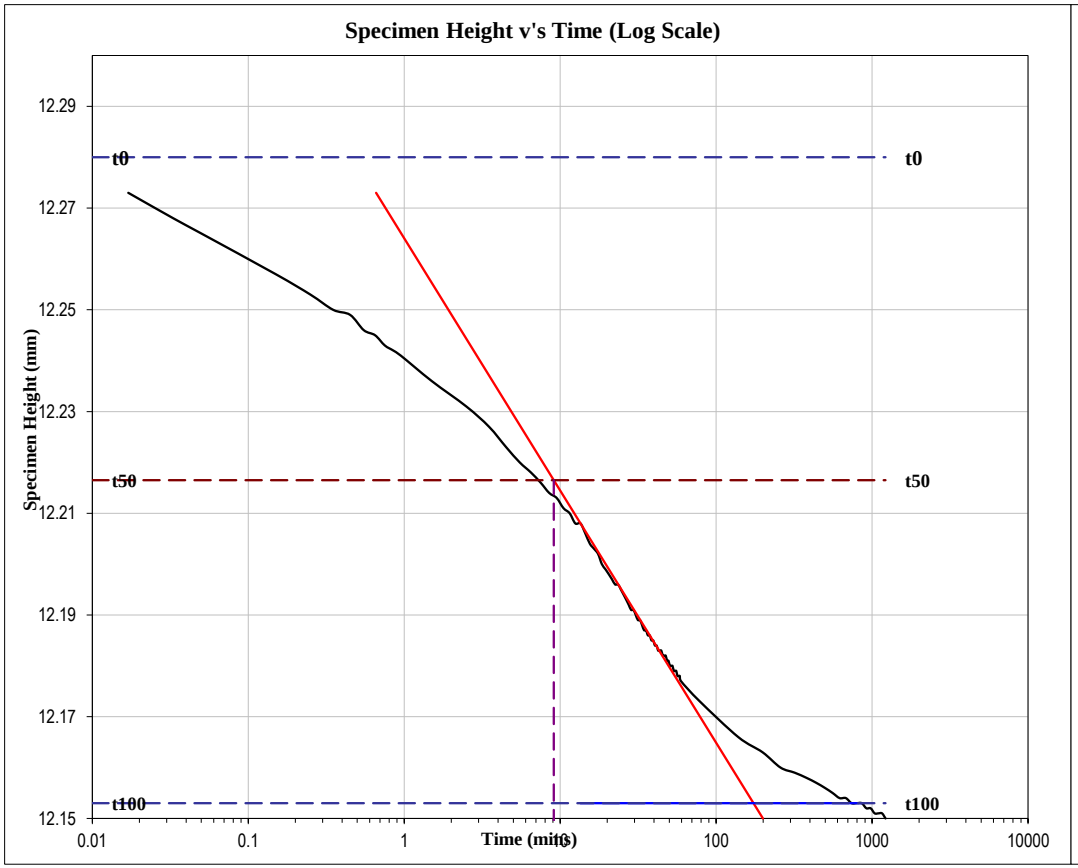
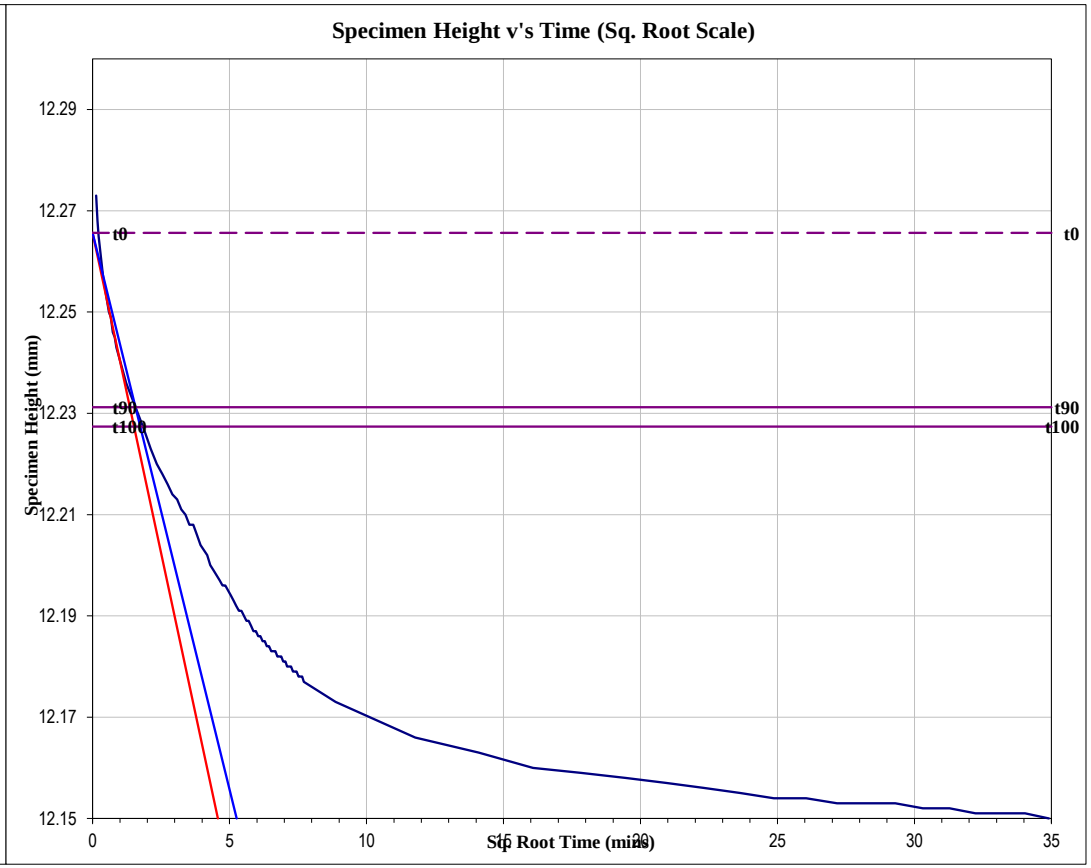
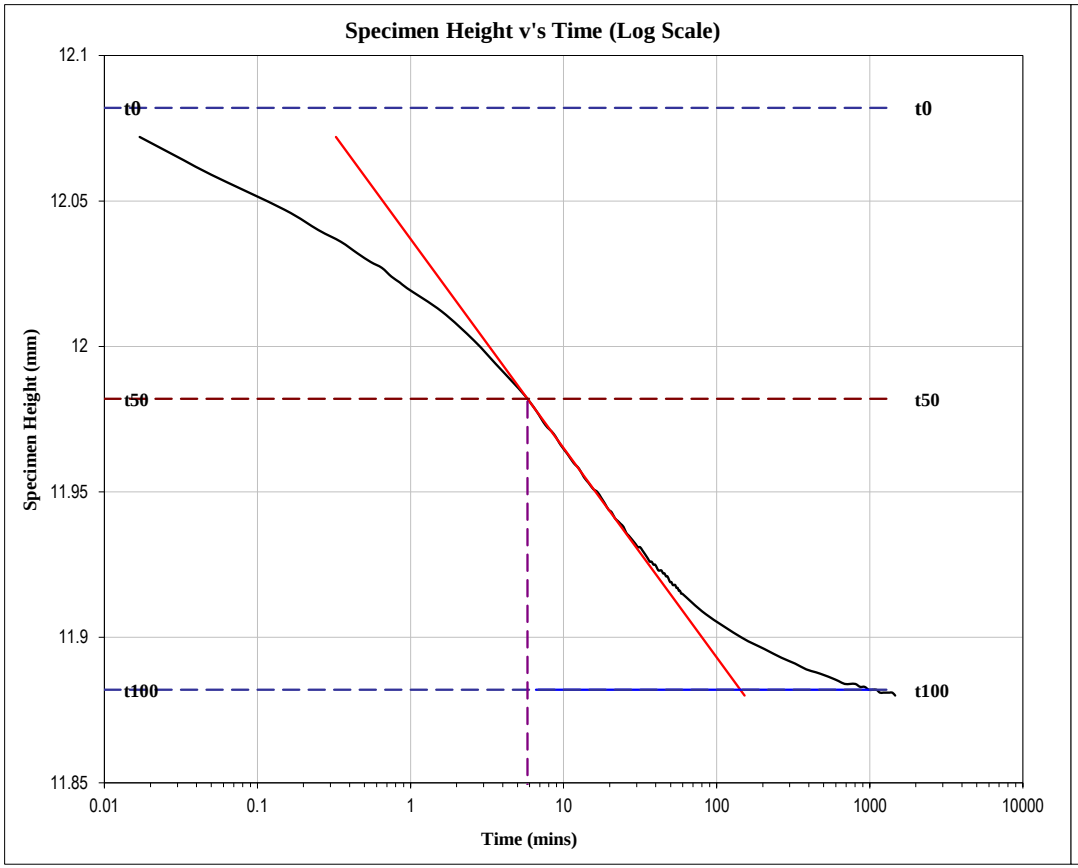
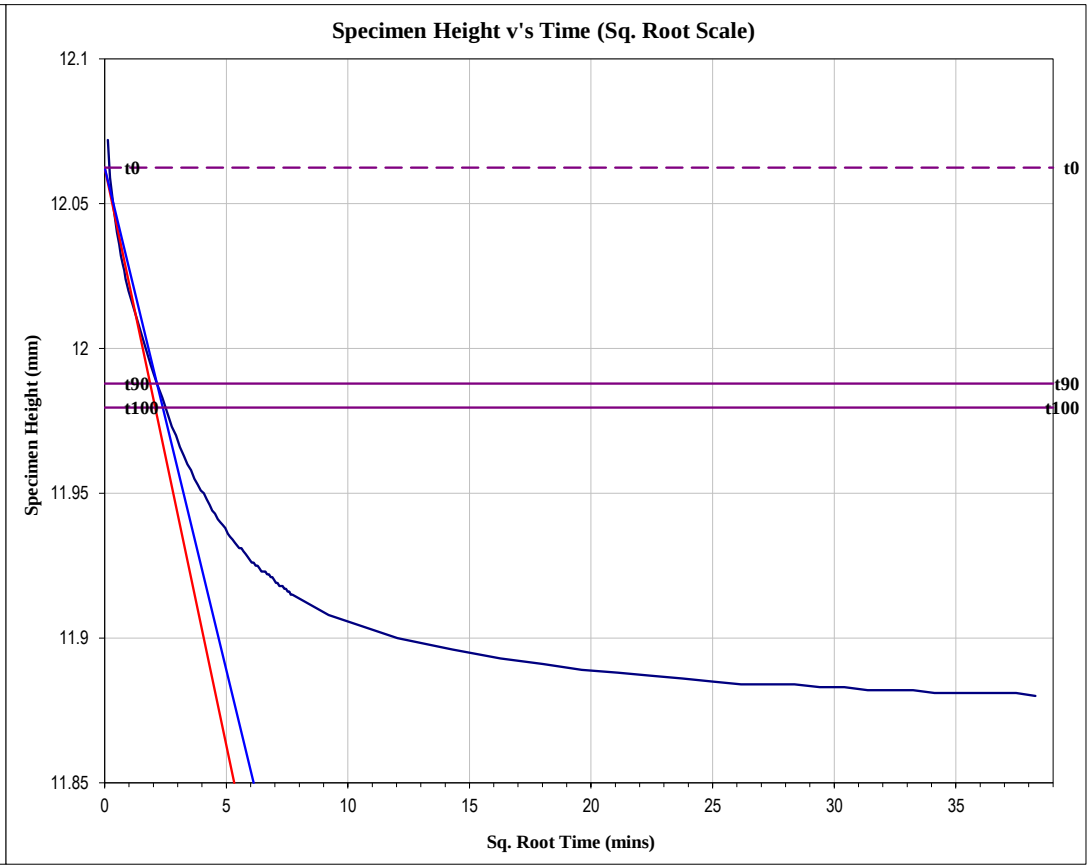




Stage Load :	**200** kPa	**Stage 3**	**Report No:** S50370-CON	**Sample No:** S50370
Rig Number :	**3**			
Stage :	**100 - 200**			





Stage Load :	**400** kPa	**Stage 4**	**Report No:** S50370-CON	**Sample No:** S50370
Rig Number :	**3**			
Stage :	**200 - 400**			

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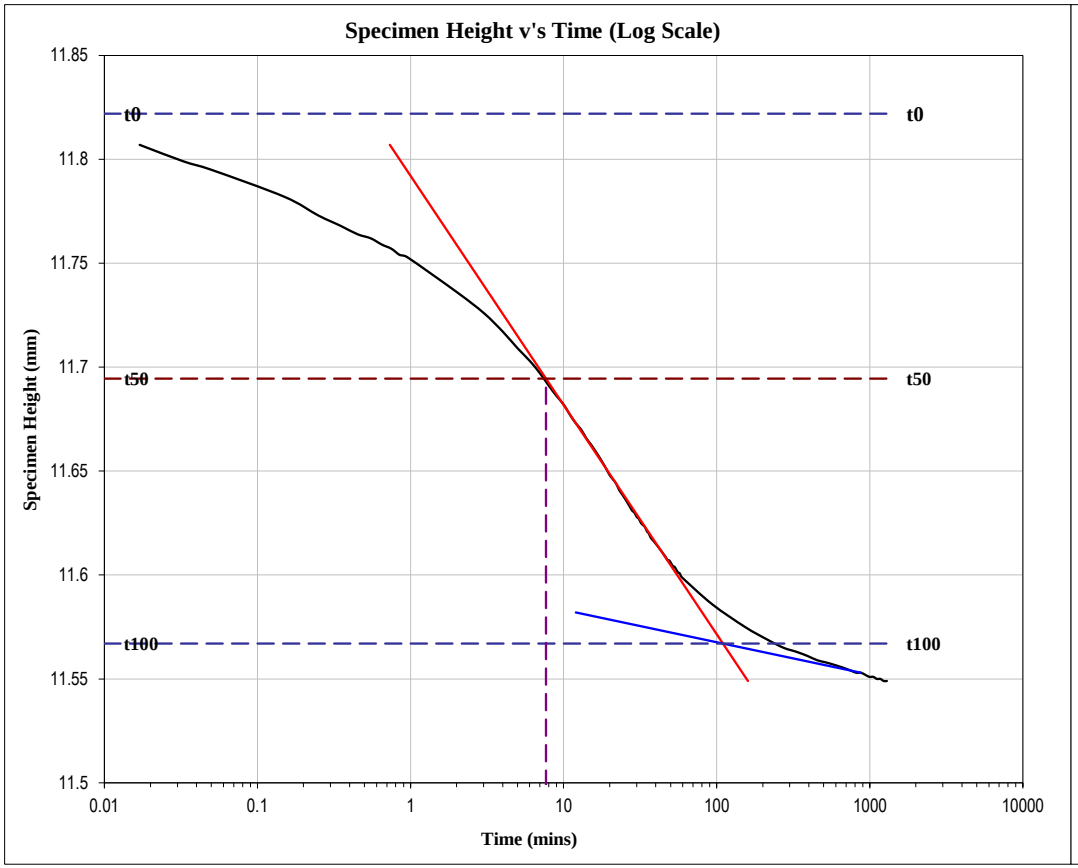
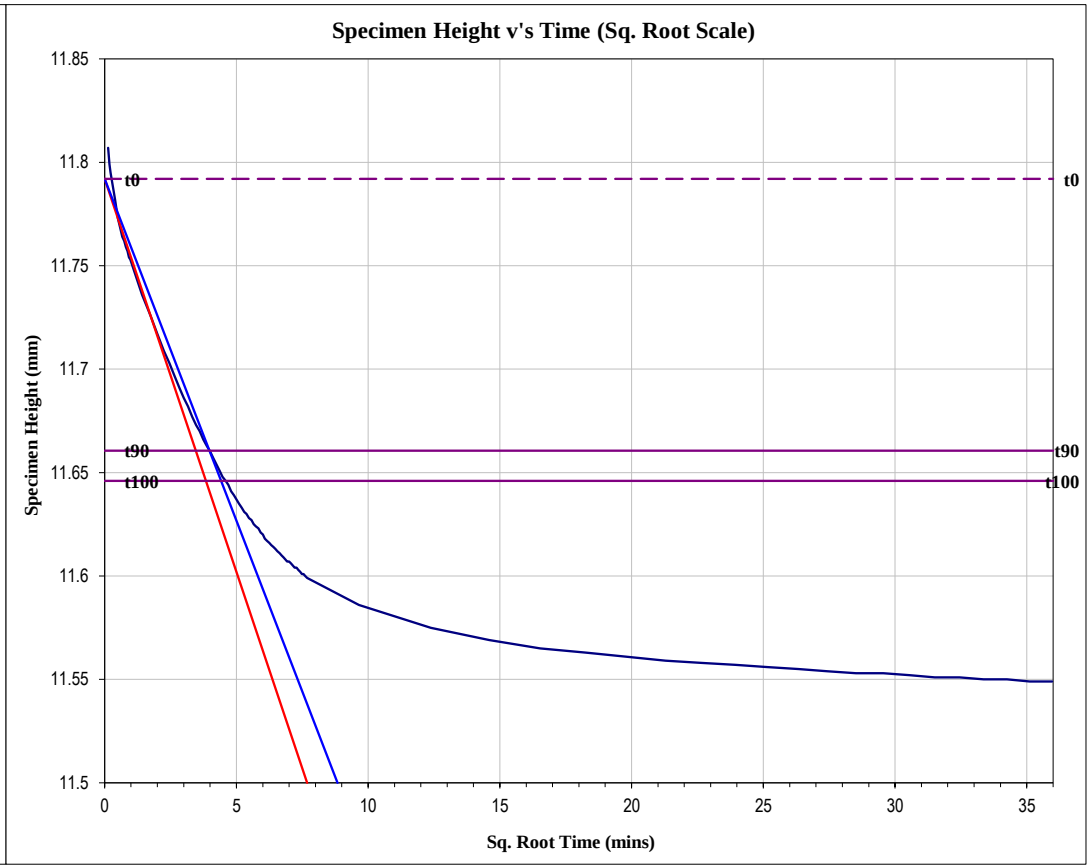
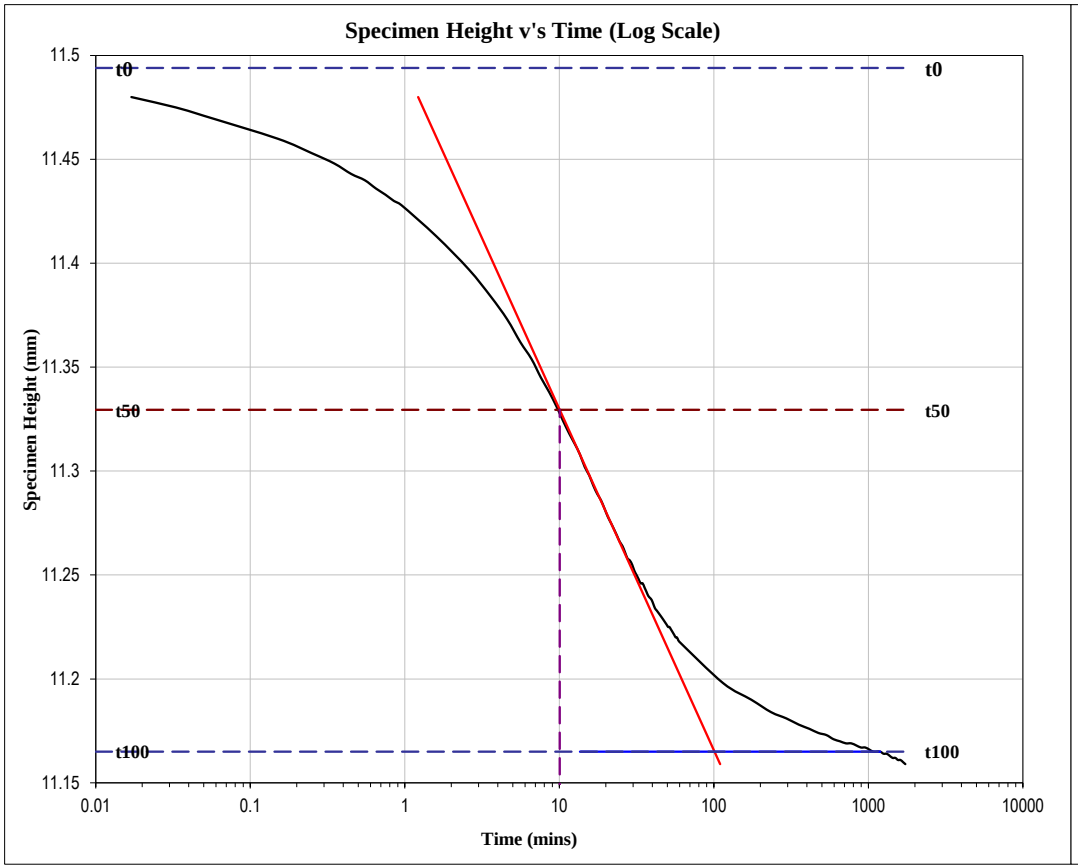
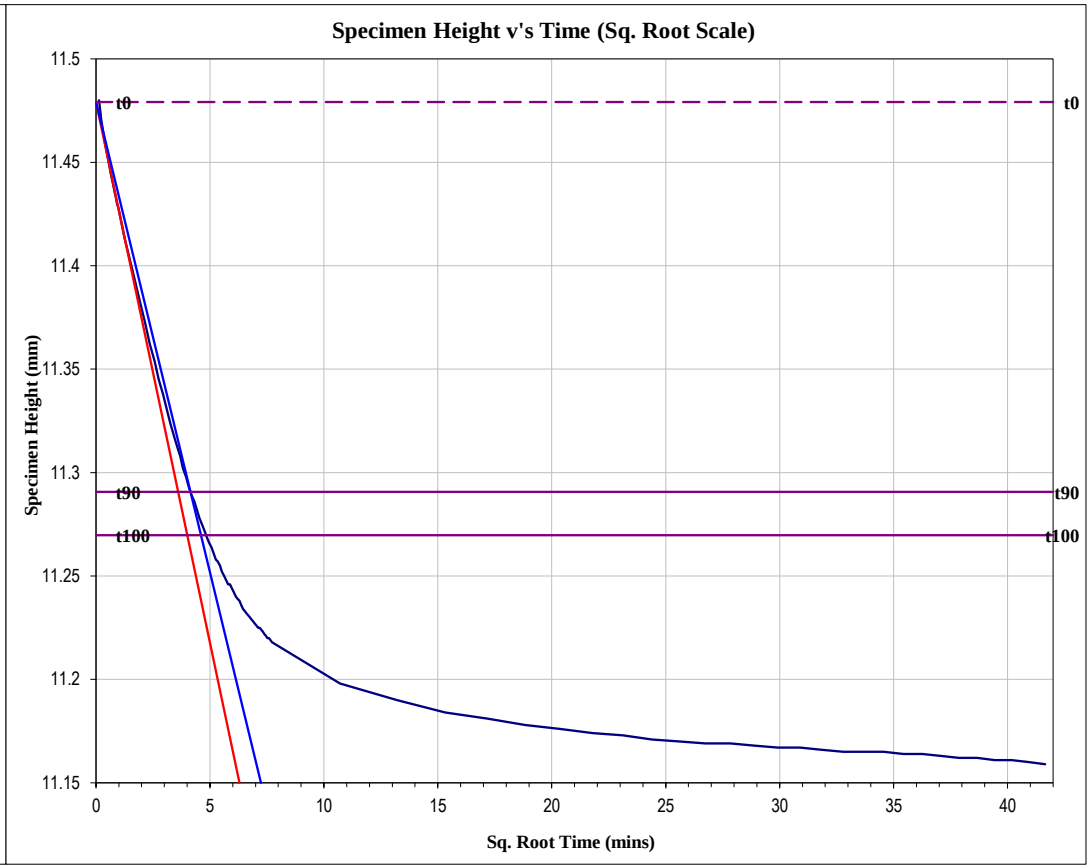


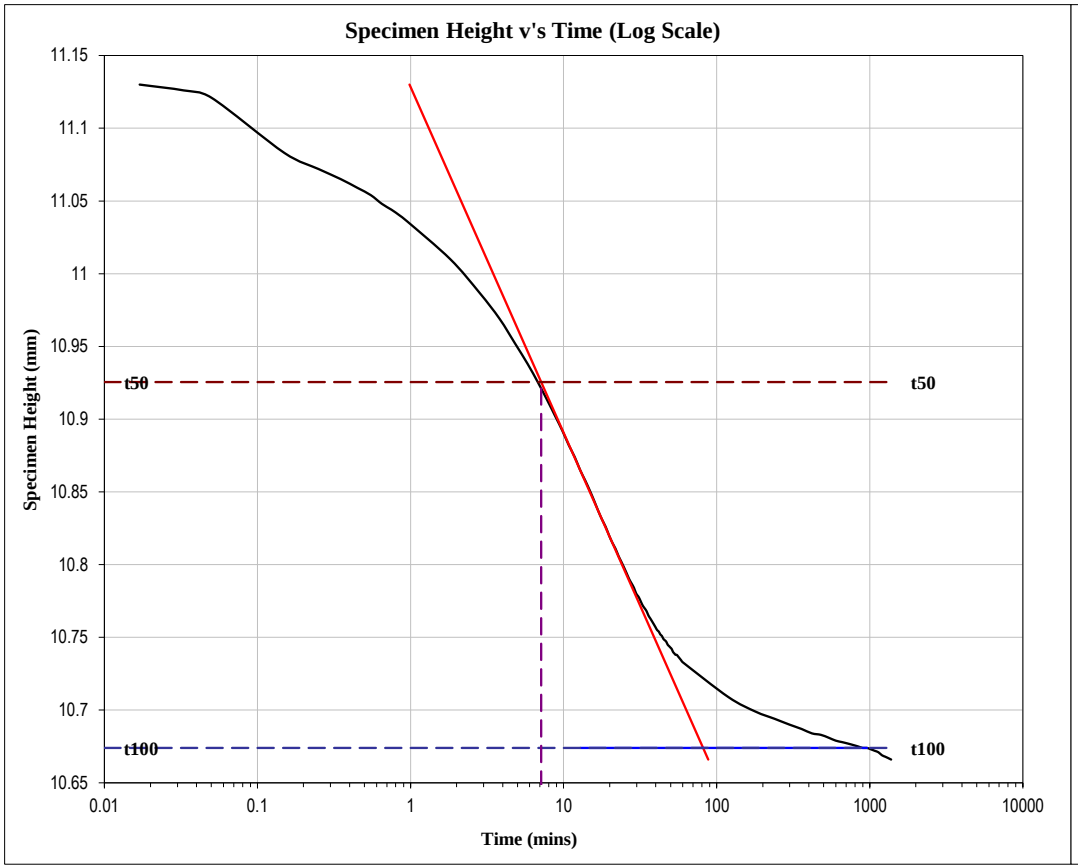


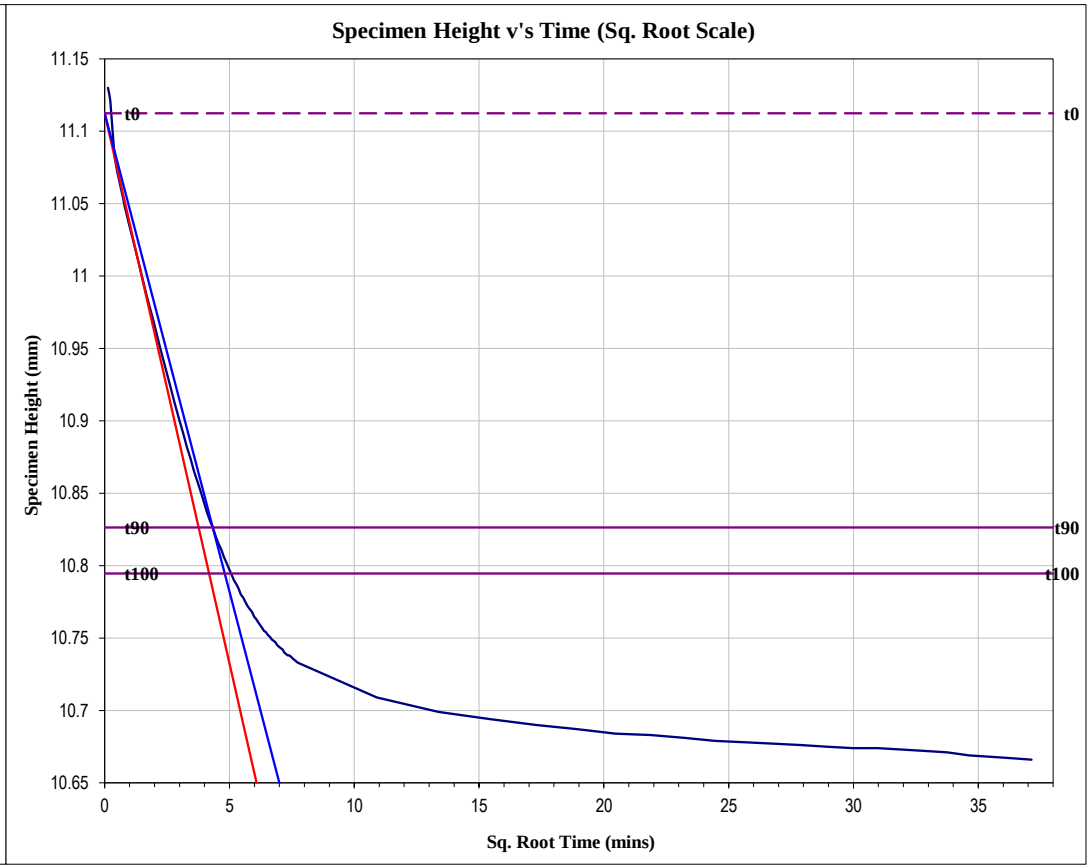
Stage Load :	**800** kPa	**Stage 5**	**Report No:** S50370-CON	**Sample No:** S50370
Rig Number :	**3**			
Stage :	**400 - 800**			



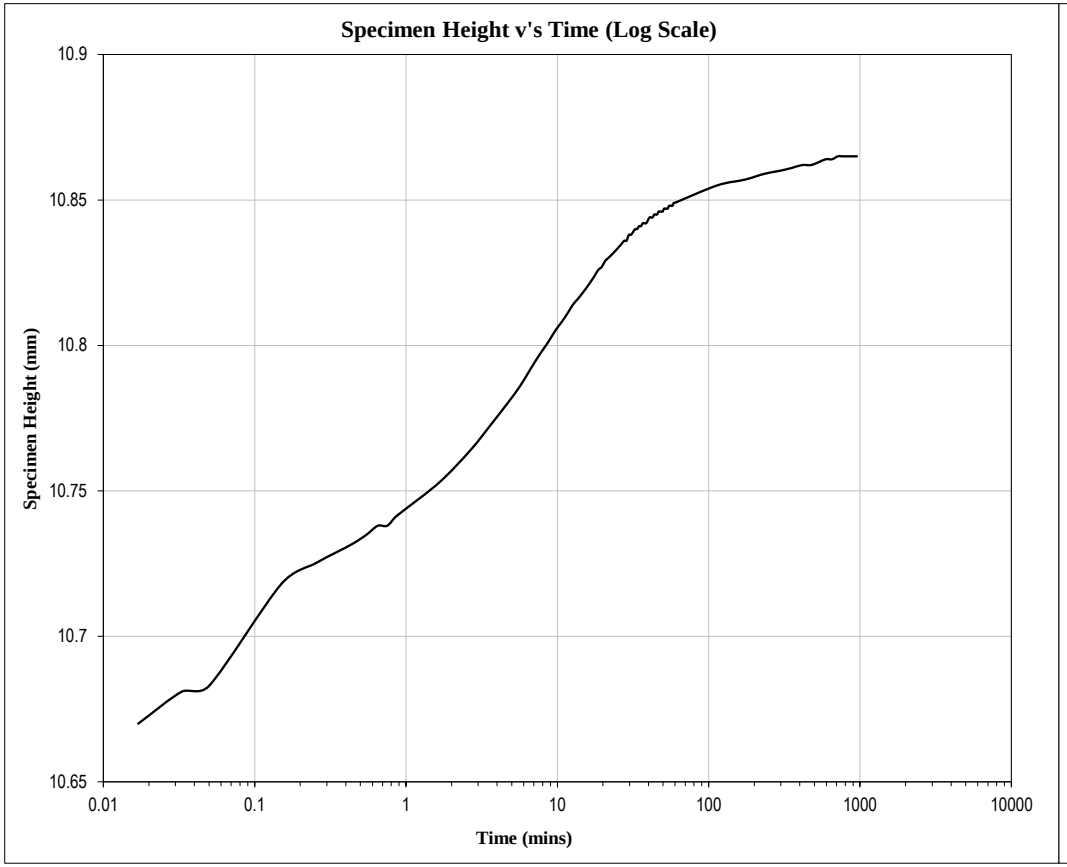


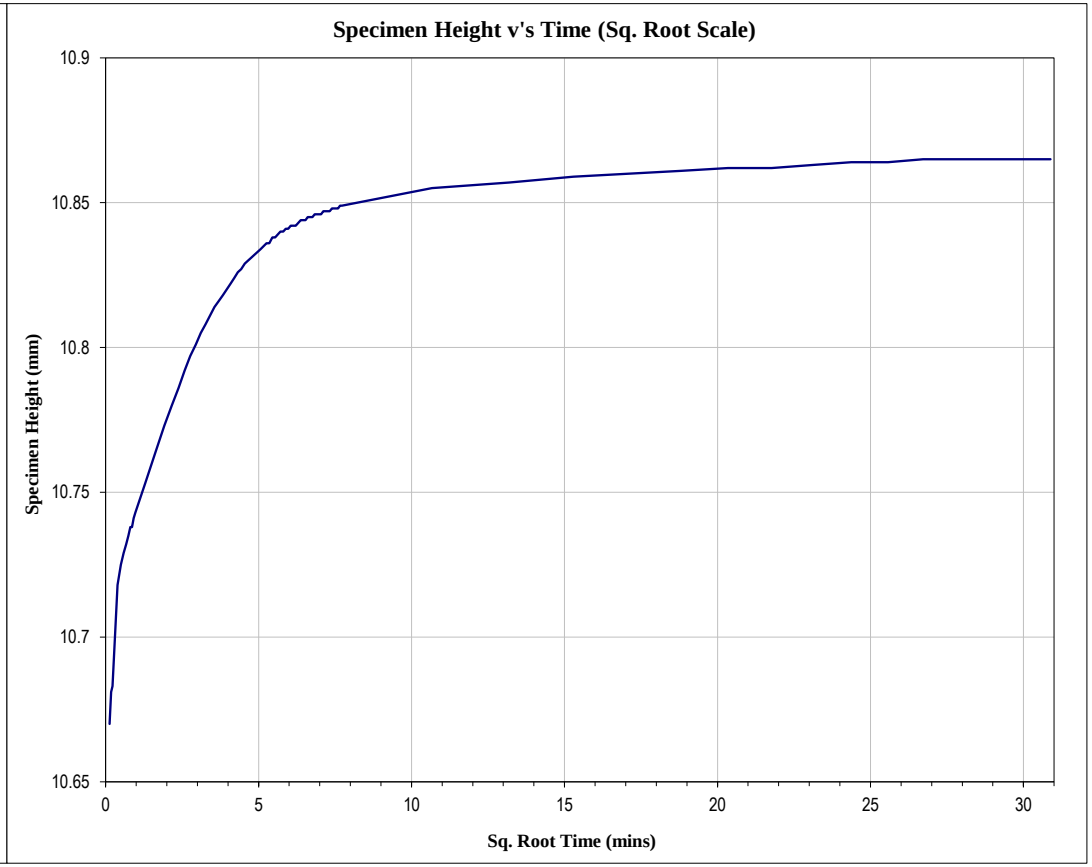
Stage Load :	**1600** kPa	**Stage 6**	**Report No:** S50370-CON	**Sample No:** S50370
Rig Number :	**3**			
Stage :	**800 - 1600**			



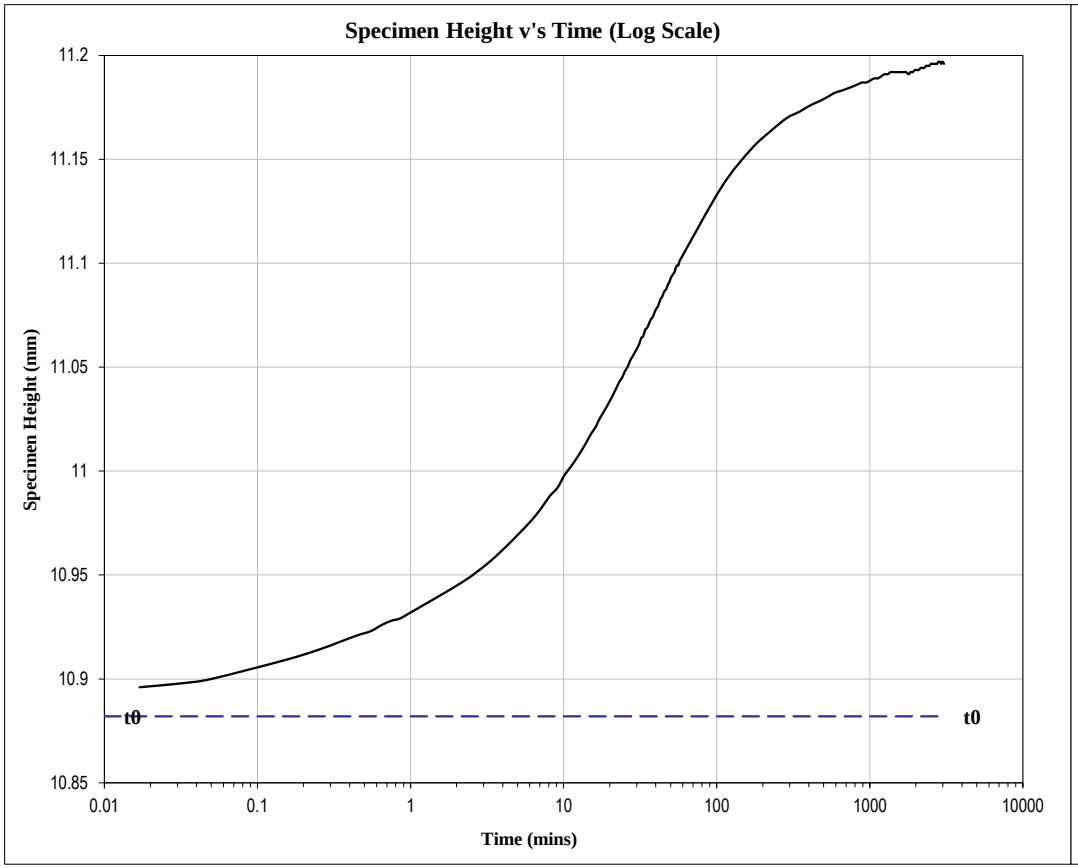


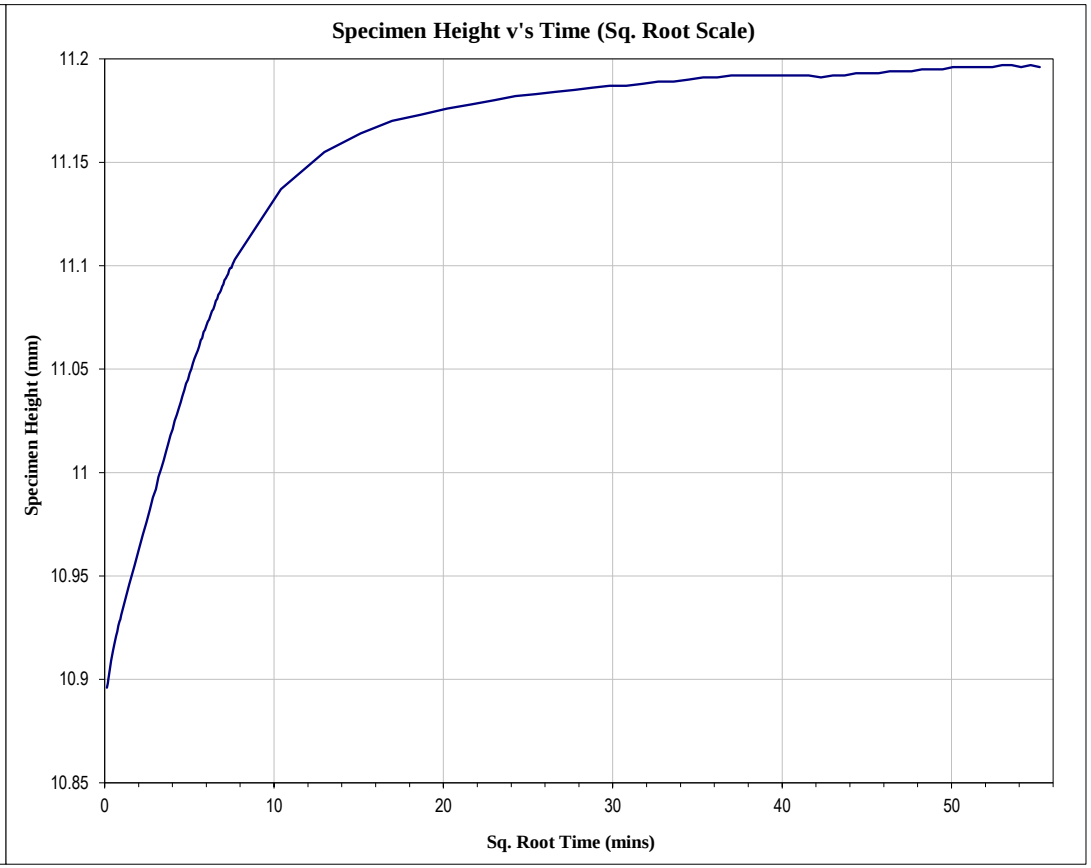
Stage Load :	**400** kPa	**Stage 7**	**Report No:** S50370-CON	**Sample No:** S50370
Rig Number :	**3**			
Stage :	**1600 - 400**			



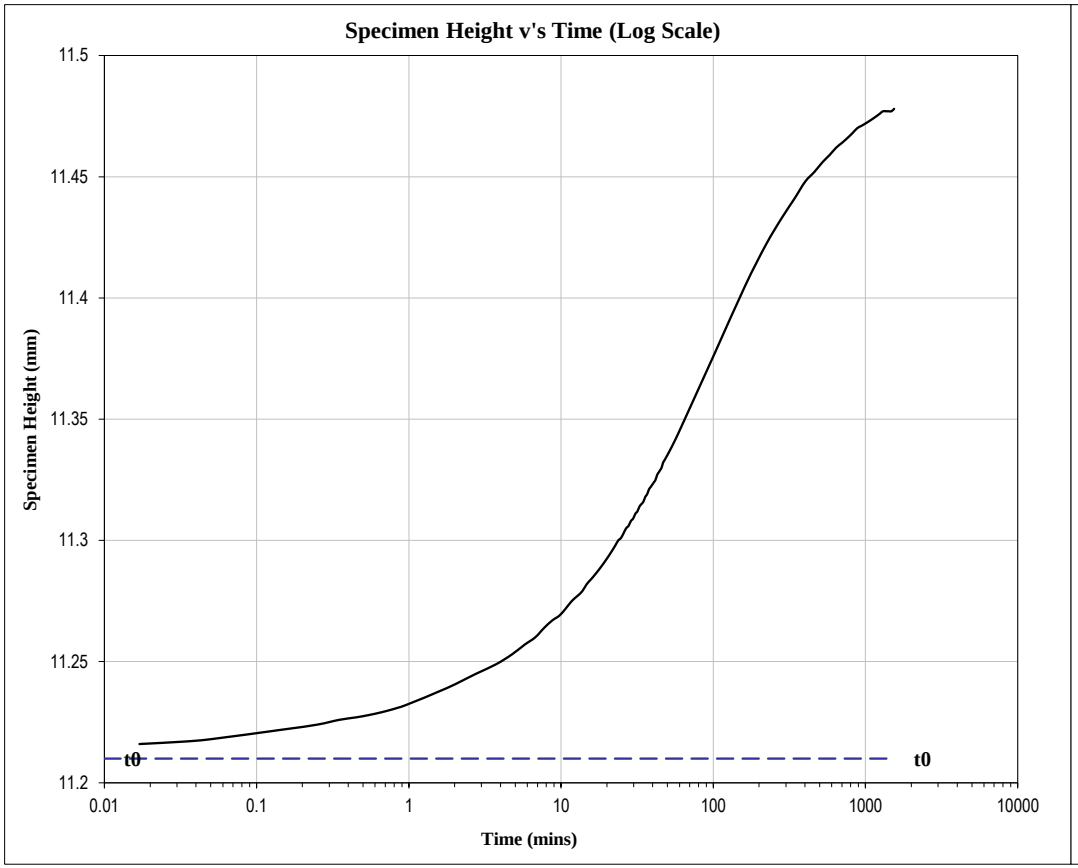


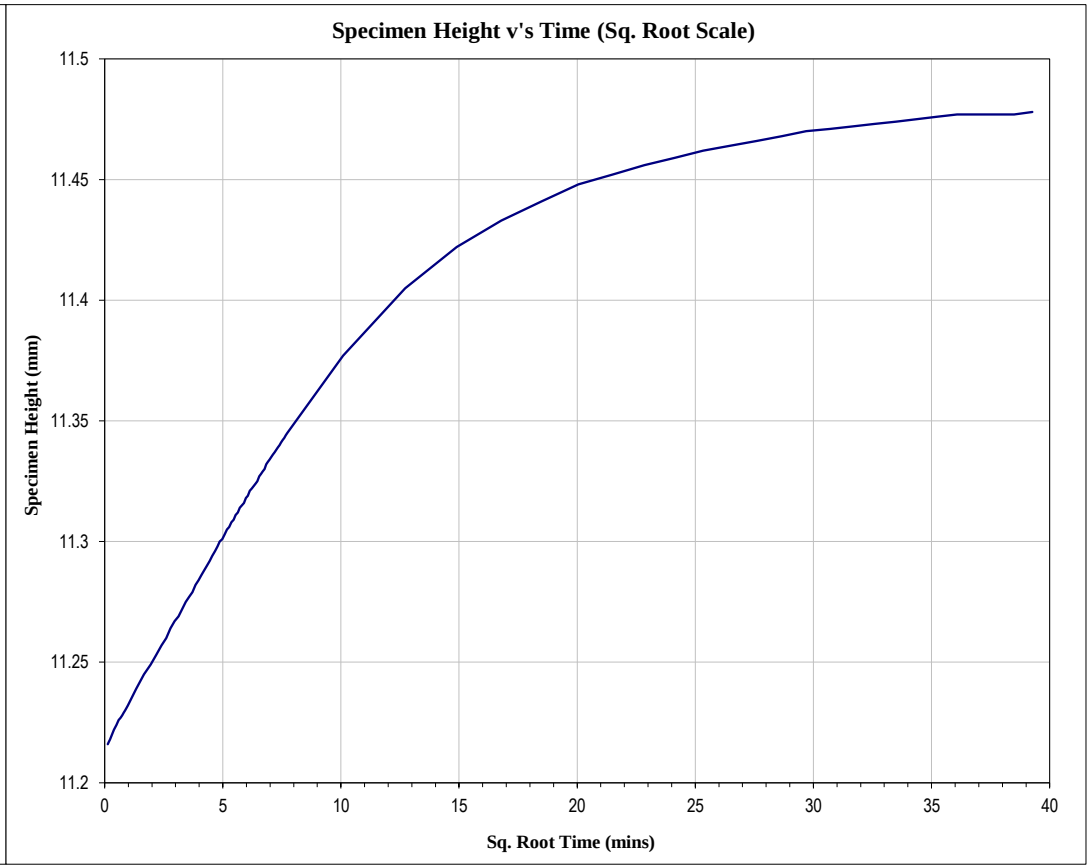
Stage Load :	**100** kPa	**Stage 8**	**Report No:** S50370-CON	**Sample No:** S50370
Rig Number :	**3**			
Stage :	**400 - 100**			





Stage Load :	25 kPa	**Stage 9**	**Report No:** S50370-CON	**Sample No:** S50370
Rig Number :	3			
Stage :	100 - 25			





UNDRAINED TRIAXIAL COMPRESSION TEST REPORT (UU)
Single Stage Test

Client:	Golder-Douglas	**Source:**	BH-MN01 8.50-8.71m
Project:	Sydney Metro West Variation 7 Marrickville (00013 11180)	**Report No.:**	S50371-UU
Address:	PO Box 1302 Crows Nest NSW 1585	**Sample Description:**	Silty CLAY
Job No:	S19330	**Lab No.:**	S50371

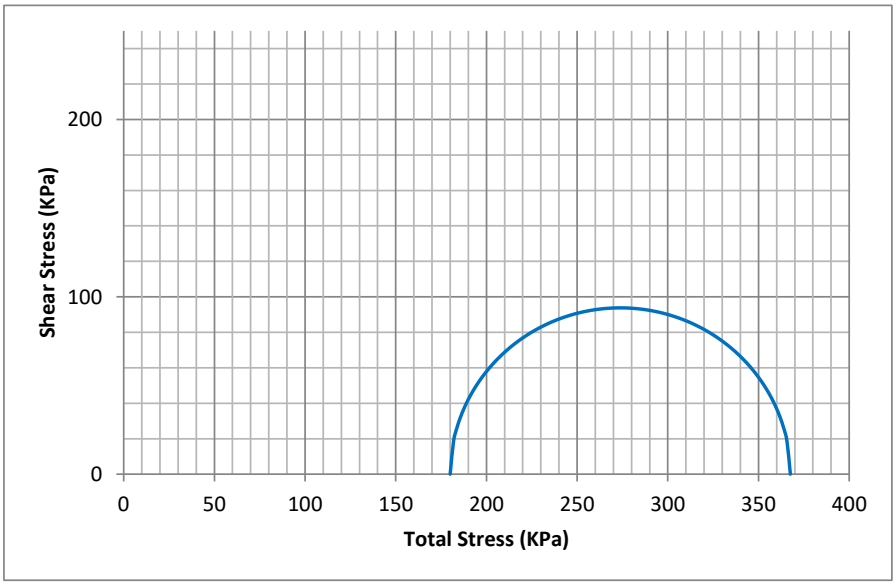
Test Procedure:
☑ AS 1289 6.4.1: Soil strength and consolidation tests - Determination of compressive strength of a soil - Compressive strength of a specimen tested in undrained triaxial compression without measurement of pore water pressure

☑ AS 1289 2.1.1: Soil moisture content tests - Determination of the moisture content of a soil - Oven drying method

Sampling:	Sampled by Client	Date Sampled:	Unknown
Preparation:	Prepared in accordance with AS1289 1.1		

Sample Details	
Sample Condition	Undisturbed
Height (mm)	148.91
Diameter (mm)	72.98
Moisture Content (%)	16.4
Dry Density (t/m^3)	1.86

Test Details	
	Stage 1
Date Tested	24/07/2019
Cell Pressure (kPa)	180
Axial Strain Rate (mm/min)	13.0
Strain at Failure (%)	9.4
Maximum Deviator Stress (kPa)	187.6



Note: Graph for visual representation only

Su = 93.8 kPa

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Authorised Signatory:

9/08/2019

Date:

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8/10 Bradford Street
Alexandria NSW 2015

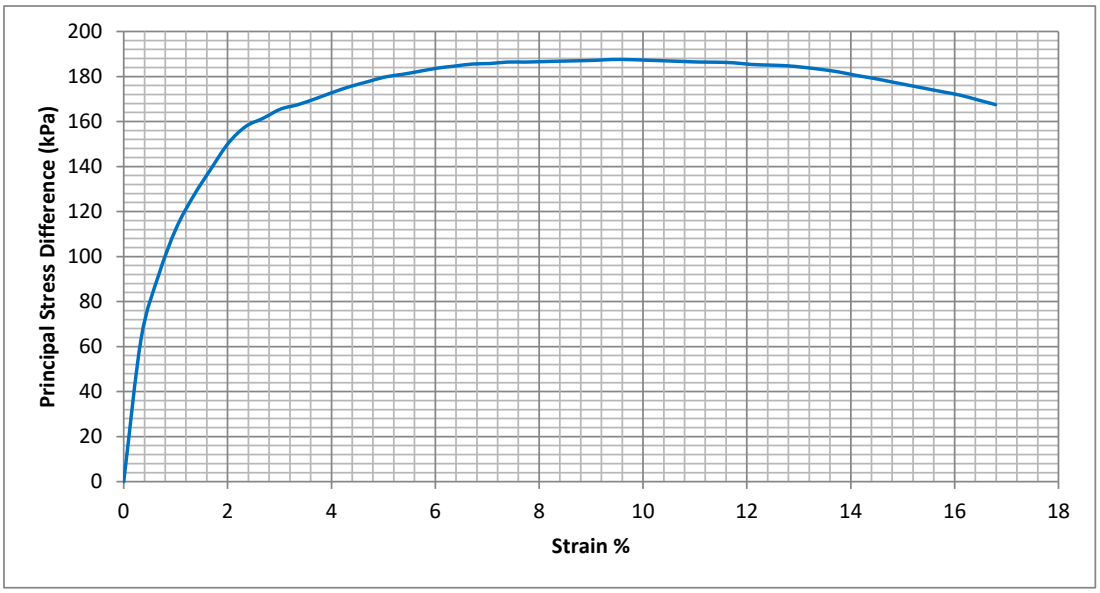
UNDRAINED TRIAXIAL COMPRESSION TEST REPORT
(UU) Single Stage Test

Client:	Golder-Douglas	**Source:**	BH-MN01 8.50-8.71m
Project:	Sydney Metro West Variation 7 Marrickville (00013 11180)	**Report No.:**	S50371-UU
Address:	PO Box 1302 Crows Nest NSW 1585	**Sample Description:**	Silty CLAY
Job No:	S19330	**Lab No.:**	S50371

Test Procedure:
AS 1289 6.4.1: Soil strength and consolidation tests - Determination of compressive strength of a soil - Compressive strength of a specimen tested in undrained triaxial compression without measurement of pore water pressure

AS 1289 2.1.1: Soil moisture content tests - Determination of the moisture content of a soil - Oven drying method

Sampling:	Sampled by Client	Date Sampled:	Unknown
Preparation:	Prepared in accordance with AS1289 1.1		



After Test Photo

Failure Mode
Compound

Description of the specimen as broken after test
As per sample description

Comments
Unsaturated

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Date:

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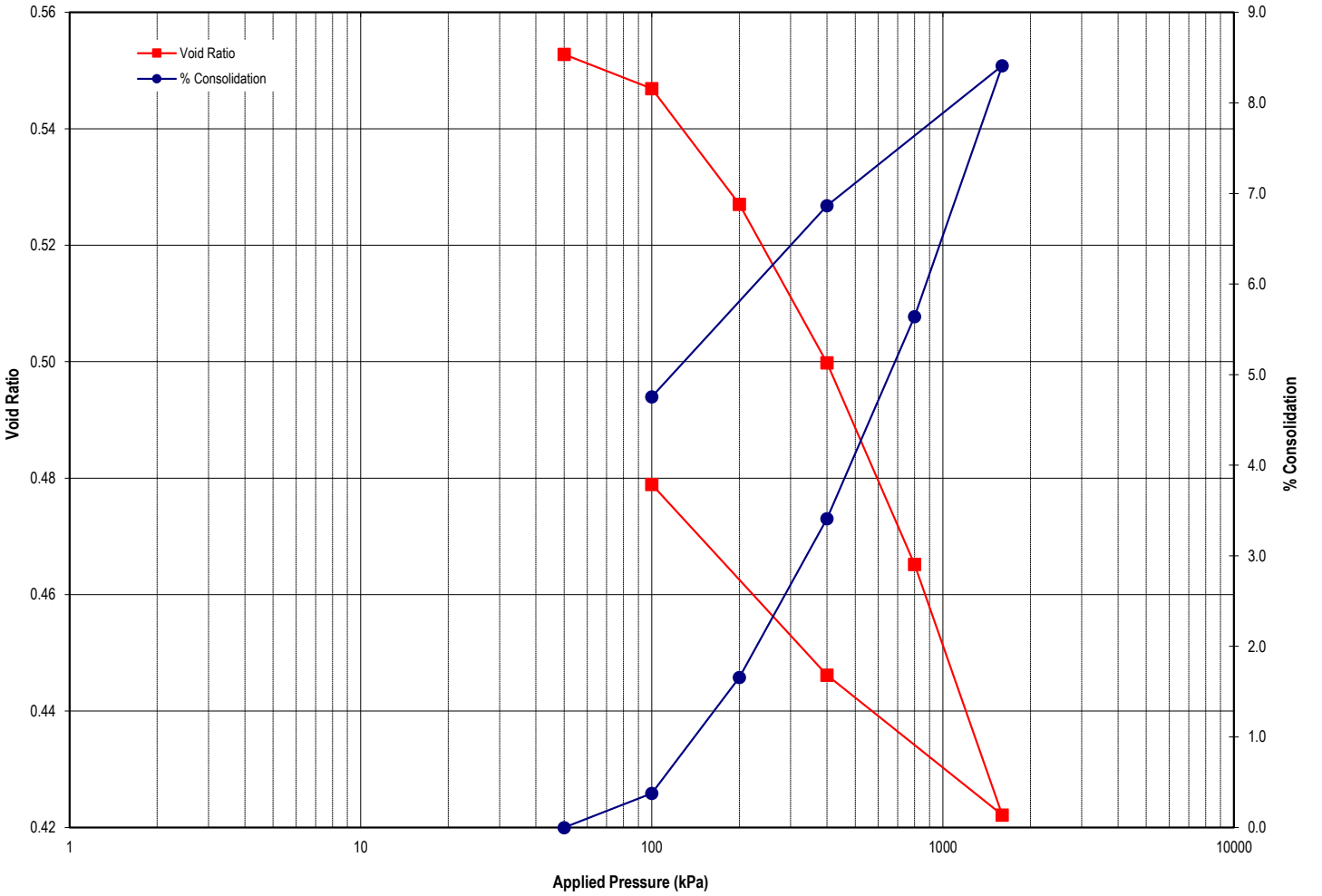
Alexandria NSW 2015

OEDOMETER TEST REPORT

Test Method: AS1 289.6.6.1

Client:	Golder-Douglas	**Job No:**	S19330
Client Address:	PO Box 1302 Crows Nest NSW 1585	**Sample No:**	S50367
Project:	Sydney Metro West Variation 7 Marrickville (00013 11	**Report No:**	S50367-CON
		Date Tested:	02.08.19
Sample Description:	Silty CLAY	**Sample Source:**	BH-MN08 2.00-2.28m



Dry Density (t/m^3):	1.70	Initial Moisture (%):	19.0	Test Condition:	Inundated on load
Particle Density (t/m^3):	2.65	Initial Voids Ratio:	0.563	Initial Degree of Saturation (%):	89.5

Remarks: Specimen swelled at 50 kPa

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12/08/2019

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Unit 8/10
Bradford Street
Alexandria NSW 2015

OEDOMETER TEST REPORT

Test Method: AS 1289.6.6.1

Client:	Golder-Douglas	**Job No:**	S19330
Client Address:	PO Box 1302 Crows Nest NSW 1585	**Sample No:**	S50367
Project:	Sydney Metro West Variation 7 Marrickville (00013 11	**Report No:**	S50367-CON
		Date Tested:	02.08.19
Sample Description:	Silty CLAY	**Sample Source:**	BH-MN08 2.00-2.28m

TEST RESULTS

Stage	Load (kPa)	Cc	Cv (m^2/yr) t_{50}	Cv (m^2/yr) t_{90}	Mv ($kPa^{-1}x10^{-3}$)	C_a x 10^{-3}	% Consolidation
1	50-100	0.019	8.53	19.40	0.076	0.00	0.4
2	100-200	0.066	9.40	20.93	0.128	0.00	1.7
3	200-400	0.090	9.45	17.25	0.089	0.00	3.4
4	400-800	0.115	5.44	17.53	0.058	0.00	5.6
5	800-1600	0.143	14.05	18.15	0.037	0.97	8.4
6	1600-400	-	-	-	-	-	6.9
7	400-100	-	-	-	-	-	4.8

Remarks:

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12/08/2019

Date:

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Stage Load :	**100** kPa	**Stage 1**	**Report No:** S50367-CON	**Sample No:** S50367
Rig Number :	**5**			
Stage :	**1**			

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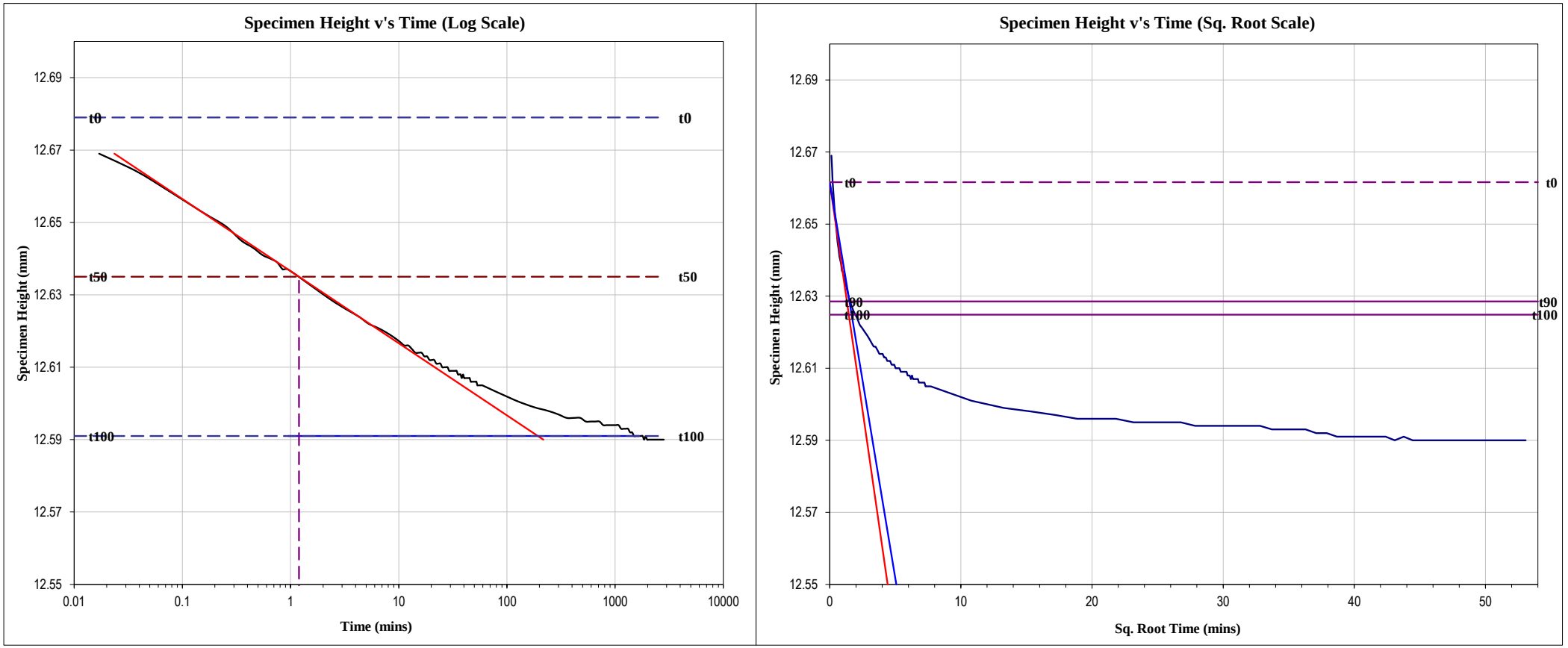
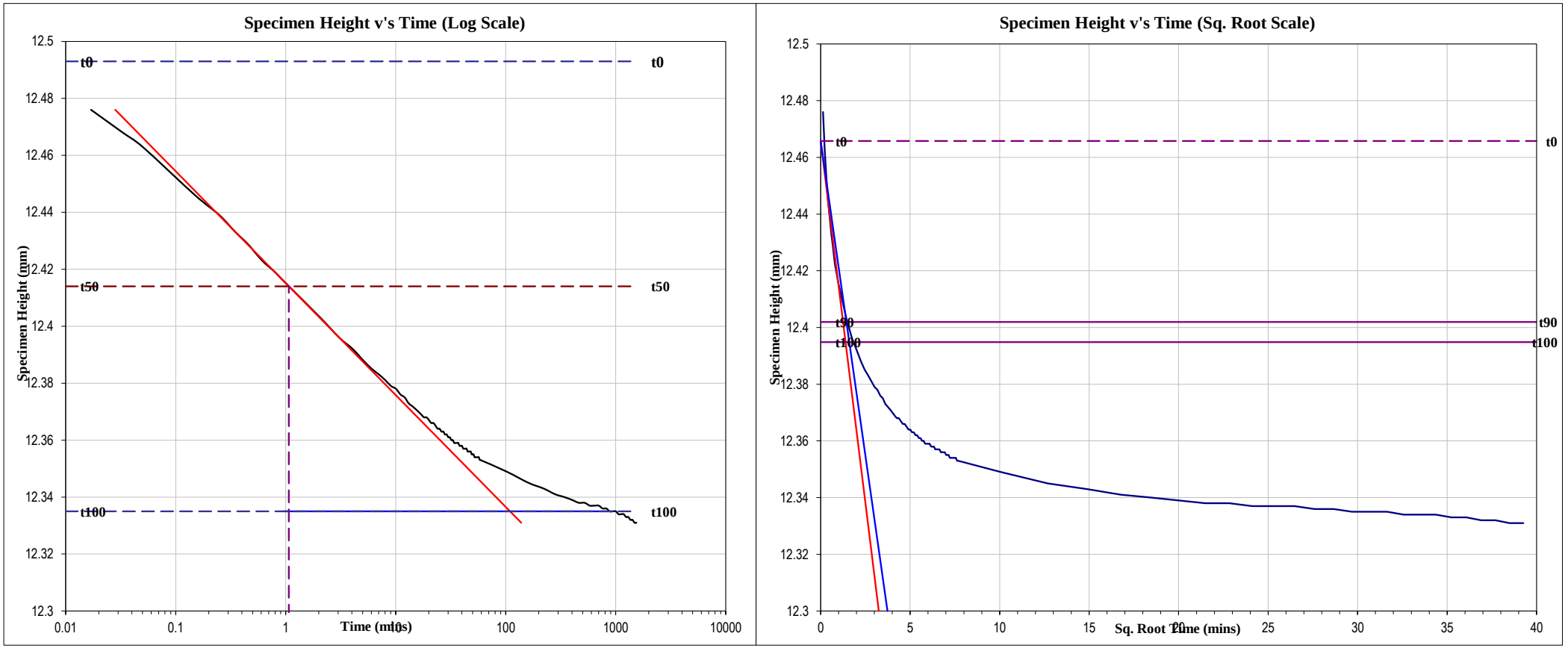
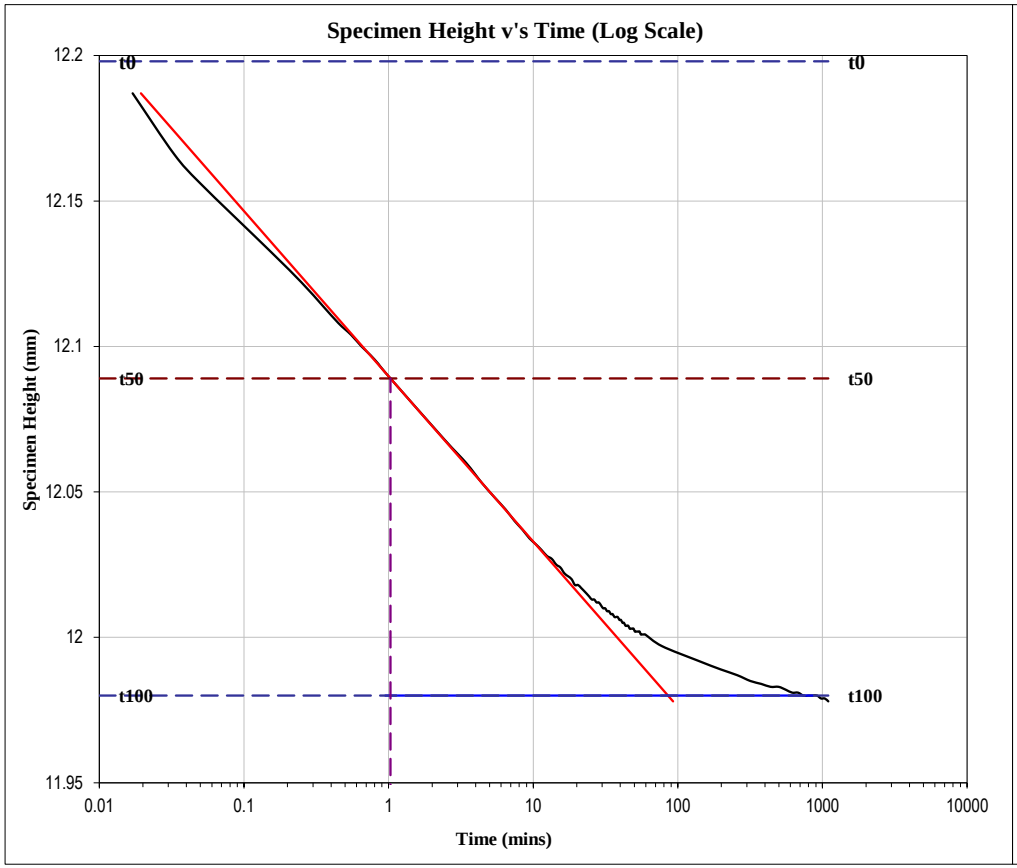


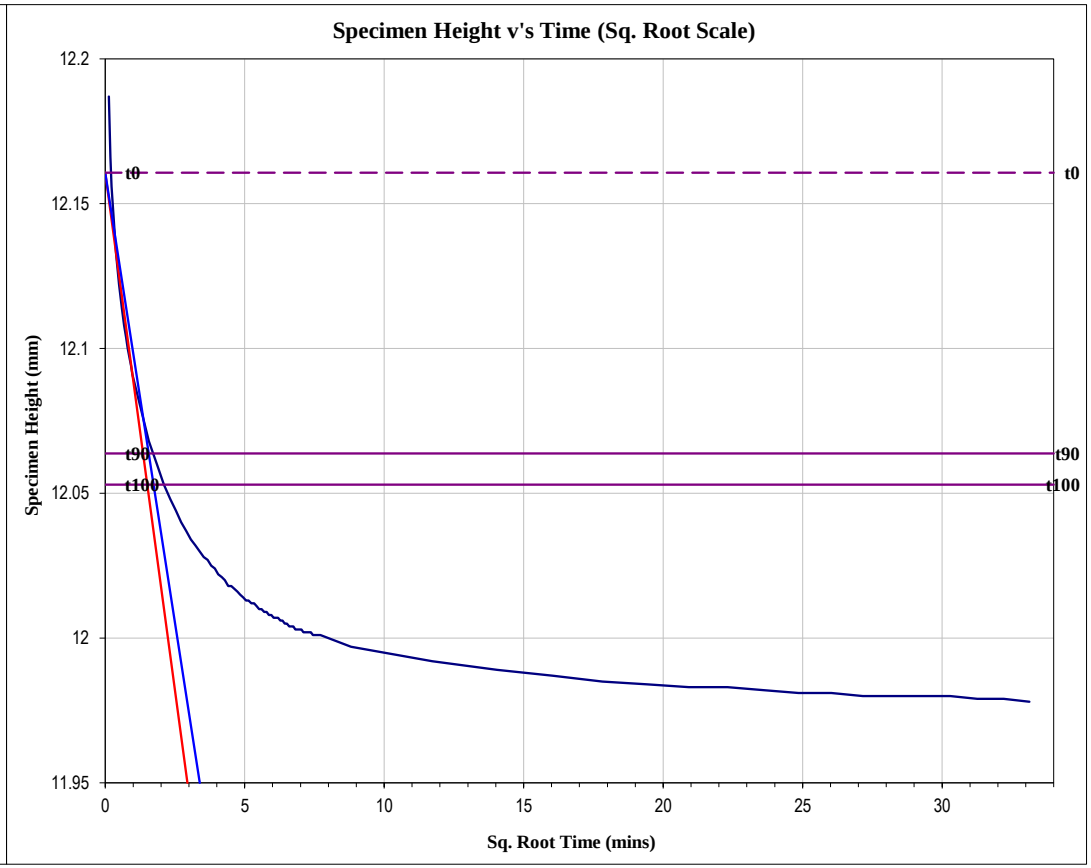
Stage Load :	**200** kPa	**Stage 2**	**Report No:** S50367-CON	**Sample No:** S50367
Rig Number :	**5**			
Stage :	**100 - 200**			

MACQUARIE GEOTECH



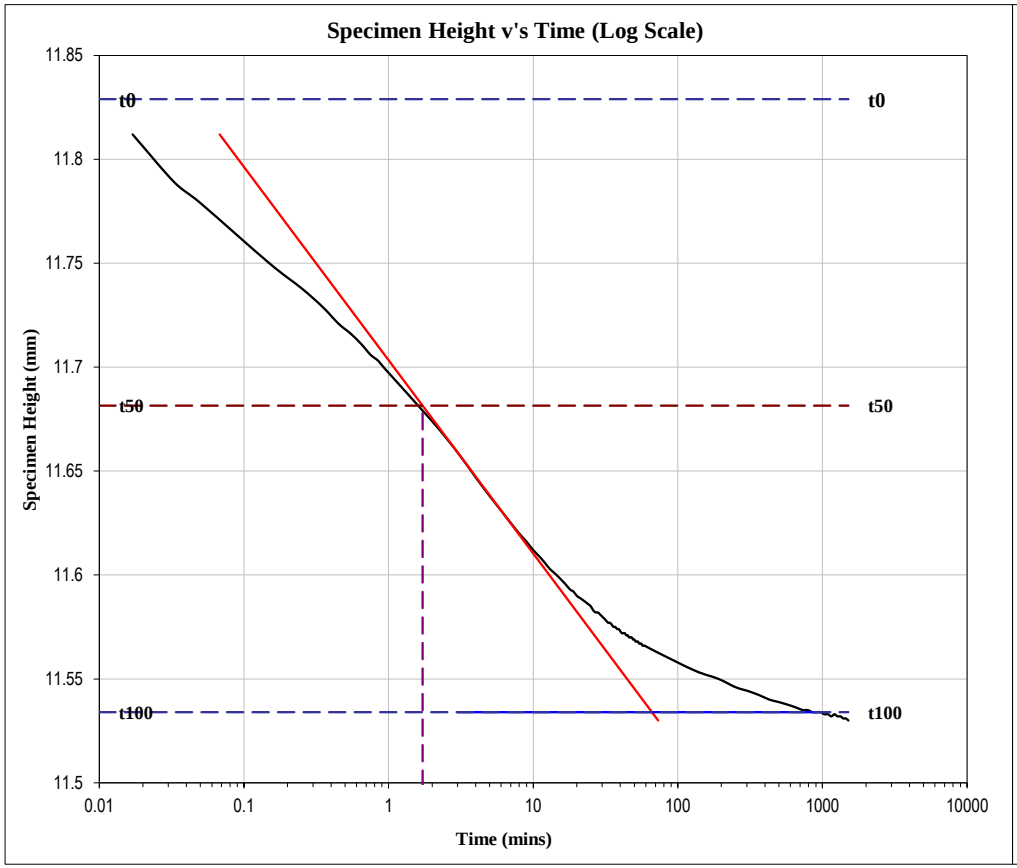
Stage Load :	**400** kPa	**Stage 3**	**Report No:** S50367-CON	**Sample No:** S50367
Rig Number :	**5**			
Stage :	**200 - 400**			

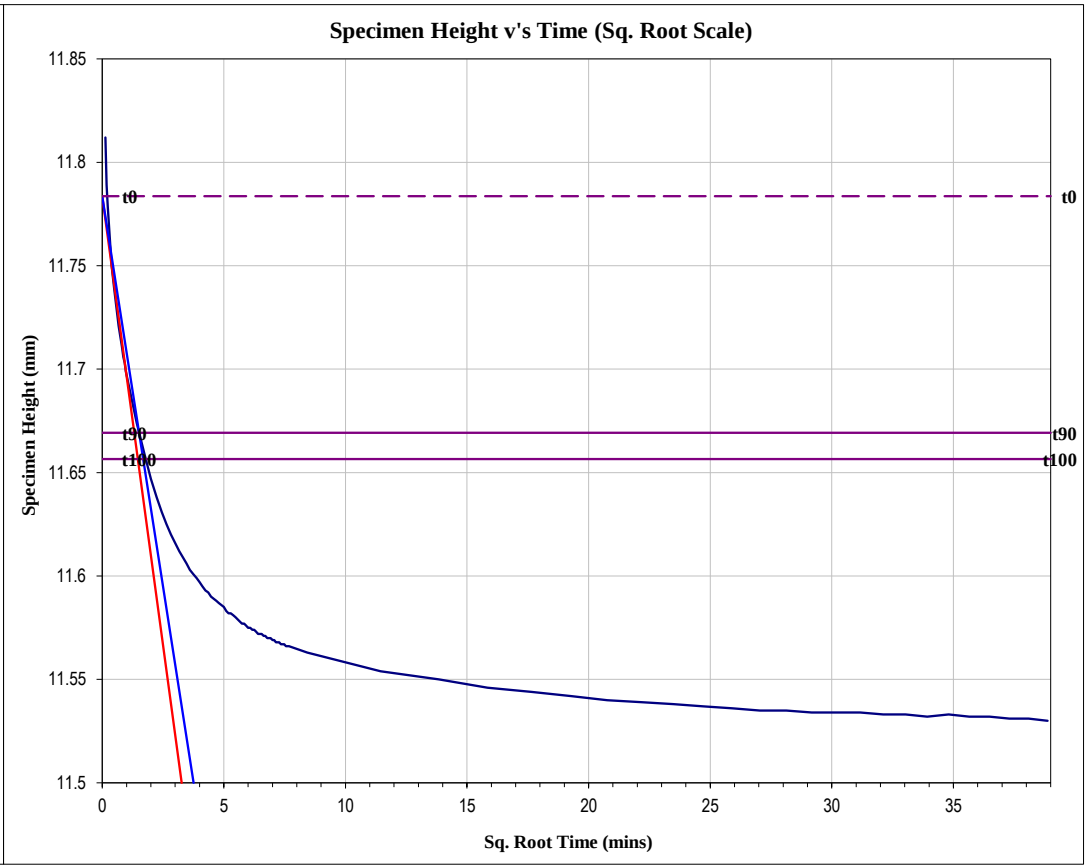




Stage Load :	**800** kPa	**Stage 4**	**Report No:** S50367-CON	**Sample No:** S50367
Rig Number :	**5**			
Stage :	**400 - 800**			

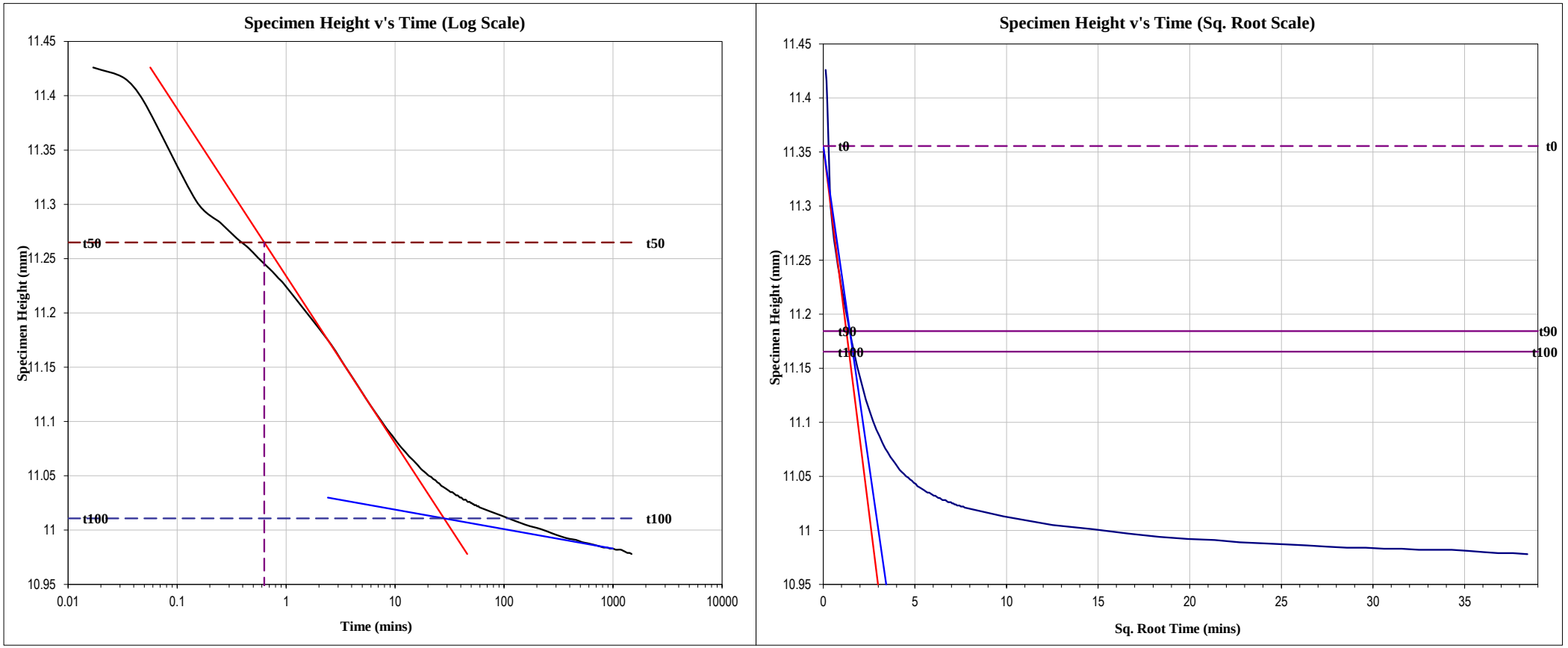
MACQUARIE GEOTECH



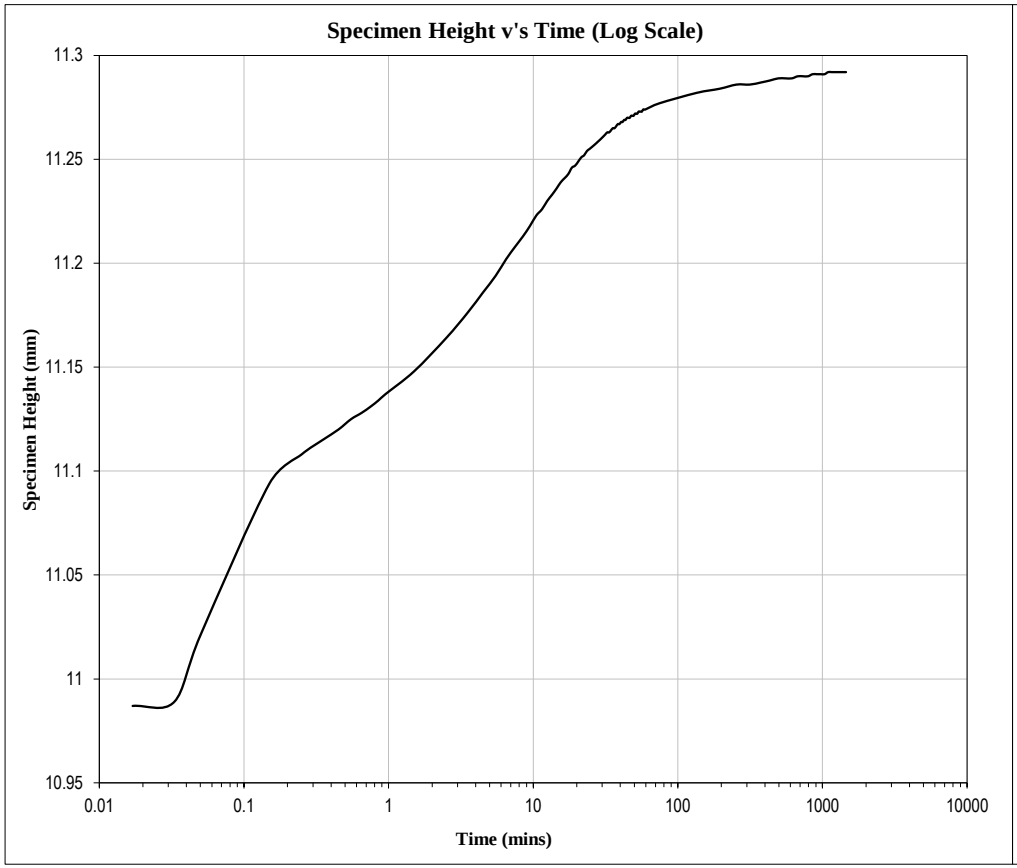


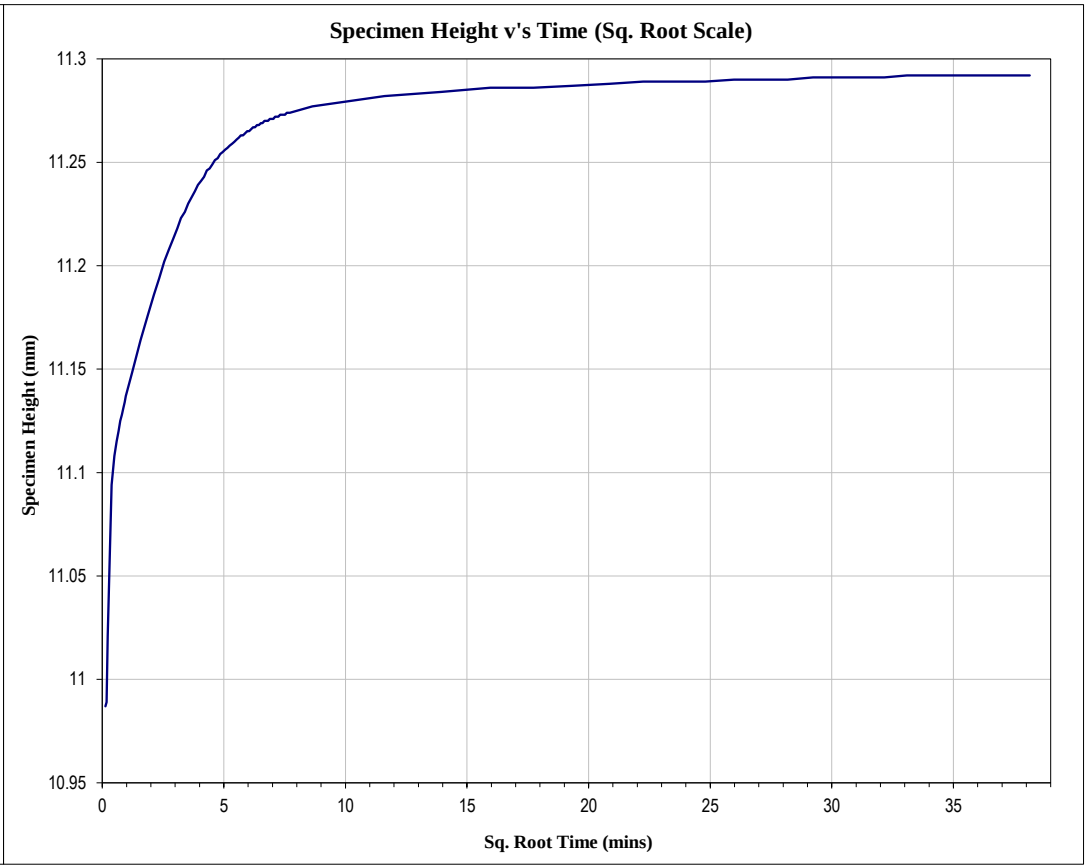
Stage Load :	**1600** kPa	**Stage 5**	**Report No:** S50367-CON	**Sample No:** S50367
Rig Number :	**5**			
Stage :	**800 - 1600**			

MACQUARIE GEOTECH

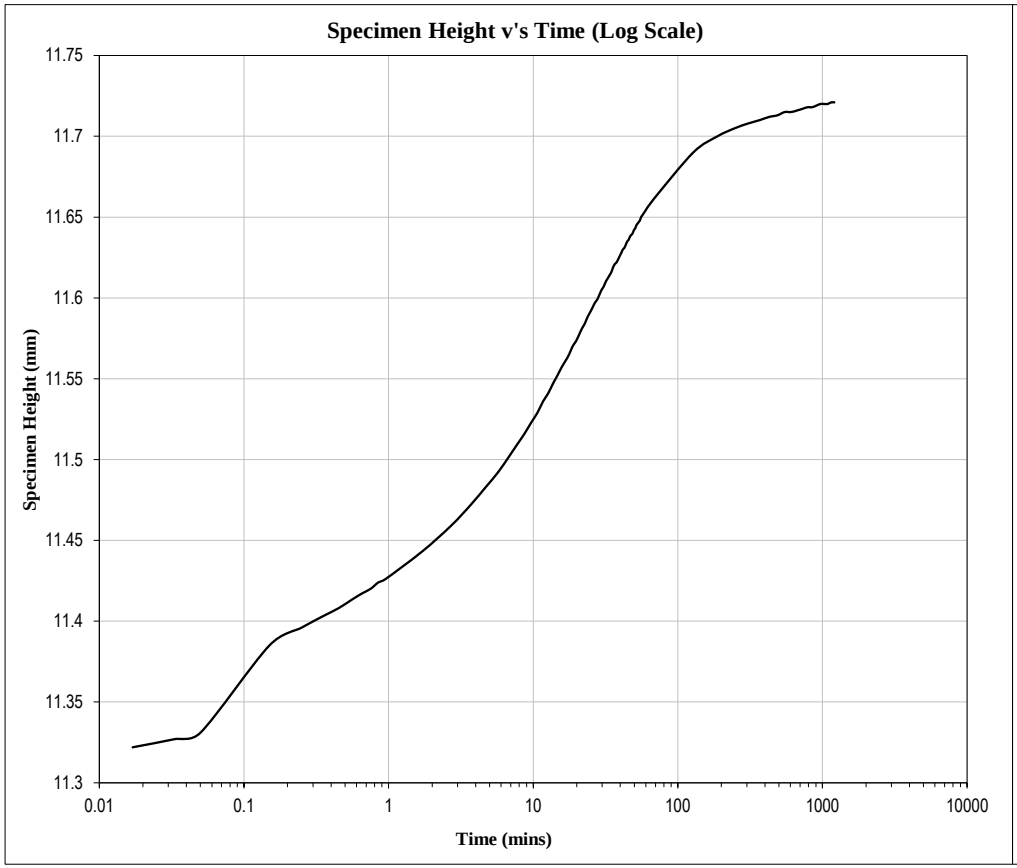


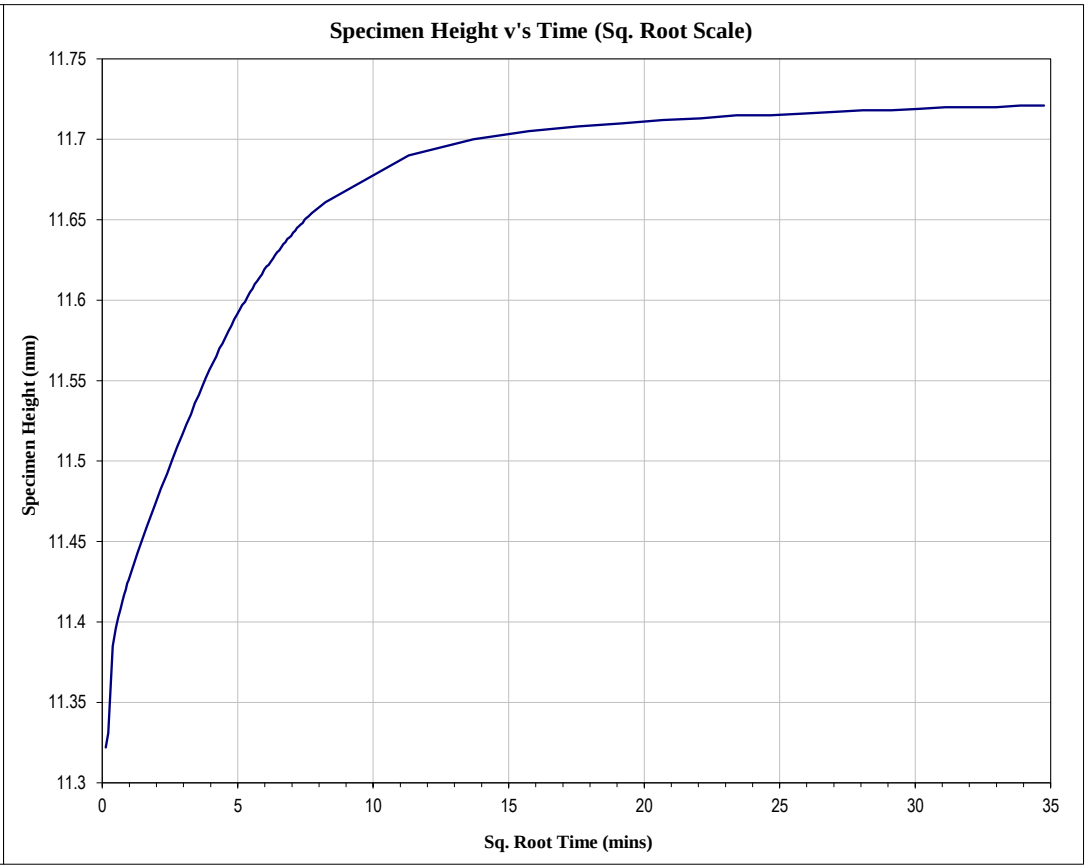
Stage Load :	**400** kPa	**Stage 6**	**Report No:** S50367-CON	**Sample No:** S50367
Rig Number :	**5**			
Stage :	**1600 - 400**			





Stage Load :	**100** kPa	**Stage 7**	**Report No:** S50367-CON	**Sample No:** S50367
Rig Number :	**5**			
Stage :	**400 - 100**			





APPENDIX K

Data Validation Sheets

GOLDER

DATA VALIDATION SUMMARY SHEET

Project Name:	**Sydney Metro West**	**Project Number:**	**1791865**
Primary Laboratory:	**ALS Sydney, ALS Newcastle (Asbestos)**	**Work order Number:**	**ES1917591**
Secondary Laboratory:	**SGS Alexandria**	**Work order Number:**	**SE193855**
Subcontractor Laboratory:	**N/A**	**Work order Number:**	**-**
Date Sampled:	**1/06/2019 - 2/06/2019**	**Sample Medium:**	**Soil**

Sample Information

Number of Primary Samples:	**29**	**Number of Triplicate Samples:**	**2**
Number of Duplicate Samples:	**2**	**Number of Other QAQC Samples:**	**4**

Documentation and Sample Handling Information

	Y/N	Comments
COC completed properly?	Y	COC completed and signed by all staff (ALS & SGS).
All requested analysis completed?	N	ALS: All requested analyses on the COC not completed. *Refer to overall comments.* SGS: All requested analyses on the COC completed
Samples received intact and chilled?	Y	ALS: 2.6'C, ice present. Security seal not available. SGS: 4.7'C, ice bricks present. Samples received in good order.
Samples analysed within appropriate holding times?	N	ALS: All analyses were within holding times. SGS: Holding time outliers exist. *Refer to overall comments* .
Sample volumes sufficient for QC analysis?	N	ALS: Sample volume outliers exist. *Refer to overall comments.* SGS: Sufficient sample volumes were supplied for QC analysis.
Are there non-NATA accredited methods used?	Y	ALS: All methods used in this batch are NATA accredited. SGS: SGS are not NATA approved for some of the analyses. *Refer to overall comments.*
Chromatograms supplied as appropriate?	N/A	N/A
Laboratory reports signed by authorised personnel?	Y	All laboratory reports signed by authorised personnel.

QAQC Sample Information (Method Blank - MB, Rinsate Blank - RB, Field Blank - FB, Trip Blank - TB)

Type	Sample ID	Comments
MB	Method Blank	All results were below the limit of reporting (LOR) (ALS & SGS).
TB	Trip Blank	All results were below the LOR (ALS).
RB	Rinsate_BH_MN04	All results were below the LOR (ALS).

Trip Spike Information

Analyte	Control Spike Concentrations	Trip Spike Concentration	% Recovery	Comments
Sample ID: Trip Spike 2				
Benzene	<0.2	<0.2	100%	Result is within DQOs (70%-130%).
Toluene	10	7.6	76%	Result is within DQOs (70%-130%).
Ethylbenzene	1.5	1.3	87%	Result is within DQOs (70%-130%).
meta- & para-Xylene	8	6.7	84%	Result is within DQOs (70%-130%).
ortho-Xylene	3.3	2.9	88%	Result is within DQOs (70%-130%).
Total xylenes	11.3	9.6	85%	Result is within DQOs (70%-130%).
Sum of BTEX	22.8	18.5	81%	Result is within DQOs (70%-130%).
Naphthalene	<1	<1	100%	Result is within DQOs (70%-130%).
Sample ID: Trip Spike 3				
Benzene	0.5	0.4	80%	Result is within DQOs (70%-130%).
Toluene	22.4	21.1	94%	Result is within DQOs (70%-130%).
Ethylbenzene	3	3	100%	Result is within DQOs (70%-130%).
meta- & para-Xylene	15.3	15.1	99%	Result is within DQOs (70%-130%).
ortho-Xylene	6.1	6	98%	Result is within DQOs (70%-130%).
Total xylenes	21.4	21.1	99%	Result is within DQOs (70%-130%).
Sum of BTEX	47.3	45.6	96%	Result is within DQOs (70%-130%).
Naphthalene	<1	<1	100%	Result is within DQOs (70%-130%).

Laboratory Control Spike (LCS) Analyses

Analyte Group	Comments
All	LCS recoveries were within laboratory based DQOs (ALS & SGS).

Matrix Spike (MS) Analyses

Analyte Group	Comments
All	ALS: MS recoveries were within the laboratory based DQOs
Total Phenols in Soil	SGS: The MS recovery for total phenols for sample SE193855.002 (QA501B) (128%) was outside laboratory based DQOs. *Refer to overall comments.*
Total Recoverable Elements (heavy metals)	SGS: The MS recoveries for copper (159%), lead (69%) and zinc (-47%) for sample SE193825.0017 (anonymous) (128%) were outside laboratory based DQOs. *Refer to overall comments.*
-	Remaining MS recoveries were within laboratory based DQOs (SGS).

Laboratory Duplicates (LD) Analyses

Analyte Group	Sample ID	Comments
All	-	ALS: LD RPDs were within laboratory based DQOs
Total Recoverable Elements (heavy metals)	SE193855.002 (QA501B)	SGS: LD RPD for copper (39%) was not within laboratory based DQOs. *Refer to overall comments.*
-	-	Remaining LD RPDs were within laboratory based DQOs (SGS).

Field Duplicates (FD) Analyses

Analyte Group	Primary ID	Duplicate ID	Comments
Heavy Metals	BH_MN04/0.4-0.6	QA500A	FD RPD recoveries for copper (67.47%), lead (35%), nickel (109.43%) and zinc (39.48%) were not with DQOs. *Refer to overall comments.*
Heavy Metals	VW_MN02/0.5-0.6	QA501A	FD RPD recovery for zinc (120.57%) is not with DQOs. *Refer to overall comments.*

Field Triplicates (FT) Analyses

Analyte Group	Primary ID	Triplicate ID	Comments
Heavy Metals	BH_MN04/0.4-0.6	QA500B	FT RPD recoveries for lead (62.69%) and zinc (51.85%) were not with DQOs. *Refer to overall comments.*
Heavy Metals	VW_MN02/0.5-0.6	QA501B	FT RPD recovery for zinc (34.07%) is not within DQOs. *Refer to overall comments.*

Surrogate Compound Monitoring Analyses

Analyte Group	Analyte(s)	Comments
PAH Surrogates	2-Fluorobiphenyl	ALS: The PAH surrogate recoveries for 2-Fluorobiphenyl for samples ES1917591-027 (VW_MN02_2.0-2.1) (128%), ES1917591-028 (VW_MN02_3.0-3.1) (124%) and ES1917591-030 (QA500A) (124%) were greater than upper DQO limit (70%-122%). *Refer to overall comments.*
PFAS Surrogate	13C4-PFOS, 13C8-PFOA	ALS: The PFAS surrogate recoveries for 13C4-PFOS for samples ES1917591-024 (024 VW_MN02_0.5-0.6) (14.5%), ES1917591-031 (QA501A) (16.5%) and the surrogate recoveries for 13C8-PFOA for samples ES1917591-024 (024 VW_MN02_0.5-0.6) (18.0%), ES1917591-031 (QA501A) (19.0%) were less than lower DQO limit (60-120%). *Refer to overall comments.*
-	-	Remaining surrogate recoveries were within laboratory based DQOs (ALS and SGS).

Overall Comments

As stated by ALS "Please note that asbestos has not been added to sample 30, 31 as no bag was provided": 30 & 31 are QA samples where the primary has been scheduled for asbestos analysis. In addition, asbestos analysis was for presence/absence only and not a concentration. This is not expected to affect the validity of the dataset.

As stated by ALS "Please note that pfas has not been added to samples 30,32-35 due to correct jar not being provided." Sample 030 is a QA sample and due to the low volume of sample return additional sample jar was not obtained. Sample numbers 32 to 35 are trip blanks and spikes and PFAS analysis is not required for these samples.

SGS: A 1-2 day's holding time breach was reported for total phenolics in soil in samples QA500B and QA501B. This is not expected to affect the validity of this batch as breach was marginal and the relevant QC results were within DQOs.

GOLDER

DATA VALIDATION SUMMARY SHEET

Project Name:	**Sydney Metro West**	**Project Number:**	**1791865**
Primary Laboratory:	**ALS Sydney, ALS Newcastle (Asbestos)**	**Work order Number:**	**ES1917591**
Secondary Laboratory:	**SGS Alexandria**	**Work order Number:**	**SE193855**
Subcontractor Laboratory:	**N/A**	**Work order Number:**	**-**
Date Sampled:	**1/06/2019 - 2/06/2019**	**Sample Medium:**	**Soil**

Sample Information

Number of Primary Samples:	**29**	**Number of Triplicate Samples:**	**2**

ALS: A quality control test frequency breach was reported for LD and MS analyses of PAH/Phenols, Pesticides by GCMS, Polychlorinated Biphenyls and TRH - Semivolatile Fraction in water. This is not expected to affect the validity of this batch as the breach represents the Rinsate sample matrix only. Sufficient sample volumes were supplied for QC analysis with the exception of LD and MS analyses of several analytes in water.

SGS are not NATA approved for the analysis of Total VOC, Total Volatile Chlorinated Hydrocarbons, Total Chlorinated Hydrocarbons VIC EPA, Total Other Chlorinated Hydrocarbons VIC EPA and Total OP Pesticides, although it is noted that the individual analytes are NATA approved.

SGS: MS recovery for total phenols (50%) in sample SE193855.002 (QA501B), copper (159%) and lead (69%) in sample SE193825.001 (separate batch) are not within laboratory-based DQOs. As stated by SGS, "Recovery failed acceptance criteria due to matrix interference." In addition, an MS RPD of -47% for zinc was measured in in sample SE193825.001 (separate batch). These exceedances are likely due to sample heterogeneity in soils (as the sample was collected in fill material). As a conservative measure the highest concentration will be adopted for reporting purposes.

SGS: LD RPD for copper (39%) for sample SE193855.002 (QA501B) is not within laboratory-based control limits. As stated by SGS "RPD failed acceptance criteria due to sample heterogeneity". This exceedance is likely due to sample heterogeneity in soils (as the sample was collected in fill material). As a conservative measure the highest concentration will be adopted for reporting purposes.

Field duplicate RPDs for copper (67.47%), lead (35%), nickel (109.43%) and zinc (39.48%) for sample QA500A and zinc (120.57%) and for sample QA501A are not within the project DQOs. These exceedances are likely due to sample heterogeneity in soils (as the sample was collected in fill material). As a conservative measure the highest concentration will be adopted for reporting purposes.

Field triplicate RPDs for lead (62.69%) and zinc (51.85%) for FT sample QA500B and zinc (34.07%) for sample QA501B are not within the project DQOs. These exceedances are likely due to sample heterogeneity in soils (as the sample was collected in fill material). As a conservative measure the highest concentration will be adopted for reporting purposes.

ALS: The surrogate recoveries for 2-Fluorobiphenyl for samples ES1917591-027 (VW_MN02_2.0-2.1) (128%), ES1917591-028 (VW_MN02_3.0-3.1) (124%) and ES1917591-030 (QA500A) (124%) were greater than upper data quality objective (70%-122%) indicating the potential for over reporting. This is not expected to affect the integrity of the dataset as the exceedances are minor (2-6%).

ALS: The surrogate recoveries for 13C4-PFOS for samples ES1917591-024 (024 VW_MN02_0.5-0.6) (14.5%), ES1917591-031 (QA501A) (16.5%) and the surrogate recoveries for 13C8-PFOA for samples ES1917591-024 (024 VW_MN02_0.5-0.6) (18.0%), ES1917591-031 (QA501A) (19.0%) were less than lower data quality objective (60-120%) indicating the potential for under reporting.

This batch has been validated and is considered suitable for environmental interpretive use.

Note: Data validation assesses each analyte in terms of all the data validation variables and only the exceedances and outliers are reported in this form.

*When concentrations are less than the LOR for both primary and duplicate/triplicate results, no RPDs are calculated

Performed By:	**Bianca Underwood**	**Checked By:**	**Barry Houston**
Date:	**11/07/2019**	**Date:**	**30/07/2019**

Sydney Metro West Marrickville
Duplicate Analysis RPDs
Project Number: 1791865
Batche/s: ES1917591 & SE193855

		Sample ID	BH_MN04_0.4-0.6	QA500A	QA500B		
		Sample Type	Primary	Field Duplicate	Field Triplicate		
		Date Sampled	1/06/2019	1/06/2019	1/06/2019		
Analyte	**Units**	**LOR**				**RPDs Primary vs Duplicate**	**RPDs Primary vs Triplicate**
TRH - HSL							
TRH C6 - C10 Fraction F1	mg/kg	10	<10	<10	<25	ND	ND
TRH C6 - C10 Fraction Less BTEX F1	mg/kg	10	<10	<10	<25	ND	ND
TRH >C10 - C16 Fraction F2	mg/kg	50	<50	<50	<25	ND	ND
TRH >C10 - C16 Fraction Less Naphthalene (F2)	mg/kg	50	<50	<50	<25	ND	ND
TRH >C16 - C34 Fraction F3	mg/kg	100	210	110	<90	62.50%	80.00%
TRH >C34 - C40 Fraction F4	mg/kg	100	<100	<100	<120	ND	ND
TRH+C10 - C40 (Sum of total) (Lab Reported)	mg/kg	50	210	110	<210	62.50%	0.00%
TPH Group - Waste Classification							
TRH C6 - C9 Fraction	mg/kg	10	<10	<10	<20	ND	ND
TRH C10 - C14 Fraction	mg/kg	50	<50	<50	<20	ND	ND
TRH C15 - C28 Fraction	mg/kg	100	130	<100	<45	26.09%	97.14%
TRH C29 - C36 Fraction	mg/kg	100	110	<100	<45	9.52%	83.87%
TRH+C10 - C36 (Sum of total) (Lab Reported)	mg/kg	50	240	<50	<110	131.03%	74.29%
BTEX							
Benzene	mg/kg	0.2	<0.2	<0.2	<0.1	ND	ND
Toluene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
Ethylbenzene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
Xylenes (m & p)	mg/kg	0.5	<0.5	<0.5	<0.2	ND	ND
Xylene (o)	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
Xylenes (Sum of total) (Lab Reported)	mg/kg	0.5	<0.5	<0.5	<0.3	ND	ND
Total BTEX	mg/kg	0.2	<0.2	<0.2	<0.6	ND	ND
Heavy Metals							
Arsenic	mg/kg	5	<5	11	8	75.00%	46.15%
Cadmium	mg/kg	1	<1	1	0.4	0.00%	85.71%
Chromium	mg/kg	2	20	28	24	33.33%	18.18%
Copper	mg/kg	5	55	111	64	**67.47%**	15.13%
Lead	mg/kg	5	132	188	69	**35.00%**	**62.69%**
Mercury	mg/kg	0.1	1.1	1.1	0.37	0.00%	99.32%
Nickel	mg/kg	2	12	41	17	**109.43%**	34.48%
Zinc	mg/kg	5	374	558	220	**39.48%**	**51.85%**
Organochlorine Pesticides							
a-BHC	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
Aldrin	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
Dieldrin	mg/kg	0.05	<0.05	<0.05	<0.2	ND	ND
Aldrin & Dieldrin (Sum of total) (Lab Reported)	mg/kg	0.05	<0.05	<0.05	-	ND	-
b-BHC	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
cis-Chlordane	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
trans-Chlordane	mg/kg	0.05	<0.05	<0.05	-	ND	-
Chlordane (Sum of total)	mg/kg	0.05	<0.05	<0.05	-	ND	-
d-BHC	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
DDD	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
DDE	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
DDT	mg/kg	0.2	<0.2	<0.2	<0.1	ND	ND
DDT+DDE+DDD (Sum of total) (Lab Reported)	mg/kg	0.05	<0.05	<0.05	-	ND	-
Endosulfan	mg/kg	0.05	<0.05	<0.05	-	ND	-
Endosulfan I	mg/kg	0.05	<0.05	<0.05	<0.2	ND	ND
Endosulfan II	mg/kg	0.05	<0.05	<0.05	<0.2	ND	ND
Endosulfan sulphate	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
Endrin	mg/kg	0.05	<0.05	<0.05	<0.2	ND	ND
Endrin aldehyde	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
Endrin ketone	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
g-BHC	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
Heptachlor	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
Heptachlor epoxide	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
Hexachlorobenzene	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
Methoxychlor	mg/kg	0.2	<0.2	<0.2	<0.1	ND	ND
Azinphos-methyl	mg/kg	0.05	<0.05	<0.05	<0.2	ND	ND
Bromophos-ethyl	mg/kg	0.05	<0.05	<0.05	<0.2	ND	ND
Carbophenothion	mg/kg	0.05	<0.05	<0.05	-	ND	-
Chlorfenvinphos	mg/kg	0.05	<0.05	<0.05	-	ND	-
Chlorpyriphos	mg/kg	0.05	<0.05	<0.05	<0.2	ND	ND
Chlorpyriphos-methyl	mg/kg	0.05	<0.05	<0.05	-	ND	-
Demeton-s-methyl	mg/kg	0.05	<0.05	<0.05	-	ND	-
Diazinon	mg/kg	0.05	<0.05	<0.05	<0.5	ND	ND
Dichlorvos	mg/kg	0.05	<0.05	<0.05	<0.5	ND	ND
Dimethoate	mg/kg	0.05	<0.05	<0.05	<0.5	ND	ND
Ethion	mg/kg	0.05	<0.05	<0.05	<0.2	ND	ND
Fenamiphos	mg/kg	0.05	<0.05	<0.05	-	ND	-
Fenthion	mg/kg	0.05	<0.05	<0.05	-	ND	-
Malathion	mg/kg	0.05	<0.05	<0.05	<0.2	ND	ND
Parathion-methyl	mg/kg	0.2	<0.2	<0.2	-	ND	-
Monocrotophos	mg/kg	0.2	<0.2	<0.2	-	ND	-
Parathion	mg/kg	0.2	<0.2	<0.2	<0.2	ND	ND
Pirimphos-ethyl	mg/kg	0.05	<0.05	<0.05	-	ND	-
Prothiofos	mg/kg	0.05	<0.05	<0.05	-	ND	-
Organophosphorous Pesticides							
Acenaphthene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
Acenaphthylene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
Anthracene	mg/kg	0.5	0.6	<0.5	<0.1	ND	ND
Benz(a)anthracene	mg/kg	0.5	2.7	1	0.4	**91.89%**	**148.39%**
Benzo(a)pyrene	mg/kg	0.5	2.9	1.2	0.6	**82.93%**	**131.43%**
Benzo(b&j)fluoranthene	mg/kg	0.5	3.3	1.1	0.6	**100.00%**	**138.46%**
Benzo(g,h,i)perylene	mg/kg	0.5	2.1	0.6	0.3	**111.11%**	**150.00%**
Benzo(k)fluoranthene	mg/kg	0.5	1.2	<0.5	0.3	**82.35%**	**120.00%**
Chrysene	mg/kg	0.5	2.5	1	0.5	**85.71%**	**133.33%**
Dibenz(a,h)anthracene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
Fluoranthene	mg/kg	0.5	5	2	0.6	**85.71%**	**157.14%**
Fluorene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
Indeno(1,2,3-c,d)pyrene	mg/kg	0.5	1.6	<0.5	0.3	**104.76%**	**136.84%**
Naphthalene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
Phenanthrene	mg/kg	0.5	2.4	0.7	0.3	**109.68%**	**155.56%**
Pyrene	mg/kg	0.5	4.8	2.2	0.6	**74.29%**	**155.56%**
Phenols							
Total Phenols	mg/kg	0.1	<1	<1	<0.1	ND	ND
Polychlorinated Biphenyls							
PCB (Sum of Total-Lab Reported)	mg/kg	0.1	<0.1	<0.1	<1	ND	ND
Volatile Organic Compounds							
1,4-Dichlorobenzene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
4-Chlorotoluene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
1,2,3-Trichlorobenzene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
1,2,4-Trichlorobenzene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
1,2-Dichlorobenzene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
1,3-Dichlorobenzene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
2-Chlorotoluene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
Bromobenzene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
Chlorobenzene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
1,2,4-trimethylbenzene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
1,3,5-Trimethylbenzene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
Isopropylbenzene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
n-Butylbenzene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
n-Propylbenzene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND

p-Isopropyltoluene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
sec-Butylbenzene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
Styrene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
tert-Butylbenzene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
Methyl Ethyl Ketone	mg/kg	5	<5	<5	<10	ND	ND
2-Hexanone	mg/kg	5	<5	<5	<5	ND	ND
Methyl iso-butyl ketone	mg/kg	5	<5	<5	<1	ND	ND
Vinyl acetate	mg/kg	5	<5	<5	<10	ND	ND
1,1,1,2-Tetrachloroethane	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
1,1,2,2-Tetrachloroethane	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
1,1,1-Trichloroethane	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
1,1,2-Trichloroethane	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
1,2,3-Trichloropropane	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
1,2-Dibromo-3-chloropropane	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
1,2-Dibromoethane	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
1,1-Dichloroethane	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
1,2-Dichloroethane	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
1,1-Dichloroethene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
cis-1,2-Dichloroethene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
trans-1,2-dichloroethene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
1,2-Dichloropropane	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
1,3-Dichloropropane	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
2,2-Dichloropropane	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
1,1-Dichloropropene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
cis-1,3-Dichloropropene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
trans-1,3-dichloropropene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
cis-1,4-Dichloro-2-butene	mg/kg	0.5	<0.5	<0.5	<1	ND	ND
trans-1,4-Dichloro-2-butene	mg/kg	0.5	<0.5	<0.5	<1	ND	ND
Bromodichloromethane	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
Bromoform	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
Bromomethane	mg/kg	5	<5	<5	<1	ND	ND
Carbon disulfide	mg/kg	0.5	<0.5	<0.5	<0.5	ND	ND
Carbon tetrachloride	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
Chlorodibromomethane	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
Chloroethane	mg/kg	5	<5	<5	<1	ND	ND
Chloroform	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
Chloromethane	mg/kg	5	<5	<5	<1	ND	ND
Dibromomethane	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
Dichlorodifluoromethane	mg/kg	5	<5	<5	<1	ND	ND
Hexachlorobutadiene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
Iodomethane	mg/kg	0.5	<0.5	<0.5	<5	ND	ND
Pentachloroethane	mg/kg	0.5	<0.5	<0.5	-	ND	-
Trichloroethene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
Tetrachloroethene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
Trichlorofluoromethane	mg/kg	5	<5	<5	<1	ND	ND
Vinyl chloride	mg/kg	5	<5	<5	<0.1	ND	ND
Perfluorinated Compounds							
10:2 Fluorotelomer sulfonic acid	mg/kg	0.0005	<0.0005	<0.0005	-	ND	-
4:2 Fluorotelomer sulfonic acid	mg/kg	0.0005	<0.0005	<0.0005	-	ND	-
8:2 Fluorotelomer sulfonate	mg/kg	0.0005	<0.0005	<0.0005	-	ND	-
N-Et-FOSA	mg/kg	0.0005	<0.0005	<0.0005	-	ND	-
N-Et-FOSE	mg/kg	0.0005	<0.0005	<0.0005	-	ND	-
N-Me-FOSA	mg/kg	0.0005	<0.0005	<0.0005	-	ND	-
N-Me-FOSE	mg/kg	0.0005	<0.0005	<0.0005	-	ND	-
Perfluorobutanoic acid (PFBA)	mg/kg	0.001	<0.001	<0.001	-	ND	-
Perfluoroheptane sulfonic acid	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluoro-n-pentanoic acid (PFPeA)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluoropentane sulfonic acid	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
PFDcS	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
N-methyl-perfluorooctanesulfonamidoacetic acid	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Sum of PFHxS and PFOS (lab reported)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Sum of WA DER PFAS (n=10)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Sum of PFASs (n=28)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluorobutanesulfonic acid (PFBS)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluorodecanoic acid (PFDA)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluorododecanoic acid (PFDoA)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluoroheptanoic acid (PFHpA)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluorooctanesulfonic acid (PFOS)3	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluorooctanoate (PFOA)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluorohexanesulfonic acid (PFHxS)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluorononanoic acid (PFNA)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluorohexanoic acid (PFHxA)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
6:2 Fluorotelomer Sulfonate (6:2 FtS)	mg/kg	0.0005	<0.0005	<0.0005	-	ND	-
N-ethyl-perfluorooctanesulfonamidoacetic acid	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluorooctanesulfonamide (PFOSA)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluorotetradecanoic acid (PFTeDA)	mg/kg	0.0005	<0.0005	<0.0005	-	ND	-
Perfluorotridecanoic acid (PFTrDA)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluoroundecanoic acid (PFUnA)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-

Legend

ND = Not Detected (RPDs not calculated if both primary and duplicate results are below LOR)

- = Not analysed/calculated

Indicates RPD result does not meet the acceptable criteria

Acceptable RPDs: RPD <= 30%

RPD > 30%, Analyis result < 10 times LOR

RPD <= 50%, Analysis result > 10 times LOR and < 20 times LOR

Sydney Metro West Marrickville

Duplicate Analysis RPDs
Project Number: 1791865
Batche/s: ES1917591 & SE193855

		Sample ID	VW_MN02/0.5-0.6	QA501A	QA501B		
		Sample Type	Primary	Field Duplicate	Field Triplicate		
		Date Sampled	1/06/2019	1/06/2019	1/06/2019		
						RPDs	RPDs
Analyte	**Units**	**LOR**				**Primary vs Duplicate**	**Primary vs Triplicate**
TRH - HSL							
TRH C6 - C10 Fraction F1	mg/kg	10	<10	<10	<25	ND	ND
TRH C6 - C10 Fraction Less BTEX F1	mg/kg	10	<10	<10	<25	ND	ND
TRH >C10 - C16 Fraction F2	mg/kg	50	<50	<50	<25	ND	ND
TRH >C10 - C16 Fraction Less Naphthalene (F2)	mg/kg	50	<50	<50	<25	ND	ND
TRH >C16 - C34 Fraction F3	mg/kg	100	160	<100	<90	46.15%	56.00%
TRH >C34 - C40 Fraction F4	mg/kg	100	120	<100	<120	18.18%	0.00%
TRH+C10 - C40 (Sum of total) (Lab Reported)	mg/kg	50	280	<50	<210	139.39%	28.57%
TPH Group - Waste Classification							
TRH C6 - C9 Fraction	mg/kg	10	<10	<10	<20	ND	ND
TRH C10 - C14 Fraction	mg/kg	50	<50	<50	<20	ND	ND
TRH C15 - C28 Fraction	mg/kg	100	110	<100	<45	9.52%	83.87%
TRH C29 - C36 Fraction	mg/kg	100	110	<100	<45	9.52%	83.87%
TRH+C10 - C36 (Sum of total) (Lab Reported)	mg/kg	50	220	<50	<110	125.93%	66.67%
BTEX							
Benzene	mg/kg	0.2	<0.2	<0.2	<0.1	ND	ND
Toluene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
Ethylbenzene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
Xylenes (m & p)	mg/kg	0.5	<0.5	<0.5	<0.2	ND	ND
Xylene (o)	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
Xylenes (Sum of total) (Lab Reported)	mg/kg	0.5	<0.5	<0.5	<0.3	ND	ND
Total BTEX	mg/kg	0.2	<0.2	<0.2	<0.6	ND	ND
Heavy Metals							
Arsenic	mg/kg	5	<5	8	3	46.15%	50.00%
Cadmium	mg/kg	1	<1	<1	<0.3	ND	ND
Chromium	mg/kg	2	7	14	5.2	66.67%	29.51%
Copper	mg/kg	5	36	40	18	10.53%	66.67%
Lead	mg/kg	5	21	48	19	78.26%	10.00%
Mercury	mg/kg	0.1	<0.1	<0.1	<0.05	ND	ND
Nickel	mg/kg	2	22	25	11	12.77%	66.67%
Zinc	mg/kg	5	56	226	79	**120.57%**	**34.07%**
Organochlorine Pesticides							
2,4-DDT	mg/kg	0.1	-	-	<0.1	ND	ND
a-BHC	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
Aldrin	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
Dieldrin	mg/kg	0.05	0.15	0.21	0.2	33.33%	28.57%
Aldrin & Dieldrin (Sum of total) (Lab Reported)	mg/kg	0.05	0.15	0.21	-	33.33%	-
b-BHC	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
cis-Chlordane	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
trans-Chlordane	mg/kg	0.05	<0.05	<0.05	-	ND	-
Chlordane (Sum of total)	mg/kg	0.05	<0.05	<0.05	-	ND	-
d-BHC	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
DDD	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
DDE	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
DDT	mg/kg	0.2	<0.2	<0.2	<0.1	ND	ND
DDT+DDE+DDD (Sum of total) (Lab Reported)	mg/kg	0.05	<0.05	<0.05	-	ND	-
Endosulfan	mg/kg	0.05	<0.05	<0.05	-	ND	-
Endosulfan I	mg/kg	0.05	<0.05	<0.05	<0.2	ND	ND
Endosulfan II	mg/kg	0.05	<0.05	<0.05	<0.2	ND	ND
Endosulfan sulphate	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
Endrin	mg/kg	0.05	<0.05	<0.05	<0.2	ND	ND
Endrin aldehyde	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
Endrin ketone	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
g-BHC	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
Heptachlor	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
Heptachlor epoxide	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
Hexachlorobenzene	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
Methoxychlor	mg/kg	0.2	<0.2	<0.2	<0.1	ND	ND
Organophosphorous Pesticides							
Azinphos-methyl	mg/kg	0.05	<0.05	<0.05	<0.2	ND	ND
Bromophos-ethyl	mg/kg	0.05	<0.05	<0.05	<0.2	ND	ND
Carbophenothion	mg/kg	0.05	<0.05	<0.05	-	ND	-
Chlorfenvinphos	mg/kg	0.05	<0.05	<0.05	-	ND	-
Chlorpyriphos	mg/kg	0.05	<0.05	<0.05	<0.2	ND	ND
Chlorpyriphos-methyl	mg/kg	0.05	<0.05	<0.05	-	ND	-
Demeton-s-methyl	mg/kg	0.05	<0.05	<0.05	-	ND	-
Diazinon	mg/kg	0.05	<0.05	<0.05	<0.5	ND	ND
Dichlorvos	mg/kg	0.05	<0.05	<0.05	<0.5	ND	ND
Dimethoate	mg/kg	0.05	<0.05	<0.05	<0.5	ND	ND
Ethion	mg/kg	0.05	<0.05	<0.05	<0.2	ND	ND
Fenamiphos	mg/kg	0.05	<0.05	<0.05	-	ND	-
Fenitrothion	mg/kg	0.2	-	-	<0.2	ND	ND
Fenthion	mg/kg	0.05	<0.05	<0.05	-	ND	-
Malathion	mg/kg	0.05	<0.05	<0.05	<0.2	ND	ND
Methidathion	mg/kg	0.5	-	-	<0.5	ND	ND
Parathion-methyl	mg/kg	0.2	<0.2	<0.2	-	ND	-
Monocrotophos	mg/kg	0.2	<0.2	<0.2	-	ND	-
Parathion	mg/kg	0.2	<0.2	<0.2	<0.2	ND	ND
Pirimphos-ethyl	mg/kg	0.05	<0.05	<0.05	-	ND	-
Prothiofos	mg/kg	0.05	<0.05	<0.05	-	ND	-
PAH							
Acenaphthene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
Acenaphthylene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
Anthracene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
Benz(a)anthracene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
Benzo(a)pyrene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
Benzo(b)&(j)fluoranthene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
Benzo(g,h,i)perylene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
Benzo(k)fluoranthene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
Chrysene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
Dibenz(a,h)anthracene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
Fluoranthene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
Fluorene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
Indeno(1,2,3-c,d)pyrene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
Naphthalene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
Phenanthrene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
Pyrene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
PAH (Sum of Common 16 PAHs - Lab Reported)	mg/kg	0.5	<0.5	<0.5	<0.8	ND	ND
Phenols							
Total Phenols	mg/kg	0.1	<1	<1	<0.1	ND	ND

Polychlorinated Biphenyls							
PCB (Sum of Total-Lab Reported)	mg/kg	0.1	<0.1	<0.1	<1	ND	ND
Volatile Organic Compounds							
1,4-Dichlorobenzene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
4-Chlorotoluene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
1,2,3-Trichlorobenzene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
1,2,4-Trichlorobenzene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
1,2-Dichlorobenzene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
1,3-Dichlorobenzene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
2-Chlorotoluene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
Bromobenzene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
Chlorobenzene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
1,2,4-trimethylbenzene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
1,3,5-Trimethylbenzene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
Isopropylbenzene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
n-Butylbenzene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
n-Propylbenzene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
p-Isopropyltoluene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
sec-Butylbenzene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
Styrene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
tert-Butylbenzene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
Methyl Ethyl Ketone	mg/kg	5	<5	<5	<10	ND	ND
2-Hexanone	mg/kg	5	<5	<5	<5	ND	ND
Methyl iso-butyl ketone	mg/kg	5	<5	<5	<1	ND	ND
Vinyl acetate	mg/kg	5	<5	<5	<10	ND	ND
1,1,1,2-Tetrachloroethane	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
1,1,2,2-Tetrachloroethane	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
1,1,1-Trichloroethane	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
1,1,2-Trichloroethane	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
1,2,3-Trichloropropane	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
1,2-Dibromo-3-chloropropane	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
1,2-Dibromoethane	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
1,1-Dichloroethane	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
1,2-Dichloroethane	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
1,1-Dichloroethene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
cis-1,2-Dichloroethene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
trans-1,2-dichloroethene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
1,2-Dichloropropane	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
1,3-Dichloropropane	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
2,2-Dichloropropane	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
1,1-Dichloropropene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
cis-1,3-Dichloropropene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
trans-1,3-dichloropropene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
cis-1,4-Dichloro-2-butene	mg/kg	0.5	<0.5	<0.5	<1	ND	ND
trans-1,4-Dichloro-2-butene	mg/kg	0.5	<0.5	<0.5	<1	ND	ND
Bromodichloromethane	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
Bromoform	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
Bromomethane	mg/kg	5	<5	<5	<1	ND	ND
Carbon disulfide	mg/kg	0.5	<0.5	<0.5	<0.5	ND	ND
Carbon tetrachloride	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
Chlorodibromomethane	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
Chloroethane	mg/kg	5	<5	<5	<1	ND	ND
Chloroform	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
Chloromethane	mg/kg	5	<5	<5	<1	ND	ND
Dibromomethane	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
Dichlorodifluoromethane	mg/kg	5	<5	<5	<1	ND	ND
Hexachlorobutadiene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
Iodomethane	mg/kg	0.5	<0.5	<0.5	<5	ND	ND
Pentachloroethane	mg/kg	0.5	<0.5	<0.5	-	ND	ND
Trichloroethene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
Tetrachloroethene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
Trichlorofluoromethane	mg/kg	5	<5	<5	<1	ND	ND
Vinyl chloride	mg/kg	5	<5	<5	<0.1	ND	ND
Perfluorinated Compounds							
10:2 Fluorotelomer sulfonic acid	mg/kg	0.0005	<0.0005	<0.0005	-	ND	-
4:2 Fluorotelomer sulfonic acid	mg/kg	0.0005	<0.0005	<0.0005	-	ND	-
8:2 Fluorotelomer sulfonate	mg/kg	0.0005	<0.0005	<0.0005	-	ND	-
N-Et-FOSA	mg/kg	0.0005	<0.0005	<0.0005	-	ND	-
N-Et-FOSE	mg/kg	0.0005	<0.0005	<0.0005	-	ND	-
N-Me-FOSA	mg/kg	0.0005	<0.0005	<0.0005	-	ND	-
N-Me-FOSE	mg/kg	0.0005	<0.0005	<0.0005	-	ND	-
Perfluorobutanoic acid (PFBA)	mg/kg	0.001	<0.001	<0.001	-	ND	-
Perfluoroheptane sulfonic acid	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluoro-n-pentanoic acid (PFPeA)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluoropentane sulfonic acid	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
PFDcS	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
N-methyl-perfluorooctanesulfonamidoacetic acid	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Sum of PFHxS and PFOS (lab reported)	mg/kg	0.0002	0.0003	<0.0002	-	ND	-
Sum of WA DER PFAS (n=10)	mg/kg	0.0002	0.0003	<0.0002	-	ND	-
Sum of PFASs (n=28)	mg/kg	0.0002	0.0003	<0.0002	-	ND	-
Perfluorobutanesulfonic acid (PFBS)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluorodecanoic acid (PFDA)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluorododecanoic acid (PFDoA)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluoroheptanoic acid (PFHpA)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluorooctanesulfonic acid (PFOS)3	mg/kg	0.0002	0.0003	<0.0002	-	ND	-
Perfluorooctanoate (PFOA)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluorohexanesulfonic acid (PFHxS)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluorononanoic acid (PFNA)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluorohexanoic acid (PFHxA)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
6:2 Fluorotelomer Sulfonate (6:2 FtS)	mg/kg	0.0005	<0.0005	<0.0005	-	ND	-
N-ethyl-perfluorooctanesulfonamidoacetic acid	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluorooctanesulfonamide (PFOSA)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluorotetradecanoic acid (PFTeDA)	mg/kg	0.0005	<0.0005	<0.0005	-	ND	-
Perfluorotridecanoic acid (PFTrDA)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluoroundecanoic acid (PFUnA)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	ND

Legend

ND = Not Detected (RPDs not calculated if both primary and duplicate results are below LOR)

- = Not analysed/calculated

Indicates RPD result does not meet the acceptable criteria

Acceptable RPDs: RPD <= 30%

RPD > 30%, Analyis result < 10 times LOR

RPD <= 50%, Analysis result > 10 times LOR and < 20 times LOR

GOLDER

DATA VALIDATION SUMMARY SHEET

Project Name:	**Sydney Metro West**	**Project Number:**	**1791865**
Primary Laboratory:	**ALS Sydney, ALS Newcastle (Asbestos)**	**Work order Number:**	**ES1918532**
Secondary Laboratory:	**SGS Alexandria**	**Work order Number:**	**SE194250**
Subcontractor Laboratory:	**-**	**Work order Number:**	**-**
Date Sampled:	**11/06/2019**	**Sample Medium:**	**Soil**

Sample Information

Number of Primary Samples:	**5**	**Number of Triplicate Samples:**	**2**
Number of Duplicate Samples:	**2**	**Number of Other QAQC Samples:**	**2**

Documentation and Sample Handling Information

	Y/N	Comments
COC completed properly?	Y	COC completed and signed by all staff (ALS & SGS).
All requested analysis completed?	Y	All requested analyses on the COC completed (ALS & SGS).
Samples received intact and chilled?	Y	ALS: 1.9'C, ice present. Security seal not available. SGS: 2.1'C, ice bricks present. Samples received in good order.
Samples analysed within appropriate holding times?	N	ALS: Holding time outliers exist. *Refer to overall comments.* SGS: All analyses carried out within required holding times
Sample volumes sufficient for QC analysis?	Y	Sufficient sample volumes were supplied for QC analysis (ALS & SGS)
Are there non-NATA accredited methods used?	Y	ALS: All methods used in this batch are NATA accredited. SGS are not NATA accredited for the analysis of Total OP Pesticides, although it is noted that the analysis of individual analytes are NATA accredited. *No further comment.*
Chromatograms supplied as appropriate?	N/A	N/A
Laboratory reports signed by authorised personnel?	Y	All laboratory reports signed by authorised personnel.

QAQC Sample Information (Method Blank - MB, Rinsate Blank - RB, Field Blank - FB, Trip Blank - TB)

Type	Sample ID	Comments
MB	Method Blank	All results were below the limit of reporting (LOR) (ALS & SGS).
TB	Trip Blank	All results were below the LOR (ALS).

Trip Spike Information

Analyte	Trip Spike Concentration	Control Spike Concentrations	% Recovery	Comments
Sample ID: Trip Spike				
Benzene	0.6	0.6	100%	Result is within DQOs (70%-130%).
Toluene	26.5	27.8	95%	Result is within DQOs (70%-130%).
Ethylbenzene	3.6	3.8	95%	Result is within DQOs (70%-130%).
meta- & para-Xylene	18.5	19.1	97%	Result is within DQOs (70%-130%).
ortho-Xylene	7.3	7.6	96%	Result is within DQOs (70%-130%).
Naphthalene	<1	<1	100%	Result is within DQOs (70%-130%).
C6-C9 Fraction	95	100	95%	Result is within DQOs (70%-130%).
C6-C10 Fraction	110	116	95%	Result is within DQOs (70%-130%).

Laboratory Control Spike (LCS) Analyses

Analyte Group	Comments
All	LCS recoveries were within laboratory based DQOs (ALS & SGS).

Matrix Spike (MS) Analyses

Analyte Group	Comments
Perfluoroalkyl Sulfonic Acids	ALS: The MS recovery for Perfluorooctane sulfonic acid (PFOS) for sample EB1915905--001 (anonymous) was not determined. *Refer to overall comments.*
Total Recoverable Elements (heavy metals)	SGS: The MS recovery for lead (56%) and zinc (40%) for sample SE194250.001 (QA502B) was outside laboratory based DQOs. *Refer to overall comments.*
TRH (Total Recoverable Hydrocarbons) in Soil	SGS: The MS recoveries for TRH C10-C14 (-370%), TRH C15-C28 (25%) and TRH >C10-C16 (-460%) for sample SE194338.001 (anonymous) were outside laboratory based DQOs. *Refer to overall comments.*
Volatile Petroleum Hydrocarbons in Soil	SGS: The MS recoveries for TRH C6-C10 minus BTEX (F1) (187%) for sample SE194338.001 (anonymous) were outside laboratory based DQOs. *Refer to overall comments.*
-	Remaining MS recoveries were within laboratory based DQOs (ALS & SGS).

Laboratory Duplicates (LD) Analyses

Analyte Group	Sample ID	Comments
Total Recoverable Elements (heavy metals)	SE194407.002 (anonymous)	SGS: LD RPD for arsenic (76%) was not within laboratory based DQOs. *Refer to overall comments.*
-	-	Remaining LD RPDs were within laboratory based DQOs (ALS & SGS).

Field Duplicates (FD) Analyses

Analyte Group	Primary ID	Duplicate ID	Comments
Heavy Metals	BH_MN11_0.25-0.35	QA502A	FD RPD recovery for nickel (46.15%) was lower than the project DQOs. *Refer to overall comments.*
All	BH_MN13_0.4-0.5	QA504A	FD RPD recoveries were within DQOs.

Field Triplicates (FT) Analyses

Analyte Group	Primary ID	Triplicate ID	Comments
All	BH_MN11_0.25-0.35	QA502B	FT RPD recoveries were within DQOs.
All	BH_MN13_0.4-0.5	QA504B	FT RPD recoveries were within DQOs.

Surrogate Compound Monitoring Analyses

Analyte Group	Analyte(s)	Comments
PFAS Surrogate	13C4-PFOS	ALS: The surrogate recovery for 13C4-PFOS for sample ES1918532-006 (QA502A) (37.5%) was less than the lower DQO limit (60-120%). *Refer to overall comments.*
VOC's and volatile petroleum hydrocarbons in Soil	Bromofluorobenzene (Surrogate)	SGS: The surrogate recovery for Bromofluorobenzene for samples SE194250.001 (QA502B) (53%) and SE194250.003 (QQA504B) (55%) were less than lower DQO limit (60-130%). *Refer to overall comments.*
-	-	Remaining surrogate recoveries were within laboratory based DQOs.

GOLDER

DATA VALIDATION SUMMARY SHEET

Project Name:	**Sydney Metro West**	**Project Number:**	**1791865**
Primary Laboratory:	**ALS Sydney, ALS Newcastle (Asbestos)**	**Work order Number:**	**ES1918532**
Secondary Laboratory:	**SGS Alexandria**	**Work order Number:**	**SE194250**
Subcontractor Laboratory:	**-**	**Work order Number:**	**-**
Date Sampled:	**11/06/2019**	**Sample Medium:**	**Soil**

Sample Information

Number of Primary Samples:	**5**	**Number of Triplicate Samples:**	**2**

Overall Comments

ALS: A 3 day holding time breach was reported for halogenated aliphatic and aromatic compounds, trihalomethanes, naphthalene, TPHs/TRHs and BTEXN for primary and trip blank/spike samples. This is not expected to affect the validity of this batch as breach is considered marginal, relevant other QC results were within DQOs and samples were stored on ice in transit and were refrigerated at the lab.

ALS: MS recovery for Perfluorooctane sulfonic acid (PFOS) for sample EB1915905--001 (anonymous) was not determined. As stated by ALS, "MS recovery not determined, background level greater than or equal to 4x spike level". This is not expected to affect the validity of this data set as the samples are anonymous and hence not representative of the project matrix.

SGS: MS recoveries for lead (56%) and zinc (40%) for sample SE194250.001 (QA502B) was outside laboratory based DQOs. As stated by SGS "Recovery failed acceptance criteria due to matrix interference. This exceedance is likely due to sample heterogeneity in soils (as the sample was collected in fill material). As a conservative measure the highest concentration will be adopted for reporting purposes.

SGS: MS recoveries for TPH C10-C14 (-370%), TRH C15-C28 (25%) and TRH >C10-C16 (-460%) for sample SE194338.001 (anonymous) were outside laboratory based DQOs. As stated by SGS "Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).This exceedance is likely due to sample heterogeneity in soils (as the sample was collected in fill material). As a conservative measure the highest concentration will be adopted for reporting purposes.

SGS: MS recovery for TRH C6-C10 minus BTEX (F1) (187%) for sample SE194338.001 (anonymous) was outside laboratory based DQOs. As stated by SGS "As stated by SGS "Recovery failed acceptance criteria due to matrix interference. This exceedance is likely due to sample heterogeneity in soils (as the sample was collected in fill material). As a conservative measure the highest concentration will be adopted for reporting purposes.

SGS: LD RPD for arsenic (76%) for sample SE194407.002 (anonymous) is not within laboratory-based control limits. As stated by SGS "RPD failed acceptance criteria due to sample heterogeneity". This is not expected to affect the validity of this data set as the samples are anonymous and hence not representative of the project matrix.

FD RPD for nickel (46.15%) for sample QA502A are not within laboratory-based DQOs. This exceedance is likely due to sample heterogeneity in soils (as the sample was collected in fill material). As a conservative measure the highest concentration will be adopted for reporting purposes.

ALS: The surrogate recovery for recovery for 13C4-PFOS for sample ES1918532-006 (QA502A) (37.5%) was less than lower DQO limit (60-120%), indicating the potential for under reporting. The results of PFAS analysis from this sample were lower than the LOR for each PFAS analyte. This is considered not to affect the validity of the dataset as concentrations are lower than the LOR and the assessment criteria, in addition other QA/QC checks for PFAS are acceptable.

SGS: The surrogate recoveries for Bromofluorobenzene (Surrogate) for samples SE194250.001 (QA502B) (53%), SE194250.003 (QQA504B) (55%) were less than lower DQOs (60-120%) indicating the potential for under reporting. This is not expected to affect the integrity of the dataset as the exceedances are minor (5-7%).

This batch has been validated and is considered suitable for environmental interpretive use.

Note: Data validation assesses each analyte in terms of all the data validation variables and only the exceedances and outliers are reported in this form.

*When concentrations are less than the LOR for both primary and duplicate/triplicate results, no RPDs are calculated

Performed By:	**Bianca Underwood**	**Checked By:**	**Barry Houston**
Date:	**11/07/2019**	**Date:**	**30/07/2019**

Sydney Metro West Marrickville
Duplicate Analysis RPDs
Project Number: 1791865
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	Sample ID	BH_MN11_0.25-0.35	QA502A	QA502B		
	Sample Type	Primary	Field Duplicate	Field Triplicate		
	Date Sampled	11/06/2019	11/06/2019	11/06/2019		
Analyte	**Units**	**LOR**				**RPDs Primary vs Duplicate**	**RPDs Primary vs Triplicate**
TRH - HSL							
TRH C6 - C10 Fraction F1	mg/kg	10	<10	<10	<25	ND	ND
TRH C6 - C10 Fraction Less BTEX F1	mg/kg	10	<10	<10	<25	ND	ND
TRH >C10 - C16 Fraction F2	mg/kg	50	<50	<50	<25	ND	ND
TRH >C10 - C16 Fraction Less Naphthalene (F2)	mg/kg	50	<50	<50	<25	ND	ND
TRH >C16 - C34 Fraction F3	mg/kg	100	<100	<100	<90	ND	ND
TRH >C34 - C40 Fraction F4	mg/kg	100	<100	<100	<120	ND	ND
TRH+C10 - C40 (Sum of total) (Lab Reported)	mg/kg	50	<50	<50	<210	ND	ND
TPH Group							
TRH C6 - C9 Fraction	mg/kg	10	<10	<10	<20	ND	ND
TRH C10 - C14 Fraction	mg/kg	50	<50	<50	<20	ND	ND
TRH C15 - C28 Fraction	mg/kg	100	<100	<100	<45	ND	ND
TRH C29 - C36 Fraction	mg/kg	100	<100	<100	<45	ND	ND
TRH+C10 - C36 (Sum of total) (Lab Reported)	mg/kg	50	<50	<50	<110	ND	ND
BTEX							
Benzene	mg/kg	0.2	<0.2	<0.2	<0.1	ND	ND
Toluene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
Ethylbenzene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
Xylenes (m & p)	mg/kg	0.5	<0.5	<0.5	<0.2	ND	ND
Xylene (o)	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
Xylenes (Sum of total) (Lab Reported)	mg/kg	0.5	<0.5	<0.5	<0.3	ND	ND
Total BTEX	mg/kg	0.2	<0.2	<0.2	<0.6	ND	ND
Heavy Metals							
Arsenic	mg/kg	5	7	9	7	25.00%	0.00%
Cadmium	mg/kg	1	<1	<1	<0.3	ND	ND
Chromium	mg/kg	2	26	36	19	32.26%	31.11%
Copper	mg/kg	5	26	36	30	32.26%	14.29%
Lead	mg/kg	5	92	93	83	1.08%	10.29%
Mercury	mg/kg	0.1	0.1	0.2	0.1	66.67%	0.00%
Nickel	mg/kg	2	30	48	38	**46.15%**	23.53%
Zinc	mg/kg	5	130	108	110	18.49%	16.67%
Organochlorine Pesticides							
a-BHC	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
Aldrin	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
Dieldrin	mg/kg	0.05	0.16	0.15	<0.2	6.45%	ND
Aldrin & Dieldrin (Sum of total) (Lab Reported)	mg/kg	0.05	0.16	0.15	-	6.45%	-
b-BHC	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
cis-Chlordane	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
trans-Chlordane	mg/kg	0.05	<0.05	<0.05	-	ND	-
Chlordane (Sum of total)	mg/kg	0.05	<0.05	<0.05	-	ND	-
d-BHC	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
DDD	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
DDE	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
DDT	mg/kg	0.2	<0.2	<0.2	<0.1	ND	ND
DDT+DDE+DDD (Sum of total) (Lab Reported)	mg/kg	0.05	<0.05	<0.05	-	ND	-
Endosulfan	mg/kg	0.05	<0.05	<0.05	-	ND	-
Endosulfan I	mg/kg	0.05	<0.05	<0.05	<0.2	ND	ND
Endosulfan II	mg/kg	0.05	<0.05	<0.05	<0.2	ND	ND
Endosulfan sulphate	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
Endrin	mg/kg	0.05	<0.05	<0.05	<0.2	ND	ND
Endrin aldehyde	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
Endrin ketone	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
g-BHC	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
Heptachlor	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
Heptachlor epoxide	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
Hexachlorobenzene	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
Methoxychlor	mg/kg	0.2	<0.2	<0.2	<0.1	ND	ND
Organophosphorous Pesticides							
Azinphos-methyl	mg/kg	0.05	<0.05	<0.05	<0.2	ND	ND
Bromophos-ethyl	mg/kg	0.05	<0.05	<0.05	<0.2	ND	ND
Carbophenothion	mg/kg	0.05	<0.05	<0.05	-	ND	-
Chlorfenvinphos	mg/kg	0.05	<0.05	<0.05	-	ND	-
Chlorpyriphos	mg/kg	0.05	<0.05	<0.05	<0.2	ND	ND
Chlorpyriphos-methyl	mg/kg	0.05	<0.05	<0.05	-	ND	-
Demeton-s-methyl	mg/kg	0.05	<0.05	<0.05	-	ND	-
Diazinon	mg/kg	0.05	<0.05	<0.05	<0.5	ND	ND
Dichlorvos	mg/kg	0.05	<0.05	<0.05	<0.5	ND	ND
Dimethoate	mg/kg	0.05	<0.05	<0.05	<0.5	ND	ND
Ethion	mg/kg	0.05	<0.05	<0.05	<0.2	ND	ND
Fenamiphos	mg/kg	0.05	<0.05	<0.05	-	ND	-
Fenthion	mg/kg	0.05	<0.05	<0.05	-	ND	-
Malathion	mg/kg	0.05	<0.05	<0.05	<0.2	ND	ND
Parathion-methyl	mg/kg	0.2	<0.2	<0.2	-	ND	-
Monocrotophos	mg/kg	0.2	<0.2	<0.2	-	ND	-
Parathion	mg/kg	0.2	<0.2	<0.2	<0.2	ND	ND
Pirimphos-ethyl	mg/kg	0.05	<0.05	<0.05	-	ND	-
Prothiofos	mg/kg	0.05	<0.05	<0.05	-	ND	-
PAH							
Acenaphthene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
Acenaphthylene	mg/kg	0.5	<0.5	<0.5	0.2	ND	85.71%
Anthracene	mg/kg	0.5	<0.5	<0.5	0.4	ND	22.22%
Benz(a)anthracene	mg/kg	0.5	0.6	0.9	0.8	40.00%	28.57%
Benzo(a)pyrene	mg/kg	0.5	0.6	1	0.9	50.00%	40.00%
Benzo(b)&(j)fluoranthene	mg/kg	0.5	0.7	1.2	0.8	52.63%	13.33%
Benzo(g,h,i)perylene	mg/kg	0.5	<0.5	0.6	0.4	18.18%	22.22%
Benzo(k)fluoranthene	mg/kg	0.5	<0.5	<0.5	0.4	ND	22.22%
Chrysene	mg/kg	0.5	0.6	0.9	0.8	40.00%	28.57%
Dibenz(a,h)anthracene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
Fluoranthene	mg/kg	0.5	1.3	1.8	2	32.26%	42.42%
Fluorene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
Indeno(1,2,3-c,d)pyrene	mg/kg	0.5	<0.5	<0.5	0.7	ND	ND
Naphthalene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
Phenanthrene	mg/kg	0.5	0.7	0.9	1.4	25.00%	66.67%
Pyrene	mg/kg	0.5	1.2	1.7	2.1	34.48%	54.55%
Phenols							
Phenolics (Sum of total)	mg/kg	1	<1	<1	-	ND	-
Polychlorinated Biphenyls							
PCB (Sum of Total-Lab Reported)	mg/kg	0.1	<0.1	<0.1	-	ND	-
Volatile Organic Compounds							
1,4-Dichlorobenzene	mg/kg	0.5	<0.5	<0.5	-	ND	-
4-Chlorotoluene	mg/kg	0.5	<0.5	<0.5	-	ND	-

1,2,3-Trichlorobenzene	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,2,4-Trichlorobenzene	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,2-Dichlorobenzene	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,3-Dichlorobenzene	mg/kg	0.5	<0.5	<0.5	-	ND	-
2-Chlorotoluene	mg/kg	0.5	<0.5	<0.5	-	ND	-
Bromobenzene	mg/kg	0.5	<0.5	<0.5	-	ND	-
Chlorobenzene	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,2,4-trimethylbenzene	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,3,5-Trimethylbenzene	mg/kg	0.5	<0.5	<0.5	-	ND	-
Isopropylbenzene	mg/kg	0.5	<0.5	<0.5	-	ND	-
n-Butylbenzene	mg/kg	0.5	<0.5	<0.5	-	ND	-
n-Propylbenzene	mg/kg	0.5	<0.5	<0.5	-	ND	-
p-Isopropyltoluene	mg/kg	0.5	<0.5	<0.5	-	ND	-
sec-Butylbenzene	mg/kg	0.5	<0.5	<0.5	-	ND	-
Styrene	mg/kg	0.5	<0.5	<0.5	-	ND	-
tert-Butylbenzene	mg/kg	0.5	<0.5	<0.5	-	ND	-
Methyl Ethyl Ketone	mg/kg	5	<5	<5	-	ND	-
2-Hexanone	mg/kg	5	<5	<5	-	ND	-
Methyl iso-butyl ketone	mg/kg	5	<5	<5	-	ND	-
Vinyl acetate	mg/kg	5	<5	<5	-	ND	-
1,1,1,2-Tetrachloroethane	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,1,2,2-Tetrachloroethane	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,1,1-Trichloroethane	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,1,2-Trichloroethane	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,2,3-Trichloropropane	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,2-Dibromo-3-chloropropane	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,2-Dibromoethane	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,1-Dichloroethane	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,2-Dichloroethane	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,1-Dichloroethene	mg/kg	0.5	<0.5	<0.5	-	ND	-
cis-1,2-Dichloroethene	mg/kg	0.5	<0.5	<0.5	-	ND	-
trans-1,2-dichloroethene	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,2-Dichloropropane	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,3-Dichloropropane	mg/kg	0.5	<0.5	<0.5	-	ND	-
2,2-Dichloropropane	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,1-Dichloropropene	mg/kg	0.5	<0.5	<0.5	-	ND	-
cis-1,3-Dichloropropene	mg/kg	0.5	<0.5	<0.5	-	ND	-
trans-1,3-dichloropropene	mg/kg	0.5	<0.5	<0.5	-	ND	-
cis-1,4-Dichloro-2-butene	mg/kg	0.5	<0.5	<0.5	-	ND	-
trans-1,4-Dichloro-2-butene	mg/kg	0.5	<0.5	<0.5	-	ND	-
Bromodichloromethane	mg/kg	0.5	<0.5	<0.5	-	ND	-
Bromoform	mg/kg	0.5	<0.5	<0.5	-	ND	-
Bromomethane	mg/kg	5	<5	<5	-	ND	-
Carbon disulfide	mg/kg	0.5	<0.5	<0.5	-	ND	-
Carbon tetrachloride	mg/kg	0.5	<0.5	<0.5	-	ND	-
Chlorodibromomethane	mg/kg	0.5	<0.5	<0.5	-	ND	-
Chloroethane	mg/kg	5	<5	<5	-	ND	-
Chloroform	mg/kg	0.5	<0.5	<0.5	-	ND	-
Chloromethane	mg/kg	5	<5	<5	-	ND	-
Dibromomethane	mg/kg	0.5	<0.5	<0.5	-	ND	-
Dichlorodifluoromethane	mg/kg	5	<5	<5	-	ND	-
Hexachlorobutadiene	mg/kg	0.5	<0.5	<0.5	-	ND	-
Iodomethane	mg/kg	0.5	<0.5	<0.5	-	ND	-
Pentachloroethane	mg/kg	0.5	<0.5	<0.5	-	ND	-
Trichloroethene	mg/kg	0.5	<0.5	<0.5	-	ND	-
Tetrachloroethene	mg/kg	0.5	<0.5	<0.5	-	ND	-
Trichlorofluoromethane	mg/kg	5	<5	<5	-	ND	-
Vinyl chloride	mg/kg	5	<5	<5	-	ND	-
Perfluorinated Compounds							
10:2 Fluorotelomer sulfonic acid	mg/kg	0.0005	<0.0005	<0.0005	-	ND	-
4:2 Fluorotelomer sulfonic acid	mg/kg	0.0005	<0.0005	<0.0005	-	ND	-
8:2 Fluorotelomer sulfonate	mg/kg	0.0005	<0.0005	<0.0005	-	ND	-
N-Et-FOSA	mg/kg	0.0005	<0.0005	<0.0005	-	ND	-
N-Et-FOSE	mg/kg	0.0005	<0.0005	<0.0005	-	ND	-
N-Me-FOSA	mg/kg	0.0005	<0.0005	<0.0005	-	ND	-
N-Me-FOSE	mg/kg	0.0005	<0.0005	<0.0005	-	ND	-
Perfluorobutanoic acid (PFBA)	mg/kg	0.001	<0.001	<0.001	-	ND	-
Perfluoroheptane sulfonic acid	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluoro-n-pentanoic acid (PFPeA)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluoropentane sulfonic acid	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
PFDcS	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
N-methyl-perfluorooctanesulfonamidoacetic acid	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Sum of PFHxS and PFOS (lab reported)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Sum of WA DER PFAS (n=10)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Sum of PFASs (n=28)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluorobutanesulfonic acid (PFBS)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluorodecanoic acid (PFDA)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluorododecanoic acid (PFDoA)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluoroheptanoic acid (PFHpA)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluorooctanesulfonic acid (PFOS)3	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluorooctanoate (PFOA)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluorohexanesulfonic acid (PFHxS)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluorononanoic acid (PFNA)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluorohexanoic acid (PFHxA)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
6:2 Fluorotelomer Sulfonate (6:2 FtS)	mg/kg	0.0005	<0.0005	<0.0005	-	ND	-
N-ethyl-perfluorooctanesulfonamidoacetic acid	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluorooctanesulfonamide (PFOSA)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluorotetradecanoic acid (PFTeDA)	mg/kg	0.0005	<0.0005	<0.0005	-	ND	-
Perfluorotridecanoic acid (PFTrDA)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluoroundecanoic acid (PFUnA)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-

Legend

ND = Not Detected (RPDs not calculated if both primary and duplicate results are below LOR)

- = Not analysed/calculated

Indicates RPD result does not meet the acceptable criteria

Acceptable RPDs: RPD <= 30%

RPD > 30%, Analyis result < 10 times LOR

RPD <= 50%, Analysis result > 10 times LOR and < 20 times LOR

Sydney Metro West Marrickville

Duplicate Analysis RPDs
Project Number: 1791865
Batche/s:ES1918532 & SE194250

Sample ID	BH_MN13/0.4-0.5	QA504A	QA504B		
Sample Type	Primary	Field Duplicate	Field Triplicate		
Date Sampled	11/06/2019	11/06/2019	11/06/2019		
				RPDs	RPDs
Analyte	**Units**	**LOR**				**Primary vs Duplicate**	**Primary vs Triplicate**
TRH - HSL							
TRH C6 - C10 Fraction F1	mg/kg	10	<10	<10	<25	ND	ND
TRH C6 - C10 Fraction Less BTEX F1	mg/kg	10	<10	<10	<25	ND	ND
TRH >C10 - C16 Fraction F2	mg/kg	50	<50	<50	<25	ND	ND
TRH >C10 - C16 Fraction Less Naphthalene (F2)	mg/kg	50	<50	<50	<25	ND	ND
TRH >C16 - C34 Fraction F3	mg/kg	100	<100	<100	<90	ND	ND
TRH >C34 - C40 Fraction F4	mg/kg	100	<100	<100	<120	ND	ND
TRH+C10 - C40 (Sum of total) (Lab Reported)	mg/kg	50	<50	<50	<210	ND	ND
TPH Group							
TRH C6 - C9 Fraction	mg/kg	10	<10	<10	<20	ND	ND
TRH C10 - C14 Fraction	mg/kg	50	<50	<50	<20	ND	ND
TRH C15 - C28 Fraction	mg/kg	100	<100	<100	<45	ND	ND
TRH C29 - C36 Fraction	mg/kg	100	<100	<100	<45	ND	ND
TRH+C10 - C36 (Sum of total) (Lab Reported)	mg/kg	50	<50	<50	<110	ND	ND
BTEX							
Benzene	mg/kg	0.2	<0.2	<0.2	<0.1	ND	ND
Toluene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
Ethylbenzene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
Xylenes (m & p)	mg/kg	0.5	<0.5	<0.5	<0.2	ND	ND
Xylene (o)	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
Xylenes (Sum of total) (Lab Reported)	mg/kg	0.5	<0.5	<0.5	<0.3	ND	ND
Total BTEX	mg/kg	0.2	<0.2	<0.2	<0.6	ND	ND
Heavy Metals							
Arsenic	mg/kg	5	6	9	8	40.00%	28.57%
Cadmium	mg/kg	1	<1	<1	<0.3	ND	ND
Chromium	mg/kg	2	19	29	26	41.67%	31.11%
Copper	mg/kg	5	12	12	4.5	0.00%	90.91%
Lead	mg/kg	5	31	32	19	3.17%	48.00%
Mercury	mg/kg	0.1	<0.1	<0.1	<0.05	ND	ND
Nickel	mg/kg	2	4	4	1.6	0.00%	85.71%
Zinc	mg/kg	5	45	42	22	6.90%	68.66%
Organochlorine Pesticides							
a-BHC	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
Aldrin	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
Dieldrin	mg/kg	0.05	<0.05	<0.05	<0.2	ND	ND
Aldrin & Dieldrin (Sum of total) (Lab Reported)	mg/kg	0.05	<0.05	<0.05	-	ND	-
b-BHC	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
cis-Chlordane	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
trans-Chlordane	mg/kg	0.05	<0.05	<0.05	-	ND	-
Chlordane (Sum of total)	mg/kg	0.05	<0.05	<0.05	-	ND	-
d-BHC	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
DDD	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
DDE	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
DDT	mg/kg	0.2	<0.2	<0.2	<0.1	ND	ND
DDT+DDE+DDD (Sum of total) (Lab Reported)	mg/kg	0.05	<0.05	<0.05	-	ND	-
Endosulfan	mg/kg	0.05	<0.05	<0.05	-	ND	-
Endosulfan I	mg/kg	0.05	<0.05	<0.05	<0.2	ND	ND
Endosulfan II	mg/kg	0.05	<0.05	<0.05	<0.2	ND	ND
Endosulfan sulphate	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
Endrin	mg/kg	0.05	<0.05	<0.05	<0.2	ND	ND
Endrin aldehyde	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
Endrin ketone	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
g-BHC	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
Heptachlor	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
Heptachlor epoxide	mg/kg	0.05	<0.05	<0.05	<0.1		ND
Hexachlorobenzene	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
Methoxychlor	mg/kg	0.2	<0.2	<0.2	<0.1	ND	ND
Organophosphorous Pesticides							
Azinphos-methyl	mg/kg	0.05	<0.05	<0.05	<0.2	ND	ND
Bromophos-ethyl	mg/kg	0.05	<0.05	<0.05	<0.2	ND	ND
Carbophenothion	mg/kg	0.05	<0.05	<0.05	-	ND	-
Chlorfenvinphos	mg/kg	0.05	<0.05	<0.05	-	ND	-
Chlorpyriphos	mg/kg	0.05	<0.05	<0.05	<0.2	ND	ND
Chlorpyriphos-methyl	mg/kg	0.05	<0.05	<0.05	-	ND	-
Demeton-s-methyl	mg/kg	0.05	<0.05	<0.05	-	ND	-
Diazinon	mg/kg	0.05	<0.05	<0.05	<0.5	ND	ND
Dichlorvos	mg/kg	0.05	<0.05	<0.05	<0.5	ND	ND
Dimethoate	mg/kg	0.05	<0.05	<0.05	<0.5	ND	ND
Ethion	mg/kg	0.05	<0.05	<0.05	<0.2	ND	ND
Fenamiphos	mg/kg	0.05	<0.05	<0.05	-	ND	-
Fenthion	mg/kg	0.05	<0.05	<0.05	-	ND	-
Malathion	mg/kg	0.05	<0.05	<0.05	<0.2		ND
Parathion-methyl	mg/kg	0.2	<0.2	<0.2	-	ND	-
Monocrotophos	mg/kg	0.2	<0.2	<0.2	-	ND	-
Parathion	mg/kg	0.2	<0.2	<0.2	<0.2	ND	ND
Pirimphos-ethyl	mg/kg	0.05	<0.05	<0.05	-	ND	-
Prothiofos	mg/kg	0.05	<0.05	<0.05	-	ND	-
PAH							
Acenaphthene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
Acenaphthylene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
Anthracene	mg/kg	0.5	0.6	<0.5	<0.1	18.18%	142.86%
Benz(a)anthracene	mg/kg	0.5	2	0.6	0.2	107.69%	163.64%
Benzo(a)pyrene	mg/kg	0.5	2.1	0.6	0.2	111.11%	ND
Benzo(b)&(j)fluoranthene	mg/kg	0.5	2.5	0.7	0.3	112.50%	157.14%
Benzo(g,h,i)perylene	mg/kg	0.5	1.2	<0.5	0.2	82.35%	142.86%
Benzo(k)fluoranthene	mg/kg	0.5	1.1	<0.5	0.2	75.00%	138.46%
Chrysene	mg/kg	0.5	1.8	0.5	0.2	113.04%	160.00%
Dibenz(a,h)anthracene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
Fluoranthene	mg/kg	0.5	4.3	1.2	0.5	112.73%	158.33%
Fluorene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
Indeno(1,2,3-c,d)pyrene	mg/kg	0.5	1	<0.5	0.2	66.67%	133.33%
Naphthalene	mg/kg	0.5	<0.5	<0.5	<0.1	ND	ND
Phenanthrene	mg/kg	0.5	2.6	0.7	0.2	115.15%	171.43%
Pyrene	mg/kg	0.5	4	1.1	0.6	113.73%	147.83%
PAH (Sum of Common 16 PAHs - Lab Reported)	mg/kg	0.5	23.2	5.4	2.8	124.48%	156.92%
Phenols							
Phenolics (Sum of total)	mg/kg	1	<1	<1	-	ND	-
Polychlorinated Biphenyls							
PCB (Sum of Total-Lab Reported)	mg/kg	0.1	<0.1	<0.1	-	ND	-
Volatile Organic Compounds							

1,4-Dichlorobenzene	mg/kg	0.5	<0.5	<0.5	-	ND	-
4-Chlorotoluene	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,2,3-Trichlorobenzene	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,2,4-Trichlorobenzene	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,2-Dichlorobenzene	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,3-Dichlorobenzene	mg/kg	0.5	<0.5	<0.5	-	ND	-
2-Chlorotoluene	mg/kg	0.5	<0.5	<0.5	-	ND	-
Bromobenzene	mg/kg	0.5	<0.5	<0.5	-	ND	-
Chlorobenzene	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,2,4-trimethylbenzene	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,3,5-Trimethylbenzene	mg/kg	0.5	<0.5	<0.5	-	ND	-
Isopropylbenzene	mg/kg	0.5	<0.5	<0.5	-	ND	-
n-Butylbenzene	mg/kg	0.5	<0.5	<0.5	-	ND	-
n-Propylbenzene	mg/kg	0.5	<0.5	<0.5	-	ND	-
p-Isopropyltoluene	mg/kg	0.5	<0.5	<0.5	-	ND	-
sec-Butylbenzene	mg/kg	0.5	<0.5	<0.5	-	ND	-
Styrene	mg/kg	0.5	<0.5	<0.5	-	ND	-
tert-Butylbenzene	mg/kg	0.5	<0.5	<0.5	-	ND	-
Methyl Ethyl Ketone	mg/kg	5	<5	<5	-	ND	-
2-Hexanone	mg/kg	5	<5	<5	-	ND	-
Methyl iso-butyl ketone	mg/kg	5	<5	<5	-	ND	-
Vinyl acetate	mg/kg	5	<5	<5	-	ND	-
1,1,1,2-Tetrachloroethane	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,1,2,2-Tetrachloroethane	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,1,1-Trichloroethane	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,1,2-Trichloroethane	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,2,3-Trichloropropane	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,2-Dibromo-3-chloropropane	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,2-Dibromoethane	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,1-Dichloroethane	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,2-Dichloroethane	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,1-Dichloroethene	mg/kg	0.5	<0.5	<0.5	-	ND	-
cis-1,2-Dichloroethene	mg/kg	0.5	<0.5	<0.5	-	ND	-
trans-1,2-dichloroethene	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,2-Dichloropropane	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,3-Dichloropropane	mg/kg	0.5	<0.5	<0.5	-	ND	-
2,2-Dichloropropane	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,1-Dichloropropene	mg/kg	0.5	<0.5	<0.5	-	ND	-
cis-1,3-Dichloropropene	mg/kg	0.5	<0.5	<0.5	-	ND	-
trans-1,3-dichloropropene	mg/kg	0.5	<0.5	<0.5	-	ND	-
cis-1,4-Dichloro-2-butene	mg/kg	0.5	<0.5	<0.5	-	ND	-
trans-1,4-Dichloro-2-butene	mg/kg	0.5	<0.5	<0.5	-	ND	-
Bromodichloromethane	mg/kg	0.5	<0.5	<0.5	-	ND	-
Bromoform	mg/kg	0.5	<0.5	<0.5	-	ND	-
Bromomethane	mg/kg	5	<5	<5	-	ND	-
Carbon disulfide	mg/kg	0.5	<0.5	<0.5	-	ND	-
Carbon tetrachloride	mg/kg	0.5	<0.5	<0.5	-	ND	-
Chlorodibromomethane	mg/kg	0.5	<0.5	<0.5	-	ND	-
Chloroethane	mg/kg	5	<5	<5	-	ND	-
Chloroform	mg/kg	0.5	<0.5	<0.5	-	ND	-
Chloromethane	mg/kg	5	<5	<5	-	ND	-
Dibromomethane	mg/kg	0.5	<0.5	<0.5	-	ND	-
Dichlorodifluoromethane	mg/kg	5	<5	<5	-	ND	-
Hexachlorobutadiene	mg/kg	0.5	<0.5	<0.5	-	ND	-
Iodomethane	mg/kg	0.5	<0.5	<0.5	-	ND	-
Pentachloroethane	mg/kg	0.5	<0.5	<0.5	-	ND	-
Trichloroethene	mg/kg	0.5	<0.5	<0.5	-	ND	-
Tetrachloroethene	mg/kg	0.5	<0.5	<0.5	-	ND	-
Trichlorofluoromethane	mg/kg	5	<5	<5	-	ND	-
Vinyl chloride	mg/kg	5	<5	<5	-	ND	-
Perfluorinated Compounds							
10:2 Fluorotelomer sulfonic acid	mg/kg	0.0005	<0.0005	<0.0005	-	ND	-
4:2 Fluorotelomer sulfonic acid	mg/kg	0.0005	<0.0005	<0.0005	-	ND	-
8:2 Fluorotelomer sulfonate	mg/kg	0.0005	<0.0005	<0.0005	-	ND	-
N-Et-FOSA	mg/kg	0.0005	<0.0005	<0.0005	-	ND	-
N-Et-FOSE	mg/kg	0.0005	<0.0005	<0.0005	-	ND	-
N-Me-FOSA	mg/kg	0.0005	<0.0005	<0.0005	-	ND	-
N-Me-FOSE	mg/kg	0.0005	<0.0005	<0.0005	-	ND	-
Perfluorobutanoic acid (PFBA)	mg/kg	0.001	<0.001	<0.001	-	ND	-
Perfluoroheptane sulfonic acid	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluoro-n-pentanoic acid (PFPeA)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluoropentane sulfonic acid	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
PFDcS	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
N-methyl-perfluorooctanesulfonamidoacetic acid	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Sum of PFHxS and PFOS (lab reported)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Sum of WA DER PFAS (n=10)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Sum of PFASs (n=28)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluorobutanesulfonic acid (PFBS)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluorodecanoic acid (PFDA)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluorododecanoic acid (PFDoA)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluoroheptanoic acid (PFHpA)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluorooctanesulfonic acid (PFOS)3	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluorooctanoate (PFOA)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluorohexanesulfonic acid (PFHxS)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluorononanoic acid (PFNA)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluorohexanoic acid (PFHxA)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
6:2 Fluorotelomer Sulfonate (6:2 FtS)	mg/kg	0.0005	<0.0005	<0.0005	-	ND	-
N-ethyl-perfluorooctanesulfonamidoacetic acid	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluorooctanesulfonamide (PFOSA)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluorotetradecanoic acid (PFTeDA)	mg/kg	0.0005	<0.0005	<0.0005	-	ND	-
Perfluorotridecanoic acid (PFTrDA)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluoroundecanoic acid (PFUnA)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-

Legend

ND = Not Detected (RPDs not calculated if both primary and duplicate results are below LOR)

- = Not analysed/calculated

Indicates RPD result does not meet the acceptable criteria

Acceptable RPDs: RPD <= 30%

RPD > 30%, Analyis result < 10 times LOR

RPD <= 50%, Analysis result > 10 times LOR and < 20 times LOR

GOLDER

DATA VALIDATION SUMMARY SHEET

Project Name:	**Sydney Metro West**	**Project Number:**	**1791865**
Primary Laboratory:	**ALS Sydney**	**Work order Number:**	**ES1920095**
Secondary Laboratory:	**SGS Alexandria**	**Work order Number:**	**SE194568**
Date Sampled:	**23/06/2019**	**Sample Medium:**	**Soil**

Sample Information

Number of Primary Samples:	**13**	**Number of Triplicate Samples:**	**3**
Number of Duplicate Samples:	**3**	**Number of Other QAQC Samples:**	**4**

Documentation and Sample Handling Information

	Y/N	Comments
COC completed properly?	Y	COC completed and signed by all staff (ALS & SGS).
All requested analysis completed?	Y	All requested analyses on the COC completed (ALS & SGS).
Samples received intact and chilled?	Y	ALS: 1'C, ice present. Security seal not available. SGS: 9.3'C, ice bricks present. Samples received in good order.
Samples analysed within appropriate holding times?	N	ALS: Analysis for several analytes in several samples exceeded holding times by 3-4 days. *Refer to overall comments.* SGS: All analyses carried out within required holding times
Sample volumes sufficient for QC analysis?	N	ALS: QC sample volume outliers exist. *Refer to overall comments.* SGS: Sufficient sample volumes were supplied for QC analysis.
Are there non-NATA accredited methods used?	Y	ALS: All methods used in this batch are NATA accredited. SGS: SGS are not NATA accredited for the analysis of Total OP Pesticides, although it is noted that the analysis of individual analytes are NATA accredited. *No further comment*.
Chromatograms supplied as appropriate?	N/A	N/A
Laboratory reports signed by authorised personnel?	Y	All laboratory reports signed by authorised personnel.

QAQC Sample Information (Method Blank - MB, Rinsate Blank - RB, Field Blank - FB, Trip Blank - TB)

Type	Sample ID	Comments
MB	Method Blank	All results were below the limit of reporting (LOR) (ALS & SGS).
TB	Trip Blank	All results were below the LOR (ALS).
RB	R_BH_MW02	All results were below the LOR (ALS).
RB	RB_VW_MN03	All results were below the LOR (ALS).

Trip Spike Information

Analyte	Trip Spike Concentration	Control Spike Concentrations	% Recovery	Comments
Sample ID: TS 4				
Benzene	0.5	0.6	83%	Result is within DQOs (70%-130%).
Toluene	22.9	25.3	91%	Result is within DQOs (70%-130%).
Ethylbenzene	3.2	3.5	91%	Result is within DQOs (70%-130%).
meta- & para-Xylene	15.7	17	92%	Result is within DQOs (70%-130%).
ortho-Xylene	6.2	6.7	93%	Result is within DQOs (70%-130%).
Xylenes (total)	21.9	23.7	92%	Result is within DQOs (70%-130%).
Sum of BTEX	48.5	53.1	91%	Result is within DQOs (70%-130%).
Naphthalene	<1	<1	100%	Result is within DQOs (70%-130%).

Laboratory Control Spike (LCS) Analyses

Analyte Group	Comments
Fumigants (Rinsate - water)	ALS: LCS recovery for 1.2-Dibromoethane (121%) for sample QC-2445755-002 (anonymous) was outside laboratory based DQOs. *Refer to overall comments.*
Halogenated Aliphatic Compounds (Rinsate - water)	ALS: LCS recoveries of Tetrachloroethene (125%) and Pentachloroethane (71.5%) for sample QC-2445755-002 (anonymous) was outside laboratory based DQOs. *Refer to overall comments.*
	Remaining LCS recoveries were within laboratory based DQOs (ALS & SGS).

Matrix Spike (MS) Analyses

Analyte Group	Comments
All	MS recoveries were within laboratory based DQOs (ALS & SGS).

Laboratory Duplicates (LD) Analyses

Analyte Group	Sample ID	Comments
Total Recoverable Elements (heavy metals)	ES1920095--014 (BH_VMN03_0.4-0.5)	ALS: LD RPD for lead (74.2%) exceeded the laboratory based DQO limit. *Refer to overall comments.*
-	-	Remaining LD RPDs were within laboratory based DQOs (ALS & SGS).

Field Duplicates (FD) Analyses

Analyte Group	Primary ID	Duplicate ID	Comments
Heavy Metals	BH_MN06_0.9-1	QA506A	FD RPD recoveries for chromium (36.36%), lead (53.06%) and nickel (120%) were not within the project DQOs. Refer to overall comments.
Heavy Metals	BH_VMN03_0.9-1	QA507A	FD RPD recoveries for arsenic (92.31%), chromium (80.85%), copper (138.46%), lead (78.67%), nickel (149.37%) and zinc (113.13%) were not within the project DQOs. *Refer to overall comments.*
Heavy Metals	BH_MN13_0.9-1.2	QA508A	FD RPD recoveries for copper (80%), lead (69.47%) and zinc (115.38%) were not within the project DQOs. Refer to overall comments.
PAH	BH_MN13_0.9-1.2	QA508A	FD RPD recoveries for Benzo(b)&(j)fluoranthene (100%), Fluoranthene (104.76%) and Pyrene (104.76%) were not within the project DQOs. Refer to overall comments.
-	-	-	Remaining FD RPD recoveries were within the DQOs.

Field Triplicates (FT) Analyses

Analyte Group	Primary ID	Triplicate ID	Comments
Heavy Metals	BH_MN06_0.9-1	QA506B	FT RPD recoveries for chromium (88.89%), lead (117.95%) and nickel (172.09%) were not within the project DQOs. Refer to overall comments.
Heavy Metals	BH_VMN03_0.9-1	QA507B	FT RPD recoveries for chromium (66.67%), copper (119.17%), lead (46.03%), nickel (162.20%) and zinc (124.66%) were not within the project DQOs. Refer to overall comments.
Heavy Metals	BH_MN13_0.9-1.2	QA508B	FT RPD recoveries for chromium (46.15%), copper (52.63%) and lead (35.90%) were not within the project DQOs. Refer to overall comments.
PAH	BH_MN13_0.9-1.2	QA508B	FT RPD recoveries for benz(a)anthracene (32.56%), fluoranthene (45.78%), phenanthrene (33.33%) and pyrene (35.90%) were not within the project DQOs. Refer to overall comments.
-	-	-	Remaining FT RPD recoveries were within the DQOs.

Surrogate Compound Monitoring Analyses

Analyte Group	Analyte(s)	Comments
All	-	Surrogate recoveries were within laboratory based DQOs (ALS & SGS).
-	-	

Overall Comments

ALS: Holding time exceedances were reported for several VOC analytes by 3-4 days. Styrene and carbon disulfide are the only two VOCs which have a holding time of 7 days, the remainder of the VOCs are 14 days. Styrene and carbon disulfide were both detected below the LOR and are not considered to be contaminants of concern and the holding time exceedances are unlikely to affect the integrity of the dataset for this reason.

ALS: Holding time exceedances were reported for several analytes in water in Rinsate sample R_BH_MW02. This is not expected to affect the validity of this batch as the breach was for Rinsate water only.

ALS: LD and MS analyses of PAH/Phenols, Pesticides by GCMS, Polychlorinated Biphenyls and TRH - Semivolatile Fraction in water. This is not expected to affect the validity of this batch as the breach was for Rinsate water only.

ALS: LCS, LD and MS analyses of Total Metals by ICP-AES in soil. This is not expected to impact the integrity of the data as recoveries were within the laboratory based data quality objectives.

GOLDER

DATA VALIDATION SUMMARY SHEET

Project Name:	**Sydney Metro West**	**Project Number:**	**1791865**
Primary Laboratory:	**ALS Sydney**	**Work order Number:**	**ES1920095**
Secondary Laboratory:	**SGS Alexandria**	**Work order Number:**	**SE194568**
Date Sampled:	**23/06/2019**	**Sample Medium:**	**Soil**
Sample Information			
Number of Primary Samples:	**13**	**Number of Triplicate Samples:**	**3**

ALS: Laboratory control spike recovery for 1.2-Dibromoethane (121%), Tetrachloroethene (125%) and Pentachloroethane (71.5%) for sample QC-2445755-002 (anonymous) was outside laboratory based DQOs. This is not expected to affect the validity of this data set as the samples are anonymous and hence not representative of the project matrix.

ALS: LD RPD for lead (74.2%) for sample ES1920095--014 (BH_VMN03_0.4-0.5) is not within laboratory-based control limits. As stated by ALS "RPD exceeds LOR based limits". This exceedance is likely due to sample heterogeneity in soils (as the sample was collected in fill material). As a conservative measure the highest concentration will be adopted for reporting purposes.

FD RPDs for several analytes for sample QA506A, QA507A and QA508A are not within laboratory-based DQOs. This exceedance is likely due to sample heterogeneity in soils (as the sample was collected in fill material). In addition, several of the RPDs were marginal. As a conservative measure the highest concentration will be adopted for reporting purposes.

FT RPDs for several analytes for sample QA506B, QA507B and QA508B are not within laboratory-based DQOs. This exceedance is likely due to sample heterogeneity in soils (as the sample was collected in fill material). As a conservative measure the highest concentration will be adopted for reporting purposes.

This batch has been validated and is considered suitable for environmental interpretive use.

Note: Data validation assesses each analyte in terms of all the data validation variables and only the exceedances and outliers are reported in this form.

*When concentrations are less than the LOR for both primary and duplicate/triplicate results, no RPDs are calculated

Performed By:	**Bianca Underwood**	**Checked By:**	**Barry Houston**
Date:	**11/07/2019**	**Date:**	**30/07/2019**

Sydney Metro West Marrickville
Duplicate Analysis RPDs
Project Number: 1791865
Batche/s: ES1920095 & SE194568

		Sample ID	BH_MN06_0.9-1	QA502A	QA502B		
		Sample Type	Primary	Field Duplicate	Field Triplicate		
		Date Sampled	11/06/2019	11/06/2019	11/06/2019		
Analyte	**Units**	**LOR**				**RPDs Primary vs Duplicate**	**RPDs Primary vs Triplicate**
TRH - HSL							
TRH C6 - C10 Fraction F1	mg/kg	10	<10	<10	<25	ND	ND
TRH C6 - C10 Fraction Less BTEX F1	mg/kg	10	<10	<10	<25	ND	ND
TRH >C10 - C16 Fraction F2	mg/kg	25	<50	<50	<25	ND	ND
TRH >C10 - C16 Fraction Less Naphthalene (F2)	mg/kg	25	<50	<50	<25	ND	ND
TRH >C16 - C34 Fraction F3	mg/kg	90	<100	<100	<90	ND	ND
TRH >C34 - C40 Fraction F4	mg/kg	100	<100	<100	<120	ND	ND
TRH+C10 - C40 (Sum of total) (Lab Reported)	mg/kg	50	<50	<50	<210	ND	ND
TPH Group							
TRH C6 - C9 Fraction	mg/kg	10	<10	<10	<20	ND	ND
TRH C10 - C14 Fraction	mg/kg	20	<50	<50	<20		ND
TRH C15 - C28 Fraction	mg/kg	45	<100	<100	<45	ND	ND
TRH C29 - C36 Fraction	mg/kg	45	<100	<100	<45	ND	ND
TRH+C10 - C36 (Sum of total) (Lab Reported)	mg/kg	50	<50	<50	<110	ND	ND
BTEX							
Benzene	mg/kg	0.1	<0.2	<0.2	<0.1	ND	ND
Toluene	mg/kg	0.1	<0.5	<0.5	<0.1	ND	ND
Ethylbenzene	mg/kg	0.1	<0.5	<0.5	<0.1	ND	ND
Xylenes (m & p)	mg/kg	0.2	<0.5	<0.5	<0.2	ND	ND
Xylene (o)	mg/kg	0.1	<0.5	<0.5	<0.1	ND	ND
Xylenes (Sum of total) (Lab Reported)	mg/kg	0.3	<0.5	<0.5	<0.3	ND	ND
Total BTEX	mg/kg	0.2	<0.2	<0.2	<0.6	ND	ND
Heavy Metals							
Arsenic	mg/kg	1	5	<5	5	0.00%	0.00%
Cadmium	mg/kg	0.3	<1	<1	<0.3	ND	ND
Chromium	mg/kg	0.3	26	18	10	**36.36%**	**88.89%**
Copper	mg/kg	0.5	7	<5	2.9	ND	**82.83%**
Lead	mg/kg	1	31	18	8	**53.06%**	**117.95%**
Mercury	mg/kg	0.05	<0.1	<0.1	<0.05	ND	ND
Nickel	mg/kg	0.5	16	4	1.2	**120.00%**	**172.09%**
Zinc	mg/kg	2	12	13	7.4	8.00%	47.42%
Organochlorine Pesticides							
a-BHC	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
Aldrin	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
Dieldrin	mg/kg	0.05	<0.05	<0.05	<0.2	ND	ND
Aldrin & Dieldrin (Sum of total) (Lab Reported)	mg/kg	0.05	<0.05	<0.05	-	ND	-
b-BHC	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
cis-Chlordane	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
trans-Chlordane	mg/kg	0.05	<0.05	<0.05	-	ND	-
Chlordane (Sum of total)	mg/kg	0.05	<0.05	<0.05	-	ND	-
d-BHC	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
DDD	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
DDE	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
DDT	mg/kg	0.1	<0.2	<0.2	<0.1	ND	ND
DDT+DDE+DDD (Sum of total) (Lab Reported)	mg/kg	0.05	<0.05	<0.05	-	ND	-
Endosulfan	mg/kg	0.05	<0.05	<0.05	-	ND	-
Endosulfan I	mg/kg	0.05	<0.05	<0.05	<0.2	ND	ND
Endosulfan II	mg/kg	0.05	<0.05	<0.05	<0.2	ND	ND
Endosulfan sulphate	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
Endrin	mg/kg	0.05	<0.05	<0.05	<0.2	ND	ND
Endrin aldehyde	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
Endrin ketone	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
g-BHC	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
Heptachlor	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
Heptachlor epoxide	mg/kg	0.05	<0.05	<0.05	<0.1		ND
Hexachlorobenzene	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
Methoxychlor	mg/kg	0.1	<0.2	<0.2	<0.1	ND	ND
Organophosphorous Pesticides							
Azinphos-methyl	mg/kg	0.05	<0.05	<0.05	<0.2	ND	ND
Bromophos-ethyl	mg/kg	0.05	<0.05	<0.05	<0.2	ND	ND
Carbophenothion	mg/kg	0.05	<0.05	<0.05	-	ND	-
Chlorfenvinphos	mg/kg	0.05	<0.05	<0.05	-	ND	-
Chlorpyriphos	mg/kg	0.05	<0.05	<0.05	<0.2	ND	ND
Chlorpyriphos-methyl	mg/kg	0.05	<0.05	<0.05	-	ND	-
Demeton-s-methyl	mg/kg	0.05	<0.05	<0.05	-	ND	-
Diazinon	mg/kg	0.05	<0.05	<0.05	<0.5	ND	ND
Dichlorvos	mg/kg	0.05	<0.05	<0.05	<0.5	ND	ND
Dimethoate	mg/kg	0.05	<0.05	<0.05	<0.5	ND	ND
Ethion	mg/kg	0.05	<0.05	<0.05	<0.2	ND	ND
Fenamiphos	mg/kg	0.05	<0.05	<0.05	-	ND	-
Fenthion	mg/kg	0.05	<0.05	<0.05	-	ND	-
Malathion	mg/kg	0.05	<0.05	<0.05	<0.2	ND	ND
Parathion-methyl	mg/kg	0.2	<0.2	<0.2	-	ND	-
Monocrotophos	mg/kg	0.2	<0.2	<0.2	-	ND	-
Parathion	mg/kg	0.2	<0.2	<0.2	<0.2	ND	ND
Pirimphos-ethyl	mg/kg	0.05	<0.05	<0.05	-	ND	-
Prothiofos	mg/kg	0.05	<0.05	<0.05	-	ND	-
PAH							
Acenaphthene	mg/kg	0.1	<0.5	<0.5	<0.1	ND	ND
Acenaphthylene	mg/kg	0.1	<0.5	<0.5	<0.1	ND	ND
Anthracene	mg/kg	0.1	<0.5	<0.5	<0.1	ND	ND
Benz(a)anthracene	mg/kg	0.1	<0.5	<0.5	<0.1	ND	ND
Benzo(a)pyrene	mg/kg	0.1	<0.5	<0.5	<0.1	ND	ND
Benzo(b)&(j)fluoranthene	mg/kg	0.1	<0.5	<0.5	<0.1	ND	ND
Benzo(g,h,i)perylene	mg/kg	0.1	<0.5	<0.5	<0.1	ND	ND
Benzo(k)fluoranthene	mg/kg	0.1	<0.5	<0.5	<0.1	ND	ND
Chrysene	mg/kg	0.1	<0.5	<0.5	<0.1	ND	ND
Dibenz(a,h)anthracene	mg/kg	0.1	<0.5	<0.5	<0.1	ND	ND
Fluoranthene	mg/kg	0.1	<0.5	<0.5	<0.1	ND	ND
Fluorene	mg/kg	0.1	<0.5	<0.5	<0.1	ND	ND
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	<0.5	<0.5	<0.1	ND	ND
Naphthalene	mg/kg	0.1	<0.5	<0.5	<0.1	ND	ND
Phenanthrene	mg/kg	0.1	<0.5	<0.5	<0.1	ND	ND
Pyrene	mg/kg	0.1	<0.5	<0.5	<0.1	ND	ND
PAH (Sum of Common 16 PAHs - Lab Reported)	mg/kg	0.5	<0.5	<0.5	<0.8	ND	ND
Phenols							
Phenolics (Sum of total)	mg/kg	1	<1	<1	-	ND	-
Polychlorinated Biphenyls							
PCB (Sum of Total-Lab Reported)	mg/kg	0.1	<0.1	<0.1	-	ND	-
Volatile Organic Compounds							

1,4-Dichlorobenzene	mg/kg	0.5	<0.5	<0.5	-	ND	-
4-Chlorotoluene	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,2,3-Trichlorobenzene	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,2,4-Trichlorobenzene	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,2-Dichlorobenzene	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,3-Dichlorobenzene	mg/kg	0.5	<0.5	<0.5	-	ND	-
2-Chlorotoluene	mg/kg	0.5	<0.5	<0.5	-	ND	-
Bromobenzene	mg/kg	0.5	<0.5	<0.5	-	ND	-
Chlorobenzene	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,2,4-trimethylbenzene	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,3,5-Trimethylbenzene	mg/kg	0.5	<0.5	<0.5	-	ND	-
Isopropylbenzene	mg/kg	0.5	<0.5	<0.5	-	ND	-
n-Butylbenzene	mg/kg	0.5	<0.5	<0.5	-	ND	-
n-Propylbenzene	mg/kg	0.5	<0.5	<0.5	-	ND	-
p-Isopropyltoluene	mg/kg	0.5	<0.5	<0.5	-	ND	-
sec-Butylbenzene	mg/kg	0.5	<0.5	<0.5	-	ND	-
Styrene	mg/kg	0.5	<0.5	<0.5	-	ND	-
tert-Butylbenzene	mg/kg	0.5	<0.5	<0.5	-	ND	-
Methyl Ethyl Ketone	mg/kg	5	<5	<5	-	ND	-
2-Hexanone	mg/kg	5	<5	<5	-	ND	-
Methyl iso-butyl ketone	mg/kg	5	<5	<5	-	ND	-
Vinyl acetate	mg/kg	5	<5	<5	-	ND	-
1,1,1,2-Tetrachloroethane	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,1,2,2-Tetrachloroethane	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,1,1-Trichloroethane	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,1,2-Trichloroethane	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,2,3-Trichloropropane	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,2-Dibromo-3-chloropropane	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,2-Dibromoethane	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,1-Dichloroethane	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,2-Dichloroethane	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,1-Dichloroethene	mg/kg	0.5	<0.5	<0.5	-	ND	-
cis-1,2-Dichloroethene	mg/kg	0.5	<0.5	<0.5	-	ND	-
trans-1,2-dichloroethene	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,2-Dichloropropane	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,3-Dichloropropane	mg/kg	0.5	<0.5	<0.5	-	ND	-
2,2-Dichloropropane	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,1-Dichloropropene	mg/kg	0.5	<0.5	<0.5	-	ND	-
cis-1,3-Dichloropropene	mg/kg	0.5	<0.5	<0.5	-	ND	-
trans-1,3-dichloropropene	mg/kg	0.5	<0.5	<0.5	-	ND	-
cis-1,4-Dichloro-2-butene	mg/kg	0.5	<0.5	<0.5	-	ND	-
trans-1,4-Dichloro-2-butene	mg/kg	0.5	<0.5	<0.5	-	ND	-
Bromodichloromethane	mg/kg	0.5	<0.5	<0.5	-	ND	-
Bromoform	mg/kg	0.5	<0.5	<0.5	-	ND	-
Bromomethane	mg/kg	5	<5	<5	-	ND	-
Carbon disulfide	mg/kg	0.5	<0.5	<0.5	-	ND	-
Carbon tetrachloride	mg/kg	0.5	<0.5	<0.5	-	ND	-
Chlorodibromomethane	mg/kg	0.5	<0.5	<0.5	-	ND	-
Chloroethane	mg/kg	5	<5	<5	-	ND	-
Chloroform	mg/kg	0.5	<0.5	<0.5	-	ND	-
Chloromethane	mg/kg	5	<5	<5	-	ND	-
Dibromomethane	mg/kg	0.5	<0.5	<0.5	-	ND	-
Dichlorodifluoromethane	mg/kg	5	<5	<5	-	ND	-
Hexachlorobutadiene	mg/kg	0.5	<0.5	<0.5	-	ND	-
Iodomethane	mg/kg	0.5	<0.5	<0.5	-	ND	-
Pentachloroethane	mg/kg	0.5	<0.5	<0.5	-	ND	-
Trichloroethene	mg/kg	0.5	<0.5	<0.5	-	ND	-
Tetrachloroethene	mg/kg	0.5	<0.5	<0.5	-	ND	-
Trichlorofluoromethane	mg/kg	5	<5	<5	-	ND	-
Vinyl chloride	mg/kg	5	<5	<5	-	ND	-
Perfluorinated Compounds							
10:2 Fluorotelomer sulfonic acid	mg/kg	0.0005	<0.0005	<0.0005	-	ND	-
4:2 Fluorotelomer sulfonic acid	mg/kg	0.0005	<0.0005	<0.0005	-	ND	-
8:2 Fluorotelomer sulfonate	mg/kg	0.0005	<0.0005	<0.0005	-	ND	-
N-Et-FOSA	mg/kg	0.0005	<0.0005	<0.0005	-	ND	-
N-Et-FOSE	mg/kg	0.0005	<0.0005	<0.0005	-	ND	-
N-Me-FOSA	mg/kg	0.0005	<0.0005	<0.0005	-	ND	-
N-Me-FOSE	mg/kg	0.0005	<0.0005	<0.0005	-	ND	-
Perfluorobutanoic acid (PFBA)	mg/kg	0.001	<0.001	<0.001	-	ND	-
Perfluoroheptane sulfonic acid	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluoro-n-pentanoic acid (PFPeA)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluoropentane sulfonic acid	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
PFDcS	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
N-methyl-perfluorooctanesulfonamidoacetic acid	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Sum of PFHxS and PFOS (lab reported)	mg/kg	0.0002	0.0002	<0.0002	-	ND	-
Sum of WA DER PFAS (n=10)	mg/kg	0.0002	0.0002	<0.0002	-	ND	-
Sum of PFASs (n=28)	mg/kg	0.0002	0.0002	<0.0002	-	ND	-
Perfluorobutanesulfonic acid (PFBS)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluorodecanoic acid (PFDA)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluorododecanoic acid (PFDoA)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluoroheptanoic acid (PFHpA)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluorooctanesulfonic acid (PFOS)3	mg/kg	0.0002	0.0002	<0.0002	-	ND	-
Perfluorooctanoate (PFOA)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluorohexanesulfonic acid (PFHxS)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluorononanoic acid (PFNA)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluorohexanoic acid (PFHxA)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
6:2 Fluorotelomer Sulfonate (6:2 FtS)	mg/kg	0.0005	<0.0005	<0.0005	-	ND	-
N-ethyl-perfluorooctanesulfonamidoacetic acid	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluorooctanesulfonamide (PFOSA)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluorotetradecanoic acid (PFTeDA)	mg/kg	0.0005	<0.0005	<0.0005	-	ND	-
Perfluorotridecanoic acid (PFTrDA)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluoroundecanoic acid (PFUnA)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-

Legend

ND = Not Detected (RPDs not calculated if both primary and duplicate results are below LOR)

- = Not analysed/calculated

Indicates RPD result does not meet the acceptable criteria

Acceptable RPDs: RPD <= 30%

RPD > 30%, Analyis result < 10 times LOR

RPD <= 50%, Analysis result > 10 times LOR and < 20 times LOR

Sydney Metro West Marrickville

Duplicate Analysis RPDs

Project Number: 1791865

Batche/s:ES1920095 & SE194568

			Sample ID	BH_VMN03/0.9-1	QA507A	QA507B		
			Sample Type	Primary	Field Duplicate	Field Triplicate		
			Date Sampled	11/06/2019	11/06/2019	11/06/2019		
Analyte	**Units**	**LOR**					**RPDs Primary vs Duplicate**	**RPDs Primary vs Triplicate**
TRH - HSL								
TRH C6 - C10 Fraction F1	mg/kg	10	<10	<10	<25		ND	ND
TRH C6 - C10 Fraction Less BTEX F1	mg/kg	10	<10	<10	<25		ND	ND
TRH >C10 - C16 Fraction F2	mg/kg	25	<50	<50	<25		ND	ND
TRH >C10 - C16 Fraction Less Naphthalene (F2)	mg/kg	25	<50	<50	<25		ND	ND
TRH >C16 - C34 Fraction F3	mg/kg	90	280	<100	<90		ND	ND
TRH >C34 - C40 Fraction F4	mg/kg	100	<100	<100	<120		ND	ND
TRH+C10 - C40 (Sum of total) (Lab Reported)	mg/kg	50	280	<50	<210		139.39%	28.57%
TPH Group								
TRH C6 - C9 Fraction	mg/kg	10	<10	<10	<20		ND	ND
TRH C10 - C14 Fraction	mg/kg	20	<50	<50	<20		ND	ND
TRH C15 - C28 Fraction	mg/kg	45	170	<100	50		51.85%	109.09%
TRH C29 - C36 Fraction	mg/kg	45	140	<100	<45		33.33%	102.70%
TRH+C10 - C36 (Sum of total) (Lab Reported)	mg/kg	50	310	<50	<110		144.44%	95.24%
BTEX								
Benzene	mg/kg	0.1	<0.2	<0.2	<0.1		ND	ND
Toluene	mg/kg	0.1	<0.5	<0.5	<0.1		ND	ND
Ethylbenzene	mg/kg	0.1	<0.5	<0.5	<0.1		ND	ND
Xylenes (m & p)	mg/kg	0.2	<0.5	<0.5	<0.2		ND	ND
Xylene (o)	mg/kg	0.1	<0.5	<0.5	<0.1		ND	ND
Xylenes (Sum of total) (Lab Reported)	mg/kg	0.3	<0.5	<0.5	<0.3		ND	ND
Total BTEX	mg/kg	0.2	<0.2	<0.2	<0.6		ND	ND
Heavy Metals								
Arsenic	mg/kg	1	19	7	6		**92.31%**	104.00%
Cadmium	mg/kg	0.3	1	<1	<0.3		0.00%	107.69%
Chromium	mg/kg	0.3	66	28	33		**80.85%**	**66.67%**
Copper	mg/kg	0.5	154	28	39		**138.46%**	**119.17%**
Lead	mg/kg	1	147	64	92		**78.67%**	**46.03%**
Mercury	mg/kg	0.05	<0.1	<0.1	0.22		ND	75.00%
Nickel	mg/kg	0.5	69	10	7.2		**149.37%**	**162.20%**
Zinc	mg/kg	2	948	263	220		**113.13%**	**124.66%**
Organochlorine Pesticides								
a-BHC	mg/kg	0.05	<0.05	<0.05	<0.1		ND	ND
Aldrin	mg/kg	0.05	<0.05	<0.05	<0.1		ND	ND
Dieldrin	mg/kg	0.05	0.14	<0.05	<0.2		94.74%	173.83%
Aldrin & Dieldrin (Sum of total) (Lab Reported)	mg/kg	0.05	0.14	<0.05	-		94.74%	-
b-BHC	mg/kg	0.05	<0.05	<0.05	<0.1		ND	ND
cis-Chlordane	mg/kg	0.05	<0.05	<0.05	<0.1		ND	ND
trans-Chlordane	mg/kg	0.05	<0.05	<0.05	-		ND	-
Chlordane (Sum of total)	mg/kg	0.05	<0.05	<0.05	-		ND	-
d-BHC	mg/kg	0.05	<0.05	<0.05	<0.1		ND	ND
DDD	mg/kg	0.05	<0.05	<0.05	<0.1		ND	ND
DDE	mg/kg	0.05	<0.05	<0.05	<0.1		ND	ND
DDT	mg/kg	0.1	<0.2	<0.2	<0.1		ND	ND
DDT+DDE+DDD (Sum of total) (Lab Reported)	mg/kg	0.05	<0.05	<0.05	-		ND	-
Endosulfan	mg/kg	0.05	<0.05	<0.05	-		ND	-
Endosulfan I	mg/kg	0.05	<0.05	<0.05	<0.2		ND	ND
Endosulfan II	mg/kg	0.05	<0.05	<0.05	<0.2		ND	ND
Endosulfan sulphate	mg/kg	0.05	<0.05	<0.05	<0.1		ND	ND
Endrin	mg/kg	0.05	<0.05	<0.05	<0.2		ND	ND
Endrin aldehyde	mg/kg	0.05	<0.05	<0.05	<0.1		ND	ND
Endrin ketone	mg/kg	0.05	<0.05	<0.05	<0.1		ND	ND
g-BHC	mg/kg	0.05	<0.05	<0.05	<0.1		ND	ND
Heptachlor	mg/kg	0.05	<0.05	<0.05	<0.1		ND	ND
Heptachlor epoxide	mg/kg	0.05	<0.05	<0.05	<0.1		ND	ND
Hexachlorobenzene	mg/kg	0.05	<0.05	<0.05	<0.1		ND	ND
Methoxychlor	mg/kg	0.1	<0.2	<0.2	<0.1		ND	ND
Organophosphorous Pesticides								
Azinphos-methyl	mg/kg	0.05	<0.05	<0.05	<0.2		ND	ND
Bromophos-ethyl	mg/kg	0.05	<0.05	<0.05	<0.2		ND	ND
Carbophenothion	mg/kg	0.05	<0.05	<0.05	-		ND	-
Chlorfenvinphos	mg/kg	0.05	<0.05	<0.05	-		ND	-
Chlorpyriphos	mg/kg	0.05	<0.05	<0.05	<0.2		ND	ND
Chlorpyriphos-methyl	mg/kg	0.05	<0.05	<0.05	-		ND	-
Demeton-s-methyl	mg/kg	0.05	<0.05	<0.05	-		ND	-
Diazinon	mg/kg	0.05	<0.05	<0.05	<0.5		ND	ND
Dichlorvos	mg/kg	0.05	<0.05	<0.05	<0.5		ND	ND
Dimethoate	mg/kg	0.05	<0.05	<0.05	<0.5		ND	ND
Ethion	mg/kg	0.05	<0.05	<0.05	<0.2		ND	ND
Fenamiphos	mg/kg	0.05	<0.05	<0.05	-		ND	-
Fenthion	mg/kg	0.05	<0.05	<0.05	-		ND	-
Malathion	mg/kg	0.05	<0.05	<0.05	<0.2		ND	ND
Parathion-methyl	mg/kg	0.2	<0.2	<0.2	-		ND	-
Monocrotophos	mg/kg	0.2	<0.2	<0.2	-		ND	-
Parathion	mg/kg	0.2	<0.2	<0.2	<0.2		ND	ND
Pirimphos-ethyl	mg/kg	0.05	<0.05	<0.05	-		ND	-
Prothiofos	mg/kg	0.05	<0.05	<0.05	-		ND	-
PAH								
Acenaphthene	mg/kg	0.1	<0.5	<0.5	<0.1		ND	ND
Acenaphthylene	mg/kg	0.1	<0.5	<0.5	<0.1		ND	ND
Anthracene	mg/kg	0.1	<0.5	<0.5	<0.1		ND	ND
Benz(a)anthracene	mg/kg	0.1	0.6	<0.5	0.3		ND	66.67%
Benzo(a)pyrene	mg/kg	0.1	0.7	<0.5	0.3		33.33%	80.00%
Benzo(b)&(j)fluoranthene	mg/kg	0.1	0.8	<0.5	0.3		46.15%	90.91%
Benzo(g,h,i)perylene	mg/kg	0.1	0.6	<0.5	0.2		18.18%	100.00%
Benzo(k)fluoranthene	mg/kg	0.1	<0.5	<0.5	0.2		ND	85.71%
Chrysene	mg/kg	0.1	0.6	<0.5	0.2		18.18%	100.00%
Dibenz(a,h)anthracene	mg/kg	0.1	<0.5	<0.5	<0.1		ND	ND
Fluoranthene	mg/kg	0.1	1.6	0.5	0.6		104.76%	90.91%
Fluorene	mg/kg	0.1	<0.5	<0.5	<0.1		ND	ND
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	<0.5	<0.5	0.2		ND	85.71%
Naphthalene	mg/kg	0.1	<0.5	<0.5	<0.1		ND	ND
Phenanthrene	mg/kg	0.1	0.8	<0.5	0.2		46.15%	120.00%
Pyrene	mg/kg	0.1	1.5	<0.5	0.6		100.00%	85.71%
PAH (Sum of Common 16 PAHs - Lab Reported)	mg/kg	0.5	7.2	0.5	3.2		174.03%	76.92%
Phenols								
Phenolics (Sum of total)	mg/kg	1	<1	<1	-		ND	-
Polychlorinated Biphenyls								
PCB (Sum of Total-Lab Reported)	mg/kg	0.1	<0.1	<0.1	-		ND	-
Volatile Organic Compounds								

1,4-Dichlorobenzene	mg/kg	0.5	<0.5	<0.5	-	ND	-
4-Chlorotoluene	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,2,3-Trichlorobenzene	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,2,4-Trichlorobenzene	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,2-Dichlorobenzene	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,3-Dichlorobenzene	mg/kg	0.5	<0.5	<0.5	-	ND	-
2-Chlorotoluene	mg/kg	0.5	<0.5	<0.5	-	ND	-
Bromobenzene	mg/kg	0.5	<0.5	<0.5	-	ND	-
Chlorobenzene	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,2,4-trimethylbenzene	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,3,5-Trimethylbenzene	mg/kg	0.5	<0.5	<0.5	-	ND	-
Isopropylbenzene	mg/kg	0.5	<0.5	<0.5	-	ND	-
n-Butylbenzene	mg/kg	0.5	<0.5	<0.5	-	ND	-
n-Propylbenzene	mg/kg	0.5	<0.5	<0.5	-	ND	-
p-Isopropyltoluene	mg/kg	0.5	<0.5	<0.5	-	ND	-
sec-Butylbenzene	mg/kg	0.5	<0.5	<0.5	-	ND	-
Styrene	mg/kg	0.5	<0.5	<0.5	-	ND	-
tert-Butylbenzene	mg/kg	0.5	<0.5	<0.5	-	ND	-
Methyl Ethyl Ketone	mg/kg	5	<5	<5	-	ND	-
2-Hexanone	mg/kg	5	<5	<5	-	ND	-
Methyl iso-butyl ketone	mg/kg	5	<5	<5	-	ND	-
Vinyl acetate	mg/kg	5	<5	<5	-	ND	-
1,1,1,2-Tetrachloroethane	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,1,2,2-Tetrachloroethane	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,1,1-Trichloroethane	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,1,2-Trichloroethane	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,2,3-Trichloropropane	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,2-Dibromo-3-chloropropane	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,2-Dibromoethane	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,1-Dichloroethane	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,2-Dichloroethane	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,1-Dichloroethene	mg/kg	0.5	<0.5	<0.5	-	ND	-
cis-1,2-Dichloroethene	mg/kg	0.5	<0.5	<0.5	-	ND	-
trans-1,2-dichloroethene	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,2-Dichloropropane	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,3-Dichloropropane	mg/kg	0.5	<0.5	<0.5	-	ND	-
2,2-Dichloropropane	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,1-Dichloropropene	mg/kg	0.5	<0.5	<0.5	-	ND	-
cis-1,3-Dichloropropene	mg/kg	0.5	<0.5	<0.5	-	ND	-
trans-1,3-dichloropropene	mg/kg	0.5	<0.5	<0.5	-	ND	-
cis-1,4-Dichloro-2-butene	mg/kg	0.5	<0.5	<0.5	-	ND	-
trans-1,4-Dichloro-2-butene	mg/kg	0.5	<0.5	<0.5	-	ND	-
Bromodichloromethane	mg/kg	0.5	<0.5	<0.5	-	ND	-
Bromoform	mg/kg	0.5	<0.5	<0.5	-	ND	-
Bromomethane	mg/kg	5	<5	<5	-	ND	-
Carbon disulfide	mg/kg	0.5	<0.5	<0.5	-	ND	-
Carbon tetrachloride	mg/kg	0.5	<0.5	<0.5	-	ND	-
Chlorodibromomethane	mg/kg	0.5	<0.5	<0.5	-	ND	-
Chloroethane	mg/kg	5	<5	<5	-	ND	-
Chloroform	mg/kg	0.5	<0.5	<0.5	-	ND	-
Chloromethane	mg/kg	5	<5	<5	-	ND	-
Dibromomethane	mg/kg	0.5	<0.5	<0.5	-	ND	-
Dichlorodifluoromethane	mg/kg	5	<5	<5	-	ND	-
Hexachlorobutadiene	mg/kg	0.5	<0.5	<0.5	-	ND	-
Iodomethane	mg/kg	0.5	<0.5	<0.5	-	ND	-
Pentachloroethane	mg/kg	0.5	<0.5	<0.5	-	ND	-
Trichloroethene	mg/kg	0.5	<0.5	<0.5	-	ND	-
Tetrachloroethene	mg/kg	0.5	<0.5	<0.5	-	ND	-
Trichlorofluoromethane	mg/kg	5	<5	<5	-	ND	-
Vinyl chloride	mg/kg	5	<5	<5	-	ND	-
Perfluorinated Compounds							
10:2 Fluorotelomer sulfonic acid	mg/kg	0.0005	<0.0005	<0.0005	-	ND	-
4:2 Fluorotelomer sulfonic acid	mg/kg	0.0005	<0.0005	<0.0005	-	ND	-
8:2 Fluorotelomer sulfonate	mg/kg	0.0005	<0.0005	<0.0005	-	ND	-
N-Et-FOSA	mg/kg	0.0005	<0.0005	<0.0005	-	ND	-
N-Et-FOSE	mg/kg	0.0005	<0.0005	<0.0005	-	ND	-
N-Me-FOSA	mg/kg	0.0005	<0.0005	<0.0005	-	ND	-
N-Me-FOSE	mg/kg	0.0005	<0.0005	<0.0005	-	ND	-
Perfluorobutanoic acid (PFBA)	mg/kg	0.001	<0.001	<0.001	-	ND	-
Perfluoroheptane sulfonic acid	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluoro-n-pentanoic acid (PFPeA)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluoropentane sulfonic acid	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
PFDcS	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
N-methyl-perfluorooctanesulfonamidoacetic acid	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Sum of PFHxS and PFOS (lab reported)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Sum of WA DER PFAS (n=10)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Sum of PFASs (n=28)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluorobutanesulfonic acid (PFBS)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluorodecanoic acid (PFDA)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluorododecanoic acid (PFDoA)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluoroheptanoic acid (PFHpA)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluorooctanesulfonic acid (PFOS)3	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluorooctanoate (PFOA)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluorohexanesulfonic acid (PFHxS)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluorononanoic acid (PFNA)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluorohexanoic acid (PFHxA)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
6:2 Fluorotelomer Sulfonate (6:2 FtS)	mg/kg	0.0005	<0.0005	<0.0005	-	ND	-
N-ethyl-perfluorooctanesulfonamidoacetic acid	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluorooctanesulfonamide (PFOSA)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluorotetradecanoic acid (PFTeDA)	mg/kg	0.0005	<0.0005	<0.0005	-	ND	-
Perfluorotridecanoic acid (PFTrDA)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-
Perfluoroundecanoic acid (PFUnA)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	-

Legend

ND = Not Detected (RPDs not calculated if both primary and duplicate results are below LOR)

- = Not analysed/calculated

Indicates RPD result does not meet the acceptable criteria

Acceptable RPDs: RPD <= 30%

RPD > 30%, Analyis result < 10 times LOR

RPD <= 50%, Analysis result > 10 times LOR and < 20 times LOR

Sydney Metro West Marrickville
Duplicate Analysis RPDs
Project Number: 1791865
Batch/s:ES1920095 & SE19456

		Sample ID	BH_MN13_0.9-1.2	QA508A	QA508A		
		Sample Type	Primary	Field Duplicate	Field Triplicate		
		Date Sampled	11/06/2019	11/06/2019	11/06/2019		
Analyte	**Units**	**LOR**				**RPDs Primary vs Duplicate**	**RPDs Primary vs Triplicate**
TRH - HSL							
TRH C6 - C10 Fraction F1	mg/kg	10	<10	<10	<25	ND	ND
TRH C6 - C10 Fraction Less BTEX F1	mg/kg	10	<10	<10	<25	ND	ND
TRH >C10 - C16 Fraction F2	mg/kg	25	<50	<50	<25	ND	ND
TRH >C10 - C16 Fraction Less Naphthalene (F2)	mg/kg	25	<50	<50	<25	ND	ND
TRH >C16 - C34 Fraction F3	mg/kg	90	130	<100	150	26.09%	14.29%
TRH >C34 - C40 Fraction F4	mg/kg	100	<100	<100	<120	ND	ND
TRH+C10 - C40 (Sum of total) (Lab Reported)	mg/kg	50	130	<50	<210	88.89%	47.06%
TPH Group							
TRH C6 - C9 Fraction	mg/kg	10	<10	<10	<20	ND	ND
TRH C10 - C14 Fraction	mg/kg	20	<50	<50	<20	ND	ND
TRH C15 - C28 Fraction	mg/kg	45	<100	<100	100	ND	0.00%
TRH C29 - C36 Fraction	mg/kg	45	<100	<100	54	ND	59.74%
TRH+C10 - C36 (Sum of total) (Lab Reported)	mg/kg	50	<50	<50	160	ND	104.76%
BTEXN							
Benzene	mg/kg	0.1	<0.2	<0.2	<0.1	ND	ND
Toluene	mg/kg	0.1	<0.5	<0.5	<0.1	ND	ND
Ethylbenzene	mg/kg	0.1	<0.5	<0.5	<0.1	ND	ND
Xylenes (m & p)	mg/kg	0.2	<0.5	<0.5	<0.2	ND	ND
Xylene (o)	mg/kg	0.1	<0.5	<0.5	<0.1	ND	ND
Xylenes (Sum of total) (Lab Reported)	mg/kg	0.3	<0.5	<0.5	<0.3	ND	ND
Total BTEX	mg/kg	0.2	<0.2	<0.2	<0.6	ND	ND
Naphthalene	mg/kg	1	<1	<1	<0.1	ND	ND
Heavy Metals							
Arsenic	mg/kg	1	7	<5	7	ND	0.00%
Cadmium	mg/kg	0.3	<1	<1	<0.3	ND	ND
Chromium	mg/kg	0.3	24	23	15	4.26%	**46.15%**
Copper	mg/kg	0.5	14	6	24	**80.00%**	**52.63%**
Lead	mg/kg	1	64	31	92	**69.47%**	**35.90%**
Mercury	mg/kg	0.05	0.2	<0.1	0.5	66.67%	85.71%
Nickel	mg/kg	0.5	8	5	4.6	46.15%	53.97%
Zinc	mg/kg	2	82	22	110	**115.38%**	29.17%
Organochlorine Pesticides							
a-BHC	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
Aldrin	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
Dieldrin	mg/kg	0.05	<0.05	<0.05	<0.2	ND	ND
Aldrin & Dieldrin (Sum of total) (Lab Reported)	mg/kg	0.05	<0.05	<0.05	-	ND	-
b-BHC	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
cis-Chlordane	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
trans-Chlordane	mg/kg	0.05	<0.05	<0.05	-	ND	-
Chlordane (Sum of total)	mg/kg	0.05	<0.05	<0.05	-	ND	-
d-BHC	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
DDD	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
DDE	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
DDT	mg/kg	0.1	<0.2	<0.2	<0.1	ND	ND
DDT+DDE+DDD (Sum of total) (Lab Reported)	mg/kg	0.05	<0.05	<0.05	-	ND	-
Endosulfan	mg/kg	0.05	<0.05	<0.05	-	ND	-
Endosulfan I	mg/kg	0.05	<0.05	<0.05	<0.2	ND	ND
Endosulfan II	mg/kg	0.05	<0.05	<0.05	<0.2	ND	ND
Endosulfan sulphate	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
Endrin	mg/kg	0.05	<0.05	<0.05	<0.2	ND	ND
Endrin aldehyde	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
Endrin ketone	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
g-BHC	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
Heptachlor	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
Heptachlor epoxide	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
Hexachlorobenzene	mg/kg	0.05	<0.05	<0.05	<0.1	ND	ND
Methoxychlor	mg/kg	0.1	<0.2	<0.2	<0.1	ND	ND
Organophosphorous Pesticides							
Azinphos-methyl	mg/kg	0.05	<0.05	<0.05	<0.2	ND	ND
Bromophos-ethyl	mg/kg	0.05	<0.05	<0.05	<0.2	ND	ND
Carbophenothion	mg/kg	0.05	<0.05	<0.05	-	ND	-
Chlorfenvinphos	mg/kg	0.05	<0.05	<0.05	-	ND	-
Chlorpyriphos	mg/kg	0.05	<0.05	<0.05	<0.2	ND	ND
Chlorpyriphos-methyl	mg/kg	0.05	<0.05	<0.05	-	ND	-
Demeton-s-methyl	mg/kg	0.05	<0.05	<0.05	-	ND	-
Diazinon	mg/kg	0.05	<0.05	<0.05	<0.5	ND	ND
Dichlorvos	mg/kg	0.05	<0.05	<0.05	<0.5	ND	ND
Dimethoate	mg/kg	0.05	<0.05	<0.05	<0.5	ND	ND
Ethion	mg/kg	0.05	<0.05	<0.05	<0.2	ND	ND
Fenamiphos	mg/kg	0.05	<0.05	<0.05	-	ND	-
Fenthion	mg/kg	0.05	<0.05	<0.05	-	ND	ND
Malathion	mg/kg	0.05	<0.05	<0.05	<0.2	ND	ND
Parathion-methyl	mg/kg	0.2	<0.2	<0.2	-	ND	-
Monocrotophos	mg/kg	0.2	<0.2	<0.2	-	ND	-
Parathion	mg/kg	0.2	<0.2	<0.2	<0.2	ND	ND
Pirimphos-ethyl	mg/kg	0.05	<0.05	<0.05	-	ND	-
Prothiofos	mg/kg	0.05	<0.05	<0.05	-	ND	-
PAH							
Acenaphthene	mg/kg	0.1	<0.5	<0.5	<0.1	ND	ND
Acenaphthylene	mg/kg	0.1	<0.5	<0.5	0.9	ND	ND
Anthracene	mg/kg	0.1	0.6	<0.5	1.1	18.18%	58.82%
Benz(a)anthracene	mg/kg	0.1	1.8	<0.5	2.5	113.04%	**32.56%**
Benzo(a)pyrene	mg/kg	0.1	1.7	0.5	2.2	109.09%	25.64%
Benzo(a)pyrene TEQ (lower bound)*	mg/kg	0.5	2.3	0.6	3.3	117.24%	35.71%
Benzo(a)pyrene TEQ (medium bound)*	mg/kg	0.5	2.5	0.9	-	94.12%	-
Benzo(a)pyrene TEQ (upper bound)*	mg/kg	0.5	2.8	1.2	3.3	80.00%	16.39%
Benzo(b)&(j)fluoranthene	mg/kg	0.1	2.1	0.7	2.4	**100.00%**	13.33%
Benzo(g,h,i)perylene	mg/kg	0.1	1.1	<0.5	1.3	75.00%	16.67%
Benzo(k)fluoranthene	mg/kg	0.1	0.9	<0.5	1.3	57.14%	36.36%
Chrysene	mg/kg	0.1	1.7	<0.5	1.9	109.09%	11.11%
Dibenz(a,h)anthracene	mg/kg	0.1	<0.5	<0.5	0.3	ND	50.00%
Fluoranthene	mg/kg	0.1	3.2	1	5.1	**104.76%**	**45.78%**
Fluorene	mg/kg	0.1	<0.5	<0.5	<0.1	ND	ND
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	0.9	<0.5	1.7	57.14%	61.54%
Naphthalene	mg/kg	0.1	<0.5	<0.5	0.3	ND	50.00%
Phenanthrene	mg/kg	0.1	2	0.5	2.8	120.00%	**33.33%**
Pyrene	mg/kg	0.1	3.2	1	4.6	**104.76%**	**35.90%**
Phenols							
Phenolics (Sum of total)	mg/kg	1	<1	<1	-	ND	-

Polychlorinated Biphenyls							
PCB (Sum of Total-Lab Reported)	mg/kg	0.1	<0.1	<0.1	-	ND	-
Volatile Organic Compounds	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,4-Dichlorobenzene	mg/kg	0.5	<0.5	<0.5	-	ND	-
4-Chlorotoluene	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,2,3-Trichlorobenzene	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,2,4-Trichlorobenzene	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,2-Dichlorobenzene	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,3-Dichlorobenzene	mg/kg	0.5	<0.5	<0.5	-	ND	-
2-Chlorotoluene	mg/kg	0.5	<0.5	<0.5	-	ND	-
Bromobenzene	mg/kg	0.5	<0.5	<0.5	-	ND	-
Chlorobenzene	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,2,4-trimethylbenzene	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,3,5-Trimethylbenzene	mg/kg	0.5	<0.5	<0.5	-	ND	-
Isopropylbenzene	mg/kg	0.5	<0.5	<0.5	-	ND	-
n-Butylbenzene	mg/kg	0.5	<0.5	<0.5	-	ND	-
n-Propylbenzene	mg/kg	0.5	<0.5	<0.5	-	ND	-
p-Isopropyltoluene	mg/kg	0.5	<0.5	<0.5	-	ND	-
sec-Butylbenzene	mg/kg	0.5	<0.5	<0.5	-	ND	-
Styrene	mg/kg	0.5	<0.5	<0.5	-	ND	-
tert-Butylbenzene	mg/kg	5	<5	<5	-	ND	-
Methyl Ethyl Ketone	mg/kg	5	<5	<5	-	ND	-
2-Hexanone	mg/kg	5	<5	<5	-	ND	-
Methyl iso-butyl ketone	mg/kg	5	<5	<5	-	ND	-
Vinyl acetate	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,1,1,2-Tetrachloroethane	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,1,2,2-Tetrachloroethane	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,1,1-Trichloroethane	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,1,2-Trichloroethane	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,2,3-Trichloropropane	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,2-Dibromo-3-chloropropane	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,2-Dibromoethane	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,1-Dichloroethane	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,2-Dichloroethane	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,1-Dichloroethene	mg/kg	0.5	<0.5	<0.5	-	ND	-
cis-1,2-Dichloroethene	mg/kg	0.5	<0.5	<0.5	-	ND	-
trans-1,2-dichloroethene	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,2-Dichloropropane	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,3-Dichloropropane	mg/kg	0.5	<0.5	<0.5	-	ND	-
2,2-Dichloropropane	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,1-Dichloropropene	mg/kg	0.5	<0.5	<0.5	-	ND	-
cis-1,3-Dichloropropene	mg/kg	0.5	<0.5	<0.5	-	ND	-
trans-1,3-dichloropropene	mg/kg	0.5	<0.5	<0.5	-	ND	-
cis-1,4-Dichloro-2-butene	mg/kg	0.5	<0.5	<0.5	-	ND	-
trans-1,4-Dichloro-2-butene	mg/kg	0.5	<0.5	<0.5	-	ND	-
Bromodichloromethane	mg/kg	0.5	<0.5	<0.5	-	ND	-
Bromoform	mg/kg	5	<5	<5	-	ND	-
Bromomethane	mg/kg	0.5	<0.5	<0.5	-	ND	-
Carbon disulfide	mg/kg	0.5	<0.5	<0.5	-	ND	-
Carbon tetrachloride	mg/kg	0.5	<0.5	<0.5	-	ND	-
Chlorodibromomethane	mg/kg	5	<5	<5	-	ND	-
Chloroethane	mg/kg	0.5	<0.5	<0.5	-	ND	-
Chloroform	mg/kg	5	<5	<5	-	ND	-
Chloromethane	mg/kg	0.5	<0.5	<0.5	-	ND	-
Dibromomethane	mg/kg	5	<5	<5	-	ND	-
Dichlorodifluoromethane	mg/kg	0.5	<0.5	<0.5	-	ND	-
Hexachlorobutadiene	mg/kg	0.5	<0.5	<0.5	-	ND	-
Iodomethane	mg/kg	0.5	<0.5	<0.5	-	ND	-
Pentachloroethane	mg/kg	0.5	<0.5	<0.5	-	ND	-
Trichloroethene	mg/kg	0.5	<0.5	<0.5	-	ND	-
Tetrachloroethene	mg/kg	5	<5	<5	-	ND	-
Trichlorofluoromethane	mg/kg	5	<5	<5	-	ND	-
Vinyl chloride	mg/kg	6	<5	<5	-	ND	-
Perfluorinated Compounds							
10:2 Fluorotelomer sulfonic acid	mg/kg	0.0005	<0.0005	<0.0005	-	ND	ND
4:2 Fluorotelomer sulfonic acid	mg/kg	0.0005	<0.0005	<0.0005	-	ND	ND
8:2 Fluorotelomer sulfonate	mg/kg	0.0005	<0.0005	<0.0005	-	ND	ND
N-Et-FOSA	mg/kg	0.0005	<0.0005	<0.0005	-	ND	ND
N-Et-FOSE	mg/kg	0.0005	<0.0005	<0.0005	-	ND	ND
N-Me-FOSA	mg/kg	0.0005	<0.0005	<0.0005	-	ND	ND
N-Me-FOSE	mg/kg	0.0005	<0.0005	<0.0005	-	ND	ND
Perfluorobutanoic acid (PFBA)	mg/kg	0.001	<0.001	<0.001	-	ND	ND
Perfluoroheptane sulfonic acid	mg/kg	0.0002	<0.0002	<0.0002	-	ND	ND
Perfluoro-n-pentanoic acid (PFPeA)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	ND
Perfluoropentane sulfonic acid	mg/kg	0.0002	<0.0002	<0.0002	-	ND	ND
PFDcS	mg/kg	0.0002	<0.0002	<0.0002	-	ND	ND
N-methyl-perfluorooctanesulfonamidoacetic acid	mg/kg	0.0002	<0.0002	<0.0002	-	ND	ND
Sum of PFHxS and PFOS (lab reported)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	ND
Sum of WA DER PFAS (n=10)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	ND
Sum of PFASs (n=28)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	ND
Perfluorobutanesulfonic acid (PFBS)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	ND
Perfluorodecanoic acid (PFDA)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	ND
Perfluorododecanoic acid (PFDoA)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	ND
Perfluoroheptanoic acid (PFHpA)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	ND
Perfluorooctanesulfonic acid (PFOS)3	mg/kg	0.0002	<0.0002	<0.0002	-	ND	ND
Perfluorooctanoate (PFOA)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	ND
Perfluorohexanesulfonic acid (PFHxS)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	ND
Perfluorononanoic acid (PFNA)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	ND
Perfluorohexanoic acid (PFHxA)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	ND
6:2 Fluorotelomer Sulfonate (6:2 FtS)	mg/kg	0.0005	<0.0005	<0.0005	-	ND	ND
N-ethyl-perfluorooctanesulfonamidoacetic acid	mg/kg	0.0002	<0.0002	<0.0002	-	ND	ND
Perfluorooctanesulfonamide (PFOSA)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	ND
Perfluorotetradecanoic acid (PFTeDA)	mg/kg	0.0005	<0.0005	<0.0005	-	ND	ND
Perfluorotridecanoic acid (PFTrDA)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	ND
Perfluoroundecanoic acid (PFUnA)	mg/kg	0.0002	<0.0002	<0.0002	-	ND	ND

Legend

ND = Not Detected (RPDs not calculated if both primary and duplicate results are below LOR)

- = Not analysed/calculated

Indicates RPD result does not meet the acceptable criteria

Acceptable RPDs: RPD <= 30%

RPD > 30%, Analyis result < 10 times LOR

RPD <= 50%, Analysis result > 10 times LOR and < 20 times LOR

GOLDER

DATA VALIDATION SUMMARY SHEET

Project Name:	**Sydney Metro West**	**Project Number:**	**1791865**
Primary Laboratory:	**ALS Sydney**	**Work order Number:**	**ES1920368**
Secondary Laboratory:	**SGS Sydney**	**Work order Number:**	**SE194695, ME311145**
Subcontractor Laboratory:	**-**	**Work order Number:**	**-**
Date Sampled:	**28/06/2019**	**Sample Medium:**	**Water**

Sample Information

Number of Primary Samples:	**4**	**Number of Triplicate Samples:**	**1**
Number of Duplicate Samples:	**1**	**Number of Other QAQC Samples:**	**2**

Documentation and Sample Handling Information

	Y/N	Comments
COC completed properly?	Y	COC completed and signed by all staff.
All requested analysis completed?	Y	Requested analyses on the completed.
Samples received intact and chilled?	Y	ALS: 4'C, ice present. Security seal not available. SGS: 4'C, ice present.
Samples analysed within appropriate holding times?	Y	ALS: Holding times within the recommended criteria. SGS: Holding time outliers exist. *Please refer to overall comments.*
Sample volumes sufficient for QC analysis?	Y	ALS: QC sample frequencies exist. *Please refer to overall comments.* SGS: Sufficient sample volumes received.
Are there non-NATA accredited methods used?	N	ALS & SGS: Lab methods used in this batch are NATA accredited
Chromatograms supplied as appropriate?	N/A	N/A
Laboratory reports signed by authorised personnel?	Y	All laboratory reports signed by authorised personnel.

QAQC Sample Information (Method Blank - MB, Rinsate Blank - RB, Field Blank - FB, Trip Blank - TB)

Type	Sample ID	Comments
MB	Method Blank	Results were below the limit of reporting (LOR).
MB	PFAS: ME311145 - LB027551.001	D5-N-EtFOSA surrogate measured at 174%. *Refer to overall comments* .
TB	Trip Blank	Results were below the limit of reporting (LOR).

Trip Spike Information

Analyte	Trip Spike Concentration	Control Spike Concentrations	% Recovery	Comments
Sample ID:				
Benzene	13	20	65%	Result is outside DQOs (70%-130%). *Please refer to overall comments.*
Toluene	13	20	65%	Result is outside DQOs (70%-130%). *Please refer to overall comments.*
Ethylbenzene	13	20	65%	Result is outside DQOs (70%-130%). *Please refer to overall comments.*
meta- & para-Xylene	12	20	60%	Result is outside DQOs (70%-130%). *Please refer to overall comments.*
ortho-Xylene	14	20	70%	Result is within DQOs (70%-130%).
Total xylenes	26	20	130%	Result is within DQOs (70%-130%).
Sum of BTEX	65	80	81%	Result is within DQOs (70%-130%).
Naphthalene	16	20	80%	Result is within DQOs (70%-130%).

Laboratory Control Spike (LCS) Analyses

Analyte Group	Comments
ALS: All	LCS recoveries were within laboratory based DQOs.
SGS: PFAS (ME311145)	13C2-PFHxDA, D3-N-MeFOSA and D5-N-EtFOSA LCS surrogates exceeded the laboratory based DQOs. *Refer to overall comments* .
SGS	Remaining LCS recoveries were within laboratory DQOs.

Matrix Spike (MS) Analyses

Analyte Group	Comments
ALS: All	MS recoveries were within laboratory based DQOs
SGS: All	MS recoveries were within laboratory based DQOs

Laboratory Duplicates (LD) Analyses

Analyte Group	Sample ID	Comments
ALS: All	-	LD RPDs were within laboratory based DQOs.
SGS: All	-	LD RPDs were within laboratory based DQOs.

Field Duplicates (FD) Analyses

Analyte Group	Primary ID	Duplicate ID	Comments
-	-	-	No FD analysis was required for this batch.

Field Triplicates (FT) Analyses

Analyte Group	Primary ID	Triplicate ID	Comments
-	-	-	No FT analysis was required for this batch.

Surrogate Compound Monitoring Analyses

Analyte Group	Analyte(s)	Comments
ALS: All	-	Surrogate recoveries were within laboratory based DQOs.
SGS: All	-	Surrogate recoveries were within laboratory based DQOs.

Overall Comments

SGS: Holding time exceedance of 4 days recorded for OCP/OPPs, PAHs, PCBs, TRHs, VOCs and vTRHs. These are considered minor and unlikely to affect the validity of the dataset.

Lab report ME311145: QC reference LB027551.001: D5-N-EtFOSA, method blank surrogate measured at 172% against an RPD of 73% and an LCS recovery of 223%. The results of the MB analysis indicated that the PFAS substances were below the adopted LOR. The exceedance may be attributed to the calculations undertaken by the lab to assess the MB results. The LOR is typically 2.5 times the statistically determined method detection limit which may over estimate percentage recoveries.

SGS: LCS Surrogate recoveries exceed the laboratory based DQOs for 13C2-PFHxDA, D3-N-MeFOSA and D5-N-EtFOSA. The reasons for this are unknown however it may be attributed to the low LORs for PFAS substances analysed at SGS.

QC sample frequency outliers exist for PAH/phenols, TRH (semi-volatile) and alkalinity. Golder-Douglas used the sample bottles provided by the laboratory for these analyses. The frequency outliers are not expected to affect the validity of the dataset as other frequencies were met.

This batch has been validated and is considered suitable for environmental interpretive use.

Note: Data validation assesses each analyte in terms of all the data validation variables and only the exceedances and outliers are reported in this form.

*When concentrations are less than the LOR for both primary and duplicate/triplicate results, no RPDs are calculated

Performed By:	**Bianca Underwood**	**Checked By:**	**Barry Houston**
Date:	**17/07/2019**	**Date:**	**19/07/2019**

Sydney Metro West Marrickville
Duplicate Analysis RPDs
Project Number: 1791865
Batche/s: ES1920368 & SE194695, ME311145

Sample ID	BH_MN01A	WQA500A	WQA500B
Sample Type	Primary	Field Duplicate	Field Triplicate
Date Sampled	28/06/2019	28/06/2019	28/06/2019

Analyte	Units	LOR				RPDs	
						Primary vs Duplicate	Primary vs Triplicate
Volatile Petroleum Hydrocarbons (PHCs)							
TRH C6 - C10 Fraction F1	mg/L	0.02 : 0.05 (Interlab)	<0.02	<0.02	<0.05	ND	ND
TRH C6 - C10 Fraction Less BTEX F1	mg/L	0.02 : 0.05 (Interlab)	<0.02	<0.02	<0.05	ND	ND
Total Recoverable Hydrocarbons (TRHs)							
TRH >C10 - C16 Fraction F2	mg/L	0.1 :0.06 (Interlab)	<0.1	<0.1	<0.06	ND	ND
TRH >C10 - C16 Fraction Less Naphthalene (F2)	mg/L	0.1 :0.06 (Interlab)	<0.1	<0.1	<0.06	ND	ND
TRH >C16 - C34 Fraction F3	mg/L	0.1 :0.5 (Interlab)	<0.1	<0.1	<0.5	ND	ND
TRH >C34 - C40 Fraction F4	mg/L	0.1 :0.5 (Interlab)	<0.1	<0.1	<0.5	ND	ND
TRH+C10 - C40 (Sum of total) (Lab Reported)	mg/L	0.1 :0.65 (Interlab)	<0.1	<0.1	<0.65	ND	ND
BTEXN							
Benzene	mg/L	0.001 : 0000.5 (Interlab)	<0.001	<0.001	<0.0005	ND	ND
Toluene	mg/L	0.002 : 0.0005 (Interlab)	<0.002	<0.002	<0.0005	ND	ND
Ethylbenzene	mg/L	0.002 : 0.0005 (Interlab)	<0.002	<0.002	<0.0005	ND	ND
Xylenes (m & p)	mg/L	0.002 : 0.001 (Interlab)	<0.002	<0.002	<0.001	ND	ND
Xylene (o)	mg/L	0.002 : 0.0005 (Interlab)	<0.002	<0.002	<0.0005	ND	ND
Xylenes (Sum of total) (Lab Reported)	mg/L	0.002 : 0.0015 (Interlab)	<0.002	<0.002	<0.0015	ND	ND
Naphthalene	mg/L	0.005: 0.0005 (Interlab)	<0.005	<0.005	<0.0005	ND	ND
Total BTEX	mg/L	0.001 : 0.003 (Interlab)	<0.001	<0.001	<0.003	ND	ND
Heavy Metals							
Arsenic	mg/L	0.001	<0.001	<0.001	<0.001	ND	ND
Cadmium	mg/L	0.0001	<0.0001	<0.0001	<0.0001	ND	ND
Chromium	mg/L	0.001	<0.001	<0.001	<0.001	ND	ND
Copper	mg/L	0.001	0.011	0.015	0.015	31%	31%
Lead	mg/L	0.001	<0.001	<0.001	<0.001	ND	ND
Mercury	mg/L	0.0001	<0.0001	<0.0001	<0.0001	ND	ND
Nickel	mg/L	0.001	0.002	0.003	0.003	40%	**40%**
Zinc	mg/L	0.005	0.017	0.021	0.019	21%	**11%**
PAHs							
Acenaphthene	mg/L	0.001 : 0.0001 (Interlab)	<0.001	<0.001	<0.0001	ND	ND
Acenaphthylene	mg/L	0.001 : 0.0001 (Interlab)	<0.001	<0.001	<0.0001	ND	ND
Anthracene	mg/L	0.001 : 0.0001 (Interlab)	<0.001	<0.001	<0.0001	ND	ND
Benz(a)anthracene	mg/L	0.001 : 0.0001 (Interlab)	<0.001	<0.001	<0.0001	ND	ND
Benzo(a)pyrene	mg/L	0.0005: 0.0001 (Interlab)	<0.0005	<0.0005	<0.0001	ND	ND
Benzo(b)&(j)fluoranthene	mg/L	0.001 : 0.0001 (Interlab)	<0.001	<0.001	<0.0001	ND	ND
Benzo(g,h,i)perylene	mg/L	0.001 : 0.0001 (Interlab)	<0.001	<0.001	<0.0001	ND	ND
Benzo(k)fluoranthene	mg/L	0.001 : 0.0001 (Interlab)	<0.001	<0.001	<0.0001	ND	ND
Chrysene	mg/L	0.001 : 0.0001 (Interlab)	<0.001	<0.001	<0.0001	ND	ND
Dibenz(a,h)anthracene	mg/L	0.001 : 0.0001 (Interlab)	<0.001	<0.001	<0.0001	ND	ND
Fluoranthene	mg/L	0.001 : 0.0001 (Interlab)	<0.001	<0.001	<0.0001	ND	ND
Fluorene	mg/L	0.001 : 0.0001 (Interlab)	<0.001	<0.001	<0.0001	ND	ND
Indeno(1,2,3-c,d)pyrene	mg/L	0.001 : 0.0001 (Interlab)	<0.001	<0.001	<0.0001	ND	ND
Naphthalene	mg/L	0.001 : 0.0001 (Interlab)	<0.001	<0.001	<0.0001	ND	ND
Phenanthrene	mg/L	0.001 : 0.0001 (Interlab)	<0.001	<0.001	<0.0001	ND	ND
Pyrene	mg/L	0.001 : 0.0001 (Interlab)	<0.001	<0.001	<0.0001	ND	ND
PAH (Sum of Common 16 PAHs - Lab Reported)	mg/L	0.0005: 0.0001 (Interlab)	<0.0005	<0.0005	<0.0001	ND	ND
Organophosphorous Pesticides							
Azinphos-methyl	µg/L	0.5	<0.5	<0.5	<0.2	ND	ND
Bromophos-ethyl	µg/L	0.5	<0.5	<0.5	<0.2	ND	ND
Carbophenothion	µg/L	0.5	<0.5	<0.5	-	ND	ND
Chlorfenvinphos	µg/L	0.5	<0.5	<0.5	-	ND	ND
Chlorpyriphos	µg/L	0.5	<0.5	<0.5	<0.2	ND	ND
Chlorpyriphos-methyl	µg/L	0.5	<0.5	<0.5	-	ND	ND
Demeton-s-methyl	µg/L	0.5	<0.5	<0.5	-	ND	ND
Diazinon	µg/L	0.5	<0.5	<0.5	<0.5	ND	ND
Dichlorvos	µg/L	0.5	<0.5	<0.5	<0.5	ND	ND
Dimethoate	µg/L	0.5	<0.5	<0.5	<0.5	ND	ND
Ethion	µg/L	0.5	<0.5	<0.5	<0.2	ND	ND
Fenamiphos	µg/L	0.5	<0.5	<0.5	-	ND	ND
Fenitrothion	µg/L	0.2	-	-	<0.2	ND	ND
Fenthion	µg/L	0.5	<0.5	<0.5	-	ND	ND
Malathion	µg/L	0.5	<0.5	<0.5	<0.2	ND	ND
Methidathion	µg/L	0.5	-	-	<0.5	ND	ND
Parathion-methyl	µg/L	2	<2.0	<2.0	-	ND	ND
Monocrotophos	µg/L	2	<2.0	<2.0	-	ND	ND
Parathion	µg/L	2	<2.0	<2.0	-	ND	ND
Pirimphos-ethyl	µg/L	0.5	<0.5	<0.5	<0.2	ND	ND
Prothiofos	µg/L	0.5	<0.5	<0.5	-	ND	ND
Organochlorine Pesticides							
a-BHC	µg/L	0.5	<0.5	<0.5	<0.1	ND	ND
Aldrin	µg/L	0.5	<0.5	<0.5	<0.1	ND	ND
Dieldrin	µg/L	0.5	<0.5	<0.5	<0.1	ND	ND
Aldrin & Dieldrin (Sum of total) (Lab Reported)	µg/L	0.5	<0.5	<0.5	<0.1	ND	ND
b-BHC	µg/L	0.5	<0.5	<0.5	<0.1	ND	ND
cis-Chlordane	µg/L	0.5	<0.5	<0.5	<0.1	ND	ND
trans-Chlordane	µg/L	0.5	<0.5	<0.5	<0.1	ND	ND
Chlordane (Sum of total)	µg/L	0.5	<0.5	<0.5	<0.1	ND	ND
d-BHC	µg/L	0.5	<0.5	<0.5	<0.1	ND	ND
DDD	µg/L	0.5	<0.5	<0.5	<0.1	ND	ND
DDE	µg/L	0.5	<0.5	<0.5	<0.1	ND	ND
DDT	µg/L	2	<2.0	<2.0	<0.1	ND	ND
DDT+DDE+DDD (Sum of total) (Lab Reported)	µg/L	0.5	<0.5	<0.5	<0.1	ND	ND
Endosulfan I	µg/L	0.5	<0.5	<0.5	<0.1	ND	ND
Endosulfan II	µg/L	0.5	<0.5	<0.5	<0.1	ND	ND
Endosulfan sulphate	µg/L	0.5	<0.5	<0.5	<0.1	ND	ND
Endrin	µg/L	0.5	<0.5	<0.5	<0.1	ND	ND
Endrin aldehyde	µg/L	0.5	<0.5	<0.5	<0.1	ND	ND
Endrin ketone	µg/L	0.5	<0.5	<0.5	<0.1	ND	ND
g-BHC	µg/L	0.5	<0.5	<0.5	<0.1	ND	ND
Heptachlor	µg/L	0.5	<0.5	<0.5	<0.1	ND	ND
Heptachlor epoxide	µg/L	0.5	<0.5	<0.5	<0.1	ND	ND

Hexachlorobenzene	µg/L	0.5	<0.5	<0.5	<0.1	ND	ND
Methoxychlor	µg/L	2	<2.0	<2.0	<0.1	ND	ND
Phenols							
2,4,5-Trichlorophenol	µg/L	<0.5	<1.0	<1.0	<0.5	ND	ND
2,4,6-Trichlorophenol	µg/L	<0.5	<1.0	<1.0	<0.5	ND	ND
2,3,5,6-tetrachlorophenol	µg/L	<1	-	-	<1	ND	ND
2,4-Dichlorophenol	µg/L	<0.5	<1.0	<1.0	<0.5	ND	ND
2,6-Dichlorophenol	µg/L	<0.5	<1.0	<1.0	<0.5	ND	ND
2,4-dinitrophenol	µg/L	<2	-	-	<2	ND	ND
2-Chlorophenol	µg/L	<0.5	<1.0	<1.0	<0.5	ND	ND
4-Chloro-3-methylphenol	µg/L	<2	<1.0	<1.0	<2	ND	ND
Pentachlorophenol	µg/L	<0.5	<2.0	<2.0	<0.5	ND	ND
2,4-Dimethylphenol	µg/L	<0.5	<1.0	<1.0	<0.5	ND	ND
2-Methylphenol	µg/L	<0.5	<1.0	<1.0	<0.5	ND	ND
2-Nitrophenol	µg/L	<0.5	<1.0	<1.0	<0.5	ND	ND
4-Nitrophenol	µg/L	<1	-	-	<1	ND	ND
3- & 4- Methylphenol	µg/L	<1	<2.0	<2.0	<1	ND	ND
Total cresol	µg/L	<1.5	-	-	<1.5	ND	ND
Phenol	µg/L	<0.5	<1.0	<1.0	<0.5	ND	ND
Polychlorinated Biphenyls							
PCB (Sum of Total-Lab Reported)	µg/L	1	<1	<1	<5	ND	ND
Volatile Organic Compounds							
1,4-Dichlorobenzene	µg/L	5	<5	<5	<0.3	ND	ND
2-Chlorotoluene	µg/L	5	<5	<5	<0.5	ND	ND
4-Chlorotoluene	µg/L	5	<5	<5	<0.5	ND	ND
1,2,3-Trichlorobenzene	µg/L	5	<5	<5	<0.5	ND	ND
1,2,4-Trichlorobenzene	µg/L	5	<5	<5	<0.5	ND	ND
1,2-Dichlorobenzene	µg/L	5	<5	<5	<0.5	ND	ND
1,3-Dichlorobenzene	µg/L	5	<5	<5	<0.5	ND	ND
Bromobenzene	µg/L	5	<5	<5	<0.5	ND	ND
Chlorobenzene	µg/L	5	<5	<5	<0.5	ND	ND
1,2,4-trimethylbenzene	µg/L	5	<5	<5	<0.5	ND	ND
1,3,5-Trimethylbenzene	µg/L	5	<5	<5	<0.5	ND	ND
Isopropylbenzene	µg/L	5	<5	<5	<0.5	ND	ND
n-Butylbenzene	µg/L	5	<5	<5	<0.5	ND	ND
n-Propylbenzene	µg/L	5	<5	<5	<0.5	ND	ND
p-Isopropyltoluene	µg/L	5	<5	<5	<0.5	ND	ND
sec-Butylbenzene	µg/L	5	<5	<5	<0.5	ND	ND
Styrene	µg/L	5	<5	<5	<0.5	ND	ND
tert-Butylbenzene	µg/L	5	<5	<5	<0.5	ND	ND
Methyl Ethyl Ketone	µg/L	50	<50	<50	<10	ND	ND
2-Hexanone	µg/L	50	<50	<50	<5	ND	ND
Methyl iso-butyl ketone	µg/L	50	<50	<50	-	ND	ND
Vinyl acetate	µg/L	50	<50	<50	<10	ND	ND
1,1,1,2-Tetrachloroethane	µg/L	5	<5	<5	<0.5	ND	ND
1,1,2,2-Tetrachloroethane	µg/L	5	<5	<5	<0.5	ND	ND
1,1,1-Trichloroethane	µg/L	5	<5	<5	<0.5	ND	ND
1,1,2-Trichloroethane	µg/L	5	<5	<5	<0.5	ND	ND
1,2,3-Trichloropropane	µg/L	5	<5	<5	<0.5	ND	ND
1,2-Dibromo-3-chloropropane	µg/L	5	<5	<5	<0.5	ND	ND
1,2-Dibromoethane	µg/L	5	<5	<5	<0.5	ND	ND
1,1-Dichloroethane	µg/L	5	<5	<5	<0.5	ND	ND
1,2-Dichloroethane	µg/L	5	<5	<5	<0.5	ND	ND
1,1-Dichloroethene	µg/L	5	<5	<5	<0.5	ND	ND
cis-1,2-Dichloroethene	µg/L	5	<5	<5	<0.5	ND	ND
trans-1,2-dichloroethene	µg/L	5	<5	<5	<0.5	ND	ND
1,2-Dichloropropane	µg/L	5	<5	<5	<0.5	ND	ND
1,3-Dichloropropane	µg/L	5	<5	<5	<0.5	ND	ND
2,2-Dichloropropane	µg/L	5	<5	<5	<0.5	ND	ND
1,1-Dichloropropylene	µg/L	5	<5	<5	<0.5	ND	ND
cis-1,3-Dichloropropylene	µg/L	5	<5	<5	<0.5	ND	ND
trans-1,3-dichloropropylene	µg/L	5	<5	<5	<0.5	ND	ND
1,3-dichloropropene (as sum of cis-1,3-	µg/L	-	<5	<5	<0.5	ND	ND
cis-1,4-Dichloro-2-butene	µg/L	5	<5	<5	<1	ND	ND
trans-1,4-Dichloro-2-butene	µg/L	5	<5	<5	<1	ND	ND
Bromochloromethane	µg/L	1	-	-	<0.5	ND	ND
Bromodichloromethane	µg/L	5	<5	<5	<0.5	ND	ND
Bromoform	µg/L	5	<5	<5	<0.5	ND	ND
Bromomethane	µg/L	50	<50	<50	<10	ND	ND
Carbon disulfide	µg/L	5	<5	<5	<2	ND	ND
Carbon tetrachloride	µg/L	5	<5	<5	<0.5	ND	ND
Chlorodibromomethane	µg/L	5	<5	<5	-	ND	ND
Chloroethane	µg/L	50	<50	<50	<5	ND	ND
Chloroform	µg/L	5	<5	<5	<0.5	ND	ND
Chloromethane	µg/L	50	<50	<50	<5	ND	ND
Dibromomethane	µg/L	5	<5	<5	<0.5	ND	ND
Dichlorodifluoromethane	µg/L	50	<50	<50	<0.5	ND	ND
Hexachlorobutadiene	µg/L	5	<5	<5	<0.5	ND	ND
Iodomethane	µg/L	5	<5	<5	<5	ND	ND
Pentachloroethane	µg/L	5	<5	<5	-	ND	ND
Trichloroethene	µg/L	5	<5	<5	<0.5	ND	ND
Tetrachloroethene	µg/L	5	<5	<5	<0.5	ND	ND
Trichlorofluoromethane	µg/L	50	<50	<50	<1	ND	ND
Vinyl chloride	µg/L	50	<50	<50	<0.3	ND	ND
Per- and polyfluoroalkyl substances (PFAS)							
Sum of PFHxS and PFOS (lab reported)	mg/L	0.00001: 0.000002 (Interlab)	0.00002	0.00002	0.000018	0%	11%
10:2 Fluorotelomer sulfonic acid	mg/L	0.00005	<0.00005	<0.00005	-	ND	-
4:2 Fluorotelomer sulfonic acid	mg/L	0.00005: 0.000002 (Interlab)	<0.00005	<0.00005	<0.000002	ND	ND
8:2 Fluorotelomer sulfonate	mg/L	0.00005: 0.000002 (Interlab)	<0.00005	<0.00005	0.000002	ND	ND
Perfluorobutanoic acid (PFBA)	mg/L	0.0001: 0.000002 (Interlab)	<0.00005	<0.00005	<0.000002	ND	ND
Perfluoroheptane sulfonic acid	mg/L	0.0002: 0.000002 (Interlab)	<0.0001	<0.0001	0.001	ND	ND
Perfluoro-n-pentanoic acid (PFPeA)	mg/L	0.00002: 0.000004 (Interlab)	<0.00002	<0.00002	0.000005	ND	ND
Perfluoropentane sulfonic acid	mg/L	0.00002: 0.000004 (Interlab)	<0.00002	<0.00002	0.000012	ND	ND

N-Et-FOSA	mg/L	0.000005: 0.00001 (Interlab)	<0.00002	<0.00002	<0.000004	ND	ND
N-Et-FOSE	mg/L	0.000005: 0.00001 (Interlab)	<0.00005	<0.00005	<0.00001	ND	ND
N-Me-FOSA	mg/L	0.00005: 0.00001 (Interlab)	<0.00005	<0.00005	<0.00001	ND	ND
N-Me-FOSE	mg/L	0.00005: 0.00001 (Interlab)	<0.00005	<0.00005	<0.00001	ND	ND
N-methyl-perfluorooctanesulfonamidoacetic aci	mg/L	0.00005: 0.00001 (Interlab)	<0.00005	<0.00005	<0.00001	ND	ND
Perfluorobutanesulfonic acid (PFBS)	mg/L	0.00002: 0.000004 (Interlab)	<0.00002	<0.00002	<0.00001	ND	ND
Perfluorodecanesulfonic acid (PFDS)	mg/L	0.00002: 0.000002 (Interlab)	<0.00002	<0.00002	<0.000004	ND	ND
Perfluorodecanoic acid (PFDA)	mg/L	0.00002: 0.000004 (Interlab)	<0.00002	<0.00002	<0.000002	ND	ND
Perfluorododecanoic acid (PFDoA)	mg/L	0.00002: 0.000004 (Interlab)	<0.00002	<0.00002	<0.000004	ND	ND
Perfluoroheptanoic acid (PFHpA)	mg/L	0.00002: 0.000002 (Interlab)	<0.00002	<0.00002	<0.000004	ND	ND
Perfluorooctanesulfonic acid (PFOS)	mg/L	0.00002: 0.000002 (Interlab)	<0.00002	<0.00002	0.000005	ND	ND
Perfluorooctanoate (PFOA)	mg/L	0.00001: 0.000001 (Interlab)	0.00002	0.00002	0.000014	0%	35%
Perfluorohexanesulfonic acid (PFHxS)	mg/L	0.00002: 0.000002 (Interlab)	0.00002	0.00002	0.000019	0%	5%
Perfluorononanoic acid (PFNA)	mg/L	0.000002: 0.000004 (Interlab)	<0.00002	<0.00002	0.000004	ND	ND
Perfluorohexanoic acid (PFHxA)	mg/L	0.00002: 0.000002 (Interlab)	<0.00002	<0.00002	<0.000004	ND	ND
6:2 Fluorotelomer Sulfonate (6:2 FtS)	mg/L	0.00005: 0.000002 (Interlab)	<0.00002	<0.00002	0.000009	ND	ND
N-ethyl-perfluorooctanesulfonamidoacetic acid	mg/L	0.00002: 0.0001 (Interlab)	<0.00002	<0.00002	<0.00001	ND	ND
Perfluorooctanesulfonamide (PFOSA)	mg/L	0.00002: 0.000008 (Interlab)	<0.00002	<0.00002	<0.000008	ND	ND
Perfluorotetradecanoic acid (PFTeDA)	mg/L	0.00005: 0.000004 (Interlab)	<0.00005	<0.00005	<0.000004	ND	ND
Perfluorotridecanoic acid (PFTrDA)	mg/L	0.00002: 0.000004 (Interlab)	<0.00002	<0.00002	<0.000004	ND	ND
Perfluoroundecanoic acid (PFUnA)	mg/L	0.00002: 0.000004 (Interlab)	<0.00002	<0.00002	<0.000004	ND	ND

Legend

ND = Not Detected (RPDs not calculated if both primary and duplicate results are below LOR)

-= Not analysed/calculated

Indicates RPD result does not meet the acceptable criteria

***Indicates RPD result does not meet the acceptable criteria due to differences in LOR between laboratories**

Acceptable RPDs: RPD <= 30%

RPD > 30%, Analysis result < 10 times LOR

RPD <= 50%, Analysis result > 10 times LOR and < 20 times LOR

APPENDIX L

Standard Limitations

The document ("Report") to which this page is attached and which this page forms a part of, has been issued by Golder Associates Pty Ltd ("Golder") subject to the important limitations and other qualifications set out below.

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At any location relevant to the Services conditions may exist which were not detected by Golder, in particular due to the specific scope of the investigation Golder has been engaged to undertake. Conditions can only be verified at the exact location of any tests undertaken. Variations in conditions may occur between tested locations and there may be conditions which have not been revealed by the investigation and which have not therefore been taken into account in this Report.

Golder accepts no responsibility for and makes no representation as to the accuracy or completeness of the information provided to it by or on behalf of the Client or sourced from any third party. Golder has assumed that such information is correct unless otherwise stated and no responsibility is accepted by Golder for incomplete or inaccurate data supplied by its Client or any other person for whom Golder is not responsible. Golder has not taken account of matters that may have existed when the Report was prepared but which were only later disclosed to Golder.

Having regard to the matters referred to in the previous paragraphs on this page in particular, carrying out the Services has allowed Golder to form no more than an opinion as to the actual conditions at any relevant location. That opinion is necessarily constrained by the extent of the information collected by Golder or otherwise made available to Golder. Further, the passage of time may affect the accuracy, applicability or usefulness of the opinions, assessments or other information in this Report. This Report is based upon the information and other circumstances that existed and were known to Golder when the Services were performed and this Report was prepared. Golder has not considered the effect of any possible future developments including physical changes to any relevant location or changes to any laws or regulations relevant to such location.

Where permitted by the Contract, Golder may have retained subconsultants affiliated with Golder to provide some or all of the Services. However, it is Golder which remains solely responsible for the Services and there is no legal recourse against any of Golder's affiliated companies or the employees, officers or directors of any of them.

By date, or revision, the Report supersedes any prior report or other document issued by Golder dealing with any matter that is addressed in the Report.

Any uncertainty as to the extent to which this Report can be used or relied upon in any respect should be referred to Golder for clarification


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