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DETAILED SITE INVESTIGATION

September 21
J169135-01

SCHOOL INFRASTRUCTURE NSW (SINSW) - DEPARTMENT OF EDUCATION

Proposed Sydney Olympic Park High School

C123934 : SW

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Proposal

The proposed development is for the construction of a school whereby the project is known as Sydney Olympic Park new high school. The school is to be developed in two stages. The SSD application will seek consent for both Stage One and Stage Two. While Stage Two is submitted as part of this proposal, construction is subject to approval of additional funding.

Stage One will provide for a Stream 5 high school, catering for up to 850 students. Stage Two will bring the school up to a stream 9 school capability catering up to 1,530 students.

The design features a six storey building. To the north of the site, a hall building (for sports and performance) is proposed.

The play space required to meet the need of students for Stage One can be generally accommodated onsite, within the 9,511sqm available. Additional play space may be required to accommodate the increased student numbers anticipated during Stage 2. The proposed adjoining play space comprises an area of around 8,800sqm, and will be subject to a Joint Use Arrangement and available for public use outside school hours. The future Wentworth Point Peninsula Park will result in an open space area of approximately 4 ha.

The remainder of the peninsula (TfNSW land) is under review and will be subject to a separate approval process. Redevelopment of this land will include the new access road proposed off Burroway Road along the eastern boundary of the subject site and is proposed to include car parking, drop-off zones and delivery zones.

Site Description

The proposed development is located within the peninsula of Wentworth Point at 7-11 Burroway Road, Wentworth Park across parts of three lots; Lot 202 DP1216628, Lot 203 DP1216628 and Lot 204 DP1216628. The site forms part of the Wentworth Point Planned Precinct, which was rezoned in 2014 for the purposes of high density residential, public recreation, school and business purposes.

The site is approximately 9,511sqm in area, with a frontage of approximately 91m to Burroway Road. It currently contains vacant land, which is cleared of all past development, and almost entirely cleared of native vegetation.

The surrounding area is generally characterised by high rise residential and mixed-use developments. The site is directly adjacent to the Wentworth Point Peninsula Park and immediately east of Wentworth Point Public School.

Site Aerial Map
Source: Mecone

Document Control

Document Quality Management Details		
Report Name:	Detailed Site Investigation	
Site Details:	Proposed Sydney Olympic Park High School - 7-11 Burroway Road, Wentworth Point, NSW 2127	
Project Number:	J169135-01	
Client Name:	School Infrastructure NSW (SINSW) - Department of Education	
Client Number:	C123934	
Signatures:	Prepared By:  Shihui Wang Environmental Consultant | Contaminated Land Management East	Authorised By:  Matthew Barberson Team Manager | Contaminated Land Management East

Issue Status

Version No.	Date	Creator	Reviewer
Draft 1	10/06/2021	Shihui Wang	Matthew Barberson
1	06/08/2021	Shihui Wang	Matthew Barberson
2	17/08/2021	Shihui Wang	Matthew Barberson
3	29/08/2021	Shihui Wang	Matthew Barberson
4	15/09/2021	Shihui Wang	Matthew Barberson

Document Circulation

No of Copies	Type	Customer Name	Position & Company
1	Electronic	Sandra Lim	Project Director / Cadence Australia Pty Ltd
1	Electronic	Robert Crestani	Senior Project Director / Department of Education

Executive Summary

Greencap Pty Ltd (Greencap) were engaged by School Infrastructure NSW (SINSW) - Department of Education to undertake a Detail Site Investigation (DSI) at Proposed Sydney Olympic Park High School at 7-11 Burroway Road, Wentworth Point NSW 2127 (the 'site'). The site is identified as parts of three lots: Lot 202 DP1216628, Lot 203 DP1216628 and Lot 204 DP1216628, and covers an approximate area of 0.95 ha (refer to the site boundary displayed in **Figure 1**).

The site was vacant at the time of investigation. The site is planned to be developed by Department of Education (Schools Infrastructure of NSW) as a high school site, which is known as the Sydney Olympic Park new high school (SOPHS).

The site is situated on a reclaimed land and has a history of contamination. Previous contamination reports indicated historical filling, various industrial land uses (inc. timber treatment and waste processing), demolition and partial remedial activities had occurred on-site. The contamination risks identified in previous contamination reports included ground gases, petroleum hydrocarbons, polycyclic aromatic hydrocarbons (PAH), heavy metals and asbestos. Acid sulphate soils were also identified on the site.

Greencap completed a Preliminary Site Investigation (PSI) and prepared a Sampling Analysis Quality Plan (SAQP) for the site. The SAQP included a review of a former Remediation Action Plan (RAP) prepared by Parsons Brinckerhoff (2015), which covered a larger area, including the proposed high school site and adjacent blocks of land.

As per NSW EPA Sampling Design Guidelines (1995), the minimum systematic sampling locations required for a 0.95ha site is estimated as 21 investigation locations. A total of 21 locations were investigated by Greencap in this Detail Site Investigation to meet the guidelines requirements.

Objectives and Scope

The objectives of this Detailed Site Investigation are as follows: (i) obtain sample analysis data to assess the site suitability for the proposed land use, (ii) close out the data gaps specified in the PSI Report and SAQP; and (iii) collect the necessary data and information for improving the conceptual site model (CSM) and risk assessment and planning further investigations and/ or remedial actions.

To achieve the above-mentioned project objectives, soil, ground gas, soil vapor and groundwater investigations were conducted on site. Chemical results obtained from these investigations were compared with applicable human health, ecological criteria and regulatory threshold levels for further investigation and corrective actions. Consequently, the CSM was updated to inform the decision-making process for further investigations and remedial actions.

Findings

The DSI identified ground gas impact on site. Methane and carbon dioxide were identified exceeding the trigger levels for further investigation and/or corrective action at multiple locations at the planned building footprints. The semi-quantitative risk assessment conducted in this scope of this DSI, with Six rounds of monitoring data obtained within two months, indicated the site can be classified as "Low Risk" of ground gas, which require physical gas protection measures as per NSW EPA Guideline on Hazardous Ground Gasses (NSW EPA 2020).

Soil contamination assessment identified localised elevated concentrations of contaminants in soil samples including some exceedances of the Health-based Investigation Levels (HIL-C exposure setting). These

included lead at BH4 (870 mg/kg), Benzo(a)pyrene TEQ at BH4 (3.5 mg/kg), GG8 (6.2 mg/kg) and GG12 (8.6 mg/kg), TRH F2 at GG8 after silica-gel clean up (2400 mg/kg, hotspot). Among them, the TCLP (Toxicity Characteristic Leaching Procedure) test results of Benzo(a)pyrene at BH4, GG8 and GG12 were all lower than the Limit of Reporting (LOR). The 95% UCL average concentrations of Lead across the site (excluding the soil mound area) was below the HIL-C criteria. The level of TRH >C10-C16 less Naphthalene (F2) at GG8 (0.4-0.5mBGL) exceeded the selected soil vapor intrusion criteria HSL A after silica-gel clean-up.

Asphalt was observed at borehole GG12 where Bzeno(a)yprene TEQ exceedance was noted.

Three pieces of Asbestos fines were detected in one borehole sample collected at north-eastern section of the site where the ground surface was covered by concrete slab. The detection was noted as 0.21% w/w which exceeded the adopt HSL-C criteria. Bonded asbestos on the ground surface was observed at two locations.

Acid sulphate soil was identified on site at depths ranging between 2.0-4.6 m and an ASS management plan is required for site redevelopment works.

Groundwater assessment identified ammonia and copper concentrations, at the single location sampled, that exceeded the groundwater investigation criteria levels. Groundwater monitoring results did not indicate the presence of any other contamination in the assessed perched aquifer beneath the site at the single location sampled.

One legacy underground storage tank – UST, (potentially an oil sump) was identified in the south-east section of the site. Another potential legacy UST location, not yet investigated, was marked up on a figure attached to the former RAP (PB 2015)—"*this area was inaccessible for investigation due to the soil mound and concrete slab"*.

Conclusion

As a result of this DSI, it is concluded that the site can be made suitable for the proposed development with appropriate remediation and gas mitigation measures and implementation of a long-term environmental management plan.

Recommendations

In the light of the available information Greencap recommends the following actions to be taken:

- A Remediation Action Plan (RAP) is required establishing the necessary remedial actions for the mitigation of the following contamination risks:
  - Hazardous ground gas risk on-site;
  - Decommissioning of the identified UST; and
  - Residual soil contamination risk if identified on site.
- The ground gas mitigation system must incorporate sufficient levels of protection as per the NSW EPA (2020) guidelines on hazardous ground gases*;*
- An Asbestos Management Plan (AMP) is required to manage the identified asbestos risk during construction activities;
- An Acid Sulfate Soils Management Plan (ASSMP) is required to manage the acid sulfate soil risk during excavation, piling and construction works; and
- Further investigation to close out the following data gaps:
  - Potential presence of an additional legacy UST location indicated at the western section of the site;
  - Type and extent of asbestos contamination beneath the concrete slab area of the site;
- A long-term Environmental Management Plan (EMP) will be required for ongoing management of the site contamination.

Note: This executive summary is not a standalone document and must be read in conjunction with the rest of our report with all documents attached.

Detailed Site Investigation

School Infrastructure NSW (SINSW) - Department of Education

Proposed Sydney Olympic Park High School

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1. Introduction

Greencap Pty Ltd (Greencap) were engaged by School Infrastructure NSW (SINSW) - Department of Education (DoE) to undertake a Detailed Site Investigation (DSI) at Proposed Sydney Olympic Park High School ('the site'). A figure depicting the site location has been included as **Figure 1** in the Figures section at the end of this report.

As per NSW EPA Sampling Design Guidelines (1995), the minimum systematic sampling locations required for a 0.95ha site is estimated as 21 investigation locations. A total of 21 locations were investigated by Greencap in this Detail Site Investigation to meet the guidelines requirements. Refer to **Figure 2** for sampling locations.

2. Site History and Background

The site was vacant land at the time of the detailed investigation. The site is planned to be developed by Department of Education (Schools Infrastructure of NSW) as a new high school site, which is called the Sydney Olympic Park High School (SOPHS). Refer to **Figure 1** for site location and locality.

Greencap undertook a Preliminary Site Investigation (PSI) for the site and prepared the PSI Report (Greencap 2021). Based on the finding of the PSI, the site was situated on a reclaimed land, it had been used as a timber treatment plant, a waste processing plant, and a legacy landfill. Extensive filling had occurred in the past. The site has a history of contamination associated with petroleum hydrocarbons, poly-cyclic aromatic hydrocarbons (PAH), heavy metals, asbestos in fill (bonded and friable), and ground gas. During the preliminary site inspection, a large soil mound (~30m wide and ~110m long) was observed along the western boundary of the site. Apart from the soil mound, the site was largely sealed with concrete.

The site locates on a Class 2 Acid Sulphate Soil zone, which requires Acid Sulphate Soils Assessment and Management Planning for the proposed development. Former RAP (PB 2015) concluded the site is characterised as moderate to high risk for hazardous ground gases (characteristic gas situation 4).

Based on the documents provided by the client, 2 high school buildings are planned to be built at the site which is currently largely sealed with concrete. A sports field area is planned to be built to the north of the site. To further assess the site suitability for the proposed land use and to close out the data gas mentioned in the PSI, a Sampling Analysis and Quality Plan (SAQP) was prepared by Greencap for this Detail Site investigations. This Detail Site Investigation has been conducted in accordance with the SAQP.

3. Project Objectives

The objectives of this Detailed Site Investigation are as follows:

- Assess whether the site is suitable for the proposed land use;
- Close out the data gaps specified in the PSI Report; and
- Collect the necessary data and information for improving the conceptual site model (CSM) and planning further investigations and/or remedial actions, to enable preparation of a remediation action plan (RAP).

4. Project Scope

In order to achieve the above-mentioned project objectives, the following scope was established for the Detailed Site Investigation in accordance with the SAQP:

- Installation of nine gas monitoring wells at the proposed building footprint area;
- Soil sampling at 21 borehole and testpit investigation locations;
- Ground gas monitoring and soil vapour sampling at the nine gas monitoring wells installed;
- Surface ground gas monitoring for gas composition across the site;
- Service pit monitoring for gas composition at on-site service pits and/or drainage gutters;
- Groundwater monitoring and sampling at one ground gas well where groundwater is encountered;
- Chemical analysis of the collected samples by NATA Accredited Laboratories for the contaminants of concern;
- Comparison of the results obtained by chemical analysis and field measurements with the selected investigation criteria; and
- Providing advice regarding further investigation and / or remedial action.

5. Site Description Summary

General site information is provided in Table 1. Site locality and layout maps are provided in **Figure 1.**

Table 1: Site Information		
Site Address:	Proposed Sydney Olympic Park High School: 7-11 Burroway Road, Wentworth Point, NSW 2127	
Property Identification:	Part of 202, 203, and 204 / DP1216628	
Local Government Area	Parramatta City Council	
Approximate Area:	0.95 ha	
Current Zoning:	B1 Neighbourhood Centre, R4 High Density Residential and RE1 Public Recreation	
Current Site Use:	Vacant Land	
Proposed Site Use:	Proposed Sydney Olympic Park High School	
Potential Site Users:	• Future students and staff, parents of the students; and • Current and future site workers and other temporary visitors.	
Surrounding Site Use:	**North** **East** **South** **West**	Parramatta River Parramatta River Riverside Medicine Park Wharf Wentworth Point Public School, Marina Square Shopping Mall
Surface Water Bodies:	**North**	Parramatta River (~146 m distance)
	East	Parramatta River (~126 m distance)
Heritage items	No known heritage items were identified on the site	

5.1 Site Surrounds and Sensitive Receptors

High density commercial/residential buildings locate southeast to the site. To the east is the Went Worth Point Public School and to the south is Riverside Medicine Park. To the immediate north and west of site is vacant lands, Parramatta River locates further north and west to the stie.

Nearest sensitive human receptors are the students and staff of the Wentworth Point Public School, workers/employee/users of the Riverside Medicine Park, and the residents/staff/customers at the high-density commercial/residential buildings southeast to the site. Parramatta river which is north and west to the site is considered as the nearest environmental receptor.

5.2 Site Setting

The site is covered by various fill materials from historical importing of fill soils, wastes and/or natural dredged sediment material from the Parramatta River. The natural material is soft, wet, grey/dark grey to black clay with high plasticity. Strong hydrocarbon odours and sulfide odours have been noted in different fill material layers across the site.

The site's general surface level elevation is approximately 2m Australian Height Datum (AHD). The site has a generally flat topography, with local relief of <2m, sloping down-gradient to the north. An exception is the relatively large mound onsite in the shape of a road, which locates along the western boundary of the site. The elevation of the soil mound ranges from 4mAHD to 7.5mAHD from southwest corner to western of the north boundary. Topographic contours of the site are displayed in the PSI Report (Greencap, 2021). A couple of trees were at the eastern section of the site, no other natural vegetation was present on-site. The site is dominated by concrete slabs with the exception of the soil mound at west boundary and imported fill near the north and south boundary. Refer to **Appendix A. Photos.**

Based on site topography and survey data provided by the client, it is expected that surface runoff would flow towards the south-east and into the stormwater drain at the southern section of the site. The groundwater flow direction is estimated to be flowing towards the south-east.

5.3 Services on Site

A review of the DBYD drawings indicated that Ausgrid has out of service cables at the western boundary of the site and two in-service Low Voltage cables at the southern boundary and eastern end of the southern boundary, respectively. Sydney Water drawings indicated there is a pipeline along the eastern boundary. Jemena has no network on-site. Telstra drawings indicate that there are services along the western boundary, and at southern portion of the site.

6. Summary of Previous Site Assessment Reports

6.1 Preliminary Site Investigations

Greencap undertook a Preliminary Site Investigation (PSI) for the site (Greencap 2021). The site is situated on reclaimed land and site history data indicates extensive filling has occurred in the past. Desktop data and previous investigation reports, including a former remediation action plan (PB 2015), indicated the site has a history of contamination associated with petroleum hydrocarbons, polycyclic aromatic hydrocarbons (PAH), heavy metals, asbestos in fill (bonded and friable), and ground gas. Former potentially contaminating activities identified included: legacy landfilling, industrial operations (inc. waste recycling, and timber production), and legacy demolition activities on-site. The southern section of the site is largely sealed with concrete. A relatively large (potentially > 15,000 m^3) soil mound was observed along the western border of the site. The stratigraphy on site is expected to be fill material overlying alluvial soils and sediments, followed by sandstone bedrock. The site is situated in a Class 2 Acid Sulfate Soil zone, which means the site may contain Acid Sulfate Soils below the natural ground surface and an Acid Sulfate Soils Assessment and Management Plan will be required for the proposed development.

The previous PSI carried out by GHD in 2009, covered a larger area which included the proposed school site within a larger block of land (referred to as Area 1B). Two separate legacy Underground Storage Tank (UST) Areas were identified.

6.2 Previous Detailed Site Investigations

Report: “4 Homebush Bay West - Ground Gas Monitoring (GHD 2013)”

This investigation included ground gas monitoring at 9 locations near the proposed SOPHS school site and 3 monitoring rounds. These locations were not within the SOPHS site but were located nearby in the adjacent eastern and western neighbouring sites. Maximum observed gas readings as part of this investigation were noted as follows: Peak methane: 87.2% v/v (1CW02), Peak carbon dioxide: 14.7% v/v (1CW01), Hydrogen sulphide: 16 ppm (1CW02), Carbon monoxide: 53 ppm (1BW05), Flow rate: 7.012 L/hr (1BW06).

Based on above the gas screening values (GSV) in the scope of a “worst possible scenario” (W&C 2009) for methane and carbon dioxide are calculated as follows:

- Methane: 87.2% x 7.012 L / hr = 6.114 L/ hr
- Carbon dioxide: 14.7 % x 7.012 L / hr = 1.030 L/ hr

Above GSV’s indicate a risk classification of Moderate to High Ground Gas Risk for methane. GHD (2013) conclude that this classification is applicable to the entire Stage 1B area, which included the site. However, as all the 2013 investigation locations were outside of the SOPHS site borders, further consideration needs to be given to this classification.

6.3 Former RAP (Parsons Brinckerhoff 2015)

Greencap was provided with a previous Remediation Action Plan (RAP) for the site, titled as “Parsons Brinckerhoff – Detailed Remediation Action Plan - Infrastructure Delivery, January 2015”. This RAP covered a larger project area and the site defined in the scope of this investigation fell into an area defined as “Stage 1 Area” in the former RAP.

Information from the PB 2015 RAP and previous investigation reports (GHD PSI 2012 and Additional Assessment 2012, Ground Gas Monitoring GHD 2013 and Health risk assessment GHD 2013), is summarised as follows:

- Fill layer material across the site ranged in depth, noted as: 0.0 – 2.4 mBGL (below ground surface level);
- Natural soil material depth intervals were noted as: 1.0 – 4.8 mBGL and
- Sandstone was encountered at some locations with recorded depths of 4.4 – 4.8 mBGL.

- Standing water levels (SWLs) were noted to be ranging from 0.6 mBGL to 3.7 mBGL.
- Lead, total recoverable hydrocarbons (TRH) (C10-C36), Benzo(a)pyrene, polycyclic aromatic hydrocarbon (PAH) exceedances were identified in soil assessment, asbestos (both friable and bonded) was identified in fill material, groundwater contamination of copper, chromium and zinc was identified (Additional contamination assessment – Stage 1 Area, incorporated results from the 2010 detailed site investigation GHD, 2012).
- A potential unacceptable ground gas vapour risk was identified to future land users via the vapour inhalation exposure pathway (Stage 1 health risk assessment GHD, 2013c).
- Based on the maximum characteristic situation (CS) values obtained for Stage 1 Area certain locations/areas were considered to require remediation including gas protection measures for buildings post-development (Additional ground gas monitoring GHD, 2013d).
- Three areas in Stage 1 area were given CS4 ratings, which represents a moderate to high ground gas risk (Ground gas monitoring conducted by GHD).

The historical RAP (PB 2015) indicated the highest readings were taken from the eastern section of Stage 1 Area (off-site), however, suggested the entire site to be classified as CS4 (including the proposed SOPHS site). This required the proposed SOPHS site to be further investigated.

6.4 Interim Validation Report – Early Works Package (Zoic 2020)

This report included a Virgin Excavated Natural Material (VENM) report for the sandstone fill imported to the site in 2019, which corresponds to the sandstone mound on-site and capping material applied to the west and north of the mound. Results of this report showed the sandstone fill area included a minimum of 500 mm capping in-line with the requirements of PB RAP (2015). Greencap understands Zoic undertook asbestos air monitoring during the remediation works targeting the school boundary to the north.

6.5 Preliminary Site Inspection (PSI) and Sampling Analysis Quality Plan (SAQP) (Greencap 2021)

In 2021 Greencap prepared a Sampling Analysis Quality Plan (SAQP), together with the PSI, for the further investigation. The PSI also recommended the following actions:

- A Dangerous Goods Search is required to be undertaken from SafeWork NSW for Lots 202, 203, and 204 in Deposited Plan (DP) 1216628;
- This Detailed Site Investigation (DSI) scope;
- An Acid Sulfate Soils Assessment and a Management Plan is required as excavation and piling activities will likely disturb alluvial soils on-site; and
- A Level 2 (semi-quantitative) Ground Gas Risk Assessment targeting the proposed building footprints is required to establish the updated ground gas risk profile of the site.

7. Sampling Program and Assessment Works Completed

7.1 Works Completed

Following works were completed during the Detailed Site Investigations from 29th April to 23rd August 2021:

- Nine (9) ground gas monitoring wells, labelled GG1 to GG9, have been installed at the locations shown on **Figure 2**;
- 1 round of soil vapour sampling and 6 rounds of ground gas monitoring were undertaken at nine locations, GG1 to GG9;
- 8 boreholes (BH1 to BH5, BH10, GG10 and GG12) were advanced up to 6 mBGL or to natural soil by Geoprobe drill rig/push tube soil sampling, refer to Figure 2;
- 1 borehole was advanced to 0.5 mBGL (shallow borehole due to potential underground service) by hand augur at western side of the soil mound;
- 3 test pits (BH6, BH7 and BH9) were advanced up to 1.5 mBGL by excavator, with one on the soil mound and two at western side of the soil mound;
- Soil sampling for lab analysis and sample headspace PID readings were undertaken at all 21 locations (9 ground gas well, 9 boreholes and 3 test pits);
- 10L Bulk Soil Sample Sieve testing for asbestos containing material (ACM) was undertaken at 3 test pits.
- Groundwater monitoring was undertaken at one location (GG5).
- Surface ground gas monitoring was measured at 45 locations across the site; and
- Three service pits were accessible and measured for potential gas accumulation.

Please refer to **Figure 2** for sampling locations, refer to **Figure 3** for surface gas monitoring locations and **Figure 4** for soil vapor and groundwater sampling locations.

7.2 Drilling and Installation of Monitoring Wells

Prior to drilling and push tubing, DBYD drawings were obtained from www.1100.com.au. Hand auguring, drilling and 50 mm diameter push tube soil sampling, was undertaken on 29th & 30th April and 3rd May 2021, by Greencap's subcontractor Epoca Environment using a standard hand auger and Geoprobe 7822DT. For the protection of potential unknown services hand-auguring was undertaken at each location down to 0.4-0.5 mBGL depth (refer to **Appendix A Photos** for field photographs taken during drilling and **Appendix B** for Field Logs).

Drilling and push tubing was supervised by Greencap's Senior Environmental Consultant, Matthew Barberson and Environmental Consultant, Shihui Wang. At each borehole, the material from the hand auger, drill rig or push tube was firstly laid on a black plastic sheet on the ground next to the boreholes in the same depth sequence to the drilling / sampling process. Soil materials were inspected for asbestos containing material (ACM) and logged, PID readings and chemical analysis samples were taken from each selected layer. At least one sample for asbestos analysis was taken from each borehole and acid sulphate soil analysis samples were taken where alluvial soil, sediment or sulphide odour was observed. The drilling cuttings soil material from the borehole was collected and put in a 200L drum on site after the monitoring wells were installed. Drilling equipment and sampling tools were cleaned and rinsed properly by the subcontractor to avoid cross contamination. Refer to **Appendix B** for the Field Logs. Refer to **Section 7.5.1** for soil sample analytical schedule.

7.3 Well Construction, Screening Depth Intervals and Groundwater Levels

Installation and screening depth interval details of the nine ground gas monitoring wells are presented in Table 2. Locations of these wells are presented on **Figure 2**. Six (6) of the ground gas wells (GG2, 5, 6, 7, 8 and 9) encountered groundwater and can be used both as groundwater monitoring wells and gas wells.

Installed groundwater wells were dipped using an interface meter and water levels were measured by Environmental Consultant, Shihui Wang, on 14th May 2021 during the groundwater sampling event. No LANPL (light non aqueous phase liquid) was recorded in any of the wells.

Well construction details are shown on the borehole logs in **Appendix B**. Well screening depth intervals commenced above the level of the water table at all locations. Slotted 50 mm diameter PVC standpipe was installed from either 0.5m or 0.7 m depth, down to the base of the wells. The borehole space around the well standpipe was backfilled with coarse sand filter media from the base of the borehole up to above the level of the slotted pipe. From the ground surface to approximately 0.5-0.6 m depth, the borehole annulus around the standpipe was sealed with a layer bentonite (minimum 300 mm interval) and also a cement grout collar in the 0-0.2 m surface layer.

Groundwater elevations (m AHD) were calculated using site survey ground surface levels provided by the Client and standing water levels at each well (Table 2). No distinct gradient was indicated, likely due to the limited small area in which the wells are located (below proposed buildings). Groundwater flow direction is inferred to be to the north and/or east toward the river.

Table 2: Ground Gas & Ground Water Monitoring Well Installation Details[1] (Measured on 14th May 2021)

Well ID	Depth (mBGL)	Screened interval (mBGL)	Screened layer material description	Standing water level below top of standpipe (mBGL)	Standing water level below ground surface (mBGL)	Ground surface Elevation* (mAHD)	Standing Water Elevation (mAHD)
GG1	1.51	0.70-1.51	Fill – stiff, clay, moist; Fill – silty soil with gravels (15%) and rock (~35mm), dry; and Fill/Natural – soft, grey clay.	Dry	Dry	+2. 88	Dry
GG2	3.33	0.70-3.33	Fill/Natural – stiff, clay, moist.	1.75	1.9	+3.30	1.40
GG3	0.99	0.50-0.99	Fill – silty sand with gravels (10%) and rocks, dry.	Dry	Dry	+3.27	Dry
GG4	1.48	0.70-1.48	Fill – stiff, sandy clay with rocks (10%), dry.	Dry	Dry	+2.7	Dry
GG5	5.99	0.70-5.99	Fill – loose, medium sand, wet; Fill/Natural – soft sandy clay, moist to wet and Fill/Natural – soft sandy clay with shells, moist to wet.	1.15	1.27	+2.22	0.95
GG6	2.05	0.70-2.05	Fill – stiff, clay and Fill/Natural – loose sand with shells (5%-10%), wet.	1.14	1.26	+2.21	0.95
GG7	1.50	0.70-1.50	Fill/Natural – sandy clay with shells, moist to wet.	1.08	1.18	+2.20	1.02
GG8	2.59	0.70-2.59	Fill/Natural – loose clayey sand and coarse sand with shell, moist to wet.	0.785	0.94	+2.29	1.35
GG9	1.22	0.70-1.22	Fill – coarse sand with clayey sand (10%) and rocks (15%), moist and Fill/Natural – Clayey sand with shells, wet.	0.79	0.89	+2.13	1.24

1. Refer to **Appendix B** for borehole logs and well installation details.
2. mBGL: Metres below ground level.
3. mAHD: Metres above Australian Height Datum.
4. *Ground surface elevations estimated from site survey contours.
5. Fill/Natural: Fill or natural dredged material.

7.4 Observed Soil Stratigraphy and Contamination

Stratigraphy noted during the drilling and excavation works undertaken on 29th & 30th April,3rd & 13th May and 23rd August 2021 were as follows (refer to **Appendix B** for borehole logs):

- Concrete slabs with 14-30 cm measured thickness sealing the soil surface were noted at GG1, GG2, GG4, GG5, GG6, BH2, BH3, BH4, BH5, GG10 and GG12. (refer to **Appendix A** Photographs).
- Fill soil layer comprised of combinations of imported clay, sandy clay and crushed rock as well as alluvium/sediment dredged from the Parramatta River
- Natural high plasticity clay was encountered at depth from 1.2 mBGL to 6.0 mBGL from west to east across the site.
- Material with strong sulfide odour and black staining was noted at boreholes GG1, 2, 3, 4, 5, 6 and 9.
- A layer of dark grey coarse sand and rocks (10%) with strong hydrocarbon odour was noted at GG8 (0.4-0.5 mBGL).
- The material from the test pits on/near the soil mound (BH6, 7 and 9) is mainly light brown to pink sandstone with inclusions of clayey cobbles and grey shale.
- Asphalt was observed at 0.25-1.0 mBGL at GG12.
- One of the groundwater monitoring wells was a deep well GG5 installed to 8 m depth in the south-eastern part of the site at the proposed building footprint area. Push tube soil sampling was undertaken at this location to a depth of 8 mBGL. The following layers were noted at this location from top to the bottom (see Photograph 7 and 8):
  - A 150 mm thick concrete slab (0.0-0.15 mBGL),
  - A 100 mm layer of moist yellow loose sand (0.15-0.25 mBGL),
  - A 150 mm layer of dark grey to black sand and gravel mixture (0.25-0.40 mBGL),
  - A 300 mm layer of dry stiff red clay (with grey mottle) and sandy gravel with organic matter odour (0.4-0.7 mBGL),
  - A 800 mm thick layer of wet, loose yellow medium sand (0.7-1.5 mBGL),
  - A 1500 mm layer of soft brown to grey sandy clay with sulphate odour (1.5-3.0 mBGL),
  - A 900 mm layer of moist to wet, soft, dark grey clay with sulphide odour (3.0-3.9 mBGL),
  - A 2100 mm layer of soft sandy clay with sulphide odour (3.9-6.0 mBGL),
  - A 1000 mm layer of yellow to reddish-yellow stiff clay with organic matter odour (6.0-7.0 mBGL),
  - A 1000 mm layer of natural moist stiff grey clay (with red and yellow mottled) (7.0-8.0 mBGL)
  - End of borehole at 8 mBGL due to the targeted natural soil layer was reached.
- Soil types along the soil mound were observed as sandstone with inclusions of clay cobbles and shale during the test pitting event on 14th May 2021 at BH9, refer to **Figure 2** for the test pitting location.
- Other field observations noted during the drilling works on 29th & 30th April and 3rd &14th May 2021 were as follows:
  - Strong hydrocarbon odour and high PID reading was observed during drilling at GG8.

- Strong sulphurous odours were noted at GG5 at 0.4-0.5 mBGL.
- Two asbestos cement sheeting fragments were observed on the ground surface near GG7 and near the site gate (these were sealed in double plastic bags and sent to Greencap lab for analysis (refer to **Figure 2** for ACMs locations).
- An Underground Storage Tank was found at eastern boundary southern side of the site (refer **Figure 2**).
- One on-site legacy well was found southern to GG2.
- One off-site legacy well was found eastern side of the site.

7.5 Push Tube and Test Pit Soil Sampling

12 locations were investigated in total apart from above mentioned 9 wells on 3rd & 14th May and 23rd August 2021:

3rd May 2021 – Push tubing was undertaken at 6 locations by Greencap's subcontractor Epoca and it was supervised by Greencap's Senior Environmental Consultant, Matthew Barberson and Environmental Consultant, Shihui Wang. Concrete coring was undertaken at 4 locations in the area of the concrete slab (BH2, BH3, BH4 and BH5) before the hand auguring and push tubing.

14th May 2021 – Test pitting was undertaken by Greencap's subcontractor GKC at 3 locations, with one location on the soil mound and two locations at west side to the soil mound. The test pitting was supervised by Greencap's Environmental Consultant, Shihui Wang.

23rd August 2021 – Borehole drilling by Geoprobe auguring was undertaken at three locations by Greencap's subcontractor Epoca and was supervised by Greencap's Environmental Consultant, Shihui Wang. Concrete coring was undertaken at 2 locations (GG10 and GG12) in the area of the concrete slab before the hand auguring and Geoprobe auguring. One shallow borehole was undertaken by manual hand auguring at one borehole (GG11) due to potential underground service.

Prior to auguring, push tubing and excavation, DBYD drawings were obtained from www.1100.com.au and were reviewed by the subcontractor. For the protection of potential unknown services hand-auguring was undertaken at 6 locations down to 0.4-0.5 mBGL depth before drilling. After the sampling, all investigation locations were reinstated. Soil material from the borehole, drill rig (Geoprobe augur), push tubes or tespits was used to backfill the holes, generally in the same sequence. Concrete cores were put back in place to the cover boreholes in the slab area. Excavated material was put back into the test pits in reverse order to the excavation process and compacted by the excavator (refer to **Appendix A** for field photographs taken during the field works and **Appendix B** for field logs). At each borehole, the material from the test pits, push tubes or drill rig was firstly laid on a black plastic sheet on the ground next to the borehole/test pit in the same order to the drilling/excavation process. Soil material details were logged, inspected for asbestos material and PID readings and chemical analysis samples were taken from each layer. At least one asbestos sample was taken from each borehole. Acid sulfate soil samples were collected where sulfate odour was noted.

7.5.1 Soil Analytical Schedule

Soil samples were collected & analysed at 21 locations, including the 9 ground gas wells (during drilling & well installation), 9 borehole locations and 3 test pitting locations. In this scope the following soil sampling tasks were accomplished:

- At least one 250ml glass jar chemical analysis sample and one 500ml AF/FA asbestos analysis sample (asbestos fines/fibrous asbestos) were collected at 21 locations;
- Acid sulphate soil samples were collected at GG5 and other locations where alluvial sediment soils or sulphide odour were observed
- All soil samples were placed in eskies with ice bricks right after sampling,
- Soil vapour readings with a calibrated photoionization detector (PID) were taken at each selected layer at 21 locations, using the headspace method (sealed plastic bag samples),
- Field duplicate and field triplicate samples were collected at a rate of 1/20 primary samples,
- Sieve testing for visible asbestos containing materials ACM was undertaken at 3 test pits,
- All samples were labelled with a unique ID and date, chemical analysis samples were placed in chilled eskies with ice bricks.
- Chemical analysis glass jar samples, duplicate samples and acid sulphate samples were then submitted to Eurofins (a NATA Accredited Laboratory) under chain of custody procedures on the same day of the sampling event.
- Triplicate samples (interlab duplicates) were submitted to Envirolab under chain of custody procedures within the required holding times and were tested for heavy metals.
- Asbestos analysis samples (AF/FA) were submitted to Greencap lab (a NATA Accredited Laboratory) same day after sampling event.
- Acid sulphate samples which had low pH or pH decreasing by greater than 2 pH units during the pH field screen were tested for Acid sulphate soils (SPOCAS suite testing).

Table 3 below summarises the analyses for soil samples (also refer to Tables of Analytical Results in **Appendix C** and **Appendix F** for Laboratory Certificates of Analysis).

Table 3: Soil Sample Analytical Suites

	Chemical samples	Acid Sulphate Samples	Asbestos Samples	Duplicate Samples	Triplicate Samples
Container	250ml glass jar	500ml double zip plastic bag	500ml AF/FA plastic bag	250ml glass jar	250ml glass jar
NATA Accredited Lab	Eurofins	Eurofins	Greencap	Eurofins	Envirolab
Analytical Suite	• TRH • BTEX • Heavy metals • PAH • PCBs • OCPs • TOC (only for GG5) • VOC and SVOC (for GG8, GG10, GG11 and GG12)	• Acid sulphate soils field screen • Acid sulphate soils SPOCAS testing	• Asbestos AF/FA test	• Heavy metals	• Heavy metals

Note:

1. TRH: Total Recoverable Hydrocarbon.
2. BETX: Benzene, Ethylbenzene, Toluene, Xylene.
3. Heavy Metals: Arsenic, Cadmium, Chromium, Copper, Lead, Mercury, Nickel and Zinc.
4. PAH: Polycyclic Aromatic Hydrocarbons.
5. PCBs: Polychlorinated Biphenyls.
6. OCPs: Organochlorine Pesticides.

7. TOC: Total Organic Carbon.
8. VOC: Volatile Organic Compounds.
9. SVOC: Semi-Volatile Organic Compounds.

7.6 Ground Gas Monitoring and Soil Vapour Sampling

The 1st round ground gas monitoring and soil vapour sampling was undertaken by Shihui Wang, Emma Lavas and Matthew Barberson on 7th May 2021, and by Shihui Wang on 13th May 2021, when a falling barometric pressure trend was noted. Please refer to **Appendix D** for weather observation details before and during the sampling event. In this scope the following monitoring and sampling tasks were accomplished in accordance with the SAQP:

- Flowrate, pressure and gas composition measurements were taken at each monitoring location by using a calibrated landfill gas analyser (GA5000),
- Helium leak tests were undertaken prior to soil vapour sampling,
- Readings with a calibrated photoionizing detector (PID) were taken prior to and after the collection of soil vapour samples at each sampling point,
- Nine (9) primary and two (2) duplicate soil vapour samples were collected into 1 Litre summa canisters provided by Envirolab (a NATA Accredited laboratory),
- An interface meter was used to verify the screened intervals of the gas wells were not flooded with water, the interface meter was cleaned and rinsed properly after each measurement to avoid cross contamination.

The 2nd round ground gas monitoring was undertaken by Emma Lavas on 21st May 2021, when a falling barometric pressure trend was noted. Following tasks were accomplished in accordance with the SAQP:

- Flowrate, pressure and gas composition measurements were taken at each monitoring location by using a calibrated landfill gas analyser (GA5000),
- An interface probe was used to verify the screened intervals of the gas wells were not flooded with water, the interface probe was cleaned and rinsed properly after each measurement to avoid cross contamination.

The 3rd, 4th, 5th and 6th rounds ground gas monitoring were undertaken by Shihui Wang on 21st May 2021, and 3rd, 9th, 16th & 25th June 2021 respectively, when a general falling barometric pressure trends were noted. Following tasks were accomplished in accordance with the SAQP:

- Flowrate, pressure and gas composition measurements were taken at each monitoring location by using a calibrated landfill gas analyser (GA5000),
- An interface probe was used to verify the screened intervals of the gas wells were not flooded with water, the interface probe was cleaned and rinsed properly after each measurement to avoid cross contamination.

Please refer to **Appendix C3** for soil vapor lab results, refer to **Appendix C5** for gas monitoring GA5000 field readings, and refer to **Appendix E** for equipment calibration certificates.

7.6.1 Soil Vapour Analytical Schedule

Collected soil vapour samples were sent to the NATA accredited laboratory, Envirolab for analysis. The samples were analysed for following suite:

- Benzene, Toluene, Ethylbenzene, Xylenes, and Naphthalene (BTEXN),
- Total Recoverable Hydrocarbons (TRH) F1 and F2 fractions,
- Volatile Organic Carbon (VOC) scan.

- QA/QC samples were tested for BTEX and TRH.

7.7 Surface Gas Monitoring and Service Pit Monitoring

A surface gas site walkover and service pit monitoring survey were undertaken on 14th May 2021 by Greencap's Consultant Shihui Wang using an Inspectra Laser Unit (ILU) and a GA5000 gas meter at 5cm above the ground surface at 45 locations across the site (< 25m x 25m grid basis). The surface gas monitoring included measurements above the cracks in concrete slabs. Three service pits were found and monitored on site. Refer to **Figure 2** for service pit locations and refer to **Figure 3** for surface gas monitoring locations.

7.8 Groundwater Sampling

One groundwater well was sampled at GG5 on 13th May 2021. GG5 was sampled with a low flow peristaltic pump. Water quality parameters (pH, temperature, conductivity, oxidation reduction potential and dissolved oxygen) were monitored during purging and sampling using a calibrated YSI Pro DDS water quality meter and a flow cell. Samples were collected after water quality parameters had stabilised. Please refer to **Appendix E** for calibration certificate.

One (1) primary and one (1) duplicate groundwater sample were collected using appropriately preserved bottles supplied by Eurofins (a NATA Accredited Laboratory). The collected groundwater samples were labelled with a unique ID and date before being placed in an esky with ice bricks. Samples were then submitted to Eurofins under chain of custody procedures same day after the sampling event.

7.8.1 Groundwater Analytical Schedule

The analytical schedule for the groundwater samples included the following contaminants of potential concern (CoPC):

- TRH,
- BTEXN,
- Heavy metals (As, Cd, Cr, Cu, Pb, Zn, Ni, Hg),
- Ammonia, nitrite and nitrate (NH3, NO2 and NO3),
- Volatile organic compounds (VOCs) and Semi-volatile organic compounds (SVOC) scan,
- QA/QC duplicate sample was tested for heavy metals.

8. Investigation Criteria

8.1 Criteria for Soil Contamination

8.1.1 Criteria for Chemical Contaminants in Soil

Criteria for chemical contaminants in soil is selected based on the Health-based Investigation Levels presented in *National Environmental Protection (Assessment of Site Contamination) Measure 1999 – Schedule B 1 Guideline on Investigation Levels for Soil and Groundwater, Table 1A (1).*

The criteria are presented in Table 4 below.

Table 4: Health investigation levels for soil contaminants

Chemical		Health-based investigation levels (mg/kg) Recreational[1] C
Metals	Arsenic	300
	Cadmium	90
	Chromium (VI)	300
	Copper	17000
	Lead	600
	Mercury (inorganic)	80
	Nickel	1200
	Zinc	30000
PAH	Carcinogenic PAHs (as BaP TEQ)	3
	Total PAHs	300
Phenols	Phenol	40000
	Pentachlorophenol	120
	Cresols	4000
Organochlorine Pesticides	DDT+DDE+DDD	400
	Aldrin and dieldrin	10
	Chlordane	70
	Endosulfan	340
	Endrin	20
	Hephtachlor	10
	HCB	10
	Methoxychlor	400
	Mirex	20
	Toxaphene	30

Note:

1. HIL C – Public open space such as parks, playgrounds, playing fields (e.g. ovals), secondary schools and footpaths.

8.1.2 Criteria for Asbestos Contamination in Soil

Criteria for asbestos contamination in soil is selected based on the Health Screening Levels for asbestos contamination in soil presented in *National Environmental Protection (Assessment of Site Contamination) Measure 1999 – Schedule B 1 Guideline on Investigation Levels for Soil and Groundwater, Table 7.*

The criteria is presented in Table 5 below.

Table 5: Health Screening levels for asbestos contamination in soil

Form of asbestos	Health screening level (w/w) Recreational C[1]
Bonded ACM	0.02%
FA and AF[2] (friable asbestos)	0.001%
All forms of asbestos	No visible asbestos for surface soil

Note:

1. Recreational C includes public open space such as parks, playgrounds, playing fields (e.g. ovals), secondary schools and unpaved footpaths.
2. The screening level of 0.001% w/w asbestos in soil for FA and AF (i.e.fibrous asbestos/asbestos fines, non-bonded/friable asbestos) only applies where the FA and AF are able to be quantified by gravimetric laboratory procedures. This screening level is not applicable to free fibres.

8.2 Criteria for Acid Sulphate Soils

Criteria for acid sulphate soil is selected based on the ASSMAC action criteria triggering the need for further investigation and management including preparation of a management plan, presented in *the Acid Sulfate Soil Manual (NSW Acid Sulphate Soils Management Advisory Committee 1998), Table 4.4*.

The criteria is presented in Table 6 below.

Table 6: Acid Sulphate Soil Criteria

Type of Material	Approx. clay content (%<0.002 mm)	Action Criteria 1-1000 tonnes disturbed	
		Sulfur trail %S oxidisable (oven-dry basis) eg, STOS or SPOS	Acid trail Mol H+/tonne (oven-dry basis) eg, TPA or TSA
Coarse Texture Sands to loamy sands	≤5	0.03	18

8.3 Criteria for Soil Vapour and Soil Vapour Intrusion

Criteria for soil vapour are selected based on the Interim Soil Vapour Health Investigation Levels for volatile organic chlorinated compounds presented in *National Environmental Protection (Assessment of Site Contamination) Measure 1999 – Schedule B 1 Guideline on Investigation Levels for Soil and Groundwater, Table 1A (2).*

The investigation criteria for chlorinated compounds is presented in Table 7 below.

Table 7: Interim soil vapour health investigation levels for volatile chlorinated compounds

		Interim soil vapour HIL (mg/m^3) Residentional[1] A/B
Chemical	TCE	0.02
	1,1,1-TCA	60
	PCE	2
	Cis-1,2-dichloroethene	0.08
	Vinyl chloride	0.03

Note:

1. Secondary school buildings should be assessed using residential 'A/B' for vapour intrusion purposes.
2. Please refer to **Appendix C6** for more details.

Soil criteria for vapor intrusion were selected based on the Health Screening Levels for vapour intrusion presented in *National Environmental Protection (Assessment of Site Contamination) Measure 1999 – Schedule B 1 Guideline on Investigation Levels for Soil and Groundwater, Table 1A (3).*

The soil criteria is presented in Table 8 below.

Table 8: Soil Health Screening levels for vapour intrusion (mg/kg)

	HSL A & HSL B Low-high density residential[1] – Sand			
	0m to < 1m	1m to < 2m	2m to < 4m	4m +
Toluene	160	220	310	540
Ethylbenzene	55	-	-	-
Xylenes	40	60	95	170
Naphthalene	3	-	-	-
Benzene	0.5	0.5	0.5	0.5
F1[2]	45	70	110	200
F2[3]	110	240	440	-

Note:

1. Secondary school buildings should be assessed using residential 'A/B' for vapour intrusion purposes.
2. For soil texture classification undertaken in accord with AS 1726, the classifications of sand, silt and clay may be applied as coarse, fine with liquid limit <50% and fine with liquid limit >50% respectively as the underlying properties to develop the HSLs may reasonably be selected to be similar. Where there is uncertainty, either a conservative approach may be adopted or laboratory analysis should be carried out. In this particular case a conservative approach is adopted and the soil texture classification is assumed to be coarse (sand).
3. To obtain F1 subtract the sum of BTEX concentrations form the C6-C10 fraction.
4. To obtain F2 subtract naphthalene form the >C10-C16 fraction.

8.4 Criteria for Ground Gases in Monitoring Wells

Criteria for ground gases in gas monitoring wells is selected based on the threshold levels presented in *Solid Waste Landfills Guideline (NSW EPA 2016)* and presented in Table 9.

Table 9: Threshold Levels for Hazardous Gasses

Analyte	Threshold level reference	Unit	Threshold Level	Comments
Methane (CH_4)	NSW EPA 2016 (1)	% (volume/volume)	1.0	The threshold level for further investigation and corrective action
Carbon Dioxide (CO_2)			1.5	

Note:

1. The threshold levels for further investigation and corrective action are detection of methane at concentrations above 1% (volume/volume) carbon dioxide at concentrations of 1.5% (volume/volume) above established natural background levels.

When above levels are exceeded further characterisation through the calculation of gas screening values (GSV) will be made. The method of deriving a GSV and thus ground gas risk will be based on the *Guidelines for the Assessment and Management of Sites Impacted by Hazardous Ground Gases (NSW EPA 2012)*.

GSV is the concentration of gas measured in a monitoring well multiplied by the measured borehole flow rate. The GSV is used to calculate the Characteristic Gas Situation (CS) which provides a site ranking system of 1 to 6 based upon which different levels of gas protection are required (1 being the lowest risk level and 6 being the highest). Table 10 presents a summary of the GSV and CS as well as risk classification in accordance with the guideline.

Table 10: GSV and CS and Characterising Landfill Gas Risk (NSW EPA 2012)

Gas Screening Value Threshold (L/hr)	Characteristic Gas Situation	Risk Classification	Additional Factors
<0.07	1	Very low risk	Typically methane <1% v/v and/or carbon dioxide <5% v/v, otherwise consider increase to Situation 2
<0.7	2	Low risk	Borehole flow rate not to exceed 70L/hr otherwise consider increase to Situation 3
<3.5	3	Moderate risk	-
<15	4	Moderate to high risk	Consider need for Level 3 risk assessment
<70	5	High risk	Level 3 risk assessment required
>70	6	Very high risk	

8,5 Criteria for Soil Vapour

Criteria for soil vapour (trace gases) in gas monitoring wells is selected based on the Soil Vapour Health Screening Levels for vapour intrusion presented in *National Environmental Protection (Assessment of Site Contamination) Measure 1999 – Schedule B 1 Guideline on Investigation Levels for Soil and Groundwater, Table 1A (5).*

The criteria is presented in Table 11 below.

Table 11: Soil Vapour Health Screening levels for vapour intrusion (mg/m³)

	HSL A & HSL B Low-high density residential[1] – Sand			
	0m to < 1m	1m to < 2m	2m to < 4m	4m to < 8m
Toluene	1300	3800	7300	15000
Ethylbenzene	330	1100	2200	4300
Xylenes	220	750	1500	3000
Naphthalene	0.8	3	6	10
Benzene	1	3	6	10
F1[2]	180	640	1300	2600
F2[3]	130	560	1200	2400

Note:

1. Secondary school buildings should be assessed using residential 'A/B' for vapour intrusion purposes.
2. For soil texture classification undertaken in accord with AS 1726, the classifications of sand, silt and clay may be applied as coarse, fine with liquid limit <50% and fine with liquid limit >50% respectively as the underlying properties to develop the HSLs may reasonably be selected to be similar. Where there is uncertainty, either a conservative approach may be adopted or laboratory analysis should be carried out. In this particular case a conservative approach is adopted and the soil texture classification is assumed to be coarse (sand).
3. To obtain F1 subtract the sum of BTEX concentrations form the C6-C10 fraction.
4. To obtain F2 subtract naphthalene form the >C10-C16 fraction.

8.6 Criteria for Bulk Gases in Service Pits

Applicable gas criteria for service pits is presented in **Table 12**.

Table 12: Threshold Levels for Service Pits

Analyte	Threshold level reference	Unit	Threshold Level	Comments
Methane (CH_4)	NSW EPA 2016 (1)	% (volume/volume)	1.0	The threshold level for further investigation and corrective action
Carbon Dioxide (CO_2)			1.5	
Carbon Dioxide (CO_2)	Safe Work Australia HSIS (2)	ppm	TWA (3): 5000 STEL (4): 30,000	Work Place Exposure Standards - Only applicable to service pits to assess risks for utility workers - Not applicable for ground gas
Hydrogen Sulphide (H_2S)	Safe Work Australia HSIS (2)	ppm	TWA: 10 STEL: 15	
Carbon Monoxide (CO)	Safe Work Australia HSIS (2)	ppm	TWA: 30	

Note:

1. The threshold levels for further investigation and corrective action are detection of methane at concentrations above 1% (volume/volume) carbon dioxide at concentrations of 1.5% (volume/volume) above established natural background levels.
2. HSIS: Hazardous Substances Information System.
3. TWA: Time weighted average.
4. STEL: Short term exposure limit.

8.7 Criteria for Surface Gas

Criteria for surface gas is selected based on the threshold presented in *Environmental Guidelines: Solid waste landfills (2016).* The threshold level of further investigation and corrective action is 500 parts per million (volume/volume) of methane at any point on the landfill surface for intermediate and finally capped areas. Methane should be tested in the atmosphere 5 centimetres above the landfill surface in areas with intermediate or final cover/capping. Testing should be conducted in a grid pattern across the landfill surface at 25-metre spacings. Depressions in the cover material, or surface fissures away from the sampling grid, should also be investigated.

8.8 Criteria for Groundwater

8.8.1 Groundwater Criteria for Vapour Intrusion

For the assessment of a potential risk of vapour intrusion, groundwater HSL criteria for volatile organic compounds (VOCs) provided in NEPC (2013) for a low- high density residential land use scenario (HSL A & B), which includes secondary schools, have been adopted. Selected criteria is presented in Table 13.

Vapour Headspace readings using sealed groundwater monitoring wells is recommended for groundwater assessment and vapour intrusion assessment, if VOCs are detected in groundwater at less than 2 m depth.

Table 13: Groundwater HSL for vapour intrusion

Analyte	Unit	HSL A & B (1) Low - high density residential Soil texture classification: Coarse (sand) (2)		
		2 m to < 4 m	4 m to < 8 m	8 m+
Toluene	mg/L	NL (5)	NL	NL
Ethylbenzene		NL	NL	NL
Xylenes		NL	NL	NL
Naphthalene		NL	NL	NL
Benzene		0.8	0.8	0.9
F1 (3)		1	1	1
F2 (4)		1	1	1

Note:

1. Secondary school buildings should be assessed using residential 'A/B' for vapour intrusion purposes.
2. For soil texture classification undertaken in accord with AS 1726, the classifications of sand, silt and clay may be applied as coarse, fine with liquid limit <50% and fine with liquid limit >50% respectively as the underlying properties to develop the HSLs may reasonably be selected to be similar. Where there is uncertainty, either a conservative approach may be adopted or laboratory analysis should be carried out. In this particular case a conservative approach is adopted and the soil texture classification is assumed to be coarse (sand).
3. To obtain F1 subtract the sum of BTEX concentrations from the C_6-C_{10} fraction.
4. To obtain F2 subtract naphthalene from the >C_{10}-C_{16} fraction.
5. NL: No limit

8.8.2 Ecological Groundwater Criteria

The nearest water body to the site is Parramatta River which flows easterly into Port Jackson. Thus, ecological criteria for groundwater is selected based on the Groundwater Investigation Levels (GILs) presented in NEPC (NEPM 2013), which refers to the *Australian and New Zealand Guidelines for Marine Water Quality (ANZECC/ ARMCANZ, 2000)*. Adopted ecological groundwater criteria is presented in Table 14.

Table 14: Adopted Ecological Groundwater Investigation Levels Criteria (GILs)	
Analytes	NEPM GILs/ANZECC (2000) Trigger Values for Marine water [A] (µg/L) Level of Protection: 95% of the species
Metals and Metalloids	
Aluminium, Al pH>6.5	-
Arsenic	-
Cadmium	0.7
Chromium, Cr (III)	27
Chromium, Cr (VI)	4.4
Copper	1.3
Lead	4.4
Manganese	-
Mercury (inorganic)	0.1 / 0.4[C]
Nickel	7
Zinc	15[C]
Non-metallic Inorganics	
Ammonia[E] (as NH_3-N at pH8)	910
Chloride	-
Cyanide (as un-ionised CN)	4
Monocyclic Aromatic Hydrocarbons	
Benzene	500
Toluene	-
Ethylbenzene	-
Xylenes	-
Polycyclic Aromatic Hydrocarbons (PAH)	
Naphthalene	50
Benzo(a)pyrene	-
Phenols	
Phenol	400

Note:

A. Investigation levels apply to typical slightly-moderately disturbed systems. See ANZECC & ARMCANZ (2000) for guidance on applying these levels to different ecosystem conditions.
B. Investigation levels are taken from the health values of the Australian Drinking Water Guidelines (NHMRC 2011).
C. Figure may not protect key species from chronic toxicity, refer to ANZECC & ARMCANZ (2000) for further guidance.
D. Chemical for which possible bioaccumulation and secondary poisoning effects should be considered, refer to ANZECC & ARMCANZ (2000) for further guidance.
E. For changes in GIL with pH refer to ANZECC & ARMCANZ (2000) for further guidance.
H. Values have been calculated using a hardness of 30 mg/L CaCO3 refer to ANZECC & ARMCANZ (2000) for further guidance on recalculating for site-specific hardness.

9. Results

9.1 Soil Analytical Results

In total, 25 primary soil samples, 6 field duplicates and 3 field triplicates were analysed for the list of contaminants comprising the analytical suite (refer **Appendix C1** to **C4** results summary tables and refer to **Appendix D** for QAQC procudures).

9.1.1 Acid Sulphate Soils Results

Acid sulphate SPOCAS test results for 6 soil samples in the southern site area, showed exceedances at GG1 (2.6-2.7mBGL), GG2 (3.5-3.6mBGL) and three GG5 samples (2.0- 4.6mBGL). The result is present in Table 15.

Table 15: Acid Sulphate SPOCAS Test Results

Suite	Criteria	Unit	GG5-05-ASS (2.0-2.1)	GG5-06-ASS (3.5-3.6)	GG5-07-ASS (4.5-4.6)	GG1-07-ASS (2.0-2.1	GG1-08-ASS (2.6-2.7)	GG2-04-ASS (3.5-3.6)
Acid trail – TPA[1]	18	mol H+/t	35	390	< 2	< 2	< 2	290
Sulphur – POS[2]	0.03	% S	< 0.02	1.2	1.2	0.06	1.1	0.79
Liming rate	-	kg $CaCO_3$/t	3	38	< 1	< 1	12	27

Note:

1. Acid trail – Titratable Actual Acidity.
2. Sulphur – Peroxide Oxidisable Sulphur.
3. Shade – Result exceeds the Action criteria.

9.1.2 Soil Chemical Analysis Results at Monitoring Well Boreholes GG1 to GG9

Soil samples collected during the installation of 9 monitoring wells were submitted to Eurofins (a NATA Accredited Laboratory) after the sampling event on 29th & 30th May 2021. GG1 to GG9 results are listed in Table C1.

TRH, OCPs, PCBs were not detected. PAH compounds were detected at GG3, GG4, GG6, GG8 and GG9.

Benzo(a)pyrene TEQ level at GG8 (6.7 mg/kg) located in the central of southern site area, was above the HIL-C criteria (3 mg/kg). Following a TCLP test was undertaken, and result was lower than LOR.

TRH (F2) exceeded the criteria for soil vapour intrusion HSL A&B at GG8 (0.4-0.5m) after silica gel clean-up (2400 mg/kg), as the result is greater than 2.5 times the HSL-A for Soil Vapor Intrusion (110 mg/kg), thus GG8 was considered as a hotspot.

Heavy metals results were below the HIL criteria at all 9 locations.

Total Organic Carbon (TOC) analysis was undertaken for all soil samples collected at GG5, the deepest borehole for monitoring well installation. The results were compared with the criteria for TOC noted in *Assessment and Management of Hazardous Ground Gas (EPA, 2020)*. An exceedance was noted for the sample collected at 3.5-3.6 mBGL depth, indicating further ground gas investigation is required. The results of TOC at GG5 are listed in Table 16 below.

Table 16: Total Organic Carbon Results at GG5 (

Sample ID	Criteria	Unit	Total Organic Carbon
GG5-01 (0.15-0.2)	3	%	0.1
GG5-02 (0.3-0.4)	3	%	0.6
GG5-03 (0.5-0.6)	3	%	<0.1
GG5-04 (1.0-1.1)	3	%	0.4
GG5-05 (2.0-2.1)	3	%	1.5

GG5-06 (3.5-3.6)	3	%	3.2
GG5-07 (4.5-4.6)	3	%	<0.1
GG5-08 (5.5-5.6)	3	%	0.9

Note:

1. LOR: Limit of Reporting
2. Shade – Result exceeds the criteria.

9.1.3 Soil Chemical Analysis Results at other 9 Boreholes and 3 Test pits

Benzo(a)pyrene TEQ level exceeded the criteria at borehole BH4 and GG12 (3.5 mg/kg and 8.6 mg/kg respectively). TCLP tests were undertaken for the samples, all TCLP results were lower than the LOR.

TRH was detected at BH10, but the results were all lower than the limit of reporting (LOR) after silica-gel clean-up. Refer to **Appendix C2 and C3** for result summary tables.

OCPs, PCBs and BTEX were not detected at any of the boreholes and test pits.

Lead exceeded the criteria at BH4 at 1.0-1.2 mBGL (870 mg/kg). All other heavy metal detections were below the adopted HIL-C criteria. The Lead 95% UCL average concentration for all samples, with the exception of one location on the soil mound, is 149.5 mg/kg, which is below the criteria (600 mg/kg). Refer to **Appendix C4** for Lead 95% UCL Calculation.

Sample analysis results and the 95% UCL average concentrations are included in **Appendix C** summary tables.

9.1.4 Soil Asbestos Results

AF/FA asbestos was analysed in 21 soil samples (500 ml sample size) collected in plastic bags and submitted to the Greencap laboratory. Three pieces of Asbestos fines were detected in the sample collected at GG10 in forms of fibre cement fragments and discrete fibre bundles (1.97g, 0.10g and 0.0022g), and detection was noted as 0.21% w/w which exceeded the adopt HSL-C criteria. No asbestos was detected at or above reporting limit in other 20 soil samples. Two suspected ACM samples were also sampled in the southern site area and analysed, which identified compressed asbestos fibre-cement sheet in the small samples (10g and 4g). Refer to **Appendix F** Lab Certificate for more detail. Please refer to **Figure 2** for the sampling locations and the ACMs locations.

9.2 Gas Monitoring Well Results

Ground gas flow and composition was analysed by GA5000 landfill gas analyser and laboratory testing of SUMA cannister gas samples collected over two days due to access restrictions (refer to **Appendix C5** and **C6**). Gas sampling was done using the sealed wells fitted with valve caps. Refer to **Figure 2** for sampling locations GG1 to GG9.

9.2.1 Ground Gas – 1st Round (7th & 13th May 2021)

1st round GA5000 ground gas monitoring results are summarised in Table 17 below. Methane-CH_4 exceedances of screening criteria were recorded at five monitoring well locations (GG1, 2, 4, 8 and 9), Carbon dioxide-CO_2 exceedances were observed at eight monitoring locations (GG1, 2, 3, 4, 5, 6, 7 and 9). The threshold level of CH_4 is 1.0% v/v and the threshold level for CO_2 is 1.5% v/v, which is specified in the *Solid Waste Landfills Guideline (NSW EPA 2016*). The threshold level is for further investigation and corrective action if required.

Table 17 below lists results for 1st round ground gas monitoring GA5000 readings.

Table 17: Ground Gas Monitoring - 1st Round (7th & 13th May 2021)
Field Reading with GA5000 (%v/v)

	CH_4 (%v/v)[1]	CO_2 (%v/v)[2]	O_2 (%)	CO (ppm)	H_2S (ppm)	Initial flow rate (L/hr)	Stable flow rate (L/hr)
Criteria	1.0	1.5	-	-	-	-	-
GG1	6.1	2.9	0.1	1.8	1.0	**4.1**	0.6
GG2	6.2	3.2	0.0	0.0	1.0	0.1	0.0
GG3	0.0	7.3	0.1	0.0	0.0	0.0	0.0
GG4	3.7	2.5	0.6	0.0	0.0	0.0	0.0
GG5	0.0	5.8	5.1	1	0.0	0.1	0.1
GG6	0.1	5.5	0.0	0.0	0.0	0.0	0.0
GG7	0.9	6.6	0.0	1.0	0.0	0.1	0.1
GG8	1.1	1.3	1.4	0.0	0.0	0.0	0.0
GG9	1.4	3.2	2.2	0.0	0.0	0.0	0.0

Note:

1. Shade in CH_4: reading exceeded methane threshold level (1.5% v/v) specified in the Solid Waste Landfills Guideline (NSW EPA 2016) for further investigation and corrective action.
2. Shade in CO_2: reading exceeded carbon dioxide threshold level (1.5% v/v) specified in the Solid Waste Landfills Guideline (NSW EPA 2016) for further investigation and corrective action.
3. GSV = stable flow rate (L/hr) x maximum gas concentration (% v/v).

The gas screening value, GSV, at gas well GG1 was 0.25 litres/hour for methane-CH4 and 0.30 litres/hour for carbon dioxide-CO2, indicating a classification of Low Risk according to the Modified Wilson and Card classification method outlined in NSW EPA (2012) (refer to **Appendix C5** for GSV calculations). This corresponds to Characteristic Gas Situation of 2 (CS2).

9.2.2 Ground Gas – 2nd Round (21 May 2021)

GA5000 meter gas monitoring undertaken on 21st May 2021 recorded CH_4 exceedance at three monitoring locations (GG1, GG4 and GG9), and CO_2 exceedance at four monitoring locations (GG2, 3, 5 and 8). No flow rate was detected at these wells (were all 0.0 Litres/hr), thus the GSV values were 0, falling into the Very Low Risk category. However, as CO_2 levels greater than 5% (v/v) and CH_4 levels greater than 1% (v/v) were recorded at various locations, the option of raising the CS from CS1 (very low risk) to CS2 (low risk) should be considered. (refer to Table 18 below and **Appendix C5**).

Please refer to Table 18 below for 2nd round ground gas monitoring GA5000 readings.

Table 18: Ground Gas Monitoring – 2nd Round (21st May 2021)

2nd Round Field Reading with GA5000 (%v/v) (21st May 2021)							
	CH_4 (%v/v)[1]	CO_2 (%v/v)[2]	O_2 (%)	CO (ppm)	H_2S (ppm)	Initial flow rate (L/hr)	Stable flow rate (L/hr)
Criteria	1.0	1.5	-	-	-	-	-
GG1	**12.8**	0.8	0.8	0	0	0.0	0.0
GG2	0.00	1.5	1.5	0	0	0.0	0.0
GG3	0.00	2.2	2.2	0	0	0.0	0.0
GG4	3.6	0.7	0.7	0	0	0.0	0.0
GG5	0.00	**5.8**	5.0	0	0	0.0	0.0
GG6	0.00	1.0	1.0	0	0	0.0	0.0

Table 18: Ground Gas Monitoring – 2nd Round (21st May 2021)							
2nd Round Field Reading with GA5000 (%v/v) (21st May 2021)							
	CH_4 (%v/v)[1]	CO_2 (%v/v)[2]	O_2 (%)	CO (ppm)	H_2S (ppm)	Initial flow rate (L/hr)	Stable flow rate (L/hr)
Criteria	1.0	1.5	-	-	-	-	-
GG7	0.5	0.1	0.1	0	0	0.0	0.0
GG8	0.0	2.8	2.8	0	0	0.0	0.0
GG9	1.3	0.3	0.3	0	0	0.0	0.0

Note:

1. Shade in CH_4: reading exceeded methane threshold level (1.5% v/v) specified in the Solid Waste Landfills Guideline (NSW EPA 2016) for further investigation and corrective action.
2. Shade in CO_2: reading exceeded carbon dioxide threshold level (1.5% v/v) specified in the Solid Waste Landfills Guideline (NSW EPA 2016) for further investigation and corrective action.
3. GSV = stable flow rate (L/hr) x maximum gas concentration (% v/v).

9.2.3 Ground Gas – 3rd Round (3rd June 2021)

GA5000 meter gas monitoring undertaken on 3rd June 2021 recorded CH_4 exceedance at four monitoring locations (GG1, GG2, GG4 and GG9), and CO_2 exceedance at all nine monitoring locations. The highest CH_4 concentration 14.8 %v/v was recorded at GG1, and highest CO_2 7.5%v/v was recorded at GG3. No flow rate was detected at these wells (were all 0.0 Litres/hr), however, as CH_4 higher than 1%v/v and CO_2 higher than 5%v/v were noted at various wells, increase very low risk to low risk should be considered (refer to Table 19 below and **Appendix C5**).

Please refer to Table 19 below for 3rd round ground gas monitoring GA5000 readings.

Table 19: Ground Gas Monitoring – 3rd Round (3rd June 2021)							
3rd Round Field Reading with GA5000 (%v/v) (3rd June 2021)							
	CH_4 (%v/v)[1]	CO_2 (%v/v)[2]	O_2 (%)	CO (ppm)	H_2S (ppm)	Initial flow rate (L/hr)	Stable flow rate (L/hr)
Criteria	1.0	1.5	-	-	-	-	-
GG1	**14.8**	3.7	0.3	1.0	0.0	0.0	0.0
GG2	3.6	3.9	0.2	0.0	0.0	0.0	0.0
GG3	0.0	**7.5**	3.6	0.0	0.0	0.0	0.0
GG4	5.7	5.7	0.1	0.0	0.0	0.0	0.0
GG5	0.0	5.7	5.4	0.0	0.0	0.1	0.1
GG6	0.0	5.0	1.2	0.0	0.0	0.2	0.2
GG7	1.0	5.7	0.2	0.0	0.0	0.2	0.2
GG8	0.0	2.2	0.3	0.0	0.0	0.1	0.1
GG9	1.6	3.3	0.2	0.0	0.0	0.1	0.1

Note:

1. Shade in CH_4: reading exceeded methane threshold level (1.5% v/v) specified in the Solid Waste Landfills Guideline (NSW EPA 2016) for further investigation and corrective action.
2. Shade in CO_2: reading exceeded carbon dioxide threshold level (1.5% v/v) specified in the Solid Waste Landfills Guideline (NSW EPA 2016) for further investigation and corrective action.
3. GSV = stable flow rate (L/hr) x maximum gas concentration (% v/v).

9.2.4 Ground Gas – 4th Round (9th June 2021)

GA5000 meter gas monitoring undertaken on 9th June 2021 recorded CH_4 exceedance at four monitoring locations (GG1, GG2, GG4 and GG9), and CO_2 exceedance at all nine monitoring locations. The highest CH_4 concentration 13.0 %v/v was recorded at GG1 and highest CO_2 7.7 %v/v was recorded at GG3. No flow rate was detected at GG1 (was 0.0 Litres/hr). The stable flow rate at GG3 was 0.2 L/hr, thus the GSV vale at GG3 was 0.02 L/hr, falling into Very Low Risk Category. However, as CH_4 was higher than 1%v/v and CO_2 higher than 5%v/v were noted at various wells, increase very low risk to low risk should be considered (refer to **Appendix C5**).

Please refer to Table 20 below for 4th round ground gas monitoring GA5000 readings.

Table 20: Ground Gas Monitoring – 4th Round (9th June 2021)

4th Round Field Reading with GA5000 (%v/v) (9th June 2021)							
	CH_4 (%v/v)[1]	CO_2 (%v/v)[2]	O_2 (%)	CO (ppm)	H_2S (ppm)	Initial flow rate (L/hr)	Stable flow rate (L/hr)
Criteria	1.0	1.5	-	-	-	-	-
GG1	**13.0**	4.3	0.3	0.0	0.0	0.0	0.0
GG2	3.9	3.9	0.0	0.0	0.0	0.0	0.0
GG3	0.0	**7.7**	2.6	0.0	0.0	0.1	0.2
GG4	5.7	5.2	0.1	0.0	0.0	0.1	0.2
GG5	0.0	5.7	4.8	0.0	0.0	0.1	0.2
GG6	0.0	4.9	0.7	0.0	0.0	0.1	0.1
GG7	0.9	5.5	0.0	0.0	0.0	0.1	0.2
GG8	0.3	2.0	0.0	0.0	0.0	0.2	0.2
GG9	1.5	3.0	0.1	0.0	0.0	0.1	0.2

Note:

1. Shade in CH_4: reading exceeded methane threshold level (1.5% v/v) specified in the Solid Waste Landfills Guideline (NSW EPA 2016) for further investigation and corrective action.
2. Shade in CO_2: reading exceeded carbon dioxide threshold level (1.5% v/v) specified in the Solid Waste Landfills Guideline (NSW EPA 2016) for further investigation and corrective action.
3. GSV = stable flow rate (L/hr) x maximum gas concentration (% v/v).

9.2.5 Ground Gas – 5th Round (16th June 2021)

GA5000 meter gas monitoring undertaken on 16th June 2021 recorded CH_4 exceedance at four monitoring locations (GG1, GG2, GG4 and GG9), and CO_2 exceedance at all nine monitoring locations. The highest CH_4 concentration (5.6 %v/v) was recorded at GG4 and highest CO_2 concentration (7.2 %v/v) was recorded at GG3. Maximum flow rate was 2.4 L/hr at GG1, thus the GSV value at GG1 was 0.06, indicating Low Risk. The flow rate at GG3 was 0.1 L/hr, thus the GSV vale at GG3 was 0.01 L/hr, falling into Very Low Risk Category, however, as CO_2 was higher than 5%v/v at GG3 (and other wells), increase very low risk to low risk should be considered (refer to **Appendix C5**).

Please refer to Table 21 below for 5th round ground gas monitoring GA5000 readings.

Table 21: Ground Gas Monitoring – 5th Round (16th June 2021)

5th Round Field Reading with GA5000 (%v/v) (16th June 2021)							
	CH_4 (%v/v)[1]	CO_2 (%v/v)[2]	O_2 (%)	CO (ppm)	H_2S (ppm)	Initial flow rate (L/hr)	Stable flow rate (L/hr)
Criteria	1.0	1.5	-	-	-	-	-
GG1	2.7	1.7	13.5	0.0	0.0	1.4	2.4

Table 21: Ground Gas Monitoring – 5th Round (16th June 2021)							
5th Round Field Reading with GA5000 (%v/v) (16th June 2021)							
GG2	3.5	3.5	0.8	0.0	0.0	0.0	0.0
GG3	0.0	**7.2**	3.6	1.0	0.0	0.1	0.1
GG4	**5.6**	4.5	0.6	0.0	0.0	0.0	0.1
GG5	0.0	5.5	4.8	1.0	1.0	0.1	0.1
GG6	0.0	4.7	1.1	1.0	1.0	0.1	0.1
GG7	0.9	5.0	1.5	0.0	1.0	0.1	0.1
GG8	0.2	1.7	1.0	1.0	1.0	0.1	0.1
GG9	1.6	2.7	0.8	0.0	1.0	0.1	0.2

Note:

1. Shade in CH_4: reading exceeded methane threshold level (1.5% v/v) specified in the Solid Waste Landfills Guideline (NSW EPA 2016) for further investigation and corrective action.
2. Shade in CO_2: reading exceeded carbon dioxide threshold level (1.5% v/v) specified in the Solid Waste Landfills Guideline (NSW EPA 2016) for further investigation and corrective action.
3. GSV = stable flow rate (L/hr) x maximum gas concentration (% v/v).

9.2.6 Ground Gas – 6th Round (25th June 2021)

GA5000 meter gas monitoring undertaken on 25th June 2021 recorded CH_4 exceedance at five monitoring locations (GG1, GG2, GG4, GG7 and GG9), and CO_2 exceedance at eight monitoring locations (GG2 to GG9). The highest CH_4 concentration (6.4 %v/v) was recorded at GG1 and highest CO_2 concentration (6.9 %v/v) was recorded at GG3. The maximum flow rate at GG1 was 0.4 Litres/hr, thus the GSV value at GG1 was 0.03. The flow rate at GG3 was 0.1 L/hr, thus the GSV vale at GG3 was 0.01 L/hr, falling into Very Low Risk Category, however, as CO_2 was higher than 5%v/v at GG3 (and various other wells), increase very low risk to low risk should be considered (refer to **Appendix C5**).

Please refer to Table 22 below for 6th round ground gas monitoring GA5000 readings.

Table 22: Ground Gas Monitoring – 6th Round (25th June 2021)							
6th Round Field Reading with GA5000 (%v/v) (25th June 2021)							
	CH_4 (%v/v)[1]	CO_2 (%v/v)[2]	O_2 (%)	CO (ppm)	H_2S (ppm)	Initial flow rate (L/hr)	Stable flow rate (L/hr)
Criteria	1.0	1.5	-	-	-	-	-
GG1	**6.4**	5.2	2.6	0.0	0.0	0.2	0.4
GG2	2.5	4.0	0.3	0.0	0.0	0.1	0.2
GG3	0.0	**6.9**	3.7	0.0	0.0	0.1	0.1
GG4	6.1	4.5	0.4	0.0	0.0	0.1	0.1
GG5	0.0	5.3	4.1	0.0	0.0	0.1	0.1
GG6	0.0	4.5	0.8	0.0	0.0	0.0	0.0
GG7	1.1	5.0	0.2	0.0	0.0	0.0	0.0
GG8	0.3	1.7	0.2	0.0	0.0	0.0	0.0
GG9	1.9	2.7	0.1	0.0	0.0	0.0	0.0

Note:

1. Shade in CH_4: reading exceeded methane threshold level (1.5% v/v) specified in the Solid Waste Landfills Guideline (NSW EPA 2016) for further investigation and corrective action.
2. Shade in CO_2: reading exceeded carbon dioxide threshold level (1.5% v/v) specified in the Solid Waste Landfills Guideline (NSW EPA 2016) for further investigation and corrective action.

3. GSV = stable flow rate (L/hr) x maximum gas concentration (% v/v).

9.2.7 Worst Case Gas Risk Scenario

The worst-case GSV scenario considering 6 rounds of monitoring is calculated using highest gas reading 14.8 %v/v of CH_4 at GG1 in 3rd round and highest flow rate 4.1 L/hr at GG1 in 1st round, the calculation is shown below:

Worst-case GSV = highest flow rate (L/hr) x maximum gas concentration (% v/v) = 14.8/100 x 4.1 = ***0.61 L/hr***

This corresponds to a risk classification of "Low Risk"- Characteristic Gas Situation (CS) 2.

Soil Vapour Sample Results

One round of soil vapour laboratory test results for the 9 SUMA cannister gas samples from wells GG1 to GG9 and 2 duplicates, are presented in **Appendix C6** and are summarised in Table 23below and were compared with the applicable site assessment criteria (refer to **Figure 2** for sampling locations). Laboratory certificates of analysis are included in **Appendix F** and in Table 23below

All BTEXN, TRH F1 & F2 and VOCCs results were below HSL-A criteria.

However, detections of BTEX were noted in soil vapour samples at several wells. These detections were as follows:

Benzene was detected in all wells except GG6;

Toluene was detected in all wells;

Ethylbenzene was detected in all wells except GG6;

Xylenes were detected in all wells;.

Naphthalene was detected in GG1, GG4, GG8 and GG9;

Detections of TRH were as follows:

- TPH C6-C10 (F1) was detected in GG1, GG2, GG8 and GG9, the maximum concentration was 41,000 ug/m^3 at GG8.
- TPH > C10-C12 (F2) was detected in GG1, GG2, GG4, GG8 and GG9.
- TPH C5-C8 Aliphatic compounds were detected at up to 33,000 ug/m^3, highest at GG1 and GG8 (were both 33,000 ug/m^3).

Detections of VOCCs were as follows:

- Trichloroethene (TCE) was detected at GG1, GG2 and GG5.
- 111-Trichloroethane (111 – TCA), Tetrachloroethene (PCE), cis-1,2-Dichloroethene and Vinyl chloride were detected at GG1.

The soil vapour results are presented in Table 23 below.

Table 23: Soil Vapor Laboratory Results (µG/m^3)

	LOR	Criteria	GG1[B]	GG2	GG3	GG4	GG5	GG6	GG7	GG8	GG9
Benzene	1.6	1,000	25	17	8	10	7	<1.6	3	8	3
Toluene	1.9	1,300,000	31	20	51	48	25	3	20	61	130
Ethylbenzene	2	330,000	10	10	8	20	7	2	5	9	8
m-& p-Xylene	4	220,000[A]	30	10	20	100	10	<4.3	8	30	20
o-Xylene	2		<11	8	8	53	6	<2.2	4	10	6

Table 23: Soil Vapor Laboratory Results (µG/m³)											
	LOR	Criteria	GG1[B]	GG2	GG3	GG4	GG5	GG6	GG7	GG8	GG9
Naphthalene	2.6	800	<13	<2.6	<2.6	3	<2.6	<2.6	<2.6	4	3
TPH C5 - C8 Aliphatic	200	-	33,000	2,400	2,400	13,000	<200	<200	<200	33,000	2,600
TPH C9 - C12 Aliphatic	50	-	<250	170	<50	17,000	<50	<50	<50	8,800	250
TPH C9 - C10 Aromatic	100	-	<500	<100	<100	2,000	<100	<100	<100	110	<100
TPH C6 - C10 - BTEX (F1)	200	180,000	17,000	1,000	<200	<200	<200	<200	<200	41,000	2,300
TPH >C10 - C12 Naphthalene (F2)	40	130,000	<200	140	<40	15,000	<40	<40	<40	6,700	200
TCE (Trichloroethene)	2.7	20	<13.5	6	<2.7	<2.7	3	<2.7	<2.7	<2.7	<2.7
111 -TCA (111-Trichloroethane)	2.7	60000	<13.5	<2.7	<2.7	<2.7	<2.7	<2.7	<2.7	<2.7	<2.7
PCE (Tetrachloroethene)	3.4	2000	<17	<3.4	<3.4	<3.4	<3.4	<3.4	<3.4	<3.4	<3.4
cis-1,2-Dichloroethene	2.0	80	<10	<2	<2	<2	<2	<2	<2	<2	<2
Vinyl chloride	1.3	30	<6.5	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3

Note:

1. A: Criteria is for Total Xylenes.
2. B: Levels of Reporting of GG1 were generally raised, but all results were still lower than the adopted criteria.
3. LOR: Limit of Reporting.
4. Shade: Result exceeds the LOR or LOR was elevated.

9.3 Service Pit Monitoring Results (14th May 2021)

Service pit monitoring was undertaken on 14th May 2021 at the three pit locations. No CH_4, CO or H_2S was measured in the monitored service pits. CO_2 concentrations were all below the threshold levels specified in the NSW EPA (2016). Refer to **Appendix C7** for service pit monitoring results. Refer to **Figure 2** for locations of the three service pits.

9.4 Surface Gas Walkover Results

Surface gas walkover was undertaken on 14th May 2021 at 45 locations across the site. No CH_4, CO_2, CO or H_2S were detected during the surface gas monitoring event. Please refer to **Appendix C8** for surface gas monitoring results. Refer to **Figure 3** for the surface gas walkover locations.

9.5 Groundwater Monitoring Results

Monitoring well GG5 was used as both a ground gas monitoring well and groundwater monitoring well was properly developed by purging with a submersible pump on 7th May 2021. Depths to groundwater and LNAPL were measured on 13th May 201 with an interface meter at wells GG2, GG5, GG6, GG7, GG8 and GG9 where groundwater was encountered. Standing water levels (SWL) are presented in Table 2. The groundwater is inferred to be flowing towards in a easterly direction, consistent with previous investigations (refer RAP, GHD).

One groundwater sample and one duplicate were taken for laboratory analysis at GG5. Standing water level was recorded at 1.15m depth, below ground surface, prior to low flow sampling on 13th May 2021. Field readings taken with the YSI water quality meter at GG5 are presented on Table 24.

Table 24: Groundwater Field Measurements at GG5						
Time	Dissolved Oxygen (ppm)	Electrical Conductivity (µS/cm)	pH	Redox Potential (mV)	Temperature (°C)	Comments
8.57	0.98	2132	7.12	-52.7	22.9	Initial reading
9:35	0.51	3499	7.05	-64	22.9	Clear, light grey, very low turbidity, no visual sediment, no odour, no sheen
9:37	0.39	3482	7.05	-66.4	22.8	Same as above
9:39	0.36	3352	7.04	-67.3	22.9	Same as above
9:41	0.34	3425	7.04	-71	23	Same as above
Peristaltic pump was not working properly after 9:42, a new peristaltic pump was used, measured data is shown below						
11:10	0.49	3963	7.05	-80.9	23.5	Clear, light grey, very low turbidity, no visual sediment, no odour, no sheen
11:24	0.24	4195	7.05	-95.3	23.6	Same as above

Analysis results of the groundwater samples are presented and compared with the applicable criteria on **Appendix Table C9**. Ammonia concentration was 4000 µg/L which exceeded ecological investigation level (910 ug/l). Copper was detected and concentration is 4 ug/L, slightly higher than and ecological investigation level (1.3 ug/L). Arsenic and zinc were detected but concentrations are below or equal to the GIL criteria. These detections are likely to be due to the local and up-gradient sources of organics and urban contamination sources associated with fill materials and urban drainage water sources.

Dissolved volatile organic compounds (VOCs), were not detected, analyses included TRH (C6-C10), BTEX-N and GCMS VOC scan including chlorinated solvents (refer laboratory certificate for full list of VOC analytes in Appendix F). Semi volatiles TRH (C_{10}-C_{40}), PAH and phenols were not detected (all below the laboratory limit of reporting).

9.6 Quality Assurance and Quality Control

A quality assurance and quality control (QA/QC) Report has been prepared and presented in **Appendix D**. The Data Quality Objectives (DQO) and the Data Quality Indicators (DQI) are presented in the QA/QC Report.

Laboratory quality control is achieved by using NATA registered laboratories using NATA approved ASTM standard methods supported by internal quality control and assurance sample analyses including lab duplicates, lab control samples, surrogate and matrix spike recoveries (standard additions) and standard reference materials, including lab analysis data quality indicators and objectives and the checking of high, abnormal or otherwise anomalous results against background and other chemical results for the sample concerned.

Sample quality assurance is also achieved by confirming that field sample results, or anticipated results based upon comparison with field observations, are consistent with laboratory results. In addition, additional inter and intra laboratory duplicate analysis was undertaken on the basis of not less than one intra and one inter laboratory duplicate analysis for every 20 samples analysed.

The QA/QC Report concluded that the data presented in this report is representative of what is sampled, precise, accurate and reproducible.

10. Discussions

10.1 Soil

Acid sulphate soil SPOCAS test results indicate that an Acid Sulphate Soil Management Plan is needed for management of risks associated with excavation or disturbance of soils and sediments, during the proposed site development construction phase.

Soil samples were collected at 21 locations in total (9 monitoring wells and 12 boreholes & test pits). Soil samples collected during the well installations showed that no OCP, PCBs or SVOC were detected. Heavy metals were detected at various locations. The above-mentioned detections were all lower than selected criteria.

Benzo(a)pyrene were detected at GG8 and BH4 and GG12, however the TCLP results of these samples were all lower than LOR, thus they all considered as low risk. TRH>C10-C16 LESS Naphthalene (F2) and TRH>C16-C34 (F3) were detected at GG8 (0.4-0.5) after silica gel clean-up, among which TRH F2 at GG8 (0.4-0.5) (2500 mg/kg) exceeded HSL-A criteria (110 mg/kg) and was considered as a hotspot as it was greater than 2.5 times HSL-A. Additional Total Organic Carbon (TOC) test was undertaken for all samples collected at GG5, exceedance was noted at 3.5-3.6 mBGL. Soil samples collected at boreholes/test pit at other 12 locations showed that OCPs, PCBs and BTEX were not detected at all boreholes and test pits. Heavy metals were detected at various locations. Among them, the lead level at BH4 (1.0-1.2) exceeded the Health-based Investigation Level C (HIL-C), all other heavy metal detections were below selected criteria. 95% UCL test was undertaken for all samples collected & analyzed, the results indicated the site lead level below HIL-C. PAH was detected at BH3, 4, 5 and 10, the detection levels were all lower selected criteria. TRH was detected at BH10, but the results were all lower than LOR after silica-gel clean-up.

No asbestos (AF/FA) was detected at or above reporting limit in all 21 soil samples. Two pieces of asbestos ACMs were identified at southern section of the site and were both pieces of compressed asbestos fibre-cement sheet.

10.2 Ground Gas

The threshold level of CH_4 is 1.0% v/v and the threshold level for CO_2 is 1.5% v/v, which is specified in the *Solid Waste Landfills Guideline (NSW EPA 2016)* for further investigation and corrective action. CH_4 exceedance was observed at GG1, 4 and 9 in all six rounds of monitoring. CO_2 exceedance was observed at all nine monitoring locations form 3rd round to 6th round.

The calculated GSV from six round monitoring results both indicated Low Risk according to the Modified Wilson and Card classification method outlined in NSW EPA (2020).

The worst-case scenario GSV considering both 6 rounds monitoring results is calculated using highest gas level 14.8%v/v and highest flow rate 4.1 L/hr. The GSV result is 0.61 L/hr, indicating Low Risk (CS2). Refer to **Appendix C5** for GSV calculations).

10.3 Soil Vapour

Detections of BTEX, TRH F1 & F2 and VOCCs in soil vapour were all below the HSL-A criteria (applicable to a residential and secondary school land use scenario), therefore, were considered low risk.

10.4 Service Pits

Service pit monitoring results did not indicate gas accumulation in the measured service pits

Accumulation of hazardous gasses within service pits are a risk for potential utility workers. Any detections exceeding relevant threshold criteria must be reported to the relevant stake holders including but not limited

to NSW EPA, Work Cover, and owners of the utility assets. Due to the detection of CH_4 and CO_2 at different monitoring locations, more service pit monitoring rounds together with gas monitoring are recommended.

10.5 Surface Gas

Surface gas monitoring was undertaken at 45 locations across the site, no CH4, CO or H2S was detected, the levels of CO_2 were below the criteria al all locations. Refer to **Appendix C7** for surface gas monitoring results table. Refer to **Appendix Figure 3** for surface gas monitoring locations.

10.6 Groundwater

Groundwater assessment identified ammonia and copper concentrations exceeding the groundwater investigation levels. These detections are likely to be due to organic matter in the soil strata and/or the off-site up-gradient sources and dissolved urban contamination primarily associated with the region's history of contamination. Field readings indicated the groundwater had low oxygen levels (0.24-0.51 mg/L) and high electrical conductivity (3352 - 4018 µS). pH readings indicated the groundwater at both locations were neutral.

As no actual or trace impact was observed at GG5, data obtained for groundwater assessment within the site boundary is considered sufficient for the purpose of this assessment. However, to delineate the impact of the underground storage tank found at eastern to GG5, further investigation is recommended.

10.7 Potential Asbestos Containing Material (PACM)

PACMs identified near well GG7 and to the north to the site gate were identified. Previous reports also identified asbestos in soil. The type and extent of asbestos contamination beneath the concrete slab area of the site requires further investigation. Consolidation of asbestos below a capping layer is recommended and will be included in the RAP.

10.8 Depth of Fill

Among all 21 investigation locations, two types of fill layers were observed above the dark grey to black natural high plasticity clay. The first layer is legacy landfill material consists coarse sand, clay, sandstone with inclusion of rocks, cobbles, glass & tile fragments, etc. It overlies another fill layer comprised of natural dredged sediment material which consists of mixture of sandy clay and coarse sand with inclusion of seashells and sulphur odours.

The depth of first fill layer (landfill material) was approximately 1mBGL in the southern site area section, increasing to approximately 2mBGL at the northern section. The deepest depth of this layer was observed as ~3mBGL at GG5. The depth range of second fill/natural dredged layer was 1.0-2.6mBGL at southern section at southern section, 2.0-3.5mBGL at north-eastern section, 3-6mBGL at central of eastern boundary (GG5), 2-3.6mBGL at northern section of the site.

The depth of fill below the sandstone / soil mound was not investigated, to avoid disturbing the remediation capping layer known to be present in some areas of the site near the mound.

10.9 Other Areas of Concern

An Underground Storage Tank was found in the southern site area at the eastern boundary. The tank dimensions and tank contents were unknown. A potential second Underground Storage Tank is shown in Figure 4a of the previous RAP (Parsons Brinckerhoff, 2015), no more information of this UST was available at the time of reporting. The approximate location is near to BH6 and is shown on **Figure 6**.

11.Updated Conceptual Site Model

CSM of the site has been formed by considering the geophysical characteristics of the site, the contaminant source, potential receptors and the pathways to the receptors. The CSM, as required by the NEPC (2013), is an iterative process constantly being updated during the investigation process as more information becomes available. The following CSM is presented based on the results of this Detailed Site Investigation. A graphical illustration of the CSM is displayed on **Appendix Figure 5** and **Figure 6**.

11.1 Sources

The following sources of contamination were identified as a result of this investigation:

- Legacy landfilling;
- Underground Storage Tank;
- Potential former underground petroleum storage;
- PACM noted near GG7 and the site gate.
- Acid Sulphate Soil

11.1.1 Chemicals of Potential Concern

Chemicals of potential concern were determined in accordance with the identified sources and results of this investigation. A breakdown of these chemicals is provided in Table 25.

Table 25: Chemicals of Potential Concern

Ground Gas/ Soil Vapour	Soil Vapor	Groundwater	Soil
CH_4 and CO_2	BTEX and TPH	-	TRH
			BTEXN
			Heavy metals (As, Cd, Cr, Cu, Hg, Ni Pb, Zn)
			PAH
			Asbestos in soils
			Acid Sulphate Soils

Note:

1. TRH = Total Recoverable Hydrocarbons; BTEXN = Benzene, Toluene, Ethylbenzene, Xylenes, and Naphthalene; F1 = TRH C_6-C_{10} less BTEX; F2 = TRH C_{10}-C_{16} less Naphthalene.
2. As = Arsenic; Cd = Cadmium; Cr = Chromium; Cu = Copper; Hg = Mercury; Ni = Nickel; Pb = Lead; Zn = Zinc.

11.2 Pathways

Potential pathways that link human health risk to the identified contamination sources on site are considered as follows:

- Legacy Landfilling:
  - Sub-surface migration of ground gas through unsaturated soil media,
  - Sub-surface migration of ground gas through potential preferential pathways created by on-site service lines,

- Direct emissions of ground gases from ground surface, and
- Inhalation, ingestion, and dermal contact with contaminants in soil and fill.

- PACM asbestos noted near GG7 and near the site gate:
  - Disturbance of asbestos fibres and generation of dust.
  - Inhalation of airborne fibres.
- Underground Storage Tank (UST) & potential former underground petroleum storage:
  - Leaching into groundwater and offsite migration.
  - Ingestion of the contaminants in groundwater.

Pathways that link ecological risk to identified contamination on site are envisaged to be as follows:

- Landfill, USTs and Acid Sulphate Soils:
  - Leaching of subsurface waters or UST content into groundwater and offsite migration.
  - Surface water run-off carrying dissolved or particulate contaminants.

11.3 Receptors

Human receptors on site include the workers involved in the future development, students, staff and other temporary visitors to the site such as maintenance workers. Off-site human receptors include residents and visitors of the neighbouring residential areas, visitors to the playing field north to the site, as well as workers and customers of the surrounding commercial area facilities.

Parramatta River noted as the closest ecological receptor to the site.

11.4 Source, Pathway and Receptor Analysis

As a result of this investigation a CSM has been developed to assess actual or potential risks to human health and the environment. In this scope, a contaminant source, pathway and receptor analysis has been made and the identified linkages are tabulated in Table 26.

Table 26: CSM (Source, Pathway and Receptor Analysis)

Potential Source	Phases of Contaminants	Potential Transport Pathways	Potential Exposure Pathways	Potential Receptors	Long Term Monitoring and Management Required (Yes/ No)	Remedial Action Required (Yes/ No)	Comments
Legacy Land fill	Gaseous phase	• Unsaturated soils • Preferential pathways created by utility service lines • Direct emissions from ground surfaced soils	Gas/vapour intrusion into enclosed spaces and inhalation	<u>On-site:</u> Future students, staff, and visitors of the school <u>Off-site:</u> Students, staff and visitors of the Wentworth Point Public School. Visitors to the playing field north to the site. Residents of the high density residential / commercial properties neighbouring the site.	**Yes**	**YES**	CH_4 levels greater than 1% (v/v) were noted at GG1, GG4 and GG9 in all 6 rounds of monitoring. CO_2 level(s) greater than 5% (v/v) were noted at all wells from 3rd to 6th round. 14.8 %v/v of CH4 at GG1 was the highest reading in 6 rounds, the highest flow rate was 4.1L/hr at GG1 in the 1st round. Thus, worst case scenario GSV for the site is 0.61L/hr and the site is classified as low risk (CS2). Long term ground gas management is required due to the elevated CH_4 and CO_2 levels within the stagnant ground gas. The level of TRH >C10-C16 less Naphthalene (F2) at GG8 (0.4-0.5mBGL) exceeded the selected soil vapor intrusion criteria HSL A&B).
	Liquid phase (leachate)	Leaching into groundwater and offsite migration		<u>Off-site:</u> Parramatta River north and east to the site	**No**	**No**	Groundwater assessment conducted as part of this investigation did not show any indicators of groundwater contamination.
UST and Potential abandoned UPSS	Gaseous phase	• Unsaturated soils • Preferential pathways created by utility service lines • Direct emissions from ground surface	Gas/vapour intrusion into enclosed spaces and inhalation	<u>On-site:</u> Future students, staff, and visitors of the school	**Yes**	**Yes**	Assessment of the liquid in the UST found at the eastern boundary of the site is highly recommended. Further investigation and decommissioning of the UST is recommended. A potential abundant UST at western boundary was indicated in previous RAP (PB, 2015)
	Liquid phase (leachate)	Leaching into groundwater and offsite migration with advection and dispersion.	Vapour intrusion into buildings.	<u>Off-site:</u> Parramatta River north and east to the site	**Yes**	**Yes**	
ACM	Bonded asbestos and non-bonded asbestos	Disturbance of asbestos fibres and generation of dust	Inhalation of airborne fibres	<u>On-site:</u> Future students, staff, visitors of the school, temporary visitors, and workers on site <u>Off-site:</u> Students, staff and visitors of the Wentworth Point Public School. Visitors to the playing field north to the site. Residents of the high density residential / commercial properties neighbouring the site.	**Yes**	**Yes**	An Asbestos Management Plan (AMP) is required to manage the identified asbestos risk during construction activities.

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12. Data Gaps

Data gaps identified for the site and its surrounds include the following:

- A Safe Work Dangerous Goods Search is required to be undertaken for both lots 202, 203 and 204 DP 1216628;
- Data for the contents in the underground storage tank (UST) found near to GG5 (and for the second possible UST if confirmed to be present);
- Groundwater data around the USTs;
- Details of the legacy monitoring well found at the middle section of the site (south of GG2),
- Extent of asbestos containing materials that may be present in other areas on site.

13. Conclusions

Based on the 6 rounds of gas monitoring, the results indicated the site can be classified as low risk according to criteria in the NSW EPA Assessment and Management of Hazardous Ground Gases (2020). Methane-CH_4 concentration exceedance was observed at wells GG1, 4 and 9 in all six rounds of monitoring. Carbon dioxide-CO_2 exceedance was observed at all nine wells in the 3rd, 4th, 5th and 6th rounds. These levels exceeded the threshold levels established by NSW EPA for further investigation and corrective action. The highest reading was 14.8 %v/v of methane at GG1 in the 3rd round, highest flow rate at 4.1L/hr was noted at GG1 in the 1st monitoring round. Worst-case scenario GSV for the site is 0.61L/hr, falling in CS2 category - low risk. Service pit monitoring results and surface gas monitoring results were all below the regulatory threshold levels.

Soil contamination assessment indicated localised elevated concentrations in soil samples including some exceedances of the Health-based Investigation Level (HIL-C). These included lead at BH4 (870 mg/kg), Benzo(a)pyrene TEQ at BH4 (3.5 mg/kg), GG8 (6.7 mg/kg) and GG12 (8.6 mg/kg, hotspot), and TRH F2 at GG8 (2400 mg/kg). The 95% UCL average concentrations for Lead across the site (except for the soil mound area), were all below the criteria. The level of TRH >C10-C16 less Naphthalene (F2) at GG8 (0.4-0.5mBGL) exceeded the selected soil vapor intrusion criteria HSL A.

Three pieces of Asbestos fines were detected in the sample collected at GG10 in forms of fibre cement fragments and discrete fibre bundles (1.97g, 0.10g and 0.0022g), and detection was noted as 0.21% w/w which exceeded the adopt HSL-C criteria. Bonded asbestos (fibre cement pieces) on the ground surface was observed near GG7 and north to the site gate.

Some further assessment of soils that were inaccessible (areas below concrete slabs and UST areas) will be required following the removal of the concrete slab on-site.

Acid sulphate soil was identified on site and an ASS management plan is required for site redevelopment works.

Groundwater monitoring results did not indicate the presence of significant contamination in the assessed perched aquifer beneath the site at the single location sampled.

14.Recommendations

In the light of the available information Greencap recommends the following:

- A Remediation Action Plan is required establishing the necessary remedial actions for the mitigation of the contamination risks identified in this DSI;
    - RAP to detail requirements for further investigation to close out the data gaps noted in this DSI;
- Decommissioning and/or removal of the identified UST and associated contaminated soil;
- An Asbestos Management Plan (AMP) is required to manage the identified asbestos risk during construction activities;
- An Acid Sulfate Soils Management Plan (ASSMP) is required to manage the acid sulfate soil risk identified on site; and
- A long-term Environmental Management Plan (EMP) will be required for the site.

15.References

Greencap (2021), *Preliminary Site Investigation (PSI) – Sydney Olympic Park High School,* Date: April 2021, Job number: J169135

Greencap (2021), Sampling and Analysis Quality Plan – Sydney Olympic Park High School, Date: Apri 2021, Job Number: J169135.

NEPC (1999), *National Environment Protection (Assessment of Site Contamination) Amendment Measure (ASC NEPM. 2013 amendment).*

NSW Acid Sulphate Soils Management Advisory Committee: Acid Sulphate Soils Assessment Guidelines (1998).

NSW EPA (2020), Assessment and Management of Hazardous Ground Gases – Contaminated Land Guidelines.

Environmental Guidelines: Solid waste landfills (2016).

NSW OEH (2011), *Contaminated Sites – Guidelines for Consultants Reporting on Contaminated Sites.*

NSW EPA (2012), *Guidelines for the Assessment and Management of Sites Impacted by Hazardous Ground Gases.*

NSW EPA (2016), *Environmental Guidelines*: *Solid Waste Landfills Guideline.*

NSW DEC (2007), *Guidelines for the Assessment and Management of Groundwater Contamination.*

NSW EPA (2015), *Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997.*

September 2021

GREENCAP
Going Further in Managing Risk

Detailed Site Investigation

School Infrastructure NSW (SINSW) - Department of Education

Proposed Sydney Olympic Park High School

Figures

Legend:

Metres
0 15 30 45 60

Site Boundary (03/06/2021)

Site Location

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Going Further in Managing Risk

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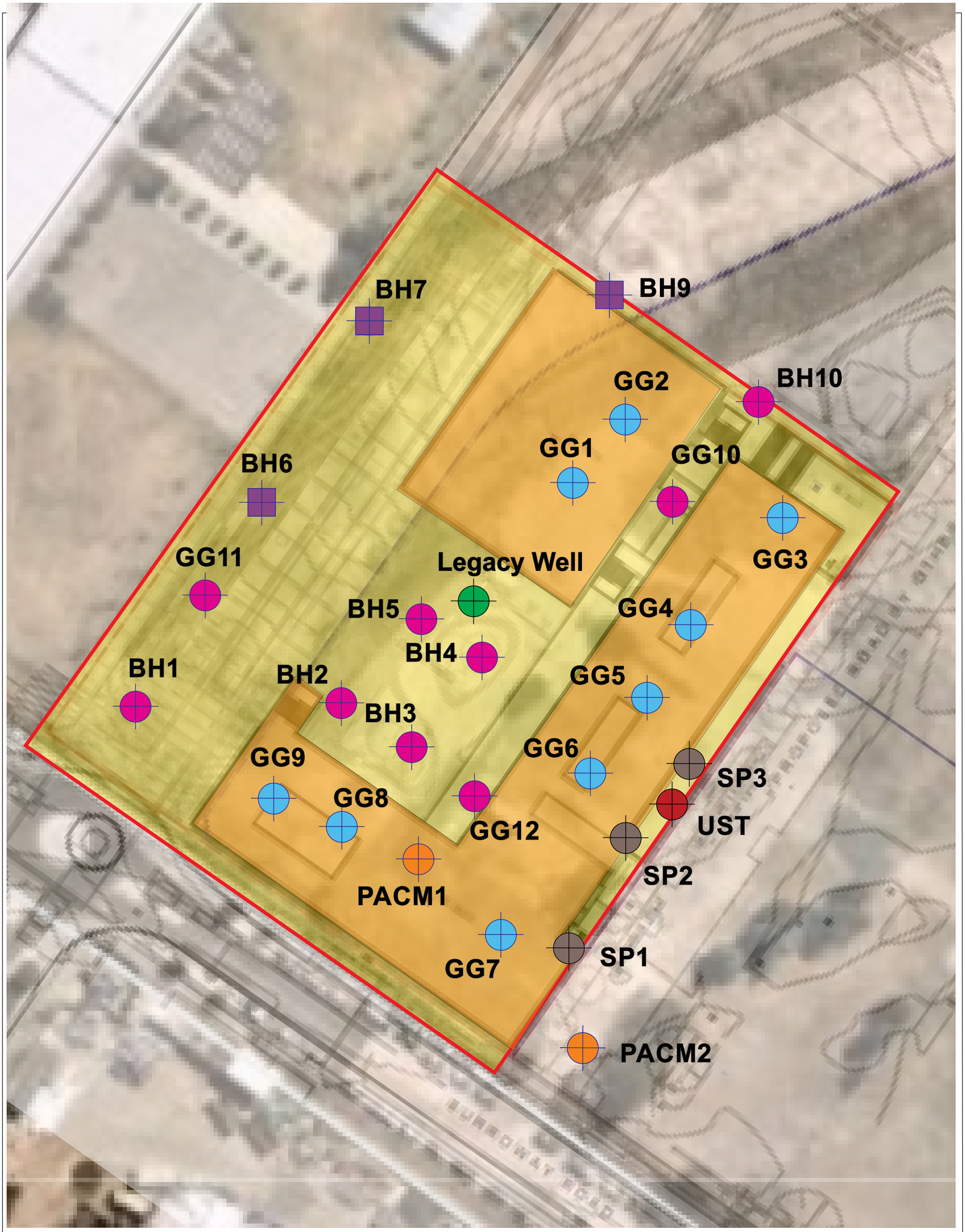
Client Name:	Department of Education (School Infrastructure NSW)				
Client Number:	C123934	Project Number:	J169135		
Project Description:	Detail Site Investigation - SOPHS				
Address:	Proposed Sydney Olympic Park High School, 7-11 Burroway Road, Wentworth Point, NSW 2127				
Prepared:	SW	Reviewed:	MB	Version Date:	08/09/2021
Figure 1	Site Location and Regional Context				



Legend:

Metres: 0 5 10 15 20

- New Site Boundary (03/06/2021)
- Proposed Building Footprint (16/08/2021)
- PACM
- Test Pits
- Boreholes
- Service Pit
- Gas Monitoring Wells
- Legacy Well found on-site
- Underground Storage Tank (UST)

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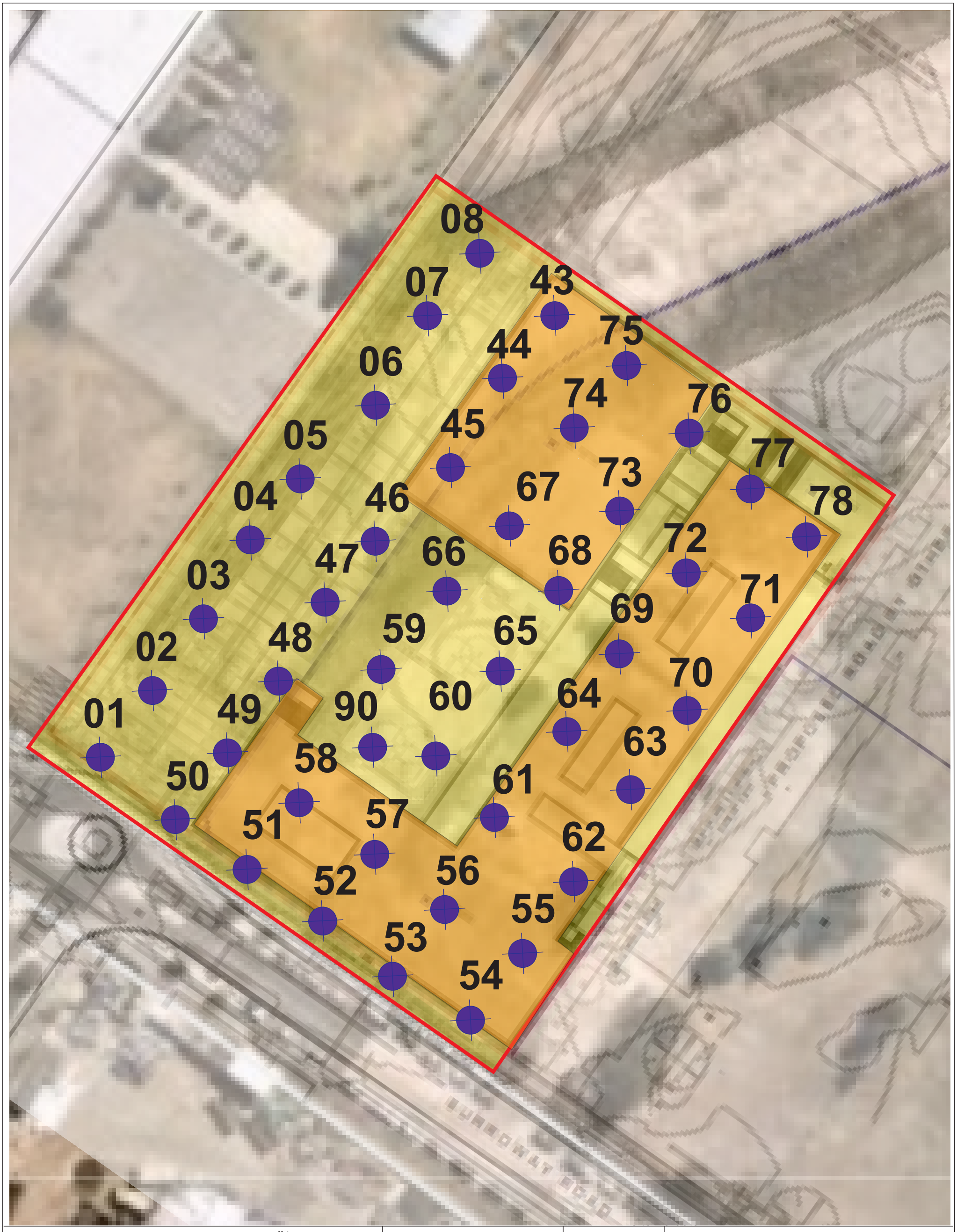
Prepared:	SW	Reviewed:	MB	Version Date:	08/09/2021
Figure 2	Sampling Locations				



Legend:

- Old Site Boundary
- Play Space Subject to Joint Use Agreement
- New Site Boundary (03/06/2021)
- Proposed Building Footprint (16/08/2021)
- Surface gas Monitoring Locations

Metres
0 5 10 15 20

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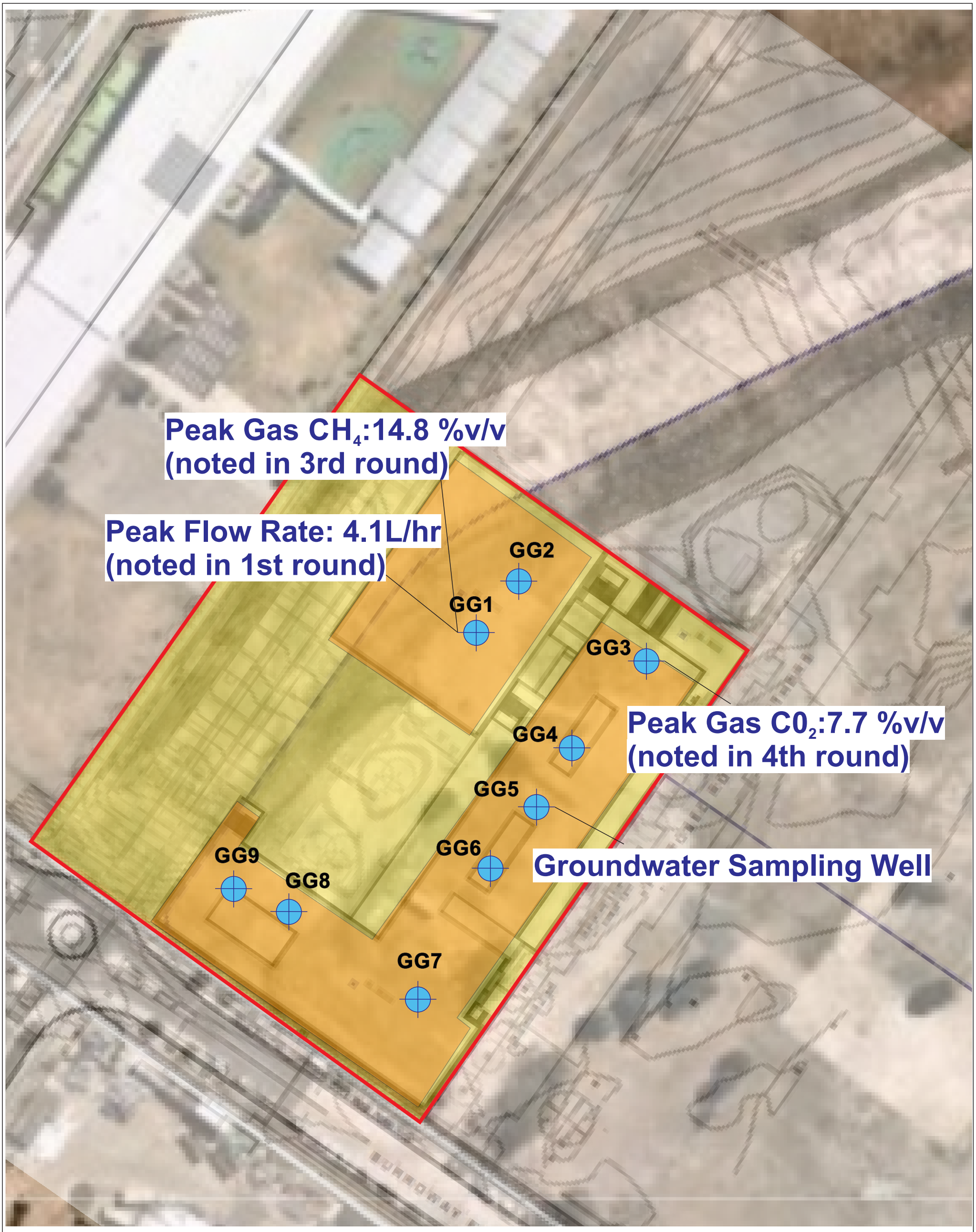
Figure 3	Surface Gas Monitoring Locations				



Legend:

Metres
0 10 20 30 40

- Site Boundary (03/06/2021)
- Proposed Building Footprint (16/08/2021)
- Gas Monitoring Wells

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Figure 4	Peak Gas Concentration & Peak Flow Rate (6 rounds)				

Note: B(a)p TEQ* - Benzo(a)pyrene TEQ (upper bound)

BH9

BH7

GG2

GG1

BH10
Asbestos Fines: 0.21 %w/w
at 0.3-0.4 mBGL

A

BH6

GG10

GG3

GG11

Legacy Well

BH5

GG4

BH1

BH2

GG5

BH4
Lead: 870 mg/kg at 1.0-1.2 mBGL
B(a)p TEQ*: 3.5 mg/kg at 1.0-1.2 mBGL

BH3

GG9

GG6

SP3

A'

GG12
B(a)p TEQ*: 8.6mg/kg at 1.4-1.5 mBGL

UST

GG8
B(a)p TEQ*: 6.7 mg/kg
at 0.9-1.0 mBGL
TRH>C10-C16 (F2):2400 mg/kg
at 0.4-0.5 mBGL

SP2

PACM2

SP1

GG7

PACM2

Lead HIL-C Criterion: 600 mg/kg
TRH>C10-C16(F2) HSL-A&B (0 to <1m): 110 mg/kg

Benzo(a)pyrene TEQ HILC Criterion: 3mg/kg
AF/FA HIL-C Creiterion: 0.001%w/w

Legend:

Metres
0 10 20 30 40

- Site Boundary (03/06/2021)
- Proposed Building Footprint (16/08/2021)
- Boreholes
- Test Pits
- Gas Monitoring Wells
- Service Pit
- Legacy Well found on-site
- Underground Storage Tank (UST)

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Prepared:	SW	Reviewed:	MB	Version Date:	08/09/2021
Figure 5	Sample Locations - Exceedance of Criteria				

A

A’

Planned Building (Projected)

Planned Building

Soil Mound
(Sandstone)

GG9
(Projected)

GG8
(Projected)

Concrete Slab

GG5

Service Pit (SP3)

BH6

BH5

BH4

mBGL

0

1

2

3

4

5

6

7

8

9

10

11

12

Potential UST
Indicative location
& Boundary

Fill Layer

Depth to Groundwater at GG5 is 1.8 mBGL

Legacy UST

Indicative Boundary

Fill?/Natural? - clay and sand mixture
with inclusion of seashells, ASS & PASS

Legacy Well
(Projected, Indicative depth)

Natural Dark Grey to Black Clay, High Plasticity

Bedrock

Legend:

- Proposed School Buildings
- Soil Mound
- Underground Storage Tank (UST)
- Potential UST
- Fill Layer
- Bedrock
- Service Pit
- Fill Material And/ Or Dredged Natural Material Form Sea Or River
- Potential Gas / Soil Vapor Migration
- Potential Gas Generation / Accumulation

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Prepared:	SW	Reviewed:	MB	Date:	14/09/2021
Figure 6	Conceptual Site Model				

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Detailed Site Investigation

School Infrastructure NSW (SINSW) - Department of Education

Proposed Sydney Olympic Park High School

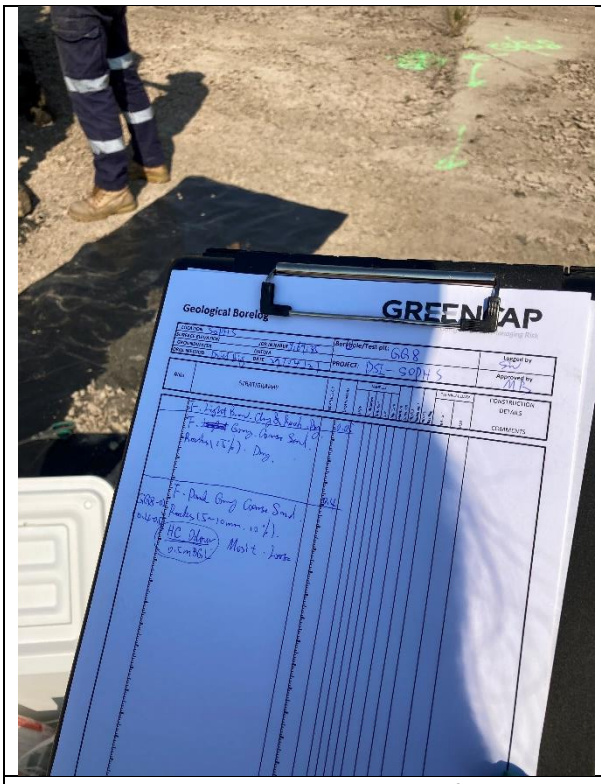
Appendix A: Field Photographs

Photograph 1 – Hand auguring before drilling.

Photograph 2 – Material from the borehole was laid on the plastic sheet for inspection.

Photograph 3 – Shells were observed at fill/natural layer.

Photograph 4 – Material has strong hydrocarbon odour at GG8 (0.4-0.5 mBGL).



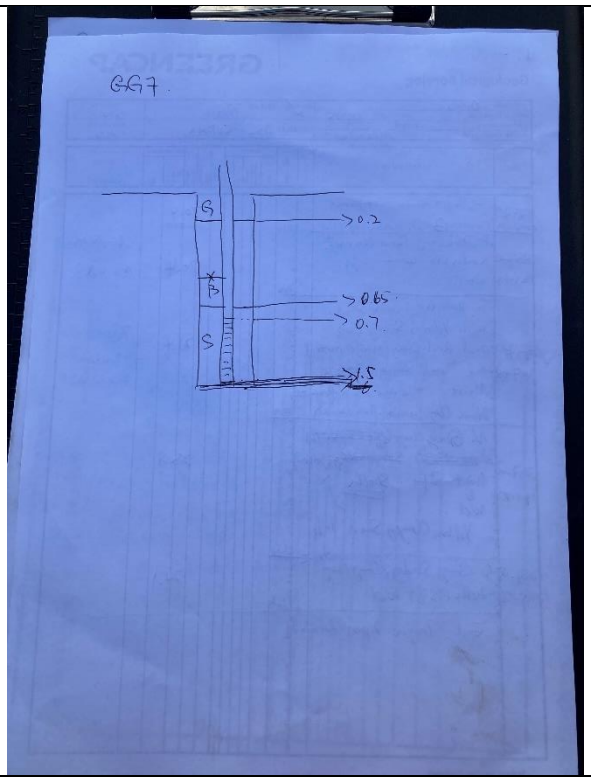
Photograph 5 – Borehole was logged before sampling.

Photograph 6 – Samples were collected form each layer.

Photograph 7 – Concrete coring and hand auguring.

Photograph 8 – Push tubing and sampling after concrete coring at GG5.

Photograph 9 – Natural Clay at GG5.



Photograph 10 – Well installation details were recorded.

Photograph 11 – installed well with plug (before cap was installed).

Photograph 12 – Push tubing and sampling at BH8.

Photograph 13 – Natural high plasticity clay and fill/natural dredged material (with shells).

Photograph 14 – Helium test before gas monitoring and vapor sampling.

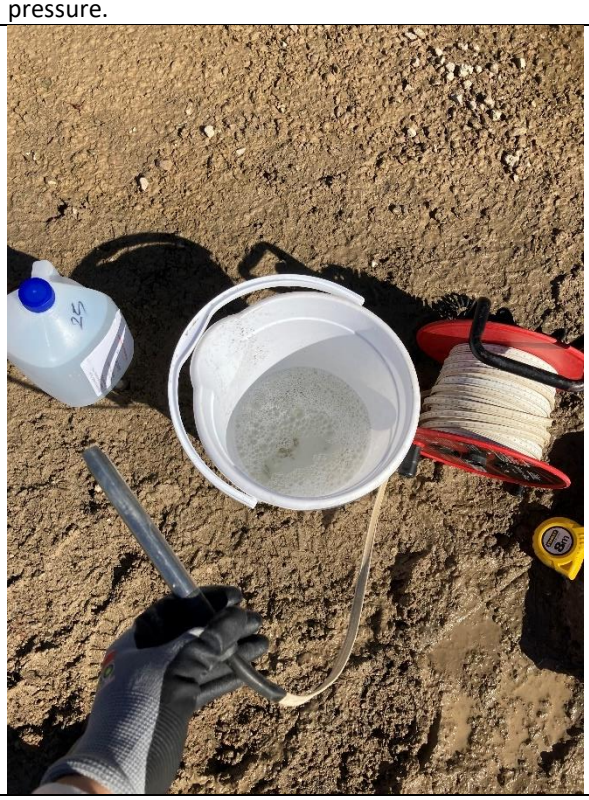
Photograph 15 – Gas monitoring with GA5000.

Photograph 16 – PID reading.

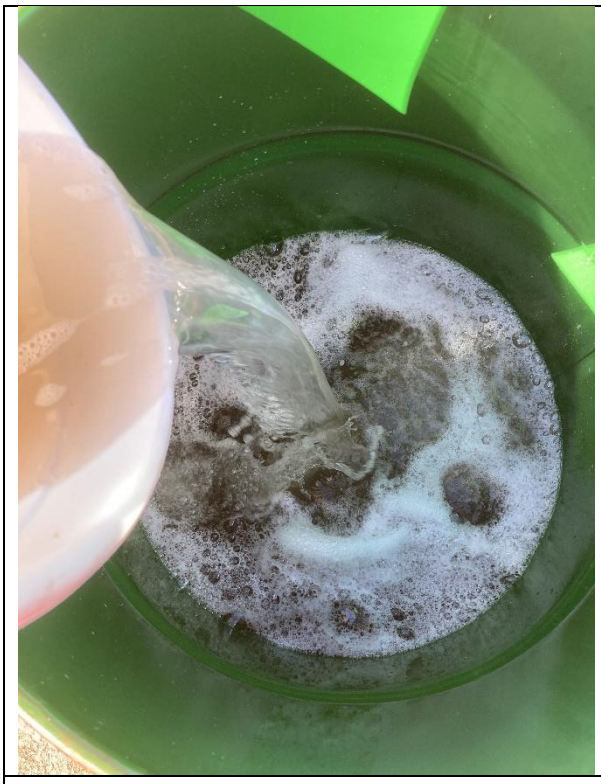
Photograph 17 – Shut-in test (post-sampling).

Photograph 18 – Finish sampling and record the end pressure.

Photograph 19 – Soil vapor primary and duplicate samples.

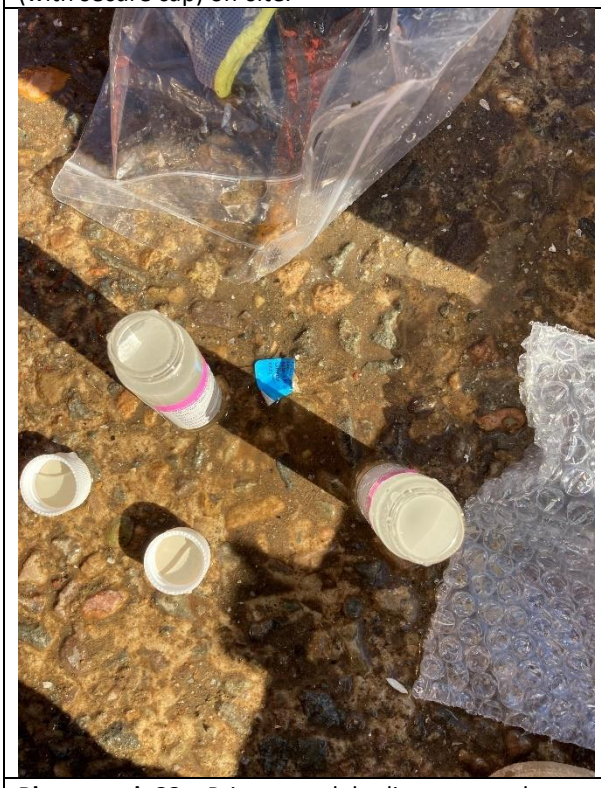


Photograph 20 – Measure the well, rinse the meter with surfactant and clean water (provided by Eurofins) after each measurement.



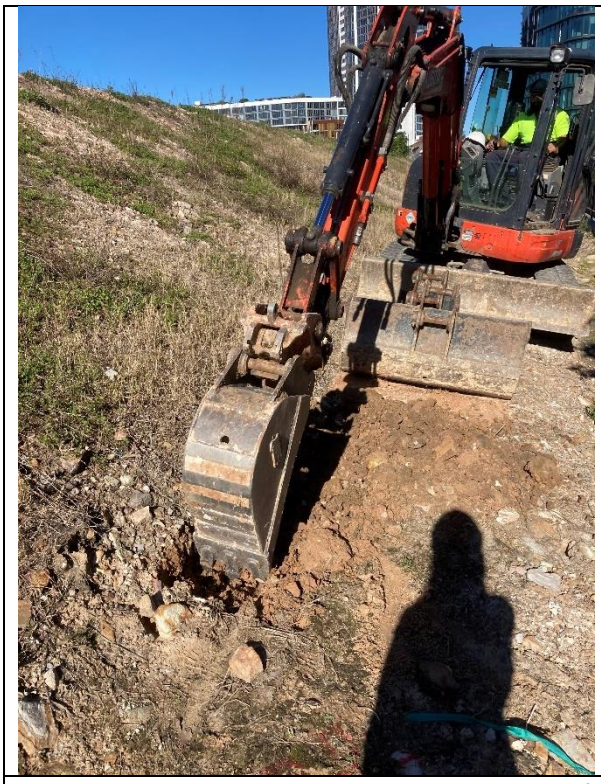
Photograph 21 – Rise water was put into a 200L drum (with secure cap) on-site.

Photograph 22 – Groundwater monitoring and sampling at GG5.

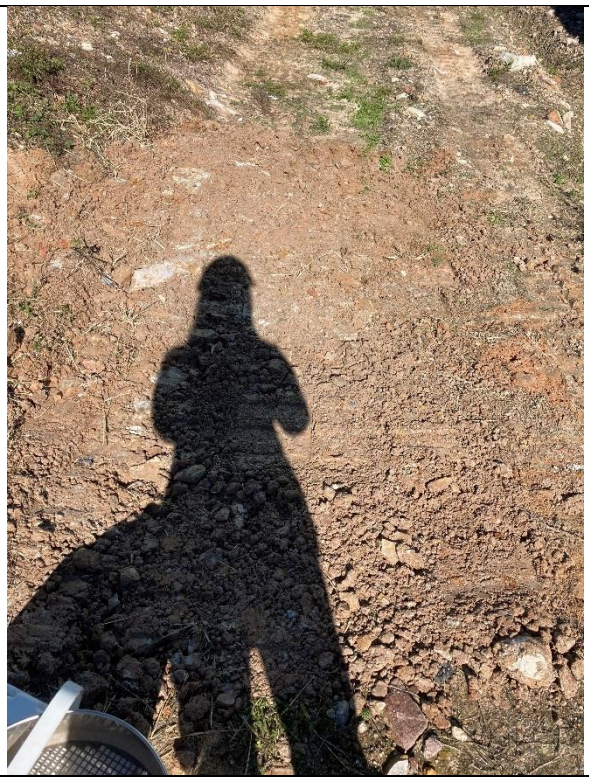


Photograph 23 – Primary and duplicate groundwater samples.

Photograph 24 – Test pitting on the soil mound.



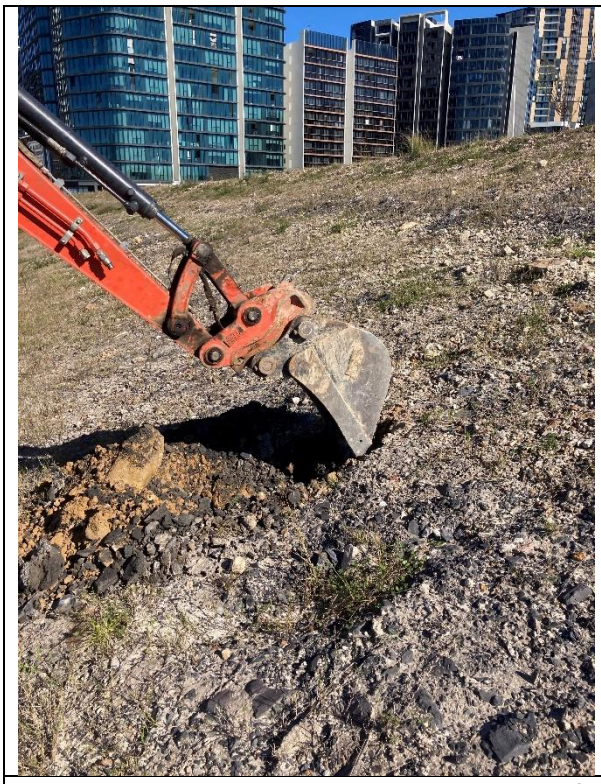
Photograph 23 – Test pitting at western boundary of the site - BH6.



Photograph 24 – Material was put back to the test pit in a reverse order and was compressed by the excavator.

Photograph 25 – Sandstone from the test pit on the soil mound.

Photograph 26 – Sieve testing – shale and medium to stiff clay cobble was observed.



Photograph 27 – Additional test pit at easter wall of the soil mound.

Photograph 28 – Service Pits monitoring.

Photograph 29 – Surface gas monitoring.

Photograph 30 – GA5000 gas monitoring for surface gas and service pits.

September 2021

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Detailed Site Investigation

School Infrastructure NSW (SINSW) - Department of Education

Proposed Sydney Olympic Park High School

Appendix B: Field Logs

ENVIRONMENTAL BOREHOLE

BOREHOLE ID: GG1
PROJECT NAME: DSI - SOPHS
JOB NO.: J169135-01
CLIENT NAME: SINSW

DATE: 30/04/21
LOCATION: 9 Burroway Road, Wentworth Point
LOGGED BY: Shihui Wang
APPROVED BY: Matthew Barberson

TOTAL HOLE DEPTH: 2.7
DRILL METHOD: Concrete Coring, Hand Auger & Push Tubing
DRILLING CONTRACTOR: Epoca

COMMENTS No ACM was observed, no visual indicators. Sulfate odor was noted from 1.8mBGL to 2.7mBGL.

Depth (mBGL)	PID (ppm)	Sample ID	Graphic Log	Moisture	Consistency/ Density	Description (Plasticity, colour, particle size and shape, odours/ staining, inclusions and comments)	Well Diagram
0						Concrete slab	Concrete grout
0.2	72.8			Wet	Loose	Fill - brown to yellow, coarse sand.	
	72.8	GG1-01(0.25-0.35)		Moist	Stiff	Fill - brown to grey, sandy clay, red clay with white mottled (40%).	
0.4	71.2	GG1-02(0.4-0.5)		Moist	Loose	Fill - dark grey, coarse sand and gravels (angular to subangular, 10mm-50mm, 40%)	Bentonite
0.6	22.8	GG1-03(0.5-0.6)		Dry	Loose	Fill - red, coarse sand, organic matter / hydrocarbon odour.	
0.8	72.5	GG1-04(0.8-0.9) FD4 FT2		Moist	Stiff	Fill - dark grey with yellow and red mottled, organic matter/ hydrocarbon odor, trace organic fibers.	
1						Fill - light grey, silty soil, angular gravels (10mm-20mm, 15%), one 35mm rock.	Screening clean sand
1.2	68	GG1-05(1.1-1.2)			Soft	Fill?/Natural? - grey clay, high plasticity, color changes to yellow form 1.6mBGL.	
1.4							
1.6	84.9	GG1-06(1.6-1.7)					
1.8				Wet	Loose	Fill?/Natural? - brown sand with black sulfate odor sand, shell (10%).	
2	134.6	GG1-07(2.0-2.1) GG1-07-ASS					
2.2							
2.4							
2.6	69.8	GG1-08(2.6-2.7) GG1-08-ASS		Moist	Soft	Natural - dark to black clay, high plasticity, sulfate odor.	
2.8						End of depth, natural soil reached.	
3							
3.2							
3.4							
3.6							
3.8							

ENVIRONMENTAL BOREHOLE

BOREHOLE ID: GG2
PROJECT NAME: DSI - SOPHS
JOB NO.: J169135-01
CLIENT NAME: SINSW

DATE: 30/04/21
LOCATION: 9 Burroway Road, Wentworth Point
LOGGED BY: Shihui Wang
APPROVED BY: Matthew Barberson

TOTAL HOLE DEPTH: 3.9
DRILL METHOD: Concrete Coring, Hand Auger & Push Tubing
DRILLING CONTRACTOR: Epoca

COMMENTS No ACM was observed, no visual indicators. Sulfate/organic matter odor was noted from 2.0mBGL to 3.9mBGL.

Depth (mBGL)	PID (ppm)	Sample ID	Graphic Log	Moisture	Consistency/ Density	Description (Plasticity, colour, particle size and shape, odours/ staining, inclusions and comments)	Well Diagram
0						Concrete slab	Concrete grout
0.2	8.4			Moist	Loose	Fill - yellow, sand.	
0.4	7.1	GG2-01(0.3-0.4)		Dry	Loose	Fill - grey, mixture of sand and gravels (rounded to sub-angular, 5-25mm, 40%)	Bentonite
0.6				Moist	Stiff	Fill?/Natural? - brown to grey clay with red mottled, high plasticity.	
1	4.8	GG2-02(1.0-1.1)					
2				Wet	Loose	Fill?/Natural? - dark grey, coarse sand, with black sulfate/organic matter odor sand, shell (5-10%).	Screening clean sand
2.6	6.4	GG2-03(2.5-2.6)					
3				Wet	Soft	Natural - dark grey clay, medium to high plasticity, sulfate odor.	
3.4	8.1	GG2-03(3.5-3.6) GG2-03-ASS					
3.8						End of depth, natural soil reached.	

ENVIRONMENTAL BOREHOLE

BOREHOLE ID: GG3
PROJECT NAME: DSI - SOPHS
JOB NO.: J169135-01
CLIENT NAME: SINSW

DATE: 30/04/21
LOCATION: 9 Burroway Road, Wentworth Point
LOGGED BY: Shihui Wang
APPROVED BY: Matthew Barberson

TOTAL HOLE DEPTH: 2.7
DRILL METHOD: Hand Auger & Push Tubing
DRILLING CONTRACTOR: Epoca

COMMENTS No ACM was observed, no visual indicators. Sulfate odor was noted from 2.0mBGL to 2.7mBGL.

Depth (mBGL)	PID (ppm)	Sample ID	Graphic Log	Moisture	Consistency/ Density	Description (Plasticity, colour, particle size and shape, odours/ staining, inclusions and comments)	Well Diagram
0				Dry	Loose	Fill - light brown to pink, silty sand with rocks (sub-angular to angular, 5-100mm, 30%) and gravels.	Concrete grout
0.2	52.2	GG3-01(0.1-0.2)					
0.4						Fill - silty sand, gravels (2-10mm, 10%), rocks (sub-angular to angular, 20-150mm), with inclusion of glass fragments.	Bentonite
0.6							
0.8							Screening clean sand
1	58.2	GG3-02(0.9-1.0)					
1.2							
1.4							
1.6				Moist	Stiff	Fill?/Natural? - yellow to brown, clay, with brown clayey sand (20%)	
1.8	50.2	GG3-03(1.7-1.8)					
2				Wet	Loose	Fill?/Natural? - brown, medium sand, with black sulfate odor sand, shell (20%).	
2.2							
2.4							
2.6	48.7	GG3-04(2.5-2.6) GG3-04-ASS					
2.8						End of depth, target depth reached.	
3							
3.2							
3.4							
3.6							
3.8							

ENVIRONMENTAL BOREHOLE

BOREHOLE ID: GG4
PROJECT NAME: DSI - SOPHS
JOB NO.: J169135-01
CLIENT NAME: SINSW

DATE: 29/04/21
LOCATION: 9 Burroway Road, Wentworth Point
LOGGED BY: Shihui Wang
APPROVED BY: Matthew Barberson

TOTAL HOLE DEPTH: 1.7
DRILL METHOD: Concrete Coring, Hand Auger & Push Tubing
DRILLING CONTRACTOR: Epoca

COMMENTS No ACM was observed, no visual indicators. Sulfate odor was noted from 0.4mBGL to 1.7mBGL.

Depth (mBGL)	PID (ppm)	Sample ID	Graphic Log	Moisture	Consistency/ Density	Description (Plasticity, colour, particle size and shape, odours/ staining, inclusions and comments)	Well Diagram
0						Concrete slab	Concrete grout
0.2	10	GG4-01(0.3-0.4)			Loose	Fill - brown, coarse sand, angular gravels (15-60mm, 50%), one 180mm rock.	
0.4		GG4-02(0.5-0.6)			Stiff	Fill - brown sandy clay, red clay (stiff, 10%), rocks (angular to sub-angular, 15-30mm, 25%), sulfate odor sand. Clay increases from 0.6 to 1.0 mBGL.	Bentonite
0.6	2.5	GG4-02-ASS FD2 & FT1					
0.8							
1					Medium Stiff	Fill?/Natural? - dark grey, sandy clay, rocks (angular to sub-angular, 10-20mm, 5%), sulfate odor sand. Black color sand increases from 1.5 to 1.7 mBGL.	Screening clean sand
1.2	2.8	GG4-03(1.1-1.2) GG4-03-ASS					
1.4		GG4-04(1.4-1.5)					
1.6	2.5	GG4-04-ASS			Stiff		
1.8						End of depth, target depth reached.	
2							
2.2							
2.4							
2.6							
2.8							
3							
3.2							
3.4							
3.6							
3.8							

ENVIRONMENTAL BOREHOLE

BOREHOLE ID: GG5
PROJECT NAME: DSI - SOPHS
JOB NO.: J169135-01
CLIENT NAME: SINSW

DATE: 30/04/21
LOCATION: 9 Burroway Road, Wentworth Point
LOGGED BY: Shihui Wang
APPROVED BY: Matthew Barberson

TOTAL HOLE DEPTH: 8.0
DRILL METHOD: Concrete Coring, Hand Auger & Push Tubing
DRILLING CONTRACTOR: Epoca

COMMENTS No ACM was observed, no visual indicators. Sulfate/organic matter odor was noted from 1.5mBGL to 7mBGL.

Depth (mBGL)	PID (ppm)	Sample ID	Graphic Log	Moisture	Consistency/ Density	Description (Plasticity, colour, particle size and shape, odours/ staining, inclusions and comments)	Well Diagram
						Concrete slab	Concrete grout
0.2	10.9	GG5-01(0.15-0.2)		Moist	Loose	Fill - yellow, medium sand.	
	10.2	GG5-02(0.3-0.4)		Moist to Wet	Loose	Fill - dark grey to black, sand and gravels (sub-angular to angular, 10mm-60mm).	
0.4				Dry to Moist	Stiff	Fill - red clay with grey mottled, sandy gravels (grey, 5-25mm, rounded to sub-angular, 10%), organic matter odor.	Bentonite
0.6	9.5	GG5-03(0.5-0.6)					
0.8				Wet	Loose	Fill - yellow, medium sand.	
1	10.8	GG5-04(1.0-1.1)					
1.2							
1.4							
1.6				Saturated	Soft	Fill - brown to grey, sandy clay, low plasticity, sulfate/organic matter odor. ▽	
1.8							
2	11.2	GG5-05(2.0-2.1) GG5-05-ASS					Screening clean sand
2.2							
2.4							
2.6							
2.8							
3				Moist to Wet	Soft	Fill?/Natural? - dark grey clay, shell (10%), medium plasticity, sulfate/organic matter odor.	
3.2							
3.4							
3.6	13.6	GG5-06(3.5-3.6) GG5-06-ASS					
3.8							
4				Wet	Soft	Fill?/Natural? - brownish grey, sandy clay, shell (5%),	

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ENVIRONMENTAL BOREHOLE

Depth (mBGL)	PID (ppm)	Sample ID	Graphic Log	Moisture	Consistency/ Density	Description (Plasticity, colour, particle size and shape, odours/ staining, inclusions and comments)	Well Diagram
4.2 – 4.6	7.0	GG5-07(4.5-4.60 GG5-07-ASS				medium plasticity, sulfate/organic matter odor.	Screening clean sand
5.2 – 5.6	11.3	GG5-08(5.5-5.6) FD3		Moist to Wet	Soft	Fill?/Natural? - brown to yellow sandy clay, gravels (5-10mm, 5%), medium plasticity, sulfate odor.	
6.2 – 6.6	10.8			Moist	Stiff	Natural - red and yellow clay, rock (5%), high plasticity, organic matter odor.	
7.2 – 7.8				Moist	Stiff	Natural - grey clay with red and yellow mottled, high plasticity.	
8.2 – 8.8						End of depth, natural soil reached.	

ENVIRONMENTAL BOREHOLE

BOREHOLE ID: GG6
PROJECT NAME: DSI - SOPHS
JOB NO.: J169135-01
CLIENT NAME: SINSW

DATE: 29/04/21
LOCATION: 9 Burroway Road, Wentworth Point
LOGGED BY: Matthew Barberson
APPROVED BY:

TOTAL HOLE DEPTH: 2.3
DRILL METHOD: Concrete Coring, Hand Auger & Push Tubing
DRILLING CONTRACTOR: Epoca

COMMENTS No ACM was observed, no visual indicators. Sulfate odor was noted from 0.9mBGL to 2.3mBGL.

Depth (mBGL)	PID (ppm)	Sample ID	Graphic Log	Moisture	Consistency/ Density	Description (Plasticity, colour, particle size and shape, odours/ staining, inclusions and comments)	Well Diagram
0						Concrete slab	Concrete grout
0.2	2.8	GG6-01(0.2-0.3)			Loose	Fill - grey, medium sand with gravel (5-20mm), sub-angular rock (20%).	
0.4					Very Stiff	Fill - red, grey and orange mottled clay.	Bentonite
0.6							
0.8	0.9	GG6-02(0.7-0.8)					
1	24.6	GG6-03(1.0-1.1) GG6-03-ASS		Wet	Loose	Fill?/Natural? - yellow to brown, snad with inclusions of shells (10%), silty clay (5%).	Screening clean sand
1.2							
1.4							
1.6				Wet	Loose	Fill?/Natural? - dark grey sand, shells (5%), with inclusion of dark grey sand, sulfate odor.	
1.8							
2	12.6	GG6-04(2.0-2.1) GG6-04-ASS					
2.2							
2.4						End of depth, target depth reached.	
2.6							
2.8							
3							
3.2							
3.4							
3.6							
3.8							

ENVIRONMENTAL BOREHOLE

BOREHOLE ID: GG7
PROJECT NAME: DSI - SOPHS
JOB NO.: J169135-01
CLIENT NAME: SINSW

DATE: 29/04/21
LOCATION: 9 Burroway Road, Wentworth Point
LOGGED BY: Shihui Wang
APPROVED BY: Matthew Barberson

TOTAL HOLE DEPTH: 1.6
DRILL METHOD: Hand Auger & Drill Rig
DRILLING CONTRACTOR: Epoca

COMMENTS No ACM was observed, no visual or olfactory indicators was noted.

Depth (mBGL)	PID (ppm)	Sample ID	Graphic Log	Moisture	Consistency/ Density	Description (Plasticity, colour, particle size and shape, odours/ staining, inclusions and comments)	Well Diagram
0	70.4	GG7-01(0.05-0.15)		Dry		Fill - light brown, silty sand, cobbles (30%), rocks (10%).	Concrete grout
0.2				Dry		Fill - dark grey, coarse sand, rocks (10-40mm, 10%).	
0.4	20.4	GG7-02(0.3-0.4)				Fill - dark grey, coarse sand, with yellow/black sandy clay and red clay (white mottled), trace tile and china fragments.	Bentonite
0.6							
0.8	21.4	GG7-03(0.7-0.8)					
1				Moist to Wet	Soft	Fill?/Natural? - yellow clayey sand (90%), grey clay (10%), with inclusion of shell.	Screening clean sand
1.2	25.8	GG7-04(1.1-1.2)					
1.4				Wet	Soft	Fill?/Natural? - grey sandy clay, with inclusion of shell (25%).	
1.6	24.1	GG7-05(1.5-1.6)				End of depth, target depth reached.	
1.8							
2							
2.2							
2.4							
2.6							
2.8							
3							
3.2							
3.4							
3.6							
3.8							

ENVIRONMENTAL BOREHOLE

BOREHOLE ID: GG8
PROJECT NAME: DSI - SOPHS
JOB NO.: J169135-01
CLIENT NAME: SINSW

DATE: 29/04/21
LOCATION: 9 Burroway Road, Wentworth Point
LOGGED BY: Shihui Wang
APPROVED BY: Matthew Barberson

TOTAL HOLE DEPTH: 3.0
DRILL METHOD: Hand Auger & Drill Rig
DRILLING CONTRACTOR: Epoca

COMMENTS No ACM was observed, no visual indicators was noted. Strong hydrocarbon odor was noted at 0.5mBGL.

Depth (mBGL)	PID (ppm)	Sample ID	Graphic Log	Moisture	Consistency/ Density	Description (Plasticity, colour, particle size and shape, odours/ staining, inclusions and comments)	Well Diagram
0				Dry		Fill - light brown, clay and rock.	Concrete grout
0.2				Dry		Fill - grey, coarse sand, rocks (15%).	
0.2	34.1	GG8-01(0.2-0.3)					
0.4	438	GG8-02(0.4-0.5)		Moist	Loose	Fill - dark grey, coarse sand, rocks (5-10mm, 10%), strong hydrocarbon odor at 0.5mBGL.	Bentonite
0.6				Moist		Fill?/Natural? - dark grey clayey sand and yellow sand, with inclusion of shells, trace wood fragements, hydrocarbon odor.	
0.8							
1	80.1	GG8-03(0.9-1.0)					
1				Wet		Fill?/Natural? - dark grey, coarse, with inclusion of shells, organic matter odor.	
1.2							
1.4							
1.6							Screening clean sand
1.8							
2	19.8	GG8-04(1.9-2)					
2.2							
2.4							
2.6				Wet	Soft	Natural - black clay, high plasticity.	
2.8							
3		GG8-05(2.9-3.0)					
3						End of depth, natural material reached.	
3.2							
3.4							
3.6							
3.8							

ENVIRONMENTAL BOREHOLE

BOREHOLE ID: GG9
PROJECT NAME: DSI - SOPHS
JOB NO.: J169135-01
CLIENT NAME: SINSW

DATE: 29/04/21
LOCATION: 9 Burroway Road, Wentworth Point
LOGGED BY: Shihui Wang
APPROVED BY: Matthew Barberson

TOTAL HOLE DEPTH: 1.2
DRILL METHOD: Hand Auger & Drill Rig
DRILLING CONTRACTOR: Epoca

COMMENTS No ACM was observed, no visual or olfactory indicators was noted.

Depth (mBGL)	PID (ppm)	Sample ID	Graphic Log	Moisture	Consistency/ Density	Description (Plasticity, colour, particle size and shape, odours/ staining, inclusions and comments)	Well Diagram
0				Dry		Fill - grey, coarse sand, rocks and cobbles 930%).	Concrete grout
	31.8	GG9-01(0.1-0.2)					
0.2				Moist		Fill - grey to dark grey, coarse sand, rocks (25%), yellow clay (20%, increase to 60% at 0.5mBGL).	
0.4	21.3	GG9-02(0.4-0.5)		Moist			Bentonite
				Moist		Fill - yellow, coarse sand, rocks (15%), grey clayey sand (10%).	
0.6							
	22.7	GG9-03(0.7-0.8)					
0.8				Wet		Fill?/Natural? - grey clayey sand, with inclusion of shells (30%).	Screening clean sand
1	42.2	GG8904(1.0-1.1)					
1.2						End of depth, borehole clapsed due to groundwater encountered.	
1.4							
1.6							
1.8							
2							
2.2							
2.4							
2.6							
2.8							
3							
3.2							
3.4							
3.6							
3.8							

ENVIRONMENTAL BOREHOLE

BOREHOLE ID: BH1
PROJECT NAME: DSI - SOPHS
JOB NO.: J169135-01
CLIENT NAME: SINSW

DATE: 03/05/21
LOCATION: 9 Burroway Road, Wentworth Point
LOGGED BY: Matthew Barberson
APPROVED BY:

TOTAL HOLE DEPTH: 2.9
DRILL METHOD: Hand Auger & Push Tubing
DRILLING CONTRACTOR: Epoca

COMMENTS No ACM was observed, white fabric was noted at 1.1mBGL, slight sulfate odor was noted at 2.4-2.9mBGL.

Depth (mBGL)	PID (ppm)	Sample ID	Graphic Log	Moisture	Consistency/ Density	Description (Plasticity, colour, particle size and shape, odours/ staining, inclusions and comments)
0.2				Moist	Firm	Fill - brown/red, clayey sand.
0.4						
0.6	9.7	BH1 (0.5-0.6)				
0.8		BH1(0.7-0.9)			Firm	Fill - dark brown, clayey gravel.
1						
1.2				Moist		Fill - light grey, crushed rock with sand. White fabric noted at 1.1mBGL.
1.4	5.0	BH1(1.2-1.4)				
1.6				Moist		Fill - white, sandstone.
1.8				Moist	Loose	Fill?/Natural? - yellow, medium sand, with inclusion of shells. Color changes to brown gradually from 2.4mBGL.
2	24.4	BH1(1.8-1.9)				
2.2						
2.4						
2.6	23.1	BH1(2.6-2.8)		Saturate	Soft	Natural - dark brown, silty clay, slight sulfate odor.
2.8						
3						End of hole, target depth reached.
3.2						
3.4						
3.6						
3.8						

ENVIRONMENTAL BOREHOLE

BOREHOLE ID: BH2
PROJECT NAME: DSI - SOPHS
JOB NO.: J169135-01
CLIENT NAME: SINSW

DATE: 03/05/21
LOCATION: 9 Burroway Road, Wentworth Point
LOGGED BY: Shihui Wang
APPROVED BY: Matthew Barberson

TOTAL HOLE DEPTH: 3.9
DRILL METHOD: Concrete Coring, Hand Auger & Push Tubing
DRILLING CONTRACTOR: Epoca

COMMENTS No ACM was observed, no visual or olfactory indicators was noted.

Depth (mBGL)	PID (ppm)	Sample ID	Graphic Log	Moisture	Consistency/ Density	Description (Plasticity, colour, particle size and shape, odours/ staining, inclusions and comments)
0						Fill - concrete
0.2		BH2(0.2-0.3)				Fill - black, coarse sand (50%), rocks (10-30mm, su-angular).
0.4				Dry		Fill - yellow to red clay (light grey mottled), trace organic matters (roots), low plasticity.
0.6		BH2(0.5-0.7) BHFD7				
0.8				Wet	Loose	Fill?/Natural? - brown to dark grey, coarse sand, shells (20-30%).
1						
1.2						
1.4						
1.6		BH2(1.5-1.6)				
1.8				Wet	Loose Soft	Fill?/Natural? - dark grey, sandy clay, shells (5%).
2		BH2(2.0-2.1)				
2.2				Wet	Soft	Natural - dark grey clay, sandy clay (20%), shells (5-20%), medium to high plasticity, organic matter odor.
2.4						
2.6						
2.8						
3						
3.2						
3.4						
3.6						
3.8						
						End of hole, target depth reached.

ENVIRONMENTAL BOREHOLE

BOREHOLE ID: BH3
PROJECT NAME: DSI - SOPHS
JOB NO.: J169135-01
CLIENT NAME: SINSW

DATE: 03/05/21
LOCATION: 9 Burroway Road, Wentworth Point
LOGGED BY: Shihui Wang
APPROVED BY: Matthew Barberson

TOTAL HOLE DEPTH: 3.9
DRILL METHOD: Concrete Coring, Hand Auger & Push Tubing
DRILLING CONTRACTOR: Epoca

COMMENTS No ACM was observed, no visual or olfactory indicators was noted.

Depth (mBGL)	PID (ppm)	Sample ID	Graphic Log	Moisture	Consistency/ Density	Description (Plasticity, colour, particle size and shape, odours/ staining, inclusions and comments)
						Fill - concrete
0.2	21.3	BH3(0.2-0.4)		Moist	Firm	Fill - brown/grey/red clay with sand.
0.4						
0.6						
0.8						
1	5.1	BH3(1.0-1.2) BHFT4				
1.2				Moist	Loose	Fill?/Natural? - grey, medium sand, with inclusion of shells.
1.4	14.9	BH3(1.3-1.5)				
1.6				Saturate	Soft	Fill?/Natural? - grey clay with inclusion of seashells and sand.
1.8						
2	11.2	BH3(2.0-2.2)				
2.2						
2.4						
2.6						
2.8						
3						
3.2						
3.4	21.4	BH3(3.4-3.5)				
3.6						
3.8						
						End of hole, target depth reached.

ENVIRONMENTAL BOREHOLE

BOREHOLE ID: BH4
PROJECT NAME: DSI - SOPHS
JOB NO.: J169135-01
CLIENT NAME: SINSW

DATE: 03/05/21
LOCATION: 9 Burroway Road, Wentworth Point
LOGGED BY: Shihui Wang
APPROVED BY: Matthew Barberson

TOTAL HOLE DEPTH: 3.9
DRILL METHOD: Concrete Coring, Hand Auger & Push Tubing
DRILLING CONTRACTOR: Epoca

COMMENTS No ACM was observed, orange geofabric was noted at 0.14mBGL, ash was noted between 0.35mBGL to 1.3mBGL.Sulfate odor was noted from 1.3mBG

Depth (mBGL)	PID (ppm)	Sample ID	Graphic Log	Moisture	Consistency/ Density	Description (Plasticity, colour, particle size and shape, odours/ staining, inclusions and comments)
0						Fill - concrete, orange geofabric was observed under concrete slab.
0.2		BH4(0.2-0.35)		Moist	Loose	Fill - yellow, medium sand.
0.4	4.4	BH4(0.4-0.5)				Fill - dark grey, sandy gravel(10-20mm) and sub-angular rocks.
0.6				Saturate	Firm	Fill - brown/grey sandy clay, trace ash.
0.8						
1	7.7	BH4(1.0-1.2)				
1.2						
1.4					Loose	Fill?/Natural? - green/grey medium sand with shells, sulfate odor.
1.6						
1.8						
2	7.3	BH4(2.0-2.2)				
2.2						
2.4					Soft	Fill?/Natural? - dark grey clay with inclusion of and and seashells, sulfate odor.
2.6						
2.8						
3						
3.2						
3.4						
3.6	6.1	BH4(3.5-3.7)				
3.8						
						End of hole, target depth reached.

ENVIRONMENTAL BOREHOLE

BOREHOLE ID: BH5
PROJECT NAME: DSI - SOPHS
JOB NO.: J169135-01
CLIENT NAME: SINSW

DATE: 03/05/21
LOCATION: 9 Burroway Road, Wentworth Point
LOGGED BY: Shihui Wang
APPROVED BY: Matthew Barberson

TOTAL HOLE DEPTH: 3.9
DRILL METHOD: Concrete Coring, Hand Auger & Push Tubing
DRILLING CONTRACTOR: Epoca

COMMENTS No ACM was observed, no visual indicators was noted. Slight hydrocarbon/organic matter odor was noted at 0.3-3.9mBGL.

Depth (mBGL)	PID (ppm)	Sample ID	Graphic Log	Moisture	Consistency/ Density	Description (Plasticity, colour, particle size and shape, odours/ staining, inclusions and comments)
0						Fill - concrete
0.2				Moist		Fill - dark grey to yellowish grey, silty clay (red/yellow mottled, red sandstone (10mm, 5%), clay cobbles (angular to sub-angular, 30-50mm, 10%), slight hydrocarbon odor, medium plasticity.
0.4	31.4	BH5(0.5-0.7) BHFD6				
0.6						
0.8						
1						
1.2				Wet	Loose	Fill?/Natural? - dark grey to brown, coarse sand with sandy clay, organic matter odor.
1.4	29.5	BH5(1.5-1.6)				
1.6						
1.8						
2				Wet	Soft	Fill?/Natural? - dark grey clay with sandy clay (10%), shells (5-10%), medium plasticity, organic matter odor.
2.2						
2.4	16.5	BH5(2.5-2.6)				
2.6						
2.8						
3						
3.2						
3.4	23.8	BH5(3.5-3.6)				
3.6						
3.8						
						End of hole, target depth reached.

ENVIRONMENTAL BOREHOLE

BOREHOLE ID: BH6
PROJECT NAME: DSI - SOPHS
JOB NO.: J169135-01
CLIENT NAME: SINSW

DATE: 14/05/21
LOCATION: 9 Burroway Road, Wentworth Point
LOGGED BY: Shihui Wang
APPROVED BY: Matthew Barberson

TOTAL HOLE DEPTH: 0.8
DRILL METHOD: Excavator
DRILLING CONTRACTOR: GKC

COMMENTS No ACM was observed, no visual or olfactory indicators was noted.

Depth (mBGL)	PID (ppm)	Sample ID	Graphic Log	Moisture	Consistency/ Density	Description (Plasticity, colour, particle size and shape, odours/ staining, inclusions and comments)
0.2				Moist to Dry		Fill - light brown, clay cobble (50%), sandstone (30%), clayey sand and coarse sand.
0.4	2.6	BH6-01(0.4-0.5)				
0.6						
0.8						End of test pit due to potential underground service.
1						
1.2						
1.4						
1.6						
1.8						
2						
2.2						
2.4						
2.6						
2.8						
3						
3.2						
3.4						
3.6						
3.8						

ENVIRONMENTAL BOREHOLE

BOREHOLE ID: BH7
PROJECT NAME: DSI - SOPHS
JOB NO.: J169135-01
CLIENT NAME: SINSW

DATE: 14/05/21
LOCATION: 9 Burroway Road, Wentworth Point
LOGGED BY: Shihui Wang
APPROVED BY: Matthew Barberson

TOTAL HOLE DEPTH: 1.0
DRILL METHOD: Excavator
DRILLING CONTRACTOR: GKC

COMMENTS No ACM was observed, no visual or olfactory indicators was noted.

Depth (mBGL)	PID (ppm)	Sample ID	Graphic Log	Moisture	Consistency/ Density	Description (Plasticity, colour, particle size and shape, odours/ staining, inclusions and comments)
0.2				Moist to Dry		Fill - light brown, sandstone (30%), clayey sand (40%), clay cobble (25%), dark grey shale (5%).
0.4						
0.6	2.5	BH7-01(0.5-0.6)				
0.8						
1						End of test pit due to potential underground service.
1.2						
1.4						
1.6						
1.8						
2						
2.2						
2.4						
2.6						
2.8						
3						
3.2						
3.4						
3.6						
3.8						

ENVIRONMENTAL BOREHOLE

BOREHOLE ID: BH9
PROJECT NAME: DSI - SOPHS
JOB NO.: J169135-01
CLIENT NAME: SINSW

DATE: 14/05/21
LOCATION: 9 Burroway Road, Wentworth Point
LOGGED BY: Shihui Wang
APPROVED BY: Matthew Barberson

TOTAL HOLE DEPTH: 1.5
DRILL METHOD: Excavator
DRILLING CONTRACTOR: GKC

COMMENTS No ACM was observed, no visual or olfactory indicators was noted.

Depth (mBGL)	PID (ppm)	Sample ID	Graphic Log	Moisture	Consistency/ Density	Description (Plasticity, colour, particle size and shape, odours/ staining, inclusions and comments)
0.2 0.4 0.6 0.8 1 1.2 1.4	2.7	BH9-01(0.9-1.0)		Moist to Dry		Fill - light brown to pink, sandstone with coarse sand (10%), clay cobble (soft to stiff), grey shale (5%).
1.6 1.8 2 2.2 2.4 2.6 2.8 3 3.2 3.4 3.6 3.8						End of test pit, target depth reached.

ENVIRONMENTAL BOREHOLE

BOREHOLE ID: BH10
PROJECT NAME: DSI - SOPHS
JOB NO.: J169135-01
CLIENT NAME: SINSW

DATE: 03/05/21
LOCATION: 9 Burroway Road, Wentworth Point
LOGGED BY: Shihui Wang
APPROVED BY: Matthew Barberson

TOTAL HOLE DEPTH: 3.9
DRILL METHOD: Hand Auger & Push Tubing
DRILLING CONTRACTOR: Epoca

COMMENTS No ACM was observed, no visual indicators was noted. Hydrocarbon odor was noted at 0.7-1.2mBGL.

Depth (mBGL)	PID (ppm)	Sample ID	Graphic Log	Moisture	Consistency/ Density	Description (Plasticity, colour, particle size and shape, odours/ staining, inclusions and comments)
0.2				Dry	Hard (compress	Fill - light brown, coarse sand with white sandstone (10%), grey clay cobble (soft).
0.4				Dry	Medium to Hard	Fill - grey to brown, sandy soil with gravels 95-25mm, 20%), with inclusion of glass and tile fragments, organic matter odor.
0.6						
0.8	18.3	BH10-(0.7-0.9) BHFD1				
1						
1.2						
1.4				Most to Dry	Stiff	Fill - yellow to red clay, with coarse sand (25%), rocks (rounded to angular, 10-30mm, 5%), dark grey clay (5%), low plasticity.
1.6						
1.8	10.4	BH10(1.7-1.8)				
2				Wet	Loose	Fill?/Natural? - yellow to brown coarse sand, shells (10-30%), grey clay (20%).
2.2						
2.4						
2.6						
2.8						
3	12.0	BH10(3.0-3.1)				
3.2						
3.4						
3.6				Wet	Soft	Natural - dark grey to black clay, high plasticity.
3.8	12.9	BH10(3.7-3.8)				
						End of hole, target depth reached.

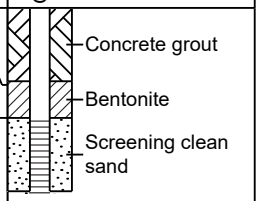
ENVIRONMENTAL BOREHOLE

BOREHOLE ID: GG10 **DATE:** 23/08/21 **TOTAL HOLE DEPTH:** 3.0 mBGL
PROJECT NAME: SOPHS - DSI - Additional Test **LOCATION:** 7-11 Burroway Road, Wentworth Poir **DRILL METHOD:** Concrete Coring, Hand Auguring & Geoprobe Auguring
JOB NO.: J169135
CLIENT NAME:SINSW **LOGGED BY:** Shihui Wang **DRILLING CONTRACTOR:** Epoca
APPROVED BY: Matthew Barberson

COMMENTS No ACM was observed, no visual or olfactory contamination indicators were observed.

Depth (mBGL)	PID (ppm)	Sample ID	Graphic Log	Moisture	Consistency/ Density	Description (Plasticity, colour, particle size and shape, odours/ staining, inclusions and comments)
0						Concrete
0.2				Moist	Loose	Fill - Brown, gravels (rounded to sub-angular, 8-20mm) with coarse sand.
0.4	2.0	GG10(0.3-0.4)		Dry to Moist	Loose	Fill - Black, coarse sand with gravels (road base material), sandy clay (10%), with inclusion of brick fragments. Sandy clay increased to 40% at 0.65 mBGL. Hand Auger refusal at 0.75mBGL.
0.6						
0.8				Moist	Soft	Fill - Dark brown to black, clayey sand with sandy clay (40%), gravels (10%, 5-15 mm).
1						
1.2				Moist	Stiff	Fill - Yellow brown, clay with red mottled.
1.4						
1.6	0.6	GG10(1.5-1.6)				
1.8				Moist	Soft	Fill?/Natural? - Black, clay withe coarse sand and shells.
2				Saturated	Loose and Soft	Fill?/Natural? - Dark grey, coarse sand with black clay and shells.
2.2						
2.4	0.6	GG10(2.4-2.5)				
2.6				Moist	Soft	Natural - Grey Clay, medium to high plasticity.
2.8						
3						End of hole: natural soil reached.
3.2						
3.4						
3.6						
3.8						

Well Diagram



ENVIRONMENTAL BOREHOLE

BOREHOLE ID: GG11 **DATE:** 23/08/21 **TOTAL HOLE DEPTH:** 0.5 mBGL
PROJECT NAME: SOPHS - DSI - Additional Test **LOCATION:** 7-11 Burroway Road, Wentworth Poir **DRILL METHOD:** Hand Auguring
JOB NO.: J169135
CLIENT NAME:SINSW **LOGGED BY:** Shihui Wang **DRILLING CONTRACTOR:** Epoca
APPROVED BY: Matthew Barberson

COMMENTS No ACM was observed, no visual or olfactory contamination indicators were observed.

Depth (mBGL)	PID (ppm)	Sample ID	Graphic Log	Moisture	Consistency/ Density	Description (Plasticity, colour, particle size and shape, odours/ staining, inclusions and comments)	Well Diagram
0.2	0.2	GG11(0.2-0.3)		Dry	Loose	Fill - Light brown, silty sand with rocks (angular, 30-50 mm, with inclusion of a 10cm sandstone.	GG10: Concrete grout; Bentonite
0.4	0.1			Dry to Moist	Soft	Fill - Brown, sandy clay, with shales and sandsotoens (30-70mm).	Screening clean sand
0.6						End of hole due to potential underground service.	
0.8							
1							
1.2							
1.4							
1.6							
1.8							
2							
2.2							
2.4							
2.6							
2.8							
3							
3.2							
3.4							
3.6							
3.8							

ENVIRONMENTAL BOREHOLE

BOREHOLE ID: GG12 **DATE:** 23/08/21 **TOTAL HOLE DEPTH:** 3.0 mBGL
PROJECT NAME: SOPHS - DSI - Additional Test **LOCATION:** 7-11 Burroway Road, Wentworth Poir **DRILL METHOD:** Concrete Coring, Hand Auguring & Geoprobe Auguring
JOB NO.: J169135
CLIENT NAME:SINSW **LOGGED BY:** Shihui Wang **DRILLING CONTRACTOR:** Epoca
APPROVED BY: Matthew Barberson

COMMENTS No ACM was observed, asphalt was noted at 0.25-1.0 mBGL.

Depth (mBGL)	PID (ppm)	Sample ID	Graphic Log	Moisture	Consistency/ Density	Description (Plasticity, colour, particle size and shape, odours/ staining, inclusions and comments)	Well Diagram
0						Concrete	Concrete grout
0.2				Moist	Loose	Fill - Brown, coarse sand, asphalt (2%).	Bentonite
0.4	0.9	GG12(0.4-0.5)		Moist	Loose and Soft	Fill - Brown, sandy clay (6%), clayey sand (30%), rocks (10%), asphalt (2%). Hand augur refusal at 1.0 mBGL.	Screening clean sand
0.6							
0.8							
1				Moist	Loose and Soft	Fill - Brown, coarse sand with sandy clay, gravels. Grey soft clay with medium plasticity was present at 1.4-1.5 mBGL.	
1.2							
1.4	0.2	GG12(1.4-1.5)					
1.6				Moist to Saturated	Loose	Fill?/Natural? - Yellow brown, coarse sand with shells.	
1.8	0.5	GG12(1.7-1.8)					
2							
2.2							
2.4				Moist	Soft	Natural - Dark grey, clay with high plasticity.	
2.6							
2.8							
3						End of hole: natural material reached.	
3.2							
3.4							
3.6							
3.8							

September 2021

GREENCAP
Going Further in Managing Risk

Detailed Site Investigation

School Infrastructure NSW (SINSW) - Department of Education

Proposed Sydney Olympic Park High School

Appendix C: Results Summary Tables

Appendix C1 - Result Summary Table

GREENCAP
Going Further in Managing Risk

											GG1		GG2	GG3	GG4	GG5	GG6	GG7	GG8				GG9
											GG1-04(0.8-0.9)	GG1-07(2.0-2.1)	GG2-01(0.3-0.4)	GG3-02(0.9-1.0)	GG14-04(0.8-0.9)	GG5-05(2.0-2.1)	GG6-03(1.0-1.1)	GG7-01(0.05-0.15)	GG8-01(0.2-0.3)	GG8-02(0.4-0.5)	GG8-03(0.9-1.0)	GG8-04(1.9-2.0)	GG9-04(1.0-1.1)
											S21-My04182	S21-My20312	S21-My04183	S21-My04181	S21-My04182	S21-My04177	S21-My04028	S21-My04024	S21-My04075	S21-My04025	S21-My04026	S21-My20311	S21-My04027
											30/04/2021	30/04/2021	30/04/2021	30/04/2021	30/04/2021	30/04/2021	29/04/2021	29/04/2021	29/04/2021	29/04/2021	29/04/2021	29/04/2021	29/04/2021
				Health-based Investigation Level (HIL C)	Interim Soil Vapour HIL-A/B	Soil HSLs for Vapour Intrusion HSL A&B Low-high Density Residential (mg/kg)																		
Method Type	Chemical Name	Unit	EQL			0 m to < 1 m	1 m to < 2 m	2 m to < 4 m	4 m +															
Metals	Arsenic	mg/kg	2	3000							**9.3**	-	< 2	**6.7**	**9.3**	**27**	**3.5**	**2.8**	**3**	**4**	**13**	-	**13**
	Cadmium	mg/kg	0.4	90							< 0.4	-	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	-	< 0.4
	Chromium (III+VI)	mg/kg	5	300							**26**	-	**110**	**26**	**19**	**9.3**	< 5	**30**	**170**	**16**	**17**	-	**10**
	Copper	mg/kg	5	17000							**38**	-	**28**	**51**	**30**	**11**	**12**	**52**	**48**	**9**	**19**	-	**6.9**
	Lead	mg/kg	5	600							**79**	-	**11**	**71**	**35**	**22**	**17**	**25**	**8.9**	**12**	**47**	-	**16**
	Mercury (inorganic)	mg/kg	0.1	80							**0.2**	-	< 0.1	0.2	< 0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.1	**0.2**	-	< 0.1
	Nickel	mg/kg	5	1200							**17**	-	**100**	**29**	**34**	< 5	< 5	**28**	**150**	**11**	**9**	-	< 5
	Zinc	mg/kg	5	30000							**120**	-	**68**	**140**	**140**	**30**	**24**	**110**	**98**	**29**	**53**	-	**34**
Physical Parameters	Moisture Content (dried @ 103°C)	%	1								13	-	5.7	8.3	13	27	7.5	2.5	20	7.7	18	-	17
Pesticides	4,4-DDE	mg/kg	0.05								< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.5	< 0.5	< 0.05	< 0.05	-	< 0.05
	a-BHC	mg/kg	0.05								< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.5	< 0.5	< 0.05	< 0.05	-	< 0.05
	Aldrin	mg/kg	0.05								< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.5	< 0.5	< 0.05	< 0.05	-	< 0.05
	Aldrin + Dieldrin	mg/kg	0.05	10							< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.5	< 0.5	< 0.05	< 0.05	-	< 0.05
	Azinophos methyl	mg/kg	0.2								-	-	-	-	-	-	-	-	-	-	-	-	-
	b-BHC	mg/kg	0.05								< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.5	< 0.5	< 0.05	< 0.05	-	< 0.05
	Bolstar (Sulprofos)	mg/kg	0.2								< 0.2	-	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.5	< 0.5	< 0.2	< 0.2	-	< 0.2
	chlordane	mg/kg	0.1	70							< 0.1	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 1	< 1	< 0.1	< 0.1	-	< 0.1
	Chlorfenvinphos	mg/kg	0.2								< 0.2	-	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.5	< 0.5	< 0.2	< 0.2	-	< 0.2
	Chlorpyrifos	mg/kg	0.2								< 0.2	-	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.5	< 0.5	< 0.2	< 0.2	-	< 0.2
	Chlorpyrifos-methyl	mg/kg	0.2								< 0.2	-	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.5	< 0.5	< 0.2	< 0.2	-	< 0.2
	d-BHC	mg/kg	0.05								< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.5	< 0.5	< 0.05	< 0.05	-	< 0.05
	DDD	mg/kg	0.05								-	-	-	-	-	-	-	-	-	-	-	-	-
	DDT	mg/kg	0.05								-	-	-	-	-	-	-	-	-	-	-	-	-
	DDT+DDE+DDD	mg/kg	0.05	400							< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.5	< 0.5	< 0.05	< 0.05	-	< 0.05
	Demeton-S	mg/kg	0.2								< 0.2	-	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.5	< 0.5	< 0.2	< 0.2	-	< 0.2
	Diazinon	mg/kg	0.2								< 0.2	-	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.5	< 0.5	< 0.2	< 0.2	-	< 0.2
	Dichlorvos	mg/kg	0.2								< 0.2	-	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.5	< 0.5	< 0.2	< 0.2	-	< 0.2
	Dieldrin	mg/kg	0.05								< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.5	< 0.5	< 0.05	< 0.05	-	< 0.05
	Dimethoate	mg/kg	0.2								< 0.2	-	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.5	< 0.5	< 0.2	< 0.2	-	< 0.2
	Disulfoton	mg/kg	0.2								< 0.2	-	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.5	< 0.5	< 0.2	< 0.2	-	< 0.2
	Endosulfan I	mg/kg	0.05	340							< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.5	< 0.5	< 0.05	< 0.05	-	< 0.05
	Endosulfan II	mg/kg	0.05	340							< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.5	< 0.5	< 0.05	< 0.05	-	< 0.05
	Endosulfan sulphate	mg/kg	0.05								< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.5	< 0.5	< 0.05	< 0.05	-	< 0.05
	Endrin	mg/kg	0.05	20							< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.5	< 0.5	< 0.05	< 0.05	-	< 0.05
	Endrin aldehyde	mg/kg	0.05								< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.5	< 0.5	< 0.05	< 0.05	-	< 0.05
	Endrin ketone	mg/kg	0.05								< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.5	< 0.5	< 0.05	< 0.05	-	< 0.05
	Ethion	mg/kg	0.2								< 0.2	-	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.5	< 0.5	< 0.2	< 0.2	-	< 0.2
	Fenitrothion	mg/kg	0.2								< 0.2	-	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.5	< 0.5	< 0.2	< 0.2	-	< 0.2
	Fenthion	mg/kg	0.2								< 0.2	-	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.5	< 0.5	< 0.2	< 0.2	-	< 0.2
	g-BHC (Lindane)	mg/kg	0.05								< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.5	< 0.5	< 0.05	< 0.05	-	< 0.05
	Heptachlor	mg/kg	0.05	10							< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.5	< 0.5	< 0.05	< 0.05	-	< 0.05
	Heptachlor epoxide	mg/kg	0.05								< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.5	< 0.5	< 0.05	< 0.05	-	< 0.05
	Hexachlorobenzene	mg/kg	0.05	10							< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.5	< 0.5	< 0.05	< 0.05	-	< 0.05
	Malathion	mg/kg	0.2								< 0.2	-	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.5	< 0.5	< 0.2	< 0.2	-	< 0.2
	Merphos	mg/kg	0.2								< 0.2	-	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.5	< 0.5	< 0.2	< 0.2	-	< 0.2
	Methoxychlor	mg/kg	0.2	400							< 0.2	-	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.5	< 0.5	< 0.2	< 0.2	-	< 0.2
	Methyl parathion	mg/kg	0.2								< 0.2	-	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.5	< 0.5	< 0.2	< 0.2	-	< 0.2
	Monocrotophos	mg/kg	2								< 2	-	< 2	< 2	< 2	< 2	< 2	< 5	< 5	< 2	< 2	-	< 2
	Omethoate	mg/kg	2								< 2	-	< 2	< 2	< 2	< 2	< 2	< 5	< 5	< 2	< 2	-	< 2
	Organochlorine pesticides	mg/kg	0.1								-	-	-	-	-	-	-	-	-	-	-	-	-
	Other organochlorine pesticides	mg/kg	0.1								-	-	-	-	-	-	-	-	-	-	-	-	-
	Parathion	mg/kg	0.2								-	-	-	-	-	-	-	-	-	-	-	-	-
	Phorate	mg/kg	0.2								< 0.2	-	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.5	< 0.5	< 0.2	< 0.2	-	< 0.2
	Pirimiphos-methyl	mg/kg	0.2								< 0.2	-	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.5	< 0.5	< 0.2	< 0.2	-	< 0.2
	Pyrazophos	mg/kg	0.2								< 0.2	-	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.5	< 0.5	< 0.2	< 0.2	-	< 0.2
	Ronnel	mg/kg	0.2								< 0.2	-	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.5	< 0.5	< 0.2	< 0.2	-	< 0.2
	Terbufos	mg/kg	0.2								< 0.2	-	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.5	< 0.5	< 0.2	< 0.2	-	< 0.2
	Tetrachlorvinphos	mg/kg	0.2								< 0.2	-	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.5	< 0.5	< 0.2	< 0.2	-	< 0.2
	Tokuthion	mg/kg	0.2								< 0.2	-	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.5	< 0.5	< 0.2	< 0.2	-	< 0.2
	Toxaphene	mg/kg	1	30							< 0.1	-	< 0.1	< 0.1	0.3	< 0.1	0.3	< 10	< 10	0.3	0.2	-	0.3
PCBs	Arochlor 1016	mg/kg	0.5								< 0.5	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1	< 1	< 0.5	< 0.5	-	< 0.5
	Arochlor 1221	mg/kg	0.1								< 0.1	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 1	< 1	< 0.1	< 0.1	-	< 0.1
	Arochlor 1232	mg/kg	0.5								< 0.5	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1	< 1	< 0.5	< 0.5	-	< 0.5
	Arochlor 1242	mg/kg	0.5								< 0.5	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1	< 1	< 0.5	< 0.5	-	< 0.5
	Arochlor 1248	mg/kg	0.5								< 0.5	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1	< 1	< 0.5	< 0.5	-	< 0.5
	Arochlor 1254	mg/kg	0.5								< 0.5	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1	< 1	< 0.5	< 0.5	-	< 0.5
	Arochlor 1260	mg/kg	0.5								< 0.5	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1	< 1	< 0.5	< 0.5	-	< 0.5
	PCBs (Sum of total)	mg/kg	0.5	1							< 0.5	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1	< 1	< 0.5	< 0.5	-	< 0.5
PAH	Benz(a)anthracene	mg/kg	0.5								< 0.5	-	< 0.5	< 0.5	**0.6**	< 0.5	**1.4**	< 0.5	< 0.5	< 0.5	**4.7**	-	**0.8**
	Benzo(a)pyrene	mg/kg	0.5								< 0.5	-	< 0.5	< 0.5	**0.7**	< 0.5	**1.5**	< 0.5	< 0.5	< 0.5	**4.8**	-	**0.7**
	Benzo(a)pyrene TEQ (lower bound) *	mg/kg	0.5								< 0.5	-	< 0.5	< 0.5	**0.8**	< 0.5	**1.9**	< 0.5	< 0.5	< 0.5	6.2	-	**0.8**
	Benzo(a)pyrene TEQ (medium bound) *	mg/kg	0.5								**0.6**	-	**0.6**	**0.6**	**1.1**	**0.6**	**2.2**	**0.6**	**0.6**	**0.6**	6.4	-	**1.1**
	Benzo(a)pyrene TEQ (upper bound) *	mg/kg	0.5	3							**1.2**	-	**1.2**	**1.2**	**1.4**	**1.2**	**2.4**	**1.2**	**1.2**	**1.2**	6.7	-	**1.4**
	Benzo(g,h,i)perylene	mg/kg	0.5								< 0.5	-	< 0.5	< 0.5	< 0.5	< 0.5	**0.7**	< 0.5	< 0.5	< 0.5	**2.4**	-	< 0.5
	Benzo(k)fluoranthene	mg/kg	0.5								< 0.5	-	< 0.5	< 0.5	< 0.5	< 0.5	**1.1**	< 0.5	< 0.5	< 0.5	**3.9**	-	< 0.5
	Benzo(b+j)fluoranthene	mg/kg	0.5								< 0.5	-	< 0.5	< 0.5	< 0.5	< 0.5	**1**	< 0.5	< 0.5	< 0.5	**2.5**	-	< 0.5
	Chrysene	mg/kg	0.5								< 0.5	-	< 0.5	0.5	0.5	< 0.5	**1.1**	< 0.5	< 0.5	< 0.5	**3.5**	-	0.5
	Dibenz(a,h)anthracene	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
	Indeno(1,2,3-c,d)pyrene	mg/kg	0.5								< 0.5	-	< 0.5	< 0.5	< 0.5	< 0.5	**0.6**	< 0.5	< 0.5	< 0.5	**2.2**	-	< 0.5
SVOCs	Acenaphthene	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
	Acenaphthylene	mg/kg	0.5								< 0.5	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	**0.6**	-	< 0.5
	Anthracene	mg/kg	0.5								< 0.5	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	**0.6**	-	< 0.5
	Coumaphos	mg/kg	2								< 2	-	< 2	< 2	< 2	< 2	< 2	< 5	< 5	< 2	< 2	-	< 2
	Demeton-O	mg/kg	0.2								< 0.2	-	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.5	< 0.5	< 0.2	< 0.2	-	< 0.2
	EPN	mg/kg	0.2								< 0.2	-	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.5	< 0.5	< 0.2	< 0.2	-	< 0.2
	Ethoprop	mg/kg	0.2								< 0.2	-	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.5	< 0.5	< 0.2	< 0.2	-	< 0.2
	Fensulfothion	mg/kg	0.2								< 0.2	-	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.5	< 0.5	< 0.2	< 0.2	-	< 0.2
	Fluoranthene	mg/kg	0.5								**0.7**	-	< 0.5	**1**	**1**	< 0.5	**2**	< 0.5	< 0.5	< 0.5	**7.3**	-	**1.3**
	Fluorene	mg/kg	0.5								< 0.5	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	1.3	< 0.5	-	< 0.5
	Mevinphos (Phosdrin)	mg/kg	0.2								< 0.2	-	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.5	< 0.5	< 0.2	< 0.2	-	< 0.2
	Naled (Dibrom)	mg/kg	0.2								< 0.2	-	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.5	< 0.5	< 0.2	< 0.2	-	< 0.2
	Naphthalene PAH	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
	PAHs (Sum of total)	mg/kg	0.5	300							**1.4**	-	< 0.5	**2.9**	**3.8**	< 0.5	**12.1**	< 0.5	< 0.5	**3.3**	**42.5**	-	**4.6**
	Phenanthrene	mg/kg	0.5								< 0.5	-	< 0.5	0.5	< 0.5	< 0.5	**0.7**	< 0.5	< 0.5	< 0.5	**2**	-	< 0.5
	Pyrene	mg/kg	0.5								0.7	-	< 0.5	**0.9**	**1**	< 0.5	**2**	< 0.5	< 0.5	**2**	**8**	-	**1.3**
	Trichloronate	mg/kg	0.2								< 0.2	-	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.5	< 0.5	< 0.2	< 0.2	-	< 0.2
TPH	C10 - C14	mg/kg	20								< 20	-	< 20	< 20	< 20	< 20	< 20	< 100	< 20	1400	120	-	< 20
	C10 - C36 (Sum of total)	mg/kg	50								< 50	-	172	**168**	< 50	< 50	< 50	< 250	**370**	**4957**	**560**	-	**97**
	C10 - C40 (Sum of total)	mg/kg	100								-	-	-	-	-	-	-	-	-	-	-	-	-
	C15 - C28	mg/kg	50								< 50	-	74	**88**	< 50	< 50	< 50	< 250	**160**	**3500**	**440**	-	**97**
	C29 - C36	mg/kg	50								< 50	-	98	**80**	< 50	< 50	< 50	< 250	**210**	**57**	< 50	-	< 50
	C6 - C9	mg/kg	20								< 20	-	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	-	< 20
TPH	C10 - C14 (after silica gel clean-up)	mg/kg	20								< 50	-	< 50	< 50	< 50	< 50	< 50	< 50	< 50	**1300**	< 50	-	< 50
(after silica gel clean -up)	C10 - C36 (Ttotal) (after silica gel clean-up)	mg/kg	50								< 100	-	< 100	< 100	< 100	< 100	< 100	100	< 100	**4300**	< 100	-	< 100
	C15 - C28 (after silica gel clean-up)	mg/kg	50								< 100	-	< 100	< 100	< 100	< 100	< 100	100	< 100	**3000**	< 100	-	< 100
	C29 - C36 (after silica gel clean-up)	mg/kg	50								< 100	-	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	-	< 100
TRH	C6-C10	mg/kg	20								-	-	-	-	-	-	-	-	-	-	-	-	-
	C6-C10 less BTEX (F1)	mg/kg	20			45	70	110	200		< 20	-	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	-	< 20
	TRH >C10-C16	mg/kg	50								< 50	-	< 50	< 50	< 50	< 50	< 50	< 250	< 50	**2400**	**290**	-	< 50
	TRH >C10-C16 less Naphthalene (F2)	mg/kg	50			110	240	440			< 50	-	< 50	< 50	< 50	< 50	< 50	< 250	< 50	2400	290	-	< 50
	TRH >C16-C34 (F3)	mg/kg	100								< 100	-	160	**160**	< 100	< 100	< 100	< 500	**320**	**2300**	**360**	-	**130**
	TRH >C34-C40 (F4)	mg/kg	100								< 100	-	< 100	< 100	< 100	< 100	< 100	< 500	**210**	< 100	< 100	-	< 100
	TRH >C10-C40 (total)	mg/kg	100								< 100	-	160	**160**	< 100	< 100	< 100	< 500	**530**	**4700**	**650**	-	**130**
TRH	TRH >C10-C16 (after silica gel clean-up)	mg/kg	50			110	240	440			< 50	-	< 50	< 50	< 50	< 50	< 50	< 50	< 50	2500	< 50	-	< 50
(after silica gel clean -up)	TRH >C16-C34 (after silica gel clean-up)	mg/kg	100								< 100	-	< 100	< 100	< 100	< 100	< 100	< 100	**120**	< 100	**1900**	-	< 100
	TRH >C34-C40 (after silica gel clean-up)	mg/kg	100								< 100	-	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	-	< 100
BTEX	Benzene	mg/kg	0.1			0.5	0.5	0.5	0.5		< 0.1	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-	< 0.1
	Ethylbenzene	mg/kg	0.1			55					< 0.1	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-	< 0.1
	Toluene	mg/kg	0.1			160	220	210	540		< 0.1	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-	< 0.1
	Xylene (m & p)	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
	Xylene (o)	mg/kg	0.1								< 0.1	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-	< 0.1
	Xylene Total	mg/kg	0.3			40	60	95	170		< 0.3	-	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	-	< 0.3
VOCs	TCE (Trichloroethene)	mg/kg	0.5								-	< 0.5	-	-	-	-	-	-	-	< 0.5	< 0.5	< 0.5	-
	111 -TCA (111-Trichloroethane)	mg/kg	0.5								-	< 0.5	-	-	-	-	-	-	-	< 0.5	< 0.5	< 0.5	-
	PCE (Tetrachloroethene)	mg/kg	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	-
	Vinyl chloride	mg/kg	0.5								-	< 0.5	-	-	-	-	-	-	-	< 0.5	< 0.5	< 0.5	-
	Naphthalene MAH	mg/kg	0.5			3					< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5

J169135-01
DSI -Sydney Olympic Park High School
Borehole soil sample results

Appendix C2 - Result Summary Table

GREENCAP
Going Further in Managing Risk

Method Type	Chemical Name	Unit	EQL	Health-based Investigation Level (HIL C)	Interim Soil Vapour HIL-A/B	Soil HSLs for Vapour Intrusion HSL A&B Low-high Density Residential (mg/kg)				BH1(0.7-0.9) M21-My10973 3/05/2021	BH2(0.5-0.7) M21-My10964 3/05/2021	BH3(1.0-1.2) M21-My10974 3/05/2021	BH4(1.0-1.2) M21-My10975 3/05/2021	BH5(0.5-0.7) M21-My10965 3/05/2021	BH6-01 (0.4-0.5) S21-My28863 14/05/2021	BH7-01 (0.5-0.6) S21-My28863 14/05/2021	BH9-01 (0.9-1.0) S21-My28863 14/05/2021	BH10(0.7-0.9) M21-My10967 3/05/2021
						0 m to < 1 m	1 m to < 2 m	2 m to < 4 m	4 m +									
Metals	Arsenic	mg/kg	2	3000						**7.2**	**16**	**12**	**10**	**11**	**4.4**	**13**	**2.5**	**5.2**
	Cadmium	mg/kg	0.4	90						< 0.4	< 0.4	< 0.4	**0.6**	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4
	Chromium (III+VI)	mg/kg	5	300						**9.8**	**25**	**21**	**16**	**24**	**7.8**	**15**	**11**	**32**
	Copper	mg/kg	5	17000						**42**	**24**	**25**	**61**	**73**	**8.8**	**11**	< 5	**26**
	Lead	mg/kg	5	600						**20**	**27**	**25**	**870**	**210**	**15**	**21**	**7**	**82**
	Mercury (inorganic)	mg/kg	0.1	80						< 0.1	< 0.1	< 0.1	**1.9**	**0.6**	< 0.1	< 0.1	< 0.1	**0.2**
	Nickel	mg/kg	5	1200						**50**	**6.4**	**8**	**8.5**	**7.8**	< 5	< 5	< 5	**19**
	Zinc	mg/kg	5	30000						**210**	**34**	**44**	**1100**	**800**	**36**	**46**	**5.5**	**100**
Physical Parameters	Moisture Content (dried @ 103°C)	%	1							11	15	14	19	15	11	10	9.2	9.8
Pesticides	4,4-DDE	mg/kg	0.05							< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
	a-BHC	mg/kg	0.05							< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 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	< 0.05	< 0.05	< 0.05
	Aldrin + Dieldrin	mg/kg	0.05	10						< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
	Azinophos methyl	mg/kg	0.2							-	-	-	-	-	-	-	-	-
	b-BHC	mg/kg	0.05							< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
	Bolstar (Sulprofos)	mg/kg	0.2							< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
	Chlordane	mg/kg	0.1	70						< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	Chlorfenvinphos	mg/kg	0.2							< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
	Chlorpyrifos	mg/kg	0.2							< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
	Chlorpyrifos-methyl	mg/kg	0.2							< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
	d-BHC	mg/kg	0.05							< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
	DDD	mg/kg	0.05							-	-	-	-	-	-	-	-	-
	DDT	mg/kg	0.05							-	-	-	-	-	-	-	-	-
	DDT+DDE+DDD	mg/kg	0.05	400						< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
	Demeton-S	mg/kg	0.2							< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
	Diazinon	mg/kg	0.2							< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
	Dichlorvos	mg/kg	0.2							< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
	Dieldrin	mg/kg	0.05							< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
	Dimethoate	mg/kg	0.2							< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
	Disulfoton	mg/kg	0.2							< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
	Endosulfan I	mg/kg	0.05	340						< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
	Endosulfan II	mg/kg	0.05	340						< 0.05	< 0.05	< 0.05	< 0.05	< 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	< 0.05	< 0.05	< 0.05
	Endrin	mg/kg	0.05	20						< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 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	< 0.05	< 0.05	< 0.05
	Endrin ketone	mg/kg	0.05							< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
	Ethion	mg/kg	0.2							< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
	Fenitrothion	mg/kg	0.2							< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
	Fenthion	mg/kg	0.2							< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
	g-BHC (Lindane)	mg/kg	0.05							< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
	Heptachlor	mg/kg	0.05	10						< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 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	< 0.05	< 0.05	< 0.05
	Hexachlorobenzene	mg/kg	0.05	10						< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
	Malathion	mg/kg	0.2							< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
	Merphos	mg/kg	0.2							< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
	Methoxychlor	mg/kg	0.2	400						< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.2	< 0.2	< 0.2	< 0.05
	Methyl parathion	mg/kg	0.2							< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
	Monocrotophos	mg/kg	2							< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
	Omethoate	mg/kg	2							< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
	Organochlorine pesticides	mg/kg	0.1							-	-	-	-	-	-	-	-	-
	Other organochlorine pesticides	mg/kg	0.1							-	-	-	-	-	-	-	-	-
	Parathion	mg/kg	0.2							-	-	-	-	-	-	-	-	-
	Phorate	mg/kg	0.2							< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
	Pirimiphos-methyl	mg/kg	0.2							< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
	Pyrazophos	mg/kg	0.2							< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
	Ronnel	mg/kg	0.2							< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
	Terbufos	mg/kg	0.2							< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
	Tetrachlorvinphos	mg/kg	0.2							< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
	Tokuthion	mg/kg	0.2							< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
	Toxaphene	mg/kg	1	30						< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
PCBs	Arochlor 1016	mg/kg	0.5							< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.5	< 0.5	< 0.5	< 0.1
	Arochlor 1221	mg/kg	0.1							< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	Arochlor 1232	mg/kg	0.5							< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.5	< 0.5	< 0.5	< 0.1
	Arochlor 1242	mg/kg	0.5							< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.5	< 0.5	< 0.5	< 0.1
	Arochlor 1248	mg/kg	0.5							< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.5	< 0.5	< 0.5	< 0.1
	Arochlor 1254	mg/kg	0.5							< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.5	< 0.5	< 0.5	< 0.1
	Arochlor 1260	mg/kg	0.5							< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.5	< 0.5	< 0.5	< 0.1
	PCBs (Sum of total)	mg/kg	0.5	1						< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.5	< 0.5	< 0.5	< 0.1
PAH	Benz(a)anthracene	mg/kg	0.5							< 0.5	< 0.5	**0.6**	**2.4**	**2.7**	< 0.5	< 0.5	< 0.5	**1.1**
	Benzo(a)pyrene	mg/kg	0.5							< 0.5	< 0.5	**0.6**	**2.3**	**1.5**	< 0.5	< 0.5	< 0.5	< 0.5
	Benzo(a)pyrene TEQ (lower bound) *	mg/kg	0.5	3						< 0.5	< 0.5	**0.7**	**3**	**2**	< 0.5	< 0.5	< 0.5	< 0.5
	Benzo(a)pyrene TEQ (medium bound) *	mg/kg	0.5	3						**0.6**	**0.6**	**1**	**3.3**	**2.3**	**0.6**	**0.6**	**0.6**	**0.7**
	Benzo(a)pyrene TEQ (upper bound) *	mg/kg	0.5	3						**1.2**	**1.2**	**1.3**	**3.5**	**2.6**	**1.2**	**1.2**	**1.2**	**1.3**
	Benzo(g,h,i)perylene	mg/kg	0.5							< 0.5	< 0.5	< 0.5	**1**	**0.7**	< 0.5	< 0.5	< 0.5	< 0.5
	Benzo(k)fluoranthene	mg/kg	0.5							< 0.5	< 0.5	< 0.5	**1.7**	**1.1**	< 0.5	< 0.5	< 0.5	0.5
	Benzo[b+j]fluoranthene	mg/kg	0.5							< 0.5	< 0.5	< 0.5	**1.7**	**1.1**	< 0.5	< 0.5	< 0.5	< 0.5
	Chrysene	mg/kg	0.5							< 0.5	< 0.5	**0.6**	**2.1**	**2.4**	< 0.5	< 0.5	< 0.5	**1.1**
	Dibenz(a,h)anthracene	mg/kg	0.5							< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 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	**1.2**	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
SVOCs	Acenaphthene	mg/kg	0.5							< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 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	< 0.5	< 0.5	< 0.5
	Anthracene	mg/kg	0.5							< 0.5	< 0.5	< 0.5	0.8	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
	Coumaphos	mg/kg	2							< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
	Demeton-O	mg/kg	0.2							< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
	EPN	mg/kg	0.2							< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
	Ethoprop	mg/kg	0.2							< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
	Fensulfothion	mg/kg	0.2							< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
	Fluoranthene	mg/kg	0.5							< 0.5	< 0.5	**1.8**	**6.7**	**2.9**	< 0.5	< 0.5	< 0.5	**0.9**
	Fluorene	mg/kg	0.5							< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
	Mevinphos (Phosdrin)	mg/kg	0.2							< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
	Naled (Dibrom)	mg/kg	0.2							< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
	Naphthalene PAH	mg/kg	0.5							< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
	PAHs (Sum of total)	mg/kg	0.5	300						< 0.5	< 0.5	**5.9**	**29.9**	**17.1**	< 0.5	< 0.5	< 0.5	**4.6**
	Phenanthrene	mg/kg	0.5							< 0.5	< 0.5	**0.7**	**3.7**	**1.5**	< 0.5	< 0.5	< 0.5	< 0.5
	Pyrene	mg/kg	0.5							< 0.5	< 0.5	**1.6**	**6.3**	**3.2**	< 0.5	< 0.5	< 0.5	**1**
	Trichloronate	mg/kg	0.2							< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
TPH	C10 - C14	mg/kg	20							< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20
	C10 - C36 (Sum of total)	mg/kg	50							< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	**171**
	C10 - C40 (Sum of total)	mg/kg	100							-	-	-	-	-	-	-	-	-
	C15 - C28	mg/kg	50							< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	**61**
	C29 - C36	mg/kg	50							< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	**110**
	C6 - C9	mg/kg	20							< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20
TPH (after silica gel clean -up)	C10 - C14 (after silica gel clean-up)	mg/kg	20							< 20	< 20	< 20	< 20	< 20	-	-	-	< 20
	C10 - C36 (Ttotal) (after silica gel clean-up)	mg/kg	50							< 50	< 50	< 50	< 50	< 50	-	-	-	< 50
	C15 - C28 (after silica gel clean-up)	mg/kg	50							< 50	< 50	< 50	< 50	< 50	-	-	-	< 50
	C29 - C36 (after silica gel clean-up)	mg/kg	50							< 50	< 50	< 50	< 50	< 50	-	-	-	< 50
TRH	C6-C10	mg/kg	20							-	-	-	-	-	-	-	-	-
	C6-C10 less BTEX (F1)	mg/kg	20			45	70	110	200	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20
	TRH >C10-C16	mg/kg	50							< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
	TRH >C10-C16 less Naphthalene (F2)	mg/kg	50			110	240	440		< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
	TRH >C16-C34 (F3)	mg/kg	100							< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	**140**
	TRH >C34-C40 (F4)	mg/kg	100							< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100
	TRH >C10-C40 (total)	mg/kg	100							< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	**140**
TRH (after silica gel clean -up)	TRH >C10-C16 (after silica gel clean-up)	mg/kg	50			45	70	110	200	< 50	< 50	< 50	< 50	< 50	-	-	-	< 50
	TRH >C16-C34 (after silica gel clean-up)	mg/kg	100			110	240	440		< 100	< 100	< 100	< 100	< 100	-	-	-	< 100
	TRH >C34-C40 (after silica gel clean-up)	mg/kg	100							< 100	< 100	< 100	< 100	< 100	-	-	-	< 100
BTEX	Benzene	mg/kg	0.1			0.5	0.5	0.5	0.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	Ethylbenzene	mg/kg	0.1			55				< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	Toluene	mg/kg	0.1			160	220	210	540	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	Xylene (m & p)	mg/kg	0.2							< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
	Xylene (o)	mg/kg	0.1							< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	Xylene Total	mg/kg	0.3			40	60	95	170	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
VOCs	Naphthalene MAH	mg/kg	0.5			3				< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5

Notes:

[1] National Environment Protection (Assessment of Site Contamination) Amendment Measure, 2013. Health Investigation Level 'C' - Public open sapce such as parks, playgrounds, playing fields (e.g. ovals), secondary schools and footpaths. Values from Table 1A(1)

[2] National Environment Protection (Assessment of Site Contamination) Amendment Measure, 2013. Interim soil vapour health investigation levels for volatile organic clorinated compunds HIL-A/B - secondary school buildings should be assessed using residential 'A/B' for vapour intrusion puposes. Values from Tables 1A(2)

[3] National Environment Protection (Assessment of Site Contamination) Amendment Measure, 2013. Health Screening Limits for vapor intrusion in sand for low-high density residential. Values from Tables 1A(3)

Shade: Exceedance of the criteria

Appendix C3 - Result Summary Table

Method Type	Chemical Name	Unit	EQL	Health-based Investigation Level (HIL C)	Interim Soil Vapour HIL-A/B	Soil HSLs for Vapour Intrusion HSL A&B Low-high Density Residential (mg/kg)				GG10(0.3-0.4) S21-Au41042 23/08/2021	GG11(0.2-0.3) S21-Au41044 23/08/2021	GG12(1.4-1.5) S21-Au41045 23/08/2021
						0 m to < 1 m	1 m to < 2 m	2 m to < 4 m	4 m +			
Metals	Arsenic	mg/kg	2	3000						**12**	**3.7**	**14**
	Cadmium	mg/kg	0.4	90						0.4	< 0.4	< 0.4
	Chromium (III+VI)	mg/kg	5	300						**35**	**6.3**	**29**
	Copper	mg/kg	5	17000						**21**	**5.5**	**39**
	Lead	mg/kg	5	600						**41**	**7.7**	**180**
	Mercury (inorganic)	mg/kg	0.1	80						< 0.1	< 0.1	**1**
	Nickel	mg/kg	5	1200						**15**	**7.4**	**9.9**
	Zinc	mg/kg	5	30000						**58**	**35**	**84**
Physical Parameters	Moisture Content (dried @ 103°C)	%	1							12	4.7	25
Pesticides	4,4-DDE	mg/kg	0.05							< 0.05	< 0.05	< 0.05
	a-BHC	mg/kg	0.05							< 0.05	< 0.05	< 0.05
	Aldrin	mg/kg	0.05							< 0.05	< 0.05	< 0.05
	Aldrin + Dieldrin	mg/kg	0.05	10						< 0.05	< 0.05	< 0.05
	Azinophos methyl	mg/kg	0.2							-	-	-
	b-BHC	mg/kg	0.05							< 0.05	< 0.05	< 0.05
	Bolstar (Sulprofos)	mg/kg	0.2							< 0.2	< 0.2	< 0.2
	Chlordane	mg/kg	0.1	70						< 0.1	< 0.1	< 0.1
	Chlorfenvinphos	mg/kg	0.2							< 0.2	< 0.2	< 0.2
	Chlorpyrifos	mg/kg	0.2							< 0.2	< 0.2	< 0.2
	Chlorpyrifos-methyl	mg/kg	0.2							< 0.2	< 0.2	< 0.2
	d-BHC	mg/kg	0.05							< 0.05	< 0.05	< 0.05
	DDD	mg/kg	0.05							-	-	-
	DDT	mg/kg	0.05							-	-	-
	DDT+DDE+DDD	mg/kg	0.05	400						< 0.05	< 0.05	< 0.05
	Demeton-S	mg/kg	0.2							< 0.2	< 0.2	< 0.2
	Diazinon	mg/kg	0.2							< 0.2	< 0.2	< 0.2
	Dichlorvos	mg/kg	0.2							< 0.2	< 0.2	< 0.2
	Dieldrin	mg/kg	0.05							< 0.05	< 0.05	< 0.05
	Dimethoate	mg/kg	0.2							< 0.2	< 0.2	< 0.2
	Disulfoton	mg/kg	0.2							< 0.2	< 0.2	< 0.2
	Endosulfan I	mg/kg	0.05	340						< 0.05	< 0.05	< 0.05
	Endosulfan II	mg/kg	0.05	340						< 0.05	< 0.05	< 0.05
	Endosulfan sulphate	mg/kg	0.05							< 0.05	< 0.05	< 0.05
	Endrin	mg/kg	0.05	20						< 0.05	< 0.05	< 0.05
	Endrin aldehyde	mg/kg	0.05							< 0.05	< 0.05	< 0.05
	Endrin ketone	mg/kg	0.05							< 0.05	< 0.05	< 0.05
	Ethion	mg/kg	0.2							< 0.2	< 0.2	< 0.2
	Fenitrothion	mg/kg	0.2							< 0.2	< 0.2	< 0.2
	Fenthion	mg/kg	0.2							< 0.2	< 0.2	< 0.2
	g-BHC (Lindane)	mg/kg	0.05							< 0.05	< 0.05	< 0.05
	Heptachlor	mg/kg	0.05	10						< 0.05	< 0.05	< 0.05
	Heptachlor epoxide	mg/kg	0.05							< 0.05	< 0.05	< 0.05
	Hexachlorobenzene	mg/kg	0.05	10						< 0.05	< 0.05	< 0.05
	Malathion	mg/kg	0.2							< 0.2	< 0.2	< 0.2
	Merphos	mg/kg	0.2							< 0.2	< 0.2	< 0.2
	Methoxychlor	mg/kg	0.2	400						< 0.05	< 0.05	< 0.05
	Methyl parathion	mg/kg	0.2							< 0.2	< 0.2	< 0.2
	Monocrotophos	mg/kg	2							< 2	< 2	< 2
	Omethoate	mg/kg	2							< 2	< 2	< 2
	Organochlorine pesticides	mg/kg	0.1							-	-	-
	Other organochlorine pesticides	mg/kg	0.1							-	-	-
	Parathion	mg/kg	0.2							-	-	-
	Phorate	mg/kg	0.2							< 0.2	< 0.2	< 0.2
	Pirimiphos-methyl	mg/kg	0.2							< 0.2	< 0.2	< 0.2
	Pyrazophos	mg/kg	0.2							< 0.2	< 0.2	< 0.2
	Ronnel	mg/kg	0.2							< 0.2	< 0.2	< 0.2
	Terbufos	mg/kg	0.2							< 0.2	< 0.2	< 0.2
	Tetrachlorvinphos	mg/kg	0.2							< 0.2	< 0.2	< 0.2
	Tokuthion	mg/kg	0.2							< 0.2	< 0.2	< 0.2
	Toxaphene	mg/kg	1	30						< 0.5	< 0.5	< 0.5
PCBs	Arochlor 1016	mg/kg	0.5							< 0.5	< 0.5	< 0.5
	Arochlor 1221	mg/kg	0.1							< 0.1	< 0.1	< 0.1
	Arochlor 1232	mg/kg	0.5							< 0.5	< 0.5	< 0.5
	Arochlor 1242	mg/kg	0.5							< 0.5	< 0.5	< 0.5
	Arochlor 1248	mg/kg	0.5							< 0.5	< 0.5	< 0.5
	Arochlor 1254	mg/kg	0.5							< 0.5	< 0.5	< 0.5
	Arochlor 1260	mg/kg	0.5							< 0.5	< 0.5	< 0.5
	PCBs (Sum of total)	mg/kg	0.5	1						< 0.5	< 0.5	< 0.5
PAH	Benz(a)anthracene	mg/kg	0.5							< 0.5	< 0.5	< 5
	Benzo(a)pyrene	mg/kg	0.5							< 0.5	< 0.5	**4.7**
	Benzo(a)pyrene TEQ (lower bound) *	mg/kg	0.5	3						< 0.5	< 0.5	**5.5**
	Benzo(a)pyrene TEQ (medium bound) *	mg/kg	0.5	3						**0.6**	**0.6**	**7.1**
	Benzo(a)pyrene TEQ (upper bound) *	mg/kg	0.5	3						**1.2**	**1.2**	**8.6**
	Benzo(g,h,i)perylene	mg/kg	0.5							< 0.5	< 0.5	< 5
	Benzo(k)fluoranthene	mg/kg	0.5							< 0.5	< 0.5	**4**
	Benzo[b+j]fluoranthene	mg/kg	0.5							< 0.5	< 0.5	**3.9**
	Chrysene	mg/kg	0.5							< 0.5	< 0.5	**3.7**
	Dibenz(a,h)anthracene	mg/kg	0.5							< 0.5	< 0.5	< 2
	Indeno(1,2,3-c,d)pyrene	mg/kg	0.5							< 0.5	< 0.5	< 5
SVOCs	Acenaphthene	mg/kg	0.5							< 0.5	< 0.5	0.5
	Acenaphthylene	mg/kg	0.5							< 0.5	< 0.5	< 0.5
	Anthracene	mg/kg	0.5							< 0.5	< 0.5	**0.9**
	Coumaphos	mg/kg	2							< 2	< 2	< 2
	Demeton-O	mg/kg	0.2							< 0.2	< 0.2	< 0.2
	EPN	mg/kg	0.2							< 0.2	< 0.2	< 0.2
	Ethoprop	mg/kg	0.2							< 0.2	< 0.2	< 0.2
	Fensulfothion	mg/kg	0.2							< 0.2	< 0.2	< 0.2
	Fluoranthene	mg/kg	0.5							0.7	< 0.5	**7.7**
	Fluorene	mg/kg	0.5							< 0.5	< 0.5	0.5
	Mevinphos (Phosdrin)	mg/kg	0.2							< 0.2	< 0.2	< 0.2
	Naled (Dibrom)	mg/kg	0.2							< 0.5	< 0.5	< 0.5
	Naphthalene PAH	mg/kg	0.5							< 0.5	< 0.5	**0.9**
	PAHs (Sum of total)	mg/kg	0.5	300						**2**	**< 0.5**	**39.1**
	Phenanthrene	mg/kg	0.5							**0.6**	< 0.5	**4.4**
	Pyrene	mg/kg	0.5							**0.7**	< 0.5	**7.9**
	Trichloronate	mg/kg	0.2							< 0.2	< 0.2	< 0.2
TPH	C10 - C14	mg/kg	20							< 20	< 20	< 20
	C10 - C36 (Sum of total)	mg/kg	50							**175**	< 50	< 50
	C10 - C40 (Sum of total)	mg/kg	100							-	-	-
	C15 - C28	mg/kg	50							**85**	< 50	< 50
	C29 - C36	mg/kg	50							**90**	< 50	< 50
	C6 - C9	mg/kg	20							< 20	< 20	< 20
TRH	C6-C10	mg/kg	20							-	-	-
	C6-C10 less BTEX (F1)	mg/kg	20			45	70	110	200	< 20	< 20	< 20
	TRH >C10-C16	mg/kg	50							< 50	< 50	< 50
	TRH >C10-C16 less Naphthalene (F2)	mg/kg	50			110	240	440		< 50	< 50	< 50
	TRH >C16-C34 (F3)	mg/kg	100							150	< 100	< 100
	TRH >C34-C40 (F4)	mg/kg	100							< 100	< 100	< 100
	TRH >C10-C40 (total)	mg/kg	100							**150**	< 100	< 100
BTEX	Benzene	mg/kg	0.1			0.5	0.5	0.5	0.5	< 0.1	< 0.1	< 0.1
	Ethylbenzene	mg/kg	0.1			55				< 0.1	< 0.1	< 0.1
	Toluene	mg/kg	0.1			160	220	210	540	< 0.1	< 0.1	< 0.1
	Xylene (m & p)	mg/kg	0.2							< 0.2	< 0.2	< 0.2
	Xylene (o)	mg/kg	0.1							< 0.1	< 0.1	< 0.1
	Xylene Total	mg/kg	0.3			40	60	95	170	< 0.3	< 0.3	< 0.3
VOCs	TCE (Trichloroethene)	mg/kg	0.5							< 0.5	< 0.5	< 0.5
	111 -TCA (111-Trichloroethane)	mg/kg	0.5							< 0.5	< 0.5	< 0.5
	PCE (Tetrachloroethene)	mg/kg	0.5							< 0.5	< 0.5	< 0.5
	cis-1,2-Dichloroethene	mg/kg	0.5							< 0.5	< 0.5	< 0.5
	Vinyl chloride	mg/kg	0.5							< 0.5	< 0.5	< 0.5
	Naphthalene MAH	mg/kg	0.5			3				< 0.5	< 0.5	< 0.5

Notes:

[1] National Environment Protection (Assessment of Site Contamination) Amendment Measure, 2013. Health Investigation Level 'C' - Public open sapce such as parks, playgrounds, playing fields (e.g. ovals), secondary schools and footpaths. Values from Table 1A(1)

[2] National Environment Protection (Assessment of Site Contamination) Amendment Measure, 2013. Interim soil vapour health investigation levels for volatile organic clorinated compunds HIL-A/B - secondary school buildings should be assessed using residential 'A/B' for vapour intrusion puposes. Values from Tables 1A(2)

[3] National Environment Protection (Assessment of Site Contamination) Amendment Measure, 2013. Health Screening Limits for vapor intrusion in sand for low-high density residential. Values from Tables 1A(3)

Shade: Exceedance of the criteria

95% UCL Average		
Chemical:		Lead
Criteria	**HIL-C**	600
Sample ID	**GG1-04(0.8-0.9)**	79
	GG2-01(0.3-0.4)	11
	GG3-02(0.9-1.0)	71
	GG4-04(0.8-0.9)	35
	GG5-05(2.0-2.1)	22
	GG6-03(1.0-1.1)	17
	GG7-01(0.05-0.15)	25
	GG8-01(0.2-0.3)	8.9
	GG8-02(0.4-0.5)	12
	GG8-03(0.9-1.0)	47
	GG9-04(1.0-1.1)	16
	BH1(0.7-0.9)	20
	BH2(0.5-0.7)	27
	BH3(1.0-1.2)	25
	BH4(1.0-1.2)	**870**
	BH5(0.5-0.7)	210
	BH6-01 (0.4-0.5)	15
	BH7-01 (0.5-0.6)	21
	BH10(0.7-0.9)	82
	GG10(0.3-0.4)	41
	GG11(0.2-0.3)	7.7
	GG12(1.4-1.5)	180

95% UCL calculation table		
population size	n	22.00
sample mean	X	83.75
standard deviation	s	179.22
standard error	s/√n	38.21
Student's t value	t	1.72
95% UCL	X + t * s/√n	**149.51**

Exhibit 1: Directions for Computing UCL for the Mean of a Normal Distribution — Student's *t*

Let $X_1, X_2, \ldots, X_n$ represent the n randomly sampled concentrations.

STEP 1: Compute the sample mean $\overline{X} = \frac{1}{n}\sum_{i=1}^{n} X_i$.

STEP 2: Compute the sample standard deviation $s = \sqrt{\frac{1}{n-1}\sum_{i=1}^{n}\left(X_i - \overline{X}\right)^2}$.

STEP 3: Use a table of quantiles of the Student's t distribution to find the $(1-\alpha)^{th}$ quantile of the Student's t distribution with n-1 degrees of freedom. For example, the value at the 0.05 level with 40 degrees of freedom is 1.684. A table of Student's t values can be found in Gilbert (1987, page 255, where the values are indexed by p=1-α, rather than α level). The t value appropriate for computing the 95% UCL can be obtained in Microsoft Excel® with the formula TINV((1-0.95)*2, n-1).

STEP 4: Compute the one-sided (1-α) upper confidence limit on the mean

$$UCL_{1-\alpha} = \overline{X} + t_{\alpha,n-1}\, s / \sqrt{n}$$

Source: Calculationg Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites (USEPA, 2002)

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Appendix C5 - Ground Gas GA5000 Results and Gas Screenign Value (GSV) Calculations

The GSV inculding 6 round results is 0.61 L/hr, indicating Low Risk.

Well ID	Monitoring Date	CH_4 (%v/v)	CO_2 (%v/v)	O_2 (%v/v)	CO (ppm)	H_2S (ppm)	Balance (%)	Barometric Pressure	Initial relative pressure (mbar)	Stable relative pressure (mbar)	Initial Flow Rate (L/hr)	Stable Flow Rate (L/hr)	CH_4 GSV For Each Well (L/ hr)	CO_2 GSV For Each Well (L/ hr)	CH_4 GSV For Each Round (L/ hr)	CO_2 GSV For Each Roundl (L/ hr)
1st Round - 7th & 13th May 2021																
GG1	7/05/2021	6.1	2.9	0.1	1.8	1.0	91.0	1007	0.14	0.12	4.1	0.6	0.25	0.02		
GG2	7/05/2021	6.2	3.2	0.0	0.0	1.0	90.6	1007	0.02	0.07	0.1	0.0	0.00	0.00		
GG3	7/05/2021	0.0	7.3	0.1	0.0	0.0	92.6	1010	0.28	0.28	0.0	0.0	0.00	0.00		
GG4	7/05/2021	3.7	2.5	0.6	0.0	0.0	93.1	1011	0.03	0.03	0.0	0.0	0.00	0.00		
GG5	7/05/2021	0.0	5.8	5.1	1.0	0.0	89.1	1012	0.05	0.03	0.1	0.1	0.00	0.01	0.25	0.30
GG6	7/05/2021	0.1	5.5	0.0	0.0	0.0	94.4	1010	0.02	0.02	0.0	0.0	0.00	0.00		
GG7	7/05/2021	0.9	6.6	0.0	1.0	0.0	92.6	1011	0.72	0.81	0.1	0.1	0.00	0.01		
GG8	13/05/2021	1.1	1.3	1.4	0.0	0.0	96.1	1007	-0.67	0.00	0.0	0.0	0.00	0.00		
GG9	13/05/2021	1.4	3.2	2.2	0.0	0.0	93.2	1010	0.07	0.07	0.0	0.0	0.00	0.00		
2nd Round - 21st May 2021																
GG1	21/05/2021	12.8	0.8	0.8	0.0	0.0	82.9	1033	0.03	0.03	0.0	0.0	0.00	0.00		
GG2	21/05/2021	0.0	1.5	1.5	0.0	0.0	93.0	1033	0.00	0.00	0.0	0.0	0.00	0.00		
GG3	21/05/2021	0.0	2.2	2.2	0.0	0.0	89.5	1033	0.02	0.02	0.0	0.0	0.00	0.00		
GG4	21/05/2021	3.6	0.7	0.7	0.0	0.0	90.7	1034	0.05	0.05	0.0	0.0	0.00	0.00		
GG5	21/05/2021	0.0	5.8	5.0	0.0	0.0	89.3	1034	0.02	0.02	0.0	0.0	0.00	0.00	0.00	0.00
GG6	21/05/2021	0.0	1.0	1.0	0.0	0.0	93.8	1032	-0.03	0.00	0.0	0.0	0.00	0.00		
GG7	21/05/2021	0.5	0.1	0.1	0.0	0.0	93.3	1026	-0.03	-1.65	0.0	0.0	0.00	0.00		
GG8	21/05/2021	0.0	2.8	2.8	0.0	0.0	95.5	1034	0.00	0.00	0.0	0.0	0.00	0.00		
GG9	21/05/2021	1.3	0.3	0.3	0.0	0.0	94.8	1033	0.00	0.00	0.0	0.0	0.00	0.00		
3rd Round - 3rd June 2021																
GG1	3/06/2021	14.8	3.7	0.3	1.0	0.0	81.4	1015	-0.02	-0.03	0.0	0.0	0.00	0.00		
GG2	3/06/2021	3.6	3.9	0.2	0.0	0.0	92.3	1016	0.03	0.09	0.0	0.0	0.00	0.00		
GG3	3/06/2021	0.0	7.5	3.6	0.0	0.0	88.9	1016	-0.02	-0.07	0.0	0.0	0.00	0.00		
GG4	3/06/2021	5.7	5.7	0.1	0.0	0.0	88.5	1016	-0.02	-0.03	0.0	0.0	0.00	0.00		
GG5	3/06/2021	0.0	5.7	5.4	0.0	0.0	88.9	1016	0.02	0.05	0.1	0.1	0.00	0.01	0.03	0.02
GG6	3/06/2021	0.0	5.0	1.2	0.0	0.0	93.8	1016	0.03	0.07	0.2	0.2	0.00	0.01		
GG7	3/06/2021	1.0	5.7	0.2	0.0	0.0	93.1	1017	-0.03	-0.01	0.2	0.2	0.00	0.01		
GG8	3/06/2021	0.0	2.2	0.3	0.0	0.0	97.5	1016	0.00	0.03	0.1	0.1	0.00	0.00		
GG9	3/06/2021	1.6	3.3	0.2	0.0	0.0	94.9	1016	0.05	0.03	0.1	0.1	0.00	0.00		
4th Round - 9th June2021																
GG1	9/06/2021	13.0	4.3	0.3	0.0	0.0	82.3	1007	0.02	0.02	0.0	0.0	0.00	0.00		
GG2	9/06/2021	3.9	3.9	0.0	0.0	0.0	92.3	1007	0.02	0.07	0.0	0.0	0.00	0.00		
GG3	9/06/2021	0.0	7.7	2.6	0.0	0.0	89.7	1007	0.03	0.03	0.1	0.2	0.00	0.02		
GG4	9/06/2021	5.7	5.2	0.1	0.0	0.0	89.1	1008	0.02	0.02	0.1	0.2	0.01	0.01		
GG5	9/06/2021	0.0	5.7	4.8	0.0	0.0	89.5	1009	0.03	0.05	0.1	0.2	0.00	0.01	0.03	0.02
GG6	9/06/2021	0.0	4.9	0.7	0.0	0.0	94.4	1009	0.03	0.07	0.1	0.1	0.00	0.00		
GG7	9/06/2021	0.9	5.5	0.0	0.0	0.0	93.6	1009	0.02	0.03	0.1	0.2	0.00	0.01		
GG8	9/06/2021	0.3	2.0	0.0	0.0	0.0	97.7	1009	0.02	0.02	0.2	0.2	0.00	0.00		
GG9	9/06/2021	1.5	3.0	0.1	0.0	0.0	95.4	1009	0.03	0.05	0.1	0.2	0.00	0.01		
5th Round - 16th June 2021																
GG1	16/06/2021	2.7	1.7	13.5	0.0	0.0	82.0	1007	0.03	0.05	1.4	2.4	0.06	0.04		
GG2	17/06/2021	3.5	3.5	0.8	0.0	0.0	92.2	1007	0.02	0.09	0.0	0.0	0.00	0.00		
GG3	18/06/2021	0.0	7.2	3.6	1.0	0.0	89.1	1007	0	-0.02	0.1	0.1	0.00	0.01		
GG4	19/06/2021	5.6	4.5	0.6	0.0	0.0	89.3	1007	0.02	0.07	0.0	0.1	0.01	0.00		
GG5	20/06/2021	0.0	5.5	4.8	1.0	1.0	89.6	1007	0.02	0	0.1	0.1	0.00	0.01	0.13	0.17
GG6	21/06/2021	0.0	4.7	1.1	1.0	1.0	94.2	1007	-0.02	-0.02	0.1	0.1	0.00	0.00		
GG7	22/06/2021	0.9	5.0	1.5	0.0	1.0	92.6	1007	-0.02	0.02	0.1	0.1	0.00	0.01		
GG8	23/06/2021	0.2	1.7	1.0	1.0	1.0	97.1	1007	0.03	0.05	0.1	0.1	0.00	0.00		
GG9	24/06/2021	1.6	2.7	0.8	0.0	1.0	94.4	1007	0.02	0.02	0.1	0.2	0.00	0.01		
6th Round - 25th June2021																
GG1	25/06/2021	6.4	5.2	2.6	0.0	0.0	85.7	1014	0.02	-0.08	0.2	0.4	0.03	0.02		
GG2	26/06/2021	2.5	4.0	0.3	0.0	0.0	93.2	1014	0.03	0.07	0.1	0.2	0.01	0.01		
GG3	27/06/2021	0.0	6.9	3.7	0.0	0.0	89.3	1015	0.02	0.03	0.1	0.1	0.00	0.01		
GG4	28/06/2021	6.1	4.5	0.4	0.0	0.0	88.9	1015	0.03	0.00	0.1	0.1	0.01	0.00		
GG5	29/06/2021	0.0	5.3	4.1	0.0	0.0	90.6	1016	0.03	0.07	0.1	0.1	0.00	0.01	0.03	0.03
GG6	30/06/2021	0.0	4.5	0.8	0.0	0.0	94.6	1016	0.00	0.02	0.0	0.0	0.00	0.00		
GG7	1/07/2021	1.1	5.0	0.2	0.0	0.0	93.7	1016	0.00	0.00	0.0	0.0	0.00	0.00		
GG8	2/07/2021	0.3	1.7	0.2	0.0	0.0	97.7	1016	0.00	-0.02	0.0	0.0	0.00	0.00		
GG9	3/07/2021	1.9	2.7	0.1	0.0	0.0	95.3	1016	0.00	0.00	0.0	0.0	0.00	0.00		

Note:

Gas screening value for CH4 and CO2 calculated from maximum gas concentration and stable flow rate across all monitoring rounds for each monitoring location

	Concentration above the NSW EPA Solid Waste Landfill Guidelines criteria - *1% and 1.5% (v/v) for methane and carbondioxide respectively.*
	Very Low Risk GSV <0.07 l/hr - Denotes Characteristic Gas Situation of 1 (NSW EPA (2012), *Guidelines for the Assessment and Management of Sites Impacted by Hazardous Ground Gases*) . **If methane > 1%v/v and/or carbon dioxide > 5 %v/v, consider increase to Low Risk.**
	Low Risk GSV <0.7 and Moderate Risk GSV<3.5 - Denotes Characteristic Gas Situation of 2 and 3 (NSW EPA (2012), *Guidelines for the Assessment and Management of Sites Impacted by Hazardous Ground Gases*)
	Moderate to High Risk GSV<15 - Denotes Characteristic Gas Situation of 3 (NSW EPA (2012), *Guidelines for the Assessment and Management of Sites Impacted by Hazardous Ground Gases*)
*When total concentration exceeds 1% (v/v) for CH_4 and/ or 5% (v/v) for CO_2 consider raising the characteristic gas situation to 2.	

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Appendix C6 - Soil Vapour Laboratory Test Results

Analyte	Units	Limit of Reporting	Criteria	GG1	GG2	GG3	GG4	GG5	GG6	GG7	GG8	GG9	FD1	FD2
BTEXN														
Benzene	µg/m3	1.6	1,000	**25**	**17**	**8**	**10**	**7**	<1.6	**3**	**8**	**3**	**9**	**7**
Toluene	µg/m3	1.9	1,300,000	**31**	**20**	**51**	**48**	**25**	**3**	**20**	**61**	**130**	**51**	**61**
Ethylbenzene	µg/m3	2	330,000	**10**	**10**	**8**	**20**	**7**	2	**5**	**9**	**8**	**8**	**9**
m-& p-Xylene	µg/m3	4	220,000*	**30**	**10**	**20**	**100**	**10**	<4.3	**8**	**30**	**20**	**20**	**30**
o-Xylene	µg/m3	2		<11	**8**	**8**	**53**	**6**	<2.2	**4**	**10**	**6**	**8**	**10**
Naphthalene	µg/m3	2.6	800	<13	<2.6	<2.6	**3**	<2.6	<2.6	<2.6	**4**	**3**	<2.6	**3**
Total Petroleum Hydrocarbons														
TPH C5 - C8 Aliphatic	µg/m3	200	-	**33000**	**2400**	**2400**	**13000**	<200	<200	<200	**33000**	**2600**	**2100**	**33000**
TPH C9 - C12 Aliphatic	µg/m3	50	-	<250	**170**	<50	**17000**	<50	<50	<50	**8800**	**250**	<50	**10000**
TPH C9 - C10 Aromatic	µg/m3	100	-	<500	<100	<100	**2000**	<100	<100	<100	**110**	<100	<100	**140**
TPH C6 - C10 - BTEX (F1)	µg/m3	200	180000	**17000**	**1000**	<200	<200	<200	<200	<200	**41000**	**2300**	<200	**43000**
TPH >C10 - C12 - Naphthalene (F2)	µg/m3	40	130000	<200	**140**	<40	**15000**	<40	<40	<40	**6700**	**200**	<40	**8000**
Volatile Organic Chlorinated Compounds														
TCE (Trichloroethene)	µg/m3	2.7	20	<13.5	**6**	<2.7	<2.7	**3**	<2.7	<2.7	<2.7	<2.7	<2.7	<2.7
111 -TCA	µg/m3	2.7	60000	<13.5	<2.7	<2.7	<2.7	<2.7	<2.7	<2.7	<2.7	<2.7	<2.7	<2.7
PCE (Tetrachloroethene)	µg/m3	3.4	2000	<17	<3.4	<3.4	<3.4	<3.4	<3.4	<3.4	<3.4	<3.4	<3.4	<3.4
cis-1,2-Dichloroethene	µg/m3	2.0	80	<10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Vinyl chloride	µg/m3	1.3	30	<6.5	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3

Bold: Exceedance of Limit of Reporting but below the adopted criteria

GREENCAP
Going Further in Managing Risk

Surface Gas Walkover

SOPHS - Service Pit Gas Monitoring

Date 14/05/2021
Scientist SW
Weather Sunny & Low Wind

Service Pits	Time	CH_4 (ppm)	CO_2 (%)	O_2 (%)	CO (ppm)	H_2S (ppm)	Bal. (%)	Barometric pressure (mbar)
SP1	15:10	0.0	0.1	21.4	0	0	78.6	1013
SP2	15:14	0.0	0.1	21.4	0	0	78.6	1013
SP3	15:15	0.0	0.1	21.4	0	0	78.6	1013

Surface Gas Walkover

SOPHS - Surface Gas Walkover

Date 14/05/2021
Scientist SW
Weather Sunny & Low Wind

Grid	Time	CH_4 (ppm)	CO_2 (%)	O_2 (%)	CO (ppm)	H_2S (ppm)	Bal. (%)	Barometric pressure (mbar)
1	13:32	0.0	0.1	20.9	0	0	78.7	1013
2	13:36	0.0	0.1	20.9	0	0	78.7	1013
3	13:38	0.0	0.1	20.7	0	0	79.2	1013
4	13:39	0.0	0.1	20.7	0	0	79.2	1013
5	13:40	0.0	0.1	20.7	0	0	79.2	1013
6	13:42	0.0	0.1	20.7	0	0	79.2	1013
7	13:43	0.0	0.1	20.7	0	0	79.2	1013
8	13:45	0.0	0.1	20.7	0	0	79.2	1013
43	14:55	0.0	0.1	21.2	0	0	78.7	1013
44	-	0.0	0.1	21.2	0	0	78.7	1013
45	-	0.0	0.1	21.2	0	0	78.7	1013
46	-	0.0	0.1	21.2	0	0	78.7	1013
47	-	0.0	0.1	21.2	0	0	78.7	1013
48	-	0.0	0.1	21.2	0	0	78.7	1013
49	-	0.0	0.1	21.2	0	0	78.7	1013
50	-	0.0	0.1	21.2	0	0	78.7	1013
51	-	0.0	0.1	21.2	0	0	78.7	1013
52	-	0.0	0.1	21.2	0	0	78.7	1013
53	-	0.0	0.1	21.2	0	0	78.7	1013
54	-	0.0	0.1	21.2	0	0	78.7	1013
55	-	0.0	0.1	21.4	0	0	78.5	1013
56	-	0.0	0.1	21.4	0	0	78.5	1013
57	-	0.0	0.1	21.4	0	0	78.5	1013
58	-	0.0	0.1	21.4	0	0	78.5	1013
59	-	0.0	0.1	21.4	0	0	78.5	1013
60	-	0.0	0.1	21.4	0	0	78.5	1013
61	15:05	0.0	0.1	21.6	0	0	78.3	1013
62	-	0.0	0.1	21.6	0	0	78.3	1013
63	-	0.0	0.1	21.6	0	0	78.3	1013
64	-	0.0	0.1	21.6	0	0	78.3	1013
65	-	0.0	0.1	21.6	0	0	78.3	1013
66	-	0.0	0.1	21.6	0	0	78.3	1013
67	-	0.0	0.1	21.6	0	0	78.3	1013
68	-	0.0	0.1	21.6	0	0	78.3	1013
69	-	0.0	0.1	21.6	0	0	78.3	1013
70	-	0.0	0.1	21.5	0	0	78.4	1013
71	-	0.0	0.1	21.5	0	0	78.4	1013
72	-	0.0	0.1	21.5	0	0	78.4	1013
73	-	0.0	0.1	21.5	0	0	78.4	1013
74	-	0.0	0.1	21.5	0	0	78.4	1013
75	-	0.0	0.1	21.5	0	0	78.4	1013
76	-	0.0	0.1	21.6	0	0	78.3	1013
77	-	0.0	0.1	21.6	0	0	78.3	1013
78	15:18	0.0	0.1	21.6	0	0	78.3	1013
90	-	0.0	0.1	21.8	0	0	78.6	1013

Appendix C9 - Groundwater Chemical Results Table

Analyte	Unit	LOR*	Criteria		GG5-01 (13, May 2021)	GG-FD1 (13, May 2021)	TS (13, May 2021)	TB (13, May 2021)
			Vapour Intrusion	Ecological(Marine)				
Volatile Total Recoverable Hydrocarbons								
TRH C6 - C9	mg/L	0.01	-	-	< 0.02	0	< 0.02	-
TRH C6 - C10	mg/L	0.01	-	-	< 0.02	0	< 0.02	-
TRH C6 - C10 lessBTEX (F1)	mg/L	0.01	1	-	< 0.02	0	< 0.02	-
Benzene	mg/L	0.001	0.8	0.5	< 0.001	0	< 0.001	98
Toluene	mg/L	0.001	-	-	< 0.001	0	< 0.001	88
Ethylbenzene	mg/L	0.001	-	-	< 0.001	0	< 0.001	91
m+p-xylene	mg/L	0.002	-	-	< 0.002	0	< 0.002	100
o-xylene	mg/L	0.001	-	-	< 0.001	0	< 0.001	80
Naphthalene	mg/L	0.001	-	0.05	< 0.001	0	0	-
Surrogate toluene-d8	%	-	-	-	120	0	111	-
Surrogate 4-BFB	%	-	-	-	134	0	107	106
Semi-Volatile Total Recoverable Hydrocarbons								
TRH C10 - C14	mg/L	0.05	-	-	< 0.05	-	-	-
TRH C15 - C28	mg/L	0.1	-	-	< 0.1	-	-	-
TRH C29 - C36	mg/L	0.1	-	-	< 0.1	-	-	-
TRH >C10 - C16	mg/L	0.05	-	-	< 0.05	-	-	-
TRH >C10 - C16less Naphthalene (F2)	mg/L	0.05	0.0001	-	< 0.05	-	-	-
TRH >C16 - C34	mg/L	0.1	-	-	< 0.1	-	-	-
TRH >C34 - C40	mg/L	0.1	-	-	< 0.1	-	-	-
Surrogate o-Terphenyl	%	-	-	-	-	-	-	-
Poly Aromatic Hydrocarbons								
Naphthalene	mg/L	0.001	-	-	< 0.001	-	-	-
Acenaphthylene	mg/L	0.001	-	-	< 0.001	-	-	-
Acenaphthene	mg/L	0.001	-	-	< 0.001	-	-	-
Fluorene	mg/L	0.001	-	-	< 0.001	-	-	-
Phenanthrene	mg/L	0.001	-	-	< 0.001	-	-	-
Anthracene	mg/L	0.001	-	-	< 0.001	-	-	-
Fluoranthene	mg/L	0.001	-	-	< 0.001	-	-	-
Pyrene	mg/L	0.001	-	-	< 0.001	-	-	-
Benzo(a)anthracene	mg/L	0.001	-	-	< 0.001	-	-	-
Chrysene	mg/L	0.001	-	-	< 0.001	-	-	-
Benzo(b&j)fluoranthene	mg/L	0.001	-	-	< 0.001	-	-	-
Benzo(k)fluoranthene	mg/L	0.001	-	-	< 0.001	-	-	-
Benzo(a)pyrene	mg/L	0.001	-	-	< 0.001	-	-	-
Indeno(1,2,3-c,d)pyrene	mg/L	0.001	-	-	< 0.001	-	-	-
Dibenzo(a,h)anthracene	mg/L	0.001	-	-	< 0.001	-	-	-
Benzo(g,h,i)perylene	mg/L	0.001	-	-	< 0.001	-	-	-
Total PAH	mg/L	0.001	-	-	< 0.003	-	-	-
Phenols								
Total Phenolics (as Phenol)	mg/L	0.05	-	0.4	< 0.003	-	-	-
Metals								
Arsenic	mg/L	0.001	-	-	**0.004**	0.003	-	-
Cadmium	mg/L	0.0001	-	0.0007	< 0.0002	< 0.0002	-	-
Chromium	mg/L	0.001	-	0.027	< 0.001	0.001	-	-
Copper	mg/L	0.001	-	0.0013	**0.004**	0.003	-	-
Lead	mg/L	0.001	-	0.0044	0.001	< 0.001	-	-
Mercury	mg/L	0.00005	-	0.0004	< 0.0001	< 0.0001	-	-
Nickel	mg/L	0.001	-	0.007	0.002	0.002	-	-
Zinc	mg/L	0.001	-	0.015	0.015	0.006	-	-
Inorganics								
Nitrate	mg/L	0.02	-		**0.66**	-	-	-
Nitrite	mg/L	0.02	-		< 0.02	-	-	-
Ammonia as N in water	mg/L	0.01	-	0.91	**4**	-	-	-

Shade: Exceedance of ecological criteria.

GREENCAP
Going Further in Managing Risk

Detailed Site Investigation

School Infrastructure NSW (SINSW) - Department of Education

Proposed Sydney Olympic Park High School

Appendix D: QA-QC Procedures

Appendix D – QA/QC Procedures
Table of Contents

1 Introduction

The aim of quality control and quality assurance (QA/QC) is to deliver data that is:

- Representative of what is sampled;
- Precise;
- Accurate; and
- Reproducible.

As investigations involve both field and laboratory QA/QC, these are similarly divided. The objective of this document is to evaluate and identify the data quality objectives (DQOs) and the data quality indicators (DQIs), which are used to assess whether the DQOs have been met.

The NSW guideline documents used in the evaluation of the data set for this investigation are:

- NSW Department of Environment and Conservation (DEC) (2006). Contaminated sites: Guidelines for NSW Site Auditors Scheme (2nd edition);
- National Environment Protection Council (NEPC) (2013). National Environment Protection (Assessment of Site Contamination) Amendment Measure;
- NSW Environment Protection Authority (EPA) (1995). Contaminated Sites: Sampling design guidelines; and
- NSW Office of Environment and Heritage (OEH) (2011). Contaminated sites: Guidelines for consultants reporting on contaminated sites.

Data quality is typically discussed in terms of precision, accuracy, representativeness, comparability and completeness. These are referred to as the PARCC parameters. The PARCC (and additional QA) parameters are discussed within this report.

The following items form part of the QA/QC appendix:

- Repeatability;
- Precision;
- Accuracy;
- Representativeness;
- Completeness;
- Comparability;
- Sensitivity;
- Holding times;
- Procedures for anomalous samples and confirmation checking.

Quality Assurance (QA) is "a *set of activities intended to establish confidence that quality requirements will be met*" (AS/NZS ISO 9000:2005).

This encompasses all actions, procedures, checks and decisions undertaken to ensure the accuracy and reliability of analysis results. It includes routine procedures which ensure proper sample control, data transfer, instrument calibration, the decisions required to select and properly train staff, select equipment and analytical methods, and the day to day judgments resulting from regular scrutiny and maintenance of the laboratory system.

Quality Control (QC) is "*a set of activities intended to ensure that quality requirements are actually being met*" (AS/NZS ISO 9000:2005). In other words, the operational techniques and activities used to fulfill the requirements for quality.

These are the components of QA which serve to monitor and measure the effectiveness of other QA procedures by comparison with previously decided objectives. They include measurement of the quality of reagents, cleanliness of apparatus, accuracy and precision of methods and instrumentation, and reliability of all of these factors as implemented in a given laboratory from day to day.

A complete discussion of either of these terms or the steps for implementing them is beyond the scope of this document. It is widely recognised, however, that adoption of sound laboratory QA and QC procedures is essential and readers are referred to documentation available from the National Association of Testing Authorities (NATA), if further information is required.

2 Data Quality Objectives

The Data Quality Objectives (DQOs) process is a systematic approach used to define the type, quantity and quality of data supporting decisions which relate to the environmental condition of a site. Undertaking DQOs for site assessment and remediation is a requirement of the DEC (2006). *Contaminated sites: Guidelines for NSW Site Auditors Scheme*. The DQO process was formulated by the US EPA and provides sound guidance for a consistent approach to understanding site assessment and remediation.

Table 1: Data Quality Objectives

Step	Description	Comment
1	**State the problem**	The site has a history of contamination associated with petroleum hydrocarbons, poly-cyclic aromatic hydrocarbons (PAH), heavy metals, asbestos in fill (bonded and friable), and ground gas. The site locates on a Class 2 Acid Sulphate Soil zone. For the assessment of the above-mentioned risks, data gaps identified in the PSI are required to be eliminated and a complete CSM for the site is required to be developed.
2	**Identify the decision**	Results of the Detail Site Investigation provide sufficient data to complete the identified data gaps identified in the PSI and develop a complete CSM that can inform the decision-making process for further investigations and remedial actions.
3	**Identify the inputs for the decision**	Inputs to the decision will include the scientific data collected during the Detail Site Investigation. This will include but not be limited to: • Borehole logs, well installation details and observations made by the field scientist, • Soil sample results, • Gas monitoring well measurement results, • Soil vapour sample results, • Service pit gas monitoring results, • Surface gas monitoring results, • Groundwater field measurements, and • Groundwater sample results.
4	**Define the boundaries for the study**	Site boundaries are indicated on Figure 1. Horizontal and vertical study boundaries are established as follows: <u>Soil assessment:</u>

		• Lateral study boundaries: Site borders • Vertical study boundaries: ~4.0 mBGL Ground gas and soil vapour monitoring: • Lateral study boundaries: Site borders • Vertical study boundaries: ~6.0 mBGL Service pit monitoring: • Lateral study boundaries: Site borders and service pits in the immediate vicinity of the site. Surface gas monitoring: • Lateral study boundaries: Site borders • Vertical study boundaries : 5cm above the ground surface. Groundwater monitoring: • Lateral study boundaries: Site borders and their vicinity. • Vertical study boundaries: Latite bedrock underlying the shallow water bearing aquifer (expected to be encountered at ~11 m BGL depth). The temporal boundary of the project is restricted to the timing of the investigations.
5	**Develop a decision rule**	Following decision rules are identified for the proposed Detail Site Investigation: Ground gas: Ground gas measurements indicate the areas around the identified sensitive receptors are classified as "Low Risk" in accordance with Guidelines for the Assessment and Management of Sites impacted by Hazardous Ground Gasses (NSW EPA 2012). Soil sample: Chemicals of potential concern do not exist in samples at concentrations in excess of adopted site criteria. Soil vapour: Chemicals of potential concern do not exist in samples at concentrations in excess of adopted site criteria. Service pit monitoring: Service pits at or in the immediate vicinity of the site do not contain hazardous gases at or above acute toxicity levels (e.g. 35 ppm for CO) and/ or within explosive ranges (e.g 5-15% for CH_4) and/ or greater than NSW EPA/ WorkCover notification criteria (e.g. 1% for CH_4). Groundwater monitoring: Chemicals of potential concern do not exist in samples at concentrations in excess of adopted site criteria. If systematic or judgmental samples fail these decision rules, then further assessment or remediation will be required.
6	**Specify tolerable limits on decision error**	Potential for decision errors will be minimised through an analysis of a site specific worst case scenario. In this context maximum values and peak concentrations of contaminants will be used for comparison against the acceptance criteria threshold concentrations.
7	**Optimise the design for obtaining data**	The design has been optimised to provide the most resource-effective sampling and analysis as follows: • By targeting the areas of concern where data gaps remain; and • By adopting a discretional sampling approach (risk / target-based) to the assessment of soil vapour, ground gas and groundwater. Data will be continuously evaluated in the context of the evolving conceptual model, and modifications to the sampling plan will be made to optimise the design as required.

The DQOs are defined in a series of seven steps. Table 1 outlines the seven steps and refers to the sections of the report which address these quality objectives.

Based on the DQOs the following measurement data quality indicators (MDQIs) are provided in Table 2 below.

Table 2 – Measurement Data Quality Indicators (MDQIS)

Parameter	Procedure	Minimum Frequency	Criteria	
			(5 to 10x LOR[4])	>10x LOR
Precision	Field Duplicates	1 in 20 - metals	<80 RPD	<50 RPD
		1 in 20 - semi-volatiles	<100 RPD	<80 RPD
		1 in 20 - volatiles	<150 RPD	<130 RPD
	Lab Replicate*	1 in 20	<50 RPD	<30 RPD
Accuracy*	Reference Material	1 in 10	60% to 140%R	80% to 120%R
	Matrix spikes			
	Surrogate spikes			
Representativeness*	Reagent Blanks	1 per batch	No detection	
	Holding Times*	Every sample	-	
Blanks**	Trip Blank	1 per batch	No detection	
Sensitivity	Limit of Reporting	Every sample	LOR < ½ site criteria	

Notes:

1. RPD – relative percentage difference
2. %R – percent recovery
3. LOR – limit of reporting
4. 4 no limit at <5x LOR
5. * the MDQI is usually specified in the standard method. If not, use the default values set out in this table
6. ** only necessary when measuring dissolved metals and volatile organic compounds in water samples. It is noted that dedicated sampling equipment was utilised, therefore rinsate blanks were not required.

It should be noted that Standards Australia (AS4482.1) specify that typical MDQIs for precision should be ≤50% RPD, however also acknowledge that low concentrations and organic compounds in particular can be acceptably outside this range. The standard suggests that ≤50% RPD be used as a 'trigger' and values above this level of repeatability need to be noted and explained.

3 Quality Control and Quality Assurance

3.1 Measurement Data Quality Objectives

Step 7 of the DQO process is a focus on the quality of the information by measurement, that is, measurement data quality objectives (MDQOs). The aim of a quality control and quality assurance (QA/QC) is to deliver data that is representative of what is sampled, precise, accurate and reproducible. As investigations involve both field and laboratory QA/QC, these are similarly divided. The objective of this section is to provide the MDQOs and the measurement data quality indicators (MDQIs), which will be used to establish whether the DQOs have been met.

All groundwater sampling procedures need to be undertaken according to a standard procedure, for example those procedures set out in:

- NSW Environment Protection Authority (EPA) (1995). *Contaminated sites: Sampling design guidelines*;
- NSW OEH (2011). *Contaminated sites: Guidelines for consultants reporting on contaminated sites*;
- Standards Australia (2005). *Guide to the investigation and sampling of sites with potentially contaminated soil, Part 1: Non-volatile and semi-volatile compounds, (AS 4482.1)*; and
- Standards Australia (1999). *Guide to the investigation and sampling of sites with potentially contaminated soil, Part 2: Volatile substances, (AS 4482.2*).

Measurement data quality is typically discussed in terms of precision, accuracy, representativeness, comparability and completeness. Although not necessarily considered in list order, the following items should form part of the QA/QC data evaluation:

- Measured Parameters: precision, accuracy, repeatability (comparability), blanks; and
- Assessed Parameters: completeness, representative of site conditions, sensitivity, and holding times.

The laboratories used should be NATA accredited for the analytical methods performed. Containers, sample preservation (if necessary) and holding times should be consistent with industry practices as set out in NEPM and as defined by ASTM.

The QA parameters selected and the criteria used to evaluate the analytical data are defined below and presented in Table 2 of this report.

3.1.1 Repeatability (Field collected intra-laboratory duplicates)

These samples provide a check on the analytical performance of the laboratory. At least 5 percent of samples (1 in 20) per day of sampling from a site are collected in duplicate. For comparability of data, it is important that there is little delay in the sample submission. For split samples, because of error associated with field splitting, an RPD of between 80 and 150% (depending on the substance) will be allowed as the MDQI.

Any value >50% RPD will be noted and discussed, as per Standards Australia requirements, with respect to its acceptability for inclusion in the data-set.

3.1.2 Precision

Precision is a measure of the reproducibility of results, and is assessed on the basis of agreement between a set of replicate results obtained from duplicate analyses. The precision of a duplicate

determination can be measured as relative percentage difference (RPD), and is calculated from the following equation:

$$RPD = \left[\frac{X1 - X2}{\left(\frac{X1 + X2}{2} \right)} \right] \times 100$$

where: X1 is the first duplicate value
X2 is the second duplicate value

The field duplicate (FD1) and inter lab duplicate (FT1) results and calculated RPDs are presented in the following reports. All results are within the acceptable range, RPD calculations area available in **Attachment One** and **Two** of this report.

3.1.3 Accuracy

Accuracy is a measure of the agreement between an experimental determination and the true value of the parameter being measured. The determination of accuracy can be achieved through the analysis of known reference materials or assessed by the analysis of matrix spikes. Accuracy is measured in terms of percentage recovery as defined by the following equation:

$$\%R = \frac{SSR - SR}{SA} \times 100$$

where: %R = percentage recovery of the spike
SSR = spiked sample result
SR = sample result (native)
SA = spike added

Laboratories calculate percentage recoveries of spiked compounds, which are evaluated against control or acceptance limits taken from the appropriate method or the Contract Laboratory Program Statement of Work. If the spike recovery for a sample does not fall within the prescribed control limits, laboratory based corrective action is required. Spike recover results are available in **Attachment One** and **Two** of this report.

Surrogate spikes consist of spiking non-target compounds into the sample prior to analysis. The spiked compounds are expected to behave during analysis in the same way as the target compounds. Every sample is spiked prior to extraction or analysis with surrogate compounds that are representative of the analysis. If surrogate spike recovery does not meet the prescribed control limits, samples should be reanalysed. Surrogate spike recover results are available in **Attachment One** and **Two** of this report.

3.1.4 Representativeness

Data Point Evaluation

Representativeness expresses the degree to which sample data accurately and precisely represents a characteristic of a population, parameter variations at a sampling point, or an environmental condition.

Representativeness is primarily dependent on the design and implementation of the sampling program. Representativeness of the data is partially ensured by the avoidance of contamination, adherence to sample handling and analysis protocols, and use of proper chain-of-custody and documentation procedures. Blanks, holding times and field duplicates are all QA parameters that can assist in the analysis of representativeness for data point evaluation and will need to be analysed as part of the measurement data quality assessment.

Data Set Evaluation

Whether the data is representative of the site is checked in part by undertaking an evaluation of the whole data set to establish the data is compatible. Data compatibility is authenticated by confirming that the laws of chemistry are upheld (i.e. nitrate is not present when Eh is -250 mV), that intra-laboratory analysis relationships are consistent (i.e. BTEX is a subset of the TPH C_6-C_9 fraction), that observations and field measurements are in agreement with other field data and the laboratory data and that results are consistent with the geology, history and logic.

3.1.5 Completeness

The following information is required to check for completeness of data sets:

- chain-of-custody forms (completed by Greencap and the laboratory);
- sample receipt forms;
- all requested sample results reported;
- all blank data reported;
- all laboratory duplicates reported and relative percent differences (RPDs) calculated;
- all surrogate spike data reported;
- all matrix spike data reported; and
- NATA stamp on reports.

3.1.6 Comparability

Comparability is the evaluation of the similarity of conditions (e.g. sample depth, sample homogeneity, sampling procedures) under which separate sets of data are produced to ensure minimal common error. Data comparability should be demonstrated by the use of standardised sampling and analysis procedures. Data comparability was maintained by undertaking the investigations as follows:

- sampling during the monitoring program was conducted by trained Greencap field team using Greencap's standard operating procedures;
- groundwater samples were collected using a dedicated bailer or peristaltic pump with dedicated tubing; and
- the same laboratories (Envirolab and Eurofins) were used for organic and inorganic analysis for all relevant samples using the same NATA approved analytical methods.

3.1.7 Sensitivity

When interferences are present in the sample, a loss of sensitivity can occur resulting in an increase in the method detection limit. In some instances (e.g. where one or more compounds have particularly high concentrations) the sample must be diluted for analysis. This increases the method detection limit by the dilution factor.

The detection limits achieved by the laboratory, when adjusted for interferences from the presence of other chemicals within the sampled matrix, must be less than half the site criteria for all analytes tested (i.e. 2 x LOR <site criteria).

3.1.8 Blanks

To meet the QC acceptance criteria, laboratory blanks should have no detectable concentrations of the target compounds. Trip blanks (taken to and returned from the field) and rinsate blanks (taken in the field) will only be necessary for analysing dissolved metals and volatile organic compounds in water samples where the threshold value is near the detection limit for an individual compound or element. Rinsate blanks are not required when dedicated sampling equipment is used.

3.1.9 Holding Times

Where standard holding times are exceeded, a discussion, using professional judgement, as to the integrity of the data will be required, taking into account such factors as field storage, laboratory storage and even sample bottle characteristics.

3.1.10 Confirmation Checking

For blind duplicates, if one sample has more than two analytes exceeding the data quality objectives, the sample is carefully checked. If the error is not apparent, the sample is rejected. If more than three samples are rejected all the samples collected at that time are rejected. These samples are then re-sampled and reanalysed.

3.2 Field QA/QC

3.2.1 Details of Sampling Team

Fieldwork was conducted by an experienced and qualified Greencap personnel.

3.2.2 Sampling Controls

Decontamination Procedures Carried Out Between Groundwater Sampling Events

Only one groundwater sample was allowed in the Detail Site Investigation scope. For more ground water sampling, dedicated sampling equipment was used during groundwater sampling. This included the usage of dedicated tubing for the peristaltic pump at one location. Between each location the flow cell and water quality metres were rinsed using a mixture of orange based surfactant and distilled water, followed by a rinse with distilled water. Groundwater samples were collected directly from the pump tubing and did not pass through the flow cell.

Samples were supplied to NATA accredited laboratories (Eurofins) under a completed chain of custody (CoC). Copies of the CoC documentation and laboratory transcripts are provided in **Appendix F** of the main report.

Blanks samples

Purging and Screening of Vapour Wells

Prior to sampling, PID readings were collected at each of the soil vapour points. Wells were then purged while monitoring using the GA 5000 landfill gas meter for oxygen, carbon dioxide, carbon monoxide, hydrogen sulphide and methane concentrations for a period of up to three minutes until the gas concentrations were shown to stabilise. PID readings were collected again after the sampling was completed. The stabilised readings are presented in Table 3.

Table 3: Soil Vapour Point Screening Results

Vapour Point	CH_4 ppm	CO_2 ppm	O_2 ppm	H_2S ppm	CO ppm	PID Reading ppm
GG1	6.1	2.9	0.1	1.8	1.0	3.7
GG2	6.2	3.2	0.0	0.0	1.0	0.2
GG3	0.0	7.3	0.1	0.0	0.0	3.2
GG4	3.7	2.5	0.6	0.0	0.0	23.7
GG5	0.0	5.8	5.1	1	0.0	07
GG6	0.1	5.5	0.0	0.0	0.0	0.3
GG7	0.9	6.6	0.0	1.0	0.0	0.0
GG8	1.1	1.3	1.4	0.0	0.0	28.5
GG9	1.4	3.2	2.2	0.0	0.0	1.2

Vapour Well Leak Tests

A helium leak test was undertaken on each soil vapour well to ensure that ambient air was not being drawn into the well(s). The helium leak test methodology adopted comprised the filling of a shroud with helium (which overlies the soil vapour point) and measuring the concentration using a GasCheck handheld helium detector. Soil vapour was drawn from the vapour point and a real-time helium concentration measured. A comparison was made between the helium concentrations within the shroud and the vapour point to assess whether the measured vapour point concentration is less than 10% of the concentration within the shroud. Results are presented in Table 4.

A shut-in test was also performed on each sample train, which included the external components used to sample soil vapour such as tubing / pipes, joints, summa canisters and regulator. The shut-in test involved capping the intake from the soil vapour sampling point and opening the canister regulator to allow the sample train to be under the vacuum from the summa canister. Leak test results are shown in Table 4 below.

Table 4: Results of Helium Leak Test and Shut-In Test for Soil Vapour Sampling Point Integrity

Soil Vapour Point	Sample Date	Test Results			
		Helium Leak Test		Shut-in Test	
		Helium in Concentration Shroud (%)	Helium in Vapour Point (%)	Pressure at start of test (inHg)	Pressure after 5 minutes (inHg)
GG1	07/05/21	>90	0.0	-30	-30
GG2	07/05/21	>90	0.0	-30	-30
GG3	07/05/21	>90	0.0	-28.5	-28.5
GG4	07/05/21	>90	0.0	<-30	<-30
GG5	07/05/21	>90	0.0	-29	-29
GG6	07/05/21	>90	0.0	<-30	<-30
GG7	07/05/21	>90	0.0	-29.5	-29.5
GG8	13/05/21	>90	0.0	-30	-30
GG9	13/05/21	>90	0.0	<-30	<-30

Soil Vapour Sampling Time and Flow Rate

Following a check of the canister pressure (using a calibrated pressure gauge) a clean calibrated brass flow regulator was connected to the top of each canister, allowing the desired volume (~800mL) to enter the 1 Litre canister over a period of 50 minutes to 90 minutes. Following the completion of sampling, the end pressure of the canister was recorded on the field sheet and check the pressure with a calibrated pressure gauge after 5 minutes. The canisters were transported to a NATA accredited laboratory for the vapour analysis accompanied by appropriate chain of custody documentation same day after the sampling event. Vapour sample analysis was conducted by EnviroLab (a NATA accredited laboratory) at Chatswood.

3.2.3 Weather Observations

Prior to scheduling the ground gas and vapour sampling methodology the weather observations were reviewed from the Sydney Observatory Hill weather station (station number 066214).

The weather station is situated approximately 12 kilometres south-east of the site and records a range of meteorological parameters (barometric pressure, rainfall, temperature, wind speed and wind direction).

Table 5 summarises the meteorological variation experienced in the vicinity of the site during the monitoring event.

Table 5: Weather Observations

Date		Temperature		Rainfall	Wind Parameters				Barometric Pressure	
		9am	3pm		9am		3pm		9am	3pm
		°C	°C	mm	Direction	Speed	Direction	Speed	hPa	hPa
1st	05/05/21	15.3	18.6	18	SW	19	SSW	19	1014	1012

Date		Temperature		Rainfall	Wind Parameters				Barometric Pressure	
		9am	3pm		9am		3pm		9am	3pm
		°C	°C	mm	Direction	Speed	Direction	Speed	hPa	hPa
	06/05/21	18.9	21.2	25.4	SSE	39	SE	17	1011.8	1011.3
	07/05/21	19.2	21.7	16.4	SSE	19	SSW	22	1011.4	1009.3
	11/05/21	16.7	19.2	0	WNW	6	SW	22	1015.3	1014.7
	12/05/21	15.4	21.9	0.4	W	15	S	15	1020.1	1017.6
	13/05/21	15.3	24	0.8	WNW	15	WNW	6	1014.2	1009.2
2nd	**19/05/21**	11.0	18.9	0	W	19	E	13	1029.3	1025.4
	20/05/21	11.3	20.5	0	W	20	SSE	15	1027.1	1025.0
	21/05/21	11.7	16	0	W	19	S	7	1030.4	1028.3
3rd	**01/06/21**	10.0	19.6	0	WNW	19	W	6	1023.7	1020.5
	02/06/21	11.0	19.7	0	WNW	15	E	11	1021.8	1017.7
	03/06/21	12.4	13.1	0	WNW	11	WNW	11	1015.2	1010.8
4th	**07/06/21**	10.5	19.3	0	W	15	ENE	13	1024.0	1018.7
	08/06/21	14.7	18.4	0	N	19	NNE	26	1013.5	1008.5
	09/06/21	10.5	12.8	7.4	WNW	30	NW	19	1005.0	1001.7
5th	**14/06/21**	11.0	17.4	0	W	22	SSW	9	1016.6	1014.9
	15/06/21	12.6	16.7	0	WNW	19	S	7	1018.0	1015.7
	16/06/21	10.3	20.0	0	WNW	11	ENE	11	1017.9	1013.5
6th	**23/06/21**	12.0	17.3	0	W	6	N	19	1027.6	1022.8
	24/06/21	15.4	20.1	0	NNE	9	N	24	1015.8	1010.6
	25/06/21	15.1	19.5	0	WNW	17	W	20	1015.5	1013.7

Above data confirms gas monitoring and soil vapour sampling were conducted at a general decreasing barometric pressure trend, which is in line with the sampling analysis quality plan (SAQP) (Greencap 2021).

3.3 Laboratory QA/QC

3.3.1 Holding time

All analysed primary samples were extracted and analysed within acceptable holding times as defined in AS4482.1-2005.

As appropriate sampling procedure was followed and samples were kept refrigerated no significant degradation to samples is thought to have occurred.

3.1 QA/QC Data Evaluation

RPD values for groundwater and ground gas samples are tabulated in the attachment section of this report (QA/QC Attachment – RPD Tables). All RPD values for intra- and inter-laboratory samples were within the acceptable criteria defined in Table 2. Data quality objectives for all analysis undertaken on this project are reliable and accurate.

Extraction and analysis of primary samples were within the relevant prescribed holding times. As appropriate sampling procedure was followed and samples were kept refrigerated no significant degradation to samples is thought to have occurred.

The internal laboratory control results (blanks, duplicates and spikes) are considered to be acceptable. All results adhered to chemical laws or were not outside logical explanation. Based on information presented in Sections 3.1, 3.2 and 3.3 it can be confidently stated that the MDQO's for this project have been met and the data set is considered to be reliable.

4 QAQC Appendix References

American Public Health Association (APHA) 2005, *Standard methods for the examination of water and waste-water*, 21st edition, APHA, Washington DC.

Australian and New Zealand Environment and Conservation Council 1992, *Australian and New Zealand Guidelines for the assessment and management of contaminated sites,* Australia and New Zealand Environment Council, National Health and Medical Research Council, Melbourne, Victoria.

Australian/New Zealand Standard 2008, *Quality management systems - Requirements* (AS/NZS ISO 9001:2008) Standards Australia/Standards New Zealand, Sydney/Wellington.

International Organisation for Standardisation 2005, *Quality management systems – Fundamentals and vocabulary*, (ISO 9000:2005).Lock, WH 1996, *Composite sampling*, National Environmental Health Forum (NEHF), Adelaide, SA.

National Environment Protection Council (NEPC) 1999, *National environment protection (assessment of site contamination) measure*, National Environment Protection Council, Adelaide, SA.

NSW Department of Environment and Conservation (2006), Contaminated sites: Guidelines for NSW Site Auditors Scheme (2nd edition).

NSW Environment Protection Authority (EPA) 1995, *Contaminated sites: Sampling design guidelines,* EPA NSW, Chatswood, NSW.

NSW EPA 2011, *Contaminated sites: Guidelines for consultants reporting on contaminated sites,* EPA NSW, Chatswood, NSW.

Rayment, GE & Higginson, FR 1992, Australian laboratory handbook of soil and water chemical methods, Inkarta Press, Melbourne.

QA/QC Attachment

RPD Tables

SAMPLE BATCH DATA QA SUMMARY SHEET

Project Name: Further Validation Assessment	**DSI-SOPHS**	**Project Number:**	**J169135-01**
Primary Laboratory:	**Eurofins**	**Lab Certificate Number:**	**792254-S-V2**
Secondary Laboratory:	**N/A**	**Lab Certificate Number:**	**N/A**
Date Sampled:	**29/05/2021**	**Sample Medium:**	**Soil**

Sample Information

Number of Primary Samples:	**5**	**Number of Triplicate (Interlab dup) Samples:**	**1**
Number of Duplicate Samples:	**2**	**Number of Other Field QAQC Samples:**	**0**

Documentation and Sample Handling Information

	Y/N	Comments
COC completed properly?	Y	Signed by both field scientists and labs personnel.
All requested analysis completed?	Y	
Samples received in appropriate condition for analysis?	Y	
Samples analysed within appropriate holding times?	Y	
Sample volumes sufficient for QC analysis?	Y	
Are there non-NATA accredited methods used?	N	
Chromatograms supplied as appropriate?	N/A	Not required
Laboratory reports signed by authorised personnel?	Y	

QAQC Sample Information (Method Blank - MB, Rinsate Blank - RB, Field Blank - FB, Trip Blank - TB)

Type	Sample ID	Comments
Lab Method Blanks	Method Blank (page 18 Envirolab Report)	All results less than Limit Of Reporting (LOR)
Trip Blank	-	-

Trip Spike Information (BTEX)

Analyte	Spike Concentrations	Recovery Concentration	% Recovery	Comments
Benzene	-	-	99	All recoveries are within 70-130%
Toluene	-	-	92	
Ethylbenzene	-	-	84	
meta- & para-Xylene	-	-	82	
ortho-Xylene	-	-	84	

Laboratory Control Spike (LCS) Analyses

Analyte Group	Comments
BTEX	All recoveries are within lab control limits (nom. 70-130%)

Matrix Spike (MS) Analyses

Analyte Group	Comments
BTEX	All recoveries are within lab control limits (nom. 70-130%)

Laboratory Duplicates (LD) Analyses

Analyte Group	Comments
BTEX	All duplicate RPDs are within lab control limits (nom. <50% / < 20%)

Field Duplicates (FD) Analyses

Analyte Group	Primary ID	Duplicate ID	Comments
Metals	GG8, GG4	FD1, FD2	All Field Duplicates RPD results within acceptable RPD criteria

Inter-Lab Duplicates Analyses

Analyte Group	Primary ID	Duplicate ID	Comments
Metals	GG4	FT1	Inter-lab Duplicates results pass RPD criterial except for Zinc, because the material is inhomogeneous.

Surrogate Compound Monitoring Analyses

Analyte Group	Sample ID	Comments
-	-	-

Overall Comments

This batch has been validated and is considered suitable for interpretive use and site assessment

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, not all RPDs are calculated

Performed By: **Shihu Wang** **Checked By: Matthew Barberson**
Date: **26/05/2021** **27/05/2021**

SAMPLE BATCH DATA QA SUMMARY SHEET

Project Name: Further Validation Assessment	**DSI-SOPHS**	**Project Number:**	**J169135-01**
Primary Laboratory:	**Eurofins**	**Lab Certificate Number:**	**792270-S-V2**
Secondary Laboratory:	**N/A**	**Lab Certificate Number:**	**N/A**
Date Sampled:	**29/05/2021**	**Sample Medium:**	**Soil**

Sample Information

Number of Primary Samples:	**4**	**Number of Triplicate (Interlab dup) Samples:**	**1**
Number of Duplicate Samples:	**2**	**Number of Other Field QAQC Samples:**	**0**

Documentation and Sample Handling Information

	Y/N	Comments
COC completed properly?	Y	Signed by both field scientists and labs personnel.
All requested analysis completed?	Y	
Samples received in appropriate condition for analysis?	Y	
Samples analysed within appropriate holding times?	Y	
Sample volumes sufficient for QC analysis?	Y	
Are there non-NATA accredited methods used?	N	
Chromatograms supplied as appropriate?	N/A	Not required
Laboratory reports signed by authorised personnel?	Y	

QAQC Sample Information (Method Blank - MB, Rinsate Blank - RB, Field Blank - FB, Trip Blank - TB)

Type	Sample ID	Comments
Lab Method Blanks	Method Blank (page 16 Envirolab Report)	All results less than Limit Of Reporting (LOR)
Trip Blank	-	-

Trip Spike Information (BTEX)

Analyte	Spike Concentrations	Recovery Concentration	% Recovery	Comments
Benzene	-	-	110	
Toluene	-	-	99	
Ethylbenzene	-	-	88	**All recoveries are within 70-130%**
meta- & para-Xylene	-	-	91	
ortho-Xylene	-	-	88	

Laboratory Control Spike (LCS) Analyses

Analyte Group	Comments
BTEX	All recoveries are within lab control limits (nom. 70-130%)

Matrix Spike (MS) Analyses

Analyte Group	Comments
BTEX	All recoveries are within lab control limits (nom. 70-130%)

Laboratory Duplicates (LD) Analyses

Analyte Group	Comments
BTEX	All duplicate RPDs are within lab control limits (nom. <50% / < 20%)

Field Duplicates (FD) Analyses

Analyte Group	Primary ID	Duplicate ID	Comments
Metals	GG1, GG2	FD4, FD5	All FDs RPD results within acceptable RPD criteria

Inter-Lab Duplicates Analyses

Analyte Group	Primary ID	Duplicate ID	Comments
Metals	GG1	FT2	Inter-lab Duplicates results pass RPD criterial except for Lead, because the material is inhomogeneous.

Surrogate Compound Monitoring Analyses

Analyte Group	Sample ID	Comments
-	-	-

Overall Comments

This batch has been validated and is considered suitable for interpretive use and site assessment

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, not all RPDs are calculated

Performed By: **Shihu Wang** **Checked By: Matthew Barberson**
Date: **26/05/2021** **27/05/2021**

SAMPLE BATCH DATA QA SUMMARY SHEET

Project Name: Further Validation Assessment	**DSI-SOPHS**	**Project Number:**	**J169135-01**
Primary Laboratory:	**Eurofins**	**Lab Certificate Number:**	**793145-S-V2**
Secondary Laboratory:	**N/A**	**Lab Certificate Number:**	**N/A**
Date Sampled:	**29/05/2021**	**Sample Medium:**	**Soil**

Sample Information

Number of Primary Samples:	**15**	**Number of Triplicate (Intrarlab dup) Samples:**	**1**
Number of Duplicate Samples:	**2**	**Number of Other Field QAQC Samples:**	**0**

Documentation and Sample Handling Information

	Y/N	Comments
COC completed properly?	Y	Signed by both field scientists and labs personnel.
All requested analysis completed?	Y	
Samples received in appropriate condition for analysis?	Y	
Samples analysed within appropriate holding times?	Y	
Sample volumes sufficient for QC analysis?	Y	
Are there non-NATA accredited methods used?	N	
Chromatograms supplied as appropriate?	N/A	Not required
Laboratory reports signed by authorised personnel?	Y	

QAQC Sample Information (Method Blank - MB, Rinsate Blank - RB, Field Blank - FB, Trip Blank - TB)

Type	Sample ID	Comments
Lab Method Blanks	Method Blank (page 26 Envirolab Report)	All results less than Limit Of Reporting (LOR)
Trip Blank	-	-

Trip Spike Information (BTEX)

Analyte	Spike Concentrations	Recovery Concentration	% Recovery	Comments
Benzene	-	-	-	
Toluene	-	-	-	
Ethylbenzene	-	-	-	
meta- & para-Xylene	-	-	-	
ortho-Xylene	-	-	-	

Laboratory Control Spike (LCS) Analyses

Analyte Group	Comments
BTEX	All recoveries are within lab control limits (nom. 70-130%)

Matrix Spike (MS) Analyses

Analyte Group	Comments
BTEX	All recoveries are within lab control limits (nom. 70-130%)

Laboratory Duplicates (LD) Analyses

Analyte Group	Comments
BTEX	All duplicate RPDs are within lab control limits (nom. <50% / < 20%)

Field Duplicates (FD) Analyses

Analyte Group	Primary ID	Duplicate ID	Comments
Metals	BH2, BH10	BHFD7, BHFD1	All FDs RPD results within acceptable RPD criteria

Inter-Lab Duplicates Analyses

Analyte Group	Primary ID	Duplicate ID	Comments
Metals	BH1	BHFT1	Inter-lab Duplicates results pass RPD criterial except for Zic at BH1, because the material is inhomogeneous.

Surrogate Compound Monitoring Analyses

Analyte Group	Sample ID	Comments
-	-	-

Overall Comments

This batch has been validated and is considered suitable for interpretive use and site assessment

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, not all RPDs are calculated

Performed By: **Shihu Wang** **Checked By: Matthew Barberson**
Date: **26/05/2021** **27/05/2021**

SAMPLE BATCH DATA QA SUMMARY SHEET

Project Name: Further Validation Assessment	**DSI-SOPHS**	**Project Number:**	**J169135-01**
Primary Laboratory:	**Eurofins**	**Lab Certificate Number:**	**818921-S**
Secondary Laboratory:	**N/A**	**Lab Certificate Number:**	**N/A**
Date Sampled:	**23/08/2021**	**Sample Medium:**	**Soil**

Sample Information

Number of Primary Samples:	**3**	**Number of Triplicate (Intrarlab dup) Samples:**	**0**
Number of Duplicate Samples:	**1**	**Number of Other Field QAQC Samples:**	**0**

Documentation and Sample Handling Information

	Y/N	Comments
COC completed properly?	Y	Signed by both field scientists and labs personnel.
All requested analysis completed?	Y	
Samples received in appropriate condition for analysis?	Y	
Samples analysed within appropriate holding times?	Y	
Sample volumes sufficient for QC analysis?	Y	
Are there non-NATA accredited methods used?	N	
Chromatograms supplied as appropriate?	N/A	Not required
Laboratory reports signed by authorised personnel?	Y	

QAQC Sample Information (Method Blank - MB, Rinsate Blank - RB, Field Blank - FB, Trip Blank - TB)

Type	Sample ID	Comments
Lab Method Blanks	Method Blank (page 12 Eurofins Report)	-
Trip Blank	-	-

Trip Spike Information (BTEX)

Analyte	Spike Concentrations	Recovery Concentration	% Recovery	Comments
Benzene	-	-	99%	
Toluene	-	-	88%	
Ethylbenzene	-	-	85%	
meta- & para-Xylene	-	-	85%	
ortho-Xylene	-	-	84%	

Laboratory Control Spike (LCS) Analyses

Analyte Group	Comments
BTEX	All recoveries are within lab control limits (nom. 70-130%)

Matrix Spike (MS) Analyses

Analyte Group	Comments
BTEX	All recoveries are within lab control limits (nom. 70-130%)

Laboratory Duplicates (LD) Analyses

Analyte Group	Comments
BTEX	All duplicate RPDs are within lab control limits (nom. <50% / < 20%)

Field Duplicates (FD) Analyses

Analyte Group	Primary ID	Duplicate ID	Comments
Metals	GG12	FD5	A few metals exceed the RPD criteria, inhomogenous soil.

Inter-Lab Duplicates Analyses

Analyte Group	Primary ID	Duplicate ID	Comments

Surrogate Compound Monitoring Analyses

Analyte Group	Sample ID	Comments
-	-	-

Overall Comments

This batch has been validated and is considered suitable for interpretive use and site assessment

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, not all RPDs are calculated

Performed By: **Shihu Wang** **Checked By: Matthew Barberson**
Date: **9/09/2021** **9/09/2021**

J169135-01
Soil Sample RPDs
DSI-SOPHS

GREENCAP
Going Further In Managing Risk

Our Label			GG8-01(0.2-0.3)	FD1(0.2-0.3)	GG4-02(0.5-0.6)	FD2(0.5-0.6)	FT1	GG8	GG4	GG4
Laboratory Label			S21-My04075	S21-My04036	S21-My04029	S21-My04037	269607-1	RPD	RPD	RPD
Sample Date			29/04/2021]	29/04/2021]	29/04/2021]	29/04/2021]	29/04/2021]	Primary vs	Primary vs	Primary vs
Sample Type			PS	FD	PS	FD	FT1	Duplicate	Duplicate	Triplicate
Analyte	Units	LOR	Result	Result	Result	Result	Result			
BTEXN										
Arsenic	mg/kg	2	3	2.5	9.3	8.8	5.3	18.18	5.52	54.79
Cadmium	mg/kg	0.4	< 0.4	< 0.4	< 0.4	< 0.4	<0.4	N/A	N/A	N/A
Chromium	mg/kg	5	170	140	19	29	13.3	19.35	41.67	35.29
Copper	mg/kg	5	48	38	30	29	22.3	23.26	3.39	29.45
Lead	mg/kg	5	8.9	7.5	35	50	19.6	17.07	35.29	56.41
Mercury	mg/kg	0.1	< 0.1	< 0.1	< 0.1	0.2	<0.1	N/A	N/A	N/A
Nickel	mg/kg	5	150	130	34	32	20.7	14.29	6.06	48.63
Zinc	mg/kg	5	98	76	140	81	42.3	25.29	53.39	107.19

Our Label			GG1-04(0.8-0.9)	FD4(0.8-0.9)	FT2	GG1	GG1
Laboratory Label			S21-My04029	S21-My04037	44315	RPD	RPD
Sample Date			30/04/2021]	30/04/2021]	30/04/2021]	Primary vs	Primary vs
Sample Type			PS	FD	FT	Duplicate	Triplicate
Analyte	Units	LOR	Result	Result	Result		
BTEXN							
Arsenic	mg/kg	2	9.3	13	8.3	33.18	11.36
Cadmium	mg/kg	0.4	< 0.4	< 0.4	<0.4	N/A	N/A
Chromium	mg/kg	5	26	19	11	31.11	81.08
Copper	mg/kg	5	38	40	21.7	5.13	54.61
Lead	mg/kg	5	79	95	34.7	18.39	77.92
Mercury	mg/kg	0.1	0.2	0.2	<0.1	N/A	N/A
Nickel	mg/kg	5	17	15	19	12.50	11.11
Zinc	mg/kg	5	120	130	81	8.00	38.81

Our Label			BH2(0.5-0.7)	BHFD7	BH10(0.7-0.9)	BHFD1	BH1(0.7-0.9)	BHFT1	BH2	BH10	BH1
Laboratory Label			M21-My10964	0	M21-My10967	0/01/1900	M21-My10973	0/01/1900	RPD	RPD	RPD
Sample Date			3/05/2021	0/01/1900	3/05/2021	0/01/1900	3/05/2021	0/01/1900	Primary vs	Primary vs	Primary vs
Sample Type			PS	FD	PS	FD	PS	FT	Duplicate	Duplicate	Triplicate
Analyte	Units	LOR	Result	Result	Result	Result	Result	Result			
BTEXN											
Arsenic	mg/kg	2	16	17	5.2	7.60	7.2	<4	6.06	37.50	N/A
Cadmium	mg/kg	0.4	< 0.4	< 0.4	< 0.4	0.50	< 0.4	<0.4	N/A	N/A	N/A
Chromium	mg/kg	5	25	20	32	28.00	9.8	4.30	22.22	13.33	78.01
Copper	mg/kg	5	24	37	26	15.00	42	24.00	42.62	53.66	54.55
Lead	mg/kg	5	27	30	82	93.00	20	12.70	10.53	12.57	44.65
Mercury	mg/kg	0.1	< 0.1	< 0.1	0.2	< 0.1	< 0.1	<0.1	N/A	N/A	N/A
Nickel	mg/kg	5	6.4	9.4	19	12.00	50	20.30	37.97	45.16	84.50
Zinc	mg/kg	5	34	50	100	70.00	210	94.00	38.10	35.29	76.32

Our Label			GG12(1.4-1.5)	FD5	GG12
Laboratory Label			S21-Au41045	S21-Au41043	RPD
Sample Date			23/08/2021	23/08/2021	Primary vs
Sample Type			PS	FD	Duplicate
Analyte	Units	LOR	Result	Result	
BTEXN					
Arsenic	mg/kg	2	14	15	150.00
Cadmium	mg/kg	0.4	< 0.4	< 0.4	N/A
Chromium	mg/kg	5	29	8.4	141.18
Copper	mg/kg	5	39	18	154.55
Lead	mg/kg	5	180	28	189.19
Mercury	mg/kg	0.1	1	0.1	163.64
Nickel	mg/kg	5	9.9	5.7	65.77
Zinc	mg/kg	5	84	50	177.53

PS: Primary Sample
FD: Field Duplicate
FT: Field Triplicate
IL: Inter-Laboratory Duplicate
N/A: Not Applicable (RPDs not calculated where one or more result <PQL)

Acceptable RPDs:	
<5 x LOR	Any RPD acceptable
>5 x LOR	0 - 50% RPD acceptable

Exceeds Acceptable RPD limits

SAMPLE BATCH DATA QA SUMMARY SHEET

Project Name: Further Validation Assessment	**DSI-SOPHS**	**Project Number:**	**J169135-01**
Primary Laboratory:	**Envirolab**	**Lab Certificate Number:**	**268574**
Secondary Laboratory:	**N/A**	**Lab Certificate Number:**	**N/A**
Date Sampled:	**29/06/2018**	**Sample Medium:**	**Soil Vapor**

Sample Information

Number of Primary Samples:	**7**	**Number of Triplicate (Interlab dup) Samples:**	**0**
Number of Duplicate Samples:	**1**	**Number of Other Field QAQC Samples:**	**0**

Documentation and Sample Handling Information

	Y/N	Comments
COC completed properly?	Y	Signed by both field scientists and labs personnel.
All requested analysis completed?	Y	
Samples received in appropriate condition for analysis?	Y	
Samples analysed within appropriate holding times?	Y	
Sample volumes sufficient for QC analysis?	Y	
Are there non-NATA accredited methods used?	N	
Chromatograms supplied as appropriate?	N/A	Not required
Laboratory reports signed by authorised personnel?	Y	

QAQC Sample Information (Method Blank - MB, Rinsate Blank - RB, Field Blank - FB, Trip Blank - TB)

Type	Sample ID	Comments
Lab Method Blanks	Method Blank (page 12 Envirolab Report)	All results less than Limit Of Reporting (LOR)
Trip Blank	-	-

Trip Spike Information (BTEX)

Analyte	Spike Concentrations	Recovery Concentration	% Recovery	Comments
Benzene	-	-	-	
Toluene	-	-	-	
Ethylbenzene	-	-	-	
meta- & para-Xylene	-	-	-	
ortho-Xylene	-	-	-	

Laboratory Control Spike (LCS) Analyses

Analyte Group	Comments
BTEX	All recoveries are within lab control limits (nom. 70-130%)

Matrix Spike (MS) Analyses

Analyte Group	Comments
BTEX	All recoveries are within lab control limits (nom. 70-130%)

Laboratory Duplicates (LD) Analyses

Analyte Group	Comments
BTEX	All duplicate RPDs are within lab control limits (nom. <50% / < 20%)

Field Duplicates (FD) Analyses

Analyte Group	Primary ID	Duplicate ID	Comments
BTEXN, TRH	GG3	FD1	All FD1 RPD results within acceptable RPD criteria

Inter-Lab Duplicates Analyses

Analyte Group	Primary ID	Duplicate ID	Comments

Surrogate Compound Monitoring Analyses

Analyte Group	Sample ID	Comments
BTEXN	Primary Samples	For all regular sample matrices, NO surrogate recovery outliers occur.

Overall Comments

This batch has been validated and is considered suitable for interpretive use and site assessment

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, not all RPDs are calculated

Performed By: **Shihu Wang** **Checked By: Matthew Barberson**
Date: **26/05/2021** **27/05/2021**

SAMPLE BATCH DATA QA SUMMARY SHEET

Project Name: Further Validation Assessment	**DSI-SOPHS**	**Project Number:**	**J169135-01**
Primary Laboratory:	**Envirolab**	**Lab Certificate Number:**	**269024**
Secondary Laboratory:	**N/A**	**Lab Certificate Number:**	**N/A**
Date Sampled:	**29/06/2018**	**Sample Medium:**	**Soil Vapor**

Sample Information

Number of Primary Samples:	**2**	**Number of Triplicate (Interlab dup) Samples:**	**0**
Number of Duplicate Samples:	**1**	**Number of Other Field QAQC Samples:**	**0**

Documentation and Sample Handling Information

	Y/N	Comments
COC completed properly?	Y	Signed by both field scientists and labs personnel.
All requested analysis completed?	Y	
Samples received in appropriate condition for analysis?	Y	
Samples analysed within appropriate holding times?	Y	
Sample volumes sufficient for QC analysis?	Y	
Are there non-NATA accredited methods used?	N	
Chromatograms supplied as appropriate?	N/A	Not required
Laboratory reports signed by authorised personnel?	Y	

QAQC Sample Information (Method Blank - MB, Rinsate Blank - RB, Field Blank - FB, Trip Blank - TB)

Type	Sample ID	Comments
Lab Method Blanks	Method Blank (page 8 Envirolab Report)	All results less than Limit Of Reporting (LOR)
Trip Blank	-	-

Trip Spike Information (BTEX)

Analyte	Spike Concentrations	Recovery Concentration	% Recovery	Comments
Benzene	-	-	-	
Toluene	-	-	-	
Ethylbenzene	-	-	-	
meta- & para-Xylene	-	-	-	
ortho-Xylene	-	-	-	

Laboratory Control Spike (LCS) Analyses

Analyte Group	Comments
BTEX	All recoveries are within lab control limits (nom. 70-130%)

Matrix Spike (MS) Analyses

Analyte Group	Comments
BTEX	All recoveries are within lab control limits (nom. 70-130%)

Laboratory Duplicates (LD) Analyses

Analyte Group	Comments
BTEX	All duplicate RPDs are within lab control limits (nom. <50% / < 20%)

Field Duplicates (FD) Analyses

Analyte Group	Primary ID	Duplicate ID	Comments
BTEXN, TRH	GG8	FD2	All FD2 RPD results within acceptable RPD criteria

Inter-Lab Duplicates Analyses

Analyte Group	Primary ID	Duplicate ID	Comments

Surrogate Compound Monitoring Analyses

Analyte Group	Sample ID	Comments
BTEXN	Primary Samples	For all regular sample matrices, NO surrogate recovery outliers occur.

Overall Comments

This batch has been validated and is considered suitable for interpretive use and site assessment

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, not all RPDs are calculated

Performed By: **Shihu Wang** **Checked By: Matthew Barberson**
Date: **26/05/2021** **27/05/2021**

J169135-01
Field Duplicate RPDs
DSI-SOPHS

GREENCAP
Going Further in Managing Risk

					GG3
Our Label			**GG3**	**FD1**	**RPD Primary vs Duplicate**
Laboratory Label			268574-3	268574-8	
Sample Date			7/05/2021	7/05/2021	
Sample Type			**PS**	**FD**	
Analyte	**Units**	**PQL**	**Result**	**Result**	
BTEXN					
Benzene	µg/m3	1.6	8	9	N/A
Toluene	µg/m3	1.9	51	51	0.00
Ethylbenzene	µg/m3	2	8	8	0.00
m-& p-Xylene	µg/m3	4	20	20	0.00
o-Xylene	µg/m3	2	8	8	0.00
Naphthalene	µg/m3	2.6	<2.6	<2.6	N/A
Surrogate-Bromochloromethane	% rec	-	108	95	12.81
Surrogate -1,4-Difluorobenzene	% rec	-	115	97	16.98
Surrogate-Chlorobenzene-D5	% rec	-	115	96	18.01
Total Recoverable Hydrocarbons					
TPH C5 - C8 Aliphatic	µg/m3	200	2400	2100	13.33
TPH C9 - C12 Aliphatic	µg/m3	50	<50	<50	N/A
TPH C9 - C10 Aromatic	µg/m3	100	<100	<100	N/A
TPH C6 - C10 - BTEX (F1)	µg/m3	200	<200	<200	N/A
TPH > C10 - C12 - Naphthalene (F2)	µg/m3	40	<40	<40	N/A

					GG8
Our Label			**GG8**	**FD2**	**RPD Primary vs Duplicate**
Laboratory Label			268574-1	269024-3	
Sample Date			13/05/2021	013/05/2021	
Sample Type			**PS**	**FD**	
Analyte	**Units**	**PQL**	**Result**	**Result**	
BTEXN					
Benzene	µg/m3	1.6	8	7	13.33
Toluene	µg/m3	1.9	61	61	0.00
Ethylbenzene	µg/m3	2	9	9	0.00
m-& p-Xylene	µg/m3	4	30	30	0.00
o-Xylene	µg/m3	2	10	10	0.00
Naphthalene	µg/m3	2.6	4	3	N/A
Surrogate-Bromochloromethane	% rec	-	105	122	14.98
Surrogate -1,4-Difluorobenzene	% rec	-	109	126	14.47
Surrogate-Chlorobenzene-D5	% rec	-	110	126	13.56
Total Recoverable Hydrocarbons					
TPH C5 - C8 Aliphatic	µg/m3	200	33000	33000	0.00
TPH C9 - C12 Aliphatic	µg/m3	50	8800	10000	12.77
TPH C9 - C10 Aromatic	µg/m3	100	110	140	24.00
TPH C6 - C10 - BTEX (F1)	µg/m3	200	41000	43000	4.76
TPH > C10 - C12 - Naphthalene (F2)	µg/m3	40	6700	8000	17.69

-: Not analysed
PS: Primary Sample
FD: Field Duplicate
IL: Inter-Laboratory Duplicate
N/A: Not Applicable (RPDs not calculated where one or more result <PQL)

Acceptable RPDs:		
	<5 x PQL	Any RPD acceptable
	>5 x PQL	0 - 50% RPD acceptable

Exceeds Acceptable RPD limits

SAMPLE BATCH DATA QA SUMMARY SHEET

Project Name: Further Validation Assessment	**Cringila Primary School - Phase 2**	**Project Number:**	**J169135-01**
Primary Laboratory:	**Eurofin**	**Lab Certificate Number:**	**795815-W**
Secondary Laboratory:	**-**	**Lab Certificate Number:**	**-**
Date Sampled:	**13/05/2021**	**Sample Medium:**	**Water**

Sample Information

Number of Primary Samples:	**1**	**Number of Triplicate (Interlab dup) Samples:**	**0**
Number of Duplicate Samples:	**1**	**Number of Other Field QAQC Samples:**	**0**

Documentation and Sample Handling Information

	Y/N	Comments
COC completed properly?	Y	Signed by both field scientists and labs personnel.
All requested analysis completed?	Y	
Samples received in appropriate condition for analysis?	Y	
Samples analysed within appropriate holding times?	Y	
Sample volumes sufficient for QC analysis?	Y	
Are there non-NATA accredited methods used?	N	
Chromatograms supplied as appropriate?	N/A	Not required
Laboratory reports signed by authorised personnel?	Y	

QAQC Sample Information (Method Blank - MB, Rinsate Blank - RB, Field Blank - FB, Trip Blank - TB)

Type	Sample ID	Comments
Lab Method Blanks	Method Blank (page 9 Envirolab Report)	All results less than Limit Of Reporting (LOR)
Trip Blank	TB	All results less than Limit Of Reporting (LOR)

Trip Spike Information (BTEX)

Analyte	Spike Concentrations	Recovery Concentration	% Recovery	Comments
Benzene	-	-	98	
Toluene	-	-	88	
Ethylbenzene	-	-	91	
meta- & para-Xylene	-	-	100	
ortho-Xylene	-	-	123	
				Trip spike recoveries are in the acceptable range of 60-140%

Laboratory Control Spike (LCS) Analyses

Analyte Group	Comments
BTEX, TRH, Ammonia	All recoveries are within lab control limits (nom. 70-130%)
Metals	All recoveries are within lab control limits (nom. 70-130%)

Matrix Spike (MS) Analyses

Analyte Group	Comments
svTRH, Ammonia,	All recoveries are within lab control limits (nom. 70-130%)
Metals	All recoveries are within lab control limits (nom. 70-130%)

Laboratory Duplicates (LD) Analyses

Analyte Group	Comments
Metals	All duplicate RPDs are within lab control limits.

Field Duplicates (FD) Analyses

Analyte Group	Primary ID	Duplicate ID	Comments
Metals	GG5	GG-FD1	All GG-FD1 RPD results within acceptable RPD criteria

Inter-Lab Duplicates Analyses

Analyte Group	Primary ID	Duplicate ID	Comments
-	-	-	-

Surrogate Compound Monitoring Analyses

Analyte Group	Sample ID	Comments
-	-	-

Overall Comments

This batch has been validated and is considered suitable for interpretive use and site assessment

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, not all RPDs are calculated

Performed By:	**Shihui Wang**	**Checked By: Matthew Barberson**
Date:	**9/06/2021**	**9/06/2021**

J169135-01
Groundwater Sample RPDs
DSI-SOPHS

					GG5
Our Label			**GG5-01**	**GG-FD1**	**RPD Primary vs Duplicate**
Laboratory Label			S21-My32302	S21-My32302	
Sample Date			13/05/2021	13/05/2021	
Sample Type			**PS**	**FD**	
Analyte	**Units**	**PQL**	**Result**	**Result**	
Metals					
Arsenic	mg/L	0.001	0.004	0.003	28.57
Cadmium	mg/L	0.0001	< 0.0002	< 0.0002	N/A
Chromium	mg/L	0.001	< 0.001	0.001	N/A
Copper	mg/L	0.001	0.004	0.003	29
Lead	mg/L	0.001	0.001	< 0.001	N/A
Mercury	mg/L	0.00005	< 0.0001	< 0.0001	N/A
Nickel	mg/L	0.001	0.002	0.002	0
Zinc	mg/L	0.001	0.015	0.006	86

-: Not analysed
PS: Primary Sample
FD: Field Duplicate
IL: Inter-Laboratory Duplicate
N/A: Not Applicable (RPDs not calculated where one or more result <PQL)

Acceptable RPDs:	<5 x PQL	Any RPD acceptable
	>5 x PQL	0 - 50% RPD acceptable

Exceeds Acceptable RPD limits

GREENCAP
Going Further in Managing Risk

Detailed Site Investigation

School Infrastructure NSW (SINSW) - Department of Education

Proposed Sydney Olympic Park High School

Appendix E: Calibration Certificates

EQUIPMENT CERTIFICATION REPORT

KENNARDS HIRE

PGN9003827 GAS DETECTOR - PID

Plant Number: 234969

SENSOR	CONCENTRATION	SPAN 1	SPAN 2	TRACEABILITY	PASS
PID Isobutylene	100ppm	0	100ppm	Lot # 1112037	☑

Data Cleared ☑

Battery Status 100% (%)	Temperature 20.9 °C
Electrical Test & Tag (AS/NZS 3760)	Inlet Filter Checked/Changed

Note: Calibration traceability information is available upon request.

Please clean/decontaminate instrument and accessories before returning. A minimum 'Cleaning Fee' $55.00 (Inc GST) may apply if instrument is returned contaminated.

Checked By: Jacob Arnott Date: 27/04/21 Signed: J Arnott

Accessories List:

User's Manual	Charger / Comms Adaptor	Wall Charger
2x Spare Air Filters	1x Spare Rechargeable Battery	Carry Transit Case
	Calibration Report	

Calibration and Service Report – PID

Company:	Greencap Pty Ltd (NSW)	**Manufacturer:**	RAE	**Serial #:**	592-912778
Contact:	Jason Green	**Instrument:**	MINIRAE 3000 SN: 592-912778	**Asset #:**	
Address:	PO Box 152 MACQUARIE PARK BC NSW	**Model:**	MiniRAE 3000	**Part #:**	059-B116-000
		Configuration:	VOC (10.6EV)	**Sold:**	31.07.2014
		Wireless:	-	**Last Cal:**	23.10.2020
Phone:	02 9889 1800	**Network ID:**	-	**Job #:**	124640
Fax:	02 9889 1811	**Unit ID:**	-	**Cal Spec:**	
Email:	jason.green@greencap.com.au	**Details:**		**Order #:**	286288

Item	Test	Pass/Fail	Comments	Serial Number
Battery	NiCd, NiMH, Dry cell, LiIon	P	(Battery shows deterioration)	
Charger	Power Supply	-		
	Cradle, Travel Charger	P		
Pump	Flow	P	>450ml/min	
Filter	Filter, fitting, etc	X	Replaced	
Alarms	Audible, visual, vibration	P		
Display	Operation	P		
Switches	Operation	P		
PCB	Operation	P		
Connectors	Condition	P		
Firmware	Version	P	V2.22	
Datalogger	Operation	P		
Monitor Housing	Condition	P		
Case	Condition / Type	-		
Sensors				
PID	Lamp	P	Cleaned	
PID	Sensor	P	Cleaned (sensor shows corrosion)	
THP	Sensor	P		

Engineer's Report

Cleaned porous metal filter, checked flowrate and stall values
Cleaned lamp, lamp housing and electrode
Checked unit settings and configuration
Unit serviced and calibrated.

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	S023030005R6/1062R226094	Isobutylene	100ppm	4835-1-1		0	100.0
Battery	059-3051-000. LI-ION BATTERY FOR MINIRAE	159R6W0026						
Toxic 1	023-3011-000-FRU. THP SENSOR	GHTR5W0150						
Toxic 2								
Toxic 3								
Toxic 4								
Toxic 5								
Toxic 6								

Calibrated/Repaired by: JERRY JI Date: 28.04.2021 Next Due: 28.10.2021

EQUIPMENT CERTIFICATION REPORT

KENNARDS HIRE

OIL/WATER INTERFACE METER

Plant Number: 235218 Tape Length: 30m

This is to certify that this unit has been cleaned & checked prior to dispatch. The unit successfully detects the interface between oil & water. PASS ✓

Battery Status ✓ (min 7.2V)	Temperature 21.2 °C
Electrical Test & Tag (AS/NZS 3760)	Electrodes Cleaned and Checked

Please clean/decontaminate instrument and accessories before returning. A minimum 'Cleaning Fee' $55.00 (Inc GST) may apply if instrument is returned contaminated.

Checked By: Jacob Arnott Date: 27/04/21 Signed: J Arnott

Accessories List:

User's Quickguide	Decon90 Bottle	Cleaning Brush
1 x Spare 9v Battery	Black & Red Transit Crate	Tape Guard

EQUIPMENT CERTIFICATION REPORT

KENNARDS HIRE

PGN9003823 GAS ANALYSER – LANDFILL GA5000

Plant Number: 234893

SENSOR	CONCENTRATION	INSTRUMENT READING	TRACEABILITY	PASS
CH4	60 %	60 %	Lot # 1327131	☑
CO2	40 %	40 %	Lot # 1327131	☑
O2	15 %	15 %	Lot # 1120454	☑
CO	60 ppm	60 ppm	Lot # 1120454	☑
H2S	20 ppm	20 ppm	Lot # 1120454	☑

Data Cleared ☑

Battery Status 100% (%)	Temperature 21.4 °C
Electrical Test & Tag (AS/NZS 3760)	Inlet Filter Cleaned/Replaced

Note: Calibration traceability information is available upon request.

Please clean/decontaminate instrument and accessories before returning. A minimum 'Cleaning Fee' $55.00 (Inc GST) may apply if instrument is returned contaminated.

Checked By: Jacob Arnott Date: 05/05/21 Signed: J Arnott

Accessories List:

User's Manual & USB	1x Gas Inlet Hoses	1X Gas Inlet Hose With Filter
1x Gas Inlet Hose & Clip Fitting	2x Spare Inlet Filters	1x Flow Through Desiccant
1x Wall Charger	Carry Pouch With Neck Strap	1x USB Comms Cable
Carry Transit Case	Calibration Certificate	

EQUIPMENT CERTIFICATION REPORT

KENNARDS HIRE

PGN9003871 WATER QUALITY METER – MULTIFUNCTION (YSI)

Plant Number: 1077465

SENSOR	CONCENTRATION	SPAN 1	SPAN 2	TRACEABILITY	PASS
pH	pH 4	pH 4		# 357330	☑
pH	pH 7	pH 7		# 357587	☑
Conductivity	12.88 mS/cm	12.88 mS/cm		# 354761	☑
Dissolvent Oxygen	Sodium Sulphite / Air	0.0ppm in Sodium Sulphite	ppm Saturation in Air	# 10640	☑
ORP	240mV	240mV		# 5235	☑

Battery Status OK (%)	Temperature 21.1 °C
Electrical Test & Tag (AS/NZS 3760)	Electrodes Cleaned and Checked

Note: Calibration solution traceability information is available upon request.

Please clean/decontaminate instrument and accessories before returning. A minimum 'Cleaning Fee' $55.00 (Inc GST) may apply if instrument is returned contaminated.

Checked By: Jacob Arnott Date: 11/05/21 Signed: J Arnott

Accessories List:

User's Manual	pH and ORP Storage Solution	Transit Case

EQUIPMENT CERTIFICATION REPORT

KENNARDS HIRE

PGN9003823 GAS ANALYSER – LANDFILL GA5000

Plant Number: 234892

SENSOR	CONCENTRATION	INSTRUMENT READING	TRACEABILITY	PASS
CH4	60 %	60 %	Lot # 1327131	☑
CO2	40 %	40 %	Lot # 1327131	☑
O2	15 %	15 %	Lot # 1120454	☑
CO	60 ppm	60 ppm	Lot # 1120454	☑
H2S	20 ppm	20 ppm	Lot # 1120454	☑

Data Cleared ☑

Battery Status 100% (%)	Temperature 20.7 °C
Electrical Test & Tag (AS/NZS 3760)	Inlet Filter Cleaned/Replaced

Note: Calibration traceability information is available upon request.

Please clean/decontaminate instrument and accessories before returning. A minimum 'Cleaning Fee' $55.00 (Inc GST) may apply if instrument is returned contaminated.

Checked By: Jacob Arnott Date: 13/05/21 Signed: Arnott

Accessories List:

User's Manual & USB	1x Gas Inlet Hoses	1X Gas Inlet Hose With Filter
1x Gas Inlet Hose & Clip Fitting	2x Spare Inlet Filters	1x Flow Through Desiccant
1x Wall Charger	Carry Pouch With Neck Strap	1x USB Comms Cable
Carry Transit Case	Calibration Certificate	

EQUIPMENT CERTIFICATION REPORT

KENNARDS HIRE

OIL/WATER INTERFACE METER

Plant Number: 235218 Tape Length: 30m

This is to certify that this unit has been cleaned & checked prior to dispatch. The unit successfully detects the interface between oil & water. PASS ✓

Battery Status ✓ (min 7.2V)	Temperature 17.8 °C
Electrical Test & Tag (AS/NZS 3760)	Electrodes Cleaned and Checked

Please clean/decontaminate instrument and accessories before returning. A minimum 'Cleaning Fee' $55.00 (Inc GST) may apply if instrument is returned contaminated.

Checked By: Jacob Arnott Date: 21/5/21 Signed: J Arnott

Accessories List:

User's Quickguide	Decon90 Bottle	Cleaning Brush
1 x Spare 9v Battery	Black & Red Transit Crate	Tape Guard

EQUIPMENT CERTIFICATION REPORT

KENNARDS HIRE

PGN9003823 GAS ANALYSER – LANDFILL GA5000

Plant Number: 234890

SENSOR	CONCENTRATION	INSTRUMENT READING	TRACEABILITY	PASS
CH4	60 %	60 %	Lot # 1327131	☑
CO2	40 %	40 %	Lot # 1327131	☑
O2	15 %	15 %	Lot # 1120454	☑
CO	60 ppm	60 ppm	Lot # 1120454	☑
H2S	20 ppm	20 ppm	Lot # 1120454	☑

Data Cleared ☑

Battery Status 100% (%)	Temperature 17.3 °C
Electrical Test & Tag (AS/NZS 3760)	Inlet Filter Cleaned/Replaced

Note: Calibration traceability information is available upon request.

Please clean/decontaminate instrument and accessories before returning. A minimum 'Cleaning Fee' $55.00 (Inc GST) may apply if instrument is returned contaminated.

Checked By: Jacob Arnott Date: 20 / 5 / 21 Signed: J Arnott

Accessories List:

User's Manual & USB	1x Gas Inlet Hoses	1X Gas Inlet Hose With Filter
1x Gas Inlet Hose & Clip Fitting	2x Spare Inlet Filters	1x Flow Through Desiccant
1x Wall Charger	Carry Pouch With Neck Strap	1x USB Comms Cable
Carry Transit Case	Calibration Certificate	

EQUIPMENT CERTIFICATION REPORT

KENNARDS HIRE

PGN9003823 GAS ANALYSER – LANDFILL **GA5000**

Plant Number: 234892

SENSOR	CONCENTRATION	INSTRUMENT READING	TRACEABILITY	PASS
CH4	60 %	60 %	Lot # 1327131	☑
CO2	40 %	40 %	Lot # 1327131	☑
O2	15 %	15 %	Lot # 1370626	☑
CO	60 ppm	60 ppm	Lot # 1370626	☑
H2S	20 ppm	20 ppm	Lot # 1370626	☑

Data Cleared ☑

Battery Status 100 (%)	Temperature 19.0 °C
Electrical Test & Tag (AS/NZS 3760)	Inlet Filter Cleaned/Replaced

Note: Calibration traceability information is available upon request.

Please clean/decontaminate instrument and accessories before returning. A minimum 'Cleaning Fee' $55.00 (Inc GST) may apply if instrument is returned contaminated.

Checked By: Brad Ancell Date: 31/05/21 Signed: _____

Accessories List:

User's Manual & USB	1x Gas Inlet Hoses	1X Gas Inlet Hose With Filter
1x Gas Inlet Hose & Clip Fitting	2x Spare Inlet Filters	1x Flow Through Desiccant
1x Wall Charger	Carry Pouch With Neck Strap	1x USB Comms Cable
Carry Transit Case	Calibration Certificate	

EQUIPMENT CERTIFICATION REPORT

KENNARDS HIRE

PGN9003823 GAS ANALYSER – LANDFILL **GA5000**

Plant Number: 234890

SENSOR	CONCENTRATION	INSTRUMENT READING	TRACEABILITY	PASS
CH4	60 %	60 %	Lot # 1327131	☑
CO2	40 %	40 %	Lot # 1327131	☑
O2	15 %	15 %	Lot # 1370626	☑
CO	60 ppm	60 ppm	Lot # 1370626	☑
H2S	20 ppm	20 ppm	Lot # 1370626	☑

Data Cleared ☑

Battery Status 100 (%)	Temperature 19.5 °C
Electrical Test & Tag (AS/NZS 3760)	Inlet Filter Cleaned/Replaced

Note: Calibration traceability information is available upon request.

Please clean/decontaminate instrument and accessories before returning. A minimum 'Cleaning Fee' $55.00 (Inc GST) may apply if instrument is returned contaminated.

Checked By: Ben Ahern Date: 08/06/21 Signed: _____

Accessories List:

User's Manual & USB	1x Gas Inlet Hoses	1X Gas Inlet Hose With Filter
1x Gas Inlet Hose & Clip Fitting	2x Spare Inlet Filters	1x Flow Through Desiccant
1x Wall Charger	Carry Pouch With Neck Strap	1x USB Comms Cable
Carry Transit Case	Calibration Certificate	

TRtechrentals

Certificate of Calibration Conformance

Certificate Number : 34539

Reference : 592580

Model : ION,GASCHECKG3

Asset Number : 204779

Date Calibrated : 29/04/2021

Technician : John Haden

Serial No. :

Calibration valid for : 180 days.

Description : IONSCIENCE Gascheck G3 Helium Leak Detector

The performance of the above listed equipment has been verified for measurement accuracy to the manufacturers relevant published specification, in accordance with our Quality Assurance Procedures, using the appropriate calibrated equipment, traceable to nationally recognised standards.

SOURCE ASSET 125545 CAL.SUB-CONTRACTED REPORT 549154 DUE 16/02/2022

Cris Ascenzo
National Service Manager

QSF 326-1/C

Offices throughout Australia, New Zealand and Malaysia
TR Pty Ltd (Box 1185) 18 Joseph Street Blackburn North 3130 VIC Australia
Freecall 1800 632 652 P 03 9896 3000 F 03 9896 3099
www.techrentals.com.au
ABN 99 005 499 721

EQUIPMENT CERTIFICATION REPORT

KENNARDS HIRE

PGN9003827 GAS DETECTOR - PID

Plant Number: 235042

SENSOR	CONCENTRATION	SPAN 1	SPAN 2	TRACEABILITY	PASS
PID Isobutylene	100ppm	0	100ppm	Lot #1358422	☑

Data Cleared ☑

Battery Status 100% (%)	Temperature 19.2 °C
Electrical Test & Tag (AS/NZS 3760)	Inlet Filter Checked/Changed

Note: Calibration traceability information is available upon request.

Please clean/decontaminate instrument and accessories before returning. A minimum 'Cleaning Fee' $55.00 (Inc GST) may apply if instrument is returned contaminated.

Checked By: Jacob Arnott Date: 19/8/21 Signed: J Arnott

Accessories List:

User's Manual	Charger / Comms Adaptor	Wall Charger
2x Spare Air Filters	1x Spare Rechargeable Battery	Carry Transit Case
	Calibration Report	

GREENCAP
Going Further in Managing Risk

Detailed Site Investigation

School Infrastructure NSW (SINSW) - Department of Education

Proposed Sydney Olympic Park High School

Appendix F: Laboratory Certificates of Analysis

Greencap NSW P/L
Ground Floor, North Building, 22 Giffnock Avenue
Macquarie Park
NSW 2113

NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing
NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection and proficiency testing scheme providers reports.

Attention: **Shihui Wang**

Report **792254-S-V2**
Project name SYDNEY OLYMPIC PARK HS
Project ID J169135-01
Received Date May 02, 2021

Client Sample ID			[G01]GG7-01(0.05-0.15)	GG8-02(0.4-0.5)	GG8-03(0.9-1.0)	GG9-04(1.0-1.1)
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-My04024	S21-My04025	S21-My04026	S21-My04027
Date Sampled			Apr 29, 2021	Apr 29, 2021	Apr 29, 2021	Apr 29, 2021
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 100	1400	120	< 20
TRH C15-C28	50	mg/kg	< 250	3500	440	97
TRH C29-C36	50	mg/kg	< 250	57	< 50	< 50
TRH C10-C36 (Total)	50	mg/kg	< 250	4957	560	97
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	INT	87	64	69
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 250	2400	290	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 250	2400	290	< 50
TRH >C16-C34	100	mg/kg	< 500	2300	360	130
TRH >C34-C40	100	mg/kg	< 500	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 500	4700	650	130
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	6.2	0.8
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	6.4	1.1
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	6.7	1.4
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	0.6	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	0.6	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	4.7	0.8
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	4.8	0.7
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5	2.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	2.4	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	3.9	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	3.5	0.5

Client Sample ID			[G01]GG7-01(0.05-0.15)	GG8-02(0.4-0.5)	GG8-03(0.9-1.0)	GG9-04(1.0-1.1)
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-My04024	S21-My04025	S21-My04026	S21-My04027
Date Sampled			Apr 29, 2021	Apr 29, 2021	Apr 29, 2021	Apr 29, 2021
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	7.3	1.3
Fluorene	0.5	mg/kg	< 0.5	1.3	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	2.2	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	2.0	< 0.5
Pyrene	0.5	mg/kg	< 0.5	2.0	8.0	1.3
Total PAH*	0.5	mg/kg	< 0.5	3.3	42.5	4.6
2-Fluorobiphenyl (surr.)	1	%	95	118	127	127
p-Terphenyl-d14 (surr.)	1	%	82	126	135	137
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 1	< 0.1	< 0.1	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.5	< 0.05	< 0.05	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.5	< 0.05	< 0.05	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.5	< 0.05	< 0.05	< 0.05
a-BHC	0.05	mg/kg	< 0.5	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.5	< 0.05	< 0.05	< 0.05
b-BHC	0.05	mg/kg	< 0.5	< 0.05	< 0.05	< 0.05
d-BHC	0.05	mg/kg	< 0.5	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.5	< 0.05	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.5	< 0.05	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.5	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.5	< 0.05	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.5	< 0.05	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.5	< 0.05	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.5	< 0.05	< 0.05	< 0.05
g-BHC (Lindane)	0.05	mg/kg	< 0.5	< 0.05	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.5	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.5	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.5	< 0.05	< 0.05	< 0.05
Methoxychlor	0.2	mg/kg	< 0.5	< 0.2	< 0.2	< 0.2
Toxaphene	0.1	mg/kg	< 10	0.3	0.2	0.3
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.5	< 0.05	< 0.05	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.5	< 0.05	< 0.05	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 1	< 0.2	< 0.2	< 0.2
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 1	< 0.2	< 0.2	< 0.2
Dibutylchlorendate (surr.)	1	%	INT	97	109	119
Tetrachloro-m-xylene (surr.)	1	%	112	123	INT	146
Organophosphorus Pesticides						
Azinphos-methyl	0.2	mg/kg	< 0.5	< 0.2	< 0.2	< 0.2
Bolstar	0.2	mg/kg	< 0.5	< 0.2	< 0.2	< 0.2
Chlorfenvinphos	0.2	mg/kg	< 0.5	< 0.2	< 0.2	< 0.2
Chlorpyrifos	0.2	mg/kg	< 0.5	< 0.2	< 0.2	< 0.2
Chlorpyrifos-methyl	0.2	mg/kg	< 0.5	< 0.2	< 0.2	< 0.2
Coumaphos	2	mg/kg	< 5	< 2	< 2	< 2
Demeton-S	0.2	mg/kg	< 0.5	< 0.2	< 0.2	< 0.2
Demeton-O	0.2	mg/kg	< 0.5	< 0.2	< 0.2	< 0.2
Diazinon	0.2	mg/kg	< 0.5	< 0.2	< 0.2	< 0.2
Dichlorvos	0.2	mg/kg	< 0.5	< 0.2	< 0.2	< 0.2

Client Sample ID			[G01]GG7-01(0.05-0.15)	GG8-02(0.4-0.5)	GG8-03(0.9-1.0)	GG9-04(1.0-1.1)
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**S21-My04024**	**S21-My04025**	**S21-My04026**	**S21-My04027**
Date Sampled			**Apr 29, 2021**	**Apr 29, 2021**	**Apr 29, 2021**	**Apr 29, 2021**
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Dimethoate	0.2	mg/kg	< 0.5	< 0.2	< 0.2	< 0.2
Disulfoton	0.2	mg/kg	< 0.5	< 0.2	< 0.2	< 0.2
EPN	0.2	mg/kg	< 0.5	< 0.2	< 0.2	< 0.2
Ethion	0.2	mg/kg	< 0.5	< 0.2	< 0.2	< 0.2
Ethoprop	0.2	mg/kg	< 0.5	< 0.2	< 0.2	< 0.2
Ethyl parathion	0.2	mg/kg	< 0.5	< 0.2	< 0.2	< 0.2
Fenitrothion	0.2	mg/kg	< 0.5	< 0.2	< 0.2	< 0.2
Fensulfothion	0.2	mg/kg	< 0.5	< 0.2	< 0.2	< 0.2
Fenthion	0.2	mg/kg	< 0.5	< 0.2	< 0.2	< 0.2
Malathion	0.2	mg/kg	< 0.5	< 0.2	< 0.2	< 0.2
Merphos	0.2	mg/kg	< 0.5	< 0.2	< 0.2	< 0.2
Methyl parathion	0.2	mg/kg	< 0.5	< 0.2	< 0.2	< 0.2
Mevinphos	0.2	mg/kg	< 0.5	< 0.2	< 0.2	< 0.2
Monocrotophos	2	mg/kg	< 5	< 2	< 2	< 2
Naled	0.2	mg/kg	< 0.5	< 0.2	< 0.2	< 0.2
Omethoate	2	mg/kg	< 5	< 2	< 2	< 2
Phorate	0.2	mg/kg	< 0.5	< 0.2	< 0.2	< 0.2
Pirimiphos-methyl	0.2	mg/kg	< 0.5	< 0.2	< 0.2	< 0.2
Pyrazophos	0.2	mg/kg	< 0.5	< 0.2	< 0.2	< 0.2
Ronnel	0.2	mg/kg	< 0.5	< 0.2	< 0.2	< 0.2
Terbufos	0.2	mg/kg	< 0.5	< 0.2	< 0.2	< 0.2
Tetrachlorvinphos	0.2	mg/kg	< 0.5	< 0.2	< 0.2	< 0.2
Tokuthion	0.2	mg/kg	< 0.5	< 0.2	< 0.2	< 0.2
Trichloronate	0.2	mg/kg	< 0.5	< 0.2	< 0.2	< 0.2
Triphenylphosphate (surr.)	1	%	INT	135	130	INT
Polychlorinated Biphenyls						
Aroclor-1016	0.5	mg/kg	< 1	< 0.5	< 0.5	< 0.5
Aroclor-1221	0.1	mg/kg	< 1	< 0.1	< 0.1	< 0.1
Aroclor-1232	0.5	mg/kg	< 1	< 0.5	< 0.5	< 0.5
Aroclor-1242	0.5	mg/kg	< 1	< 0.5	< 0.5	< 0.5
Aroclor-1248	0.5	mg/kg	< 1	< 0.5	< 0.5	< 0.5
Aroclor-1254	0.5	mg/kg	< 1	< 0.5	< 0.5	< 0.5
Aroclor-1260	0.5	mg/kg	< 1	< 0.5	< 0.5	< 0.5
Total PCB*	0.5	mg/kg	< 1	< 0.5	< 0.5	< 0.5
Dibutylchlorendate (surr.)	1	%	INT	97	109	119
Tetrachloro-m-xylene (surr.)	1	%	112	123	INT	146
TRH - 2013 NEPM Fractions (after silica gel clean-up)						
TRH >C10-C16 (after silica gel clean-up)	50	mg/kg	< 50	2500	< 50	< 50
TRH >C16-C34 (after silica gel clean-up)	100	mg/kg	120	1900	< 100	< 100
TRH >C34-C40 (after silica gel clean-up)	100	mg/kg	< 100	< 100	< 100	< 100
TRH - 1999 NEPM Fractions (after silica gel clean-up)						
TRH C10-C36 (Total) (after silica gel clean-up)	50	mg/kg	100	4300	< 100	< 100
TRH C10-C14 (after silica gel clean-up)	50	mg/kg	< 50	1300	< 50	< 50
TRH C15-C28 (after silica gel clean-up)	100	mg/kg	100	3000	< 100	< 100
TRH C29-C36 (after silica gel clean-up)	100	mg/kg	< 100	< 100	< 100	< 100

Client Sample ID			[G01]GG7-01(0.05-0.15)	GG8-02(0.4-0.5)	GG8-03(0.9-1.0)	GG9-04(1.0-1.1)
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-My04024	S21-My04025	S21-My04026	S21-My04027
Date Sampled			Apr 29, 2021	Apr 29, 2021	Apr 29, 2021	Apr 29, 2021
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic	2	mg/kg	2.8	4.0	13	13
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	30	16	17	10
Copper	5	mg/kg	52	9.0	19	6.9
Lead	5	mg/kg	25	12	47	16
Mercury	0.1	mg/kg	< 0.1	< 0.1	0.2	< 0.1
Nickel	5	mg/kg	28	11	9.0	< 5
Zinc	5	mg/kg	110	29	53	34
% Moisture	1	%	2.5	7.7	18	17

Client Sample ID			GG6-03(1.0-1.1)	GG4-02(0.5-0.6)	FD1(0.2-0.3)	FD2(0.5-0.6)
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-My04028	S21-My04029	S21-My04036	S21-My04037
Date Sampled			Apr 29, 2021	Apr 29, 2021	Apr 29, 2021	Apr 29, 2021
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	-	-
TRH C10-C14	20	mg/kg	< 20	< 20	-	-
TRH C15-C28	50	mg/kg	< 50	< 50	-	-
TRH C29-C36	50	mg/kg	< 50	< 50	-	-
TRH C10-C36 (Total)	50	mg/kg	< 50	< 50	-	-
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	-	-
Toluene	0.1	mg/kg	< 0.1	< 0.1	-	-
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	-	-
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	-	-
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	-	-
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	-	-
4-Bromofluorobenzene (surr.)	1	%	84	88	-	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	-	-
TRH C6-C10	20	mg/kg	< 20	< 20	-	-
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	-	-
TRH >C10-C16	50	mg/kg	< 50	< 50	-	-
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	-	-
TRH >C16-C34	100	mg/kg	< 100	< 100	-	-
TRH >C34-C40	100	mg/kg	< 100	< 100	-	-
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	-	-
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	1.9	0.8	-	-
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	2.2	1.1	-	-
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	2.4	1.4	-	-
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	-	-
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	-	-
Anthracene	0.5	mg/kg	< 0.5	< 0.5	-	-
Benz(a)anthracene	0.5	mg/kg	1.4	0.6	-	-

Client Sample ID			GG6-03(1.0-1.1)	GG4-02(0.5-0.6)	FD1(0.2-0.3)	FD2(0.5-0.6)
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-My04028	S21-My04029	S21-My04036	S21-My04037
Date Sampled			Apr 29, 2021	Apr 29, 2021	Apr 29, 2021	Apr 29, 2021
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene	0.5	mg/kg	1.5	0.7	-	-
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	1.0	< 0.5	-	-
Benzo(g.h.i)perylene	0.5	mg/kg	0.7	< 0.5	-	-
Benzo(k)fluoranthene	0.5	mg/kg	1.1	< 0.5	-	-
Chrysene	0.5	mg/kg	1.1	0.5	-	-
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	-	-
Fluoranthene	0.5	mg/kg	2.0	1.0	-	-
Fluorene	0.5	mg/kg	< 0.5	< 0.5	-	-
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	0.6	< 0.5	-	-
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	-	-
Phenanthrene	0.5	mg/kg	0.7	< 0.5	-	-
Pyrene	0.5	mg/kg	2.0	1.0	-	-
Total PAH*	0.5	mg/kg	12.1	3.8	-	-
2-Fluorobiphenyl (surr.)	1	%	111	99	-	-
p-Terphenyl-d14 (surr.)	1	%	125	120	-	-
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	-	-
4.4'-DDD	0.05	mg/kg	< 0.05	< 0.05	-	-
4.4'-DDE	0.05	mg/kg	< 0.05	< 0.05	-	-
4.4'-DDT	0.05	mg/kg	< 0.05	< 0.05	-	-
a-BHC	0.05	mg/kg	< 0.05	< 0.05	-	-
Aldrin	0.05	mg/kg	< 0.05	< 0.05	-	-
b-BHC	0.05	mg/kg	< 0.05	< 0.05	-	-
d-BHC	0.05	mg/kg	< 0.05	< 0.05	-	-
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	-	-
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	-	-
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	-	-
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	-	-
Endrin	0.05	mg/kg	< 0.05	< 0.05	-	-
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	-	-
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	-	-
g-BHC (Lindane)	0.05	mg/kg	< 0.05	< 0.05	-	-
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	-	-
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	-	-
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	-	-
Methoxychlor	0.2	mg/kg	< 0.2	< 0.2	-	-
Toxaphene	0.1	mg/kg	0.3	0.3	-	-
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	< 0.05	-	-
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	< 0.05	-	-
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.2	< 0.2	-	-
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.2	< 0.2	-	-
Dibutylchlorendate (surr.)	1	%	76	85	-	-
Tetrachloro-m-xylene (surr.)	1	%	145	142	-	-
Organophosphorus Pesticides						
Azinphos-methyl	0.2	mg/kg	< 0.2	< 0.2	-	-
Bolstar	0.2	mg/kg	< 0.2	< 0.2	-	-
Chlorfenvinphos	0.2	mg/kg	< 0.2	< 0.2	-	-
Chlorpyrifos	0.2	mg/kg	< 0.2	< 0.2	-	-
Chlorpyrifos-methyl	0.2	mg/kg	< 0.2	< 0.2	-	-

Client Sample ID			GG6-03(1.0-1.1)	GG4-02(0.5-0.6)	FD1(0.2-0.3)	FD2(0.5-0.6)
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**S21-My04028**	**S21-My04029**	**S21-My04036**	**S21-My04037**
Date Sampled			**Apr 29, 2021**	**Apr 29, 2021**	**Apr 29, 2021**	**Apr 29, 2021**
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Coumaphos	2	mg/kg	< 2	< 2	-	-
Demeton-S	0.2	mg/kg	< 0.2	< 0.2	-	-
Demeton-O	0.2	mg/kg	< 0.2	< 0.2	-	-
Diazinon	0.2	mg/kg	< 0.2	< 0.2	-	-
Dichlorvos	0.2	mg/kg	< 0.2	< 0.2	-	-
Dimethoate	0.2	mg/kg	< 0.2	< 0.2	-	-
Disulfoton	0.2	mg/kg	< 0.2	< 0.2	-	-
EPN	0.2	mg/kg	< 0.2	< 0.2	-	-
Ethion	0.2	mg/kg	< 0.2	< 0.2	-	-
Ethoprop	0.2	mg/kg	< 0.2	< 0.2	-	-
Ethyl parathion	0.2	mg/kg	< 0.2	< 0.2	-	-
Fenitrothion	0.2	mg/kg	< 0.2	< 0.2	-	-
Fensulfothion	0.2	mg/kg	< 0.2	< 0.2	-	-
Fenthion	0.2	mg/kg	< 0.2	< 0.2	-	-
Malathion	0.2	mg/kg	< 0.2	< 0.2	-	-
Merphos	0.2	mg/kg	< 0.2	< 0.2	-	-
Methyl parathion	0.2	mg/kg	< 0.2	< 0.2	-	-
Mevinphos	0.2	mg/kg	< 0.2	< 0.2	-	-
Monocrotophos	2	mg/kg	< 2	< 2	-	-
Naled	0.2	mg/kg	< 0.2	< 0.2	-	-
Omethoate	2	mg/kg	< 2	< 2	-	-
Phorate	0.2	mg/kg	< 0.2	< 0.2	-	-
Pirimiphos-methyl	0.2	mg/kg	< 0.2	< 0.2	-	-
Pyrazophos	0.2	mg/kg	< 0.2	< 0.2	-	-
Ronnel	0.2	mg/kg	< 0.2	< 0.2	-	-
Terbufos	0.2	mg/kg	< 0.2	< 0.2	-	-
Tetrachlorvinphos	0.2	mg/kg	< 0.2	< 0.2	-	-
Tokuthion	0.2	mg/kg	< 0.2	< 0.2	-	-
Trichloronate	0.2	mg/kg	< 0.2	< 0.2	-	-
Triphenylphosphate (surr.)	1	%	128	120	-	-
Polychlorinated Biphenyls						
Aroclor-1016	0.5	mg/kg	< 0.5	< 0.5	-	-
Aroclor-1221	0.1	mg/kg	< 0.1	< 0.1	-	-
Aroclor-1232	0.5	mg/kg	< 0.5	< 0.5	-	-
Aroclor-1242	0.5	mg/kg	< 0.5	< 0.5	-	-
Aroclor-1248	0.5	mg/kg	< 0.5	< 0.5	-	-
Aroclor-1254	0.5	mg/kg	< 0.5	< 0.5	-	-
Aroclor-1260	0.5	mg/kg	< 0.5	< 0.5	-	-
Total PCB*	0.5	mg/kg	< 0.5	< 0.5	-	-
Dibutylchlorendate (surr.)	1	%	76	85	-	-
Tetrachloro-m-xylene (surr.)	1	%	145	142	-	-
TRH - 2013 NEPM Fractions (after silica gel clean-up)						
TRH >C10-C16 (after silica gel clean-up)	50	mg/kg	< 50	< 50	-	-
TRH >C16-C34 (after silica gel clean-up)	100	mg/kg	< 100	< 100	-	-
TRH >C34-C40 (after silica gel clean-up)	100	mg/kg	< 100	< 100	-	-
TRH - 1999 NEPM Fractions (after silica gel clean-up)						
TRH C10-C36 (Total) (after silica gel clean-up)	50	mg/kg	[G01]< 100	[G01]< 100	-	-
TRH C10-C14 (after silica gel clean-up)	50	mg/kg	< 50	< 50	-	-
TRH C15-C28 (after silica gel clean-up)	100	mg/kg	< 100	< 100	-	-
TRH C29-C36 (after silica gel clean-up)	100	mg/kg	< 100	< 100	-	-

Client Sample ID			GG6-03(1.0-1.1)	GG4-02(0.5-0.6)	FD1(0.2-0.3)	FD2(0.5-0.6)
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-My04028	S21-My04029	S21-My04036	S21-My04037
Date Sampled			Apr 29, 2021	Apr 29, 2021	Apr 29, 2021	Apr 29, 2021
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic	2	mg/kg	3.5	9.3	2.5	8.8
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	< 5	19	140	29
Copper	5	mg/kg	12	30	38	29
Lead	5	mg/kg	17	35	7.5	50
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	0.2
Nickel	5	mg/kg	< 5	34	130	32
Zinc	5	mg/kg	24	140	76	81
% Moisture	1	%	7.5	13	6.4	14

Client Sample ID			TRIP BLANK	TRIP SPIKE	[G01]GG8-01(0.2-0.3)
Sample Matrix			Soil	Soil	Soil
Eurofins Sample No.			S21-My04038	S21-My04039	S21-My04075
Date Sampled			Apr 29, 2021	Apr 29, 2021	Apr 29, 2021
Test/Reference	LOR	Unit			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions					
TRH C6-C9	20	mg/kg	< 20	-	< 20
TRH C10-C14	20	mg/kg	-	-	< 20
TRH C15-C28	50	mg/kg	-	-	160
TRH C29-C36	50	mg/kg	-	-	210
TRH C10-C36 (Total)	50	mg/kg	-	-	370
BTEX					
Benzene	0.1	mg/kg	< 0.1	-	< 0.1
Toluene	0.1	mg/kg	< 0.1	-	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	-	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	-	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	-	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	-	< 0.3
4-Bromofluorobenzene (surr.)	1	%	77	-	86
Total Recoverable Hydrocarbons - 2013 NEPM Fractions					
Naphthalene[N02]	0.5	mg/kg	< 0.5	-	< 0.5
TRH C6-C10	20	mg/kg	< 20	-	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	-	< 20
TRH >C10-C16	50	mg/kg	-	-	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	-	-	< 50
TRH >C16-C34	100	mg/kg	-	-	320
TRH >C34-C40	100	mg/kg	-	-	210
TRH >C10-C40 (total)*	100	mg/kg	-	-	530
Polycyclic Aromatic Hydrocarbons					
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	-	-	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	-	-	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	-	-	1.2
Acenaphthene	0.5	mg/kg	-	-	< 0.5
Acenaphthylene	0.5	mg/kg	-	-	< 0.5
Anthracene	0.5	mg/kg	-	-	< 0.5
Benz(a)anthracene	0.5	mg/kg	-	-	< 0.5

Client Sample ID			TRIP BLANK	TRIP SPIKE	[G01]GG8-01(0.2-0.3)
Sample Matrix			Soil	Soil	Soil
Eurofins Sample No.			S21-My04038	S21-My04039	S21-My04075
Date Sampled			Apr 29, 2021	Apr 29, 2021	Apr 29, 2021
Test/Reference	LOR	Unit			
Polycyclic Aromatic Hydrocarbons					
Benzo(a)pyrene	0.5	mg/kg	-	-	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	-	-	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	-	-	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	-	-	< 0.5
Chrysene	0.5	mg/kg	-	-	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	-	-	< 0.5
Fluoranthene	0.5	mg/kg	-	-	< 0.5
Fluorene	0.5	mg/kg	-	-	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	-	-	< 0.5
Naphthalene	0.5	mg/kg	-	-	< 0.5
Phenanthrene	0.5	mg/kg	-	-	< 0.5
Pyrene	0.5	mg/kg	-	-	< 0.5
Total PAH*	0.5	mg/kg	-	-	< 0.5
2-Fluorobiphenyl (surr.)	1	%	-	-	70
p-Terphenyl-d14 (surr.)	1	%	-	-	66
Organochlorine Pesticides					
Chlordanes - Total	0.1	mg/kg	-	-	< 1
4.4'-DDD	0.05	mg/kg	-	-	< 0.5
4.4'-DDE	0.05	mg/kg	-	-	< 0.5
4.4'-DDT	0.05	mg/kg	-	-	< 0.5
a-BHC	0.05	mg/kg	-	-	< 0.5
Aldrin	0.05	mg/kg	-	-	< 0.5
b-BHC	0.05	mg/kg	-	-	< 0.5
d-BHC	0.05	mg/kg	-	-	< 0.5
Dieldrin	0.05	mg/kg	-	-	< 0.5
Endosulfan I	0.05	mg/kg	-	-	< 0.5
Endosulfan II	0.05	mg/kg	-	-	< 0.5
Endosulfan sulphate	0.05	mg/kg	-	-	< 0.5
Endrin	0.05	mg/kg	-	-	< 0.5
Endrin aldehyde	0.05	mg/kg	-	-	< 0.5
Endrin ketone	0.05	mg/kg	-	-	< 0.5
g-BHC (Lindane)	0.05	mg/kg	-	-	< 0.5
Heptachlor	0.05	mg/kg	-	-	< 0.5
Heptachlor epoxide	0.05	mg/kg	-	-	< 0.5
Hexachlorobenzene	0.05	mg/kg	-	-	< 0.5
Methoxychlor	0.2	mg/kg	-	-	< 0.5
Toxaphene	0.1	mg/kg	-	-	< 10
Aldrin and Dieldrin (Total)*	0.05	mg/kg	-	-	< 0.5
DDT + DDE + DDD (Total)*	0.05	mg/kg	-	-	< 0.5
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	-	-	< 1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	-	-	< 1
Dibutylchlorendate (surr.)	1	%	-	-	INT
Tetrachloro-m-xylene (surr.)	1	%	-	-	83
Organophosphorus Pesticides					
Azinphos-methyl	0.2	mg/kg	-	-	< 0.5
Bolstar	0.2	mg/kg	-	-	< 0.5
Chlorfenvinphos	0.2	mg/kg	-	-	< 0.5
Chlorpyrifos	0.2	mg/kg	-	-	< 0.5
Chlorpyrifos-methyl	0.2	mg/kg	-	-	< 0.5

Client Sample ID			TRIP BLANK	TRIP SPIKE	[G01]GG8-01(0.2-0.3)
Sample Matrix			Soil	Soil	Soil
Eurofins Sample No.			S21-My04038	S21-My04039	S21-My04075
Date Sampled			Apr 29, 2021	Apr 29, 2021	Apr 29, 2021
Test/Reference	LOR	Unit			
Organophosphorus Pesticides					
Coumaphos	2	mg/kg	-	-	< 5
Demeton-S	0.2	mg/kg	-	-	< 0.5
Demeton-O	0.2	mg/kg	-	-	< 0.5
Diazinon	0.2	mg/kg	-	-	< 0.5
Dichlorvos	0.2	mg/kg	-	-	< 0.5
Dimethoate	0.2	mg/kg	-	-	< 0.5
Disulfoton	0.2	mg/kg	-	-	< 0.5
EPN	0.2	mg/kg	-	-	< 0.5
Ethion	0.2	mg/kg	-	-	< 0.5
Ethoprop	0.2	mg/kg	-	-	< 0.5
Ethyl parathion	0.2	mg/kg	-	-	< 0.5
Fenitrothion	0.2	mg/kg	-	-	< 0.5
Fensulfothion	0.2	mg/kg	-	-	< 0.5
Fenthion	0.2	mg/kg	-	-	< 0.5
Malathion	0.2	mg/kg	-	-	< 0.5
Merphos	0.2	mg/kg	-	-	< 0.5
Methyl parathion	0.2	mg/kg	-	-	< 0.5
Mevinphos	0.2	mg/kg	-	-	< 0.5
Monocrotophos	2	mg/kg	-	-	< 5
Naled	0.2	mg/kg	-	-	< 0.5
Omethoate	2	mg/kg	-	-	< 5
Phorate	0.2	mg/kg	-	-	< 0.5
Pirimiphos-methyl	0.2	mg/kg	-	-	< 0.5
Pyrazophos	0.2	mg/kg	-	-	< 0.5
Ronnel	0.2	mg/kg	-	-	< 0.5
Terbufos	0.2	mg/kg	-	-	< 0.5
Tetrachlorvinphos	0.2	mg/kg	-	-	< 0.5
Tokuthion	0.2	mg/kg	-	-	< 0.5
Trichloronate	0.2	mg/kg	-	-	< 0.5
Triphenylphosphate (surr.)	1	%	-	-	50
Polychlorinated Biphenyls					
Aroclor-1016	0.5	mg/kg	-	-	< 1
Aroclor-1221	0.1	mg/kg	-	-	< 1
Aroclor-1232	0.5	mg/kg	-	-	< 1
Aroclor-1242	0.5	mg/kg	-	-	< 1
Aroclor-1248	0.5	mg/kg	-	-	< 1
Aroclor-1254	0.5	mg/kg	-	-	< 1
Aroclor-1260	0.5	mg/kg	-	-	< 1
Total PCB*	0.5	mg/kg	-	-	< 1
Dibutylchlorendate (surr.)	1	%	-	-	INT
Tetrachloro-m-xylene (surr.)	1	%	-	-	83
TRH - 2013 NEPM Fractions (after silica gel clean-up)					
TRH >C10-C16 (after silica gel clean-up)	50	mg/kg	-	-	< 50
TRH >C16-C34 (after silica gel clean-up)	100	mg/kg	-	-	< 100
TRH >C34-C40 (after silica gel clean-up)	100	mg/kg	-	-	< 100
TRH - 1999 NEPM Fractions (after silica gel clean-up)					
TRH C10-C36 (Total) (after silica gel clean-up)	50	mg/kg	-	-	[G01]< 100
TRH C10-C14 (after silica gel clean-up)	50	mg/kg	-	-	< 50
TRH C15-C28 (after silica gel clean-up)	100	mg/kg	-	-	< 100
TRH C29-C36 (after silica gel clean-up)	100	mg/kg	-	-	< 100

Client Sample ID			TRIP BLANK	TRIP SPIKE	[G01]GG8-01(0.2-0.3)
Sample Matrix			Soil	Soil	Soil
Eurofins Sample No.			S21-My04038	S21-My04039	S21-My04075
Date Sampled			Apr 29, 2021	Apr 29, 2021	Apr 29, 2021
Test/Reference	LOR	Unit			
Heavy Metals					
Arsenic	2	mg/kg	-	-	3.0
Cadmium	0.4	mg/kg	-	-	< 0.4
Chromium	5	mg/kg	-	-	170
Copper	5	mg/kg	-	-	48
Lead	5	mg/kg	-	-	8.9
Mercury	0.1	mg/kg	-	-	< 0.1
Nickel	5	mg/kg	-	-	150
Zinc	5	mg/kg	-	-	98
% Moisture	1	%	-	-	20
TRH C6-C10	1	%	-	86	-
Total Recoverable Hydrocarbons					
Naphthalene	1	%	-	73	-
TRH C6-C9	1	%	-	88	-
BTEX					
Benzene	1	%	-	99	-
Ethylbenzene	1	%	-	84	-
m&p-Xylenes	1	%	-	82	-
o-Xylene	1	%	-	84	-
Toluene	1	%	-	92	-
Xylenes - Total	1	%	-	83	-
4-Bromofluorobenzene (surr.)	1	%	-	84	-

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Sydney	May 06, 2021	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Sydney	May 06, 2021	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	May 06, 2021	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons	Sydney	May 06, 2021	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	May 06, 2021	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Polycyclic Aromatic Hydrocarbons	Sydney	May 06, 2021	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Metals M8	Sydney	May 06, 2021	180 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Eurofins Suite B15			
Organochlorine Pesticides	Sydney	May 11, 2021	14 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
Organophosphorus Pesticides	Sydney	May 11, 2021	14 Days
- Method: LTM-ORG-2200 Organophosphorus Pesticides by GC-MS			
Polychlorinated Biphenyls	Sydney	May 11, 2021	28 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
TRH - 2013 NEPM Fractions (after silica gel clean-up)	Sydney	May 06, 2021	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
TRH - 1999 NEPM Fractions (after silica gel clean-up)	Sydney	May 06, 2021	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
% Moisture	Sydney	May 04, 2021	14 Days
- Method: LTM-GEN-7080 Moisture			

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Company Name:	Greencap NSW P/L	**Order No.:**	PO286462
Address:	Ground Floor, North Building, 22 Giffnock Avenue Macquarie Park NSW 2113	**Report #:**	792254
		Phone:	02 9889 1800
		Fax:	02 9889 1811
Project Name:	SYDNEY OLYMPIC PARK HS		
Project ID:	J169135-01		

Received:	May 2, 2021 9:36 PM
Due:	May 10, 2021
Priority:	5 Day
Contact Name:	Shihui Wang

Eurofins Analytical Services Manager : Ursula Long

Sample Detail						HOLD	Metals M8	Eurofins Suite B15	TRH (after Silica Gel cleanup)	Moisture Set	Eurofins Suite B7	BTEXN and Volatile TRH	BTEXN and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271													
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794													
Perth Laboratory - NATA Site # 23736													
Mayfield Laboratory - NATA Site # 25079													
External Laboratory													
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**								
1	GG7-01(0.05-0.15)	Apr 29, 2021		Soil	S21-My04024			X	X	X	X		
2	GG8-02(0.4-0.5)	Apr 29, 2021		Soil	S21-My04025			X	X	X	X		
3	GG8-03(0.9-1.0)	Apr 29, 2021		Soil	S21-My04026			X	X	X	X		
4	GG9-04(1.0-1.1)	Apr 29, 2021		Soil	S21-My04027			X	X	X	X		
5	GG6-03(1.0-1.1)	Apr 29, 2021		Soil	S21-My04028			X	X	X	X		
6	GG4-02(0.5-	Apr 29, 2021		Soil	S21-My04029			X	X	X	X		

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Company Name: Greencap NSW P/L
Address: Ground Floor, North Building, 22 Giffnock Avenue
Macquarie Park
NSW 2113

Project Name: SYDNEY OLYMPIC PARK HS
Project ID: J169135-01

Order No.: PO286462
Report #: 792254
Phone: 02 9889 1800
Fax: 02 9889 1811

Received: May 2, 2021 9:36 PM
Due: May 10, 2021
Priority: 5 Day
Contact Name: Shihui Wang

Eurofins Analytical Services Manager : Ursula Long

Sample Detail						HOLD	Metals M8	Eurofins Suite B15	TRH (after Silica Gel cleanup)	Moisture Set	Eurofins Suite B7	BTEXN and Volatile TRH	BTEXN and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271													
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794													
Perth Laboratory - NATA Site # 23736													
Mayfield Laboratory - NATA Site # 25079													
External Laboratory													
	0.6)												
7	FD1(0.2-0.3)	Apr 29, 2021		Soil	S21-My04036		X			X			
8	FD2(0.5-0.6)	Apr 29, 2021		Soil	S21-My04037		X			X			
9	TRIP BLANK	Apr 29, 2021		Soil	S21-My04038							X	
10	TRIP SPIKE	Apr 29, 2021		Soil	S21-My04039								X
11	GG7-02(0.3-0.4)	Apr 29, 2021		Soil	S21-My04040	X							
12	GG7-03(0.7-0.8)	Apr 29, 2021		Soil	S21-My04041	X							
13	GG7-04(1.1-1.2)	Apr 29, 2021		Soil	S21-My04042	X							
14	GG7-05(1.5-	Apr 29, 2021		Soil	S21-My04043	X							

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Melbourne Laboratory - NATA Site # 1254 & 14271													
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794													
Perth Laboratory - NATA Site # 23736													
Mayfield Laboratory - NATA Site # 25079													
External Laboratory													
14	GG7-05(1.5-1.6)	Apr 29, 2021		Soil	S21-My04043								
15	GG8-04(1.9-2.0)	Apr 29, 2021		Soil	S21-My04044	X							
16	GG8-05(2.9-3.0)	Apr 29, 2021		Soil	S21-My04045	X							
17	GG9-01(0.1-0.2)	Apr 29, 2021		Soil	S21-My04046	X							
18	GG9-02(0.4-0.5)	Apr 29, 2021		Soil	S21-My04047	X							
19	GG9-03(0.7-0.8)	Apr 29, 2021		Soil	S21-My04048	X							
20	GG6-01(0.2-	Apr 29, 2021		Soil	S21-My04049	X							

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Melbourne Laboratory - NATA Site # 1254 & 14271													
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794													
Perth Laboratory - NATA Site # 23736													
Mayfield Laboratory - NATA Site # 25079													
External Laboratory													
	0.3)												
21	GG6-02(0.7-0.8)	Apr 29, 2021		Soil	S21-My04050	X							
22	GG6-04(2.0-2.1)	Apr 29, 2021		Soil	S21-My04051	X							
23	GG4-01(0.3-0.4)	Apr 29, 2021		Soil	S21-My04052	X							
24	GG4-03(1.1-1.2)	Apr 29, 2021		Soil	S21-My04053	X							
25	GG4-04(1.4-1.5)	Apr 29, 2021		Soil	S21-My04054	X							
26	GG8-01(0.2-0.3)	Apr 29, 2021		Soil	S21-My04075			X	X	X	X		

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Melbourne Laboratory - NATA Site # 1254 & 14271								
Sydney Laboratory - NATA Site # 18217	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794								
Perth Laboratory - NATA Site # 23736								
Mayfield Laboratory - NATA Site # 25079								
External Laboratory								
Test Counts	15	2	7	7	9	7	1	1

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Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer, that may have an impact on the results.
9. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	US Department of Defense Quality Systems Manual Version 5.3
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 20-130% Phenols & 50-150% PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.3 where no positive PFAS results have been reported have been reviewed and no data was affected.

WA DWER (n=10): PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total*	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Organochlorine Pesticides							
Chlordanes - Total	mg/kg	< 0.1			0.1	Pass	
4.4'-DDD	mg/kg	< 0.05			0.05	Pass	
4.4'-DDE	mg/kg	< 0.05			0.05	Pass	
4.4'-DDT	mg/kg	< 0.05			0.05	Pass	
a-BHC	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
b-BHC	mg/kg	< 0.05			0.05	Pass	
d-BHC	mg/kg	< 0.05			0.05	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Endosulfan I	mg/kg	< 0.05			0.05	Pass	
Endosulfan II	mg/kg	< 0.05			0.05	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endosulfan sulphate	mg/kg	< 0.05			0.05	Pass	
Endrin	mg/kg	< 0.05			0.05	Pass	
Endrin aldehyde	mg/kg	< 0.05			0.05	Pass	
Endrin ketone	mg/kg	< 0.05			0.05	Pass	
g-BHC (Lindane)	mg/kg	< 0.05			0.05	Pass	
Heptachlor	mg/kg	< 0.05			0.05	Pass	
Heptachlor epoxide	mg/kg	< 0.05			0.05	Pass	
Hexachlorobenzene	mg/kg	< 0.05			0.05	Pass	
Methoxychlor	mg/kg	< 0.2			0.2	Pass	
Toxaphene	mg/kg	< 0.1			0.1	Pass	
Method Blank							
Organophosphorus Pesticides							
Azinphos-methyl	mg/kg	< 0.2			0.2	Pass	
Bolstar	mg/kg	< 0.2			0.2	Pass	
Chlorfenvinphos	mg/kg	< 0.2			0.2	Pass	
Chlorpyrifos	mg/kg	< 0.2			0.2	Pass	
Chlorpyrifos-methyl	mg/kg	< 0.2			0.2	Pass	
Coumaphos	mg/kg	< 2			2	Pass	
Demeton-S	mg/kg	< 0.2			0.2	Pass	
Demeton-O	mg/kg	< 0.2			0.2	Pass	
Diazinon	mg/kg	< 0.2			0.2	Pass	
Dichlorvos	mg/kg	< 0.2			0.2	Pass	
Dimethoate	mg/kg	< 0.2			0.2	Pass	
Disulfoton	mg/kg	< 0.2			0.2	Pass	
EPN	mg/kg	< 0.2			0.2	Pass	
Ethion	mg/kg	< 0.2			0.2	Pass	
Ethoprop	mg/kg	< 0.2			0.2	Pass	
Ethyl parathion	mg/kg	< 0.2			0.2	Pass	
Fenitrothion	mg/kg	< 0.2			0.2	Pass	
Fensulfothion	mg/kg	< 0.2			0.2	Pass	
Fenthion	mg/kg	< 0.2			0.2	Pass	
Malathion	mg/kg	< 0.2			0.2	Pass	
Merphos	mg/kg	< 0.2			0.2	Pass	
Methyl parathion	mg/kg	< 0.2			0.2	Pass	
Mevinphos	mg/kg	< 0.2			0.2	Pass	
Monocrotophos	mg/kg	< 2			2	Pass	
Naled	mg/kg	< 0.2			0.2	Pass	
Omethoate	mg/kg	< 2			2	Pass	
Phorate	mg/kg	< 0.2			0.2	Pass	
Pirimiphos-methyl	mg/kg	< 0.2			0.2	Pass	
Pyrazophos	mg/kg	< 0.2			0.2	Pass	
Ronnel	mg/kg	< 0.2			0.2	Pass	
Terbufos	mg/kg	< 0.2			0.2	Pass	
Tetrachlorvinphos	mg/kg	< 0.2			0.2	Pass	
Tokuthion	mg/kg	< 0.2			0.2	Pass	
Trichloronate	mg/kg	< 0.2			0.2	Pass	
Method Blank							
Polychlorinated Biphenyls							
Aroclor-1016	mg/kg	< 0.5			0.5	Pass	
Aroclor-1221	mg/kg	< 0.1			0.1	Pass	
Aroclor-1232	mg/kg	< 0.5			0.5	Pass	
Aroclor-1242	mg/kg	< 0.5			0.5	Pass	
Aroclor-1248	mg/kg	< 0.5			0.5	Pass	
Aroclor-1254	mg/kg	< 0.5			0.5	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Aroclor-1260	mg/kg	< 0.5			0.5	Pass	
Total PCB*	mg/kg	< 0.5			0.5	Pass	
Method Blank							
TRH - 2013 NEPM Fractions (after silica gel clean-up)							
TRH >C10-C16 (after silica gel clean-up)	mg/kg	< 50			50	Pass	
TRH >C16-C34 (after silica gel clean-up)	mg/kg	< 100			100	Pass	
TRH >C34-C40 (after silica gel clean-up)	mg/kg	< 100			100	Pass	
Method Blank							
TRH - 1999 NEPM Fractions (after silica gel clean-up)							
TRH C10-C14 (after silica gel clean-up)	mg/kg	< 50			50	Pass	
TRH C15-C28 (after silica gel clean-up)	mg/kg	< 100			100	Pass	
TRH C29-C36 (after silica gel clean-up)	mg/kg	< 100			100	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Nickel	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	70			70-130	Pass	
TRH C10-C14	%	124			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	82			70-130	Pass	
Toluene	%	80			70-130	Pass	
Ethylbenzene	%	77			70-130	Pass	
m&p-Xylenes	%	78			70-130	Pass	
o-Xylene	%	79			70-130	Pass	
Xylenes - Total*	%	79			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	126			70-130	Pass	
TRH C6-C10	%	72			70-130	Pass	
TRH >C10-C16	%	124			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	92			70-130	Pass	
Acenaphthylene	%	109			70-130	Pass	
Anthracene	%	107			70-130	Pass	
Benz(a)anthracene	%	82			70-130	Pass	
Benzo(a)pyrene	%	83			70-130	Pass	
Benzo(b&j)fluoranthene	%	81			70-130	Pass	
Benzo(g.h.i)perylene	%	79			70-130	Pass	
Benzo(k)fluoranthene	%	121			70-130	Pass	
Chrysene	%	103			70-130	Pass	
Dibenz(a.h)anthracene	%	76			70-130	Pass	
Fluoranthene	%	101			70-130	Pass	
Fluorene	%	101			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	78			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Naphthalene	%	102			70-130	Pass	
Phenanthrene	%	90			70-130	Pass	
Pyrene	%	103			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
Chlordanes - Total	%	80			70-130	Pass	
4.4'-DDD	%	88			70-130	Pass	
4.4'-DDE	%	75			70-130	Pass	
4.4'-DDT	%	102			70-130	Pass	
a-BHC	%	85			70-130	Pass	
Aldrin	%	74			70-130	Pass	
b-BHC	%	87			70-130	Pass	
d-BHC	%	80			70-130	Pass	
Dieldrin	%	82			70-130	Pass	
Endosulfan I	%	84			70-130	Pass	
Endosulfan II	%	84			70-130	Pass	
Endosulfan sulphate	%	89			70-130	Pass	
Endrin	%	105			70-130	Pass	
Endrin aldehyde	%	107			70-130	Pass	
Endrin ketone	%	106			70-130	Pass	
g-BHC (Lindane)	%	83			70-130	Pass	
Heptachlor	%	93			70-130	Pass	
Heptachlor epoxide	%	81			70-130	Pass	
Hexachlorobenzene	%	75			70-130	Pass	
Methoxychlor	%	113			70-130	Pass	
LCS - % Recovery							
Organophosphorus Pesticides							
Diazinon	%	90			70-130	Pass	
Dimethoate	%	92			70-130	Pass	
Ethion	%	114			70-130	Pass	
Fenitrothion	%	84			70-130	Pass	
Methyl parathion	%	87			70-130	Pass	
Mevinphos	%	120			70-130	Pass	
LCS - % Recovery							
Polychlorinated Biphenyls							
Aroclor-1016	%	70			70-130	Pass	
Aroclor-1260	%	89			70-130	Pass	
LCS - % Recovery							
TRH - 2013 NEPM Fractions (after silica gel clean-up)							
TRH >C10-C16 (after silica gel clean-up)	%	106			70-130	Pass	
LCS - % Recovery							
TRH - 1999 NEPM Fractions (after silica gel clean-up)							
TRH C10-C14 (after silica gel clean-up)	%	108			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	97			80-120	Pass	
Cadmium	%	95			80-120	Pass	
Chromium	%	103			80-120	Pass	
Copper	%	105			80-120	Pass	
Lead	%	104			80-120	Pass	
Mercury	%	101			80-120	Pass	
Nickel	%	105			80-120	Pass	
Zinc	%	103			80-120	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	S21-My04805	NCP	%	72			70-130	Pass	
TRH C10-C14	S21-My03114	NCP	%	107			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S21-My04805	NCP	%	78			70-130	Pass	
Toluene	S21-My04805	NCP	%	76			70-130	Pass	
Ethylbenzene	S21-My04805	NCP	%	81			70-130	Pass	
m&p-Xylenes	S21-My04805	NCP	%	80			70-130	Pass	
o-Xylene	S21-My04805	NCP	%	82			70-130	Pass	
Xylenes - Total*	S21-My04805	NCP	%	81			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	S21-My04805	NCP	%	113			70-130	Pass	
TRH C6-C10	S21-My04805	NCP	%	73			70-130	Pass	
TRH >C10-C16	S21-My03114	NCP	%	107			70-130	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
Chlordanes - Total	S21-My05803	NCP	%	112			70-130	Pass	
4.4'-DDD	S21-My05803	NCP	%	97			70-130	Pass	
4.4'-DDE	S21-My05803	NCP	%	106			70-130	Pass	
4.4'-DDT	S21-My09818	NCP	%	108			70-130	Pass	
a-BHC	S21-My09818	NCP	%	71			70-130	Pass	
Aldrin	S21-My05803	NCP	%	101			70-130	Pass	
b-BHC	S21-My05803	NCP	%	112			70-130	Pass	
d-BHC	S21-My05803	NCP	%	105			70-130	Pass	
Dieldrin	S21-My05803	NCP	%	113			70-130	Pass	
Endosulfan I	S21-My05803	NCP	%	107			70-130	Pass	
Endosulfan II	S21-My05803	NCP	%	95			70-130	Pass	
Endosulfan sulphate	S21-My05803	NCP	%	115			70-130	Pass	
Endrin aldehyde	S21-My09818	NCP	%	90			70-130	Pass	
Endrin ketone	S21-My09818	NCP	%	74			70-130	Pass	
g-BHC (Lindane)	S21-My05803	NCP	%	113			70-130	Pass	
Heptachlor	S21-My09818	NCP	%	112			70-130	Pass	
Heptachlor epoxide	S21-My05803	NCP	%	108			70-130	Pass	
Hexachlorobenzene	S21-My05803	NCP	%	102			70-130	Pass	
Methoxychlor	S21-My09818	NCP	%	123			70-130	Pass	
Spike - % Recovery									
Polychlorinated Biphenyls				Result 1					
Aroclor-1016	S21-My09818	NCP	%	103			70-130	Pass	
Aroclor-1260	S21-My09818	NCP	%	127			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S21-My08270	NCP	%	93			75-125	Pass	
Cadmium	S21-My08270	NCP	%	100			75-125	Pass	
Chromium	S21-My08270	NCP	%	96			75-125	Pass	
Copper	S21-My08270	NCP	%	98			75-125	Pass	
Lead	S21-My08270	NCP	%	104			75-125	Pass	
Mercury	S21-My08270	NCP	%	107			75-125	Pass	
Nickel	S21-My08270	NCP	%	97			75-125	Pass	
Zinc	S21-My08270	NCP	%	88			75-125	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Benz(a)anthracene	N21-My01708	NCP	%	121			70-130	Pass	
Benzo(a)pyrene	N21-My01708	NCP	%	116			70-130	Pass	
Benzo(b&j)fluoranthene	N21-My01708	NCP	%	109			70-130	Pass	
Benzo(g.h.i)perylene	N21-My01708	NCP	%	124			70-130	Pass	
Dibenz(a.h)anthracene	N21-My01708	NCP	%	111			70-130	Pass	
Indeno(1.2.3-cd)pyrene	N21-My01708	NCP	%	112			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	S21-My04029	CP	%	90			70-130	Pass	
Acenaphthylene	S21-My04029	CP	%	77			70-130	Pass	
Anthracene	S21-My04029	CP	%	76			70-130	Pass	
Benzo(k)fluoranthene	S21-My04029	CP	%	92			70-130	Pass	
Chrysene	S21-My04029	CP	%	82			70-130	Pass	
Fluoranthene	S21-My04029	CP	%	92			70-130	Pass	
Fluorene	S21-My04029	CP	%	79			70-130	Pass	
Naphthalene	S21-My04029	CP	%	89			70-130	Pass	
Phenanthrene	S21-My04029	CP	%	81			70-130	Pass	
Pyrene	S21-My04029	CP	%	89			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C10-C14	S21-My03320	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	S21-My03320	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	S21-My03320	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
TRH >C10-C16	S21-My03320	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	S21-My03320	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	S21-My03320	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	S21-My09817	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4.4'-DDD	S21-Ap45606	NCP	mg/kg	3.3	8.1	83	30%	Fail	Q15
4.4'-DDE	S21-Ap45576	NCP	mg/kg	88	90	3.0	30%	Pass	
4.4'-DDT	S21-My09817	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-BHC	S21-My09817	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	S21-My09817	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-BHC	S21-My09817	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-BHC	S21-My09817	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	S21-My09817	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan I	S21-My09817	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	S21-My09817	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	S21-My09817	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	S21-My09817	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin aldehyde	S21-My09817	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin ketone	S21-My09817	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
g-BHC (Lindane)	S21-My09817	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor	S21-My09817	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor epoxide	S21-My09817	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Hexachlorobenzene	S21-My09817	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Methoxychlor	S21-My09817	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Toxaphene	S21-Ap50554	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	

Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Azinphos-methyl	S21-My09817	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Bolstar	S21-My09817	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorfenvinphos	S21-My09817	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorpyrifos	S21-My09817	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorpyrifos-methyl	S21-My09817	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Coumaphos	S21-My09817	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Demeton-S	S21-My09817	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Demeton-O	S21-My09817	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Diazinon	S21-My09817	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Dichlorvos	S21-My09817	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Dimethoate	S21-My09817	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Disulfoton	S21-My09817	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
EPN	S21-My09817	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethion	S21-My09817	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethoprop	S21-My09817	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethyl parathion	S21-My09817	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fenitrothion	S21-My09817	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fensulfothion	S21-My09817	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fenthion	S21-My09817	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Malathion	S21-My09817	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Merphos	S21-My09817	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Methyl parathion	S21-My09817	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Mevinphos	S21-My09817	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Monocrotophos	S21-My09817	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Naled	S21-My09817	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Omethoate	S21-My09817	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Phorate	S21-My09817	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Pirimiphos-methyl	S21-My09817	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Pyrazophos	S21-My09817	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ronnel	S21-My09817	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Terbufos	S21-My09817	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Tetrachlorvinphos	S21-My09817	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Tokuthion	S21-My09817	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Trichloronate	S21-My09817	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Duplicate									
Polychlorinated Biphenyls				Result 1	Result 2	RPD			
Aroclor-1016	S21-My09817	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1221	S21-My09817	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1232	S21-My09817	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1242	S21-My09817	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1248	S21-My09817	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1254	S21-My09817	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1260	S21-My09817	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
TRH - 2013 NEPM Fractions (after silica gel clean-up)				Result 1	Result 2	RPD			
TRH >C10-C16 (after silica gel clean-up)	S21-My08523	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34 (after silica gel clean-up)	S21-My08523	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40 (after silica gel clean-up)	S21-My08523	NCP	mg/kg	< 100	< 100	<1	30%	Pass	

Duplicate									
TRH - 1999 NEPM Fractions (after silica gel clean-up)				Result 1	Result 2	RPD			
TRH C10-C14 (after silica gel clean-up)	S21-My08523	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C15-C28 (after silica gel clean-up)	S21-My08523	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH C29-C36 (after silica gel clean-up)	S21-My08523	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	N21-My01702	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	N21-My01702	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	N21-My01702	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	N21-My01702	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	N21-My01702	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	N21-My01702	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	N21-My01702	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	N21-My01702	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	N21-My01702	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	N21-My01702	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	N21-My01702	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	N21-My01702	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	N21-My01702	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	N21-My01702	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	N21-My01702	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	N21-My01702	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	S21-My04026	CP	%	18	16	15	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S21-My04037	CP	mg/kg	8.8	7.2	20	30%	Pass	
Cadmium	S21-My04037	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S21-My04037	CP	mg/kg	29	27	9.0	30%	Pass	
Copper	S21-My04037	CP	mg/kg	29	22	31	30%	Fail	Q15
Lead	S21-My04037	CP	mg/kg	50	37	30	30%	Pass	
Mercury	S21-My04037	CP	mg/kg	0.2	< 0.1	91	30%	Fail	Q15
Nickel	S21-My04037	CP	mg/kg	32	25	24	30%	Pass	
Zinc	S21-My04037	CP	mg/kg	81	55	38	30%	Fail	Q15
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	S21-My04075	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S21-My04075	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S21-My04075	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S21-My04075	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S21-My04075	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	S21-My04075	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total*	S21-My04075	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	S21-My04075	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	S21-My04075	CP	mg/kg	< 20	< 20	<1	30%	Pass	

Comments

This report was revised V2 to include OCP/OPP/PCB analysis.

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
G01	The LORs have been raised due to matrix interference
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
Q15	The RPD reported passes Eurofins Environment Testing's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.

Authorised by:

John Nguyen	Analytical Services Manager
Andrew Sullivan	Senior Analyst-Organic (NSW)
John Nguyen	Senior Analyst-Metal (NSW)

Glenn Jackson
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

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NATA Accredited
Accreditation Number 1261
Site Number 18217

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Attention: **Shihui Wang**

Report **792270-S-V2**
Project name SYDNEY OLYMPIC PARK HS
Project ID J169135-01
Received Date May 02, 2021

Client Sample ID			GG5-05(2.0-2.1)	GG5-06(3.5-3.6)	GG5-07(4.5-4.6)	GG5-08(5.5-5.6)
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-My04177	S21-My04178	S21-My04179	S21-My04180
Date Sampled			Apr 30, 2021	Apr 30, 2021	Apr 30, 2021	Apr 30, 2021
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	-	-	-
TRH C10-C14	20	mg/kg	< 20	-	-	-
TRH C15-C28	50	mg/kg	< 50	-	-	-
TRH C29-C36	50	mg/kg	< 50	-	-	-
TRH C10-C36 (Total)	50	mg/kg	< 50	-	-	-
BTEX						
Benzene	0.1	mg/kg	< 0.1	-	-	-
Toluene	0.1	mg/kg	< 0.1	-	-	-
Ethylbenzene	0.1	mg/kg	< 0.1	-	-	-
m&p-Xylenes	0.2	mg/kg	< 0.2	-	-	-
o-Xylene	0.1	mg/kg	< 0.1	-	-	-
Xylenes - Total*	0.3	mg/kg	< 0.3	-	-	-
4-Bromofluorobenzene (surr.)	1	%	68	-	-	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	-	-	-
TRH C6-C10	20	mg/kg	< 20	-	-	-
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	-	-	-
TRH >C10-C16	50	mg/kg	< 50	-	-	-
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	-	-	-
TRH >C16-C34	100	mg/kg	< 100	-	-	-
TRH >C34-C40	100	mg/kg	< 100	-	-	-
TRH >C10-C40 (total)*	100	mg/kg	< 100	-	-	-
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	-	-	-
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	-	-	-
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	-	-	-
Acenaphthene	0.5	mg/kg	< 0.5	-	-	-
Acenaphthylene	0.5	mg/kg	< 0.5	-	-	-
Anthracene	0.5	mg/kg	< 0.5	-	-	-
Benz(a)anthracene	0.5	mg/kg	< 0.5	-	-	-
Benzo(a)pyrene	0.5	mg/kg	< 0.5	-	-	-
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	-	-	-
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	-	-	-
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	-	-	-
Chrysene	0.5	mg/kg	< 0.5	-	-	-

Client Sample ID			GG5-05(2.0-2.1)	GG5-06(3.5-3.6)	GG5-07(4.5-4.6)	GG5-08(5.5-5.6)
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**S21-My04177**	**S21-My04178**	**S21-My04179**	**S21-My04180**
Date Sampled			**Apr 30, 2021**	**Apr 30, 2021**	**Apr 30, 2021**	**Apr 30, 2021**
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	-	-	-
Fluoranthene	0.5	mg/kg	< 0.5	-	-	-
Fluorene	0.5	mg/kg	< 0.5	-	-	-
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	-	-	-
Naphthalene	0.5	mg/kg	< 0.5	-	-	-
Phenanthrene	0.5	mg/kg	< 0.5	-	-	-
Pyrene	0.5	mg/kg	< 0.5	-	-	-
Total PAH*	0.5	mg/kg	< 0.5	-	-	-
2-Fluorobiphenyl (surr.)	1	%	127	-	-	-
p-Terphenyl-d14 (surr.)	1	%	122	-	-	-
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
a-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
b-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
d-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
g-BHC (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Methoxychlor	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Toxaphene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Dibutylchlorendate (surr.)	1	%	95	95	71	96
Tetrachloro-m-xylene (surr.)	1	%	128	117	101	136
Organophosphorus Pesticides						
Azinphos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Bolstar	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorfenvinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorpyrifos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorpyrifos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Coumaphos	2	mg/kg	< 2	< 2	< 2	< 2
Demeton-S	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Demeton-O	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Diazinon	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Dichlorvos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2

Client Sample ID			GG5-05(2.0-2.1)	GG5-06(3.5-3.6)	GG5-07(4.5-4.6)	GG5-08(5.5-5.6)
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**S21-My04177**	**S21-My04178**	**S21-My04179**	**S21-My04180**
Date Sampled			**Apr 30, 2021**	**Apr 30, 2021**	**Apr 30, 2021**	**Apr 30, 2021**
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Dimethoate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Disulfoton	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
EPN	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethoprop	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethyl parathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fenitrothion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fensulfothion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fenthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Malathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Merphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Methyl parathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Mevinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Monocrotophos	2	mg/kg	< 2	< 2	< 2	< 2
Naled	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Omethoate	2	mg/kg	< 2	< 2	< 2	< 2
Phorate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Pirimiphos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Pyrazophos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ronnel	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Terbufos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Tetrachlorvinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Tokuthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Trichloronate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Triphenylphosphate (surr.)	1	%	119	109	95	130
Polychlorinated Biphenyls						
Aroclor-1016	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aroclor-1221	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1232	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aroclor-1242	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aroclor-1248	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aroclor-1254	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aroclor-1260	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PCB*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibutylchlorendate (surr.)	1	%	95	95	71	96
Tetrachloro-m-xylene (surr.)	1	%	128	117	101	136
TRH - 2013 NEPM Fractions (after silica gel clean-up)						
TRH >C10-C16 (after silica gel clean-up)	50	mg/kg	< 50	-	-	-
TRH >C16-C34 (after silica gel clean-up)	100	mg/kg	< 100	-	-	-
TRH >C34-C40 (after silica gel clean-up)	100	mg/kg	< 100	-	-	-
TRH - 1999 NEPM Fractions (after silica gel clean-up)						
TRH C10-C36 (Total) (after silica gel clean-up)	50	mg/kg	< 100	-	-	-
TRH C10-C14 (after silica gel clean-up)	50	mg/kg	< 50	-	-	-
TRH C15-C28 (after silica gel clean-up)	100	mg/kg	< 100	-	-	-
TRH C29-C36 (after silica gel clean-up)	100	mg/kg	< 100	-	-	-
Total Organic Carbon	0.1	%	1.5	3.2	< 0.1	0.9
% Moisture	1	%	27	34	17	23

Client Sample ID			GG5-05(2.0-2.1)	GG5-06(3.5-3.6)	GG5-07(4.5-4.6)	GG5-08(5.5-5.6)
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**S21-My04177**	**S21-My04178**	**S21-My04179**	**S21-My04180**
Date Sampled			**Apr 30, 2021**	**Apr 30, 2021**	**Apr 30, 2021**	**Apr 30, 2021**
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic	2	mg/kg	27	-	-	-
Cadmium	0.4	mg/kg	< 0.4	-	-	-
Chromium	5	mg/kg	9.3	-	-	-
Copper	5	mg/kg	11	-	-	-
Lead	5	mg/kg	22	-	-	-
Mercury	0.1	mg/kg	0.1	-	-	-
Nickel	5	mg/kg	< 5	-	-	-
Zinc	5	mg/kg	30	-	-	-

Client Sample ID			GG3-02(0.9-1.0)	GG1-04(0.8-0.9)	GG2-01(0.3-0.4)	FD3(5.5-5.6)
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**S21-My04181**	**S21-My04182**	**S21-My04183**	**S21-My04191**
Date Sampled			**Apr 30, 2021**	**Apr 30, 2021**	**Apr 30, 2021**	**Apr 30, 2021**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	-
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	-
TRH C15-C28	50	mg/kg	88	< 50	74	-
TRH C29-C36	50	mg/kg	80	< 50	98	-
TRH C10-C36 (Total)	50	mg/kg	168	< 50	172	-
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	< 0.3	-
4-Bromofluorobenzene (surr.)	1	%	90	66	86	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	-
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20	-
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	-
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50	-
TRH >C16-C34	100	mg/kg	160	< 100	160	-
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	-
TRH >C10-C40 (total)*	100	mg/kg	160	< 100	160	-
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	-
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	-
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-

Client Sample ID			GG3-02(0.9-1.0)	GG1-04(0.8-0.9)	GG2-01(0.3-0.4)	FD3(5.5-5.6)
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-My04181	S21-My04182	S21-My04183	S21-My04191
Date Sampled			Apr 30, 2021	Apr 30, 2021	Apr 30, 2021	Apr 30, 2021
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Chrysene	0.5	mg/kg	0.5	< 0.5	< 0.5	-
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Fluoranthene	0.5	mg/kg	1.0	0.7	< 0.5	-
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Phenanthrene	0.5	mg/kg	0.5	< 0.5	< 0.5	-
Pyrene	0.5	mg/kg	0.9	0.7	< 0.5	-
Total PAH*	0.5	mg/kg	2.9	1.4	< 0.5	-
2-Fluorobiphenyl (surr.)	1	%	53	103	95	-
p-Terphenyl-d14 (surr.)	1	%	53	110	90	-
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
4.4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
4.4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
4.4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
a-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
b-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
d-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
g-BHC (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Methoxychlor	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Toxaphene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.2	< 0.2	< 0.2	-
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.2	< 0.2	< 0.2	-
Dibutylchlorendate (surr.)	1	%	95	93	70	-
Tetrachloro-m-xylene (surr.)	1	%	INT	116	101	-
Organophosphorus Pesticides						
Azinphos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Bolstar	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Chlorfenvinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Chlorpyrifos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Chlorpyrifos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Coumaphos	2	mg/kg	< 2	< 2	< 2	-
Demeton-S	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-

Client Sample ID			GG3-02(0.9-1.0)	GG1-04(0.8-0.9)	GG2-01(0.3-0.4)	FD3(5.5-5.6)
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-My04181	S21-My04182	S21-My04183	S21-My04191
Date Sampled			Apr 30, 2021	Apr 30, 2021	Apr 30, 2021	Apr 30, 2021
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Demeton-O	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Diazinon	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Dichlorvos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Dimethoate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Disulfoton	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
EPN	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Ethion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Ethoprop	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Ethyl parathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Fenitrothion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Fensulfothion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Fenthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Malathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Merphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Methyl parathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Mevinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Monocrotophos	2	mg/kg	< 2	< 2	< 2	-
Naled	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Omethoate	2	mg/kg	< 2	< 2	< 2	-
Phorate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Pirimiphos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Pyrazophos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Ronnel	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Terbufos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Tetrachlorvinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Tokuthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Trichloronate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Triphenylphosphate (surr.)	1	%	126	115	80	-
Polychlorinated Biphenyls						
Aroclor-1016	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Aroclor-1221	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Aroclor-1232	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Aroclor-1242	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Aroclor-1248	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Aroclor-1254	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Aroclor-1260	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Total PCB*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Dibutylchlorendate (surr.)	1	%	95	93	70	-
Tetrachloro-m-xylene (surr.)	1	%	INT	116	101	-
TRH - 2013 NEPM Fractions (after silica gel clean-up)						
TRH >C10-C16 (after silica gel clean-up)	50	mg/kg	< 50	< 50	< 50	-
TRH >C16-C34 (after silica gel clean-up)	100	mg/kg	< 100	< 100	< 100	-
TRH >C34-C40 (after silica gel clean-up)	100	mg/kg	< 100	< 100	< 100	-
TRH - 1999 NEPM Fractions (after silica gel clean-up)						
TRH C10-C36 (Total) (after silica gel clean-up)	50	mg/kg	< 100	< 100	< 100	-
TRH C10-C14 (after silica gel clean-up)	50	mg/kg	< 50	< 50	< 50	-
TRH C15-C28 (after silica gel clean-up)	100	mg/kg	< 100	< 100	< 100	-
TRH C29-C36 (after silica gel clean-up)	100	mg/kg	< 100	< 100	< 100	-

Client Sample ID			GG3-02(0.9-1.0)	GG1-04(0.8-0.9)	GG2-01(0.3-0.4)	FD3(5.5-5.6)
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-My04181	S21-My04182	S21-My04183	S21-My04191
Date Sampled			Apr 30, 2021	Apr 30, 2021	Apr 30, 2021	Apr 30, 2021
Test/Reference	LOR	Unit				
% Moisture	1	%	8.3	13	5.7	24
Heavy Metals						
Arsenic	2	mg/kg	6.7	9.3	< 2	20
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	26	26	110	24
Copper	5	mg/kg	51	38	28	19
Lead	5	mg/kg	71	79	11	25
Mercury	0.1	mg/kg	0.2	0.2	< 0.1	< 0.1
Nickel	5	mg/kg	29	17	100	< 5
Zinc	5	mg/kg	140	120	68	9.0

Client Sample ID			FD4(0.8-0.9)	GG5-01(0.15-02)	GG5-02(0.3-0.4)	GG5-03(0.5-0.6)
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-My04192	S21-My04194	S21-My04195	S21-My04196
Date Sampled			Apr 30, 2021	Apr 30, 2021	Apr 30, 2021	Apr 30, 2021
Test/Reference	LOR	Unit				
Total Organic Carbon	0.1	%	-	0.1	0.6	< 0.1
% Moisture	1	%	15	8.4	8.2	14
Heavy Metals						
Arsenic	2	mg/kg	13	-	-	-
Cadmium	0.4	mg/kg	< 0.4	-	-	-
Chromium	5	mg/kg	19	-	-	-
Copper	5	mg/kg	40	-	-	-
Lead	5	mg/kg	95	-	-	-
Mercury	0.1	mg/kg	0.2	-	-	-
Nickel	5	mg/kg	15	-	-	-
Zinc	5	mg/kg	130	-	-	-

Client Sample ID			GG5-04(1.0-1.1)	TRIP BLANK	TRIP SPIKE
Sample Matrix			Soil	Soil	Soil
Eurofins Sample No.			S21-My04197	S21-My04210	S21-My04211
Date Sampled			Apr 30, 2021	Apr 30, 2021	Apr 30, 2021
Test/Reference	LOR	Unit			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions					
TRH C6-C9	20	mg/kg	-	< 20	-
BTEX					
Benzene	0.1	mg/kg	-	< 0.1	-
Toluene	0.1	mg/kg	-	< 0.1	-
Ethylbenzene	0.1	mg/kg	-	< 0.1	-
m&p-Xylenes	0.2	mg/kg	-	< 0.2	-
o-Xylene	0.1	mg/kg	-	< 0.1	-
Xylenes - Total*	0.3	mg/kg	-	< 0.3	-
4-Bromofluorobenzene (surr.)	1	%	-	86	-

Client Sample ID			GG5-04(1.0-1.1)	TRIP BLANK	TRIP SPIKE
Sample Matrix			**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**S21-My04197**	**S21-My04210**	**S21-My04211**
Date Sampled			**Apr 30, 2021**	**Apr 30, 2021**	**Apr 30, 2021**
Test/Reference	LOR	Unit			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions					
Naphthalene[N02]	0.5	mg/kg	-	< 0.5	-
TRH C6-C10	20	mg/kg	-	< 20	-
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	-	< 20	-
Total Organic Carbon	0.1	%	0.4	-	-
% Moisture	1	%	11	-	-
TRH C6-C10	1	%	-	-	95
Total Recoverable Hydrocarbons					
Naphthalene	1	%	-	-	84
TRH C6-C9	1	%	-	-	98
BTEX					
Benzene	1	%	-	-	110
Ethylbenzene	1	%	-	-	88
m&p-Xylenes	1	%	-	-	91
o-Xylene	1	%	-	-	88
Toluene	1	%	-	-	99
Xylenes - Total	1	%	-	-	89
4-Bromofluorobenzene (surr.)	1	%	-	-	82

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Sydney	May 06, 2021	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Sydney	May 06, 2021	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	May 06, 2021	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons	Sydney	May 06, 2021	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	May 06, 2021	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Polycyclic Aromatic Hydrocarbons	Sydney	May 19, 2021	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Metals M8	Sydney	May 06, 2021	180 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Eurofins Suite B15			
Organochlorine Pesticides	Sydney	May 17, 2021	14 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
Organophosphorus Pesticides	Sydney	May 17, 2021	14 Days
- Method: LTM-ORG-2200 Organophosphorus Pesticides by GC-MS			
Polychlorinated Biphenyls	Sydney	May 17, 2021	28 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
TRH - 2013 NEPM Fractions (after silica gel clean-up)	Sydney	May 06, 2021	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
TRH - 1999 NEPM Fractions (after silica gel clean-up)	Sydney	May 06, 2021	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Organic Carbon	Melbourne	May 10, 2021	28 Days
- Method: LTM-INO-4060 Total Organic Carbon in water and soil			
% Moisture	Sydney	May 05, 2021	14 Days
- Method: LTM-GEN-7080 Moisture			

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Company Name:	Greencap NSW P/L	**Order No.:**	PO286462	**Received:**	May 2, 2021 9:36 PM
Address:	Ground Floor, North Building, 22 Giffnock Avenue Macquarie Park NSW 2113	**Report #:**	792270	**Due:**	May 10, 2021
		Phone:	02 9889 1800	**Priority:**	5 Day
		Fax:	02 9889 1811	**Contact Name:**	Shihui Wang
Project Name:	SYDNEY OLYMPIC PARK HS				
Project ID:	J169135-01				

Eurofins Analytical Services Manager : Ursula Long

Sample Detail						HOLD	Total Organic Carbon	Metals M8	TRH (after Silica Gel cleanup)	Moisture Set	Eurofins Suite B7	BTEXN and Volatile TRH	BTEXN and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271							X						
Sydney Laboratory - NATA Site # 18217						X		X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794													
Perth Laboratory - NATA Site # 23736													
Mayfield Laboratory - NATA Site # 25079													
External Laboratory													
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**								
1	GG5-05(2.0-2.1)	Apr 30, 2021		Soil	S21-My04177		X		X	X	X		
2	GG5-06(3.5-3.6)	Apr 30, 2021		Soil	S21-My04178		X			X			
3	GG5-07(4.5-4.6)	Apr 30, 2021		Soil	S21-My04179		X			X			
4	GG5-08(5.5-5.6)	Apr 30, 2021		Soil	S21-My04180		X			X			
5	GG3-02(0.9-1.0)	Apr 30, 2021		Soil	S21-My04181				X	X	X		
6	GG1-04(0.8-	Apr 30, 2021		Soil	S21-My04182				X	X	X		

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Due: May 10, 2021
Priority: 5 Day
Contact Name: Shihui Wang

Eurofins Analytical Services Manager : Ursula Long

Sample Detail						HOLD	Total Organic Carbon	Metals M8	TRH (after Silica Gel cleanup)	Moisture Set	Eurofins Suite B7	BTEXN and Volatile TRH	BTEXN and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271							X						
Sydney Laboratory - NATA Site # 18217						X		X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794													
Perth Laboratory - NATA Site # 23736													
Mayfield Laboratory - NATA Site # 25079													
External Laboratory													
	0.9)												
7	GG2-01(0.3-0.4)	Apr 30, 2021		Soil	S21-My04183				X	X	X		
8	FD3(5.5-5.6)	Apr 30, 2021		Soil	S21-My04191			X		X			
9	FD4(0.8-0.9)	Apr 30, 2021		Soil	S21-My04192			X		X			
10	FD5(3.5-3.6)	Apr 30, 2021		Soil	S21-My04193	X							
11	GG5-01(0.15-02)	Apr 30, 2021		Soil	S21-My04194		X			X			
12	GG5-02(0.3-0.4)	Apr 30, 2021		Soil	S21-My04195		X			X			
13	GG5-03(0.5-0.6)	Apr 30, 2021		Soil	S21-My04196		X			X			

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Sample Detail						HOLD	Total Organic Carbon	Metals M8	TRH (after Silica Gel cleanup)	Moisture Set	Eurofins Suite B7	BTEXN and Volatile TRH	BTEXN and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271							X						
Sydney Laboratory - NATA Site # 18217						X		X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794													
Perth Laboratory - NATA Site # 23736													
Mayfield Laboratory - NATA Site # 25079													
External Laboratory													
14	GG5-04(1.0-1.1)	Apr 30, 2021		Soil	S21-My04197		X			X			
15	GG3-01(0.1-0.2)	Apr 30, 2021		Soil	S21-My04198	X							
16	GG3-03(1.7-1.8)	Apr 30, 2021		Soil	S21-My04199	X							
17	GG3-04(2.5-2.6)	Apr 30, 2021		Soil	S21-My04200	X							
18	GG1-01(0.25-0.35)	Apr 30, 2021		Soil	S21-My04201	X							
19	GG1-02(0.4-0.5)	Apr 30, 2021		Soil	S21-My04202	X							
20	GG1-03(0.5-	Apr 30, 2021		Soil	S21-My04203	X							

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Melbourne Laboratory - NATA Site # 1254 & 14271							X						
Sydney Laboratory - NATA Site # 18217						X		X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794													
Perth Laboratory - NATA Site # 23736													
Mayfield Laboratory - NATA Site # 25079													
External Laboratory													
	0.6)												
21	GG1-05(1.1-1.2)	Apr 30, 2021		Soil	S21-My04204	X							
22	GG1-06(1.6-1.7)	Apr 30, 2021		Soil	S21-My04205	X							
23	GG1-07(2.0-2.1)	Apr 30, 2021		Soil	S21-My04206	X							
24	GG2-02(1.0-1.1)	Apr 30, 2021		Soil	S21-My04207	X							
25	GG2-03(2.5-2.6)	Apr 30, 2021		Soil	S21-My04208	X							
26	GG2-04(3.5-3.6)	Apr 30, 2021		Soil	S21-My04209	X							

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Melbourne Laboratory - NATA Site # 1254 & 14271							X						
Sydney Laboratory - NATA Site # 18217						X		X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794													
Perth Laboratory - NATA Site # 23736													
Mayfield Laboratory - NATA Site # 25079													
External Laboratory													
27	TRIP BLANK	Apr 30, 2021		Soil	S21-My04210							X	
28	TRIP SPIKE	Apr 30, 2021		Soil	S21-My04211								X
29	TRIP SPIKE LAB	Apr 30, 2021		Soil	S21-My04212								X
30	GG5-09(6.5-6.6)	Apr 30, 2021		Soil	S21-My04250	X							
Test Counts						14	8	2	4	13	4	1	2

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer, that may have an impact on the results.
9. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	US Department of Defense Quality Systems Manual Version 5.3
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 20-130% Phenols & 50-150% PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.3 where no positive PFAS results have been reported have been reviewed and no data was affected.

WA DWER (n=10): PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total*	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Organochlorine Pesticides							
Chlordanes - Total	mg/kg	< 0.1			0.1	Pass	
4.4'-DDD	mg/kg	< 0.05			0.05	Pass	
4.4'-DDE	mg/kg	< 0.05			0.05	Pass	
4.4'-DDT	mg/kg	< 0.05			0.05	Pass	
a-BHC	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
b-BHC	mg/kg	< 0.05			0.05	Pass	
d-BHC	mg/kg	< 0.05			0.05	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Endosulfan I	mg/kg	< 0.05			0.05	Pass	
Endosulfan II	mg/kg	< 0.05			0.05	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endosulfan sulphate	mg/kg	< 0.05			0.05	Pass	
Endrin	mg/kg	< 0.05			0.05	Pass	
Endrin aldehyde	mg/kg	< 0.05			0.05	Pass	
Endrin ketone	mg/kg	< 0.05			0.05	Pass	
g-BHC (Lindane)	mg/kg	< 0.05			0.05	Pass	
Heptachlor	mg/kg	< 0.05			0.05	Pass	
Heptachlor epoxide	mg/kg	< 0.05			0.05	Pass	
Hexachlorobenzene	mg/kg	< 0.05			0.05	Pass	
Methoxychlor	mg/kg	< 0.2			0.2	Pass	
Toxaphene	mg/kg	< 0.1			0.1	Pass	
Method Blank							
Organophosphorus Pesticides							
Azinphos-methyl	mg/kg	< 0.2			0.2	Pass	
Bolstar	mg/kg	< 0.2			0.2	Pass	
Chlorfenvinphos	mg/kg	< 0.2			0.2	Pass	
Chlorpyrifos	mg/kg	< 0.2			0.2	Pass	
Chlorpyrifos-methyl	mg/kg	< 0.2			0.2	Pass	
Coumaphos	mg/kg	< 2			2	Pass	
Demeton-S	mg/kg	< 0.2			0.2	Pass	
Demeton-O	mg/kg	< 0.2			0.2	Pass	
Diazinon	mg/kg	< 0.2			0.2	Pass	
Dichlorvos	mg/kg	< 0.2			0.2	Pass	
Dimethoate	mg/kg	< 0.2			0.2	Pass	
Disulfoton	mg/kg	< 0.2			0.2	Pass	
EPN	mg/kg	< 0.2			0.2	Pass	
Ethion	mg/kg	< 0.2			0.2	Pass	
Ethoprop	mg/kg	< 0.2			0.2	Pass	
Ethyl parathion	mg/kg	< 0.2			0.2	Pass	
Fenitrothion	mg/kg	< 0.2			0.2	Pass	
Fensulfothion	mg/kg	< 0.2			0.2	Pass	
Fenthion	mg/kg	< 0.2			0.2	Pass	
Malathion	mg/kg	< 0.2			0.2	Pass	
Merphos	mg/kg	< 0.2			0.2	Pass	
Methyl parathion	mg/kg	< 0.2			0.2	Pass	
Mevinphos	mg/kg	< 0.2			0.2	Pass	
Monocrotophos	mg/kg	< 2			2	Pass	
Naled	mg/kg	< 0.2			0.2	Pass	
Omethoate	mg/kg	< 2			2	Pass	
Phorate	mg/kg	< 0.2			0.2	Pass	
Pirimiphos-methyl	mg/kg	< 0.2			0.2	Pass	
Pyrazophos	mg/kg	< 0.2			0.2	Pass	
Ronnel	mg/kg	< 0.2			0.2	Pass	
Terbufos	mg/kg	< 0.2			0.2	Pass	
Tetrachlorvinphos	mg/kg	< 0.2			0.2	Pass	
Tokuthion	mg/kg	< 0.2			0.2	Pass	
Trichloronate	mg/kg	< 0.2			0.2	Pass	
Method Blank							
Polychlorinated Biphenyls							
Aroclor-1016	mg/kg	< 0.5			0.5	Pass	
Aroclor-1221	mg/kg	< 0.1			0.1	Pass	
Aroclor-1232	mg/kg	< 0.5			0.5	Pass	
Aroclor-1242	mg/kg	< 0.5			0.5	Pass	
Aroclor-1248	mg/kg	< 0.5			0.5	Pass	
Aroclor-1254	mg/kg	< 0.5			0.5	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Aroclor-1260	mg/kg	< 0.5			0.5	Pass	
Total PCB*	mg/kg	< 0.5			0.5	Pass	
Method Blank							
TRH - 2013 NEPM Fractions (after silica gel clean-up)							
TRH >C10-C16 (after silica gel clean-up)	mg/kg	< 50			50	Pass	
TRH >C16-C34 (after silica gel clean-up)	mg/kg	< 100			100	Pass	
TRH >C34-C40 (after silica gel clean-up)	mg/kg	< 100			100	Pass	
Method Blank							
TRH - 1999 NEPM Fractions (after silica gel clean-up)							
TRH C10-C14 (after silica gel clean-up)	mg/kg	< 50			50	Pass	
TRH C15-C28 (after silica gel clean-up)	mg/kg	< 100			100	Pass	
TRH C29-C36 (after silica gel clean-up)	mg/kg	< 100			100	Pass	
Method Blank							
Total Organic Carbon	%	< 0.1			0.1	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Nickel	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	74			70-130	Pass	
TRH C10-C14	%	124			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	91			70-130	Pass	
Toluene	%	89			70-130	Pass	
Ethylbenzene	%	91			70-130	Pass	
m&p-Xylenes	%	94			70-130	Pass	
o-Xylene	%	89			70-130	Pass	
Xylenes - Total*	%	92			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	99			70-130	Pass	
TRH C6-C10	%	71			70-130	Pass	
TRH >C10-C16	%	124			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	100			70-130	Pass	
Acenaphthylene	%	99			70-130	Pass	
Anthracene	%	99			70-130	Pass	
Benz(a)anthracene	%	97			70-130	Pass	
Benzo(a)pyrene	%	100			70-130	Pass	
Benzo(b&j)fluoranthene	%	103			70-130	Pass	
Benzo(g.h.i)perylene	%	93			70-130	Pass	
Benzo(k)fluoranthene	%	106			70-130	Pass	
Chrysene	%	99			70-130	Pass	
Dibenz(a.h)anthracene	%	97			70-130	Pass	
Fluoranthene	%	102			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Fluorene	%	102			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	98			70-130	Pass	
Naphthalene	%	97			70-130	Pass	
Phenanthrene	%	101			70-130	Pass	
Pyrene	%	101			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
Chlordanes - Total	%	106			70-130	Pass	
4.4'-DDD	%	90			70-130	Pass	
4.4'-DDE	%	104			70-130	Pass	
4.4'-DDT	%	89			70-130	Pass	
a-BHC	%	94			70-130	Pass	
Aldrin	%	101			70-130	Pass	
b-BHC	%	87			70-130	Pass	
d-BHC	%	93			70-130	Pass	
Dieldrin	%	94			70-130	Pass	
Endosulfan I	%	94			70-130	Pass	
Endosulfan II	%	92			70-130	Pass	
Endosulfan sulphate	%	70			70-130	Pass	
Endrin	%	89			70-130	Pass	
Endrin aldehyde	%	97			70-130	Pass	
Endrin ketone	%	82			70-130	Pass	
g-BHC (Lindane)	%	95			70-130	Pass	
Heptachlor	%	89			70-130	Pass	
Heptachlor epoxide	%	100			70-130	Pass	
Hexachlorobenzene	%	107			70-130	Pass	
Methoxychlor	%	90			70-130	Pass	
LCS - % Recovery							
Organophosphorus Pesticides							
Diazinon	%	120			70-130	Pass	
Dimethoate	%	76			70-130	Pass	
Ethion	%	80			70-130	Pass	
Fenitrothion	%	127			70-130	Pass	
Methyl parathion	%	126			70-130	Pass	
Mevinphos	%	112			70-130	Pass	
LCS - % Recovery							
Polychlorinated Biphenyls							
Aroclor-1016	%	106			70-130	Pass	
Aroclor-1260	%	125			70-130	Pass	
LCS - % Recovery							
TRH - 2013 NEPM Fractions (after silica gel clean-up)							
TRH >C10-C16 (after silica gel clean-up)	%	106			70-130	Pass	
LCS - % Recovery							
TRH - 1999 NEPM Fractions (after silica gel clean-up)							
TRH C10-C14 (after silica gel clean-up)	%	108			70-130	Pass	
LCS - % Recovery							
Total Organic Carbon	%	97			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	100			80-120	Pass	
Cadmium	%	107			80-120	Pass	
Chromium	%	111			80-120	Pass	
Copper	%	111			80-120	Pass	
Lead	%	110			80-120	Pass	

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Mercury			%	112			80-120	Pass	
Nickel			%	107			80-120	Pass	
Zinc			%	105			80-120	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	S21-My03124	NCP	%	77			70-130	Pass	
TRH C10-C14	S21-My03114	NCP	%	107			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S21-My03124	NCP	%	98			70-130	Pass	
Toluene	S21-My03124	NCP	%	94			70-130	Pass	
Ethylbenzene	S21-My03124	NCP	%	102			70-130	Pass	
m&p-Xylenes	S21-My03124	NCP	%	99			70-130	Pass	
o-Xylene	S21-My03124	NCP	%	98			70-130	Pass	
Xylenes - Total*	S21-My03124	NCP	%	99			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	S21-My03124	NCP	%	113			70-130	Pass	
TRH C6-C10	S21-My03124	NCP	%	78			70-130	Pass	
TRH >C10-C16	S21-My03114	NCP	%	107			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	N21-My01621	NCP	%	114			70-130	Pass	
Acenaphthylene	N21-My01621	NCP	%	99			70-130	Pass	
Anthracene	N21-My01621	NCP	%	98			70-130	Pass	
Benz(a)anthracene	N21-My01621	NCP	%	94			70-130	Pass	
Benzo(a)pyrene	N21-My01621	NCP	%	88			70-130	Pass	
Benzo(b&j)fluoranthene	N21-My01621	NCP	%	85			70-130	Pass	
Benzo(g.h.i)perylene	N21-My01621	NCP	%	89			70-130	Pass	
Benzo(k)fluoranthene	N21-My01621	NCP	%	112			70-130	Pass	
Chrysene	N21-My01621	NCP	%	103			70-130	Pass	
Dibenz(a.h)anthracene	N21-My01621	NCP	%	84			70-130	Pass	
Fluoranthene	N21-My01621	NCP	%	117			70-130	Pass	
Fluorene	N21-My01621	NCP	%	101			70-130	Pass	
Indeno(1.2.3-cd)pyrene	N21-My01621	NCP	%	83			70-130	Pass	
Naphthalene	N21-My01621	NCP	%	104			70-130	Pass	
Phenanthrene	N21-My01621	NCP	%	100			70-130	Pass	
Pyrene	N21-My01621	NCP	%	116			70-130	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
Chlordanes - Total	S21-My16171	NCP	%	102			70-130	Pass	
4.4'-DDD	S21-My16171	NCP	%	91			70-130	Pass	
4.4'-DDE	S21-My16171	NCP	%	102			70-130	Pass	
4.4'-DDT	S21-My16171	NCP	%	98			70-130	Pass	
a-BHC	S21-My16171	NCP	%	86			70-130	Pass	
Aldrin	S21-My16171	NCP	%	96			70-130	Pass	
b-BHC	S21-My16171	NCP	%	83			70-130	Pass	
d-BHC	S21-My16171	NCP	%	88			70-130	Pass	
Dieldrin	S21-My16171	NCP	%	94			70-130	Pass	
Endosulfan I	S21-My16171	NCP	%	88			70-130	Pass	
Endosulfan II	S21-My16171	NCP	%	88			70-130	Pass	
Endosulfan sulphate	S21-My16171	NCP	%	82			70-130	Pass	
Endrin	S21-My26205	NCP	%	88			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endrin aldehyde	S21-My26205	NCP	%	83			70-130	Pass	
Endrin ketone	S21-My16171	NCP	%	109			70-130	Pass	
g-BHC (Lindane)	S21-My16171	NCP	%	89			70-130	Pass	
Heptachlor	S21-My16171	NCP	%	90			70-130	Pass	
Heptachlor epoxide	S21-My16171	NCP	%	95			70-130	Pass	
Hexachlorobenzene	S21-My16171	NCP	%	96			70-130	Pass	
Methoxychlor	S21-My16171	NCP	%	95			70-130	Pass	
Spike - % Recovery									
Organophosphorus Pesticides				Result 1					
Diazinon	S21-My16171	NCP	%	113			70-130	Pass	
Dimethoate	S21-My16171	NCP	%	70			70-130	Pass	
Ethion	S21-My16171	NCP	%	73			70-130	Pass	
Fenitrothion	S21-My16171	NCP	%	96			70-130	Pass	
Methyl parathion	S21-My16171	NCP	%	104			70-130	Pass	
Mevinphos	S21-My16171	NCP	%	123			70-130	Pass	
Spike - % Recovery									
Polychlorinated Biphenyls				Result 1					
Aroclor-1016	S21-My16171	NCP	%	79			70-130	Pass	
Aroclor-1260	S21-My16171	NCP	%	115			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S21-My04571	NCP	%	112			75-125	Pass	
Cadmium	S21-My04571	NCP	%	119			75-125	Pass	
Chromium	S21-My08210	NCP	%	109			75-125	Pass	
Copper	S21-My08210	NCP	%	109			75-125	Pass	
Lead	S21-My08230	NCP	%	91			75-125	Pass	
Mercury	S21-My08210	NCP	%	114			75-125	Pass	
Nickel	S21-My08210	NCP	%	114			75-125	Pass	
Zinc	S21-My04571	NCP	%	124			75-125	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	S21-My08210	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	S21-My03113	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	S21-My03113	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	S21-My03113	NCP	mg/kg	< 50	82	76	30%	Fail	Q15
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S21-My08210	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S21-My08210	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S21-My08210	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S21-My08210	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	S21-My08210	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total*	S21-My08210	NCP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	S21-My08210	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	S21-My08210	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH >C10-C16	S21-My03113	NCP	mg/kg	< 50	< 50	<1	30%	Pass	

Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	S21-My03348	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	S21-My03348	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	S21-My03348	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	S21-My03348	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	S21-My03348	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	S21-My03348	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	S21-My03348	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	S21-My03348	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	S21-My03348	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	S21-My03348	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	S21-My03348	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	S21-My03348	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	S21-My03348	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	S21-My03348	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	S21-My03348	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	S21-My03348	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	S21-My26206	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4.4'-DDD	S21-My26206	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDE	S21-My26206	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDT	S21-My26206	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-BHC	S21-My26206	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	S21-My26206	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-BHC	S21-My26206	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-BHC	S21-My26206	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	S21-My26206	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan I	S21-My26206	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	S21-My26206	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	S21-My26206	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	S21-My26206	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin aldehyde	S21-My26206	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin ketone	S21-My26206	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
g-BHC (Lindane)	S21-My26206	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor	S21-My26206	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor epoxide	S21-My26206	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Hexachlorobenzene	S21-My26206	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Methoxychlor	S21-My26206	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Toxaphene	S21-My26206	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Azinphos-methyl	S21-My26206	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Bolstar	S21-My26206	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorfenvinphos	S21-My26206	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorpyrifos	S21-My26206	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorpyrifos-methyl	S21-My26206	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Coumaphos	S21-My26206	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Demeton-S	S21-My26206	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Demeton-O	S21-My26206	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Diazinon	S21-My26206	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Dichlorvos	S21-My26206	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Dimethoate	S21-My26206	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Disulfoton	S21-My26206	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
EPN	S21-My26206	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	

Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Ethion	S21-My26206	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethoprop	S21-My26206	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethyl parathion	S21-My26206	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fenitrothion	S21-My26206	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fensulfothion	S21-My26206	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fenthion	S21-My26206	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Malathion	S21-My26206	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Merphos	S21-My26206	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Methyl parathion	S21-My26206	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Mevinphos	S21-My26206	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Monocrotophos	S21-My26206	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Naled	S21-My26206	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Omethoate	S21-My26206	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Phorate	S21-My26206	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Pirimiphos-methyl	S21-My26206	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Pyrazophos	S21-My26206	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ronnel	S21-My26206	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Terbufos	S21-My26206	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Tetrachlorvinphos	S21-My26206	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Tokuthion	S21-My26206	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Trichloronate	S21-My26206	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Duplicate									
Polychlorinated Biphenyls				Result 1	Result 2	RPD			
Aroclor-1016	S21-My26206	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1221	S21-My26206	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1232	S21-My26206	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1242	S21-My26206	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1248	S21-My26206	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1254	S21-My26206	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1260	S21-My26206	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Total PCB*	S21-My26206	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
TRH - 2013 NEPM Fractions (after silica gel clean-up)				Result 1	Result 2	RPD			
TRH >C10-C16 (after silica gel clean-up)	S21-My08523	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34 (after silica gel clean-up)	S21-My08523	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40 (after silica gel clean-up)	S21-My08523	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
TRH - 1999 NEPM Fractions (after silica gel clean-up)				Result 1	Result 2	RPD			
TRH C10-C14 (after silica gel clean-up)	S21-My08523	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C15-C28 (after silica gel clean-up)	S21-My08523	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH C29-C36 (after silica gel clean-up)	S21-My08523	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Total Organic Carbon	S21-My04180	CP	%	0.9	0.8	9.1	30%	Pass	
% Moisture	S21-My04180	CP	%	23	21	7.0	30%	Pass	

Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S21-My04182	CP	mg/kg	9.3	11	18	30%	Pass	
Cadmium	S21-My04182	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S21-My04182	CP	mg/kg	26	23	11	30%	Pass	
Copper	S21-My04182	CP	mg/kg	38	29	27	30%	Pass	
Lead	S21-My04182	CP	mg/kg	79	94	18	30%	Pass	
Mercury	S21-My04182	CP	mg/kg	0.2	0.2	10	30%	Pass	
Nickel	S21-My04182	CP	mg/kg	17	13	24	30%	Pass	
Zinc	S21-My04182	CP	mg/kg	120	97	25	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Total Organic Carbon	S21-My04197	CP	%	0.4	< 0.1	200	30%	Fail	Q15

Comments

This report was revised V2 to review PAH LORs on sample My04181.

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
Q15	The RPD reported passes Eurofins Environment Testing's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.

Authorised by:

John Nguyen	Analytical Services Manager
Andrew Sullivan	Senior Analyst-Organic (NSW)
John Nguyen	Senior Analyst-Metal (NSW)
Roopesh Rangarajan	Senior Analyst-Volatile (NSW)
Scott Beddoes	Senior Analyst-Inorganic (VIC)

Glenn Jackson
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

Greencap NSW P/L
Ground Floor, North Building, 22 Giffnock Avenue
Macquarie Park
NSW 2113

NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing
NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection and proficiency testing scheme providers reports.

Attention: **Shihui Wang**

Report **794321-S**
Project name ADDITIONAL - SYDNEY OLYMPIC PARK HS
Project ID J169135-01
Received Date May 10, 2021

Client Sample ID			**GG8-02(0.4-0.5)**	**GG8-03(0.9-1.0)**	**GG8-04(1.9-2.0)**	**GG1-07(2.0-2.1)**
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**S21-My20309**	**S21-My20310**	**S21-My20311**	**S21-My20312**
Date Sampled			**Apr 29, 2021**	**Apr 29, 2021**	**Apr 29, 2021**	**Apr 29, 2021**
Test/Reference	LOR	Unit				
Volatile Organics						
1.1-Dichloroethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.1-Dichloroethene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.1.1-Trichloroethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.1.1.2-Tetrachloroethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.1.2-Trichloroethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.1.2.2-Tetrachloroethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.2-Dibromoethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.2-Dichlorobenzene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.2-Dichloroethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.2-Dichloropropane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.2.3-Trichloropropane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.2.4-Trimethylbenzene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.3-Dichlorobenzene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.3-Dichloropropane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.3.5-Trimethylbenzene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.4-Dichlorobenzene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Butanone (MEK)	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Propanone (Acetone)	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
4-Chlorotoluene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
4-Methyl-2-pentanone (MIBK)	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Allyl chloride	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Bromobenzene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Bromochloromethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Bromoform	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Bromomethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Carbon disulfide	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Carbon Tetrachloride	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chlorobenzene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chloroethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chloroform	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chloromethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
cis-1.2-Dichloroethene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
cis-1.3-Dichloropropene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5

Client Sample ID			GG8-02(0.4-0.5)	GG8-03(0.9-1.0)	GG8-04(1.9-2.0)	GG1-07(2.0-2.1)
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**S21-My20309**	**S21-My20310**	**S21-My20311**	**S21-My20312**
Date Sampled			**Apr 29, 2021**	**Apr 29, 2021**	**Apr 29, 2021**	**Apr 29, 2021**
Test/Reference	LOR	Unit				
Volatile Organics						
Dibromochloromethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibromomethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dichlorodifluoromethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Iodomethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Isopropyl benzene (Cumene)	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Methylene Chloride	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Styrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
trans-1.2-Dichloroethene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
trans-1.3-Dichloropropene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Trichlorofluoromethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Vinyl chloride	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
Total MAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Vic EPA IWRG 621 CHC (Total)*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Vic EPA IWRG 621 Other CHC (Total)*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
4-Bromofluorobenzene (surr.)	1	%	92	94	90	94
Toluene-d8 (surr.)	1	%	118	112	104	111
Semivolatile Organics						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	4.6	7.8	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	4.8	8.1	0.7
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	5.1	8.3	1.2
2-Methyl-4.6-dinitrophenol	5	mg/kg	< 5	< 5	< 5	< 5
1-Chloronaphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1-Naphthylamine	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.2-Dichlorobenzene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.2.3-Trichlorobenzene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.2.3.4-Tetrachlorobenzene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.2.3.5-Tetrachlorobenzene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.2.4-Trichlorobenzene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.2.4.5-Tetrachlorobenzene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.3-Dichlorobenzene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.3.5-Trichlorobenzene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
1.4-Dichlorobenzene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Chloronaphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Chlorophenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	85	107	95	96
2-Methylnaphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Methylphenol (o-Cresol)	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
2-Naphthylamine	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Nitroaniline	1	mg/kg	< 1	< 1	< 1	< 1
2-Nitrophenol	1	mg/kg	< 1	< 1	< 1	< 1
2-Picoline	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2.3.4.6-Tetrachlorophenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5

Client Sample ID			GG8-02(0.4-0.5)	GG8-03(0.9-1.0)	GG8-04(1.9-2.0)	GG1-07(2.0-2.1)
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-My20309	S21-My20310	S21-My20311	S21-My20312
Date Sampled			Apr 29, 2021	Apr 29, 2021	Apr 29, 2021	Apr 29, 2021
Test/Reference	LOR	Unit				
Semivolatile Organics						
2.4-Dichlorophenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2.4-Dimethylphenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2.4-Dinitrophenol	5	mg/kg	< 5	< 5	< 5	< 5
2.4-Dinitrotoluene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2.4.5-Trichlorophenol	1	mg/kg	< 1	< 1	< 1	< 1
2.4.6-Tribromophenol (surr.)	1	%	INT	INT	INT	INT
2.4.6-Trichlorophenol	1	mg/kg	< 1	< 1	< 1	< 1
2.6-Dichlorophenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2.6-Dinitrotoluene	1	mg/kg	< 1	< 1	< 1	< 1
3&4-Methylphenol (m&p-Cresol)	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
3-Methylcholanthrene	0.5	mg/kg	< 0.5	< 0.5	0.5	< 0.5
3.3'-Dichlorobenzidine	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
4-Aminobiphenyl	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
4-Bromophenyl phenyl ether	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
4-Chloro-3-methylphenol	1	mg/kg	< 1	< 1	< 1	< 1
4-Chlorophenyl phenyl ether	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
4-Nitrophenol	5	mg/kg	< 5	< 5	< 5	< 5
4.4'-DDD	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
4.4'-DDE	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
4.4'-DDT	1	mg/kg	< 1	< 1	< 1	< 1
7.12-Dimethylbenz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
a-BHC	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	1.3	< 0.5
Acetophenone	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aldrin	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aniline	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	0.6	4.3	< 0.5
b-BHC	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	3.2	6.9	0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	3.5	5.8	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	2.2	3.9	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	1.4	1.2	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	3.9	7.9	0.7
Benzyl chloride	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Bis(2-chloroethoxy)methane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Bis(2-chloroisopropyl)ether	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Bis(2-ethylhexyl)phthalate	5	mg/kg	< 5	< 5	< 5	< 5
Butyl benzyl phthalate	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	2.7	5.6	0.8
d-BHC	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Di-n-butyl phthalate	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Di-n-octyl phthalate	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibenz(a.j)acridine	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibenzofuran	0.5	mg/kg	< 0.5	< 0.5	0.6	< 0.5
Dieldrin	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Diethyl phthalate	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dimethyl phthalate	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5

Client Sample ID			GG8-02(0.4-0.5)	GG8-03(0.9-1.0)	GG8-04(1.9-2.0)	GG1-07(2.0-2.1)
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**S21-My20309**	**S21-My20310**	**S21-My20311**	**S21-My20312**
Date Sampled			**Apr 29, 2021**	**Apr 29, 2021**	**Apr 29, 2021**	**Apr 29, 2021**
Test/Reference	LOR	Unit				
Semivolatile Organics						
Dimethylaminoazobenzene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Diphenylamine	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Endosulfan I	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Endosulfan II	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Endosulfan sulphate	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Endrin	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Endrin aldehyde	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Endrin ketone	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	9.5	27	1.4
Fluorene	0.5	mg/kg	2.2	< 0.5	1.7	< 0.5
g-BHC (Lindane)	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Heptachlor	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Heptachlor epoxide	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Hexachlorobenzene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Hexachlorobutadiene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Hexachlorocyclopentadiene	1	mg/kg	< 1	< 1	< 1	< 1
Hexachloroethane	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	1.1	0.8	< 0.5
Methoxychlor	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
N-Nitrosodibutylamine	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
N-Nitrosodipropylamine	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
N-Nitrosopiperidine	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	0.8	< 0.5
Nitrobenzene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Nitrobenzene-d5 (surr.)	1	%	111	91	69	76
Pentachlorobenzene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pentachloronitrobenzene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pentachlorophenol	1	mg/kg	< 1	< 1	< 1	< 1
Phenanthrene	0.5	mg/kg	< 0.5	2.8	13	< 0.5
Phenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenol-d6 (surr.)	1	%	94	103	79	83
Pronamide	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	1.4	7.8	21	1.2
Trifluralin	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
% Moisture	1	%	11	13	21	14

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Volatile Organics	Sydney	May 12, 2021	7 Days
- Method: LTM-ORG-2150 VOCs in Soils Liquid and other Aqueous Matrices			
Semivolatile Organics	Sydney	May 12, 2021	14 Day
- Method: LTM-ORG-2190 SVOC in Water & Soil by GC-MS			
% Moisture	Sydney	May 12, 2021	14 Days
- Method: LTM-GEN-7080 Moisture			

eurofins | Environment Testing

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IANZ # 1290

Company Name: Greencap NSW P/L
Address: Ground Floor, North Building, 22 Giffnock Avenue
Macquarie Park
NSW 2113

Project Name: ADDITIONAL - SYDNEY OLYMPIC PARK HS
Project ID: J169135-01

Order No.:
Report #: 794321
Phone: 02 9889 1800
Fax: 02 9889 1811

Received: May 10, 2021 1:45 PM
Due: May 17, 2021
Priority: 5 Day
Contact Name: Shihui Wang

Eurofins Analytical Services Manager : Ursula Long

Sample Detail						Volatile Organics	Moisture Set	Semivolatile Organics
Melbourne Laboratory - NATA Site # 1254 & 14271								
Sydney Laboratory - NATA Site # 18217						X	X	X
Brisbane Laboratory - NATA Site # 20794								
Perth Laboratory - NATA Site # 23736								
Mayfield Laboratory - NATA Site # 25079								
External Laboratory								
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**			
1	GG8-02(0.4-0.5)	Apr 29, 2021		Soil	S21-My20309	X	X	X
2	GG8-03(0.9-1.0)	Apr 29, 2021		Soil	S21-My20310	X	X	X
3	GG8-04(1.9-2.0)	Apr 29, 2021		Soil	S21-My20311	X	X	X
4	GG1-07(2.0-2.1)	Apr 29, 2021		Soil	S21-My20312	X	X	X
Test Counts						4	4	4

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer, that may have an impact on the results.
9. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	US Department of Defense Quality Systems Manual Version 5.3
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 20-130% Phenols & 50-150% PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.3 where no positive PFAS results have been reported have been reviewed and no data was affected.

WA DWER (n=10): PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Volatile Organics							
1.1-Dichloroethane	mg/kg	< 0.5			0.5	Pass	
1.1-Dichloroethene	mg/kg	< 0.5			0.5	Pass	
1.1.1-Trichloroethane	mg/kg	< 0.5			0.5	Pass	
1.1.1.2-Tetrachloroethane	mg/kg	< 0.5			0.5	Pass	
1.1.2-Trichloroethane	mg/kg	< 0.5			0.5	Pass	
1.1.2.2-Tetrachloroethane	mg/kg	< 0.5			0.5	Pass	
1.2-Dibromoethane	mg/kg	< 0.5			0.5	Pass	
1.2-Dichlorobenzene	mg/kg	< 0.5			0.5	Pass	
1.2-Dichloroethane	mg/kg	< 0.5			0.5	Pass	
1.2-Dichloropropane	mg/kg	< 0.5			0.5	Pass	
1.2.3-Trichloropropane	mg/kg	< 0.5			0.5	Pass	
1.2.4-Trimethylbenzene	mg/kg	< 0.5			0.5	Pass	
1.3-Dichlorobenzene	mg/kg	< 0.5			0.5	Pass	
1.3-Dichloropropane	mg/kg	< 0.5			0.5	Pass	
1.3.5-Trimethylbenzene	mg/kg	< 0.5			0.5	Pass	
1.4-Dichlorobenzene	mg/kg	< 0.5			0.5	Pass	
2-Butanone (MEK)	mg/kg	< 0.5			0.5	Pass	
2-Propanone (Acetone)	mg/kg	< 0.5			0.5	Pass	
4-Chlorotoluene	mg/kg	< 0.5			0.5	Pass	
4-Methyl-2-pentanone (MIBK)	mg/kg	< 0.5			0.5	Pass	
Allyl chloride	mg/kg	< 0.5			0.5	Pass	
Benzene	mg/kg	< 0.1			0.1	Pass	
Bromobenzene	mg/kg	< 0.5			0.5	Pass	
Bromochloromethane	mg/kg	< 0.5			0.5	Pass	
Bromodichloromethane	mg/kg	< 0.5			0.5	Pass	
Bromoform	mg/kg	< 0.5			0.5	Pass	
Bromomethane	mg/kg	< 0.5			0.5	Pass	
Carbon disulfide	mg/kg	< 0.5			0.5	Pass	
Carbon Tetrachloride	mg/kg	< 0.5			0.5	Pass	
Chlorobenzene	mg/kg	< 0.5			0.5	Pass	
Chloroethane	mg/kg	< 0.5			0.5	Pass	
Chloroform	mg/kg	< 0.5			0.5	Pass	
Chloromethane	mg/kg	< 0.5			0.5	Pass	
cis-1.2-Dichloroethene	mg/kg	< 0.5			0.5	Pass	
cis-1.3-Dichloropropene	mg/kg	< 0.5			0.5	Pass	
Dibromochloromethane	mg/kg	< 0.5			0.5	Pass	
Dibromomethane	mg/kg	< 0.5			0.5	Pass	
Dichlorodifluoromethane	mg/kg	< 0.5			0.5	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
Iodomethane	mg/kg	< 0.5			0.5	Pass	
Isopropyl benzene (Cumene)	mg/kg	< 0.5			0.5	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
Methylene Chloride	mg/kg	< 0.5			0.5	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Styrene	mg/kg	< 0.5			0.5	Pass	
Tetrachloroethene	mg/kg	< 0.5			0.5	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
trans-1.2-Dichloroethene	mg/kg	< 0.5			0.5	Pass	
trans-1.3-Dichloropropene	mg/kg	< 0.5			0.5	Pass	
Trichloroethene	mg/kg	< 0.5			0.5	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Trichlorofluoromethane	mg/kg	< 0.5			0.5	Pass	
Vinyl chloride	mg/kg	< 0.5			0.5	Pass	
Xylenes - Total*	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Semivolatile Organics							
2-Methyl-4.6-dinitrophenol	mg/kg	< 5			5	Pass	
1-Chloronaphthalene	mg/kg	< 0.5			0.5	Pass	
1-Naphthylamine	mg/kg	< 0.5			0.5	Pass	
1.2-Dichlorobenzene	mg/kg	< 0.5			0.5	Pass	
1.2.3-Trichlorobenzene	mg/kg	< 0.5			0.5	Pass	
1.2.3.4-Tetrachlorobenzene	mg/kg	< 0.5			0.5	Pass	
1.2.3.5-Tetrachlorobenzene	mg/kg	< 0.5			0.5	Pass	
1.2.4-Trichlorobenzene	mg/kg	< 0.5			0.5	Pass	
1.2.4.5-Tetrachlorobenzene	mg/kg	< 0.5			0.5	Pass	
1.3-Dichlorobenzene	mg/kg	< 0.5			0.5	Pass	
1.3.5-Trichlorobenzene	mg/kg	< 0.5			0.5	Pass	
1.4-Dichlorobenzene	mg/kg	< 0.5			0.5	Pass	
2-Chloronaphthalene	mg/kg	< 0.5			0.5	Pass	
2-Chlorophenol	mg/kg	< 0.5			0.5	Pass	
2-Methylnaphthalene	mg/kg	< 0.5			0.5	Pass	
2-Methylphenol (o-Cresol)	mg/kg	< 0.2			0.2	Pass	
2-Naphthylamine	mg/kg	< 0.5			0.5	Pass	
2-Nitroaniline	mg/kg	< 1			1	Pass	
2-Nitrophenol	mg/kg	< 1			1	Pass	
2-Picoline	mg/kg	< 0.5			0.5	Pass	
2.3.4.6-Tetrachlorophenol	mg/kg	< 0.5			0.5	Pass	
2.4-Dichlorophenol	mg/kg	< 0.5			0.5	Pass	
2.4-Dimethylphenol	mg/kg	< 0.5			0.5	Pass	
2.4-Dinitrophenol	mg/kg	< 5			5	Pass	
2.4-Dinitrotoluene	mg/kg	< 0.5			0.5	Pass	
2.4.5-Trichlorophenol	mg/kg	< 1			1	Pass	
2.4.6-Trichlorophenol	mg/kg	< 1			1	Pass	
2.6-Dichlorophenol	mg/kg	< 0.5			0.5	Pass	
2.6-Dinitrotoluene	mg/kg	< 1			1	Pass	
3&4-Methylphenol (m&p-Cresol)	mg/kg	< 0.4			0.4	Pass	
3-Methylcholanthrene	mg/kg	< 0.5			0.5	Pass	
3.3'-Dichlorobenzidine	mg/kg	< 0.5			0.5	Pass	
4-Aminobiphenyl	mg/kg	< 0.5			0.5	Pass	
4-Bromophenyl phenyl ether	mg/kg	< 0.5			0.5	Pass	
4-Chloro-3-methylphenol	mg/kg	< 1			1	Pass	
4-Chlorophenyl phenyl ether	mg/kg	< 0.5			0.5	Pass	
4-Nitrophenol	mg/kg	< 5			5	Pass	
4.4'-DDD	mg/kg	< 0.5			0.5	Pass	
4.4'-DDE	mg/kg	< 0.5			0.5	Pass	
4.4'-DDT	mg/kg	< 1			1	Pass	
7.12-Dimethylbenz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
a-BHC	mg/kg	< 0.5			0.5	Pass	
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Acetophenone	mg/kg	< 0.5			0.5	Pass	
Aldrin	mg/kg	< 0.5			0.5	Pass	
Aniline	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
b-BHC	mg/kg	< 0.5			0.5	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzyl chloride	mg/kg	< 0.5			0.5	Pass	
Bis(2-chloroethoxy)methane	mg/kg	< 0.5			0.5	Pass	
Bis(2-chloroisopropyl)ether	mg/kg	< 0.5			0.5	Pass	
Bis(2-ethylhexyl)phthalate	mg/kg	< 5			5	Pass	
Butyl benzyl phthalate	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
d-BHC	mg/kg	< 0.5			0.5	Pass	
Di-n-butyl phthalate	mg/kg	< 0.5			0.5	Pass	
Di-n-octyl phthalate	mg/kg	< 0.5			0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a.j)acridine	mg/kg	< 0.5			0.5	Pass	
Dibenzofuran	mg/kg	< 0.5			0.5	Pass	
Dieldrin	mg/kg	< 0.5			0.5	Pass	
Diethyl phthalate	mg/kg	< 0.5			0.5	Pass	
Dimethyl phthalate	mg/kg	< 0.5			0.5	Pass	
Dimethylaminoazobenzene	mg/kg	< 0.5			0.5	Pass	
Diphenylamine	mg/kg	< 0.5			0.5	Pass	
Endosulfan I	mg/kg	< 0.5			0.5	Pass	
Endosulfan II	mg/kg	< 0.5			0.5	Pass	
Endosulfan sulphate	mg/kg	< 0.5			0.5	Pass	
Endrin	mg/kg	< 0.5			0.5	Pass	
Endrin aldehyde	mg/kg	< 0.5			0.5	Pass	
Endrin ketone	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
g-BHC (Lindane)	mg/kg	< 0.5			0.5	Pass	
Heptachlor	mg/kg	< 0.5			0.5	Pass	
Heptachlor epoxide	mg/kg	< 0.5			0.5	Pass	
Hexachlorobenzene	mg/kg	< 0.5			0.5	Pass	
Hexachlorobutadiene	mg/kg	< 0.5			0.5	Pass	
Hexachlorocyclopentadiene	mg/kg	< 1			1	Pass	
Hexachloroethane	mg/kg	< 0.5			0.5	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Methoxychlor	mg/kg	< 0.5			0.5	Pass	
N-Nitrosodibutylamine	mg/kg	< 0.5			0.5	Pass	
N-Nitrosodipropylamine	mg/kg	< 0.5			0.5	Pass	
N-Nitrosopiperidine	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Nitrobenzene	mg/kg	< 0.5			0.5	Pass	
Pentachlorobenzene	mg/kg	< 0.5			0.5	Pass	
Pentachloronitrobenzene	mg/kg	< 0.5			0.5	Pass	
Pentachlorophenol	mg/kg	< 1			1	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Phenol	mg/kg	< 0.5			0.5	Pass	
Pronamide	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Trifluralin	mg/kg	< 0.5			0.5	Pass	
LCS - % Recovery							
Volatile Organics							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
1.1-Dichloroethene	%	87			70-130	Pass	
1.1.1-Trichloroethane	%	98			70-130	Pass	
1.2-Dichlorobenzene	%	92			70-130	Pass	
1.2-Dichloroethane	%	99			70-130	Pass	
Benzene	%	96			70-130	Pass	
Ethylbenzene	%	100			70-130	Pass	
m&p-Xylenes	%	106			70-130	Pass	
o-Xylene	%	100			70-130	Pass	
Toluene	%	101			70-130	Pass	
Trichloroethene	%	86			70-130	Pass	
Xylenes - Total*	%	104			70-130	Pass	
LCS - % Recovery							
Semivolatile Organics							
2-Methyl-4.6-dinitrophenol	%	80			30-130	Pass	
1.2.4-Trichlorobenzene	%	112			70-130	Pass	
1.4-Dichlorobenzene	%	98			70-130	Pass	
2-Chlorophenol	%	113			30-130	Pass	
2-Methylphenol (o-Cresol)	%	93			30-130	Pass	
2.4-Dichlorophenol	%	100			30-130	Pass	
2.4-Dimethylphenol	%	101			30-130	Pass	
2.4-Dinitrophenol	%	72			30-130	Pass	
2.4-Dinitrotoluene	%	115			70-130	Pass	
2.4.5-Trichlorophenol	%	99			30-130	Pass	
2.4.6-Trichlorophenol	%	108			30-130	Pass	
2.6-Dichlorophenol	%	104			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	%	99			30-130	Pass	
4-Chloro-3-methylphenol	%	98			30-130	Pass	
4-Nitrophenol	%	82			30-130	Pass	
Acenaphthene	%	93			70-130	Pass	
Acenaphthylene	%	92			70-130	Pass	
Anthracene	%	98			70-130	Pass	
Benz(a)anthracene	%	95			70-130	Pass	
Benzo(a)pyrene	%	95			70-130	Pass	
Benzo(b&j)fluoranthene	%	105			70-130	Pass	
Benzo(k)fluoranthene	%	104			70-130	Pass	
Chrysene	%	99			70-130	Pass	
Fluoranthene	%	99			70-130	Pass	
Fluorene	%	100			70-130	Pass	
N-Nitrosodipropylamine	%	103			70-130	Pass	
Naphthalene	%	90			70-130	Pass	
Phenanthrene	%	100			70-130	Pass	
Phenol	%	111			30-130	Pass	
Pyrene	%	123			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Volatile Organics				Result 1					
Benzene	S21-My25182	NCP	%	89			70-130	Pass	
Ethylbenzene	S21-My25182	NCP	%	94			70-130	Pass	
m&p-Xylenes	S21-My25182	NCP	%	88			70-130	Pass	
o-Xylene	S21-My25182	NCP	%	98			70-130	Pass	
Toluene	S21-My25182	NCP	%	95			70-130	Pass	
Xylenes - Total*	S21-My25182	NCP	%	92			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Volatile Organics				Result 1	Result 2	RPD			
Benzene	S21-My25181	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S21-My25181	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S21-My25181	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	S21-My25181	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S21-My25181	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total*	S21-My25181	NCP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	S21-My20311	CP	%	21	22	1.0	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs

Authorised by:

John Nguyen	Analytical Services Manager
Andrew Sullivan	Senior Analyst-Organic (NSW)
Roopesh Rangarajan	Senior Analyst-Volatile (NSW)

Glenn Jackson
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

Greencap NSW P/L
Ground Floor, North Building, 22 Giffnock Avenue
Macquarie Park
NSW 2113

Attention: **Shihui Wang**

Report **824748-S**
Project name SYDNEY OLYMPIC PARK HS
Project ID J169135-01
Received Date May 04, 2021

Client Sample ID			**BH2(0.5-0.7)**	**BH5(0.5-0.7)**	**BH10(0.7-0.9)**	**BH1(0.7-0.9)**
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**S21-My10964**	**S21-My10965**	**S21-My10967**	**S21-My10973**
Date Sampled			**May 03, 2021**	**May 03, 2021**	**May 03, 2021**	**May 03, 2021**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	61	< 50
TRH C29-C36	50	mg/kg	< 50	< 50	110	< 50
TRH C10-C36 (Total)	50	mg/kg	< 50	< 50	171	< 50
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	140	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	140	< 100
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	92	126	52	102
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	2.0	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	2.3	0.7	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	2.6	1.3	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	2.7	1.1	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	1.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	1.1	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	0.7	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	1.1	0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	2.4	1.1	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5

Client Sample ID			BH2(0.5-0.7)	BH5(0.5-0.7)	BH10(0.7-0.9)	BH1(0.7-0.9)
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-My10964	S21-My10965	S21-My10967	S21-My10973
Date Sampled			May 03, 2021	May 03, 2021	May 03, 2021	May 03, 2021
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Fluoranthene	0.5	mg/kg	< 0.5	2.9	0.9	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	1.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	3.2	1.0	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	17.1	4.6	< 0.5
2-Fluorobiphenyl (surr.)	1	%	80	87	96	80
p-Terphenyl-d14 (surr.)	1	%	102	53	69	96
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
a-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
b-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
d-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
g-HCH (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Toxaphene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Dibutylchlorendate (surr.)	1	%	53	97	126	99
Tetrachloro-m-xylene (surr.)	1	%	87	102	119	79
Organophosphorus Pesticides						
Azinphos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Bolstar	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorfenvinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorpyrifos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorpyrifos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Coumaphos	2	mg/kg	< 2	< 2	< 2	< 2
Demeton-S	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Demeton-O	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Diazinon	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Dichlorvos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Dimethoate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2

Client Sample ID			BH2(0.5-0.7)	BH5(0.5-0.7)	BH10(0.7-0.9)	BH1(0.7-0.9)
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-My10964	S21-My10965	S21-My10967	S21-My10973
Date Sampled			May 03, 2021	May 03, 2021	May 03, 2021	May 03, 2021
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Disulfoton	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
EPN	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethoprop	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethyl parathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fenitrothion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fensulfothion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fenthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Malathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Merphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Methyl parathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Mevinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Monocrotophos	2	mg/kg	< 2	< 2	< 2	< 2
Naled	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Omethoate	2	mg/kg	< 2	< 2	< 2	< 2
Phorate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Pirimiphos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Pyrazophos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ronnel	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Terbufos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Tetrachlorvinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Tokuthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Trichloronate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Triphenylphosphate (surr.)	1	%	99	67	73	92
Polychlorinated Biphenyls						
Aroclor-1016	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1221	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1232	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1242	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1248	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1254	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1260	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Total PCB*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Dibutylchlorendate (surr.)	1	%	53	97	126	99
Tetrachloro-m-xylene (surr.)	1	%	87	102	119	79
TRH - 2013 NEPM Fractions (after silica gel clean-up)						
TRH >C10-C16 (after silica gel clean-up)	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34 (after silica gel clean-up)	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C34-C40 (after silica gel clean-up)	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C10-C40 (total) (after silica-gel clean up)*	100	mg/kg	< 100	-	-	-
TRH - 1999 NEPM Fractions (after silica gel clean-up)						
TRH C10-C14 (after silica gel clean-up)	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28 (after silica gel clean-up)	50	mg/kg	< 50	< 50	< 50	< 50
TRH C29-C36 (after silica gel clean-up)	50	mg/kg	< 50	< 50	< 50	< 50
TRH C10-C36 (Total) (after silica gel clean-up)	100	mg/kg	< 50	< 50	< 50	< 50

Client Sample ID			BH2(0.5-0.7)	BH5(0.5-0.7)	BH10(0.7-0.9)	BH1(0.7-0.9)
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-My10964	S21-My10965	S21-My10967	S21-My10973
Date Sampled			May 03, 2021	May 03, 2021	May 03, 2021	May 03, 2021
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic	2	mg/kg	16	11	5.2	7.2
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	25	24	32	9.8
Copper	5	mg/kg	24	73	26	42
Lead	5	mg/kg	27	210	82	20
Mercury	0.1	mg/kg	< 0.1	0.6	0.2	< 0.1
Nickel	5	mg/kg	6.4	7.8	19	50
Zinc	5	mg/kg	34	800	100	210
% Moisture	1	%	15	15	9.8	11

Client Sample ID			BH3(1.0-1.2)	BH4(1.0-1.2)
Sample Matrix			Soil	Soil
Eurofins Sample No.			S21-My10974	S21-My10975
Date Sampled			May 03, 2021	May 03, 2021
Test/Reference	LOR	Unit		
Total Recoverable Hydrocarbons				
TRH C6-C9	20	mg/kg	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	< 50
TRH C10-C36 (Total)	50	mg/kg	< 50	< 50
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100
BTEX				
Benzene	0.1	mg/kg	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	78	107
Polycyclic Aromatic Hydrocarbons				
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	0.7	3.0
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	1.0	3.3
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.3	3.5
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	0.8
Benz(a)anthracene	0.5	mg/kg	0.6	2.4
Benzo(a)pyrene	0.5	mg/kg	0.6	2.3
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	1.7

Client Sample ID			BH3(1.0-1.2)	BH4(1.0-1.2)
Sample Matrix			Soil	Soil
Eurofins Sample No.			S21-My10974	S21-My10975
Date Sampled			May 03, 2021	May 03, 2021
Test/Reference	LOR	Unit		
Polycyclic Aromatic Hydrocarbons				
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	1.0
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	1.7
Chrysene	0.5	mg/kg	0.6	2.1
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	1.8	6.7
Fluorene	0.5	mg/kg	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	1.2
Naphthalene	0.5	mg/kg	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	0.7	3.7
Pyrene	0.5	mg/kg	1.6	6.3
Total PAH*	0.5	mg/kg	5.9	29.9
2-Fluorobiphenyl (surr.)	1	%	98	100
p-Terphenyl-d14 (surr.)	1	%	121	113
Organochlorine Pesticides				
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.05	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05	< 0.05
a-HCH	0.05	mg/kg	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05
b-HCH	0.05	mg/kg	< 0.05	< 0.05
d-HCH	0.05	mg/kg	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05
g-HCH (Lindane)	0.05	mg/kg	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05	< 0.05
Toxaphene	0.5	mg/kg	< 0.5	< 0.5
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1
Dibutylchlorendate (surr.)	1	%	61	83
Tetrachloro-m-xylene (surr.)	1	%	118	110
Organophosphorus Pesticides				
Azinphos-methyl	0.2	mg/kg	< 0.2	< 0.2
Bolstar	0.2	mg/kg	< 0.2	< 0.2
Chlorfenvinphos	0.2	mg/kg	< 0.2	< 0.2
Chlorpyrifos	0.2	mg/kg	< 0.2	< 0.2
Chlorpyrifos-methyl	0.2	mg/kg	< 0.2	< 0.2
Coumaphos	2	mg/kg	< 2	< 2
Demeton-S	0.2	mg/kg	< 0.2	< 0.2

Client Sample ID			BH3(1.0-1.2)	BH4(1.0-1.2)
Sample Matrix			Soil	Soil
Eurofins Sample No.			S21-My10974	S21-My10975
Date Sampled			May 03, 2021	May 03, 2021
Test/Reference	LOR	Unit		
Organophosphorus Pesticides				
Demeton-O	0.2	mg/kg	< 0.2	< 0.2
Diazinon	0.2	mg/kg	< 0.2	< 0.2
Dichlorvos	0.2	mg/kg	< 0.2	< 0.2
Dimethoate	0.2	mg/kg	< 0.2	< 0.2
Disulfoton	0.2	mg/kg	< 0.2	< 0.2
EPN	0.2	mg/kg	< 0.2	< 0.2
Ethion	0.2	mg/kg	< 0.2	< 0.2
Ethoprop	0.2	mg/kg	< 0.2	< 0.2
Ethyl parathion	0.2	mg/kg	< 0.2	< 0.2
Fenitrothion	0.2	mg/kg	< 0.2	< 0.2
Fensulfothion	0.2	mg/kg	< 0.2	< 0.2
Fenthion	0.2	mg/kg	< 0.2	< 0.2
Malathion	0.2	mg/kg	< 0.2	< 0.2
Merphos	0.2	mg/kg	< 0.2	< 0.2
Methyl parathion	0.2	mg/kg	< 0.2	< 0.2
Mevinphos	0.2	mg/kg	< 0.2	< 0.2
Monocrotophos	2	mg/kg	< 2	< 2
Naled	0.2	mg/kg	< 0.2	< 0.2
Omethoate	2	mg/kg	< 2	< 2
Phorate	0.2	mg/kg	< 0.2	< 0.2
Pirimiphos-methyl	0.2	mg/kg	< 0.2	< 0.2
Pyrazophos	0.2	mg/kg	< 0.2	< 0.2
Ronnel	0.2	mg/kg	< 0.2	< 0.2
Terbufos	0.2	mg/kg	< 0.2	< 0.2
Tetrachlorvinphos	0.2	mg/kg	< 0.2	< 0.2
Tokuthion	0.2	mg/kg	< 0.2	< 0.2
Trichloronate	0.2	mg/kg	< 0.2	< 0.2
Triphenylphosphate (surr.)	1	%	70	79
Polychlorinated Biphenyls				
Aroclor-1016	0.1	mg/kg	< 0.1	< 0.1
Aroclor-1221	0.1	mg/kg	< 0.1	< 0.1
Aroclor-1232	0.1	mg/kg	< 0.1	< 0.1
Aroclor-1242	0.1	mg/kg	< 0.1	< 0.1
Aroclor-1248	0.1	mg/kg	< 0.1	< 0.1
Aroclor-1254	0.1	mg/kg	< 0.1	< 0.1
Aroclor-1260	0.1	mg/kg	< 0.1	< 0.1
Total PCB*	0.1	mg/kg	< 0.1	< 0.1
Dibutylchlorendate (surr.)	1	%	61	83
Tetrachloro-m-xylene (surr.)	1	%	118	110
TRH - 2013 NEPM Fractions (after silica gel clean-up)				
TRH >C10-C16 (after silica gel clean-up)	50	mg/kg	< 50	< 50
TRH >C16-C34 (after silica gel clean-up)	100	mg/kg	< 100	< 100
TRH >C34-C40 (after silica gel clean-up)	100	mg/kg	< 100	< 100
TRH - 1999 NEPM Fractions (after silica gel clean-up)				
TRH C10-C14 (after silica gel clean-up)	20	mg/kg	< 20	< 20
TRH C15-C28 (after silica gel clean-up)	50	mg/kg	< 50	< 50
TRH C29-C36 (after silica gel clean-up)	50	mg/kg	< 50	< 50
TRH C10-C36 (Total) (after silica gel clean-up)	100	mg/kg	< 50	< 50

Client Sample ID			BH3(1.0-1.2)	BH4(1.0-1.2)
Sample Matrix			Soil	Soil
Eurofins Sample No.			S21-My10974	S21-My10975
Date Sampled			May 03, 2021	May 03, 2021
Test/Reference	LOR	Unit		
Heavy Metals				
Arsenic	2	mg/kg	12	10
Cadmium	0.4	mg/kg	< 0.4	0.6
Chromium	5	mg/kg	21	16
Copper	5	mg/kg	25	61
Lead	5	mg/kg	25	870
Mercury	0.1	mg/kg	< 0.1	1.9
Nickel	5	mg/kg	8.0	8.5
Zinc	5	mg/kg	44	1100
% Moisture	1	%	14	19

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Eurofins Suite B7			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Melbourne	May 10, 2021	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	May 10, 2021	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	May 10, 2021	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Melbourne	May 10, 2021	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Polycyclic Aromatic Hydrocarbons	Melbourne	May 10, 2021	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Metals M8	Melbourne	May 10, 2021	180 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Eurofins Suite B15			
Organochlorine Pesticides	Melbourne	May 10, 2021	14 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water (USEPA 8270)			
Organophosphorus Pesticides	Melbourne	May 10, 2021	14 Days
- Method: LTM-ORG-2200 Organophosphorus Pesticides by GC-MS (USEPA 8270)			
Polychlorinated Biphenyls	Melbourne	May 10, 2021	28 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water (USEPA 8082)			
TRH - 2013 NEPM Fractions (after silica gel clean-up)	Melbourne	May 10, 2021	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
TRH - 1999 NEPM Fractions (after silica gel clean-up)	Melbourne	May 10, 2021	14 Days
- Method: TRH C6-C36 (Silica Gel Cleanup) - MGT 100A			
% Moisture	Melbourne	May 06, 2021	14 Days
- Method: LTM-GEN-7080 Moisture			

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NSW 2113

Project Name: SYDNEY OLYMPIC PARK HS
Project ID: J169135-01

Order No.: PO286525
Report #: 824748
Phone: 02 9889 1800
Fax: 02 9889 1811

Received: May 4, 2021 5:00 PM
Due: May 11, 2021
Priority: 5 Day
Contact Name: Shihui Wang

Eurofins Analytical Services Manager : Ursula Long

Sample Detail						HOLD	Eurofins Suite B15	TRH (after Silica Gel cleanup)	Moisture Set	Eurofins Suite B7
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X	X
Sydney Laboratory - NATA # 1261 Site # 18217										
Brisbane Laboratory - NATA # 1261 Site # 20794										
Mayfield Laboratory - NATA # 1261 Site # 25079										
Perth Laboratory - NATA # 2377 Site # 2370										
External Laboratory										
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**					
1	BH2(0.5-0.7)	May 03, 2021		Soil	S21-My10964		X	X	X	X
2	BH5(0.5-0.7)	May 03, 2021		Soil	S21-My10965		X	X	X	X
3	BH10(0.7-0.9)	May 03, 2021		Soil	S21-My10967		X	X	X	X
4	BH1(0.7-0.9)	May 03, 2021		Soil	S21-My10973		X	X	X	X
5	BH3(1.0-1.2)	May 03, 2021		Soil	S21-My10974		X	X	X	X
6	BH4(1.0-1.2)	May 03, 2021		Soil	S21-My10975		X	X	X	X
7	BH2(0.2-0.3)	May 03, 2021		Soil	S21-My10982	X				
8	BH2(1.5-0.7)	May 03, 2021		Soil	S21-My10983	X				
9	BH2(2.0-2.1)	May 03, 2021		Soil	S21-My10984	X				

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Received: May 4, 2021 5:00 PM
Due: May 11, 2021
Priority: 5 Day
Contact Name: Shihui Wang

Eurofins Analytical Services Manager : Ursula Long

Sample Detail						HOLD	Eurofins Suite B15	TRH (after Silica Gel cleanup)	Moisture Set	Eurofins Suite B7
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X	X
Sydney Laboratory - NATA # 1261 Site # 18217										
Brisbane Laboratory - NATA # 1261 Site # 20794										
Mayfield Laboratory - NATA # 1261 Site # 25079										
Perth Laboratory - NATA # 2377 Site # 2370										
External Laboratory										
10	BH5(1.5-1.6)	May 03, 2021		Soil	S21-My10985	X				
11	BH5(2.5-2.6)	May 03, 2021		Soil	S21-My10986	X				
12	BH5(3.5-3.6)	May 03, 2021		Soil	S21-My10987	X				
13	BH10(1.7-1.8)	May 03, 2021		Soil	S21-My10991	X				
14	BH10(3.0-3.1)	May 03, 2021		Soil	S21-My10992	X				
15	BH10(3.7-3.8)	May 03, 2021		Soil	S21-My10993	X				
16	BH1(0.5-0.6)	May 03, 2021		Soil	S21-My11006	X				
17	BH1(1.8-1.9)	May 03, 2021		Soil	S21-My11007	X				
18	BH1(2.6-2.8)	May 03, 2021		Soil	S21-My11008	X				
19	BH3(0.2-0.4)	May 03, 2021		Soil	S21-My11009	X				
20	BH3(1.3-1.5)	May 03, 2021		Soil	S21-My11010	X				

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Received: May 4, 2021 5:00 PM
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Contact Name: Shihui Wang

Eurofins Analytical Services Manager : Ursula Long

Sample Detail						HOLD	Eurofins Suite B15	TRH (after Silica Gel cleanup)	Moisture Set	Eurofins Suite B7
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X	X
Sydney Laboratory - NATA # 1261 Site # 18217										
Brisbane Laboratory - NATA # 1261 Site # 20794										
Mayfield Laboratory - NATA # 1261 Site # 25079										
Perth Laboratory - NATA # 2377 Site # 2370										
External Laboratory										
21	BH3(2.0-2.2)	May 03, 2021		Soil	S21-My11011	X				
22	BH3(3.4-3.5)	May 03, 2021		Soil	S21-My11012	X				
23	BH4(0.2-0.35)	May 03, 2021		Soil	S21-My11013	X				
24	BH4(0.4-0.5)	May 03, 2021		Soil	S21-My11014	X				
25	BH4(2.0-2.2)	May 03, 2021		Soil	S21-My11015	X				
26	BH4(3.5-3.7)	May 03, 2021		Soil	S21-My11016	X				
Test Counts						20	6	6	6	6

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Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer, that may have an impact on the results.
9. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	US Department of Defense Quality Systems Manual Version 5.3
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 20-130% Phenols & 50-150% PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.3 where no positive PFAS results have been reported have been reviewed and no data was affected.

WA DWER (n=10): PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total*	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Organochlorine Pesticides							
Chlordanes - Total	mg/kg	< 0.1			0.1	Pass	
4.4'-DDD	mg/kg	< 0.05			0.05	Pass	
4.4'-DDE	mg/kg	< 0.05			0.05	Pass	
4.4'-DDT	mg/kg	< 0.05			0.05	Pass	
a-HCH	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
b-HCH	mg/kg	< 0.05			0.05	Pass	
d-HCH	mg/kg	< 0.05			0.05	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Endosulfan I	mg/kg	< 0.05			0.05	Pass	
Endosulfan II	mg/kg	< 0.05			0.05	Pass	
Endosulfan sulphate	mg/kg	< 0.05			0.05	Pass	
Endrin	mg/kg	< 0.05			0.05	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endrin aldehyde	mg/kg	< 0.05			0.05	Pass	
Endrin ketone	mg/kg	< 0.05			0.05	Pass	
g-HCH (Lindane)	mg/kg	< 0.05			0.05	Pass	
Heptachlor	mg/kg	< 0.05			0.05	Pass	
Heptachlor epoxide	mg/kg	< 0.05			0.05	Pass	
Hexachlorobenzene	mg/kg	< 0.05			0.05	Pass	
Methoxychlor	mg/kg	< 0.05			0.05	Pass	
Toxaphene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Organophosphorus Pesticides							
Azinphos-methyl	mg/kg	< 0.2			0.2	Pass	
Bolstar	mg/kg	< 0.2			0.2	Pass	
Chlorfenvinphos	mg/kg	< 0.2			0.2	Pass	
Chlorpyrifos	mg/kg	< 0.2			0.2	Pass	
Chlorpyrifos-methyl	mg/kg	< 0.2			0.2	Pass	
Coumaphos	mg/kg	< 2			2	Pass	
Demeton-S	mg/kg	< 0.2			0.2	Pass	
Demeton-O	mg/kg	< 0.2			0.2	Pass	
Diazinon	mg/kg	< 0.2			0.2	Pass	
Dichlorvos	mg/kg	< 0.2			0.2	Pass	
Dimethoate	mg/kg	< 0.2			0.2	Pass	
Disulfoton	mg/kg	< 0.2			0.2	Pass	
EPN	mg/kg	< 0.2			0.2	Pass	
Ethion	mg/kg	< 0.2			0.2	Pass	
Ethoprop	mg/kg	< 0.2			0.2	Pass	
Ethyl parathion	mg/kg	< 0.2			0.2	Pass	
Fenitrothion	mg/kg	< 0.2			0.2	Pass	
Fensulfothion	mg/kg	< 0.2			0.2	Pass	
Fenthion	mg/kg	< 0.2			0.2	Pass	
Malathion	mg/kg	< 0.2			0.2	Pass	
Merphos	mg/kg	< 0.2			0.2	Pass	
Methyl parathion	mg/kg	< 0.2			0.2	Pass	
Mevinphos	mg/kg	< 0.2			0.2	Pass	
Monocrotophos	mg/kg	< 2			2	Pass	
Naled	mg/kg	< 0.2			0.2	Pass	
Omethoate	mg/kg	< 2			2	Pass	
Phorate	mg/kg	< 0.2			0.2	Pass	
Pirimiphos-methyl	mg/kg	< 0.2			0.2	Pass	
Pyrazophos	mg/kg	< 0.2			0.2	Pass	
Ronnel	mg/kg	< 0.2			0.2	Pass	
Terbufos	mg/kg	< 0.2			0.2	Pass	
Tetrachlorvinphos	mg/kg	< 0.2			0.2	Pass	
Tokuthion	mg/kg	< 0.2			0.2	Pass	
Trichloronate	mg/kg	< 0.2			0.2	Pass	
Method Blank							
Polychlorinated Biphenyls							
Aroclor-1016	mg/kg	< 0.1			0.1	Pass	
Aroclor-1221	mg/kg	< 0.1			0.1	Pass	
Aroclor-1232	mg/kg	< 0.1			0.1	Pass	
Aroclor-1242	mg/kg	< 0.1			0.1	Pass	
Aroclor-1248	mg/kg	< 0.1			0.1	Pass	
Aroclor-1254	mg/kg	< 0.1			0.1	Pass	
Aroclor-1260	mg/kg	< 0.1			0.1	Pass	
Total PCB*	mg/kg	< 0.1			0.1	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
TRH - 2013 NEPM Fractions (after silica gel clean-up)							
TRH >C10-C16 (after silica gel clean-up)	mg/kg	< 50			50	Pass	
TRH >C16-C34 (after silica gel clean-up)	mg/kg	< 100			100	Pass	
TRH >C34-C40 (after silica gel clean-up)	mg/kg	< 100			100	Pass	
Method Blank							
TRH - 1999 NEPM Fractions (after silica gel clean-up)							
TRH C10-C14 (after silica gel clean-up)	mg/kg	< 20			20	Pass	
TRH C15-C28 (after silica gel clean-up)	mg/kg	< 50			50	Pass	
TRH C29-C36 (after silica gel clean-up)	mg/kg	< 50			50	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Nickel	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons							
TRH C6-C9	%	84			70-130	Pass	
TRH C10-C14	%	123			70-130	Pass	
Naphthalene	%	114			70-130	Pass	
TRH C6-C10	%	78			70-130	Pass	
TRH >C10-C16	%	124			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	88			70-130	Pass	
Toluene	%	81			70-130	Pass	
Ethylbenzene	%	75			70-130	Pass	
m&p-Xylenes	%	78			70-130	Pass	
Xylenes - Total*	%	78			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	108			70-130	Pass	
Acenaphthylene	%	124			70-130	Pass	
Anthracene	%	88			70-130	Pass	
Benz(a)anthracene	%	106			70-130	Pass	
Benzo(a)pyrene	%	100			70-130	Pass	
Benzo(b&j)fluoranthene	%	127			70-130	Pass	
Benzo(g.h.i)perylene	%	89			70-130	Pass	
Benzo(k)fluoranthene	%	122			70-130	Pass	
Chrysene	%	110			70-130	Pass	
Dibenz(a.h)anthracene	%	105			70-130	Pass	
Fluoranthene	%	95			70-130	Pass	
Fluorene	%	113			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	101			70-130	Pass	
Naphthalene	%	108			70-130	Pass	
Phenanthrene	%	101			70-130	Pass	
Pyrene	%	91			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Chlordanes - Total	%	101			70-130	Pass	
4.4'-DDD	%	81			70-130	Pass	
4.4'-DDE	%	100			70-130	Pass	
4.4'-DDT	%	94			70-130	Pass	
a-HCH	%	97			70-130	Pass	
Aldrin	%	109			70-130	Pass	
b-HCH	%	107			70-130	Pass	
d-HCH	%	102			70-130	Pass	
Dieldrin	%	88			70-130	Pass	
Endosulfan I	%	82			70-130	Pass	
Endosulfan II	%	102			70-130	Pass	
Endosulfan sulphate	%	79			70-130	Pass	
Endrin	%	96			70-130	Pass	
Endrin aldehyde	%	88			70-130	Pass	
Endrin ketone	%	103			70-130	Pass	
g-HCH (Lindane)	%	101			70-130	Pass	
Heptachlor	%	94			70-130	Pass	
Heptachlor epoxide	%	95			70-130	Pass	
Hexachlorobenzene	%	105			70-130	Pass	
Methoxychlor	%	79			70-130	Pass	
LCS - % Recovery							
Organophosphorus Pesticides							
Diazinon	%	89			70-130	Pass	
Dimethoate	%	119			70-130	Pass	
Ethion	%	84			70-130	Pass	
Fenitrothion	%	97			70-130	Pass	
Methyl parathion	%	99			70-130	Pass	
Mevinphos	%	92			70-130	Pass	
LCS - % Recovery							
Polychlorinated Biphenyls							
Aroclor-1260	%	89			70-130	Pass	
LCS - % Recovery							
TRH - 2013 NEPM Fractions (after silica gel clean-up)							
TRH >C10-C16 (after silica gel clean-up)	%	126			70-130	Pass	
LCS - % Recovery							
TRH - 1999 NEPM Fractions (after silica gel clean-up)							
TRH C10-C14 (after silica gel clean-up)	%	124			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	107			80-120	Pass	
Cadmium	%	103			80-120	Pass	
Chromium	%	111			80-120	Pass	
Copper	%	107			80-120	Pass	
Lead	%	113			80-120	Pass	
Mercury	%	116			80-120	Pass	
Nickel	%	106			80-120	Pass	
Zinc	%	106			80-120	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons				Result 1					
TRH C6-C9	S21-My10964	CP	%	77			70-130	Pass	
Naphthalene	S21-My10964	CP	%	84			70-130	Pass	
TRH C6-C10	S21-My10964	CP	%	97			70-130	Pass	
Spike - % Recovery									

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
BTEX				Result 1					
Benzene	S21-My10964	CP	%	79			70-130	Pass	
Toluene	S21-My10964	CP	%	72			70-130	Pass	
Ethylbenzene	S21-My10964	CP	%	87			70-130	Pass	
m&p-Xylenes	S21-My10964	CP	%	92			70-130	Pass	
o-Xylene	S21-My10964	CP	%	88			70-130	Pass	
Xylenes - Total*	S21-My10964	CP	%	90			70-130	Pass	
Spike - % Recovery									
Organophosphorus Pesticides				Result 1					
Diazinon	M21-My02639	NCP	%	94			70-130	Pass	
Dimethoate	M21-My02639	NCP	%	106			70-130	Pass	
Ethion	M21-My02639	NCP	%	85			70-130	Pass	
Fenitrothion	M21-My02639	NCP	%	95			70-130	Pass	
Methyl parathion	M21-My02639	NCP	%	84			70-130	Pass	
Mevinphos	M21-My02639	NCP	%	116			70-130	Pass	
Spike - % Recovery									
Polychlorinated Biphenyls				Result 1					
Aroclor-1016	M21-My00438	NCP	%	80			70-130	Pass	
Aroclor-1260	M21-My00438	NCP	%	82			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Zinc	M21-My13461	NCP	%	104			75-125	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
Chlordanes - Total	S21-My10973	CP	%	95			70-130	Pass	
4.4'-DDD	S21-My10973	CP	%	85			70-130	Pass	
4.4'-DDE	S21-My10973	CP	%	99			70-130	Pass	
4.4'-DDT	S21-My10973	CP	%	89			70-130	Pass	
a-HCH	S21-My10973	CP	%	99			70-130	Pass	
Aldrin	S21-My10973	CP	%	101			70-130	Pass	
b-HCH	S21-My10973	CP	%	97			70-130	Pass	
d-HCH	S21-My10973	CP	%	88			70-130	Pass	
Dieldrin	S21-My10973	CP	%	82			70-130	Pass	
Endosulfan I	S21-My10973	CP	%	102			70-130	Pass	
Endosulfan II	S21-My10973	CP	%	102			70-130	Pass	
Endosulfan sulphate	S21-My10973	CP	%	75			70-130	Pass	
Endrin	S21-My10973	CP	%	91			70-130	Pass	
Endrin aldehyde	S21-My10973	CP	%	78			70-130	Pass	
Endrin ketone	S21-My10973	CP	%	106			70-130	Pass	
g-HCH (Lindane)	S21-My10973	CP	%	114			70-130	Pass	
Heptachlor	S21-My10973	CP	%	89			70-130	Pass	
Heptachlor epoxide	S21-My10973	CP	%	90			70-130	Pass	
Hexachlorobenzene	S21-My10973	CP	%	107			70-130	Pass	
Methoxychlor	S21-My10973	CP	%	77			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S21-My10973	CP	%	101			75-125	Pass	
Cadmium	S21-My10973	CP	%	99			75-125	Pass	
Chromium	S21-My10973	CP	%	101			75-125	Pass	
Copper	S21-My10973	CP	%	97			75-125	Pass	
Lead	S21-My10973	CP	%	98			75-125	Pass	
Mercury	S21-My10973	CP	%	105			75-125	Pass	
Nickel	S21-My10973	CP	%	90			75-125	Pass	
Spike - % Recovery									

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Total Recoverable Hydrocarbons				Result 1					
TRH C6-C9	S21-My10974	CP	%	75			70-130	Pass	
Naphthalene	S21-My10974	CP	%	84			70-130	Pass	
TRH C6-C10	S21-My10974	CP	%	77			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S21-My10974	CP	%	75			70-130	Pass	
Toluene	S21-My10974	CP	%	72			70-130	Pass	
Ethylbenzene	S21-My10974	CP	%	73			70-130	Pass	
m&p-Xylenes	S21-My10974	CP	%	79			70-130	Pass	
o-Xylene	S21-My10974	CP	%	77			70-130	Pass	
Xylenes - Total*	S21-My10974	CP	%	79			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH C10-C14	M21-My13393	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	M21-My13393	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	M21-My13393	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	M21-My10979	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	M21-My10979	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	M21-My10979	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	M21-My10979	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	M21-My10979	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	M21-My10979	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	M21-My10979	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	M21-My10979	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	M21-My10979	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
TRH - 2013 NEPM Fractions (after silica gel clean-up)				Result 1	Result 2	RPD			
TRH >C10-C16 (after silica gel clean-up)	M21-My13236	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34 (after silica gel clean-up)	M21-My13236	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40 (after silica gel clean-up)	M21-My13236	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
TRH - 1999 NEPM Fractions (after silica gel clean-up)				Result 1	Result 2	RPD			
TRH C10-C14 (after silica gel clean-up)	M21-My13236	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28 (after silica gel clean-up)	M21-My13236	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36 (after silica gel clean-up)	M21-My13236	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C10-C36 (Total) (after silica gel clean-up)	M21-My13236	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	M21-My09517	NCP	%	13	14	4.0	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Toxaphene	M21-My11626	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	

Duplicate									
Polychlorinated Biphenyls				Result 1	Result 2	RPD			
Aroclor-1016	M21-My04347	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1221	M21-My04347	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1232	M21-My04347	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1242	M21-My04347	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1248	M21-My04347	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1254	M21-My04347	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1260	M21-My04347	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Total PCB*	M21-My04347	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH C6-C9	S21-My10973	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Naphthalene	S21-My10973	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	S21-My10973	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S21-My10973	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S21-My10973	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S21-My10973	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S21-My10973	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	S21-My10973	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total*	S21-My10973	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs

Authorised by:

Ursula Long	Analytical Services Manager
Vivian Wang	Senior Analyst-Volatile (VIC)
Joseph Edouard	Senior Analyst-Organic (VIC)
Emily Rosenberg	Senior Analyst-Metal (VIC)

Glenn Jackson
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

Greencap NSW P/L
Ground Floor, North Building, 22 Giffnock Avenue
Macquarie Park
NSW 2113

Attention: **Shihui Wang**

Report **796688-L-V2**
Project name SYDNEY OLYMPIC PARK HS
Project ID J169135-01
Received Date May 20, 2021

Client Sample ID			**BH4(1.0-1.2)**	**BH5(0.5-0.7)**
Sample Matrix			**US Leachate**	**US Leachate**
Eurofins Sample No.			**M21-My39311**	**M21-My39312**
Date Sampled			**May 03, 2021**	**May 03, 2021**
Test/Reference	LOR	Unit		
Polycyclic Aromatic Hydrocarbons				
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001
USA Leaching Procedure				
Leachate Fluid[C01]		comment	1.0	1.0
pH (initial)	0.1	pH Units	6.2	6.1
pH (Leachate fluid)	0.1	pH Units	4.9	4.9
pH (off)	0.1	pH Units	5.1	5.3
pH (USA HCl addition)	0.1	pH Units	1.7	1.7

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Polycyclic Aromatic Hydrocarbons	Melbourne	May 21, 2021	7 Days

- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water

eurofins | Environment Testing

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Eurofins Environment Testing Australia Pty Ltd
ABN: 50 005 085 521

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NATA # 1261 Site # 1254

Sydney
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16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Newcastle
4/52 Industrial Drive
Mayfield East NSW 2304
PO Box 60 Wickham 2293
Phone : +61 2 4968 8448
NATA # 1261 Site # 25079

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ABN: 91 05 0159 898

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Phone : +61 8 6253 4444
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43 Detroit Drive
Rolleston, Christchurch 7675
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IANZ # 1290

Company Name: Greencap NSW P/L
Address: Ground Floor, North Building, 22 Giffnock Avenue
Macquarie Park
NSW 2113

Project Name: SYDNEY OLYMPIC PARK HS
Project ID: J169135-01

Order No.:
Report #: 796688
Phone: 02 9889 1800
Fax: 02 9889 1811

Received: May 20, 2021 12:06 PM
Due: May 25, 2021
Priority: 3 Day
Contact Name: Shihui Wang

Eurofins Analytical Services Manager : Ursula Long

Sample Detail						Benzo(a)pyrene	USA Leaching Procedure
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X
Sydney Laboratory - NATA # 1261 Site # 18217							
Brisbane Laboratory - NATA # 1261 Site # 20794							
Mayfield Laboratory - NATA # 1261 Site # 25079							
Perth Laboratory - NATA # 2377 Site # 2370							
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	BH4(1.0-1.2)	May 03, 2021		US Leachate	M21-My39311	X	X
2	BH5(0.5-0.7)	May 03, 2021		US Leachate	M21-My39312	X	X
Test Counts						2	2

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer, that may have an impact on the results.
9. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

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

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	US Department of Defense Quality Systems Manual Version 5.3
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 20-130% Phenols & 50-150% PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.3 where no positive PFAS results have been reported have been reviewed and no data was affected.

WA DWER (n=10): PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Benzo(a)pyrene	M21-My28237	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	

Comments

This report has been revised (V2) to migrate sample My39313 to report 824613.

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
C01	Leachate Fluid Key: 1 - pH 5.0; 2 - pH 2.9; 3 - pH 9.2; 4 - Reagent (DI) water; 5 - Client sample, 6 - other

Authorised by:

Ursula Long	Analytical Services Manager
Joseph Edouard	Senior Analyst-Organic (VIC)

Glenn Jackson
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

Greencap NSW P/L
Ground Floor, North Building, 22 Giffnock Avenue
Macquarie Park
NSW 2113

Attention: **Shihui Wang**

Report **795689-L**
Project name ADDITIONAL SYDNEY OLYMPIC PARK HS
Project ID J169135-01
Received Date May 17, 2021

Client Sample ID			**GG6-03(1.0-1.1)**	**GG8-03(0.9-1.0)**
Sample Matrix			**US Leachate**	**US Leachate**
Eurofins Sample No.			**S21-My31565**	**S21-My31566**
Date Sampled			**Apr 29, 2021**	**Apr 29, 2021**
Test/Reference	LOR	Unit		
Polycyclic Aromatic Hydrocarbons				
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001
USA Leaching Procedure				
Leachate Fluid[C01]		comment	1.0	1.0
pH (initial)	0.1	pH Units	9.4	9.3
pH (off)	0.1	pH Units	6.2	6.2
pH (USA HCl addition)	0.1	pH Units	1.7	1.7

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Polycyclic Aromatic Hydrocarbons	Sydney	May 17, 2021	7 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
USA Leaching Procedure	Sydney	May 17, 2021	14 Days
- Method: LTM-GEN-7010 Leaching Procedure for Soils & Solid Wastes			

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NATA # 1261 Site # 18217

Brisbane
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Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

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NATA # 1261
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NATA # 1261 Site # 25079

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IANZ # 1327

Christchurch
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Rolleston, Christchurch 7675
Phone : 0800 856 450
IANZ # 1290

Company Name: Greencap NSW P/L
Address: Ground Floor, North Building, 22 Giffnock Avenue
Macquarie Park
NSW 2113

Project Name: ADDITIONAL SYDNEY OLYMPIC PARK HS
Project ID: J169135-01

Order No.:
Report #: 795689
Phone: 02 9889 1800
Fax: 02 9889 1811

Received: May 17, 2021 1:38 PM
Due: May 20, 2021
Priority: 3 Day
Contact Name: Shihui Wang

Eurofins Analytical Services Manager : Ursula Long

Sample Detail						Benzo(a)pyrene	USA Leaching Procedure
Melbourne Laboratory - NATA Site # 1254 & 14271							
Sydney Laboratory - NATA Site # 18217						X	X
Brisbane Laboratory - NATA Site # 20794							
Perth Laboratory - NATA Site # 23736							
Mayfield Laboratory - NATA Site # 25079							
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	GG6-03(1.0-1.1)	Apr 29, 2021		US Leachate	S21-My31565	X	X
2	GG8-03(0.9-1.0)	Apr 29, 2021		US Leachate	S21-My31566	X	X
Test Counts						2	2

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer, that may have an impact on the results.
9. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
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SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
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SRA	Sample Receipt Advice
QSM	US Department of Defense Quality Systems Manual Version 5.3
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NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 20-130% Phenols & 50-150% PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.3 where no positive PFAS results have been reported have been reviewed and no data was affected.

WA DWER (n=10): PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Lab Sample ID	QA Source	Units	Result 1	Result 2	RPD	Acceptance Limits	Pass Limits	Qualifying Code
Method Blank									
Polycyclic Aromatic Hydrocarbons									
Benzo(a)pyrene			mg/L	< 0.001			0.001	Pass	
LCS - % Recovery									
Polycyclic Aromatic Hydrocarbons									
Benzo(a)pyrene			%	110			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Benzo(a)pyrene	S21-My27384	NCP	%	102			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Benzo(a)pyrene	S21-My31566	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
C01	Leachate Fluid Key: 1 - pH 5.0; 2 - pH 2.9; 3 - pH 9.2; 4 - Reagent (DI) water; 5 - Client sample, 6 - other

Authorised by:

Asim Khan	Analytical Services Manager
Andrew Sullivan	Senior Analyst-Organic (NSW)

Glenn Jackson
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

Greencap NSW P/L
Ground Floor, North Building, 22 Giffnock Avenue
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NSW 2113

NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing
NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection, proficiency testing scheme providers and reference materials producers reports and certificates.

Attention: **Shihui Wang**

Report **824736-S**
Project name DSL-SOBHS
Project ID J169135-01
Received Date Sep 15, 2021

Client Sample ID			**BH9-01 (0.9-1.0)**	**BH7-01 (0.5-0.6)**	**BH6-01 (0.4-0.5)**
Sample Matrix			**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**S21-My28861**	**S21-My28862**	**S21-My28863**
Date Sampled			**May 14, 2021**	**May 14, 2021**	**May 14, 2021**
Test/Reference	LOR	Unit			
Total Recoverable Hydrocarbons					
TRH C6-C9	20	mg/kg	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	< 50	< 50
TRH C10-C36 (Total)	50	mg/kg	< 50	< 50	< 50
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	< 100
BTEX					
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	85	70	71
Polycyclic Aromatic Hydrocarbons					
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5

Client Sample ID			BH9-01 (0.9-1.0)	BH7-01 (0.5-0.6)	BH6-01 (0.4-0.5)
Sample Matrix			**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**S21-My28861**	**S21-My28862**	**S21-My28863**
Date Sampled			**May 14, 2021**	**May 14, 2021**	**May 14, 2021**
Test/Reference	LOR	Unit			
Polycyclic Aromatic Hydrocarbons					
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	118	110	116
p-Terphenyl-d14 (surr.)	1	%	INT	INT	INT
Organochlorine Pesticides					
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05
a-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05
b-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05
d-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05
g-HCH (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Toxaphene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Dibutylchlorendate (surr.)	1	%	71	75	70
Tetrachloro-m-xylene (surr.)	1	%	111	105	117
Organophosphorus Pesticides					
Azinphos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Bolstar	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Chlorfenvinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Chlorpyrifos	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Chlorpyrifos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Coumaphos	2	mg/kg	< 2	< 2	< 2
Demeton-S	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Demeton-O	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Diazinon	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Dichlorvos	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Dimethoate	0.2	mg/kg	< 0.2	< 0.2	< 0.2

Client Sample ID			BH9-01 (0.9-1.0)	BH7-01 (0.5-0.6)	BH6-01 (0.4-0.5)
Sample Matrix			**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**S21-My28861**	**S21-My28862**	**S21-My28863**
Date Sampled			**May 14, 2021**	**May 14, 2021**	**May 14, 2021**
Test/Reference	LOR	Unit			
Organophosphorus Pesticides					
Disulfoton	0.2	mg/kg	< 0.2	< 0.2	< 0.2
EPN	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Ethion	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Ethoprop	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Ethyl parathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Fenitrothion	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Fensulfothion	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Fenthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Malathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Merphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Methyl parathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Mevinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Monocrotophos	2	mg/kg	< 2	< 2	< 2
Naled	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Omethoate	2	mg/kg	< 2	< 2	< 2
Phorate	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Pirimiphos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Pyrazophos	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Ronnel	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Terbufos	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Tetrachlorvinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Tokuthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Trichloronate	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Triphenylphosphate (surr.)	1	%	103	98	99
Polychlorinated Biphenyls					
Aroclor-1016	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Aroclor-1221	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Aroclor-1232	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Aroclor-1242	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Aroclor-1248	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Aroclor-1254	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Aroclor-1260	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Total PCB*	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Dibutylchlorendate (surr.)	1	%	71	75	70
Tetrachloro-m-xylene (surr.)	1	%	111	105	117
Heavy Metals					
Arsenic	2	mg/kg	2.5	13	4.4
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	11	15	7.8
Copper	5	mg/kg	< 5	11	8.8
Lead	5	mg/kg	7.0	21	15
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	< 5	< 5	< 5
Zinc	5	mg/kg	5.5	46	36
% Moisture	1	%	9.2	10	11

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Sydney	May 14, 2021	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	May 14, 2021	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	May 14, 2021	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Sydney	May 14, 2021	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Polycyclic Aromatic Hydrocarbons	Sydney	May 14, 2021	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Metals M8	Sydney	May 14, 2021	180 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Eurofins Suite B15			
Organochlorine Pesticides	Sydney	May 14, 2021	14 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
Organophosphorus Pesticides	Sydney	May 14, 2021	14 Days
- Method: LTM-ORG-2200 Organophosphorus Pesticides by GC-MS			
Polychlorinated Biphenyls	Sydney	May 14, 2021	28 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
% Moisture	Sydney	May 14, 2021	14 Days
- Method: LTM-GEN-7080 Moisture			

eurofins | Environment Testing

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Project Name: DSL-SOBHS
Project ID: J169135-01

Order No.:
Report #: 824736
Phone: 02 9889 1800
Fax: 02 9889 1811

Received: May 14, 2021 5:24 PM
Due: May 19, 2021
Priority: 3 Day
Contact Name: Shihui Wang

Eurofins Analytical Services Manager : Ursula Long

Sample Detail						Eurofins Suite B15	Moisture Set	Eurofins Suite B7
Melbourne Laboratory - NATA # 1261 Site # 1254								
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794								
Mayfield Laboratory - NATA # 1261 Site # 25079								
Perth Laboratory - NATA # 2377 Site # 2370								
External Laboratory								
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**			
1	BH9-01 (0.9-1.0)	May 14, 2021		Soil	S21-My28861	X	X	X
2	BH7-01 (0.5-0.6)	May 14, 2021		Soil	S21-My28862	X	X	X
3	BH6-01 (0.4-0.5)	May 14, 2021		Soil	S21-My28863	X	X	X
Test Counts						3	3	3

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer, that may have an impact on the results.
9. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	US Department of Defense Quality Systems Manual Version 5.3
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 20-130% Phenols & 50-150% PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.3 where no positive PFAS results have been reported have been reviewed and no data was affected.

WA DWER (n=10): PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total*	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Organochlorine Pesticides							
Chlordanes - Total	mg/kg	< 0.1			0.1	Pass	
4.4'-DDD	mg/kg	< 0.05			0.05	Pass	
4.4'-DDE	mg/kg	< 0.05			0.05	Pass	
4.4'-DDT	mg/kg	< 0.05			0.05	Pass	
a-HCH	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
b-HCH	mg/kg	< 0.05			0.05	Pass	
d-HCH	mg/kg	< 0.05			0.05	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Endosulfan I	mg/kg	< 0.05			0.05	Pass	
Endosulfan II	mg/kg	< 0.05			0.05	Pass	
Endosulfan sulphate	mg/kg	< 0.05			0.05	Pass	
Endrin	mg/kg	< 0.05			0.05	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endrin aldehyde	mg/kg	< 0.05			0.05	Pass	
Endrin ketone	mg/kg	< 0.05			0.05	Pass	
g-HCH (Lindane)	mg/kg	< 0.05			0.05	Pass	
Heptachlor	mg/kg	< 0.05			0.05	Pass	
Heptachlor epoxide	mg/kg	< 0.05			0.05	Pass	
Hexachlorobenzene	mg/kg	< 0.05			0.05	Pass	
Methoxychlor	mg/kg	< 0.05			0.05	Pass	
Toxaphene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Organophosphorus Pesticides							
Azinphos-methyl	mg/kg	< 0.2			0.2	Pass	
Bolstar	mg/kg	< 0.2			0.2	Pass	
Chlorfenvinphos	mg/kg	< 0.2			0.2	Pass	
Chlorpyrifos	mg/kg	< 0.2			0.2	Pass	
Chlorpyrifos-methyl	mg/kg	< 0.2			0.2	Pass	
Coumaphos	mg/kg	< 2			2	Pass	
Demeton-S	mg/kg	< 0.2			0.2	Pass	
Demeton-O	mg/kg	< 0.2			0.2	Pass	
Diazinon	mg/kg	< 0.2			0.2	Pass	
Dichlorvos	mg/kg	< 0.2			0.2	Pass	
Dimethoate	mg/kg	< 0.2			0.2	Pass	
Disulfoton	mg/kg	< 0.2			0.2	Pass	
EPN	mg/kg	< 0.2			0.2	Pass	
Ethion	mg/kg	< 0.2			0.2	Pass	
Ethoprop	mg/kg	< 0.2			0.2	Pass	
Ethyl parathion	mg/kg	< 0.2			0.2	Pass	
Fenitrothion	mg/kg	< 0.2			0.2	Pass	
Fensulfothion	mg/kg	< 0.2			0.2	Pass	
Fenthion	mg/kg	< 0.2			0.2	Pass	
Malathion	mg/kg	< 0.2			0.2	Pass	
Merphos	mg/kg	< 0.2			0.2	Pass	
Methyl parathion	mg/kg	< 0.2			0.2	Pass	
Mevinphos	mg/kg	< 0.2			0.2	Pass	
Monocrotophos	mg/kg	< 2			2	Pass	
Naled	mg/kg	< 0.2			0.2	Pass	
Omethoate	mg/kg	< 2			2	Pass	
Phorate	mg/kg	< 0.2			0.2	Pass	
Pirimiphos-methyl	mg/kg	< 0.2			0.2	Pass	
Pyrazophos	mg/kg	< 0.2			0.2	Pass	
Ronnel	mg/kg	< 0.2			0.2	Pass	
Terbufos	mg/kg	< 0.2			0.2	Pass	
Tetrachlorvinphos	mg/kg	< 0.2			0.2	Pass	
Tokuthion	mg/kg	< 0.2			0.2	Pass	
Trichloronate	mg/kg	< 0.2			0.2	Pass	
Method Blank							
Polychlorinated Biphenyls							
Aroclor-1016	mg/kg	< 0.1			0.1	Pass	
Aroclor-1221	mg/kg	< 0.1			0.1	Pass	
Aroclor-1232	mg/kg	< 0.1			0.1	Pass	
Aroclor-1242	mg/kg	< 0.1			0.1	Pass	
Aroclor-1248	mg/kg	< 0.1			0.1	Pass	
Aroclor-1254	mg/kg	< 0.1			0.1	Pass	
Aroclor-1260	mg/kg	< 0.1			0.1	Pass	
Method Blank							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Nickel	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons							
TRH C6-C9	%	73			70-130	Pass	
TRH C10-C14	%	74			70-130	Pass	
Naphthalene	%	82			70-130	Pass	
TRH C6-C10	%	73			70-130	Pass	
TRH >C10-C16	%	75			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	75			70-130	Pass	
Toluene	%	85			70-130	Pass	
Ethylbenzene	%	80			70-130	Pass	
m&p-Xylenes	%	79			70-130	Pass	
o-Xylene	%	73			70-130	Pass	
Xylenes - Total*	%	77			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	93			70-130	Pass	
Acenaphthylene	%	91			70-130	Pass	
Anthracene	%	96			70-130	Pass	
Benz(a)anthracene	%	92			70-130	Pass	
Benzo(a)pyrene	%	104			70-130	Pass	
Benzo(b&j)fluoranthene	%	110			70-130	Pass	
Benzo(g.h.i)perylene	%	89			70-130	Pass	
Benzo(k)fluoranthene	%	128			70-130	Pass	
Chrysene	%	102			70-130	Pass	
Dibenz(a.h)anthracene	%	76			70-130	Pass	
Fluoranthene	%	88			70-130	Pass	
Fluorene	%	95			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	96			70-130	Pass	
Naphthalene	%	98			70-130	Pass	
Phenanthrene	%	88			70-130	Pass	
Pyrene	%	88			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
Chlordanes - Total	%	88			70-130	Pass	
4.4'-DDD	%	95			70-130	Pass	
4.4'-DDE	%	94			70-130	Pass	
4.4'-DDT	%	112			70-130	Pass	
a-HCH	%	117			70-130	Pass	
Aldrin	%	84			70-130	Pass	
b-HCH	%	114			70-130	Pass	
d-HCH	%	116			70-130	Pass	
Dieldrin	%	111			70-130	Pass	
Endosulfan I	%	104			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endosulfan II	%	107			70-130	Pass	
Endosulfan sulphate	%	107			70-130	Pass	
Endrin	%	115			70-130	Pass	
Endrin aldehyde	%	92			70-130	Pass	
Endrin ketone	%	109			70-130	Pass	
g-HCH (Lindane)	%	103			70-130	Pass	
Heptachlor	%	125			70-130	Pass	
Heptachlor epoxide	%	104			70-130	Pass	
Hexachlorobenzene	%	105			70-130	Pass	
Methoxychlor	%	126			70-130	Pass	
LCS - % Recovery							
Organophosphorus Pesticides							
Diazinon	%	128			70-130	Pass	
Dimethoate	%	89			70-130	Pass	
Ethion	%	106			70-130	Pass	
Fenitrothion	%	122			70-130	Pass	
Methyl parathion	%	121			70-130	Pass	
Mevinphos	%	95			70-130	Pass	
LCS - % Recovery							
Polychlorinated Biphenyls							
Aroclor-1016	%	95			70-130	Pass	
Aroclor-1260	%	110			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	96			80-120	Pass	
Cadmium	%	101			80-120	Pass	
Chromium	%	106			80-120	Pass	
Copper	%	110			80-120	Pass	
Lead	%	106			80-120	Pass	
Mercury	%	114			80-120	Pass	
Nickel	%	105			80-120	Pass	
Zinc	%	112			80-120	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons				Result 1					
TRH C6-C9	S21-My17492	NCP	%	81			70-130	Pass	
TRH C10-C14	S21-My21718	NCP	%	76			70-130	Pass	
Naphthalene	S21-My17492	NCP	%	81			70-130	Pass	
TRH C6-C10	S21-My17492	NCP	%	80			70-130	Pass	
TRH >C10-C16	S21-My21718	NCP	%	74			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S21-My17492	NCP	%	77			70-130	Pass	
Toluene	S21-My17492	NCP	%	93			70-130	Pass	
Ethylbenzene	S21-My17492	NCP	%	88			70-130	Pass	
m&p-Xylenes	S21-My17492	NCP	%	87			70-130	Pass	
o-Xylene	S21-My17492	NCP	%	85			70-130	Pass	
Xylenes - Total*	S21-My17492	NCP	%	87			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	S21-My23419	NCP	%	87			70-130	Pass	
Acenaphthylene	S21-My23419	NCP	%	88			70-130	Pass	
Anthracene	S21-My23419	NCP	%	88			70-130	Pass	
Benz(a)anthracene	S21-My23419	NCP	%	86			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Benzo(a)pyrene	S21-My23419	NCP	%	95			70-130	Pass	
Benzo(b&j)fluoranthene	S21-My23419	NCP	%	96			70-130	Pass	
Benzo(g.h.i)perylene	S21-My23419	NCP	%	86			70-130	Pass	
Benzo(k)fluoranthene	S21-My23419	NCP	%	104			70-130	Pass	
Chrysene	S21-My23419	NCP	%	93			70-130	Pass	
Dibenz(a.h)anthracene	S21-My23419	NCP	%	84			70-130	Pass	
Fluoranthene	S21-My23419	NCP	%	78			70-130	Pass	
Fluorene	S21-My23419	NCP	%	89			70-130	Pass	
Indeno(1.2.3-cd)pyrene	S21-My23419	NCP	%	95			70-130	Pass	
Naphthalene	S21-My23419	NCP	%	90			70-130	Pass	
Phenanthrene	S21-My23419	NCP	%	84			70-130	Pass	
Pyrene	S21-My23419	NCP	%	80			70-130	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
Chlordanes - Total	S21-My23419	NCP	%	70			70-130	Pass	
4.4'-DDD	S21-My23419	NCP	%	94			70-130	Pass	
4.4'-DDE	S21-My23419	NCP	%	88			70-130	Pass	
4.4'-DDT	S21-My18477	NCP	%	130			70-130	Pass	
a-HCH	S21-My23419	NCP	%	97			70-130	Pass	
Aldrin	S21-My23419	NCP	%	73			70-130	Pass	
b-HCH	S21-My23419	NCP	%	89			70-130	Pass	
d-HCH	S21-My23419	NCP	%	98			70-130	Pass	
Dieldrin	S21-My23419	NCP	%	96			70-130	Pass	
Endosulfan I	S21-My23419	NCP	%	97			70-130	Pass	
Endosulfan II	S21-My23419	NCP	%	92			70-130	Pass	
Endosulfan sulphate	S21-My23419	NCP	%	99			70-130	Pass	
Endrin	S21-My23419	NCP	%	95			70-130	Pass	
Endrin aldehyde	S21-My11325	NCP	%	76			70-130	Pass	
Endrin ketone	S21-My23419	NCP	%	95			70-130	Pass	
g-HCH (Lindane)	S21-My23419	NCP	%	83			70-130	Pass	
Heptachlor	S21-My23419	NCP	%	106			70-130	Pass	
Heptachlor epoxide	S21-My23419	NCP	%	82			70-130	Pass	
Hexachlorobenzene	S21-My23419	NCP	%	94			70-130	Pass	
Methoxychlor	S21-My23419	NCP	%	120			70-130	Pass	
Spike - % Recovery									
Organophosphorus Pesticides				Result 1					
Dimethoate	S21-My23419	NCP	%	86			70-130	Pass	
Ethion	S21-My23419	NCP	%	105			70-130	Pass	
Fenitrothion	S21-My23419	NCP	%	112			70-130	Pass	
Methyl parathion	S21-My23419	NCP	%	112			70-130	Pass	
Mevinphos	S21-My23419	NCP	%	96			70-130	Pass	
Spike - % Recovery									
Polychlorinated Biphenyls				Result 1					
Aroclor-1016	S21-My23419	NCP	%	70			70-130	Pass	
Aroclor-1260	S21-My23419	NCP	%	67			70-130	Fail	Q08
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S21-My22166	NCP	%	91			75-125	Pass	
Cadmium	S21-My22166	NCP	%	104			75-125	Pass	
Chromium	S21-My22166	NCP	%	105			75-125	Pass	
Copper	S21-My22166	NCP	%	96			75-125	Pass	
Lead	S21-My22166	NCP	%	104			75-125	Pass	
Mercury	S21-My22166	NCP	%	115			75-125	Pass	
Nickel	S21-My22166	NCP	%	77			75-125	Pass	
Zinc	S21-My22166	NCP	%	83			75-125	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH C6-C9	S21-My24732	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	S21-My26164	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	S21-My26164	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	S21-My26164	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
Naphthalene	S21-My24732	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	S21-My24732	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH >C10-C16	S21-My26164	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	S21-My26164	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	S21-My26164	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S21-My24732	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S21-My24732	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S21-My24732	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S21-My24732	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	S21-My24732	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total*	S21-My24732	NCP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	S21-My33658	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	S21-My33658	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	S21-My33658	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	S21-My33658	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	S21-My33658	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	S21-My33658	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	S21-My33658	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	S21-My33658	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	S21-My33658	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	S21-My33658	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	S21-My33658	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	S21-My33658	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	S21-My33658	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	S21-My33658	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	S21-My33658	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	S21-My33658	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	S21-My33658	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4.4'-DDD	S21-My33658	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDE	S21-My33658	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDT	S21-My33658	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-HCH	S21-My33658	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	S21-My33658	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-HCH	S21-My33658	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-HCH	S21-My33658	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	S21-My33658	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan I	S21-My33658	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	S21-My33658	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	S21-My33658	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	S21-My33658	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin aldehyde	S21-My33658	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin ketone	S21-My33658	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	

Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
g-HCH (Lindane)	S21-My33658	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor	S21-My33658	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor epoxide	S21-My33658	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Hexachlorobenzene	S21-My33658	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Methoxychlor	S21-My33658	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Toxaphene	S21-My31943	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Azinphos-methyl	S21-My33658	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Bolstar	S21-My33658	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorfenvinphos	S21-My33658	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorpyrifos	S21-My33658	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorpyrifos-methyl	S21-My33658	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Coumaphos	S21-My33658	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Demeton-S	S21-My33658	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Demeton-O	S21-My33658	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Diazinon	S21-My33658	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Dichlorvos	S21-My33658	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Dimethoate	S21-My33658	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Disulfoton	S21-My33658	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
EPN	S21-My33658	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethion	S21-My33658	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethoprop	S21-My33658	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethyl parathion	S21-My33658	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fenitrothion	S21-My33658	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fensulfothion	S21-My33658	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fenthion	S21-My33658	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Malathion	S21-My33658	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Merphos	S21-My33658	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Methyl parathion	S21-My33658	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Mevinphos	S21-My33658	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Monocrotophos	S21-My33658	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Naled	S21-My33658	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Omethoate	S21-My33658	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Phorate	S21-My33658	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Pirimiphos-methyl	S21-My33658	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Pyrazophos	S21-My33658	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ronnel	S21-My33658	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Terbufos	S21-My33658	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Tetrachlorvinphos	S21-My33658	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Tokuthion	S21-My33658	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Trichloronate	S21-My33658	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Duplicate									
Polychlorinated Biphenyls				Result 1	Result 2	RPD			
Aroclor-1016	S21-My33658	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1221	S21-My33658	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1232	S21-My33658	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1242	S21-My33658	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1248	S21-My33658	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1254	S21-My33658	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1260	S21-My33658	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Total PCB*	S21-My18477	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	

Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S21-My28836	NCP	mg/kg	16	21	28	30%	Pass	
Cadmium	S21-My28836	NCP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S21-My28836	NCP	mg/kg	25	29	16	30%	Pass	
Copper	S21-My28836	NCP	mg/kg	28	34	20	30%	Pass	
Lead	S21-My28836	NCP	mg/kg	19	20	9.0	30%	Pass	
Mercury	S21-My28836	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	S21-My28836	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Zinc	S21-My28836	NCP	mg/kg	34	25	32	30%	Fail	Q15
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	S21-My27695	NCP	%	15	19	24	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
Q08	The matrix spike recovery is outside of the recommended acceptance criteria. An acceptable recovery was obtained for the laboratory control sample indicating a sample matrix interference.
Q15	The RPD reported passes Eurofins Environment Testing's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.

Authorised by:

Ursula Long	Analytical Services Manager
Andrew Sullivan	Senior Analyst-Organic (NSW)
John Nguyen	Senior Analyst-Metal (NSW)
Roopesh Rangarajan	Senior Analyst-Volatile (NSW)

Glenn Jackson
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

Greencap NSW P/L
Ground Floor, North Building, 22 Giffnock Avenue
Macquarie Park
NSW 2113

Attention: **Shihui Wang**

Report **818921-S**
Project name SOPHS
Project ID J169135
Received Date Aug 23, 2021

Client Sample ID			**GG10(0.3-0.4)**	**FD5**	**GG11(0.2-0.3)**	**[G01]GG12(1.4-1.5)**
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**S21-Au41042**	**S21-Au41043**	**S21-Au41044**	**S21-Au41045**
Date Sampled			**Aug 23, 2021**	**Aug 23, 2021**	**Aug 23, 2021**	**Aug 23, 2021**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH C6-C9	20	mg/kg	< 20	-	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	-	< 20	< 20
TRH C15-C28	50	mg/kg	85	-	< 50	< 50
TRH C29-C36	50	mg/kg	90	-	< 50	< 50
TRH C10-C36 (Total)	50	mg/kg	175	-	< 50	< 50
Naphthalene[N02]	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	-	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	-	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	-	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	-	< 50	< 50
TRH >C16-C34	100	mg/kg	150	-	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	-	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	150	-	< 100	< 100
BTEX						
Benzene	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	-	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	-	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	92	-	81	73
Volatile Organics						
1.1-Dichloroethane	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
1.1-Dichloroethene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
1.1.1-Trichloroethane	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
1.1.1.2-Tetrachloroethane	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
1.1.2-Trichloroethane	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
1.1.2.2-Tetrachloroethane	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
1.2-Dibromoethane	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
1.2-Dichlorobenzene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
1.2-Dichloroethane	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
1.2-Dichloropropane	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
1.2.3-Trichloropropane	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
1.2.4-Trimethylbenzene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
1.3-Dichlorobenzene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5

Client Sample ID			GG10(0.3-0.4)	FD5	GG11(0.2-0.3)	[G01]GG12(1.4-1.5)
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-Au41042	S21-Au41043	S21-Au41044	S21-Au41045
Date Sampled			Aug 23, 2021	Aug 23, 2021	Aug 23, 2021	Aug 23, 2021
Test/Reference	LOR	Unit				
Volatile Organics						
1.3-Dichloropropane	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
1.3.5-Trimethylbenzene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
1.4-Dichlorobenzene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
2-Butanone (MEK)	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
2-Propanone (Acetone)	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
4-Chlorotoluene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
4-Methyl-2-pentanone (MIBK)	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Allyl chloride	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Benzene	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
Bromobenzene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Bromochloromethane	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Bromodichloromethane	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Bromoform	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Bromomethane	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Carbon disulfide	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Carbon Tetrachloride	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Chlorobenzene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Chloroethane	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Chloroform	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Chloromethane	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
cis-1.2-Dichloroethene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
cis-1.3-Dichloropropene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Dibromochloromethane	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Dibromomethane	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Dichlorodifluoromethane	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Ethylbenzene	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
Iodomethane	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Isopropyl benzene (Cumene)	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
m&p-Xylenes	0.2	mg/kg	< 0.2	-	< 0.2	< 0.2
Methylene Chloride	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
o-Xylene	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
Styrene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Tetrachloroethene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Toluene	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
trans-1.2-Dichloroethene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
trans-1.3-Dichloropropene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Trichloroethene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Trichlorofluoromethane	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Vinyl chloride	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Xylenes - Total*	0.3	mg/kg	< 0.3	-	< 0.3	< 0.3
Total MAH*	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Vic EPA IWRG 621 CHC (Total)*	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Vic EPA IWRG 621 Other CHC (Total)*	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
4-Bromofluorobenzene (surr.)	1	%	92	-	81	73
Toluene-d8 (surr.)	1	%	113	-	104	104

Client Sample ID			GG10(0.3-0.4)	FD5	GG11(0.2-0.3)	[G01]GG12(1.4-1.5)
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-Au41042	S21-Au41043	S21-Au41044	S21-Au41045
Date Sampled			Aug 23, 2021	Aug 23, 2021	Aug 23, 2021	Aug 23, 2021
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	-	< 0.5	5.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	-	0.6	7.1
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	-	1.2	8.6
Acenaphthene	0.5	mg/kg	< 0.5	-	< 0.5	0.5
Acenaphthylene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	-	< 0.5	0.9
Benz(a)anthracene	0.5	mg/kg	< 0.5	-	< 0.5	< 5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	-	< 0.5	4.7
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	-	< 0.5	3.9
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	-	< 0.5	< 5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	-	< 0.5	4.0
Chrysene	0.5	mg/kg	< 0.5	-	< 0.5	3.7
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	-	< 0.5	< 2
Fluoranthene	0.5	mg/kg	0.7	-	< 0.5	7.7
Fluorene	0.5	mg/kg	< 0.5	-	< 0.5	0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	-	< 0.5	< 5
Naphthalene	0.5	mg/kg	< 0.5	-	< 0.5	0.9
Phenanthrene	0.5	mg/kg	0.6	-	< 0.5	4.4
Pyrene	0.5	mg/kg	0.7	-	< 0.5	7.9
Total PAH*	0.5	mg/kg	2	-	< 0.5	39.1
2-Fluorobiphenyl (surr.)	1	%	134	-	125	130
p-Terphenyl-d14 (surr.)	1	%	140	-	113	137
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.05	-	< 0.05	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05	-	< 0.05	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05	-	< 0.05	< 0.05
a-HCH	0.05	mg/kg	< 0.05	-	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	-	< 0.05	< 0.05
b-HCH	0.05	mg/kg	< 0.05	-	< 0.05	< 0.05
d-HCH	0.05	mg/kg	< 0.05	-	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	-	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	-	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	-	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	-	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	-	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	-	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	-	< 0.05	< 0.05
g-HCH (Lindane)	0.05	mg/kg	< 0.05	-	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	-	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	-	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	-	< 0.05	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05	-	< 0.05	< 0.05
Toxaphene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	-	< 0.05	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	-	< 0.05	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
Dibutylchlorendate (surr.)	1	%	84	-	114	79
Tetrachloro-m-xylene (surr.)	1	%	132	-	120	127

Client Sample ID			GG10(0.3-0.4)	FD5	GG11(0.2-0.3)	[G01]GG12(1.4-1.5)
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-Au41042	S21-Au41043	S21-Au41044	S21-Au41045
Date Sampled			Aug 23, 2021	Aug 23, 2021	Aug 23, 2021	Aug 23, 2021
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Azinphos-methyl	0.2	mg/kg	< 0.2	-	< 0.2	< 0.2
Bolstar	0.2	mg/kg	< 0.2	-	< 0.2	< 0.2
Chlorfenvinphos	0.2	mg/kg	< 0.2	-	< 0.2	< 0.2
Chlorpyrifos	0.2	mg/kg	< 0.2	-	< 0.2	< 0.2
Chlorpyrifos-methyl	0.2	mg/kg	< 0.2	-	< 0.2	< 0.2
Coumaphos	2	mg/kg	< 2	-	< 2	< 2
Demeton-S	0.2	mg/kg	< 0.2	-	< 0.2	< 0.2
Demeton-O	0.2	mg/kg	< 0.2	-	< 0.2	< 0.2
Diazinon	0.2	mg/kg	< 0.2	-	< 0.2	< 0.2
Dichlorvos	0.2	mg/kg	< 0.2	-	< 0.2	< 0.2
Dimethoate	0.2	mg/kg	< 0.2	-	< 0.2	< 0.2
Disulfoton	0.2	mg/kg	< 0.2	-	< 0.2	< 0.2
EPN	0.2	mg/kg	< 0.2	-	< 0.2	< 0.2
Ethion	0.2	mg/kg	< 0.2	-	< 0.2	< 0.2
Ethoprop	0.2	mg/kg	< 0.2	-	< 0.2	< 0.2
Ethyl parathion	0.2	mg/kg	< 0.2	-	< 0.2	< 0.2
Fenitrothion	0.2	mg/kg	< 0.2	-	< 0.2	< 0.2
Fensulfothion	0.2	mg/kg	< 0.2	-	< 0.2	< 0.2
Fenthion	0.2	mg/kg	< 0.2	-	< 0.2	< 0.2
Malathion	0.2	mg/kg	< 0.2	-	< 0.2	< 0.2
Merphos	0.2	mg/kg	< 0.2	-	< 0.2	< 0.2
Methyl parathion	0.2	mg/kg	< 0.2	-	< 0.2	< 0.2
Mevinphos	0.2	mg/kg	< 0.2	-	< 0.2	< 0.2
Monocrotophos	2	mg/kg	< 2	-	< 2	< 2
Naled	0.2	mg/kg	< 0.5	-	< 0.5	< 0.5
Omethoate	2	mg/kg	< 2	-	< 2	< 2
Phorate	0.2	mg/kg	< 0.2	-	< 0.2	< 0.2
Pirimiphos-methyl	0.2	mg/kg	< 0.2	-	< 0.2	< 0.2
Pyrazophos	0.2	mg/kg	< 0.2	-	< 0.2	< 0.2
Ronnel	0.2	mg/kg	< 0.2	-	< 0.2	< 0.2
Terbufos	0.2	mg/kg	< 0.2	-	< 0.2	< 0.2
Tetrachlorvinphos	0.2	mg/kg	< 0.2	-	< 0.2	< 0.2
Tokuthion	0.2	mg/kg	< 0.2	-	< 0.2	< 0.2
Trichloronate	0.2	mg/kg	< 0.2	-	< 0.2	< 0.2
Triphenylphosphate (surr.)	1	%	124	-	143	135
Polychlorinated Biphenyls						
Aroclor-1016	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Aroclor-1221	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
Aroclor-1232	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Aroclor-1242	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Aroclor-1248	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Aroclor-1254	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Aroclor-1260	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Total PCB*	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Dibutylchlorendate (surr.)	1	%	84	-	114	79
Tetrachloro-m-xylene (surr.)	1	%	132	-	120	127

Client Sample ID			GG10(0.3-0.4)	FD5	GG11(0.2-0.3)	[G01]GG12(1.4-1.5)
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-Au41042	S21-Au41043	S21-Au41044	S21-Au41045
Date Sampled			Aug 23, 2021	Aug 23, 2021	Aug 23, 2021	Aug 23, 2021
Test/Reference	LOR	Unit				
Semivolatile Organics						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	-	< 0.5	5.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	-	0.6	7.1
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	-	1.2	8.6
2-Methyl-4.6-dinitrophenol	5	mg/kg	< 5	-	< 5	< 5
1-Chloronaphthalene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
1-Naphthylamine	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
1.2-Dichlorobenzene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
1.2.3-Trichlorobenzene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
1.2.3.4-Tetrachlorobenzene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
1.2.3.5-Tetrachlorobenzene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
1.2.4-Trichlorobenzene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
1.2.4.5-Tetrachlorobenzene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
1.3-Dichlorobenzene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
1.3.5-Trichlorobenzene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
1.4-Dichlorobenzene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
2-Chloronaphthalene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
2-Chlorophenol	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	134	-	125	130
2-Methylnaphthalene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
2-Methylphenol (o-Cresol)	0.2	mg/kg	< 0.2	-	< 0.2	< 0.2
2-Naphthylamine	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
2-Nitroaniline	1	mg/kg	< 1	-	< 1	< 1
2-Nitrophenol	1	mg/kg	< 1	-	< 1	< 1
2-Picoline	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
2.3.4.6-Tetrachlorophenol	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
2.4-Dichlorophenol	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
2.4-Dimethylphenol	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
2.4-Dinitrophenol	5	mg/kg	< 5	-	< 5	< 5
2.4-Dinitrotoluene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
2.4.5-Trichlorophenol	1	mg/kg	< 1	-	< 1	< 1
2.4.6-Tribromophenol (surr.)	1	%	56	-	111	60
2.4.6-Trichlorophenol	1	mg/kg	< 1	-	< 1	< 1
2.6-Dichlorophenol	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
2.6-Dinitrotoluene	1	mg/kg	< 1	-	< 1	< 1
3&4-Methylphenol (m&p-Cresol)	0.4	mg/kg	< 0.4	-	< 0.4	< 0.5
3-Methylcholanthrene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
3.3'-Dichlorobenzidine	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
4-Aminobiphenyl	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
4-Bromophenyl phenyl ether	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
4-Chloro-3-methylphenol	1	mg/kg	< 1	-	< 1	< 1
4-Chlorophenyl phenyl ether	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
4-Nitrophenol	5	mg/kg	< 5	-	< 5	< 5
4.4'-DDD	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
4.4'-DDE	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
4.4'-DDT	1	mg/kg	< 1	-	< 1	< 1
7.12-Dimethylbenz(a)anthracene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
a-HCH	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Acenaphthene	0.5	mg/kg	< 0.5	-	< 0.5	0.5
Acenaphthylene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5

Client Sample ID			GG10(0.3-0.4)	FD5	GG11(0.2-0.3)	[G01]GG12(1.4-1.5)
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-Au41042	S21-Au41043	S21-Au41044	S21-Au41045
Date Sampled			Aug 23, 2021	Aug 23, 2021	Aug 23, 2021	Aug 23, 2021
Test/Reference	LOR	Unit				
Semivolatile Organics						
Acetophenone	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Aldrin	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Aniline	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	-	< 0.5	0.9
b-HCH	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	-	< 0.5	< 5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	-	< 0.5	4.7
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	-	< 0.5	3.9
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	-	< 0.5	< 5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	-	< 0.5	4.0
Benzyl chloride	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Bis(2-chloroethoxy)methane	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Bis(2-chloroisopropyl)ether	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Bis(2-ethylhexyl)phthalate	5	mg/kg	< 5	-	< 5	< 5
Butyl benzyl phthalate	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	-	< 0.5	3.7
d-HCH	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Di-n-butyl phthalate	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Di-n-octyl phthalate	0.5	mg/kg	< 2	-	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	-	< 0.5	< 2
Dibenz(a.j)acridine	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Dibenzofuran	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Dieldrin	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Diethyl phthalate	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Dimethyl phthalate	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Dimethylaminoazobenzene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Diphenylamine	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Endosulfan I	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Endosulfan II	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Endosulfan sulphate	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Endrin	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Endrin aldehyde	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Endrin ketone	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	0.7	-	< 0.5	7.7
Fluorene	0.5	mg/kg	< 0.5	-	< 0.5	0.5
g-HCH (Lindane)	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Heptachlor	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Heptachlor epoxide	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Hexachlorobenzene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Hexachlorobutadiene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Hexachlorocyclopentadiene	1	mg/kg	< 1	-	< 1	< 1
Hexachloroethane	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	-	< 0.5	< 5
Methoxychlor	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
N-Nitrosodibutylamine	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
N-Nitrosodipropylamine	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
N-Nitrosopiperidine	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	-	< 0.5	0.9
Nitrobenzene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5

Client Sample ID			GG10(0.3-0.4)	FD5	GG11(0.2-0.3)	[G01]GG12(1.4-1.5)
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-Au41042	S21-Au41043	S21-Au41044	S21-Au41045
Date Sampled			Aug 23, 2021	Aug 23, 2021	Aug 23, 2021	Aug 23, 2021
Test/Reference	LOR	Unit				
Semivolatile Organics						
Nitrobenzene-d5 (surr.)	1	%	138	-	149	130
Pentachlorobenzene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Pentachloronitrobenzene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Pentachlorophenol	1	mg/kg	< 5	-	< 5	< 5
Phenanthrene	0.5	mg/kg	0.6	-	< 0.5	4.4
Phenol	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Phenol-d6 (surr.)	1	%	138	-	141	141
Pronamide	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Pyrene	0.5	mg/kg	0.7	-	< 0.5	7.9
Trifluralin	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Heavy Metals						
Arsenic	2	mg/kg	12	15	3.7	14
Cadmium	0.4	mg/kg	0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	35	8.4	6.3	29
Copper	5	mg/kg	21	18	5.5	39
Lead	5	mg/kg	41	28	7.7	180
Mercury	0.1	mg/kg	< 0.1	0.1	< 0.1	1.0
Nickel	5	mg/kg	15	5.7	7.4	9.9
Zinc	5	mg/kg	58	50	35	84
% Moisture	1	%	12	27	4.7	25

Client Sample ID			TS	TB
Sample Matrix			Soil	Soil
Eurofins Sample No.			S21-Au41046	S21-Au41047
Date Sampled			Aug 23, 2021	Aug 23, 2021
Test/Reference	LOR	Unit		
Total Recoverable Hydrocarbons				
TRH C6-C9	20	mg/kg	-	< 20
Naphthalene[N02]	0.5	mg/kg	-	< 0.5
TRH C6-C10	20	mg/kg	-	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	-	< 20
BTEX				
Benzene	0.1	mg/kg	-	< 0.1
Toluene	0.1	mg/kg	-	< 0.1
Ethylbenzene	0.1	mg/kg	-	< 0.1
m&p-Xylenes	0.2	mg/kg	-	< 0.2
o-Xylene	0.1	mg/kg	-	< 0.1
Xylenes - Total*	0.3	mg/kg	-	< 0.3
4-Bromofluorobenzene (surr.)	1	%	-	92
TRH C6-C10	1	%	87	-
Total Recoverable Hydrocarbons				
Naphthalene	1	%	80	-
TRH C6-C9	1	%	88	-

Client Sample ID			TS	TB
Sample Matrix			Soil	Soil
Eurofins Sample No.			S21-Au41046	S21-Au41047
Date Sampled			Aug 23, 2021	Aug 23, 2021
Test/Reference	LOR	Unit		
BTEX				
Benzene	1	%	99	-
Ethylbenzene	1	%	85	-
m&p-Xylenes	1	%	85	-
o-Xylene	1	%	84	-
Toluene	1	%	88	-
Xylenes - Total	1	%	84	-
4-Bromofluorobenzene (surr.)	1	%	80	-

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Sydney	Aug 23, 2021	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Aug 23, 2021	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons	Sydney	Aug 23, 2021	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Sydney	Aug 23, 2021	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Aug 23, 2021	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Polycyclic Aromatic Hydrocarbons	Sydney	Aug 23, 2021	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Metals M8	Sydney	Aug 23, 2021	180 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Volatile Organics	Sydney	Aug 23, 2021	7 Days
- Method: LTM-ORG-2150 VOCs in Soils Liquid and other Aqueous Matrices			
Semivolatile Organics	Sydney	Aug 23, 2021	14 Day
- Method: LTM-ORG-2190 SVOC in Water & Soil by GC-MS			
Eurofins Suite B15			
Organochlorine Pesticides	Sydney	Aug 23, 2021	14 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
Organophosphorus Pesticides	Sydney	Aug 23, 2021	14 Days
- Method: LTM-ORG-2200 Organophosphorus Pesticides by GC-MS			
Polychlorinated Biphenyls	Sydney	Aug 23, 2021	28 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
% Moisture	Sydney	Aug 23, 2021	14 Days
- Method: LTM-GEN-7080 Moisture			

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Company Name:	Greencap NSW P/L	**Order No.:**	PO291240	**Received:**	Aug 23, 2021 3:35 PM
Address:	Ground Floor, North Building, 22 Giffnock Avenue Macquarie Park NSW 2113	**Report #:**	818921	**Due:**	Aug 24, 2021
		Phone:	02 9889 1800	**Priority:**	1 Day
		Fax:	02 9889 1811	**Contact Name:**	Shihui Wang
Project Name:	SOPHS				
Project ID:	J169135				

Eurofins Analytical Services Manager : Ursula Long

Sample Detail						HOLD	Metals M8	Eurofins Suite B15	Moisture Set	Eurofins Suite B7	BTEXN and Volatile TRH	Eurofins Suite SVV: SVOC/VOC	BTEXN and Volatile TRH
Melbourne Laboratory - NATA Site # 1254													
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794													
Perth Laboratory - NATA Site # 23736													
Mayfield Laboratory - NATA Site # 25079													
External Laboratory													
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**								
1	GG10(0.3-0.4)	Aug 23, 2021		Soil	S21-Au41042			X	X	X		X	
2	FD5	Aug 23, 2021		Soil	S21-Au41043		X		X				
3	GG11(0.2-0.3)	Aug 23, 2021		Soil	S21-Au41044			X	X	X		X	
4	GG12(1.4-1.5)	Aug 23, 2021		Soil	S21-Au41045			X	X	X		X	
5	TS	Aug 23, 2021		Soil	S21-Au41046								X
6	TB	Aug 23, 2021		Soil	S21-Au41047						X		
7	GG10(1.5-1.6)	Aug 23, 2021		Soil	S21-Au41049	X							
8	GG10(2.4-2.5)	Aug 23, 2021		Soil	S21-Au41050	X							
9	GG12(0.4-0.5)	Aug 23, 2021		Soil	S21-Au41051	X							

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Rolleston, Christchurch 7675
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IANZ # 1290

Company Name: Greencap NSW P/L
Address: Ground Floor, North Building, 22 Giffnock Avenue
Macquarie Park
NSW 2113

Project Name: SOPHS
Project ID: J169135

Order No.: PO291240
Report #: 818921
Phone: 02 9889 1800
Fax: 02 9889 1811

Received: Aug 23, 2021 3:35 PM
Due: Aug 24, 2021
Priority: 1 Day
Contact Name: Shihui Wang

Eurofins Analytical Services Manager : Ursula Long

Sample Detail						HOLD	Metals M8	Eurofins Suite B15	Moisture Set	Eurofins Suite B7	BTEXN and Volatile TRH	Eurofins Suite SVV: SVOC/VOC	BTEXN and Volatile TRH
Melbourne Laboratory - NATA Site # 1254													
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794													
Perth Laboratory - NATA Site # 23736													
Mayfield Laboratory - NATA Site # 25079													
External Laboratory													
10	GG12(2.7-2.8)	Aug 23, 2021		Soil	S21-Au41052	X							
Test Counts						4	1	3	4	3	1	3	1

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer, that may have an impact on the results.
9. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	US Department of Defense Quality Systems Manual Version 5.3
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 20-130% Phenols & 50-150% PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.3 where no positive PFAS results have been reported have been reviewed and no data was affected.

WA DWER (n=10): PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total*	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Volatile Organics							
1.1-Dichloroethane	mg/kg	< 0.5			0.5	Pass	
1.1-Dichloroethene	mg/kg	< 0.5			0.5	Pass	
1.1.1-Trichloroethane	mg/kg	< 0.5			0.5	Pass	
1.1.1.2-Tetrachloroethane	mg/kg	< 0.5			0.5	Pass	
1.1.2-Trichloroethane	mg/kg	< 0.5			0.5	Pass	
1.1.2.2-Tetrachloroethane	mg/kg	< 0.5			0.5	Pass	
1.2-Dibromoethane	mg/kg	< 0.5			0.5	Pass	
1.2-Dichlorobenzene	mg/kg	< 0.5			0.5	Pass	
1.2-Dichloroethane	mg/kg	< 0.5			0.5	Pass	
1.2-Dichloropropane	mg/kg	< 0.5			0.5	Pass	
1.2.3-Trichloropropane	mg/kg	< 0.5			0.5	Pass	
1.2.4-Trimethylbenzene	mg/kg	< 0.5			0.5	Pass	
1.3-Dichlorobenzene	mg/kg	< 0.5			0.5	Pass	
1.3-Dichloropropane	mg/kg	< 0.5			0.5	Pass	
1.3.5-Trimethylbenzene	mg/kg	< 0.5			0.5	Pass	
1.4-Dichlorobenzene	mg/kg	< 0.5			0.5	Pass	
2-Butanone (MEK)	mg/kg	< 0.5			0.5	Pass	
2-Propanone (Acetone)	mg/kg	< 0.5			0.5	Pass	
4-Chlorotoluene	mg/kg	< 0.5			0.5	Pass	
4-Methyl-2-pentanone (MIBK)	mg/kg	< 0.5			0.5	Pass	
Allyl chloride	mg/kg	< 0.5			0.5	Pass	
Bromobenzene	mg/kg	< 0.5			0.5	Pass	
Bromochloromethane	mg/kg	< 0.5			0.5	Pass	
Bromodichloromethane	mg/kg	< 0.5			0.5	Pass	
Bromoform	mg/kg	< 0.5			0.5	Pass	
Bromomethane	mg/kg	< 0.5			0.5	Pass	
Carbon disulfide	mg/kg	< 0.5			0.5	Pass	
Carbon Tetrachloride	mg/kg	< 0.5			0.5	Pass	
Chlorobenzene	mg/kg	< 0.5			0.5	Pass	
Chloroethane	mg/kg	< 0.5			0.5	Pass	
Chloroform	mg/kg	< 0.5			0.5	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Chloromethane	mg/kg	< 0.5			0.5	Pass	
cis-1.2-Dichloroethene	mg/kg	< 0.5			0.5	Pass	
cis-1.3-Dichloropropene	mg/kg	< 0.5			0.5	Pass	
Dibromochloromethane	mg/kg	< 0.5			0.5	Pass	
Dibromomethane	mg/kg	< 0.5			0.5	Pass	
Dichlorodifluoromethane	mg/kg	< 0.5			0.5	Pass	
Iodomethane	mg/kg	< 0.5			0.5	Pass	
Isopropyl benzene (Cumene)	mg/kg	< 0.5			0.5	Pass	
Methylene Chloride	mg/kg	< 0.5			0.5	Pass	
Styrene	mg/kg	< 0.5			0.5	Pass	
Tetrachloroethene	mg/kg	< 0.5			0.5	Pass	
trans-1.2-Dichloroethene	mg/kg	< 0.5			0.5	Pass	
trans-1.3-Dichloropropene	mg/kg	< 0.5			0.5	Pass	
Trichloroethene	mg/kg	< 0.5			0.5	Pass	
Trichlorofluoromethane	mg/kg	< 0.5			0.5	Pass	
Vinyl chloride	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Organochlorine Pesticides							
Chlordanes - Total	mg/kg	< 0.1			0.1	Pass	
4.4'-DDD	mg/kg	< 0.05			0.05	Pass	
4.4'-DDE	mg/kg	< 0.05			0.05	Pass	
4.4'-DDT	mg/kg	< 0.05			0.05	Pass	
a-HCH	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
b-HCH	mg/kg	< 0.05			0.05	Pass	
d-HCH	mg/kg	< 0.05			0.05	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Endosulfan I	mg/kg	< 0.05			0.05	Pass	
Endosulfan II	mg/kg	< 0.05			0.05	Pass	
Endosulfan sulphate	mg/kg	< 0.05			0.05	Pass	
Endrin	mg/kg	< 0.05			0.05	Pass	
Endrin aldehyde	mg/kg	< 0.05			0.05	Pass	
Endrin ketone	mg/kg	< 0.05			0.05	Pass	
g-HCH (Lindane)	mg/kg	< 0.05			0.05	Pass	
Heptachlor	mg/kg	< 0.05			0.05	Pass	
Heptachlor epoxide	mg/kg	< 0.05			0.05	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Hexachlorobenzene	mg/kg	< 0.05			0.05	Pass	
Methoxychlor	mg/kg	< 0.05			0.05	Pass	
Toxaphene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Organophosphorus Pesticides							
Azinphos-methyl	mg/kg	< 0.2			0.2	Pass	
Bolstar	mg/kg	< 0.2			0.2	Pass	
Chlorfenvinphos	mg/kg	< 0.2			0.2	Pass	
Chlorpyrifos	mg/kg	< 0.2			0.2	Pass	
Chlorpyrifos-methyl	mg/kg	< 0.2			0.2	Pass	
Coumaphos	mg/kg	< 2			2	Pass	
Demeton-S	mg/kg	< 0.2			0.2	Pass	
Demeton-O	mg/kg	< 0.2			0.2	Pass	
Diazinon	mg/kg	< 0.2			0.2	Pass	
Dichlorvos	mg/kg	< 0.2			0.2	Pass	
Dimethoate	mg/kg	< 0.2			0.2	Pass	
Disulfoton	mg/kg	< 0.2			0.2	Pass	
EPN	mg/kg	< 0.2			0.2	Pass	
Ethion	mg/kg	< 0.2			0.2	Pass	
Ethoprop	mg/kg	< 0.2			0.2	Pass	
Ethyl parathion	mg/kg	< 0.2			0.2	Pass	
Fenitrothion	mg/kg	< 0.2			0.2	Pass	
Fensulfothion	mg/kg	< 0.2			0.2	Pass	
Fenthion	mg/kg	< 0.2			0.2	Pass	
Malathion	mg/kg	< 0.2			0.2	Pass	
Merphos	mg/kg	< 0.2			0.2	Pass	
Methyl parathion	mg/kg	< 0.2			0.2	Pass	
Mevinphos	mg/kg	< 0.2			0.2	Pass	
Monocrotophos	mg/kg	< 2			2	Pass	
Naled	mg/kg	< 0.2			0.2	Pass	
Omethoate	mg/kg	< 2			2	Pass	
Phorate	mg/kg	< 0.2			0.2	Pass	
Pirimiphos-methyl	mg/kg	< 0.2			0.2	Pass	
Pyrazophos	mg/kg	< 0.2			0.2	Pass	
Ronnel	mg/kg	< 0.2			0.2	Pass	
Terbufos	mg/kg	< 0.2			0.2	Pass	
Tetrachlorvinphos	mg/kg	< 0.2			0.2	Pass	
Tokuthion	mg/kg	< 0.2			0.2	Pass	
Trichloronate	mg/kg	< 0.2			0.2	Pass	
Method Blank							
Polychlorinated Biphenyls							
Aroclor-1016	mg/kg	< 0.5			0.5	Pass	
Aroclor-1221	mg/kg	< 0.1			0.1	Pass	
Aroclor-1232	mg/kg	< 0.5			0.5	Pass	
Aroclor-1242	mg/kg	< 0.5			0.5	Pass	
Aroclor-1248	mg/kg	< 0.5			0.5	Pass	
Aroclor-1254	mg/kg	< 0.5			0.5	Pass	
Aroclor-1260	mg/kg	< 0.5			0.5	Pass	
Total PCB*	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Semivolatile Organics							
2-Methyl-4.6-dinitrophenol	mg/kg	< 5			5	Pass	
1-Chloronaphthalene	mg/kg	< 0.5			0.5	Pass	
1-Naphthylamine	mg/kg	< 0.5			0.5	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
1.2-Dichlorobenzene	mg/kg	< 0.5			0.5	Pass	
1.2.3-Trichlorobenzene	mg/kg	< 0.5			0.5	Pass	
1.2.3.4-Tetrachlorobenzene	mg/kg	< 0.5			0.5	Pass	
1.2.3.5-Tetrachlorobenzene	mg/kg	< 0.5			0.5	Pass	
1.2.4-Trichlorobenzene	mg/kg	< 0.5			0.5	Pass	
1.2.4.5-Tetrachlorobenzene	mg/kg	< 0.5			0.5	Pass	
1.3-Dichlorobenzene	mg/kg	< 0.5			0.5	Pass	
1.3.5-Trichlorobenzene	mg/kg	< 0.5			0.5	Pass	
1.4-Dichlorobenzene	mg/kg	< 0.5			0.5	Pass	
2-Chloronaphthalene	mg/kg	< 0.5			0.5	Pass	
2-Chlorophenol	mg/kg	< 0.5			0.5	Pass	
2-Methylnaphthalene	mg/kg	< 0.5			0.5	Pass	
2-Methylphenol (o-Cresol)	mg/kg	< 0.2			0.2	Pass	
2-Naphthylamine	mg/kg	< 0.5			0.5	Pass	
2-Nitroaniline	mg/kg	< 1			1	Pass	
2-Nitrophenol	mg/kg	< 1			1	Pass	
2-Picoline	mg/kg	< 0.5			0.5	Pass	
2.3.4.6-Tetrachlorophenol	mg/kg	< 0.5			0.5	Pass	
2.4-Dichlorophenol	mg/kg	< 0.5			0.5	Pass	
2.4-Dimethylphenol	mg/kg	< 0.5			0.5	Pass	
2.4-Dinitrophenol	mg/kg	< 5			5	Pass	
2.4-Dinitrotoluene	mg/kg	< 0.5			0.5	Pass	
2.4.5-Trichlorophenol	mg/kg	< 1			1	Pass	
2.4.6-Trichlorophenol	mg/kg	< 1			1	Pass	
2.6-Dichlorophenol	mg/kg	< 0.5			0.5	Pass	
2.6-Dinitrotoluene	mg/kg	< 1			1	Pass	
3&4-Methylphenol (m&p-Cresol)	mg/kg	< 0.4			0.4	Pass	
3-Methylcholanthrene	mg/kg	< 0.5			0.5	Pass	
3.3'-Dichlorobenzidine	mg/kg	< 0.5			0.5	Pass	
4-Aminobiphenyl	mg/kg	< 0.5			0.5	Pass	
4-Bromophenyl phenyl ether	mg/kg	< 0.5			0.5	Pass	
4-Chloro-3-methylphenol	mg/kg	< 1			1	Pass	
4-Chlorophenyl phenyl ether	mg/kg	< 0.5			0.5	Pass	
4-Nitrophenol	mg/kg	< 5			5	Pass	
4.4'-DDD	mg/kg	< 0.5			0.5	Pass	
4.4'-DDE	mg/kg	< 0.5			0.5	Pass	
4.4'-DDT	mg/kg	< 1			1	Pass	
7.12-Dimethylbenz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
a-HCH	mg/kg	< 0.5			0.5	Pass	
Acetophenone	mg/kg	< 0.5			0.5	Pass	
Aldrin	mg/kg	< 0.5			0.5	Pass	
Aniline	mg/kg	< 0.5			0.5	Pass	
b-HCH	mg/kg	< 0.5			0.5	Pass	
Benzyl chloride	mg/kg	< 0.5			0.5	Pass	
Bis(2-chloroethoxy)methane	mg/kg	< 0.5			0.5	Pass	
Bis(2-chloroisopropyl)ether	mg/kg	< 0.5			0.5	Pass	
Bis(2-ethylhexyl)phthalate	mg/kg	< 5			5	Pass	
Butyl benzyl phthalate	mg/kg	< 0.5			0.5	Pass	
d-HCH	mg/kg	< 0.5			0.5	Pass	
Di-n-butyl phthalate	mg/kg	< 0.5			0.5	Pass	
Di-n-octyl phthalate	mg/kg	< 0.5			0.5	Pass	
Dibenz(a.j)acridine	mg/kg	< 0.5			0.5	Pass	
Dibenzofuran	mg/kg	< 0.5			0.5	Pass	
Dieldrin	mg/kg	< 0.5			0.5	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Diethyl phthalate	mg/kg	< 0.5			0.5	Pass	
Dimethyl phthalate	mg/kg	< 0.5			0.5	Pass	
Dimethylaminoazobenzene	mg/kg	< 0.5			0.5	Pass	
Diphenylamine	mg/kg	< 0.5			0.5	Pass	
Endosulfan I	mg/kg	< 0.5			0.5	Pass	
Endosulfan II	mg/kg	< 0.5			0.5	Pass	
Endosulfan sulphate	mg/kg	< 0.5			0.5	Pass	
Endrin	mg/kg	< 0.5			0.5	Pass	
Endrin aldehyde	mg/kg	< 0.5			0.5	Pass	
Endrin ketone	mg/kg	< 0.5			0.5	Pass	
g-HCH (Lindane)	mg/kg	< 0.5			0.5	Pass	
Heptachlor	mg/kg	< 0.5			0.5	Pass	
Heptachlor epoxide	mg/kg	< 0.5			0.5	Pass	
Hexachlorobenzene	mg/kg	< 0.5			0.5	Pass	
Hexachlorobutadiene	mg/kg	< 0.5			0.5	Pass	
Hexachlorocyclopentadiene	mg/kg	< 1			1	Pass	
Hexachloroethane	mg/kg	< 0.5			0.5	Pass	
Methoxychlor	mg/kg	< 0.5			0.5	Pass	
N-Nitrosodibutylamine	mg/kg	< 0.5			0.5	Pass	
N-Nitrosodipropylamine	mg/kg	< 0.5			0.5	Pass	
N-Nitrosopiperidine	mg/kg	< 0.5			0.5	Pass	
Nitrobenzene	mg/kg	< 0.5			0.5	Pass	
Pentachlorobenzene	mg/kg	< 0.5			0.5	Pass	
Pentachloronitrobenzene	mg/kg	< 0.5			0.5	Pass	
Pentachlorophenol	mg/kg	< 1			1	Pass	
Phenol	mg/kg	< 0.5			0.5	Pass	
Pronamide	mg/kg	< 0.5			0.5	Pass	
Trifluralin	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Nickel	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons							
TRH C6-C9	%	92			70-130	Pass	
TRH C10-C14	%	83			70-130	Pass	
Naphthalene	%	115			70-130	Pass	
TRH C6-C10	%	91			70-130	Pass	
TRH >C10-C16	%	87			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	91			70-130	Pass	
Toluene	%	91			70-130	Pass	
Ethylbenzene	%	91			70-130	Pass	
m&p-Xylenes	%	94			70-130	Pass	
o-Xylene	%	92			70-130	Pass	
Xylenes - Total*	%	93			70-130	Pass	
LCS - % Recovery							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Volatile Organics							
1.1-Dichloroethene	%	127			70-130	Pass	
1.1.1-Trichloroethane	%	121			70-130	Pass	
1.2-Dichlorobenzene	%	128			70-130	Pass	
1.2-Dichloroethane	%	118			70-130	Pass	
Trichloroethene	%	103			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	99			70-130	Pass	
Acenaphthylene	%	91			70-130	Pass	
Anthracene	%	91			70-130	Pass	
Benz(a)anthracene	%	79			70-130	Pass	
Benzo(a)pyrene	%	90			70-130	Pass	
Benzo(b&j)fluoranthene	%	80			70-130	Pass	
Benzo(g.h.i)perylene	%	91			70-130	Pass	
Benzo(k)fluoranthene	%	84			70-130	Pass	
Chrysene	%	82			70-130	Pass	
Dibenz(a.h)anthracene	%	92			70-130	Pass	
Fluoranthene	%	82			70-130	Pass	
Fluorene	%	85			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	92			70-130	Pass	
Naphthalene	%	84			70-130	Pass	
Phenanthrene	%	83			70-130	Pass	
Pyrene	%	104			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
Chlordanes - Total	%	91			70-130	Pass	
4.4'-DDD	%	113			70-130	Pass	
4.4'-DDE	%	85			70-130	Pass	
4.4'-DDT	%	100			70-130	Pass	
a-HCH	%	89			70-130	Pass	
Aldrin	%	87			70-130	Pass	
b-HCH	%	91			70-130	Pass	
d-HCH	%	91			70-130	Pass	
Dieldrin	%	91			70-130	Pass	
Endosulfan I	%	94			70-130	Pass	
Endosulfan II	%	95			70-130	Pass	
Endosulfan sulphate	%	73			70-130	Pass	
Endrin	%	104			70-130	Pass	
Endrin aldehyde	%	79			70-130	Pass	
Endrin ketone	%	76			70-130	Pass	
g-HCH (Lindane)	%	99			70-130	Pass	
Heptachlor	%	95			70-130	Pass	
Heptachlor epoxide	%	111			70-130	Pass	
Hexachlorobenzene	%	84			70-130	Pass	
Methoxychlor	%	98			70-130	Pass	
LCS - % Recovery							
Organophosphorus Pesticides							
Diazinon	%	126			70-130	Pass	
Dimethoate	%	97			70-130	Pass	
Ethion	%	122			70-130	Pass	
Mevinphos	%	128			70-130	Pass	
LCS - % Recovery							
Polychlorinated Biphenyls							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Aroclor-1016	%	93			70-130	Pass	
Aroclor-1260	%	108			70-130	Pass	
LCS - % Recovery							
Semivolatile Organics							
2-Methyl-4.6-dinitrophenol	%	89			30-130	Pass	
1.2.4-Trichlorobenzene	%	95			70-130	Pass	
1.4-Dichlorobenzene	%	95			70-130	Pass	
2-Chlorophenol	%	97			30-130	Pass	
2-Methylphenol (o-Cresol)	%	107			30-130	Pass	
2-Nitrophenol	%	124			30-130	Pass	
2.4-Dichlorophenol	%	114			30-130	Pass	
2.4-Dimethylphenol	%	111			30-130	Pass	
2.4-Dinitrophenol	%	127			30-130	Pass	
2.4-Dinitrotoluene	%	124			70-130	Pass	
2.4.5-Trichlorophenol	%	110			30-130	Pass	
2.4.6-Trichlorophenol	%	121			30-130	Pass	
2.6-Dichlorophenol	%	115			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	%	114			30-130	Pass	
4-Chloro-3-methylphenol	%	97			30-130	Pass	
4-Nitrophenol	%	99			30-130	Pass	
N-Nitrosodipropylamine	%	107			70-130	Pass	
Pentachlorophenol	%	106			30-130	Pass	
Phenol	%	99			30-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	112			80-120	Pass	
Cadmium	%	96			80-120	Pass	
Chromium	%	103			80-120	Pass	
Copper	%	97			80-120	Pass	
Lead	%	99			80-120	Pass	
Mercury	%	99			80-120	Pass	
Nickel	%	100			80-120	Pass	
Zinc	%	96			80-120	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons				Result 1					
TRH C6-C9	S21-Au33287	NCP	%	73			70-130	Pass	
TRH C10-C14	S21-Au39938	NCP	%	115			70-130	Pass	
Naphthalene	S21-Au30139	NCP	%	75			70-130	Pass	
TRH C6-C10	S21-Au33287	NCP	%	72			70-130	Pass	
TRH >C10-C16	S21-Au39938	NCP	%	120			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S21-Au30139	NCP	%	92			70-130	Pass	
Toluene	S21-Au30139	NCP	%	102			70-130	Pass	
Ethylbenzene	S21-Au30139	NCP	%	98			70-130	Pass	
m&p-Xylenes	S21-Au30139	NCP	%	100			70-130	Pass	
o-Xylene	S21-Au30139	NCP	%	100			70-130	Pass	
Xylenes - Total*	S21-Au30139	NCP	%	100			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	S21-Au41042	CP	%	92			70-130	Pass	
Acenaphthylene	S21-Au41042	CP	%	99			70-130	Pass	
Anthracene	S21-Au41042	CP	%	104			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Benz(a)anthracene	S21-Au41042	CP	%	88			70-130	Pass	
Benzo(a)pyrene	S21-Au41042	CP	%	113			70-130	Pass	
Benzo(b&j)fluoranthene	S21-Au41042	CP	%	87			70-130	Pass	
Benzo(g.h.i)perylene	S21-Au41042	CP	%	83			70-130	Pass	
Benzo(k)fluoranthene	S21-Au41042	CP	%	90			70-130	Pass	
Chrysene	S21-Au41042	CP	%	99			70-130	Pass	
Dibenz(a.h)anthracene	S21-Au41042	CP	%	85			70-130	Pass	
Fluoranthene	S21-Au41042	CP	%	93			70-130	Pass	
Fluorene	S21-Au41042	CP	%	94			70-130	Pass	
Indeno(1.2.3-cd)pyrene	S21-Au41042	CP	%	90			70-130	Pass	
Naphthalene	S21-Au41042	CP	%	94			70-130	Pass	
Phenanthrene	S21-Au41042	CP	%	89			70-130	Pass	
Pyrene	S21-Au41042	CP	%	98			70-130	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
Chlordanes - Total	S21-Au41042	CP	%	99			70-130	Pass	
4.4'-DDD	S21-Au41042	CP	%	111			70-130	Pass	
4.4'-DDE	S21-Au41042	CP	%	93			70-130	Pass	
4.4'-DDT	S21-Au41042	CP	%	81			70-130	Pass	
a-HCH	S21-Au41042	CP	%	93			70-130	Pass	
Aldrin	S21-Au41042	CP	%	75			70-130	Pass	
b-HCH	S21-Au41042	CP	%	90			70-130	Pass	
d-HCH	S21-Au41042	CP	%	96			70-130	Pass	
Dieldrin	S21-Au41042	CP	%	96			70-130	Pass	
Endosulfan I	S21-Au41042	CP	%	122			70-130	Pass	
Endosulfan II	S21-Au41042	CP	%	98			70-130	Pass	
Endrin	S21-Au41042	CP	%	105			70-130	Pass	
g-HCH (Lindane)	S21-Au41042	CP	%	107			70-130	Pass	
Heptachlor	S21-Au28930	NCP	%	82			70-130	Pass	
Heptachlor epoxide	S21-Au41042	CP	%	128			70-130	Pass	
Hexachlorobenzene	S21-Au41042	CP	%	93			70-130	Pass	
Spike - % Recovery									
Organophosphorus Pesticides				Result 1					
Dimethoate	S21-Au41042	CP	%	70			70-130	Pass	
Spike - % Recovery									
Polychlorinated Biphenyls				Result 1					
Aroclor-1016	S21-Au41042	CP	%	101			70-130	Pass	
Aroclor-1260	S21-Au41042	CP	%	116			70-130	Pass	
Spike - % Recovery									
Semivolatile Organics				Result 1					
2-Chlorophenol	S21-Au28930	NCP	%	94			30-130	Pass	
2-Methylphenol (o-Cresol)	S21-Au28930	NCP	%	95			30-130	Pass	
2.4-Dichlorophenol	W21-Au32071	NCP	%	114			30-130	Pass	
2.4-Dimethylphenol	S21-Au28930	NCP	%	85			30-130	Pass	
2.4-Dinitrophenol	W21-Au32071	NCP	%	117			70-130	Pass	
2.4.5-Trichlorophenol	W21-Au32071	NCP	%	112			30-130	Pass	
2.4.6-Trichlorophenol	W21-Au32071	NCP	%	129			30-130	Pass	
2.6-Dichlorophenol	S21-Au28930	NCP	%	80			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	S21-Au28930	NCP	%	80			30-130	Pass	
4-Chloro-3-methylphenol	S21-Au41042	CP	%	97			30-130	Pass	
Pentachlorophenol	W21-Au32071	NCP	%	130			30-130	Pass	
Phenol	S21-Au28930	NCP	%	95			30-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Arsenic	S21-Au41107	NCP	%	98			75-125	Pass	
Cadmium	S21-Au41107	NCP	%	86			75-125	Pass	
Chromium	S21-Au41107	NCP	%	88			75-125	Pass	
Copper	S21-Au36366	NCP	%	86			75-125	Pass	
Lead	S21-Au41107	NCP	%	85			75-125	Pass	
Mercury	S21-Au41107	NCP	%	86			75-125	Pass	
Nickel	S21-Au41107	NCP	%	79			75-125	Pass	
Zinc	S21-Au41107	NCP	%	84			75-125	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH C6-C9	S21-Au41042	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	S21-Au39937	NCP	mg/kg	< 20	24	43	30%	Fail	Q15
TRH C15-C28	S21-Au39937	NCP	mg/kg	81	110	34	30%	Fail	Q15
TRH C29-C36	S21-Au39937	NCP	mg/kg	78	110	30	30%	Pass	
Naphthalene	S21-Au41042	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	S21-Au41042	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH >C10-C16	S21-Au39937	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	S21-Au39937	NCP	mg/kg	140	190	31	30%	Fail	Q15
TRH >C34-C40	S21-Au39937	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S21-Au41042	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S21-Au41042	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S21-Au41042	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S21-Au41042	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	S21-Au41042	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total*	S21-Au41042	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Volatile Organics				Result 1	Result 2	RPD			
1.1-Dichloroethane	S21-Au41042	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1-Dichloroethene	S21-Au41042	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1.1-Trichloroethane	S21-Au41042	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1.1.2-Tetrachloroethane	S21-Au41042	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1.2-Trichloroethane	S21-Au41042	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1.2.2-Tetrachloroethane	S21-Au41042	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2-Dibromoethane	S21-Au41042	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2-Dichlorobenzene	S21-Au41042	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2-Dichloroethane	S21-Au41042	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2-Dichloropropane	S21-Au41042	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2.3-Trichloropropane	S21-Au41042	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2.4-Trimethylbenzene	S21-Au41042	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.3-Dichlorobenzene	S21-Au41042	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.3-Dichloropropane	S21-Au41042	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.3.5-Trimethylbenzene	S21-Au41042	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.4-Dichlorobenzene	S21-Au41042	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2-Butanone (MEK)	S21-Au41042	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2-Propanone (Acetone)	S21-Au41042	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
4-Chlorotoluene	S21-Au41042	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
4-Methyl-2-pentanone (MIBK)	S21-Au41042	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Allyl chloride	S21-Au41042	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Bromobenzene	S21-Au41042	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Bromochloromethane	S21-Au41042	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Bromodichloromethane	S21-Au41042	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	

Duplicate									
Volatile Organics				Result 1	Result 2	RPD			
Bromoform	S21-Au41042	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Bromomethane	S21-Au41042	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Carbon disulfide	S21-Au41042	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Carbon Tetrachloride	S21-Au41042	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chlorobenzene	S21-Au41042	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chloroethane	S21-Au41042	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chloroform	S21-Au41042	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chloromethane	S21-Au41042	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
cis-1.2-Dichloroethene	S21-Au41042	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
cis-1.3-Dichloropropene	S21-Au41042	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibromochloromethane	S21-Au41042	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibromomethane	S21-Au41042	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dichlorodifluoromethane	S21-Au41042	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Iodomethane	S21-Au41042	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Isopropyl benzene (Cumene)	S21-Au41042	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Methylene Chloride	S21-Au41042	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Styrene	S21-Au41042	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Tetrachloroethene	S21-Au41042	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
trans-1.2-Dichloroethene	S21-Au41042	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
trans-1.3-Dichloropropene	S21-Au41042	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Trichloroethene	S21-Au41042	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Trichlorofluoromethane	S21-Au41042	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Vinyl chloride	S21-Au41042	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	S21-Au39937	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	S21-Au39937	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	S21-Au39937	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	S21-Au39937	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	S21-Au39937	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	S21-Au39937	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	S21-Au39937	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	S21-Au39937	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	S21-Au39937	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	S21-Au39937	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	S21-Au39937	NCP	mg/kg	< 0.5	0.7	55	30%	Fail	
Fluorene	S21-Au39937	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	S21-Au39937	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	S21-Au39937	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	S21-Au39937	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	S21-Au39937	NCP	mg/kg	< 0.5	0.8	62	30%	Fail	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	S21-Au39937	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4.4'-DDD	S21-Au39937	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDE	S21-Au39937	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDT	S21-Au39937	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-HCH	S21-Au39937	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	S21-Au39937	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-HCH	S21-Au39937	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-HCH	S21-Au39937	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	S21-Au39937	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan I	S21-Au39937	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	S21-Au39937	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	

Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Endosulfan sulphate	S21-Au39937	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	S21-Au39937	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin aldehyde	S21-Au39937	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin ketone	S21-Au39937	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
g-HCH (Lindane)	S21-Au39937	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor	S21-Au39937	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor epoxide	S21-Au39937	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Hexachlorobenzene	S21-Au39937	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Methoxychlor	S21-Au39937	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Toxaphene	S21-Au39937	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Azinphos-methyl	S21-Au28082	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Bolstar	S21-Au28082	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorfenvinphos	S21-Au28082	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorpyrifos	S21-Au28082	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorpyrifos-methyl	S21-Au28082	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Coumaphos	S21-Au28082	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Demeton-S	S21-Au28082	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Demeton-O	S21-Au28082	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Diazinon	S21-Au28082	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Dichlorvos	S21-Au28082	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Dimethoate	S21-Au28082	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Disulfoton	S21-Au28082	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
EPN	S21-Au28082	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethion	S21-Au28082	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethoprop	S21-Au28082	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethyl parathion	S21-Au28082	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fenitrothion	S21-Au28082	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fensulfothion	S21-Au28082	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fenthion	S21-Au28082	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Malathion	S21-Au28082	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Merphos	S21-Au28082	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Methyl parathion	S21-Au28082	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Mevinphos	S21-Au28082	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Monocrotophos	S21-Au28082	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Naled	S21-Au28082	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Omethoate	S21-Au28082	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Phorate	S21-Au28082	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Pirimiphos-methyl	S21-Au28082	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Pyrazophos	S21-Au28082	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ronnel	S21-Au28082	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Terbufos	S21-Au28082	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Tetrachlorvinphos	S21-Au28082	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Tokuthion	S21-Au28082	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Trichloronate	S21-Au28082	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Duplicate									
Polychlorinated Biphenyls				Result 1	Result 2	RPD			
Aroclor-1016	S21-Au39937	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1221	S21-Au39937	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1232	S21-Au39937	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1242	S21-Au39937	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1248	S21-Au39937	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1254	S21-Au39937	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	

Duplicate									
Polychlorinated Biphenyls				Result 1	Result 2	RPD			
Aroclor-1260	S21-Au39937	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Total PCB*	S21-Au39937	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Semivolatile Organics				Result 1	Result 2	RPD			
2-Methyl-4.6-dinitrophenol	W21-Au32070	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
1-Chloronaphthalene	S21-Au28082	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1-Naphthylamine	S21-Au28082	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2-Dichlorobenzene	S21-Au28082	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2.3-Trichlorobenzene	S21-Au28082	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2.3.4-Tetrachlorobenzene	S21-Au28082	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2.3.5-Tetrachlorobenzene	S21-Au28082	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2.4-Trichlorobenzene	S21-Au28082	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2.4.5-Tetrachlorobenzene	S21-Au28082	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.3-Dichlorobenzene	S21-Au28082	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.3.5-Trichlorobenzene	S21-Au28082	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.4-Dichlorobenzene	S21-Au28082	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2-Chloronaphthalene	S21-Au28082	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2-Chlorophenol	W21-Au32070	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2-Methylnaphthalene	S21-Au28082	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2-Methylphenol (o-Cresol)	W21-Au32070	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
2-Naphthylamine	S21-Au28082	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2-Nitroaniline	S21-Au28082	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
2-Nitrophenol	W21-Au32070	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
2-Picoline	S21-Au28082	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.3.4.6-Tetrachlorophenol	S21-Au28082	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4-Dichlorophenol	W21-Au32070	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4-Dimethylphenol	W21-Au32070	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4-Dinitrophenol	W21-Au32070	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
2.4-Dinitrotoluene	S21-Au28082	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4.5-Trichlorophenol	W21-Au32070	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
2.4.6-Trichlorophenol	W21-Au32070	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
2.6-Dichlorophenol	W21-Au32070	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.6-Dinitrotoluene	S21-Au28082	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
3&4-Methylphenol (m&p-Cresol)	W21-Au32070	NCP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
3-Methylcholanthrene	S21-Au28082	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
3.3'-Dichlorobenzidine	S21-Au28082	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
4-Aminobiphenyl	S21-Au28082	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
4-Bromophenyl phenyl ether	S21-Au28082	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
4-Chloro-3-methylphenol	W21-Au32070	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
4-Chlorophenyl phenyl ether	S21-Au28082	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
4-Nitrophenol	W21-Au32070	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
4.4'-DDD	S21-Au28082	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
4.4'-DDE	S21-Au28082	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
4.4'-DDT	S21-Au28082	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
7.12-Dimethylbenz(a)anthracene	S21-Au28082	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
a-HCH	S21-Au28082	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acetophenone	S21-Au28082	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aldrin	S21-Au28082	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aniline	S21-Au28082	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
b-HCH	S21-Au28082	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzyl chloride	S21-Au28082	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Bis(2-chloroethoxy)methane	S21-Au28082	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Bis(2-chloroisopropyl)ether	S21-Au28082	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Bis(2-ethylhexyl)phthalate	S21-Au28082	NCP	mg/kg	< 5	< 5	<1	30%	Pass	

Duplicate									
Semivolatile Organics				Result 1	Result 2	RPD			
Butyl benzyl phthalate	S21-Au28082	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
d-HCH	S21-Au28082	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Di-n-butyl phthalate	S21-Au28082	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Di-n-octyl phthalate	S21-Au28082	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.j)acridine	S21-Au28082	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenzofuran	S21-Au28082	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dieldrin	S21-Au28082	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Diethyl phthalate	S21-Au28082	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dimethyl phthalate	S21-Au28082	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dimethylaminoazobenzene	S21-Au28082	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Diphenylamine	S21-Au28082	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Endosulfan I	S21-Au28082	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Endosulfan II	S21-Au28082	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Endosulfan sulphate	S21-Au28082	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Endrin	S21-Au28082	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Endrin aldehyde	S21-Au28082	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Endrin ketone	S21-Au28082	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
g-HCH (Lindane)	S21-Au28082	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Heptachlor	S21-Au28082	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Heptachlor epoxide	S21-Au28082	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Hexachlorobenzene	S21-Au28082	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Hexachlorobutadiene	S21-Au28082	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Hexachlorocyclopentadiene	S21-Au28082	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
Hexachloroethane	S21-Au28082	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Methoxychlor	S21-Au28082	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
N-Nitrosodibutylamine	S21-Au28082	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
N-Nitrosodipropylamine	S21-Au28082	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
N-Nitrosopiperidine	S21-Au28082	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Nitrobenzene	S21-Au28082	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pentachlorobenzene	S21-Au28082	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pentachloronitrobenzene	S21-Au28082	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pentachlorophenol	W21-Au32070	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
Phenol	W21-Au32070	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pronamide	S21-Au28082	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Trifluralin	S21-Au28082	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Lead	S21-Au38651	NCP	mg/kg	13	13	2.0	30%	Pass	
Zinc	S21-Au38651	NCP	mg/kg	17	17	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	S21-Au41044	CP	%	4.7	4.7	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S21-Au41045	CP	mg/kg	14	22	48	30%	Fail	Q15
Cadmium	S21-Au41045	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S21-Au41045	CP	mg/kg	29	35	20	30%	Pass	
Copper	S21-Au41045	CP	mg/kg	39	58	37	30%	Fail	Q15
Mercury	S21-Au41045	CP	mg/kg	1.0	1.3	27	30%	Pass	
Nickel	S21-Au41045	CP	mg/kg	9.9	15	40	30%	Fail	Q15

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
G01	The LORs have been raised due to matrix interference
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
Q15	The RPD reported passes Eurofins Environment Testing's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.

Authorised by:

Ursula Long	Analytical Services Manager
Andrew Sullivan	Senior Analyst-Organic (NSW)
John Nguyen	Senior Analyst-Metal (NSW)
Roopesh Rangarajan	Senior Analyst-Volatile (NSW)

Glenn Jackson
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

Greencap NSW P/L
Ground Floor, North Building, 22 Giffnock Avenue
Macquarie Park
NSW 2113

Attention: **Shihui Wang**

Report **823273-L**
Project name ADDITIONAL SOPHS
Project ID J169135
Received Date Sep 09, 2021

Client Sample ID			**GG12(1.4-1.5)**
Sample Matrix			**US Leachate**
Eurofins Sample No.			**S21-Se17228**
Date Sampled			**Aug 23, 2021**
Test/Reference	LOR	Unit	
Polycyclic Aromatic Hydrocarbons			
Benzo(a)pyrene	0.001	mg/L	< 0.001
USA Leaching Procedure			
Leachate Fluid[C01]		comment	1.0
pH (initial)	0.1	pH Units	7.6
pH (off)	0.1	pH Units	5.2
pH (USA HCl addition)	0.1	pH Units	1.8

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Polycyclic Aromatic Hydrocarbons	Sydney	Sep 09, 2021	7 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
USA Leaching Procedure	Sydney	Sep 09, 2021	14 Days
- Method: LTM-GEN-7010 Leaching Procedure for Soils & Solid Wastes			

eurofins | Environment Testing

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Company Name: Greencap NSW P/L
Address: Ground Floor, North Building, 22 Giffnock Avenue
Macquarie Park
NSW 2113

Project Name: ADDITIONAL SOPHS
Project ID: J169135

Order No.:
Report #: 823273
Phone: 02 9889 1800
Fax: 02 9889 1811

Received: Sep 9, 2021 1:59 PM
Due: Sep 10, 2021
Priority: 1 Day
Contact Name: Shihui Wang

Eurofins Analytical Services Manager : Ursula Long

Sample Detail						Benzo(a)pyrene	USA Leaching Procedure
Melbourne Laboratory - NATA Site # 1254							
Sydney Laboratory - NATA Site # 18217						X	X
Brisbane Laboratory - NATA Site # 20794							
Perth Laboratory - NATA Site # 23736							
Mayfield Laboratory - NATA Site # 25079							
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	GG12(1.4-1.5)	Aug 23, 2021		US Leachate	S21-Se17228	X	X
Test Counts						1	1

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer, that may have an impact on the results.
9. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	US Department of Defense Quality Systems Manual Version 5.3
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 20-130% Phenols & 50-150% PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.3 where no positive PFAS results have been reported have been reviewed and no data was affected.

WA DWER (n=10): PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Benzo(a)pyrene	mg/L	< 0.001			0.001	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Benzo(a)pyrene	S21-Se09101	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
C01	Leachate Fluid Key: 1 - pH 5.0; 2 - pH 2.9; 3 - pH 9.2; 4 - Reagent (DI) water; 5 - Client sample, 6 - other

Authorised by:

Ursula Long	Analytical Services Manager
Andrew Sullivan	Senior Analyst-Organic (NSW)

Glenn Jackson
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

Greencap NSW P/L
Ground Floor, North Building, 22 Giffnock Avenue
Macquarie Park
NSW 2113

Attention: **Shihui Wang**

Report **794152-S-V2**
Project name ADDITIONAL - SYDNEY OLYMPIC PARK HS
Project ID J169135-01
Received Date May 10, 2021

Client Sample ID			**GG5-05-ASS (2.0-2.1)**	**GG5-06-ASS (3.5-3.6)**	**GG5-07-ASS (4.5-4.6)**	**GG1-07-ASS (2.0-2.1)**
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**S21-My19417**	**S21-My19418**	**S21-My19419**	**S21-My19420**
Date Sampled			**Apr 29, 2021**	**Apr 29, 2021**	**Apr 29, 2021**	**Apr 29, 2021**
Test/Reference	LOR	Unit				
SPOCAS Suite						
pH-KCL	0.1	pH Units	4.7	8.4	9.0	9.0
pH-OX	0.1	pH Units	5.7	3.4	8.0	8.0
Acid trail - Titratable Actual Acidity	2	mol H+/t	34	< 2	< 2	< 2
Acid trail - Titratable Peroxide Acidity	2	mol H+/t	35	390	< 2	< 2
Acid trail - Titratable Sulfidic Acidity	2	mol H+/t	< 2	390	< 2	< 2
sulfidic - TAA equiv. S% pyrite	0.003	% pyrite S	0.050	< 0.003	< 0.003	< 0.003
sulfidic - TPA equiv. S% pyrite	0.02	% pyrite S	0.06	0.62	< 0.02	< 0.02
sulfidic - TSA equiv. S% pyrite	0.02	% pyrite S	< 0.02	0.62	< 0.02	< 0.02
Sulfur - KCl Extractable	0.02	% S	0.02	0.07	0.10	< 0.02
Sulfur - Peroxide	0.02	% S	0.03	1.3	1.3	0.07
Sulfur - Peroxide Oxidisable Sulfur	0.02	% S	< 0.02	1.2	1.2	0.06
acidity - Peroxide Oxidisable Sulfur	10	mol H+/t	< 10	750	730	39
HCl Extractable Sulfur Correction Factor	1	factor	2.0	2.0	2.0	2.0
HCl Extractable Sulfur	0.02	% S	N/A	N/A	N/A	N/A
Net Acid soluble sulfur	0.02	% S	N/A	N/A	N/A	N/A
Net Acid soluble sulfur - acidity units	10	mol H+/t	N/A	N/A	N/A	N/A
Net Acid soluble sulfur - equivalent S% pyrite[S02]	0.02	% S	N/A	N/A	N/A	N/A
Calcium - KCl Extractable	0.02	% Ca	< 0.02	0.30	0.22	0.17
Calcium - Peroxide	0.02	% Ca	< 0.02	0.60	3.7	0.74
Acid Reacted Calcium	0.02	% Ca	< 0.02	0.30	3.5	0.57
acidity - Acid Reacted Calcium	10	mol H+/t	< 10	150	1700	280
sulfidic - Acid Reacted Ca equiv. S% pyrite	0.02	% S	< 0.02	0.24	2.8	0.46
Magnesium - KCl Extractable	0.02	% Mg	0.11	0.14	0.06	0.02
Magnesium - Peroxide	0.02	% Mg	0.12	0.33	0.16	0.03
Acid Reacted Magnesium	0.02	% Mg	< 0.02	0.19	0.10	< 0.02
acidity - Acid Reacted Magnesium	10	mol H+/t	< 10	160	85	< 10
sulfidic - Acid Reacted Mg equiv. S% pyrite	0.02	% S	< 0.02	0.25	0.14	< 0.02
Acid Neutralising Capacity (ANCE)	0.02	% CaCO3	N/A	N/A	4.6	1.6
Acid Neutralising Capacity - Acidity units (a-ANCE)	10	mol H+/t	n/a	n/a	910	310
Acid Neutralising Capacity - equivalent S% pyrite(s-ANCE)	0.02	% S	N/A	N/A	1.5	0.50
ANC Fineness Factor		factor	1.5	1.5	1.5	1.5
SPOCAS - Net Acidity (Sulfur Units)	0.02	% S	0.06	0.82	< 0.02	< 0.02
SPOCAS - Net Acidity (Acidity Units)	10	mol H+/t	40	510	< 10	< 10
SPOCAS - Liming rate	1	kg CaCO3/t	3.0	38	< 1	< 1

Client Sample ID			GG5-05-ASS (2.0-2.1)	GG5-06-ASS (3.5-3.6)	GG5-07-ASS (4.5-4.6)	GG1-07-ASS (2.0-2.1)
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**S21-My19417**	**S21-My19418**	**S21-My19419**	**S21-My19420**
Date Sampled			**Apr 29, 2021**	**Apr 29, 2021**	**Apr 29, 2021**	**Apr 29, 2021**
Test/Reference	LOR	Unit				
Extraneous Material						
<2mm Fraction	0.005	g	94	32	64	79
>2mm Fraction	0.005	g	8.4	5.7	26	8.2
Analysed Material	0.1	%	92	85	71	91
Extraneous Material	0.1	%	8.2	15	29	9.4
% Moisture	1	%	12	40	26	20

Client Sample ID			GG1-08-ASS (2.6-2.7)	GG2-04-ASS(3.5-3.6)
Sample Matrix			**Soil**	**Soil**
Eurofins Sample No.			**S21-My19421**	**S21-My19422**
Date Sampled			**Apr 29, 2021**	**Apr 29, 2021**
Test/Reference	LOR	Unit		
SPOCAS Suite				
pH-KCL	0.1	pH Units	8.8	7.9
pH-OX	0.1	pH Units	7.2	3.8
Acid trail - Titratable Actual Acidity	2	mol H+/t	< 2	< 2
Acid trail - Titratable Peroxide Acidity	2	mol H+/t	< 2	290
Acid trail - Titratable Sulfidic Acidity	2	mol H+/t	< 2	290
sulfidic - TAA equiv. S% pyrite	0.003	% pyrite S	< 0.003	< 0.003
sulfidic - TPA equiv. S% pyrite	0.02	% pyrite S	< 0.02	0.46
sulfidic - TSA equiv. S% pyrite	0.02	% pyrite S	< 0.02	0.46
Sulfur - KCl Extractable	0.02	% S	0.07	0.06
Sulfur - Peroxide	0.02	% S	1.2	0.85
Sulfur - Peroxide Oxidisable Sulfur	0.02	% S	1.1	0.79
acidity - Peroxide Oxidisable Sulfur	10	mol H+/t	710	490
HCl Extractable Sulfur Correction Factor	1	factor	2.0	2.0
HCl Extractable Sulfur	0.02	% S	N/A	N/A
Net Acid soluble sulfur	0.02	% S	N/A	N/A
Net Acid soluble sulfur - acidity units	10	mol H+/t	N/A	N/A
Net Acid soluble sulfur - equivalent S% pyrite[S02]	0.02	% S	N/A	N/A
Calcium - KCl Extractable	0.02	% Ca	0.25	0.14
Calcium - Peroxide	0.02	% Ca	1.7	0.24
Acid Reacted Calcium	0.02	% Ca	1.4	0.10
acidity - Acid Reacted Calcium	10	mol H+/t	710	50
sulfidic - Acid Reacted Ca equiv. S% pyrite	0.02	% S	1.1	0.08
Magnesium - KCl Extractable	0.02	% Mg	0.06	0.14
Magnesium - Peroxide	0.02	% Mg	0.12	0.30
Acid Reacted Magnesium	0.02	% Mg	0.06	0.17
acidity - Acid Reacted Magnesium	10	mol H+/t	47	140
sulfidic - Acid Reacted Mg equiv. S% pyrite	0.02	% S	0.08	0.22
Acid Neutralising Capacity (ANCE)	0.02	% CaCO3	0.62	N/A
Acid Neutralising Capacity - Acidity units (a-ANCE)	10	mol H+/t	120	n/a
Acid Neutralising Capacity - equivalent S% pyrite(s-ANCE)	0.02	% S	0.20	N/A
ANC Fineness Factor		factor	1.5	1.5
SPOCAS - Net Acidity (Sulfur Units)	0.02	% S	0.25	0.57
SPOCAS - Net Acidity (Acidity Units)	10	mol H+/t	150	350
SPOCAS - Liming rate	1	kg CaCO3/t	12	27

Client Sample ID			GG1-08-ASS (2.6-2.7)	GG2-04-ASS(3.5-3.6)
Sample Matrix			**Soil**	**Soil**
Eurofins Sample No.			**S21-My19421**	**S21-My19422**
Date Sampled			**Apr 29, 2021**	**Apr 29, 2021**
Test/Reference	LOR	Unit		
Extraneous Material				
<2mm Fraction	0.005	g	78	20
>2mm Fraction	0.005	g	4.8	< 0.005
Analysed Material	0.1	%	94	100
Extraneous Material	0.1	%	5.8	< 0.1
% Moisture	1	%	31	36

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
SPOCAS Suite			
SPOCAS Suite	Brisbane	May 13, 2021	6 Week
- Method: LTM-GEN-7050			
Extraneous Material	Brisbane	May 13, 2021	6 Week
- Method: LTM-GEN-7050/7070			
% Moisture	Brisbane	May 11, 2021	14 Days
- Method: LTM-GEN-7080 Moisture			

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NATA # 1261 Site # 18217

Brisbane
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NATA # 1261 Site # 20794

Perth
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NATA # 1261
Site # 23736

Newcastle
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NATA # 1261 Site # 25079

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IANZ # 1290

Company Name: Greencap NSW P/L
Address: Ground Floor, North Building, 22 Giffnock Avenue
Macquarie Park
NSW 2113

Project Name: ADDITIONAL - SYDNEY OLYMPIC PARK HS
Project ID: J169135-01

Order No.:
Report #: 794152
Phone: 02 9889 1800
Fax: 02 9889 1811

Received: May 10, 2021 1:20 PM
Due: May 17, 2021
Priority: 5 Day
Contact Name: Shihui Wang

Eurofins Analytical Services Manager : Ursula Long

Sample Detail						SPOCAS Suite	Moisture Set
Melbourne Laboratory - NATA Site # 1254 & 14271							
Sydney Laboratory - NATA Site # 18217							
Brisbane Laboratory - NATA Site # 20794						X	X
Perth Laboratory - NATA Site # 23736							
Mayfield Laboratory - NATA Site # 25079							
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	GG5-05-ASS (2.0-2.1)	Apr 29, 2021		Soil	S21-My19417	X	X
2	GG5-06-ASS (3.5-3.6)	Apr 29, 2021		Soil	S21-My19418	X	X
3	GG5-07-ASS (4.5-4.6)	Apr 29, 2021		Soil	S21-My19419	X	X
4	GG1-07-ASS (2.0-2.1)	Apr 29, 2021		Soil	S21-My19420	X	X
5	GG1-08-ASS (2.6-2.7)	Apr 29, 2021		Soil	S21-My19421	X	X
6	GG2-04-	Apr 29, 2021		Soil	S21-My19422	X	X

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NSW 2113

Project Name: ADDITIONAL - SYDNEY OLYMPIC PARK HS
Project ID: J169135-01

Order No.:
Report #: 794152
Phone: 02 9889 1800
Fax: 02 9889 1811

Received: May 10, 2021 1:20 PM
Due: May 17, 2021
Priority: 5 Day
Contact Name: Shihui Wang

Eurofins Analytical Services Manager : Ursula Long

Sample Detail	SPOCAS Suite	Moisture Set
Melbourne Laboratory - NATA Site # 1254 & 14271		
Sydney Laboratory - NATA Site # 18217		
Brisbane Laboratory - NATA Site # 20794	X	X
Perth Laboratory - NATA Site # 23736		
Mayfield Laboratory - NATA Site # 25079		
External Laboratory		
ASS(3.5-3.6)		
Test Counts	6	6

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Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer, that may have an impact on the results.
9. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	US Department of Defense Quality Systems Manual Version 5.3
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 20-130% Phenols & 50-150% PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.3 where no positive PFAS results have been reported have been reviewed and no data was affected.

WA DWER (n=10): PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
LCS - % Recovery									
SPOCAS Suite									
pH-KCL			%	102			80-120	Pass	
Acid trail - Titratable Actual Acidity			%	97			80-120	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
SPOCAS Suite				Result 1	Result 2	RPD			
pH-KCL	S21-My22121	NCP	pH Units	8.3	8.3	<1	30%	Pass	
pH-OX	S21-My22121	NCP	pH Units	7.4	7.4	<1	30%	Pass	
Acid trail - Titratable Actual Acidity	S21-My22121	NCP	mol H+/t	< 2	< 2	<1	30%	Pass	
Acid trail - Titratable Peroxide Acidity	S21-My22121	NCP	mol H+/t	< 2	< 2	<1	30%	Pass	
Acid trail - Titratable Sulfidic Acidity	S21-My22121	NCP	mol H+/t	< 2	< 2	<1	30%	Pass	
sulfidic - TAA equiv. S% pyrite	S21-My22121	NCP	% pyrite S	< 0.003	< 0.003	<1	30%	Pass	
sulfidic - TPA equiv. S% pyrite	S21-My22121	NCP	% pyrite S	< 0.02	< 0.02	<1	30%	Pass	
sulfidic - TSA equiv. S% pyrite	S21-My22121	NCP	% pyrite S	< 0.02	< 0.02	<1	30%	Pass	
Sulfur - KCl Extractable	S21-My22121	NCP	% S	< 0.02	< 0.02	<1	30%	Pass	
Sulfur - Peroxide	S21-My22121	NCP	% S	0.11	0.11	2.0	30%	Pass	
Sulfur - Peroxide Oxidisable Sulfur	S21-My22121	NCP	% S	0.11	0.11	2.0	30%	Pass	
acidity - Peroxide Oxidisable Sulfur	S21-My22121	NCP	mol H+/t	67	66	2.0	30%	Pass	
HCl Extractable Sulfur	S21-My22121	NCP	% S	N/A	N/A	N/A	30%	Pass	
Net Acid soluble sulfur	S21-My22121	NCP	% S	N/A	N/A	N/A	30%	Pass	
Net Acid soluble sulfur - acidity units	S21-My22121	NCP	mol H+/t	N/A	N/A	N/A	30%	Pass	
Net Acid soluble sulfur - equivalent S% pyrite	S21-My22121	NCP	% S	N/A	N/A	N/A	30%	Pass	
Calcium - KCl Extractable	S21-My22121	NCP	% Ca	0.38	0.38	1.0	30%	Pass	
Calcium - Peroxide	S21-My22121	NCP	% Ca	1.6	1.6	2.0	30%	Pass	
Acid Reacted Calcium	S21-My22121	NCP	% Ca	1.2	1.2	3.0	30%	Pass	
acidity - Acid Reacted Calcium	S21-My22121	NCP	mol H+/t	620	600	3.0	30%	Pass	
sulfidic - Acid Reacted Ca equiv. S% pyrite	S21-My22121	NCP	% S	0.99	0.96	3.0	30%	Pass	
Magnesium - KCl Extractable	S21-My22121	NCP	% Mg	< 0.02	< 0.02	<1	30%	Pass	
Magnesium - Peroxide	S21-My22121	NCP	% Mg	0.04	0.04	3.0	30%	Pass	
Acid Reacted Magnesium	S21-My22121	NCP	% Mg	0.03	0.02	4.0	30%	Pass	
acidity - Acid Reacted Magnesium	S21-My22121	NCP	mol H+/t	20	20	4.0	30%	Pass	
sulfidic - Acid Reacted Mg equiv. S% pyrite	S21-My22121	NCP	% S	0.03	0.03	4.0	30%	Pass	
Acid Neutralising Capacity (ANCE)	S21-My22121	NCP	% CaCO3	3.3	3.2	1.0	30%	Pass	
Acid Neutralising Capacity - Acidity units (a-ANCE)	S21-My22121	NCP	mol H+/t	650	640	1.0	30%	Pass	
ANC Fineness Factor	S21-My22121	NCP	factor	1.5	1.5	<1	30%	Pass	
SPOCAS - Net Acidity (Sulfur Units)	S21-My22121	NCP	% S	< 0.02	< 0.02	<1	30%	Pass	
SPOCAS - Net Acidity (Acidity Units)	S21-My22121	NCP	mol H+/t	< 10	< 10	<1	30%	Pass	
SPOCAS - Liming rate	S21-My22121	NCP	kg CaCO3/t	< 1	< 1	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	S21-My19420	CP	%	20	20	<1	30%	Pass	

Comments

This report was revised V2 to amend sample ID GG2-04-ASS(3.5-3.6) for samples My19422.

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
S02	Retained Acidity is Reported when the pHKCl is less than pH 4.5

Authorised by:

John Nguyen	Analytical Services Manager
Myles Clark	Senior Analyst-SPOCAS (QLD)

Glenn Jackson
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

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NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing
NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection and proficiency testing scheme providers reports.

Attention: **Shihui Wang**

Report **795815-W**
Project name SYDNEY OLYMPIC PARK HS
Project ID J169135-01
Received Date May 13, 2021

Client Sample ID			**GG5-01**	**GG-FD1**	**TRIP BLANK**	**TRIP SPIKE**
Sample Matrix			**Water**	**Water**	**Water**	**Water**
Eurofins Sample No.			**S21-My32302**	**S21-My32303**	**S21-My32304**	**S21-My32305**
Date Sampled			**May 13, 2021**	**May 13, 2021**	**May 13, 2021**	**May 13, 2021**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	0.02	mg/L	< 0.02	-	< 0.02	-
TRH C10-C14	0.05	mg/L	< 0.05	-	-	-
TRH C15-C28	0.1	mg/L	< 0.1	-	-	-
TRH C29-C36	0.1	mg/L	< 0.1	-	-	-
TRH C10-C36 (Total)	0.1	mg/L	< 0.1	-	-	-
BTEX						
Benzene	0.001	mg/L	< 0.001	-	< 0.001	-
Toluene	0.001	mg/L	< 0.001	-	< 0.001	-
Ethylbenzene	0.001	mg/L	< 0.001	-	< 0.001	-
m&p-Xylenes	0.002	mg/L	< 0.002	-	< 0.002	-
o-Xylene	0.001	mg/L	< 0.001	-	< 0.001	-
Xylenes - Total*	0.003	mg/L	< 0.003	-	< 0.003	-
4-Bromofluorobenzene (surr.)	1	%	134	-	107	-
Volatile Organics						
1.1-Dichloroethane	0.001	mg/L	< 0.001	-	< 0.001	-
1.1-Dichloroethene	0.001	mg/L	< 0.001	-	< 0.001	-
1.1.1-Trichloroethane	0.001	mg/L	< 0.001	-	< 0.001	-
1.1.1.2-Tetrachloroethane	0.001	mg/L	< 0.001	-	< 0.001	-
1.1.2-Trichloroethane	0.001	mg/L	< 0.001	-	< 0.001	-
1.1.2.2-Tetrachloroethane	0.001	mg/L	< 0.001	-	< 0.001	-
1.2-Dibromoethane	0.001	mg/L	< 0.001	-	< 0.001	-
1.2-Dichlorobenzene	0.001	mg/L	< 0.001	-	< 0.001	-
1.2-Dichloroethane	0.001	mg/L	< 0.001	-	< 0.001	-
1.2-Dichloropropane	0.001	mg/L	< 0.001	-	< 0.001	-
1.2.3-Trichloropropane	0.001	mg/L	< 0.001	-	< 0.001	-
1.2.4-Trimethylbenzene	0.001	mg/L	< 0.001	-	< 0.001	-
1.3-Dichlorobenzene	0.001	mg/L	< 0.001	-	< 0.001	-
1.3-Dichloropropane	0.001	mg/L	< 0.001	-	< 0.001	-
1.3.5-Trimethylbenzene	0.001	mg/L	< 0.001	-	< 0.001	-
1.4-Dichlorobenzene	0.001	mg/L	< 0.001	-	< 0.001	-
2-Butanone (MEK)	0.001	mg/L	< 0.001	-	< 0.001	-
2-Propanone (Acetone)	0.001	mg/L	< 0.001	-	< 0.001	-
4-Chlorotoluene	0.001	mg/L	< 0.001	-	< 0.001	-
4-Methyl-2-pentanone (MIBK)	0.001	mg/L	< 0.001	-	< 0.001	-
Allyl chloride	0.001	mg/L	< 0.001	-	< 0.001	-

Client Sample ID			GG5-01	GG-FD1	TRIP BLANK	TRIP SPIKE
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S21-My32302	S21-My32303	S21-My32304	S21-My32305
Date Sampled			May 13, 2021	May 13, 2021	May 13, 2021	May 13, 2021
Test/Reference	LOR	Unit				
Volatile Organics						
Benzene	0.001	mg/L	< 0.001	-	< 0.001	-
Bromobenzene	0.001	mg/L	< 0.001	-	< 0.001	-
Bromochloromethane	0.001	mg/L	< 0.001	-	< 0.001	-
Bromodichloromethane	0.001	mg/L	< 0.001	-	< 0.001	-
Bromoform	0.001	mg/L	< 0.001	-	< 0.001	-
Bromomethane	0.001	mg/L	< 0.001	-	< 0.001	-
Carbon disulfide	0.001	mg/L	< 0.001	-	< 0.001	-
Carbon Tetrachloride	0.001	mg/L	< 0.001	-	< 0.001	-
Chlorobenzene	0.001	mg/L	< 0.001	-	< 0.001	-
Chloroethane	0.001	mg/L	< 0.001	-	< 0.001	-
Chloroform	0.005	mg/L	< 0.005	-	< 0.005	-
Chloromethane	0.001	mg/L	< 0.001	-	< 0.001	-
cis-1.2-Dichloroethene	0.001	mg/L	< 0.001	-	< 0.001	-
cis-1.3-Dichloropropene	0.001	mg/L	< 0.001	-	< 0.001	-
Dibromochloromethane	0.001	mg/L	< 0.001	-	< 0.001	-
Dibromomethane	0.001	mg/L	< 0.001	-	< 0.001	-
Dichlorodifluoromethane	0.001	mg/L	< 0.001	-	< 0.001	-
Ethylbenzene	0.001	mg/L	< 0.001	-	< 0.001	-
Iodomethane	0.001	mg/L	< 0.001	-	< 0.001	-
Isopropyl benzene (Cumene)	0.001	mg/L	< 0.001	-	< 0.001	-
m&p-Xylenes	0.002	mg/L	< 0.002	-	< 0.002	-
Methylene Chloride	0.001	mg/L	< 0.001	-	< 0.001	-
o-Xylene	0.001	mg/L	< 0.001	-	< 0.001	-
Styrene	0.001	mg/L	< 0.001	-	< 0.001	-
Tetrachloroethene	0.001	mg/L	< 0.001	-	< 0.001	-
Toluene	0.001	mg/L	< 0.001	-	< 0.001	-
trans-1.2-Dichloroethene	0.001	mg/L	< 0.001	-	< 0.001	-
trans-1.3-Dichloropropene	0.001	mg/L	< 0.001	-	< 0.001	-
Trichloroethene	0.001	mg/L	< 0.001	-	< 0.001	-
Trichlorofluoromethane	0.001	mg/L	< 0.001	-	< 0.001	-
Vinyl chloride	0.001	mg/L	< 0.001	-	< 0.001	-
Xylenes - Total*	0.003	mg/L	< 0.003	-	< 0.003	-
Total MAH*	0.003	mg/L	< 0.003	-	< 0.003	-
Vic EPA IWRG 621 CHC (Total)*	0.005	mg/L	< 0.005	-	< 0.005	-
Vic EPA IWRG 621 Other CHC (Total)*	0.005	mg/L	< 0.005	-	< 0.005	-
4-Bromofluorobenzene (surr.)	1	%	134	-	107	-
Toluene-d8 (surr.)	1	%	120	-	111	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.01	mg/L	< 0.01	-	< 0.01	-
TRH C6-C10	0.02	mg/L	< 0.02	-	< 0.02	-
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	< 0.02	-	< 0.02	-
TRH >C10-C16	0.05	mg/L	< 0.05	-	-	-
TRH >C10-C16 less Naphthalene (F2)[N01]	0.05	mg/L	< 0.05	-	-	-
TRH >C16-C34	0.1	mg/L	< 0.1	-	-	-
TRH >C34-C40	0.1	mg/L	< 0.1	-	-	-
TRH >C10-C40 (total)*	0.1	mg/L	< 0.1	-	-	-

Client Sample ID			GG5-01	GG-FD1	TRIP BLANK	TRIP SPIKE
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S21-My32302	S21-My32303	S21-My32304	S21-My32305
Date Sampled			May 13, 2021	May 13, 2021	May 13, 2021	May 13, 2021
Test/Reference	LOR	Unit				
Semivolatile Organics						
2-Methyl-4.6-dinitrophenol	0.03	mg/L	< 0.03	-	-	-
1-Chloronaphthalene	0.005	mg/L	< 0.005	-	-	-
1-Naphthylamine	0.002	mg/L	< 0.002	-	-	-
1.2-Dichlorobenzene	0.002	mg/L	< 0.002	-	-	-
1.2.3-Trichlorobenzene	0.005	mg/L	< 0.005	-	-	-
1.2.3.4-Tetrachlorobenzene	0.005	mg/L	< 0.005	-	-	-
1.2.3.5-Tetrachlorobenzene	0.005	mg/L	< 0.005	-	-	-
1.2.4-Trichlorobenzene	0.002	mg/L	< 0.002	-	-	-
1.2.4.5-Tetrachlorobenzene	0.002	mg/L	< 0.002	-	-	-
1.3-Dichlorobenzene	0.002	mg/L	< 0.002	-	-	-
1.3.5-Trichlorobenzene	0.005	mg/L	< 0.005	-	-	-
1.4-Dichlorobenzene	0.002	mg/L	< 0.002	-	-	-
2-Chloronaphthalene	0.002	mg/L	< 0.002	-	-	-
2-Chlorophenol	0.003	mg/L	< 0.003	-	-	-
2-Fluorobiphenyl (surr.)	1	%	92	-	-	-
2-Methylnaphthalene	0.002	mg/L	< 0.002	-	-	-
2-Methylphenol (o-Cresol)	0.003	mg/L	< 0.003	-	-	-
2-Naphthylamine	0.002	mg/L	< 0.002	-	-	-
2-Nitroaniline	0.004	mg/L	< 0.004	-	-	-
2-Nitrophenol	0.01	mg/L	< 0.01	-	-	-
2-Picoline	0.005	mg/L	< 0.005	-	-	-
2.3.4.6-Tetrachlorophenol	0.002	mg/L	< 0.002	-	-	-
2.4-Dichlorophenol	0.003	mg/L	< 0.003	-	-	-
2.4-Dimethylphenol	0.003	mg/L	< 0.003	-	-	-
2.4-Dinitrophenol	0.03	mg/L	< 0.03	-	-	-
2.4-Dinitrotoluene	0.005	mg/L	< 0.005	-	-	-
2.4.5-Trichlorophenol	0.01	mg/L	< 0.01	-	-	-
2.4.6-Tribromophenol (surr.)	1	%	106	-	-	-
2.4.6-Trichlorophenol	0.01	mg/L	< 0.01	-	-	-
2.6-Dichlorophenol	0.003	mg/L	< 0.003	-	-	-
2.6-Dinitrotoluene	0.004	mg/L	< 0.004	-	-	-
3&4-Methylphenol (m&p-Cresol)	0.006	mg/L	< 0.006	-	-	-
3-Methylcholanthrene	0.002	mg/L	< 0.002	-	-	-
3.3'-Dichlorobenzidine	0.005	mg/L	< 0.005	-	-	-
4-Aminobiphenyl	0.002	mg/L	< 0.002	-	-	-
4-Bromophenyl phenyl ether	0.002	mg/L	< 0.002	-	-	-
4-Chloro-3-methylphenol	0.01	mg/L	< 0.01	-	-	-
4-Chlorophenyl phenyl ether	0.002	mg/L	< 0.002	-	-	-
4-Nitrophenol	0.03	mg/L	< 0.03	-	-	-
4.4'-DDD	0.002	mg/L	< 0.002	-	-	-
4.4'-DDE	0.002	mg/L	< 0.002	-	-	-
4.4'-DDT	0.004	mg/L	< 0.004	-	-	-
7.12-Dimethylbenz(a)anthracene	0.002	mg/L	< 0.002	-	-	-
a-BHC	0.002	mg/L	< 0.002	-	-	-
Acenaphthene	0.001	mg/L	< 0.001	-	-	-
Acenaphthylene	0.001	mg/L	< 0.001	-	-	-
Acetophenone	0.002	mg/L	< 0.002	-	-	-
Aldrin	0.002	mg/L	< 0.002	-	-	-
Aniline	0.002	mg/L	< 0.002	-	-	-

Client Sample ID			GG5-01	GG-FD1	TRIP BLANK	TRIP SPIKE
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S21-My32302	S21-My32303	S21-My32304	S21-My32305
Date Sampled			May 13, 2021	May 13, 2021	May 13, 2021	May 13, 2021
Test/Reference	LOR	Unit				
Semivolatile Organics						
Anthracene	0.001	mg/L	< 0.001	-	-	-
b-BHC	0.002	mg/L	< 0.002	-	-	-
Benz(a)anthracene	0.001	mg/L	< 0.001	-	-	-
Benzo(a)pyrene	0.001	mg/L	< 0.001	-	-	-
Benzo(b&j)fluoranthene[N07]	0.001	mg/L	< 0.001	-	-	-
Benzo(g.h.i)perylene	0.001	mg/L	< 0.001	-	-	-
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	-	-	-
Benzyl chloride	0.005	mg/L	< 0.005	-	-	-
Bis(2-chloroethoxy)methane	0.002	mg/L	< 0.002	-	-	-
Bis(2-chloroisopropyl)ether	0.002	mg/L	< 0.002	-	-	-
Bis(2-ethylhexyl)phthalate	0.02	mg/L	< 0.02	-	-	-
Butyl benzyl phthalate	0.002	mg/L	< 0.002	-	-	-
Chrysene	0.001	mg/L	< 0.001	-	-	-
d-BHC	0.002	mg/L	< 0.002	-	-	-
Di-n-butyl phthalate	0.002	mg/L	< 0.002	-	-	-
Di-n-octyl phthalate	0.002	mg/L	< 0.002	-	-	-
Dibenz(a.h)anthracene	0.001	mg/L	< 0.001	-	-	-
Dibenz(a.j)acridine	0.005	mg/L	< 0.005	-	-	-
Dibenzofuran	0.002	mg/L	< 0.002	-	-	-
Dieldrin	0.002	mg/L	< 0.002	-	-	-
Diethyl phthalate	0.002	mg/L	< 0.002	-	-	-
Dimethyl phthalate	0.002	mg/L	< 0.002	-	-	-
Dimethylaminoazobenzene	0.002	mg/L	< 0.002	-	-	-
Diphenylamine	0.002	mg/L	< 0.002	-	-	-
Endosulfan I	0.002	mg/L	< 0.002	-	-	-
Endosulfan II	0.002	mg/L	< 0.002	-	-	-
Endosulfan sulphate	0.002	mg/L	< 0.002	-	-	-
Endrin	0.002	mg/L	< 0.002	-	-	-
Endrin aldehyde	0.002	mg/L	< 0.002	-	-	-
Endrin ketone	0.002	mg/L	< 0.002	-	-	-
Fluoranthene	0.001	mg/L	< 0.001	-	-	-
Fluorene	0.001	mg/L	< 0.001	-	-	-
g-BHC (Lindane)	0.002	mg/L	< 0.002	-	-	-
Heptachlor	0.002	mg/L	< 0.002	-	-	-
Heptachlor epoxide	0.002	mg/L	< 0.002	-	-	-
Hexachlorobenzene	0.002	mg/L	< 0.002	-	-	-
Hexachlorobutadiene	0.002	mg/L	< 0.002	-	-	-
Hexachlorocyclopentadiene	0.004	mg/L	< 0.004	-	-	-
Hexachloroethane	0.002	mg/L	< 0.002	-	-	-
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001	-	-	-
Methoxychlor	0.005	mg/L	< 0.005	-	-	-
N-Nitrosodibutylamine	0.002	mg/L	< 0.002	-	-	-
N-Nitrosodipropylamine	0.002	mg/L	< 0.002	-	-	-
N-Nitrosopiperidine	0.002	mg/L	< 0.002	-	-	-
Naphthalene	0.001	mg/L	< 0.001	-	-	-
Nitrobenzene	0.005	mg/L	< 0.005	-	-	-
Nitrobenzene-d5 (surr.)	1	%	136	-	-	-
Pentachlorobenzene	0.002	mg/L	< 0.002	-	-	-
Pentachloronitrobenzene	0.002	mg/L	< 0.002	-	-	-

Client Sample ID			GG5-01	GG-FD1	TRIP BLANK	TRIP SPIKE
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S21-My32302	S21-My32303	S21-My32304	S21-My32305
Date Sampled			May 13, 2021	May 13, 2021	May 13, 2021	May 13, 2021
Test/Reference	LOR	Unit				
Semivolatile Organics						
Pentachlorophenol	0.01	mg/L	< 0.01	-	-	-
Phenanthrene	0.001	mg/L	< 0.001	-	-	-
Phenol	0.003	mg/L	< 0.003	-	-	-
Phenol-d6 (surr.)	1	%	34	-	-	-
Pronamide	0.005	mg/L	< 0.005	-	-	-
Pyrene	0.001	mg/L	< 0.001	-	-	-
Trifluralin	0.005	mg/L	< 0.005	-	-	-
Ammonia (as N)	0.01	mg/L	4.0	-	-	-
Nitrate (as N)	0.02	mg/L	0.66	-	-	-
Nitrite (as N)	0.02	mg/L	< 0.02	-	-	-
TRH C6-C10	1	%	-	-	-	71
Heavy Metals						
Arsenic	0.001	mg/L	0.004	0.003	-	-
Cadmium	0.0002	mg/L	< 0.0002	< 0.0002	-	-
Chromium	0.001	mg/L	< 0.001	0.001	-	-
Copper	0.001	mg/L	0.004	0.003	-	-
Lead	0.001	mg/L	0.001	< 0.001	-	-
Mercury	0.0001	mg/L	< 0.0001	< 0.0001	-	-
Nickel	0.001	mg/L	0.002	0.002	-	-
Zinc	0.005	mg/L	0.015	0.006	-	-
Total Recoverable Hydrocarbons						
Naphthalene	1	%	-	-	-	100
TRH C6-C9	1	%	-	-	-	73
BTEX						
Benzene	1	%	-	-	-	98
Ethylbenzene	1	%	-	-	-	91
m&p-Xylenes	1	%	-	-	-	100
o-Xylene	1	%	-	-	-	80
Toluene	1	%	-	-	-	88
Xylenes - Total	1	%	-	-	-	87
4-Bromofluorobenzene (surr.)	1	%	-	-	-	106

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Sydney	May 17, 2021	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Sydney	May 17, 2021	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	May 17, 2021	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons	Sydney	May 17, 2021	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Eurofins Suite B6			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	May 17, 2021	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Metals M8	Sydney	May 18, 2021	180 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Volatile Organics	Sydney	May 17, 2021	7 Days
- Method: LTM-ORG-2150 VOCs in Soils Liquid and other Aqueous Matrices			
Semivolatile Organics	Sydney	May 19, 2021	7 Day
- Method: LTM-ORG-2190 SVOC in Water & Soil by GC-MS			
Ammonia (as N)	Melbourne	May 19, 2021	28 Days
- Method: APHA 4500-NH3 Ammonia Nitrogen by FIA			
Nitrate (as N)	Melbourne	May 19, 2021	28 Days
- Method: LTM-INO-4120 Analysis of NOx NO2 NH3 by FIA			
Nitrite (as N)	Melbourne	May 19, 2021	2 Days
- Method: LTM-INO-4120 Analysis of NOx NO2 NH3 by FIA			

eurofins | Environment Testing

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IANZ # 1290

Company Name: Greencap NSW P/L
Address: Ground Floor, North Building, 22 Giffnock Avenue
Macquarie Park
NSW 2113

Project Name: SYDNEY OLYMPIC PARK HS
Project ID: J169135-01

Order No.: PO287024
Report #: 795815
Phone: 02 9889 1800
Fax: 02 9889 1811

Received: May 13, 2021 8:53 PM
Due: May 18, 2021
Priority: 3 Day
Contact Name: Shihui Wang

Eurofins Analytical Services Manager : Ursula Long

Sample Detail						Ammonia (as N)	Nitrate (as N)	Nitrite (as N)	Metals M8	Volatile Organics	Eurofins Suite B6	BTEXN and Volatile TRH	Eurofins Suite SVV: SVOC/VOC	BTEXN and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X					X	
Sydney Laboratory - NATA Site # 18217									X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794														
Perth Laboratory - NATA Site # 23736														
Mayfield Laboratory - NATA Site # 25079														
External Laboratory														
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**									
1	GG5-01	May 13, 2021		Water	S21-My32302	X	X	X			X		X	
2	GG-FD1	May 13, 2021		Water	S21-My32303				X					
3	TRIP BLANK	May 13, 2021		Water	S21-My32304					X		X		
4	TRIP SPIKE	May 13, 2021		Water	S21-My32305									X
Test Counts						1	1	1	1	1	1	1	1	1

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer, that may have an impact on the results.
9. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	US Department of Defense Quality Systems Manual Version 5.3
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 20-130% Phenols & 50-150% PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.3 where no positive PFAS results have been reported have been reviewed and no data was affected.

WA DWER (n=10): PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/L	< 0.02			0.02	Pass	
TRH C10-C14	mg/L	< 0.05			0.05	Pass	
TRH C15-C28	mg/L	< 0.1			0.1	Pass	
TRH C29-C36	mg/L	< 0.1			0.1	Pass	
Method Blank							
BTEX							
Benzene	mg/L	< 0.001			0.001	Pass	
Toluene	mg/L	< 0.001			0.001	Pass	
Ethylbenzene	mg/L	< 0.001			0.001	Pass	
m&p-Xylenes	mg/L	< 0.002			0.002	Pass	
o-Xylene	mg/L	< 0.001			0.001	Pass	
Xylenes - Total*	mg/L	< 0.003			0.003	Pass	
Method Blank							
Volatile Organics							
1.1-Dichloroethane	mg/L	< 0.001			0.001	Pass	
1.1-Dichloroethene	mg/L	< 0.001			0.001	Pass	
1.1.1-Trichloroethane	mg/L	< 0.001			0.001	Pass	
1.1.1.2-Tetrachloroethane	mg/L	< 0.001			0.001	Pass	
1.1.2-Trichloroethane	mg/L	< 0.001			0.001	Pass	
1.1.2.2-Tetrachloroethane	mg/L	< 0.001			0.001	Pass	
1.2-Dibromoethane	mg/L	< 0.001			0.001	Pass	
1.2-Dichlorobenzene	mg/L	< 0.001			0.001	Pass	
1.2-Dichloroethane	mg/L	< 0.001			0.001	Pass	
1.2-Dichloropropane	mg/L	< 0.001			0.001	Pass	
1.2.3-Trichloropropane	mg/L	< 0.001			0.001	Pass	
1.2.4-Trimethylbenzene	mg/L	< 0.001			0.001	Pass	
1.3-Dichlorobenzene	mg/L	< 0.001			0.001	Pass	
1.3-Dichloropropane	mg/L	< 0.001			0.001	Pass	
1.3.5-Trimethylbenzene	mg/L	< 0.001			0.001	Pass	
1.4-Dichlorobenzene	mg/L	< 0.001			0.001	Pass	
2-Butanone (MEK)	mg/L	< 0.001			0.001	Pass	
2-Propanone (Acetone)	mg/L	< 0.001			0.001	Pass	
4-Chlorotoluene	mg/L	< 0.001			0.001	Pass	
4-Methyl-2-pentanone (MIBK)	mg/L	< 0.001			0.001	Pass	
Allyl chloride	mg/L	< 0.001			0.001	Pass	
Bromobenzene	mg/L	< 0.001			0.001	Pass	
Bromochloromethane	mg/L	< 0.001			0.001	Pass	
Bromodichloromethane	mg/L	< 0.001			0.001	Pass	
Bromoform	mg/L	< 0.001			0.001	Pass	
Bromomethane	mg/L	< 0.001			0.001	Pass	
Carbon disulfide	mg/L	< 0.001			0.001	Pass	
Carbon Tetrachloride	mg/L	< 0.001			0.001	Pass	
Chlorobenzene	mg/L	< 0.001			0.001	Pass	
Chloroethane	mg/L	< 0.001			0.001	Pass	
Chloroform	mg/L	< 0.005			0.005	Pass	
Chloromethane	mg/L	< 0.001			0.001	Pass	
cis-1.2-Dichloroethene	mg/L	< 0.001			0.001	Pass	
cis-1.3-Dichloropropene	mg/L	< 0.001			0.001	Pass	
Dibromochloromethane	mg/L	< 0.001			0.001	Pass	
Dibromomethane	mg/L	< 0.001			0.001	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Dichlorodifluoromethane	mg/L	< 0.001			0.001	Pass	
Iodomethane	mg/L	< 0.001			0.001	Pass	
Isopropyl benzene (Cumene)	mg/L	< 0.001			0.001	Pass	
Methylene Chloride	mg/L	< 0.001			0.001	Pass	
Styrene	mg/L	< 0.001			0.001	Pass	
Tetrachloroethene	mg/L	< 0.001			0.001	Pass	
trans-1.2-Dichloroethene	mg/L	< 0.001			0.001	Pass	
trans-1.3-Dichloropropene	mg/L	< 0.001			0.001	Pass	
Trichloroethene	mg/L	< 0.001			0.001	Pass	
Trichlorofluoromethane	mg/L	< 0.001			0.001	Pass	
Vinyl chloride	mg/L	< 0.001			0.001	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/L	< 0.01			0.01	Pass	
TRH C6-C10	mg/L	< 0.02			0.02	Pass	
TRH >C10-C16	mg/L	< 0.05			0.05	Pass	
TRH >C16-C34	mg/L	< 0.1			0.1	Pass	
TRH >C34-C40	mg/L	< 0.1			0.1	Pass	
Method Blank							
Semivolatile Organics							
2-Methyl-4.6-dinitrophenol	mg/L	< 0.03			0.03	Pass	
1-Chloronaphthalene	mg/L	< 0.005			0.005	Pass	
1-Naphthylamine	mg/L	< 0.002			0.002	Pass	
1.2-Dichlorobenzene	mg/L	< 0.002			0.002	Pass	
1.2.3-Trichlorobenzene	mg/L	< 0.005			0.005	Pass	
1.2.3.4-Tetrachlorobenzene	mg/L	< 0.005			0.005	Pass	
1.2.3.5-Tetrachlorobenzene	mg/L	< 0.005			0.005	Pass	
1.2.4-Trichlorobenzene	mg/L	< 0.002			0.002	Pass	
1.2.4.5-Tetrachlorobenzene	mg/L	< 0.002			0.002	Pass	
1.3-Dichlorobenzene	mg/L	< 0.002			0.002	Pass	
1.3.5-Trichlorobenzene	mg/L	< 0.005			0.005	Pass	
1.4-Dichlorobenzene	mg/L	< 0.002			0.002	Pass	
2-Chloronaphthalene	mg/L	< 0.002			0.002	Pass	
2-Chlorophenol	mg/L	< 0.003			0.003	Pass	
2-Methylnaphthalene	mg/L	< 0.002			0.002	Pass	
2-Methylphenol (o-Cresol)	mg/L	< 0.003			0.003	Pass	
2-Naphthylamine	mg/L	< 0.002			0.002	Pass	
2-Nitroaniline	mg/L	< 0.004			0.004	Pass	
2-Nitrophenol	mg/L	< 0.01			0.01	Pass	
2-Picoline	mg/L	< 0.005			0.005	Pass	
2.3.4.6-Tetrachlorophenol	mg/L	< 0.002			0.002	Pass	
2.4-Dichlorophenol	mg/L	< 0.003			0.003	Pass	
2.4-Dimethylphenol	mg/L	< 0.003			0.003	Pass	
2.4-Dinitrophenol	mg/L	< 0.03			0.03	Pass	
2.4-Dinitrotoluene	mg/L	< 0.005			0.005	Pass	
2.4.5-Trichlorophenol	mg/L	< 0.01			0.01	Pass	
2.4.6-Trichlorophenol	mg/L	< 0.01			0.01	Pass	
2.6-Dichlorophenol	mg/L	< 0.003			0.003	Pass	
2.6-Dinitrotoluene	mg/L	< 0.004			0.004	Pass	
3&4-Methylphenol (m&p-Cresol)	mg/L	< 0.006			0.006	Pass	
3-Methylcholanthrene	mg/L	< 0.002			0.002	Pass	
3.3'-Dichlorobenzidine	mg/L	< 0.005			0.005	Pass	
4-Aminobiphenyl	mg/L	< 0.002			0.002	Pass	
4-Bromophenyl phenyl ether	mg/L	< 0.002			0.002	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
4-Chloro-3-methylphenol	mg/L	< 0.01			0.01	Pass	
4-Chlorophenyl phenyl ether	mg/L	< 0.002			0.002	Pass	
4-Nitrophenol	mg/L	< 0.03			0.03	Pass	
4.4'-DDD	mg/L	< 0.002			0.002	Pass	
4.4'-DDE	mg/L	< 0.002			0.002	Pass	
4.4'-DDT	mg/L	< 0.004			0.004	Pass	
7.12-Dimethylbenz(a)anthracene	mg/L	< 0.002			0.002	Pass	
a-BHC	mg/L	< 0.002			0.002	Pass	
Acenaphthene	mg/L	< 0.001			0.001	Pass	
Acenaphthylene	mg/L	< 0.001			0.001	Pass	
Acetophenone	mg/L	< 0.002			0.002	Pass	
Aldrin	mg/L	< 0.002			0.002	Pass	
Aniline	mg/L	< 0.002			0.002	Pass	
Anthracene	mg/L	< 0.001			0.001	Pass	
b-BHC	mg/L	< 0.002			0.002	Pass	
Benz(a)anthracene	mg/L	< 0.001			0.001	Pass	
Benzo(a)pyrene	mg/L	< 0.001			0.001	Pass	
Benzo(b&j)fluoranthene	mg/L	< 0.001			0.001	Pass	
Benzo(g.h.i)perylene	mg/L	< 0.001			0.001	Pass	
Benzo(k)fluoranthene	mg/L	< 0.001			0.001	Pass	
Benzyl chloride	mg/L	< 0.005			0.005	Pass	
Bis(2-chloroethoxy)methane	mg/L	< 0.002			0.002	Pass	
Bis(2-chloroisopropyl)ether	mg/L	< 0.002			0.002	Pass	
Bis(2-ethylhexyl)phthalate	mg/L	< 0.02			0.02	Pass	
Butyl benzyl phthalate	mg/L	< 0.002			0.002	Pass	
Chrysene	mg/L	< 0.001			0.001	Pass	
d-BHC	mg/L	< 0.002			0.002	Pass	
Di-n-butyl phthalate	mg/L	< 0.002			0.002	Pass	
Di-n-octyl phthalate	mg/L	< 0.002			0.002	Pass	
Dibenz(a.h)anthracene	mg/L	< 0.001			0.001	Pass	
Dibenz(a.j)acridine	mg/L	< 0.005			0.005	Pass	
Dibenzofuran	mg/L	< 0.002			0.002	Pass	
Dieldrin	mg/L	< 0.002			0.002	Pass	
Diethyl phthalate	mg/L	< 0.002			0.002	Pass	
Dimethyl phthalate	mg/L	< 0.002			0.002	Pass	
Dimethylaminoazobenzene	mg/L	< 0.002			0.002	Pass	
Diphenylamine	mg/L	< 0.002			0.002	Pass	
Endosulfan I	mg/L	< 0.002			0.002	Pass	
Endosulfan II	mg/L	< 0.002			0.002	Pass	
Endosulfan sulphate	mg/L	< 0.002			0.002	Pass	
Endrin	mg/L	< 0.002			0.002	Pass	
Endrin aldehyde	mg/L	< 0.002			0.002	Pass	
Endrin ketone	mg/L	< 0.002			0.002	Pass	
Fluoranthene	mg/L	< 0.001			0.001	Pass	
Fluorene	mg/L	< 0.001			0.001	Pass	
g-BHC (Lindane)	mg/L	< 0.002			0.002	Pass	
Heptachlor	mg/L	< 0.002			0.002	Pass	
Heptachlor epoxide	mg/L	< 0.002			0.002	Pass	
Hexachlorobenzene	mg/L	< 0.002			0.002	Pass	
Hexachlorobutadiene	mg/L	< 0.002			0.002	Pass	
Hexachlorocyclopentadiene	mg/L	< 0.004			0.004	Pass	
Hexachloroethane	mg/L	< 0.002			0.002	Pass	
Indeno(1.2.3-cd)pyrene	mg/L	< 0.001			0.001	Pass	
Methoxychlor	mg/L	< 0.005			0.005	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
N-Nitrosodibutylamine	mg/L	< 0.002			0.002	Pass	
N-Nitrosodipropylamine	mg/L	< 0.002			0.002	Pass	
N-Nitrosopiperidine	mg/L	< 0.002			0.002	Pass	
Naphthalene	mg/L	< 0.001			0.001	Pass	
Nitrobenzene	mg/L	< 0.005			0.005	Pass	
Pentachlorobenzene	mg/L	< 0.002			0.002	Pass	
Pentachloronitrobenzene	mg/L	< 0.002			0.002	Pass	
Pentachlorophenol	mg/L	< 0.01			0.01	Pass	
Phenanthrene	mg/L	< 0.001			0.001	Pass	
Phenol	mg/L	< 0.003			0.003	Pass	
Pronamide	mg/L	< 0.005			0.005	Pass	
Pyrene	mg/L	< 0.001			0.001	Pass	
Trifluralin	mg/L	< 0.005			0.005	Pass	
Method Blank							
Ammonia (as N)	mg/L	< 0.01			0.01	Pass	
Nitrate (as N)	mg/L	< 0.02			0.02	Pass	
Nitrite (as N)	mg/L	< 0.02			0.02	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/L	< 0.001			0.001	Pass	
Cadmium	mg/L	< 0.0002			0.0002	Pass	
Chromium	mg/L	< 0.001			0.001	Pass	
Copper	mg/L	< 0.001			0.001	Pass	
Lead	mg/L	< 0.001			0.001	Pass	
Mercury	mg/L	< 0.0001			0.0001	Pass	
Nickel	mg/L	< 0.001			0.001	Pass	
Zinc	mg/L	< 0.005			0.005	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	113			70-130	Pass	
TRH C10-C14	%	117			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	116			70-130	Pass	
Toluene	%	113			70-130	Pass	
Ethylbenzene	%	116			70-130	Pass	
m&p-Xylenes	%	123			70-130	Pass	
o-Xylene	%	114			70-130	Pass	
Xylenes - Total*	%	120			70-130	Pass	
LCS - % Recovery							
Volatile Organics							
1.1-Dichloroethene	%	105			70-130	Pass	
1.1.1-Trichloroethane	%	98			70-130	Pass	
1.2-Dichlorobenzene	%	82			70-130	Pass	
1.2-Dichloroethane	%	103			70-130	Pass	
Trichloroethene	%	89			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	93			70-130	Pass	
TRH C6-C10	%	108			70-130	Pass	
TRH >C10-C16	%	115			70-130	Pass	
LCS - % Recovery							
Semivolatile Organics							
Acenaphthene	%	77			70-130	Pass	

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Pyrene			%	88			70-130	Pass	
LCS - % Recovery									
Ammonia (as N)			%	100			70-130	Pass	
Nitrate (as N)			%	103			70-130	Pass	
Nitrite (as N)			%	104			70-130	Pass	
LCS - % Recovery									
Heavy Metals									
Arsenic			%	94			80-120	Pass	
Cadmium			%	97			80-120	Pass	
Chromium			%	98			80-120	Pass	
Copper			%	100			80-120	Pass	
Lead			%	98			80-120	Pass	
Mercury			%	92			80-120	Pass	
Nickel			%	99			80-120	Pass	
Zinc			%	96			80-120	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C10-C14	N21-My26487	NCP	%	81			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH >C10-C16	N21-My26487	NCP	%	84			70-130	Pass	
Spike - % Recovery									
				Result 1					
Ammonia (as N)	M21-My29685	NCP	%	84			70-130	Pass	
Nitrate (as N)	M21-My29685	NCP	%	98			70-130	Pass	
Nitrite (as N)	M21-My29685	NCP	%	108			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S21-My32303	CP	%	96			75-125	Pass	
Cadmium	S21-My32303	CP	%	96			75-125	Pass	
Chromium	S21-My32303	CP	%	94			75-125	Pass	
Copper	S21-My32303	CP	%	92			75-125	Pass	
Lead	S21-My32303	CP	%	94			75-125	Pass	
Mercury	S21-My32303	CP	%	91			75-125	Pass	
Nickel	S21-My32303	CP	%	94			75-125	Pass	
Zinc	S21-My32303	CP	%	92			75-125	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C10-C14	N21-My26475	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH C15-C28	N21-My26475	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH C29-C36	N21-My26475	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
TRH >C10-C16	N21-My26475	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH >C16-C34	N21-My26475	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH >C34-C40	N21-My26475	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Ammonia (as N)	M21-My29685	NCP	mg/L	0.60	0.60	2.0	30%	Pass	
Nitrate (as N)	M21-My29685	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Nitrite (as N)	M21-My29685	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	

Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S21-My32302	CP	mg/L	0.004	0.004	2.0	30%	Pass	
Cadmium	S21-My32302	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium	S21-My32302	CP	mg/L	< 0.001	0.001	30	30%	Pass	
Copper	S21-My32302	CP	mg/L	0.004	0.004	6.0	30%	Pass	
Lead	S21-My32302	CP	mg/L	0.001	0.001	20	30%	Pass	
Mercury	S21-My32302	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel	S21-My32302	CP	mg/L	0.002	0.002	10	30%	Pass	
Zinc	S21-My32302	CP	mg/L	0.015	0.016	7.0	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs

Authorised by:

John Nguyen	Analytical Services Manager
Andrew Sullivan	Senior Analyst-Organic (NSW)
John Nguyen	Senior Analyst-Metal (NSW)
Roopesh Rangarajan	Senior Analyst-Volatile (NSW)
Scott Beddoes	Senior Analyst-Inorganic (VIC)

Glenn Jackson
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

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CERTIFICATE OF ANALYSIS 268574

Client Details

Client	Greencap Pty Ltd
Attention	Shihui Wang
Address	Ground Floor, North Building, 22 Giffnock Ave, MACQUARIE PARK, NSW, 2113

Sample Details

Your Reference	**DSI - Sydney Olympic Park High School**
Number of Samples	8xCanisters
Date samples received	10/05/2021
Date completed instructions received	10/05/2021

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

Report Details

Date results requested by	17/05/2021
Date of Issue	17/05/2021

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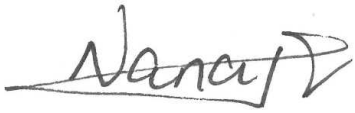
Results Approved By
Giovanni Agosti, Group Technical Manager

Authorised By



Nancy Zhang, Laboratory Manager

TO15 in Canisters/Bags						
Our Reference		268574-1	268574-2	268574-3	268574-4	268574-5
Your Reference	UNITS	GG1	GG2	GG3	GG4	GG5
Date Sampled		07/05/2021	07/05/2021	07/05/2021	07/05/2021	07/05/2021
Type of sample		Air	Air	Air	Air	Air
Air Kit Security No.		2469	1702	3513	1881	2544
Vacuum before Shipment	Hg"	-30	-30	-30	-30	-30
Vacuum before Analysis	Hg"	-4	-6	-3	-5	-0.11
Date prepared	-	11/05/2021	11/05/2021	11/05/2021	11/05/2021	11/05/2021
Date analysed	-	11/05/2021	11/05/2021	11/05/2021	11/05/2021	11/05/2021
Propylene	ppbv	<3	<0.5	79	<0.5	5.8
Dichlorodifluoromethane	ppbv	<3	<0.5	<0.5	<0.5	<0.5
Chloromethane	ppbv	<3	<0.5	<0.5	<0.5	<0.5
1,2-Dichlorotetrafluoroethane	ppbv	<3	<0.5	<0.5	<0.5	<0.5
Vinyl chloride	ppbv	<3	<0.5	<0.5	<0.5	<0.5
1,3-Butadiene	ppbv	<3	<0.5	<0.5	<0.5	2
Bromomethane	ppbv	<3	<0.5	<0.5	<0.5	<0.5
Chloroethane	ppbv	<3	<0.5	<0.5	<0.5	<0.5
Ethanol	ppbv	<30	8	9	5	10
Acrolein	ppbv	<30	<5	<5	<5	<5
Trichlorofluoromethane (Freon 11)	ppbv	<3	<0.5	<0.5	<0.5	<0.5
Acetone	ppbv	<30	<5	<5	<5	7
Isopropyl Alcohol	ppbv	<30	83	<5	<5	<5
1,1-Dichloroethene	ppbv	<3	<0.5	0.8	0.9	<0.5
1,1,2-Trichlorotrifluoroethane	ppbv	<3	<0.5	<0.5	<0.5	<0.5
Methylene chloride (Dichloromethane)	ppbv	<30	<5	<5	<5	<5
Carbon Disulfide	ppbv	100	<5	20	<5	40
trans-1,2-dichloroethene	ppbv	<3	<0.5	<0.5	<0.5	<0.5
MTBE	ppbv	<3	<0.5	<0.5	<0.5	<0.5
1,1- Dichloroethane	ppbv	<3	0.8	0.7	<0.5	<0.5
Vinyl Acetate	ppbv	<3	<0.5	<0.5	<0.5	<0.5
MEK	ppbv	<30	<5	<5	<5	<5
Hexane	ppbv	730	58	41	45	2
cis-1,2-Dichloroethene	ppbv	<3	<0.5	<0.5	<0.5	<0.5
Ethyl Acetate	ppbv	<3	<0.5	<0.5	<0.5	<0.5
Chloroform	ppbv	16	4	15	13	34
Tetrahydrofuran	ppbv	<3	<0.5	<0.5	<0.5	<0.5
1,1,1-Trichloroethane	ppbv	<3	<0.5	<0.5	<0.5	<0.5
1,2-Dichloroethane	ppbv	<3	<0.5	<0.5	<0.5	<0.5
Benzene	ppbv	7.8	5.3	3	3	1
Carbon tetrachloride	ppbv	<3	<0.5	<0.5	<0.5	<0.5

TO15 in Canisters/Bags						
Our Reference		268574-1	268574-2	268574-3	268574-4	268574-5
Your Reference	UNITS	GG1	GG2	GG3	GG4	GG5
Date Sampled		07/05/2021	07/05/2021	07/05/2021	07/05/2021	07/05/2021
Type of sample		Air	Air	Air	Air	Air
Air Kit Security No.		2469	1702	3513	1881	2544
Cyclohexane	ppbv	390	72	53	33	1
Heptane	ppbv	620	22	29	10	<0.5
Trichloroethene	ppbv	<3	1	<0.5	<0.5	0.6
1,2-Dichloropropane	ppbv	<3	<0.5	<0.5	<0.5	<0.5
1,4-Dioxane	ppbv	<3	<0.5	<0.5	<0.5	<0.5
Bromodichloromethane	ppbv	<3	<0.5	<0.5	<0.5	1
Methyl Methacrylate	ppbv	<3	<0.5	<0.5	<0.5	<0.5
MIBK	ppbv	<30	<5	<5	<5	<5
cis-1,3-Dichloropropene	ppbv	<3	<0.5	<0.5	<0.5	<0.5
trans-1,3-Dichloropropene	ppbv	<3	<0.5	<0.5	<0.5	<0.5
Toluene	ppbv	8.3	5	13	13	5
1,1,2-Trichloroethane	ppbv	<3	<0.5	<0.5	<0.5	<0.5
Methyl Butyl Ketone	ppbv	<3	<0.5	<0.5	<0.5	<0.5
Dibromochloromethane	ppbv	<3	<0.5	<0.5	<0.5	<0.5
Tetrachloroethene	ppbv	<3	<0.5	<0.5	<0.5	<0.5
1,2-Dibromoethane	ppbv	<3	<0.5	<0.5	<0.5	<0.5
Chlorobenzene	ppbv	<3	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	ppbv	3	3	2	3	1
m-& p-Xylene	ppbv	6	3	4	24	2
Styrene	ppbv	9.1	32	15	8.4	5
o-Xylene	ppbv	<3	2	2	12	1
Bromoform	ppbv	<3	<0.5	<0.5	<0.5	<0.5
1,1,2,2-Tetrachloroethane	ppbv	<3	<0.5	<0.5	<0.5	<0.5
4-ethyl toluene	ppbv	<3	0.6	<0.5	16	<0.5
1,3,5-Trimethylbenzene	ppbv	<3	0.8	0.8	22	<0.5
1,2,4-Trimethylbenzene	ppbv	<3	1	1	67	0.9
1,3-Dichlorobenzene	ppbv	<3	<0.5	<0.5	<0.5	<0.5
Benzyl chloride	ppbv	<3	<0.5	<0.5	<0.5	<0.5
1,4-Dichlorobenzene	ppbv	<3	<0.5	<0.5	<0.5	<0.5
1,2-Dichlorobenzene	ppbv	<3	<0.5	<0.5	<0.5	<0.5
1,2,4-Trichlorobenzene	ppbv	<3	<0.5	<0.5	<0.5	<0.5
Naphthalene	ppbv	<3	<0.5	<0.5	0.6	<0.5
Hexachloro- 1,3-butadiene	ppbv	<3	<0.5	<0.5	<0.5	<0.5
Surrogate-Bromochloromethane	% rec	91	95	108	82	95
Surrogate -1,4-Difluorobenzene	% rec	88	96	115	74	97
Surrogate-Chlorobenzene-D5	% rec	90	97	115	75	96

TO15 in Canisters/Bags				
Our Reference		268574-6	268574-7	268574-8
Your Reference	UNITS	GG6	GG7	FD1
Date Sampled		07/05/2021	07/05/2021	07/05/2021
Type of sample		Air	Air	Air
Air Kit Security No.		1877	3645	1875
Vacuum before Shipment	Hg"	-30	-30	-30
Vacuum before Analysis	Hg"	-7	-8	-3
Date prepared	-	11/05/2021	11/05/2021	11/05/2021
Date analysed	-	11/05/2021	11/05/2021	11/05/2021
Propylene	ppbv	<0.5	<0.5	80
Dichlorodifluoromethane	ppbv	<0.5	<0.5	<0.5
Chloromethane	ppbv	<0.5	<0.5	<0.5
1,2-Dichlorotetrafluoroethane	ppbv	<0.5	<0.5	<0.5
Vinyl chloride	ppbv	<0.5	<0.5	<0.5
1,3-Butadiene	ppbv	<0.5	<0.5	<0.5
Bromomethane	ppbv	<0.5	<0.5	<0.5
Chloroethane	ppbv	<0.5	<0.5	<0.5
Ethanol	ppbv	30	30	10
Acrolein	ppbv	<5	<5	<5
Trichlorofluoromethane (Freon 11)	ppbv	<0.5	<0.5	<0.5
Acetone	ppbv	<5	<5	<5
Isopropyl Alcohol	ppbv	10	<5	<5
1,1-Dichloroethene	ppbv	<0.5	0.6	0.9
1,1,2-Trichlorotrifluoroethane	ppbv	<0.5	<0.5	<0.5
Methylene chloride (Dichloromethane)	ppbv	<5	<5	<5
Carbon Disulfide	ppbv	<5	8	20
trans-1,2-dichloroethene	ppbv	<0.5	<0.5	<0.5
MTBE	ppbv	<0.5	<0.5	<0.5
1,1- Dichloroethane	ppbv	<0.5	<0.5	0.7
Vinyl Acetate	ppbv	<0.5	<0.5	<0.5
MEK	ppbv	<5	<5	<5
Hexane	ppbv	<0.5	15	44
cis-1,2-Dichloroethene	ppbv	<0.5	<0.5	<0.5
Ethyl Acetate	ppbv	<0.5	<0.5	<0.5
Chloroform	ppbv	3	6.1	15
Tetrahydrofuran	ppbv	<0.5	<0.5	<0.5
1,1,1-Trichloroethane	ppbv	<0.5	<0.5	<0.5
1,2-Dichloroethane	ppbv	<0.5	<0.5	<0.5
Benzene	ppbv	<0.5	0.9	3
Carbon tetrachloride	ppbv	<0.5	<0.5	<0.5

TO15 in Canisters/Bags				
Our Reference		268574-6	268574-7	268574-8
Your Reference	UNITS	GG6	GG7	FD1
Date Sampled		07/05/2021	07/05/2021	07/05/2021
Type of sample		Air	Air	Air
Air Kit Security No.		1877	3645	1875
Cyclohexane	ppbv	1	8.6	57
Heptane	ppbv	<0.5	4	27
Trichloroethene	ppbv	<0.5	<0.5	<0.5
1,2-Dichloropropane	ppbv	<0.5	<0.5	<0.5
1,4-Dioxane	ppbv	<0.5	<0.5	<0.5
Bromodichloromethane	ppbv	<0.5	<0.5	<0.5
Methyl Methacrylate	ppbv	<0.5	<0.5	<0.5
MIBK	ppbv	<5	<5	<5
cis-1,3-Dichloropropene	ppbv	<0.5	<0.5	<0.5
trans-1,3-Dichloropropene	ppbv	<0.5	<0.5	<0.5
Toluene	ppbv	0.8	4	13
1,1,2-Trichloroethane	ppbv	<0.5	<0.5	<0.5
Methyl Butyl Ketone	ppbv	<0.5	<0.5	<0.5
Dibromochloromethane	ppbv	<0.5	<0.5	<0.5
Tetrachloroethene	ppbv	<0.5	<0.5	<0.5
1,2-Dibromoethane	ppbv	<0.5	<0.5	<0.5
Chlorobenzene	ppbv	<0.5	<0.5	<0.5
Ethylbenzene	ppbv	0.5	1	2
m-& p-Xylene	ppbv	<1	2	4
Styrene	ppbv	7.6	9.6	16
o-Xylene	ppbv	<0.5	0.9	2
Bromoform	ppbv	<0.5	<0.5	<0.5
1,1,2,2-Tetrachloroethane	ppbv	<0.5	<0.5	<0.5
4-ethyl toluene	ppbv	<0.5	<0.5	<0.5
1,3,5-Trimethylbenzene	ppbv	<0.5	<0.5	0.8
1,2,4-Trimethylbenzene	ppbv	<0.5	0.6	1
1,3-Dichlorobenzene	ppbv	<0.5	<0.5	<0.5
Benzyl chloride	ppbv	<0.5	<0.5	<0.5
1,4-Dichlorobenzene	ppbv	<0.5	<0.5	<0.5
1,2-Dichlorobenzene	ppbv	<0.5	<0.5	<0.5
1,2,4-Trichlorobenzene	ppbv	<0.5	<0.5	<0.5
Naphthalene	ppbv	<0.5	<0.5	<0.5
Hexachloro- 1,3-butadiene	ppbv	<0.5	<0.5	<0.5
Surrogate-Bromochloromethane	% rec	100	99	95
Surrogate -1,4-Difluorobenzene	% rec	99	97	97
Surrogate-Chlorobenzene-D5	% rec	97	94	96

TO15 in Canisters µg/m3						
Our Reference		268574-1	268574-2	268574-3	268574-4	268574-5
Your Reference	UNITS	GG1	GG2	GG3	GG4	GG5
Date Sampled		07/05/2021	07/05/2021	07/05/2021	07/05/2021	07/05/2021
Type of sample		Air	Air	Air	Air	Air
Air Kit Security No.		2469	1702	3513	1881	2544
Vacuum before Shipment	Hg"	-30	-30	-30	-30	-30
Vacuum before Analysis	Hg"	-4	-6	-3	-5	-0.11
Date prepared	-	11/05/2021	11/05/2021	11/05/2021	11/05/2021	11/05/2021
Date analysed	-	11/05/2021	11/05/2021	11/05/2021	11/05/2021	11/05/2021
Propylene	µg/m³	<4.5	<0.9	140	<0.9	10
Dichlorodifluoromethane	µg/m³	<12.5	<2.5	<2.5	<2.5	<2.5
Chloromethane	µg/m³	<5	<1.0	<1	<1	<1
1,2-Dichlorotetrafluoroethane	µg/m³	<12.5	<2.5	<2.5	<2.5	<2.5
Vinyl chloride	µg/m³	<6.5	<1.3	<1.3	<1.3	<1.3
1,3-Butadiene	µg/m³	<5.5	<1.1	<1.1	<1.1	5
Bromomethane	µg/m³	<9.5	<1.9	<1.9	<1.9	<1.9
Chloroethane	µg/m³	<6.5	<1.3	<1.3	<1.3	<1.3
Ethanol	µg/m³	<45	20	20	10	30
Acrolein	µg/m³	<55	<11	<11	<11	<11
Trichlorofluoromethane (Freon 11)	µg/m³	<14	<2.8	<2.8	<2.8	<2.8
Acetone	µg/m³	<59.5	<11.9	<11.9	<11.9	20
Isopropyl Alcohol	µg/m³	<60	200	<12	<12	<12
1,1-Dichloroethene	µg/m³	<10	<2	3	4	<2
1,1,2-Trichlorotrifluoroethane	µg/m³	<19	<3.8	<3.8	<3.8	<3.8
Methylene chloride (Dichloromethane)	µg/m³	<85	<17	<17	<17	<17
Carbon Disulfide	µg/m³	310	<16	50	<16	100
trans-1,2-dichloroethene	µg/m³	<10	<2	<2	<2	<2
MTBE	µg/m³	<9	<1.8	<1.8	<1.8	<1.8
1,1- Dichloroethane	µg/m³	<10	3	3	<2	<2
Vinyl Acetate	µg/m³	<9	<1.8	<1.8	<1.8	<1.8
MEK	µg/m³	<75	<15	<15	<15	<15
Hexane	µg/m³	2,600	200	140	160	8
cis-1,2-Dichloroethene	µg/m³	<10	<2	<2	<2	<2
Ethyl Acetate	µg/m³	<9	<1.8	<1.8	<1.8	<1.8
Chloroform	µg/m³	79	20	74	64	170
Tetrahydrofuran	µg/m³	<7.5	<1.5	<1.5	<1.5	<1.5
1,1,1-Trichloroethane	µg/m³	<13.5	<2.7	<2.7	<2.7	<2.7
1,2-Dichloroethane	µg/m³	<10	<2	<2	<2	<2
Benzene	µg/m³	25	17	8	10	5
Carbon tetrachloride	µg/m³	<15.5	<3.1	<3.1	<3.1	<3.1

TO15 in Canisters µg/m3						
Our Reference		268574-1	268574-2	268574-3	268574-4	268574-5
Your Reference	UNITS	GG1	GG2	GG3	GG4	GG5
Date Sampled		07/05/2021	07/05/2021	07/05/2021	07/05/2021	07/05/2021
Type of sample		Air	Air	Air	Air	Air
Air Kit Security No.		2469	1702	3513	1881	2544
Cyclohexane	µg/m³	1,300	250	180	110	4
Heptane	µg/m³	2,500	90	120	42	<2
Trichloroethene	µg/m³	<13.5	6	<2.7	<2.7	3
1,2-Dichloropropane	µg/m³	<11.5	<2.3	<2.3	<2.3	<2.3
1,4-Dioxane	µg/m³	<9	<1.8	<1.8	<1.8	<1.8
Bromodichloromethane	µg/m³	<17	<3.4	<3.4	<3.4	8
Methyl Methacrylate	µg/m³	<10	<2	<2	<2	<2
MIBK	µg/m³	<100	<20	<20	<20	<20
cis-1,3-Dichloropropene	µg/m³	<11.5	<2.3	<2.3	<2.3	<2.3
trans-1,3-Dichloropropene	µg/m³	<11.5	<2.3	<2.3	<2.3	<2.3
Toluene	µg/m³	31	20	51	48	20
1,1,2-Trichloroethane	µg/m³	<13.5	<2.7	<2.7	<2.7	<2.7
Methyl Butyl Ketone	µg/m³	<10	<2	<2	<2	<2
Dibromochloromethane	µg/m³	<8	<1.6	<1.6	<1.6	<1.6
Tetrachloroethene	µg/m³	<17	<3.4	<3.4	<3.4	<3.4
1,2-Dibromoethane	µg/m³	<19	<3.8	<3.8	<3.8	<3.8
Chlorobenzene	µg/m³	<11.5	<2.3	<2.3	<2.3	<2.3
Ethylbenzene	µg/m³	10	10	8	20	5
m-& p-Xylene	µg/m³	30	10	20	100	10
Styrene	µg/m³	39	140	66	36	21
o-Xylene	µg/m³	<11	8	8	53	4
Bromoform	µg/m³	<26	<5.2	<5.2	<5.2	<5.2
1,1,2,2-Tetrachloroethane	µg/m³	<17	<3.4	<3.4	<3.4	<3.4
4-ethyl toluene	µg/m³	<12.5	3	<2.5	80	<2.5
1,3,5-Trimethylbenzene	µg/m³	<12.5	4	4	110	<2.5
1,2,4-Trimethylbenzene	µg/m³	<12.5	5	5	330	4
1,3-Dichlorobenzene	µg/m³	<15	<3	<3	<3	<3
Benzyl chloride	µg/m³	<13	<2.6	<2.6	<2.6	<2.6
1,4-Dichlorobenzene	µg/m³	<15	<3	<3	<3	<3
1,2-Dichlorobenzene	µg/m³	<15	<3	<3	<3	<3
1,2,4-Trichlorobenzene	µg/m³	<18.5	<3.7	<3.7	<3.7	<3.7
Naphthalene	µg/m³	<13	<2.6	<2.6	3	<2.6
Hexachloro- 1,3-butadiene	µg/m³	<26.5	<5.3	<5.3	<5.3	<5.3
Surrogate-Bromochloromethane	% rec	91	95	108	82	95
Surrogate -1,4-Difluorobenzene	% rec	88	96	115	74	97
Surrogate-Chlorobenzene-D5	% rec	90	97	115	75	96

TO15 in Canisters µg/m3				
Our Reference		268574-6	268574-7	268574-8
Your Reference	UNITS	GG6	GG7	FD1
Date Sampled		07/05/2021	07/05/2021	07/05/2021
Type of sample		Air	Air	Air
Air Kit Security No.		1877	3645	1875
Vacuum before Shipment	Hg"	-30	-30	-30
Vacuum before Analysis	Hg"	-7	-8	-3
Date prepared	-	11/05/2021	11/05/2021	11/05/2021
Date analysed	-	11/05/2021	11/05/2021	11/05/2021
Propylene	µg/m³	<0.9	<0.9	140
Dichlorodifluoromethane	µg/m³	<2.5	<2.5	<2.5
Chloromethane	µg/m³	<1	<1	<1.0
1,2-Dichlorotetrafluoroethane	µg/m³	<2.5	<2.5	<2.5
Vinyl chloride	µg/m³	<1.3	<1.3	<1.3
1,3-Butadiene	µg/m³	<1.1	<1.1	<1.1
Bromomethane	µg/m³	<1.9	<1.9	<1.9
Chloroethane	µg/m³	<1.3	<1.3	<1.3
Ethanol	µg/m³	50	50	30
Acrolein	µg/m³	<11	<11	<11
Trichlorofluoromethane (Freon 11)	µg/m³	<2.8	<2.8	<2.8
Acetone	µg/m³	<11.9	<11.9	<11.9
Isopropyl Alcohol	µg/m³	20	<12	<12
1,1-Dichloroethene	µg/m³	<2	2	3
1,1,2-Trichlorotrifluoroethane	µg/m³	<3.8	<3.8	<3.8
Methylene chloride (Dichloromethane)	µg/m³	<17	<17	<17
Carbon Disulfide	µg/m³	<16	20	50
trans-1,2-dichloroethene	µg/m³	<2	<2	<2.0
MTBE	µg/m³	<1.8	<1.8	<1.8
1,1- Dichloroethane	µg/m³	<2	<2	3
Vinyl Acetate	µg/m³	<1.8	<1.8	<1.8
MEK	µg/m³	<15	<15	<15
Hexane	µg/m³	<1.8	53	150
cis-1,2-Dichloroethene	µg/m³	<2	<2	<2.0
Ethyl Acetate	µg/m³	<1.8	<1.8	<1.8
Chloroform	µg/m³	10	30	73
Tetrahydrofuran	µg/m³	<1.5	<1.5	<1.5
1,1,1-Trichloroethane	µg/m³	<2.7	<2.7	<2.7
1,2-Dichloroethane	µg/m³	<2	<2	<2.0
Benzene	µg/m³	<1.6	3	9
Carbon tetrachloride	µg/m³	<3.1	<3.1	<3.1

TO15 in Canisters µg/m3				
Our Reference		268574-6	268574-7	268574-8
Your Reference	UNITS	GG6	GG7	FD1
Date Sampled		07/05/2021	07/05/2021	07/05/2021
Type of sample		Air	Air	Air
Air Kit Security No.		1877	3645	1875
Cyclohexane	µg/m³	3	30	200
Heptane	µg/m³	<2	20	110
Trichloroethene	µg/m³	<2.7	<2.7	<2.7
1,2-Dichloropropane	µg/m³	<2.3	<2.3	<2.3
1,4-Dioxane	µg/m³	<1.8	<1.8	<1.8
Bromodichloromethane	µg/m³	<3.4	<3.4	<3.4
Methyl Methacrylate	µg/m³	<2	<2	<2.0
MIBK	µg/m³	<20	<20	<20
cis-1,3-Dichloropropene	µg/m³	<2.3	<2.3	<2.3
trans-1,3-Dichloropropene	µg/m³	<2.3	<2.3	<2.3
Toluene	µg/m³	3	20	51
1,1,2-Trichloroethane	µg/m³	<2.7	<2.7	<2.7
Methyl Butyl Ketone	µg/m³	<2	<2	<2.0
Dibromochloromethane	µg/m³	<1.6	<1.6	<1.6
Tetrachloroethene	µg/m³	<3.4	<3.4	<3.4
1,2-Dibromoethane	µg/m³	<3.8	<3.8	<3.8
Chlorobenzene	µg/m³	<2.3	<2.3	<2.3
Ethylbenzene	µg/m³	2	5	8
m-& p-Xylene	µg/m³	<4.3	8	20
Styrene	µg/m³	32	41	66
o-Xylene	µg/m³	<2.2	4	8
Bromoform	µg/m³	<5.2	<5.2	<5.2
1,1,2,2-Tetrachloroethane	µg/m³	<3.4	<3.4	<3.4
4-ethyl toluene	µg/m³	<2.5	<2.5	<2.5
1,3,5-Trimethylbenzene	µg/m³	<2.5	<2.5	4
1,2,4-Trimethylbenzene	µg/m³	<2.5	3	6
1,3-Dichlorobenzene	µg/m³	<3	<3	<3.0
Benzyl chloride	µg/m³	<2.6	<2.6	<2.6
1,4-Dichlorobenzene	µg/m³	<3	<3	<3.0
1,2-Dichlorobenzene	µg/m³	<3	<3	<3.0
1,2,4-Trichlorobenzene	µg/m³	<3.7	<3.7	<3.7
Naphthalene	µg/m³	<2.6	<2.6	<2.6
Hexachloro- 1,3-butadiene	µg/m³	<5.3	<5.3	<5.3
Surrogate-Bromochloromethane	% rec	100	99	95
Surrogate -1,4-Difluorobenzene	% rec	99	97	97
Surrogate-Chlorobenzene-D5	% rec	97	94	96

TPH Air/ Air Phase Hydrocarbon						
Our Reference		268574-1	268574-2	268574-3	268574-4	268574-5
Your Reference	UNITS	GG1	GG2	GG3	GG4	GG5
Date Sampled		07/05/2021	07/05/2021	07/05/2021	07/05/2021	07/05/2021
Type of sample		Air	Air	Air	Air	Air
Air Kit Security No.		2469	1702	3513	1881	2544
Date prepared	-	11/05/2021	11/05/2021	11/05/2021	11/05/2021	11/05/2021
Date analysed	-	11/05/2021	11/05/2021	11/05/2021	11/05/2021	11/05/2021
TPH C_5 - C_8 Aliphatic	µg/m³	33,000	2,400	2,400	13,000	<200
TPH C_9 - C_{12} Aliphatic	µg/m³	<250	170	<50	17,000	<50
TPH C_9 - C_{10} Aromatic	µg/m³	<500	<100	<100	2,000	<100
TPH C_6 - C_{10} - BTEX (F1)	µg/m³	17,000	1,000	<200	<200	<200
TPH >C_{10} - C_{12} - Naphthalene (F2)	µg/m³	<200	140	<40	15,000	<40

TPH Air/ Air Phase Hydrocarbon				
Our Reference		268574-6	268574-7	268574-8
Your Reference	UNITS	GG6	GG7	FD1
Date Sampled		07/05/2021	07/05/2021	07/05/2021
Type of sample		Air	Air	Air
Air Kit Security No.		1877	3645	1875
Date prepared	-	11/05/2021	11/05/2021	11/05/2021
Date analysed	-	11/05/2021	11/05/2021	11/05/2021
TPH C_5 - C_8 Aliphatic	µg/m³	<200	<200	2,100
TPH C_9 - C_{12} Aliphatic	µg/m³	<50	<50	<50
TPH C_9 - C_{10} Aromatic	µg/m³	<100	<100	<100
TPH C_6 - C_{10} - BTEX (F1)	µg/m³	<200	<200	<200
TPH >C_{10} - C_{12} - Naphthalene (F2)	µg/m³	<40	<40	<40

Method ID	Methodology Summary
AT-005	Measurement of Air-Phase Petroleum Hydrocarbons and Ozone Precursors by GC/MS
TO15	USEPA TO15 - Analysis of VOC's in air using USEPA TO15 and in house method AT-002. Note, longer term stability of some oxygenated compounds is questionable where significant humidity is present.
USEPA 18	Measurement of Gaseous Organic Compound Emissions by Gas Chromatography using USEPA m18.

QUALITY CONTROL: TO15 in Canisters/Bags					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Vacuum before Shipment	Hg"			[NT]	3	-30	-30	0	[NT]	[NT]
Vacuum before Analysis	Hg"			[NT]	3	-3	-3	0	[NT]	[NT]
Date prepared	-			11/05/2021	3	11/05/2021	11/05/2021		11/05/2021	[NT]
Date analysed	-			11/05/2021	3	11/05/2021	11/05/2021		11/05/2021	[NT]
Propylene	ppbv	0.5	TO15	<0.5	3	79	80	1	115	[NT]
Dichlorodifluoromethane	ppbv	0.5	TO15	<0.5	3	<0.5	<0.5	0	[NT]	[NT]
Chloromethane	ppbv	0.5	TO15	<0.5	3	<0.5	<0.5	0	[NT]	[NT]
1,2-Dichlorotetrafluoroethane	ppbv	0.5	TO15	<0.5	3	<0.5	<0.5	0	[NT]	[NT]
Vinyl chloride	ppbv	0.5	TO15	<0.5	3	<0.5	<0.5	0	[NT]	[NT]
1,3-Butadiene	ppbv	0.5	TO15	<0.5	3	<0.5	<0.5	0	[NT]	[NT]
Bromomethane	ppbv	0.5	TO15	<0.5	3	<0.5	<0.5	0	[NT]	[NT]
Chloroethane	ppbv	0.5	TO15	<0.5	3	<0.5	<0.5	0	[NT]	[NT]
Ethanol	ppbv	5	TO15	<5	3	9	9	0	[NT]	[NT]
Acrolein	ppbv	5	TO15	<5	3	<5	<5	0	[NT]	[NT]
Trichlorofluoromethane (Freon 11)	ppbv	0.5	TO15	<0.5	3	<0.5	<0.5	0	[NT]	[NT]
Acetone	ppbv	5	TO15	<5	3	<5	<5	0	[NT]	[NT]
Isopropyl Alcohol	ppbv	5	TO15	<5	3	<5	<5	0	[NT]	[NT]
1,1-Dichloroethene	ppbv	0.5	TO15	<0.5	3	0.8	0.8	0	[NT]	[NT]
1,1,2-Trichlorotrifluoroethane	ppbv	0.5	TO15	<0.5	3	<0.5	<0.5	0	[NT]	[NT]
Methylene chloride (Dichloromethane)	ppbv	5	TO15	<5	3	<5	<5	0	[NT]	[NT]
Carbon Disulfide	ppbv	5	TO15	<5	3	20	20	0	[NT]	[NT]
trans-1,2-dichloroethene	ppbv	0.5	TO15	<0.5	3	<0.5	<0.5	0	[NT]	[NT]
MTBE	ppbv	0.5	TO15	<0.5	3	<0.5	<0.5	0	[NT]	[NT]
1,1- Dichloroethane	ppbv	0.5	TO15	<0.5	3	0.7	0.7	0	[NT]	[NT]
Vinyl Acetate	ppbv	0.5	TO15	<0.5	3	<0.5	<0.5	0	[NT]	[NT]
MEK	ppbv	5	TO15	<5	3	<5	<5	0	[NT]	[NT]
Hexane	ppbv	0.5	TO15	<0.5	3	41	42	2	103	[NT]
cis-1,2-Dichloroethene	ppbv	0.5	TO15	<0.5	3	<0.5	<0.5	0	[NT]	[NT]
Ethyl Acetate	ppbv	0.5	TO15	<0.5	3	<0.5	<0.5	0	[NT]	[NT]
Chloroform	ppbv	0.5	TO15	<0.5	3	15	15	0	[NT]	[NT]
Tetrahydrofuran	ppbv	0.5	TO15	<0.5	3	<0.5	<0.5	0	[NT]	[NT]
1,1,1-Trichloroethane	ppbv	0.5	TO15	<0.5	3	<0.5	<0.5	0	[NT]	[NT]
1,2-Dichloroethane	ppbv	0.5	TO15	<0.5	3	<0.5	<0.5	0	[NT]	[NT]
Benzene	ppbv	0.5	TO15	<0.5	3	3	3	0	100	[NT]
Carbon tetrachloride	ppbv	0.5	TO15	<0.5	3	<0.5	<0.5	0	[NT]	[NT]
Cyclohexane	ppbv	0.5	TO15	<0.5	3	53	54	2	108	[NT]
Heptane	ppbv	0.5	TO15	<0.5	3	29	28	4	103	[NT]

QUALITY CONTROL: TO15 in Canisters/Bags						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Trichloroethene	ppbv	0.5	TO15	<0.5	3	<0.5	<0.5	0	[NT]	[NT]
1,2-Dichloropropane	ppbv	0.5	TO15	<0.5	3	<0.5	<0.5	0	[NT]	[NT]
1,4-Dioxane	ppbv	0.5	TO15	<0.5	3	<0.5	<0.5	0	[NT]	[NT]
Bromodichloromethane	ppbv	0.5	TO15	<0.5	3	<0.5	<0.5	0	[NT]	[NT]
Methyl Methacrylate	ppbv	0.5	TO15	<0.5	3	<0.5	<0.5	0	[NT]	[NT]
MIBK	ppbv	5	TO15	<5	3	<5	<5	0	[NT]	[NT]
cis-1,3-Dichloropropene	ppbv	0.5	TO15	<0.5	3	<0.5	<0.5	0	[NT]	[NT]
trans-1,3-Dichloropropene	ppbv	0.5	TO15	<0.5	3	<0.5	<0.5	0	[NT]	[NT]
Toluene	ppbv	0.5	TO15	<0.5	3	13	13	0	105	[NT]
1,1,2-Trichloroethane	ppbv	0.5	TO15	<0.5	3	<0.5	<0.5	0	[NT]	[NT]
Methyl Butyl Ketone	ppbv	0.5	TO15	<0.5	3	<0.5	<0.5	0	[NT]	[NT]
Dibromochloromethane	ppbv	0.5	TO15	<0.5	3	<0.5	<0.5	0	[NT]	[NT]
Tetrachloroethene	ppbv	0.5	TO15	<0.5	3	<0.5	<0.5	0	[NT]	[NT]
1,2-Dibromoethane	ppbv	0.5	TO15	<0.5	3	<0.5	<0.5	0	[NT]	[NT]
Chlorobenzene	ppbv	0.5	TO15	<0.5	3	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	ppbv	0.5	TO15	<0.5	3	2	2	0	108	[NT]
m-& p-Xylene	ppbv	1	TO15	<1	3	4	4	0	106	[NT]
Styrene	ppbv	0.5	TO15	<0.5	3	15	15	0	85	[NT]
o-Xylene	ppbv	0.5	TO15	<0.5	3	2	2	0	107	[NT]
Bromoform	ppbv	0.5	TO15	<0.5	3	<0.5	<0.5	0	[NT]	[NT]
1,1,2,2-Tetrachloroethane	ppbv	0.5	TO15	<0.5	3	<0.5	<0.5	0	[NT]	[NT]
4-ethyl toluene	ppbv	0.5	TO15	<0.5	3	<0.5	<0.5	0	109	[NT]
1,3,5-Trimethylbenzene	ppbv	0.5	TO15	<0.5	3	0.8	0.8	0	106	[NT]
1,2,4-Trimethylbenzene	ppbv	0.5	TO15	<0.5	3	1	1	0	108	[NT]
1,3-Dichlorobenzene	ppbv	0.5	TO15	<0.5	3	<0.5	<0.5	0	[NT]	[NT]
Benzyl chloride	ppbv	0.5	TO15	<0.5	3	<0.5	<0.5	0	[NT]	[NT]
1,4-Dichlorobenzene	ppbv	0.5	TO15	<0.5	3	<0.5	<0.5	0	[NT]	[NT]
1,2-Dichlorobenzene	ppbv	0.5	TO15	<0.5	3	<0.5	<0.5	0	[NT]	[NT]
1,2,4-Trichlorobenzene	ppbv	0.5	TO15	<0.5	3	<0.5	<0.5	0	[NT]	[NT]
Naphthalene	ppbv	0.5	TO15	<0.5	3	<0.5	<0.5	0	[NT]	[NT]
Hexachloro- 1,3-butadiene	ppbv	0.5	TO15	<0.5	3	<0.5	<0.5	0	[NT]	[NT]
Surrogate-Bromochloromethane	% rec		TO15	106	3	108	116	7	98	[NT]
Surrogate -1,4-Difluorobenzene	% rec		TO15	101	3	115	126	9	94	[NT]
Surrogate-Chlorobenzene-D5	% rec		TO15	94	3	115	125	8	96	[NT]

QUALITY CONTROL: TO15 in Canisters µg/m3					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Vacuum before Shipment	Hg"			[NT]	3	-30	-30	0	[NT]	[NT]
Vacuum before Analysis	Hg"			[NT]	3	-3	-3	0	[NT]	[NT]
Date prepared	-			11/05/2021	3	11/05/2021	11/05/2021		[NT]	[NT]
Date analysed	-			11/05/2021	3	11/05/2021	11/05/2021		[NT]	[NT]
Propylene	µg/m³	0.9	TO15	<0.9	3	140	140	0	[NT]	[NT]
Dichlorodifluoromethane	µg/m³	2.5	TO15	<2.5	3	<2.5	<2.5	0	[NT]	[NT]
Chloromethane	µg/m³	1.0	TO15	<1.0	3	<1	<1.0	0	[NT]	[NT]
1,2-Dichlorotetrafluoroethane	µg/m³	2.5	TO15	<2.5	3	<2.5	<2.5	0	[NT]	[NT]
Vinyl chloride	µg/m³	1.3	TO15	<1.3	3	<1.3	<1.3	0	[NT]	[NT]
1,3-Butadiene	µg/m³	1.1	TO15	<1.1	3	<1.1	<1.1	0	[NT]	[NT]
Bromomethane	µg/m³	1.9	TO15	<1.9	3	<1.9	<1.9	0	[NT]	[NT]
Chloroethane	µg/m³	1.3	TO15	<1.3	3	<1.3	<1.3	0	[NT]	[NT]
Ethanol	µg/m³	9	TO15	<9	3	20	20	0	[NT]	[NT]
Acrolein	µg/m³	11	TO15	<11	3	<11	<11	0	[NT]	[NT]
Trichlorofluoromethane (Freon 11)	µg/m³	2.8	TO15	<2.8	3	<2.8	<2.8	0	[NT]	[NT]
Acetone	µg/m³	11.9	TO15	<11.9	3	<11.9	<11.9	0	[NT]	[NT]
Isopropyl Alcohol	µg/m³	12	TO15	<12	3	<12	<12	0	[NT]	[NT]
1,1-Dichloroethene	µg/m³	2.0	TO15	<2.0	3	3	3	0	[NT]	[NT]
1,1,2-Trichlorotrifluoroethane	µg/m³	3.8	TO15	<3.8	3	<3.8	<3.8	0	[NT]	[NT]
Methylene chloride (Dichloromethane)	µg/m³	17	USEPA 18	<17	3	<17	<17	0	[NT]	[NT]
Carbon Disulfide	µg/m³	16	TO15	<16	3	50	50	0	[NT]	[NT]
trans-1,2-dichloroethene	µg/m³	2.0	TO15	<2.0	3	<2	<2	0	[NT]	[NT]
MTBE	µg/m³	1.8	TO15	<1.8	3	<1.8	<1.8	0	[NT]	[NT]
1,1- Dichloroethane	µg/m³	2.0	TO15	<2.0	3	3	3	0	[NT]	[NT]
Vinyl Acetate	µg/m³	1.8	TO15	<1.8	3	<1.8	<1.8	0	[NT]	[NT]
MEK	µg/m³	15	TO15	<15	3	<15	<15	0	[NT]	[NT]
Hexane	µg/m³	1.8	TO15	<1.8	3	140	150	7	[NT]	[NT]
cis-1,2-Dichloroethene	µg/m³	2.0	TO15	<2.0	3	<2	<2	0	[NT]	[NT]
Ethyl Acetate	µg/m³	1.8	TO15	<1.8	3	<1.8	<1.8	0	[NT]	[NT]
Chloroform	µg/m³	2.4	TO15	<2.4	3	74	74	0	[NT]	[NT]
Tetrahydrofuran	µg/m³	1.5	TO15	<1.5	3	<1.5	<1.5	0	[NT]	[NT]
1,1,1-Trichloroethane	µg/m³	2.7	TO15	<2.7	3	<2.7	<2.7	0	[NT]	[NT]
1,2-Dichloroethane	µg/m³	2.0	TO15	<2.0	3	<2	<2	0	[NT]	[NT]
Benzene	µg/m³	1.6	TO15	<1.6	3	8	9	12	[NT]	[NT]
Carbon tetrachloride	µg/m³	3.1	TO15	<3.1	3	<3.1	<3.1	0	[NT]	[NT]
Cyclohexane	µg/m³	1.7	TO15	<1.7	3	180	190	5	[NT]	[NT]
Heptane	µg/m³	2.0	TO15	<2.0	3	120	120	0	[NT]	[NT]

QUALITY CONTROL: TO15 in Canisters µg/m3						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Trichloroethene	µg/m³	2.7	TO15	<2.7	3	<2.7	<2.7	0	[NT]	[NT]
1,2-Dichloropropane	µg/m³	2.3	TO15	<2.3	3	<2.3	<2.3	0	[NT]	[NT]
1,4-Dioxane	µg/m³	1.8	TO15	<1.8	3	<1.8	<1.8	0	[NT]	[NT]
Bromodichloromethane	µg/m³	3.4	TO15	<3.4	3	<3.4	<3.4	0	[NT]	[NT]
Methyl Methacrylate	µg/m³	2.0	TO15	<2.0	3	<2	<2	0	[NT]	[NT]
MIBK	µg/m³	20	TO15	<20	3	<20	<20	0	[NT]	[NT]
cis-1,3-Dichloropropene	µg/m³	2.3	TO15	<2.3	3	<2.3	<2.3	0	[NT]	[NT]
trans-1,3-Dichloropropene	µg/m³	2.3	TO15	<2.3	3	<2.3	<2.3	0	[NT]	[NT]
Toluene	µg/m³	1.9	TO15	<1.9	3	51	50	2	[NT]	[NT]
1,1,2-Trichloroethane	µg/m³	2.7	TO15	<2.7	3	<2.7	<2.7	0	[NT]	[NT]
Methyl Butyl Ketone	µg/m³	2.0	TO15	<2.0	3	<2	<2	0	[NT]	[NT]
Dibromochloromethane	µg/m³	1.6	TO15	<1.6	3	<1.6	<1.6	0	[NT]	[NT]
Tetrachloroethene	µg/m³	3.4	TO15	<3.4	3	<3.4	<3.4	0	[NT]	[NT]
1,2-Dibromoethane	µg/m³	3.8	TO15	<3.8	3	<3.8	<3.8	0	[NT]	[NT]
Chlorobenzene	µg/m³	2.3	TO15	<2.3	3	<2.3	<2.3	0	[NT]	[NT]
Ethylbenzene	µg/m³	2.2	TO15	<2.2	3	8	8	0	[NT]	[NT]
m-& p-Xylene	µg/m³	4.3	TO15	<4.3	3	20	20	0	[NT]	[NT]
Styrene	µg/m³	2.1	TO15	<2.1	3	66	66	0	[NT]	[NT]
o-Xylene	µg/m³	2.2	TO15	<2.2	3	8	7	13	[NT]	[NT]
Bromoform	µg/m³	5.2	TO15	<5.2	3	<5.2	<5.2	0	[NT]	[NT]
1,1,2,2-Tetrachloroethane	µg/m³	3.4	TO15	<3.4	3	<3.4	<3.4	0	[NT]	[NT]
4-ethyl toluene	µg/m³	2.5	TO15	<2.5	3	<2.5	<2.5	0	[NT]	[NT]
1,3,5-Trimethylbenzene	µg/m³	2.5	TO15	<2.5	3	4	4	0	[NT]	[NT]
1,2,4-Trimethylbenzene	µg/m³	2.5	TO15	<2.5	3	5	5	0	[NT]	[NT]
1,3-Dichlorobenzene	µg/m³	3.0	TO15	<3.0	3	<3	<3	0	[NT]	[NT]
Benzyl chloride	µg/m³	2.6	TO15	<2.6	3	<2.6	<2.6	0	[NT]	[NT]
1,4-Dichlorobenzene	µg/m³	3.0	TO15	<3.0	3	<3	<3	0	[NT]	[NT]
1,2-Dichlorobenzene	µg/m³	3.0	TO15	<3.0	3	<3	<3	0	[NT]	[NT]
1,2,4-Trichlorobenzene	µg/m³	3.7	TO15	<3.7	3	<3.7	<3.7	0	[NT]	[NT]
Naphthalene	µg/m³	2.6	TO15	<2.6	3	<2.6	<2.6	0	[NT]	[NT]
Hexachloro- 1,3-butadiene	µg/m³	5.3	TO15	<5.3	3	<5.3	<5.3	0	[NT]	[NT]
Surrogate-Bromochloromethane	% rec		TO15	106	3	108	116	7	[NT]	[NT]
Surrogate -1,4-Difluorobenzene	% rec		TO15	101	3	115	126	9	[NT]	[NT]
Surrogate-Chlorobenzene-D5	% rec		TO15	94	3	115	125	8	[NT]	[NT]

QUALITY CONTROL: TPH Air/ Air Phase Hydrocarbon						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			11/05/2021	3	11/05/2021	11/05/2021		11/05/2021	[NT]
Date analysed	-			11/05/2021	3	11/05/2021	11/05/2021		11/05/2021	[NT]
TPH C_5 - C_8 Aliphatic	µg/m^3	200	AT-005	<200	3	2400	2300	4	103	[NT]
TPH C_9 - C_{12} Aliphatic	µg/m^3	50	AT-005	<50	3	<50	<50	0	[NT]	[NT]
TPH C_9 - C_{10} Aromatic	µg/m^3	100	AT-005	<100	3	<100	<100	0	106	[NT]
TPH C_6 - C_{10} - BTEX (F1)	µg/m^3	200	TO15	<200	3	<200	<200	0	102	[NT]
TPH >C_{10} - C_{12} - Naphthalene (F2)	µg/m^3	40	TO15	<40	3	<40	<40	0	105	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

Report Comments

TO15, TPH

PQL has been raised due to the high level of analytes present in sample #1.

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CERTIFICATE OF ANALYSIS 269024

Client Details

Client	Greencap Pty Ltd
Attention	Shihui Wang
Address	Ground Floor, North Building, 22 Giffnock Ave, MACQUARIE PARK, NSW, 2113

Sample Details

Your Reference	**DSI - Sydney Olympic park High School**
Number of Samples	3xCanister
Date samples received	14/05/2021
Date completed instructions received	14/05/2021

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date results requested by	19/05/2021
Date of Issue	19/05/2021

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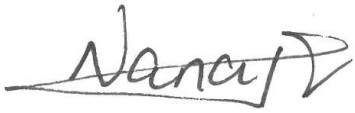
Results Approved By
Giovanni Agosti, Group Technical Manager

Authorised By



Nancy Zhang, Laboratory Manager

TO15 in Canisters/Bags				
Our Reference		269024-1	269024-2	269024-3
Your Reference	UNITS	GG8	GG9	FD2
Date Sampled		13/05/2021	13/05/2021	13/05/2021
Type of sample		Air	Air	Air
Air Kit Security No.		3639	3497	3644
Vacuum before Shipment	Hg"	-30	-30	-30
Vacuum before Analysis	Hg"	-8	-7	-8
Date prepared	-	14/05/2021	14/05/2021	14/05/2021
Date analysed	-	14/05/2021	14/05/2021	14/05/2021
Propylene	ppbv	66	65	68
Dichlorodifluoromethane	ppbv	<0.5	<0.5	<0.5
Chloromethane	ppbv	<0.5	<0.5	<0.5
1,2-Dichlorotetrafluoroethane	ppbv	<0.5	<0.5	<0.5
Vinyl chloride	ppbv	<0.5	<0.5	<0.5
1,3-Butadiene	ppbv	<0.5	<0.5	<0.5
Bromomethane	ppbv	<0.5	<0.5	<0.5
Chloroethane	ppbv	<0.5	<0.5	<0.5
Ethanol	ppbv	94	6	20
Acrolein	ppbv	<5	<5	<5
Trichlorofluoromethane (Freon 11)	ppbv	<0.5	<0.5	<0.5
Acetone	ppbv	20	7	9
Isopropyl Alcohol	ppbv	<5	<5	<5
1,1-Dichloroethene	ppbv	<0.5	<0.5	<0.5
1,1,2-Trichlorotrifluoroethane	ppbv	<0.5	<0.5	<0.5
Methylene chloride (Dichloromethane)	ppbv	<5	<5	<5
Carbon Disulfide	ppbv	10	10	10
trans-1,2-dichloroethene	ppbv	<0.5	<0.5	<0.5
MTBE	ppbv	<0.5	<0.5	<0.5
1,1- Dichloroethane	ppbv	<0.5	<0.5	<0.5
Vinyl Acetate	ppbv	<0.5	<0.5	<0.5
MEK	ppbv	6	<5	<5
Hexane	ppbv	45	20	45
cis-1,2-Dichloroethene	ppbv	<0.5	<0.5	<0.5
Ethyl Acetate	ppbv	<0.5	<0.5	<0.5
Chloroform	ppbv	<0.5	2	<0.5
Tetrahydrofuran	ppbv	<0.5	<0.5	<0.5
1,1,1-Trichloroethane	ppbv	<0.5	<0.5	<0.5
1,2-Dichloroethane	ppbv	<0.5	<0.5	<0.5
Benzene	ppbv	2	1	2
Carbon tetrachloride	ppbv	<0.5	<0.5	<0.5

TO15 in Canisters/Bags				
Our Reference		269024-1	269024-2	269024-3
Your Reference	UNITS	GG8	GG9	FD2
Date Sampled		13/05/2021	13/05/2021	13/05/2021
Type of sample		Air	Air	Air
Air Kit Security No.		3639	3497	3644
Cyclohexane	ppbv	<0.5	11	<0.5
Heptane	ppbv	12	6.5	12
Trichloroethene	ppbv	<0.5	<0.5	<0.5
1,2-Dichloropropane	ppbv	<0.5	<0.5	<0.5
1,4-Dioxane	ppbv	<0.5	<0.5	<0.5
Bromodichloromethane	ppbv	<0.5	<0.5	<0.5
Methyl Methacrylate	ppbv	<0.5	1	<0.5
MIBK	ppbv	<5	<5	<5
cis-1,3-Dichloropropene	ppbv	<0.5	<0.5	<0.5
trans-1,3-Dichloropropene	ppbv	<0.5	<0.5	<0.5
Toluene	ppbv	16	34	16
1,1,2-Trichloroethane	ppbv	<0.5	<0.5	<0.5
Methyl Butyl Ketone	ppbv	<0.5	<0.5	<0.5
Dibromochloromethane	ppbv	<0.5	<0.5	<0.5
Tetrachloroethene	ppbv	<0.5	<0.5	<0.5
1,2-Dibromoethane	ppbv	<0.5	<0.5	<0.5
Chlorobenzene	ppbv	<0.5	0.5	<0.5
Ethylbenzene	ppbv	2	2	2
m-& p-Xylene	ppbv	6	4	6
Styrene	ppbv	3	6.4	3
o-Xylene	ppbv	3	1	3
Bromoform	ppbv	<0.5	<0.5	<0.5
1,1,2,2-Tetrachloroethane	ppbv	<0.5	<0.5	<0.5
4-ethyl toluene	ppbv	<0.5	<0.5	<0.5
1,3,5-Trimethylbenzene	ppbv	0.8	<0.5	0.7
1,2,4-Trimethylbenzene	ppbv	1	0.5	1
1,3-Dichlorobenzene	ppbv	<0.5	0.8	<0.5
Benzyl chloride	ppbv	<0.5	<0.5	<0.5
1,4-Dichlorobenzene	ppbv	<0.5	5.6	<0.5
1,2-Dichlorobenzene	ppbv	<0.5	<0.5	<0.5
1,2,4-Trichlorobenzene	ppbv	<0.5	<0.5	<0.5
Naphthalene	ppbv	0.7	0.7	0.7
Hexachloro- 1,3-butadiene	ppbv	<0.5	<0.5	<0.5
Surrogate-Bromochloromethane	% rec	105	125	122
Surrogate -1,4-Difluorobenzene	% rec	109	130	126
Surrogate-Chlorobenzene-D5	% rec	110	128	126

TO15 in Canisters µg/m3				
Our Reference		269024-1	269024-2	269024-3
Your Reference	UNITS	GG8	GG9	FD2
Date Sampled		13/05/2021	13/05/2021	13/05/2021
Type of sample		Air	Air	Air
Air Kit Security No.		3639	3497	3644
Vacuum before Shipment	Hg"	-30	-30	-30
Vacuum before Analysis	Hg"	-8	-7	-8
Date prepared	-	14/05/2021	14/05/2021	14/05/2021
Date analysed	-	14/05/2021	14/05/2021	14/05/2021
Propylene	µg/m³	110	110	120
Dichlorodifluoromethane	µg/m³	<2.5	<2.5	<2.5
Chloromethane	µg/m³	<1	<1	<1
1,2-Dichlorotetrafluoroethane	µg/m³	<2.5	<2.5	<2.5
Vinyl chloride	µg/m³	<1.3	<1.3	<1.3
1,3-Butadiene	µg/m³	<1.1	<1.1	<1.1
Bromomethane	µg/m³	<1.9	<1.9	<1.9
Chloroethane	µg/m³	<1.3	<1.3	<1.3
Ethanol	µg/m³	180	10	30
Acrolein	µg/m³	<11	<11	<11
Trichlorofluoromethane (Freon 11)	µg/m³	<2.8	<2.8	<2.8
Acetone	µg/m³	50	20	20
Isopropyl Alcohol	µg/m³	<12	<12	<12
1,1-Dichloroethene	µg/m³	<2	<2	<2
1,1,2-Trichlorotrifluoroethane	µg/m³	<3.8	<3.8	<3.8
Methylene chloride (Dichloromethane)	µg/m³	<17	<17	<17
Carbon Disulfide	µg/m³	50	30	50
trans-1,2-dichloroethene	µg/m³	<2	<2	<2
MTBE	µg/m³	<1.8	<1.8	<1.8
1,1- Dichloroethane	µg/m³	<2	<2	<2
Vinyl Acetate	µg/m³	<1.8	<1.8	<1.8
MEK	µg/m³	19	<15	<15
Hexane	µg/m³	160	70	160
cis-1,2-Dichloroethene	µg/m³	<2	<2	<2
Ethyl Acetate	µg/m³	<1.8	<1.8	<1.8
Chloroform	µg/m³	<2.4	10	<2.4
Tetrahydrofuran	µg/m³	<1.5	<1.5	<1.5
1,1,1-Trichloroethane	µg/m³	<2.7	<2.7	<2.7
1,2-Dichloroethane	µg/m³	<2	<2	<2
Benzene	µg/m³	8	3	7
Carbon tetrachloride	µg/m³	<3.1	<3.1	<3.1

TO15 in Canisters µg/m3				
Our Reference		269024-1	269024-2	269024-3
Your Reference	UNITS	GG8	GG9	FD2
Date Sampled		13/05/2021	13/05/2021	13/05/2021
Type of sample		Air	Air	Air
Air Kit Security No.		3639	3497	3644
Cyclohexane	µg/m³	<1.7	38	<1.7
Heptane	µg/m³	49	27	51
Trichloroethene	µg/m³	<2.7	<2.7	<2.7
1,2-Dichloropropane	µg/m³	<2.3	<2.3	<2.3
1,4-Dioxane	µg/m³	<1.8	<1.8	<1.8
Bromodichloromethane	µg/m³	<3.4	<3.4	<3.4
Methyl Methacrylate	µg/m³	<2	5	<2
MIBK	µg/m³	<20	<20	<20
cis-1,3-Dichloropropene	µg/m³	<2.3	<2.3	<2.3
trans-1,3-Dichloropropene	µg/m³	<2.3	<2.3	<2.3
Toluene	µg/m³	61	130	61
1,1,2-Trichloroethane	µg/m³	<2.7	<2.7	<2.7
Methyl Butyl Ketone	µg/m³	<2	<2	<2
Dibromochloromethane	µg/m³	<1.6	<1.6	<1.6
Tetrachloroethene	µg/m³	<3.4	<3.4	<3.4
1,2-Dibromoethane	µg/m³	<3.8	<3.8	<3.8
Chlorobenzene	µg/m³	<2.3	2	<2.3
Ethylbenzene	µg/m³	9	8	9
m-& p-Xylene	µg/m³	30	20	30
Styrene	µg/m³	10	27	10
o-Xylene	µg/m³	10	6	10
Bromoform	µg/m³	<5.2	<5.2	<5.2
1,1,2,2-Tetrachloroethane	µg/m³	<3.4	<3.4	<3.4
4-ethyl toluene	µg/m³	<2.5	<2.5	<2.5
1,3,5-Trimethylbenzene	µg/m³	4	<2.5	4
1,2,4-Trimethylbenzene	µg/m³	7	3	7
1,3-Dichlorobenzene	µg/m³	<3	5	<3
Benzyl chloride	µg/m³	<2.6	<2.6	<2.6
1,4-Dichlorobenzene	µg/m³	<3	34	<3
1,2-Dichlorobenzene	µg/m³	<3	<3	<3
1,2,4-Trichlorobenzene	µg/m³	<3.7	<3.7	<3.7
Naphthalene	µg/m³	4	3	3
Hexachloro- 1,3-butadiene	µg/m³	<5.3	<5.3	<5.3
Surrogate-Bromochloromethane	% rec	105	125	122
Surrogate -1,4-Difluorobenzene	% rec	109	130	126
Surrogate-Chlorobenzene-D5	% rec	110	128	126

TPH Air/ Air Phase Hydrocarbon				
Our Reference		269024-1	269024-2	269024-3
Your Reference	UNITS	GG8	GG9	FD2
Date Sampled		13/05/2021	13/05/2021	13/05/2021
Type of sample		Air	Air	Air
Air Kit Security No.		3639	3497	3644
Date prepared	-	14/05/2021	14/05/2021	14/05/2021
Date analysed	-	14/05/2021	14/05/2021	14/05/2021
TPH C_5 - C_8 Aliphatic	µg/m^3	33,000	2,600	33,000
TPH C_9 - C_{12} Aliphatic	µg/m^3	8,800	250	10,000
TPH C_9 - C_{10} Aromatic	µg/m^3	110	<100	140
TPH C_6 - C_{10} - BTEX (F1)	µg/m^3	41,000	2,300	43,000
TPH >C_{10} - C_{12} - Naphthalene (F2)	µg/m^3	6,700	200	8,000

Method ID	Methodology Summary
AT-005	Measurement of Air-Phase Petroleum Hydrocarbons and Ozone Precursors by GC/MS
TO15	USEPA TO15 - Analysis of VOC's in air using USEPA TO15 and in house method AT-002. Note, longer term stability of some oxygenated compounds is questionable where significant humidity is present.
USEPA 18	Measurement of Gaseous Organic Compound Emissions by Gas Chromatography using USEPA m18.

QUALITY CONTROL: TO15 in Canisters/Bags					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Vacuum before Shipment	Hg"			[NT]	1	-30	-30	0	[NT]	[NT]
Vacuum before Analysis	Hg"			[NT]	1	-8	-8	0	[NT]	[NT]
Date prepared	-			14/05/2021	1	14/05/2021	14/05/2021		14/05/2021	[NT]
Date analysed	-			14/05/2021	1	14/05/2021	14/05/2021		14/05/2021	[NT]
Propylene	ppbv	0.5	TO15	<0.5	1	66	68	3	108	[NT]
Dichlorodifluoromethane	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Chloromethane	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
1,2-Dichlorotetrafluoroethane	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Vinyl chloride	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
1,3-Butadiene	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Bromomethane	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Chloroethane	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Ethanol	ppbv	5	TO15	<5	1	94	95	1	[NT]	[NT]
Acrolein	ppbv	5	TO15	<5	1	<5	<5	0	[NT]	[NT]
Trichlorofluoromethane (Freon 11)	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Acetone	ppbv	5	TO15	<5	1	20	20	0	[NT]	[NT]
Isopropyl Alcohol	ppbv	5	TO15	<5	1	<5	<5	0	[NT]	[NT]
1,1-Dichloroethene	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
1,1,2-Trichlorotrifluoroethane	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Methylene chloride (Dichloromethane)	ppbv	5	TO15	<5	1	<5	<5	0	[NT]	[NT]
Carbon Disulfide	ppbv	5	TO15	<5	1	10	10	0	[NT]	[NT]
trans-1,2-dichloroethene	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
MTBE	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
1,1- Dichloroethane	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Vinyl Acetate	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
MEK	ppbv	5	TO15	<5	1	6	6	0	[NT]	[NT]
Hexane	ppbv	0.5	TO15	<0.5	1	45	45	0	99	[NT]
cis-1,2-Dichloroethene	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Ethyl Acetate	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Chloroform	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Tetrahydrofuran	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
1,1,1-Trichloroethane	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
1,2-Dichloroethane	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Benzene	ppbv	0.5	TO15	<0.5	1	2	2	0	98	[NT]
Carbon tetrachloride	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Cyclohexane	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	99	[NT]
Heptane	ppbv	0.5	TO15	<0.5	1	12	12	0	100	[NT]

QUALITY CONTROL: TO15 in Canisters/Bags						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Trichloroethene	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
1,2-Dichloropropane	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
1,4-Dioxane	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Bromodichloromethane	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Methyl Methacrylate	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
MIBK	ppbv	5	TO15	<5	1	<5	<5	0	[NT]	[NT]
cis-1,3-Dichloropropene	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
trans-1,3-Dichloropropene	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Toluene	ppbv	0.5	TO15	<0.5	1	16	16	0	105	[NT]
1,1,2-Trichloroethane	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Methyl Butyl Ketone	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Dibromochloromethane	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Tetrachloroethene	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
1,2-Dibromoethane	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Chlorobenzene	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	ppbv	0.5	TO15	<0.5	1	2	2	0	106	[NT]
m-& p-Xylene	ppbv	1	TO15	<1	1	6	6	0	107	[NT]
Styrene	ppbv	0.5	TO15	<0.5	1	3	3	0	84	[NT]
o-Xylene	ppbv	0.5	TO15	<0.5	1	3	3	0	108	[NT]
Bromoform	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
1,1,2,2-Tetrachloroethane	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
4-ethyl toluene	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	109	[NT]
1,3,5-Trimethylbenzene	ppbv	0.5	TO15	<0.5	1	0.8	0.8	0	107	[NT]
1,2,4-Trimethylbenzene	ppbv	0.5	TO15	<0.5	1	1	1	0	107	[NT]
1,3-Dichlorobenzene	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Benzyl chloride	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
1,4-Dichlorobenzene	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
1,2-Dichlorobenzene	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
1,2,4-Trichlorobenzene	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Naphthalene	ppbv	0.5	TO15	<0.5	1	0.7	0.8	13	[NT]	[NT]
Hexachloro- 1,3-butadiene	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Surrogate-Bromochloromethane	% rec		TO15	[NT]	1	105	113	7	92	[NT]
Surrogate -1,4-Difluorobenzene	% rec		TO15	[NT]	1	109	117	7	88	[NT]
Surrogate-Chlorobenzene-D5	% rec		TO15	[NT]	1	110	117	6	89	[NT]

QUALITY CONTROL: TO15 in Canisters µg/m3					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Vacuum before Shipment	Hg"			[NT]	1	-30	-30	0	[NT]	[NT]
Vacuum before Analysis	Hg"			[NT]	1	-8	-8	0	[NT]	[NT]
Date prepared	-			14/05/2021	1	14/05/2021	14/05/2021		[NT]	[NT]
Date analysed	-			14/05/2021	1	14/05/2021	14/05/2021		[NT]	[NT]
Propylene	µg/m³	0.9	TO15	<0.9	1	110	120	9	[NT]	[NT]
Dichlorodifluoromethane	µg/m³	2.5	TO15	<2.5	1	<2.5	<2.5	0	[NT]	[NT]
Chloromethane	µg/m³	1.0	TO15	<1.0	1	<1	<1	0	[NT]	[NT]
1,2-Dichlorotetrafluoroethane	µg/m³	2.5	TO15	<2.5	1	<2.5	<2.5	0	[NT]	[NT]
Vinyl chloride	µg/m³	1.3	TO15	<1.3	1	<1.3	<1.3	0	[NT]	[NT]
1,3-Butadiene	µg/m³	1.1	TO15	<1.1	1	<1.1	<1.1	0	[NT]	[NT]
Bromomethane	µg/m³	1.9	TO15	<1.9	1	<1.9	<1.9	0	[NT]	[NT]
Chloroethane	µg/m³	1.3	TO15	<1.3	1	<1.3	<1.3	0	[NT]	[NT]
Ethanol	µg/m³	9	TO15	<9	1	180	180	0	[NT]	[NT]
Acrolein	µg/m³	11	TO15	<11	1	<11	<11	0	[NT]	[NT]
Trichlorofluoromethane (Freon 11)	µg/m³	2.8	TO15	<2.8	1	<2.8	<2.8	0	[NT]	[NT]
Acetone	µg/m³	11.9	TO15	<11.9	1	50	50	0	[NT]	[NT]
Isopropyl Alcohol	µg/m³	12	TO15	<12	1	<12	<12	0	[NT]	[NT]
1,1-Dichloroethene	µg/m³	2.0	TO15	<2.0	1	<2	<2	0	[NT]	[NT]
1,1,2-Trichlorotrifluoroethane	µg/m³	3.8	TO15	<3.8	1	<3.8	<3.8	0	[NT]	[NT]
Methylene chloride (Dichloromethane)	µg/m³	17	USEPA 18	<17	1	<17	<17	0	[NT]	[NT]
Carbon Disulfide	µg/m³	16	TO15	<16	1	50	50	0	[NT]	[NT]
trans-1,2-dichloroethene	µg/m³	2.0	TO15	<2.0	1	<2	<2	0	[NT]	[NT]
MTBE	µg/m³	1.8	TO15	<1.8	1	<1.8	<1.8	0	[NT]	[NT]
1,1- Dichloroethane	µg/m³	2.0	TO15	<2.0	1	<2	<2	0	[NT]	[NT]
Vinyl Acetate	µg/m³	1.8	TO15	<1.8	1	<1.8	<1.8	0	[NT]	[NT]
MEK	µg/m³	15	TO15	<15	1	19	19	0	[NT]	[NT]
Hexane	µg/m³	1.8	TO15	<1.8	1	160	160	0	[NT]	[NT]
cis-1,2-Dichloroethene	µg/m³	2.0	TO15	<2.0	1	<2	<2	0	[NT]	[NT]
Ethyl Acetate	µg/m³	1.8	TO15	<1.8	1	<1.8	<1.8	0	[NT]	[NT]
Chloroform	µg/m³	2.4	TO15	<2.4	1	<2.4	<2.4	0	[NT]	[NT]
Tetrahydrofuran	µg/m³	1.5	TO15	<1.5	1	<1.5	<1.5	0	[NT]	[NT]
1,1,1-Trichloroethane	µg/m³	2.7	TO15	<2.7	1	<2.7	<2.7	0	[NT]	[NT]
1,2-Dichloroethane	µg/m³	2.0	TO15	<2.0	1	<2	<2	0	[NT]	[NT]
Benzene	µg/m³	1.6	TO15	<1.6	1	8	8	0	[NT]	[NT]
Carbon tetrachloride	µg/m³	3.1	TO15	<3.1	1	<3.1	<3.1	0	[NT]	[NT]
Cyclohexane	µg/m³	1.7	TO15	<1.7	1	<1.7	<1.7	0	[NT]	[NT]
Heptane	µg/m³	2.0	TO15	<2.0	1	49	50	2	[NT]	[NT]

QUALITY CONTROL: TO15 in Canisters µg/m3						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Trichloroethene	µg/m³	2.7	TO15	<2.7	1	<2.7	<2.7	0	[NT]	[NT]
1,2-Dichloropropane	µg/m³	2.3	TO15	<2.3	1	<2.3	<2.3	0	[NT]	[NT]
1,4-Dioxane	µg/m³	1.8	TO15	<1.8	1	<1.8	<1.8	0	[NT]	[NT]
Bromodichloromethane	µg/m³	3.4	TO15	<3.4	1	<3.4	<3.4	0	[NT]	[NT]
Methyl Methacrylate	µg/m³	2.0	TO15	<2.0	1	<2	<2	0	[NT]	[NT]
MIBK	µg/m³	20	TO15	<20	1	<20	<20	0	[NT]	[NT]
cis-1,3-Dichloropropene	µg/m³	2.3	TO15	<2.3	1	<2.3	<2.3	0	[NT]	[NT]
trans-1,3-Dichloropropene	µg/m³	2.3	TO15	<2.3	1	<2.3	<2.3	0	[NT]	[NT]
Toluene	µg/m³	1.9	TO15	<1.9	1	61	61	0	[NT]	[NT]
1,1,2-Trichloroethane	µg/m³	2.7	TO15	<2.7	1	<2.7	<2.7	0	[NT]	[NT]
Methyl Butyl Ketone	µg/m³	2.0	TO15	<2.0	1	<2	<2	0	[NT]	[NT]
Dibromochloromethane	µg/m³	1.6	TO15	<1.6	1	<1.6	<1.6	0	[NT]	[NT]
Tetrachloroethene	µg/m³	3.4	TO15	<3.4	1	<3.4	<3.4	0	[NT]	[NT]
1,2-Dibromoethane	µg/m³	3.8	TO15	<3.8	1	<3.8	<3.8	0	[NT]	[NT]
Chlorobenzene	µg/m³	2.3	TO15	<2.3	1	<2.3	<2.3	0	[NT]	[NT]
Ethylbenzene	µg/m³	2.2	TO15	<2.2	1	9	9	0	[NT]	[NT]
m-& p-Xylene	µg/m³	4.3	TO15	<4.3	1	30	30	0	[NT]	[NT]
Styrene	µg/m³	2.1	TO15	<2.1	1	10	10	0	[NT]	[NT]
o-Xylene	µg/m³	2.2	TO15	<2.2	1	10	10	0	[NT]	[NT]
Bromoform	µg/m³	5.2	TO15	<5.2	1	<5.2	<5.2	0	[NT]	[NT]
1,1,2,2-Tetrachloroethane	µg/m³	3.4	TO15	<3.4	1	<3.4	<3.4	0	[NT]	[NT]
4-ethyl toluene	µg/m³	2.5	TO15	<2.5	1	<2.5	<2.5	0	[NT]	[NT]
1,3,5-Trimethylbenzene	µg/m³	2.5	TO15	<2.5	1	4	4	0	[NT]	[NT]
1,2,4-Trimethylbenzene	µg/m³	2.5	TO15	<2.5	1	7	7	0	[NT]	[NT]
1,3-Dichlorobenzene	µg/m³	3.0	TO15	<3.0	1	<3	<3	0	[NT]	[NT]
Benzyl chloride	µg/m³	2.6	TO15	<2.6	1	<2.6	<2.6	0	[NT]	[NT]
1,4-Dichlorobenzene	µg/m³	3.0	TO15	<3.0	1	<3	<3	0	[NT]	[NT]
1,2-Dichlorobenzene	µg/m³	3.0	TO15	<3.0	1	<3	<3	0	[NT]	[NT]
1,2,4-Trichlorobenzene	µg/m³	3.7	TO15	<3.7	1	<3.7	<3.7	0	[NT]	[NT]
Naphthalene	µg/m³	2.6	TO15	<2.6	1	4	4	0	[NT]	[NT]
Hexachloro- 1,3-butadiene	µg/m³	5.3	TO15	<5.3	1	<5.3	<5.3	0	[NT]	[NT]
Surrogate-Bromochloromethane	% rec		TO15	[NT]	1	105	113	7	[NT]	[NT]
Surrogate -1,4-Difluorobenzene	% rec		TO15	[NT]	1	109	117	7	[NT]	[NT]
Surrogate-Chlorobenzene-D5	% rec		TO15	[NT]	1	110	117	6	[NT]	[NT]

QUALITY CONTROL: TPH Air/ Air Phase Hydrocarbon						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			14/05/2021	1	14/05/2021	14/05/2021		14/05/2021	[NT]
Date analysed	-			14/05/2021	1	14/05/2021	14/05/2021		14/05/2021	[NT]
TPH C_5 - C_8 Aliphatic	µg/m^3	200	AT-005	<200	1	33000	33000	0	99	[NT]
TPH C_9 - C_{12} Aliphatic	µg/m^3	50	AT-005	<50	1	8800	10000	13	[NT]	[NT]
TPH C_9 - C_{10} Aromatic	µg/m^3	100	AT-005	<100	1	110	140	24	95	[NT]
TPH C_6 - C_{10} - BTEX (F1)	µg/m^3	200	TO15	<200	1	41000	39000	5	97	[NT]
TPH >C_{10} - C_{12} - Naphthalene (F2)	µg/m^3	40	TO15	<40	1	6700	8400	23	94	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

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CERTIFICATE OF ANALYSIS 269607-A

Client Details

Client	Greencap Pty Ltd
Attention	Shihui Wang
Address	Ground Floor, North Building, 22 Giffnock Ave, MACQUARIE PARK, NSW, 2113

Sample Details

Your Reference	**DSI - Sydney Olympic Park High School**
Number of Samples	3 x soil
Date samples received	21/05/2021
Date completed instructions received	15/09/2021

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date results requested by	15/09/2021
Date of Issue	15/09/2021

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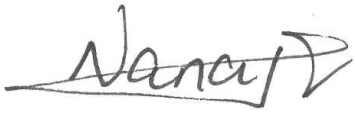
Results Approved By
Hannah Nguyen, Metals Supervisor

Authorised By



Nancy Zhang, Laboratory Manager

Acid Extractable metals in soil				
Our Reference		269607-A-1	269607-A-2	269607-A-3
Your Reference	UNITS	FT1	FT2	BHFT1
Depth		0.5-0.6	0.8-0.9	0.7-0.9
Date Sampled		29/04/2021	30/04/2021	3/05/2021
Type of sample		Soil	Soil	Soil
Date prepared	-	24/05/2021	24/05/2021	24/05/2021
Date analysed	-	24/05/2021	24/05/2021	24/05/2021
Arsenic	mg/kg	<4	5	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4
Chromium	mg/kg	7	14	4
Copper	mg/kg	14	16	22
Lead	mg/kg	12	46	13
Mercury	mg/kg	<0.1	<0.1	<0.1
Nickel	mg/kg	11	8	20
Zinc	mg/kg	33	50	89

Moisture				
Our Reference		269607-A-1	269607-A-2	269607-A-3
Your Reference	UNITS	FT1	FT2	BHFT1
Depth		0.5-0.6	0.8-0.9	0.7-0.9
Date Sampled		29/04/2021	30/04/2021	3/05/2021
Type of sample		Soil	Soil	Soil
Date prepared	-	21/05/2021	21/05/2021	21/05/2021
Date analysed	-	24/05/2021	24/05/2021	24/05/2021
Moisture	%	11	17	12

Method ID	Methodology Summary
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-11	[NT]
Date prepared	-			24/05/2021	[NT]	[NT]	[NT]	[NT]	24/05/2021	[NT]
Date analysed	-			24/05/2021	[NT]	[NT]	[NT]	[NT]	24/05/2021	[NT]
Arsenic	mg/kg	4	Metals-020	<4	[NT]	[NT]	[NT]	[NT]	94	[NT]
Cadmium	mg/kg	0.4	Metals-020	<0.4	[NT]	[NT]	[NT]	[NT]	98	[NT]
Chromium	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	97	[NT]
Copper	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	90	[NT]
Lead	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	92	[NT]
Mercury	mg/kg	0.1	Metals-021	<0.1	[NT]	[NT]	[NT]	[NT]	104	[NT]
Nickel	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	94	[NT]
Zinc	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	92	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

Greencap Pty Ltd
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T: 02 9889 1800

Report Date: Tuesday, 11/05/2021

Our ref: C123934:J169135-01

Sandra Lim
NSW Department of Education
Level 9, 259 George Street
SYDNEY NSW 2000

Dear Sandra,

Re: Asbestos Identification Analysis - Proposed Sydney Olympic Park High School, 9 Burroway Road, Wentworth Point NSW 2127 (GG01 - GG09)

This letter presents the results of asbestos fibre identification analysis performed on 10 samples collected by Shihui Wang of Greencap on 29 to 30/04/2021. The samples were collected from Proposed Sydney Olympic Park High School, 9 Burroway Road, Wentworth Point NSW 2127 (GG01 - GG09).

All sample analysis was performed using polarised light microscopy, including dispersion staining and trace analysis in our Sydney Laboratory by the method of Australian Standard AS4964-2004 and supplementary work instruction in house method LAB04 Asbestos Identification by PLM. Any and all services carried out by Greencap for the Client are subject to the Terms and Conditions listed on the Greencap website at https://www.greencap.com.au/terms-conditions and are governed by our statements of limitation available at https://www.greencap.com.au/statements-limitation .

The analysis was completed on Tuesday, 04 May 2021.

The samples will be kept for three months and then disposed of, unless otherwise directed.

The results of the asbestos identification analysis are presented in the appended table. Accreditation covers testing activities only, sampling activity is outside the scope of ISO 17025 accreditation. Results relate only to the items tested and are for the sole use by the client.

Should you require further information please contact Shihui Wang.

Yours sincerely,
Greencap

Vince Nguyen : Approved Identifier

Vince Nguyen : Approved Signatory

Report Date: Tuesday, 11/05/2021 Our ref: C123934:J169135-01

Site Location:	Proposed Sydney Olympic Park High School, 9 Burroway Road, Wentworth Point NSW 2127 (GG01 - GG09)		
	Sample ID	**Sample Location/Description/Weight or Size**	**Analysis Result**
1	J169135-01 GG1-02(0.4-0.5)	Samples Collected During Drilling at Groundgas Well 1 Grey non-homogenous sandy soil, rocks & loose fibres ~ 943.2 g	No Asbestos Detected At or Above Reporting Limit Organic Fibres NOTE 1 & 2
2	J169135-01 GG2-01(0.3-0.4)	Samples Collected During Drilling at Groundgas Well 2 Grey non-homogenous sandy soil, rocks & loose fibres ~ 981.3 g	No Asbestos Detected At or Above Reporting Limit Organic Fibres NOTE 1 & 2
3	J169135-01 GG3-02(0.9-1.0)	Samples Collected During Drilling at Groundgas Well 3 Brown-grey non-homogenous sandy soil, rocks, organic matter & loose fibres ~ 1011.3 g	No Asbestos Detected At or Above Reporting Limit Organic Fibres NOTE 1 & 2
4	J169135-01 GG4-01(0.3-0.4)	Samples Collected During Drilling at Groundgas Well 4 Brown-grey non-homogenous sandy soil, rocks & loose fibres ~ 958.0 g	No Asbestos Detected At or Above Reporting Limit Organic Fibres Synthetic Mineral Fibres NOTE 1 & 2
5	J169135-01 GG5-02(0.3-0.4)	Samples Collected During Drilling at Groundgas Well 5 Grey non-homogenous sandy soil, rocks & loose fibres ~ 974.8 g	No Asbestos Detected At or Above Reporting Limit Organic Fibres NOTE 1 & 2
6	J169135-01 GG6-01(0.2-0.3)	Samples Collected During Drilling at Groundgas Well 6 Grey non-homogenous sandy soil, rocks & loose fibres ~ 1018.5 g	No Asbestos Detected At or Above Reporting Limit Organic Fibres NOTE 1 & 2
7	J169135-01 GG7(-02(0.3-0.4)	Samples Collected During Drilling at Groundgas Well 7 Grey non-homogenous sandy soil, rocks, organic matter & loose fibres ~ 1150.1 g	No Asbestos Detected At or Above Reporting Limit Organic Fibres NOTE 1 & 2
8	J169135-01 GG8-01(0.2-0.3)	Samples Collected During Drilling at Groundgas Well 8 Grey non-homogenous sandy soil, rocks & loose fibres ~ 1035.0 g	No Asbestos Detected At or Above Reporting Limit Organic Fibres NOTE 1 & 2
9	J169135-01 GG9-02(0.4-0.5)	Samples Collected During Drilling at Groundgas Well 9 Grey non-homogenous sandy soil, rocks & loose fibres ~ 1043.5 g	No Asbestos Detected At or Above Reporting Limit Organic Fibres NOTE 1 & 2

Report Date: Tuesday, 11/05/2021 Our ref: C123934:J169135-01

Site Location:	Proposed Sydney Olympic Park High School, 9 Burroway Road, Wentworth Point NSW 2127 (GG01 - GG09)		
	Sample ID	**Sample Location/Description/Weight or Size**	**Analysis Result**
10	J169135-01 PACM1	Sample Collected Near GG7. Unpainted grey compacted fibre-cement sheet material M: ~ 10.4 g D: ~ 45 x 25 x 10 mm	**Chrysotile (white asbestos)** **Amosite (brown asbestos)** **Crocidolite (blue asbestos)**

*** Shaded row with bolded text indicates sample contains a positive Analysis Result for asbestos.**

If Synthetic Mineral Fibre and Organic Fibre are not stated in Analysis Results, it implies not detected.

NOTE 1 The reporting limit for this non-homogeneous analysis is 0.1g/kg (0.01%). The above result can be interpreted that the sample contains no detectable 'respirable' asbestos fibres (AS4964-2004 Clause 9.5).

NOTE 2 Soil analysis conducted in accordance with WA Guidelines for the assessment, remediation and management of asbestos-contaminated sites (May 2009), Recommended procedures for laboratory analysis of asbestos in soil (June 2011) and NEPM Schedule B1: Guideline on investigation levels for soil & groundwater, Schedule B2: Guideline on site characterisation.

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Report Date: Friday, 09/07/2021

Our ref: C123934:J169135-01 - V2

Sandra Lim
NSW Department of Education
Level 9, 259 George Street
SYDNEY NSW 2000

Dear Sandra,

Re: Asbestos Identification Analysis - Proposed Sydney Olympic Park High School, 9 Burroway Road, Wentworth Point NSW 2127 (BH Samples)

This letter presents the results of asbestos fibre identification analysis performed on 7 samples collected by Shihui Wang of Greencap on Monday, 03 May 2021. The samples were collected from Proposed Sydney Olympic Park High School, 9 Burroway Road, Wentworth Point NSW 2127 (BH Samples).

All sample analysis was performed using polarised light microscopy, including dispersion staining and trace analysis in our Sydney Laboratory by the method of Australian Standard AS4964-2004 and supplementary work instruction in house method LAB04 Asbestos Identification by PLM. Any and all services carried out by Greencap for the Client are subject to the Terms and Conditions listed on the Greencap website at https://www.greencap.com.au/terms-conditions and are governed by our statements of limitation available at https://www.greencap.com.au/statements-limitation .

The analysis was completed on Tuesday, 11 May 2021.

The samples will be kept for three months and then disposed of, unless otherwise directed.

The results of the asbestos identification analysis are presented in the appended table. Accreditation covers testing activities only, sampling activity is outside the scope of ISO 17025 accreditation. Results relate only to the items tested and are for the sole use by the client. Please note this report replaces the previous version issued on Tuesday, 11 May 2021 . Amendments were made to the number of samples included in the report. The changes were made at the client's request to reduce the number of samples and report the results only within the new site boundary. This has no bearing on the analysis results, which remain unchanged.

Should you require further information please contact Shihui Wang.

Yours sincerely,
Greencap

Vince Nguyen : Approved Identifier

Vince Nguyen : Approved Signatory

Report Date: Friday, 09/07/2021 Our ref: C123934:J169135-01 - V2

Site Location:	Proposed Sydney Olympic Park High School, 9 Burroway Road, Wentworth Point NSW 2127 (BH Samples)		
	Sample ID	**Sample Location/Description/Weight or Size**	**Analysis Result**
1	J169135-01 BH1 (1.2-1.4)	Samples Collected From Push Tube At Borehole 1 Grey non-homogenous sandy soil, rocks, organic matter & loose fibres ~ 649.5 g	No Asbestos Detected At or Above Reporting Limit Organic Fibres NOTE 1 & 2
2	J169135-01 BH2 (0.3-0.7)	Samples Collected From Push Tube At Borehole 2 Brown-grey non-homogenous clay soil, rocks, organic matter & loose fibres ~ 604.2 g	No Asbestos Detected At or Above Reporting Limit Organic Fibres NOTE 1 & 2
3	J169135-01 BH3 (1.0-1.2)	Samples Collected From Push Tube At Borehole 3 Brown-grey non-homogenous clay soil, rocks, organic matter & loose fibres ~ 577.6 g	No Asbestos Detected At or Above Reporting Limit Organic Fibres NOTE 1 & 2
4	J169135-01 BH4 (0.4-0.5)	Samples Collected From Push Tube At Borehole 4 Brown-grey non-homogenous clay soil, rocks, organic matter & loose fibres ~ 373.9 g	No Asbestos Detected At or Above Reporting Limit Organic Fibres NOTE 1 & 2
5	J169135-01 BH5 (0.4-0.8)	Samples Collected From Push Tube At Borehole 5 Brown-grey non-homogenous clay soil, rocks, organic matter & loose fibres ~ 787.3 g	No Asbestos Detected At or Above Reporting Limit Organic Fibres NOTE 1 & 2
6	J169135-01 BH10 (0.5-0.9)	Samples Collected From Push Tube At Borehole 10 Grey non-homogenous sandy soil, rocks, organic matter & loose fibres ~ 1016.8 g	No Asbestos Detected At or Above Reporting Limit Organic Fibres NOTE 1 & 2
7	J169135-01 PACM2	Sample Collected From Northern Side Of The Site Gate Unpainted grey compacted fibre-cement sheet material Weight: ~ 3.8 g Size: ~ 25 x 20 x 5 mm	**Chrysotile (white asbestos)**

*** Shaded row with bolded text indicates sample contains a positive Analysis Result for asbestos.**
If Synthetic Mineral Fibre and Organic Fibre are not stated in Analysis Results, it implies not detected.

NOTE 1 The reporting limit for this non-homogeneous analysis is 0.1g/kg (0.01%). The above result can be interpreted that the sample contains no detectable 'respirable' asbestos fibres (AS4964-2004 Clause 9.5).

NOTE 2 Soil analysis conducted in accordance with WA Guidelines for the assessment, remediation and management of asbestos-contaminated sites (May 2009), Recommended procedures for laboratory analysis of asbestos in soil (June 2011) and NEPM Schedule B1: Guideline on investigation levels for soil & groundwater, Schedule B2: Guideline on site characterisation.

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Report Date: Monday, 12/07/2021

Our ref: C123934:J169135-01 - V2

Sandra Lim
NSW Department of Education
Level 9, 259 George Street
SYDNEY NSW 2000

Dear Sandra,

Re: Asbestos Identification Analysis - Proposed Sydney Olympic Park High School, 9 Burroway Road, Wentworth Point NSW 2127 (BH Samples)

This letter presents the results of asbestos fibre identification analysis performed on 3 samples collected by Shihui Wang of Greencap on Friday, 14 May 2021. The samples were collected from Proposed Sydney Olympic Park High School, 9 Burroway Road, Wentworth Point NSW 2127 (BH Samples).

All sample analysis was performed using polarised light microscopy, including dispersion staining and trace analysis in our Sydney Laboratory by the method of Australian Standard AS4964-2004 and supplementary work instruction in house method LAB04 Asbestos Identification by PLM. Any and all services carried out by Greencap for the Client are subject to the Terms and Conditions listed on the Greencap website at https://www.greencap.com.au/terms-conditions and are governed by our statements of limitation available at https://www.greencap.com.au/statements-limitation .

The analysis was completed on Tuesday, 18 May 2021.

The samples will be kept for three months and then disposed of, unless otherwise directed.

The results of the asbestos identification analysis are presented in the appended table. Accreditation covers testing activities only, sampling activity is outside the scope of ISO 17025 accreditation. Results relate only to the items tested and are for the sole use by the client. Please note this report replaces the previous version issued on Tuesday, 18 May 2021 . Amendments were made to the number of samples included in the report. The changes were made at the client's request to reduce the number of samples and report the results only within the new site boundary. This has no bearing on the analysis results, which remain unchanged.

Should you require further information please contact Shihui Wang.

Yours sincerely,
Greencap

Vince Nguyen : Approved Identifier

Vince Nguyen : Approved Signatory

NATA
WORLD RECOGNISED ACCREDITATION

Report Date: Monday, 12/07/2021 Our ref: C123934:J169135-01 - V2

Site Location:	Proposed Sydney Olympic Park High School, 9 Burroway Road, Wentworth Point NSW 2127 (BH Samples)		
	Sample ID	**Sample Location/Description/Weight or Size**	**Analysis Result**
1	J169135-01 BH9-01 (0.9-1.0)	Samples Collected From test pit at BH9 Grey-pink non-homogenous sandy soil, rocks, organic matter & loose fibres ~ 1078.2 g	No Asbestos Detected At or Above Reporting Limit Organic Fibres NOTE 1 & 2
2	J169135-01 BH7-01 (0.5-0.6)	Samples Collected From test pit at BH7 Grey-pink non-homogenous sandy soil, rocks, organic matter & loose fibres ~ 916.6 g	No Asbestos Detected At or Above Reporting Limit Organic Fibres NOTE 1 & 2
3	J169135-01 BH6-01 (0.4-0.5)	Samples Collected From test pit at BH6 Grey-pink non-homogenous sandy soil, rocks, organic matter & loose fibres ~ 845.2 g	No Asbestos Detected At or Above Reporting Limit Organic Fibres NOTE 1 & 2

*** Shaded row with bolded text indicates sample contains a positive Analysis Result for asbestos.**
If Synthetic Mineral Fibre and Organic Fibre are not stated in Analysis Results, it implies not detected.

NOTE 1 The reporting limit for this non-homogeneous analysis is 0.1g/kg (0.01%). The above result can be interpreted that the sample contains no detectable 'respirable' asbestos fibres (AS4964-2004 Clause 9.5).

NOTE 2 Soil analysis conducted in accordance with WA Guidelines for the assessment, remediation and management of asbestos-contaminated sites (May 2009), Recommended procedures for laboratory analysis of asbestos in soil (June 2011) and NEPM Schedule B1: Guideline on investigation levels for soil & groundwater, Schedule B2: Guideline on site characterisation.

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Report Date: Wednesday, 25/08/2021 Our ref: C123934:J169135 - GG

Sandra Lim
NSW Department of Education
Level 9, 259 George Street
SYDNEY NSW 2000

Dear Sandra,

Re: Asbestos Identification Analysis - Proposed Sydney Olympic Park High School, 9 Burroway Road, Wentworth Point NSW 2127 (GG Samples)

This letter presents the results of asbestos fibre identification analysis performed on 3 samples collected by Shihui Wang of Greencap on Monday, 23 August 2021. The samples were collected from Proposed Sydney Olympic Park High School, 9 Burroway Road, Wentworth Point NSW 2127 (GG Samples).

All sample analysis was performed using polarised light microscopy, including dispersion staining and trace analysis in our Sydney Laboratory by the method of Australian Standard AS4964-2004 and supplementary work instruction in house method LAB04 Asbestos Identification by PLM. Any and all services carried out by Greencap for the Client are subject to the Terms and Conditions listed on the Greencap website at https://www.greencap.com.au/terms-conditions and are governed by our statements of limitation available at https://www.greencap.com.au/statements-limitation .

The analysis was completed on Wednesday, 25 August 2021.

The samples will be kept for three months and then disposed of, unless otherwise directed.

The results of the asbestos identification analysis are presented in the appended table. Accreditation covers testing activities only, sampling activity is outside the scope of ISO 17025 accreditation. Results relate only to the items tested and are for the sole use by the client.

Should you require further information please contact Shihui Wang.

Yours sincerely,
Greencap

Vince Nguyen : Approved Identifier

Vince Nguyen : Approved Signatory

NATA
WORLD RECOGNISED ACCREDITATION

Report Date: Wednesday, 25/08/2021 Our ref: C123934:J169135 - GG

Site Location:	Proposed Sydney Olympic Park High School, 9 Burroway Road, Wentworth Point NSW 2127 (GG Samples)		
	Sample ID	**Sample Location/Description/Weight or Size**	**Analysis Result**
1	J169135 - GG GG10 (0.3 - 0.4)	Samples collected during borehole drilling at GG10 Brown-grey non-homogenous sandy soil, rocks, organic matter & loose fibres, including fibre cement fragments and discrete fibre bundles of white & brown asbestos of approximately 1.97g (>10mm fraction), 0.10g (<7mm & >2mm fraction) and 0.0022g (<2mm fraction). * This is estimated to be above the reporting limit of 0.1g/kg (0.21% w/w) ~ 1001.3 g	**Chrysotile (white asbestos)** **Amosite (brown asbestos)** **Organic Fibres** **NOTE 1 & 2**
2	J169135 - GG GG11 (0.2 - 0.3)	Samples collected during borehole drilling at GG11 Grey-brown non-homogenous sandy soil, rocks, organic matter & loose fibres ~ 1097.8.g	No Asbestos Detected At or Above Reporting Limit Organic Fibres NOTE 1 & 2
3	J169135 - GG GG12 (0.4 - 0.5)	Samples collected during borehole drilling at GG12 Red-brown non-homogenous clay soil, rocks, organic matter & loose fibres ~ 935.0 g	No Asbestos Detected At or Above Reporting Limit Organic Fibres NOTE 1 & 2

*** Shaded row with bolded text indicates sample contains a positive Analysis Result for asbestos.**

If Synthetic Mineral Fibre and Organic Fibre are not stated in Analysis Results, it implies not detected.

NOTE 1 The reporting limit for this non-homogeneous analysis is 0.1g/kg (0.01%). The above result can be interpreted that the sample contains no detectable 'respirable' asbestos fibres (AS4964-2004 Clause 9.5).

NOTE 2 Soil analysis conducted in accordance with WA Guidelines for the assessment, remediation and management of asbestos-contaminated sites (May 2009), Recommended procedures for laboratory analysis of asbestos in soil (June 2011) and NEPM Schedule B1: Guideline on investigation levels for soil & groundwater, Schedule B2: Guideline on site characterisation.

Results denoted with * are outside our scope of accreditation.