RED BUS SERVICES PTY LTD

PRELIMINARY SITE INVESTIGATION TARGETED SOIL AND GROUNDWATER ASSESSMENT

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PRELIMINARY SITE INVESTIGATION
TARGETED SOIL AND GROUNDWATER ASSESSMENT

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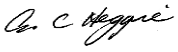
Approved by:	Adrian Heggie	04/10/2022	

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ABBREVIATIONS

$>C_6–C_{10}$	Light petroleum hydrocarbon chain fraction (for example petrol)
$>C_{10}–C_{16}$	Medium petroleum hydrocarbon chain fraction (for example jet fuel, kerosene, diesel)
$>C_{16}–C_{34}$	Medium-heavy petroleum hydrocarbon chain fraction (for example diesel, lube oils)
$>C_{34}–C_{40}$	Heavy petroleum hydrocarbon chain fraction (for example lube oils, waxes)
µg/L	Micrograms per litre
ANZECC	Australian and New Zealand Environment and Conservation Council
ARMCANZ	Agriculture, and Resource Management Council of Australia and New Zealand
BTEX	Benzene, toluene, ethylbenzene and xylene
BTEXN	Benzene, toluene, ethylbenzene, xylene and naphthalene
CoPCs	Contaminants of potential concern
CRC CARE	Cooperative Research Council for Contamination Assessment and Remediation of the Environment
CSM	Conceptual Site Model
DQO	Data quality objective
GME	Groundwater monitoring event
HSL	Health screening level
LNAPL	Light non-aqueous phase liquid
mAHD	Metres in Australian Height Datum
mBGL	Metres below ground level
mg/L	Milligrams per litre
mg/kg	Milligrams per kilogram
NATA	National Association of Testing Authorities
NEPM	National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013)
NHMRC	National Health and Medical Research Council
NRMMC	National Resource Management Ministerial Council
PAHs	Polycyclic aromatic hydrocarbons
ppm	Parts per million
PQL	Practical quantitation limit
RPD	Relative per cent difference
SWL	Standing water level
TRH	Total recoverable hydrocarbons

EXECUTIVE SUMMARY

This report presents the findings of a preliminary site investigation (PSI) with targeted soil sampling and groundwater monitoring at Red Bus Services Pty Ltd (Red Bus) at 682a The Entrance Road, Bateau Bay (the site).

Red Bus is looking to cease operations as a bus depot and maintenance facility at the site within the next two years, with Red Bus planning on having the site rezoned from the current zoning of SP2 Infrastructure – Road and Traffic Facility to R1 – General Residential in keeping with the surrounding properties to the north and south. The site currently contains several buildings including administration, caretakers residential dwelling, workshops and storage, internal roads and car parking along with a dam.

The scope of the ESA included a desktop assessment and the advancement of ten soil boreholes and monitoring of existing onsite groundwater wells.

Concentrations of benzene, toluene, ethylbenzene, xylene and naphthalene (BTEXN), tola recoverable hydrocarbons (TRHs) and polycyclic aromatic hydrocarbons (PAHs) were below adopted assessment criteria in soil. Concentrations of metals were below the adopted assessment criteria with the exception of nickel at two locations. The concentrations were above the ecological criteria, however WSP considers the detection of nickel to be negligible risk to the ecological receptors due to current and future usage of the site and lack of significant ecological population requiring protection on site.

Groundwater flow direction is confirmed to be towards the north. Concentrations of benzene, toluene, ethylbenzene and xylene (BTEX) and volatile organic compounds (VOCs) were below adopted assessment criteria in groundwater; however, it is noted that TRHs exceeded the adopted assessment criteria for HSL A & B (re: potential vapour intrusion risk) in groundwater wells located in the bowser area and immediately to the north. The groundwater results show that the impact is from diesel and as such, vapour risks should be minimal or negligible. However, diesel in groundwater presents, partially in F2 C_{10}-C_{16} TRH fraction and there were several wells exceeding the F2 criterion. This uncertainty can be resolved through soil vapour measures.

The identified concentrations are not considered to pose a risk to human health in the current site condition as the area is well ventilated and covered in concrete or asphalt hardstand unless site excavations are undertaken. On account of the exceedances of criteria relating to vapour intrusion risk arising from hydrocarbons in groundwater WSP considers that there is a possible risk to future residential receptors in the case of redevelopment of the site. This could be mitigated with additional groundwater and soil vapour assessment within the impacted area to aid in determining the potential risk to human health, and if required the development of a remedial action plan (RAP) and/or site management plan (SMP). Concentrations of metals exceeded the ecological freshwater criteria for of copper, mercury and zinc and recreational water for arsenic. These concentrations are not considered relevant for the site given the intension of redevelopment for residential land use.

WSP considers site suitable for continued commercial/industrial use, though prior to any redevelopment, it is recommended that further assessment of groundwater and vapour intrusion be undertaken with relevance to human health of the proposed development. It is noted that the consent authority for a development application or an application for rezoning of land must consider, amongst other things, whether the land is contaminated and whether the land is suitable for the proposed use.

1 PROJECT BACKGROUND

1.1 BACKGROUND

WSP Australia Pty Ltd (WSP) was engaged by Progressive Property Solutions (PPS) on behalf of Red Bus Services Pty Ltd to conduct a preliminary site investigation (PSI) with targeted soil sampling and groundwater monitoring at 682a The Entrance Road, Bateau Bay (the site), presented in Figure 1 of Appendix A.

WSP understands that the PSI is required for due diligence purposes as Red Bus Services is planning to cease operations at the site, with Central Coast Council requiring a PSI prior to the lodgement of a Request to Amend a Local Environment Plan. The primary project objective is to identify and assess potential environmental contamination risks at the site in the context of its proposed closure and its intended redevelopment.

A previous diesel leak identified in November 2001, occurred due to failure of an in-ground pump component, with an estimate loss of product of 16 to 20 kilolitres (kL) with a worst case of 35 kL. Remediation including vacuum truck and active skimmer system was utilised from 2002 to 2012.

The investigation was undertaken in general accordance with WSP's proposal, which was accepted by Red Bus Services on 7 September 2021.

1.2 OBJECTIVES

The objective of the PSI assessment was to assess the presence and extent of potential hydrocarbon contamination at the site. The assessment was required to generally comply with the *National Environment Protection (Assessment of Site Contamination) Measure 1999* (NEPM; as amended 2013), to evaluate the site with respect to:

- the site's suitability for ongoing commercial land use;
- the potential site suitability for rezoning for general residential land use; and
- the extent of known contamination in soil and groundwater relating to the storage of diesel and associated products on the site.

1.3 SCOPE

The following scope of work was completed in the preparation of this document:

- a desktop study of the site to gather the following information:
  - Property details and location;
  - Current and proposed land use, site zoning and environmental planning controls;
  - Physical site setting, including geology and hydrogeology, mine subsidence, acid sulfate soils, topography and local and regional soil types and landscapes;
- A review of historical site documentation including:
  - Current and former use of the site;
  - Historical aerial photographs;
  - NSW Environmental Protection Authority (EPA) records including the notified sites register, records of regulated sites and environmental protection licences;

  - Bore records held by the NSW Department of Industry;
- The completion of a site inspection;
- The completion of an intrusive investigation consisting of 10 boreholes; and
- Groundwater monitoring and sampling of existing groundwater wells.

2 SITE INFORMATION

2.1 SITE DESCRIPTION

Details of the site location, ownership, zoning and current site use are provided in Table 2.1 below.

Table 2.1 Site Details

Site address	682a The Entrance Road, Bateau Bay
Legal description	Lot 3 in DP716082
Size	Approximately 5.2 ha
Current use	Bus depot, including service and maintenance
Zoning	SP2 Infrastructure – Road and Traffic Facility
Local planning instrument	Wyong Local Environment Plan 2013

2.2 SITE LAYOUT AND OPERATIONS

WSP undertook a site inspection on 5 October 2021, with observations of the current site condition described in Table 2.2.

Table 2.2 Site conditions and observations

Topography	The site slopes down from the east to the west. The easterly portion steeply sloped, with an approximate gradient of 25%, with the site becoming flat, with areas for car and bus parking and maintenance, with another steep slope in the middle portion of the site, with the site sloping more gently towards the west and Coleridge Road.
Site conditions	The eastern portion of the site is grassed on the slope with asphalt or concrete hardstand with five large metal buildings utilised for maintenance, one small metal building utilised for chemical storage along with a small brick building utilised as a break/washroom, all buildings were in good condition. The car park and bus parking areas were asphalted, with the car park in good condition and the bus parking area having minor potholing through the area. The grassed area to the west was in good condition. There were two brick buildings, residential and the site office, both were in good condition. The road through the site was asphalted and in good condition.
Visual signs of contamination	There were no significant signs of contamination, with some oil stains throughout the bus parking area.
Presence of drums or waste	There were drums present within the site except for 205 L drums utilised for chemical/petroleum product storage. There was no visual evidence of leaks. There was no evidence of waste apart from a stack of bus tyres.
Odours	There were no noticeable odours within the site.

Evidence of current or former petroleum faculties	The site had three ASTs. Two were utilised for diesel with capacities of 90,820 L and 45,000 L, with the other one utilised for Adblue® with a safe fill level of 6,700 L. There were two bowsers on either side of the Adblue® AST.
Chemicals stored on-site	There were cleaning chemicals and paints stored in a dedicated chemical storage building. Other chemicals observed were stored in a dedicated area of the buildings or work area.
Evidence of waste burial	There was no evidence of any waste being buried during the inspection.
Visible signs of plant stress	There were no visible signs of any plant stress during the inspection.

2.3 SURROUNDING LAND USES

The site is located within a predominantly low-density residential area. Adjacent land uses include:

- North: low-density residential dwellings, along with roads and Coleridge Reserve.
- East: Water storage facility on the north eastern portion of the site and Wyrrabalong National Park.
- South: Residential, along with roads and Wyrrabalong National Park.
- West: Residential, roads including The Entrance Road (Central Coast Highway and vacant undeveloped land).

It is considered unlikely that adjacent land uses would pose a contamination risk.

3 SITE HISTORY

3.1 HISTORICAL AERIAL PHOTOGRAPHS

WSP reviewed historical aerial photographs and Table 3.1 summarises the observations at the site and surrounding environment.

Table 3.1 Historical Aerial Photographs

1966 – B&W	The site appears to be vacant with no visible sit activities. The site appears to have minimal vegetation, which may have been cleared for a future development. The surrounding land appears to be a mix of undeveloped bushland, semirural and residential properties.
1976 - Colour	The site appears to be some type of quarry, with serval buildings on the western portion of the site. There appears to be several unpaved roads, with most of the site cleared of vegetation. The area to the north is partially developed with residential properties. The area to the east is undeveloped bushland. The area to the south appears to have scattered residential dwellings along with undeveloped bushland. The area to the west appears to be residential, then rural properties and undeveloped land.
1984 – B&W	The site appears to be a bus depot, with a paved road from the entrance off Coleridge Road to a large paved area with several large buildings and buses in the east central portion of the site. There appears to be a small paved area, car park, in the northern portion of the site, with a large unpaved area directly to the east of the car park. There appear to be several buildings in the western portion of the site, potentially residential. The area to the north appears to have more residential properties. The area to the north east appears to have a large water storage facility. The area appears to have significant more vegetation that the previous photograph. The area to the south west appears to have more residential properties. The area to the west has changed little since the previous photograph.
1996 - Colour	The site has not change significantly, with a dam visible west of the main paved area. There appears to be more vegetation, including large trees. No observed changes to the surrounding area since the previous aerial photograph.
2004 - Colour	The site has changed little since the previous photograph, with the exception the previously unpaved area east of the car park now appearing to be paved. The areas to the north, east and south have changed little, with additional residential dwellings to the south west of the site, on the western side of The Entrance Road. The area to the north west appears to have a roundabout on The Entrance Road, with a road into residential subdivision.
2014 - Colour	The site has changed little since the previous photograph. No observed changes to the surrounding area since the previous photograph, except for what the development of a sporting field with car park to the west.
2021 - Colour	No observed changes to the site since the previous aerial photograph.

	No observed changes to the surrounding area since the previous photograph.

3.2 PUBLIC DATABASE SEARCH

3.2.1 SITE NOTIFICATIONS

WSP undertook a search of the Department of Agriculture, Water and the Environment heritage register on 20 October 2021, and identified that there are no Aboriginal Places or items on the State Heritage Register within the vicinity of the site.

3.2.2 CONTAMINATED LAND DATABASE SEARCH

A search of the NSW EPA Contaminated Sites database (www.epa.nsw.gov.au/prclmapp/searchregister), conducted 20 October 2021, indicated that the site is not currently registered on the list of sites notified to NSW EPA, or currently regulated by the NSW EPA as a contaminated site. There are two sites within the suburb of Bateau Bay that are listed as notified:

- Former landfill, The Entrance Road, with contamination currently regulated under CLM Act; and
- Woolworths Service Station Bateau Bay, 9 Bay Village Road, with regulation under CLM Act not being required.

WSP undertook a search of the NSW EPA public lands register and did not find any record of Environment Protection licences, applications, notices, audits or pollution studies and reduction programmes applicable to the site. There is one licenced site within the suburb of Bateau Bay, that being Bateau Bay Sewage Treatment Plant.

3.2.3 SAFEWORK NSW

WSP undertook a SafeWork NSW search on 20 September 2021. In summary:

- One above ground diesel storage tank, with a capacity of 55,000 L (Class C1);
- One underground petrol tank, with a capacity of 12,000 L (Class 3);
- One above ground engine oil storage tank, with a capacity of 3,000 L; and
- One roofed store, with a capacity of 500 L (Class 3);

3.3 ENVIRONMENTAL SETTING

3.3.1 GEOLOGY

The NSW Planning and Environment state wide seamless geological map (https://minview.geoscience.nsw.gov.au/#/?l=&lat=148.9143431&lon=-32.6560775&z=6&bm=bm1 – accessed 27 October 2021) indicates that the regional geology underlying the majority of the site is characterised by coastal deposits of mantled dune facies. The material is indurated marine deposits and aeolian reworked fine to coarse grained lithic sand with abundant carbonate, sporadic humic debris in stabilised dunes. The western edge of the site is Gosford Subgroup, including Mangrove Sandstone, Ourimbah Sandstone and Wyong Sandstone, with it being interbedded laminite, shale and fine to coarse grained quartz to quartz lithic sandstone, with minor red clays.

The soil landscape as identified in NSW OEH eSPADE (online access to land and soil information primarily sourced from the NSW Soil and Land Information System (SALIS) (https://www.environment.nsw.gov.au/espade2webapp – accessed September 2021), is that of a disturbed terrain. This terrain is typified by a highly variable soil profile. The attributes associated with this profile are therefore also highly variable.

The site slopes down from the east to the west. The easterly portion steeply sloped, with an approximate gradient of 25%, with the site becoming flat, with areas for car and bus parking and maintenance, with another steep slope in the middle portion of the site, with the site sloping more gently towards the west and Coleridge Road.

3.3.2 HYDROGEOLOGY

The nearest surface water body is a potential man-made dam approximately 330 m south and the South Pacific Ocean approximately 650 m east of the site.

Groundwater flow direction is thought to be north, based on previous groundwater monitoring events at the site.

A review of the Department of Primary Industries registered groundwater bore database (https://realtimedata.waternsw.com.au/water.stm) conducted on 20 October 2021 did not identify any registered groundwater bores within a 500 m radius of the site. However, it is known that there are groundwater monitoring wells within the site.

4 PREVIOUS INVESTIGATIONS

A groundwater sampling and site assessment report was undertaken by Parsons Brinckerhoff at the site in 2012 to assess the current contamination status of groundwater at the site. The groundwater had previously been contaminated in 2001 after an underground petroleum storage system (UPSS) released diesel into the groundwater. A product recovery system was installed at the site 2002, with the remediation system having been decommissioned and removed prior to the assessment.

The scope of works included review of previous site data, sampling of groundwater from accessible on-site monitoring wells, analysis of samples for contaminants of concern, total petroleum hydrocarbons (TPH), benzene, toluene, ethylbenzene and xylene (BTEX) and lead and preparation of a report. Twenty three wells were sampled, with groundwater depths approximately 8.5m below ground level (BGL). Groundwater flow is thought to be to the north west.

Phase separated hydrocarbons (PSH) were detected in one well (MW27) with a thickness of 10.1 cm, with hydrocarbon sheen and odours noted in 11 of the monitoring wells.

Based on filed observations and analytical results, the groundwater contaminant plume appeared to be centred near the diesel bowsers within the refuelling bay. The plume has been delineated to the south and west, but not to the north or the east.

It was considered that there was no unacceptable risk to commercial site users, or maintenance workers in shallow trenches on site as TPH C_6-C_{10} was lower than the adopted HSLs. Given the distance to the nearest down gradient surface water receptor (1 km north west), the immediate risk to the receptor was considered low, though the plume did appear to be migrating.

While the presence of PSH and dissolved phase impacts were identified, it was considered that the site does not pose an unacceptable risk to current receptors, the NSW DEC “Guidelines for the Assessment and Management of Groundwater Contamination” states that non-aqueous phase liquids (NAPLs) in contact with groundwater constitute groundwater contamination and must be removed or treated as much as practicable.

5 SAMPLING, ANALYSIS AND QUALITY PLAN

5.1 DATA QUALITY OBJECTIVES

This section describes the process used in the planning of the sampling and remediation works to ensure that the best approach was taken with regard to the selected methodologies and sampling plans.

The *National Environment Protection (Assessment of Site Contamination) Measure 1999* (NEPM; as amended 2013) Schedule B2, Guideline on Site Characterisation, describes a data quality objectives (DQO) process. Essential components of the DQO process include:

- a statement of pre-determined DQOs for field and laboratory procedures, including quantitative DQOs;
- a plan to achieve pre-determined DQOs; and
- procedures to be undertaken if the data do not meet the expected DQOs.

Systematic planning is critical for the successful implementation of an environmental assessment and is used to define the type, quantity and quality of data needed to inform decisions. The United States Environmental Protection Agency has defined a process for establishing data quality objectives (DQOs); this is referenced in the *National Environmental Protection (Assessment of Site Contamination) Amendment Measure 1999* (NEPM, as amended 2013).

The DQO process is a seven-step iterative planning approach. The outputs of the DQO process are qualitative and quantitative statements which are developed in the first six steps. They define the purpose of the data collection effort, clarify what the data should represent to satisfy this purpose and specify the performance requirements for the quality of information to be obtained from the data. The output from the first six steps is then used in the seventh step to develop the data collection design that meets all performance criteria and other design requirements and constraints. The DQO process adopted for the assessment and validation works is outlined in Table 5.1.

Table 5.1 DQO Process

STEP	DESCRIPTION	OUTCOME
1	State the problem	Phase separated hydrocarbon contamination in groundwater has been historically identified at the site, since a leak was identified in UPSS infrastructure in 2001. The preliminary site investigation is required to facilitate the lodgement of a “Request to Amend a Local Environmental Plan”, and to determine the contamination status of the site.
2	Identify the decisions/goal of the investigation	The goals of the investigation are to confirm the presence and extent of groundwater and soil impacts at the site.
3	Identify the inputs to the decision	The inputs required to make the above decisions include: — Information obtained as part of the desktop study; — Historical concentrations of contaminants detected in soil and groundwater in wells located near the bowsers and directly north of the ASTs; — Relevant assessment criteria for soil and groundwater;

STEP	DESCRIPTION	OUTCOME
4	Define the study boundaries/ constraints on data	The boundaries of the investigation include: — spatial boundaries – defined as the geographical extent of the investigation area (as shown on figures in Appendix A); and — temporal boundaries – defined as the date of the project inception to the completion of the fieldwork under the proposed investigation plan.
5	Develop a decision rule - The purpose of this step is to define the parameters of interest, specify the action levels and combine the outputs of the previous DQO steps into an 'if…then…' decision rule that defines the conditions that would cause the decision maker to choose alternative actions.	The parameters of interest are concentrations of contaminants of concern in soil and groundwater. An assessment of the concentrations of the contaminants of concern is to be undertaken to complete the site investigation and the suitability for continued commercial land use or for rezoning for general residential land use. The null hypothesis, H_0 is that the site or decision area is not suitable for the residential land use i.e. That the groundwater and/or soil is contaminated. The alternative hypothesis (HA), is that the site or decision area is suitable for residential land use i.e. That the soil and groundwater and/or soil is not contaminated. In summary, if concentrations of contaminants of concern exceed the adopted assessment criteria in soil and/or groundwater, then further investigation and/or remedial options will need to be considered.
6	Specify limits on decision errors –	The two decision errors are as follows: — Type 1 error: the site is considered not to be contaminated when it actually is; and — Type 2 error: the site is considered contaminated when it is not.
7	Optimise the design for obtaining data - The purpose of this step is to identify a resource-effective data collection design for generating data that satisfies the DQOs.	A targeted sampling pattern has been adopted in this investigation, as the inferred extent of contamination is understood from data collected by Parsons Brinckerhoff (2012). Criteria used to evaluate analytical data are not threshold values at which an environmental problem is likely to occur. Rather, if the trigger values are exceeded, further action is required which may include additional site-specific assessment to determine if there is a risk or whether management/remedial action should be undertaken.

5.2 SAMPLING AND ANALYSIS PLAN

Soil sampling density was determined on a targeted approach, with six locations to be placed around the above ground storage (AST), with an additional four locations place around the site. A total of 10 intrusive soil sampling locations were proposed to be advanced by a track mounted drill rig to provide assessment of the site.

34 historical groundwater wells were reported to have been located within the site, with the last known groundwater monitoring event in 2012 identifying 24 monitoring wells. It was determined that up to 24 locations would be sampled.

Soil and groundwater samples are to be dispatched to Eurofins Pty Ltd (Eurofins) under chain of custody documentation. Primary and intra-laboratory duplicates samples were analysed at Eurofins and inter-laboratory samples were analysed at Australian Laboratory Services Pty Ltd (ALS).

The methodology adopted during soil and groundwater sampling is presented in Table 5.2.

Table 5.2 Soil and groundwater investigation methodology

ACTIVITY	DETAILS
Soil sampling	
Subsurface clearance	Prior to the intrusive investigation, a Dial Before You Dig search was conducted and proposed borehole locations were scanned and cleared for underground services by a certified utility locating subcontractor.
Drilling	10 boreholes were advanced with a solid flight auger to a maximum depth of 4.5 mBGL. Each bore location was first cleared with a non-destructive advancement method (hand auger) up to a maximum depth of 1.5 mBGL prior to the advancement of the bores with a drill rig.
Soil sampling	Soil samples were collected directly from the auger using nitrile gloves. Samples were collected at 0.2 m BGL, 0.5 m BGL, 1.0 m BGL and every metre thereafter, with additional samples taken at any indication of potential contamination. Samples were field screened for volatiles using a PID. Boreholes were logged, with details including texture, colour, odour, moisture content and indications of contamination noted. Logs are provided in Appendix F.
Sample analysis	Soil samples were analysed for potential contaminants of concern, including: — Contaminants of concern were identified for the site as: — TRHs; — BTEXN; — PAHs; — Heavy metals (As, Cd, Cr, Cu, Pb, Ni, Zn and Hg); and — Asbestos
Decontamination	Disposable nitrile gloves were worn during sampling and were changed between sampling locations to minimise the potential for cross-contamination.
Groundwater sampling	
Well gauging	All wells were gauged for standing water level and for the presence of LNAPL using an interface probe. Calibration certificates are provided in Appendix G.
Well purging and sampling	Groundwater samples were collected with bailers. Sampling was carried out in accordance with Australian/New Zealand Standard *Water quality sampling, Part 11: Guidance on sampling of ground waters*, AS/NZS 5667.11, 1998. Field parameters (pH, dissolved oxygen, reduction/oxidation (redox), electrical conductivity and temperature) were monitored using a water quality meter, calibrated prior to use. Calibration certificates are provided in Appendix G. The groundwater was visually assessed for turbidity and evidence of contamination, such as odour or visible hydrocarbon sheen.

Sample analysis	Groundwater samples were to be analysed for potential contaminants of concern, including: — TRHs; — BTEXN; — VOCs; and — Heavy metals (As, Cd, Cr, Cu, Pb, Ni, Zn and Hg)
Decontamination	Non-dedicated field equipment (i.e. interface probe) was decontaminated using Decon 90® detergent and rinsed with potable water between sampling of each well to minimise the potential for cross-contamination. Disposable nitrile gloves were changed between each sampling location.
General sample collection	
Quality assurance/quality control (QA/QC) samples	Soil and groundwater sample duplicates were collected with a frequency of approximately 1 duplicate pair every 20 primary samples.
Sample preservation	All samples were collected in laboratory-supplied containers. All samples were stored on ice in an insulated chest immediately after sampling. Samples were kept chilled prior to and during delivery to the selected laboratories via a courier under 'chain of custody' documentation.
Sample blanks	Sample blanks were collected to verify that cross-contamination was unlikely to have occurred during sampling or during transportation of the samples. Equipment rinsate and trip blank samples were collected and analysed for TRHs and BTEXN.
Laboratory quality control procedures	Selected laboratories are accredited by the National Association of Testing Authorities for the required analyses. The laboratories performed internal QA/QC programs and used appropriate detection limits for the selected analyses. The following ranges were used as guidelines to acceptable results: — surrogates: 70-130% recovery; — matrix spikes: 70-140% recovery (organics) and 80-120% (inorganics); — control samples: 70-130% recovery (soil) and 80-120% (water); — duplicate samples: relative per cent difference (RPD) less than 30%; and — method blanks: 0 to less than limit of reporting (LOR).

5.3 DATA QUALITY ASSURANCE

To comply with sampling quality assurance data quality indicators (DQIs) for field sampling and laboratory analyses were complied with. The data obtained has been assessed as per the following field and laboratory DQIs as provided in Table 5.3 and

Table 5.4.

Table 5.3 DQIs for field techniques

DQI	TECHNIQUE
Precision	WSP standard operating procedures (SOPs) appropriate and complied with.

DQI	TECHNIQUE
	Collection of intra-laboratory duplicate samples at appropriate rates (5%).
	Intra- and inter-laboratory duplicate samples were co-collected
Accuracy	WSP SOPs appropriate and complied with
	Collection and analysis of inter-laboratory duplicates at appropriate rates (5%)
	Inter-laboratory samples were co-collected in the field
	Submission of rinsate blanks and trip blanks per laboratory batch.
Representativeness	Appropriate media sampled
Comparability	Fieldwork was conducted by Jess Watson of WSP, who is an adequately trained environmental scientist
	Fieldwork was conducted under consistent sampling conditions (temperature, rainfall, wind)
	The same type of samples collected.
Completeness	All required samples collected
	WSP standard operating procedures (SOPs) appropriate and complied with.
	Fieldnotes, calibration certificates and laboratory reports are attached to this report.

Table 5.4 DQIs for analytical laboratories

DQI	DESCRIPTION	ACCEPTABLE LIMIT
Precision	Relative per cent differences (RPDs) for TRH and BTEXN in collected samples	Soil – <30% RPD Groundwater – <50% RPD for volatiles, <30% RPDs for semi-volatiles
	National Association of Testing Authorities (NATA) certification of laboratories	NATA accreditation for analyses performed
Accuracy	Analysis of trip blanks	Below limits of reporting (LORs) for contaminants analysed
	Analysis of rinsate blanks when non-dedicated sampling equipment is being used	Below LORs for contaminants analysed
	Analysis of field blanks	Below LORs for contaminants analysed
	Analysis of laboratory matrix spikes, laboratory control samples and surrogate spikes	70-130% inorganics/metals 60-140% organics 10-40% semi-volatile organic compounds
	RPDs for TRH and BTEXN in collected samples	Soil – <30% RPD Groundwater – <100% RPD for volatiles, <30% RPDs for semi-volatiles
Representativeness	All required samples analysed	As per sampling plan
Comparability	Sample analytical methods used (including clean-up)	As per NEPM (2013)

DQI	DESCRIPTION	ACCEPTABLE LIMIT
	Same units	Justify/quantify if different
	Same laboratories	Justify/quantify if different
	Sample LORs	Less than nominated criteria
Completeness	All critical samples analysed	As per sampling plan
	All required analytes analysed	As per sampling plan
	Appropriate methods and LORs	As per NEPM (2013)
	Sample documentation complete	As per NEPM (2013)
	Sample holding times complied with	As per NEPM (2013)

6 SITE ASSESSMENT CRITERIA

The *National Environmental Protection (Assessment of Site Contamination) Amendment Measure 1999* (NEPM, as amended 2013) Schedule B1 Investigation Levels for Soil and Groundwater has been used to assess impacts at the site, as it provides a framework for the use of investigation and screening levels based on a matrix of human health and ecological risks.

6.1 SOIL CRITERIA

To assess the presence and extent of soil contamination at a site, the NEPM (2013) provides health investigation levels (HILs) and health screening levels (HSLs) for the assessment of impacted soil.

HSLs have been developed for selected petroleum compounds and fractions and are applicable to assessing human health risk via the vapour intrusion and inhalation pathway. The HSLs depend on predominant soil physicochemical properties and land use scenarios. The HSLs are divided into four generic land use settings which range from low density residential (HSL A) to commercial/industrial sites (HSL D). The HSLs methodology also further specifies subsurface profile, with criteria presented for sand, silt and clay soils at several depth intervals. Considering that the sub-surface profile comprises of sand, HSL A (residential) criteria in sand has been adopted by this assessment.

HILs provide an assessment of potential risk to human health from chronic exposure to contaminants and have been developed based on land use setting for residential use (HIL A) to commercial/industrial use (HIL D). HIL A (residential) criteria has been adopted for the purpose of this investigation.

The Cooperative Research Council for Contamination Assessment and Remediation of the Environment (CRC CARE) Technical Report No. 10 (Friebel and Nadebaum, 2011) provides HSLs for petroleum hydrocarbons specifically for direct contact of intrusive maintenance workers with contaminated media and for vapour inhalation in shallow trenches. The criteria for sand have been adopted as a conservative measure for the purposes of this investigation.

Based on the findings of the previous investigation, groundwater is inferred to flow towards the north. Coleridge Reserve is directly to the north of the site, therefore the NEPM (2013) investigation levels for freshwater with a 95% level of species protection have been adopted.

A summary of the relevant adopted soil assessment criteria is outlined below in Table 6.1

Table 6.1 Adopted soil assessment criteria

ANALYTE	HSL A & B, SAND[1] (mg/kg)				MAINTENANCE WORKERS[2] (mg/kg)		
	0 - <1 m	1 - <2 m	2 - <4 m	4 m+	SHALLOW TRENCH, SAND		DIRECT CONTACT
					0 TO <2 m	2 TO <4 m	
TRH C_6–C_{10} less BTEX (F1)	45	70	110	200	NL	NL	82,000
TRH >C_{10}–C_{16} less naphthalene (F2)	110	240	440	NL	NL	NL	62,000
TRH C_{16}–C_{34} (F3)	-	-	-	-	-	-	85,000
TRH C_{34}–C_{40} (F4)	-	-	-	-	-	-	120,000
Benzene	0.5	0.5	0.5	0.5	77	160	1,100
Toluene	0.5	220	310	540	NL	NL	120,000
Ethylbenzene	55	NL	NL	NL	NL	NL	85,000

ANALYTE	HSL A & B, SAND[1] (mg/kg)				MAINTENANCE WORKERS[2] (mg/kg)		
	0 - <1 m	1 - <2 m	2 - <4 m	4 m+	SHALLOW TRENCH, SAND		DIRECT CONTACT
					0 TO <2 m	2 TO <4 m	
Total xylenes	40	60	95	170	NL	NL	130,000
Naphthalene	3	NL	NL	NL	NL	NL	29,000

(1) NEPM (2013) Schedule B1, Table 1A (3) *Soil HSLs for vapour intrusion*, commercial/industrial setting in sand

(2) CRC CARE (2011) Technical report No. 10

NL: Not limiting. A vapour source concentration for a petroleum mixture could not exceed a level that would result in the maximum allowable vapour risk for the given scenario

6.2 GROUNDWATER ASSESSMENT CRITERIA

Schedule B1 of the NEPM (2013) defines groundwater investigation levels (GILs) that have been developed for a broad range of metals and organic contaminants in groundwater. GILs are applicable for assessing human health and ecological risk from direct contact (including consumption) with groundwater. GILs are based on the following guidelines:

- Australian and New Zealand Conservation Council/Agriculture, and Resource Management Council of Australia and New Zealand 2000, *National water quality management strategy. Australian and New Zealand guidelines for fresh and marine water quality***.** This guideline has been superseded by an online resource prepared by the Australian and New Zealand Governments (ANZG) in 2018.
- National Health and Medical Research Council (NHMRC)/National Resource Management Ministerial Council (NRMMC) 2011, *Australian Drinking Water Guidelines 6* (ADWG) (Version 3.5, updated August 2018).
- NHMRC 2008, *Guidelines for Managing Risk in Recreational Waters.*

Schedule B1 also provides a framework for assessing the human health risk from petroleum compounds and fractions via the inhalation and direct contact pathways through the development and implementation of HSLs. The adopted carbon fraction ranges for the HSLs are based on TRH analysis after subtraction of BTEX compounds and naphthalene. The HSLs are divided into three generic land use settings which range from low to high density residential (HSL A & B) to commercial/industrial sites (HSL D). The HSL methodology further specifies subsurface profile, with criteria presented for sand, silt and clay soils at several depth intervals. Where there is reasonable doubt as to the appropriate soil texture to select, either a conservative selection should be made (i.e. sand) or laboratory analysis carried out to determine particle size and hence soil texture sub-class. The NEPM (2013) HSLs provide an indicative risk to receptors from vapours that could emanate from contaminated groundwater. Considering the potential on- and off-site receptors, the sub-surface profile consisting primarily of sand and the measured depth to groundwater, HSL A & B (residential) criteria in sand greater than 8 metres have been adopted.

It is understood that the NSW EPA policy is that the trigger values for the protection of 95% of aquatic ecosystems should be used except where contaminants are potentially bio-accumulative in which case the trigger values for the protection of 99% of species should be used. Therefore, we have selected trigger values for the protection of 95% of freshwater water species for the majority of contaminants.

The groundwater HSLs and investigation levels for the contaminants relevant to the site are summarised in Table 6.2.

Table 6.2 Groundwater health screening levels and groundwater investigation levels

CHEMICAL	DRINKING WATER(1) (µg/L)	HSL A & B(2) - SAND, WATER LEVEL GREATER THAN 8 m (µg/L)	FRESHWATER ECOSYSTEM(3) (µg/L)	RECREATIONAL WATER QUALITY(4) (µg/L)
TRH C_6–C_{10} less BTEX (F1)	-	1000	-	-
TRH >C_{10}–C_{16} less naphthalene (F2)	-	1000	-	-
Benzene	900	900	950	10
Toluene	800	NL	180	8,000
Ethylbenzene	300	NL	80	3,000
m- & p- xylene-	-	-	75	-
o-xylene	-	-	350	-
Total xylene	600	NL	-	6,000
Naphthalene (volatile)	-	NL	16	NL

(1) ADWG (2019) Health – Drinking water guidelines

(2) NEPM (2013) Schedule B1 Investigation levels for soil and groundwater

(3) ANZG (2018) Fresh and Marine Water Quality Guidelines – trigger values for 95% protection level of freshwater ecosystem

(4) NHMRC (2008) Recreational water guidelines

NL: not limiting;

- criteria are not available.

7 RESULTS AND DISCUSSION

7.1 FIELD OBSERVATIONS

A concrete hardstand forecourt was present across most of the site. Sample locations BH4 to BH8 were selected in the concrete hardstand forecourt near the UPSS infrastructure. Sample locations BH1, BH2, BH9 and BH10 were in grassed areas of the site (refer to Figure 2, Appendix A).

The sub-surface profile encountered during intrusive investigations at the site generally consisted of brown, gravelly sand fill to 0.5 m BGL, with underlying lithology comprising of brown to orange natural sand. Borehole location BH2 comprised of gravelly sand fill to 0.2 m BGL, with underlying grey-orange mottled clay fill to 2 m BGL, and natural sand encountered below.

Minimal signs of contamination were noted within the fill material (some coal ash and plastic), and no signs of contamination were observed in natural sands. Volatile vapours were detected at ambient concentrations by the PID for all samples.

7.2 SOIL ANALYTICAL RESULTS

Twenty soil samples were collected and analysed from 10 soil bores. In summary:

- Concentrations of metals were below adopted assessment criteria for all samples, except for nickel. Nickel exceeded EILs in two samples from BH1 and BH4;
- Concentrations of BTEXN were below the laboratory limit of reporting (LORs) for all samples;
- Concentrations of TRHs and PAHs were below assessment criteria for all samples;
- ACM was not detected in any samples analysed;

Although contamination was not identified in soil at the site, it is noted that only a limited number of soil samples were collected as part of this investigation. WSP considers that in the case of future maintenance/construction work, an unexpected finds protocol should be followed.

Soil analytical results are presented in Table D1 of Appendix D, with laboratory certificates presented in Appendix H.

7.3 GROUNDWATER MONITORING

Samples were collected from 20 groundwater monitoring wells, including MW4, MW6, MW9, MW10, MW11, MW12, MW13, MW14, MW15, MW16, MW17, MW19, MW20, MW21, MW23, MW26, MW30, MW32, MW33 and MW34.

It is noted that MW2, MW3, MW7, MW18, MW20 and MW25 were not sampled as they could not be accessed/located. MW31 was dry at the time of sampling (refer to Figure 3,Appendix A).

7.4 GROUNDWATER CONDITIONS

Groundwater conditions encountered at the site are presented in Table 7.1 and presented in Table D2 of Appendix D.

Table 7.1 Summary of groundwater conditions

PARAMETER	RESULTS
Depth to groundwater	Groundwater was encountered in all monitoring wells across the site, except for MW31. Standing water levels recorded for all wells across the site was approximately 9.0 m BTOC.
LNAPL occurrence	LNAPL was not detected in any of the groundwater monitoring wells.
Groundwater quality	The field parameters measured were as follows: — Electrical conductivity measurements ranged from 153 µS/cm to 497 µS/cm, indicating fresh water. — Redox measurements ranged from 114.0 mV to 419.0 mV. Redox potential values collected in the field using a silver chloride electrode have been corrected to standard hydrogen electrode values by adding 199 mV to each reading. — pH readings ranged from 4.37 to 6.41 indicating slightly to moderately acidic conditions. — Dissolved oxygen measurements ranged from 0.53 ppm to 4.74 ppm, indicating low to moderate oxygen saturation conditions. — Temperature measurements ranged from 19.8°C to 24.7°C. Recorded groundwater parameters for each well are detailed in Appendix D.

7.5 GROUNDWATER ANALYTICAL RESULTS

Groundwater was collected from 20 monitoring wells, with no LNAPL detected. In summary:

- Concentrations of TRHs exceeded assessment criteria for human health in eight monitoring wells;
- Concentrations of BTEX and VOCs were below assessment criteria for all wells;
- Concentrations of arsenic exceeded ADWG (2011) drinking water and recreational guidelines for MW6, MW21 and MW33;
- Concentrations of mercury exceeded GILs (freshwater) guidelines in four wells;
- Concentrations of copper exceeded GILs (freshwater) guidelines in six wells; and
- Concentrations of zinc exceeded GILs (freshwater) guidelines in six wells;

Complete groundwater analytical results are presented in Table C3 of Appendix D.

7.6 QUALITY ASSURANCE/QUALITY CONTROL

7.6.1 FIELD RESULTS

Field sampling procedures conformed to WSP's QA/QC protocols to prevent cross-contamination, preserve sample integrity and allow for collection of a suitable dataset from which to make technically sound decisions.

One soil duplicate sample pair, QA03 (intra-laboratory) and QA03a (inter-laboratory) was collected from BH2-0.3-0.4 during borehole advancement works and submitted for the analysis of metals, BTEX, PAHs and TRHs. One groundwater duplicate sample pair, QA01 (intra-laboratory) and QA01A (inter-laboratory), was collected for groundwater sample MW19 during the GME and submitted for the analysis of metals, TRHs, BTEXN and VOCs. The duplicate samples were analysed to assess the precision (intra-laboratory sample) and accuracy (inter-laboratory sample) of the data set.

RPDs were calculated for the primary and duplicate samples to assess the data quality, particularly for the assessment of the reproducibility (precision) and closeness of reported data to the true value (accuracy) of the analytical data measurements for the adopted field and laboratory methods. The RPDs were calculated using the formula below:

$$RPD\% = \frac{|Ro - Rd|}{|(Ro + Rd)/2|} \times 100\%$$

where Ro is the primary sample and Rd is the primary duplicate.

The RPD values were compared to the RPD acceptance criterion for soil and groundwater outlined in NEPM (2013).

As the concentrations in soil duplicate pairs were below laboratory LORs for COPCs including BTEX, PAHs and TRHs. RPDs were not able to be calculated for the majority of analytes. Some RPD exceedances occurred for metals, however this is not considered an issue as these analytes are not COPCs. Therefore, RPD recoveries for soil are generally considered acceptable.

One trip blank accompanied each sample batch throughout the investigation and was analysed for TRH and BTEXN. The trip blank results were below laboratory LORs, indicating a low likelihood of cross-contamination during sample collection and transport.

Additionally, one rinsate blank was collected during the GME and analysed for TRH and BTEXN. The rinsate blank results were below laboratory LORs, indicating a low likelihood of cross-contamination from sampling equipment.

QAQC results, including trip spike, blank and rinsate results for soil and groundwater analysis, can be found in Appendix E.

The details of conformance to specific field QA/QC requirements are presented in Table 7.2.

Table 7.2 Field data quality indicators

QA/QC REQUIREMENT	CONFORMED	COMMENTS
Fieldwork was undertaken by experienced field engineers and/or scientists	Yes	Qualified and experienced environmental scientists completed the fieldwork.
Samples delivered to laboratory within sample holding times and with correct preservative	Yes	Appropriate holding times were met for all samples. Samples were analysed by the laboratory within 7 days of sampling or within holding times for the particular analyte.
All analyses NATA accredited	Yes	None
Required number of sample duplicates	Yes	Field intra-laboratory duplicates and inter-laboratory duplicates were analysed for all contaminants of concern at the rate of approximately 1 in 20 primary investigation samples.
Required blanks taken	Yes	Trip blanks are taken to confirm no cross-contamination in occurs during sample transport. One trip blank accompanied each sample batch during this investigation.
Soil sample duplicates reported RPDs within limits set by AS4482.1	Partial	RPDs exceeded the acceptance threshold in soil for chromium and zinc. As these are not COPCs, the remaining RPDs are within the acceptable limit for the purposes of this investigation. There were no RPD exceedances for groundwater field duplicate and inter-laboratory duplicate samples.

7.6.2 LABORATORY RESULTS

Each laboratory undertook internal QA/QC, including the analysis of laboratory control spikes, surrogate recoveries, laboratory duplicates and method blanks. The quality control compliance provided by both laboratories indicated that no method blank, duplicate, laboratory control, surrogate recovery, or analysis holding time outliers exist.

Laboratory certificates including internal quality control reports are provided in Appendix H.

The details of conformance to specific laboratory QA/QC requirements are given in Table 7.3.

Table 7.3 Laboratory data quality indicators

QUALITY ASSURANCE	CONFORMED	COMMENT
Laboratory holding times	Yes	All samples were analysed within acceptable holding time.
Laboratory duplicates	Partial	Most internal laboratory duplicates returned acceptable RPDs, except for minor non-conformances TRHs in groundwater and zinc in soil. The RPD recoveries are within Eurofins acceptance limits.
Laboratory control samples	Yes	Control sample analysis results conformed to the laboratory criteria.
Surrogates	Yes	Surrogate samples analysis results conformed to the laboratory limits.
Matrix spikes	Yes	All matrix spike data conformed to recovery limits.

7.6.3 QUALITY STATEMENT

WSP considers that the sample collection, documentation, handling, storage and transportation procedures utilised are of an acceptable standard and that the analytical results provided by the laboratories (Eurofins and ALS) are deemed reliable and complete based on:

- NATA certification;
- the results of field and laboratory QA/QC samples demonstrated levels of precision and accuracy with sufficient repeatability and completeness in accordance with specified RPDs; and
- primary samples were analysed for a range of contaminants with all testing undertaken within recommended holding times.

It is therefore considered that the data is sufficiently precise and accurate for the purposes of this preliminary site investigation.

8 CONCEPTUAL SITE MODEL

The intention of the CSM is to define source-pathway-receptors linkages that, if identified, indicate that potential human and/or environmental risks may be present. The CSM is considered in the context of ongoing land use of the site as a service station with mixed use low to high density residential properties in the immediate surrounds. The CSM has been developed on the basis that in the event that no plausible linkages exist, then no significant risk is considered to be present. Therefore, the CSM specifically focuses on the plausible linkages between the three aspects (i.e. source, pathway and receptor) based on the specified scenarios.

8.1 SOURCE IDENTIFICATION

Likely sources of contaminants at the site are the UPSS and associated infrastructure, which are typically associated with:

- leaks from tanks or fuel line failures, degradation or damage; and/or
- spills during re-fuelling activities or product loss during tank repair, replacement and decommissioning works.

Historically, a known tank leak occurred at the site in 2001. A previous investigation by Parsons Brinckerhoff (2012) identified phase separated hydrocarbons (PSH) of diesel in one well (MW27) with a thickness of 10.1 cm. The GME data showed dissolved-phase hydrocarbons in wells around the refuelling area. Parsons Brinckerhoff did not consider that there was a risk to human health in the context of the continued use of the site as a bus depot.

8.2 CONTAMINANT TRANSPORT AND EXPOSURE PATHWAYS

Based on the nature and distribution of hydrocarbon impacts identified during this investigation and site hydrogeology, anticipated primary transport mechanisms for the migration of identified contaminants are:

- vertical migration of contaminants in soil into the underlying groundwater via leaching and dissolution or under the influence of gravity;
- lateral migration of contaminated groundwater off site, potentially affecting nearby surface water bodies;
- migration of contaminants through preferential pathways/underground service trenches presenting a potential vapour inhalation risk; and
- vertical migration of hydrocarbon vapour.

8.3 ASSESSMENT OF PATHWAYS AND RECEPTORS

The relevant exposure pathways and identified potential receptors are summarised in Table 8.1.

Table 8.1 Relevant exposure pathways

POTENTIAL RECEPTOR	POTENTIAL EXPOSURE PATHWAY	LIKELIHOOD OF POTENTIAL POLLUTANT LINKAGES
On-Site		
Site workers	Ingestion and dermal contact with soil or groundwater	**Unlikely**: The site is covered with hardstand in the vicinity of the bowsers. Additionally, there are no bores used for domestic use in the area surrounding the site.

POTENTIAL RECEPTOR	POTENTIAL EXPOSURE PATHWAY	LIKELIHOOD OF POTENTIAL POLLUTANT LINKAGES
	Intrusion of vapour to on-site retail building	**Unlikely**: Volatile contaminants in groundwater can equilibrate with pore spaces and migrate vertically and may cause a vapour intrusion risk to occupants of overlying buildings however, volatile hydrocarbon concentrations were detected in some well sampled.
Intrusive maintenance workers and excavation workers	Ingestion and dermal contact with impacted soils and groundwater	**Unlikely**: As standing water level was approximately 9 m BGL for all monitoring wells, it is unlikely that intrusive maintenance workers would come into direct contact with contaminated groundwater.
	Inhalation of vapour in shallow excavation trenches	**Possible**: As detections of TRHs in groundwater exceeded the adopted assessment criteria for HSL A, a possible vapour risk exists to future residential receptors.
Off-Site		
Commercial workers in nearby properties	Ingestion and dermal contact with impacted groundwater	**Unlikely:** It is considered unlikely for adjacent properties to be affected by potential on-site contamination, as there are no sensitive receptors location in proximity of the site.
	Intrusion of vapour to off-site buildings	**Unlikely:** Volatile contaminants in groundwater can equilibrate with pore spaces and migrate vertically and may cause a vapour intrusion risk to occupants of overlying buildings however, no volatile hydrocarbon concentrations were not detected in wells located further away from the bowsers.
Residential occupants of adjacent properties	Dermal contact with impacted soils and groundwater	**Unlikely:** Due to the absence of significant impacts in the hydraulically downgradient wells, and considering the depth of groundwater, it is considered unlikely that adjacent properties would be impacted.
Environmental		
Surface waters	Lateral migration of contaminants in groundwater	**Unlikely:** Given the distance to the nearest down gradient surface water receptor (1 km north west), the immediate risk to ecological receptors is considered low.

9 CONCLUSIONS

Red Bus Services commissioned WSP to undertake a Preliminary Site Investigation with limited soil sampling and groundwater monitoring at the Red Bus Service's bus depot located at 682a The Entrance Road, Bateau Bay NSW. The objective of the PSI assessment was to assess the presence and extent of potential hydrocarbon contamination at the site.

The scope of the ESA included a desktop assessment and the advancement of ten soil boreholes and monitoring of existing onsite groundwater wells. Concentrations of BTEXN, TRHs and PAHs were below adopted assessment criteria in soil. Concentrations of metals were below the adopted assessment criteria with the exception of nickel at two locations. The concentrations were above the ecological criteria, however WSP considers the detection of nickel to be negligible risk to the ecological receptors due to current and future usage of the site and lack of significant ecological population requiring protection on site.

Groundwater flow direction is confirmed to be towards the north. Concentrations of BTEX and VOCs were below adopted assessment criteria in groundwater, with the TRH F2 fraction exceeding the adopted assessment criteria for HSL A & B (re: potential vapour intrusion risk) in groundwater wells located in the bowser area and immediately to the north. The groundwater results show that the impact is from diesel and as such, vapour risks should be minimal or negligible. However, diesel in groundwater presents, partially in F2 $>C_{10}$-C_{16} TRH fraction and there were several wells exceeding the F2 criterion. This uncertainty can be resolved through soil vapour measures. The identified concentrations are not considered to pose a risk to human health in the current site condition as the area is well ventilated and covered in concrete or asphalt hardstand unless site excavations are undertaken. WSP considers that there is a possible risk to future residential receptors in the case of redevelopment of the site. This could be mitigated with additional groundwater and soil vapour assessment within the impacted area to aid in determining the potential risk to human health, and if required the development of a remedial action plan (RAP) and/or site management plan (SMP). Concentrations of metals exceeded the freshwater criteria for of copper, mercury and zinc and recreational water for arsenic. These concentrations are not considered significant as there is an absence of groundwater extraction within the site.

WSP considers site suitable for continued commercial/industrial use, though prior to any redevelopment, it is recommended that further assessment of groundwater and vapour intrusion be undertaken with relevance to human health of the proposed development. It is noted that the consent authority for a development application or an application for rezoning of land must consider, amongst other things, whether the land is contaminated and whether the land is suitable for the proposed use.

10 LIMITATIONS

This Report is provided by WSP Australia Pt Limited (*WSP*) for Red Bus Services (*Client*) in response to specific instructions from the Client and in accordance with WSP's proposal dated 24 August 2021 and agreement with the Client dated 7 September 2021 (*Agreement*).

PERMITTED PURPOSE

This Report is provided by WSP for the purpose described in the Agreement and no responsibility is accepted by WSP for the use of the Report in whole or in part, for any other purpose (*Permitted Purpose*).

QUALIFICATIONS AND ASSUMPTIONS

The services undertaken by WSP in preparing this Report were limited to those specifically detailed in the Report and are subject to the scope, qualifications, assumptions and limitations set out in the Report or otherwise communicated to the Client.

Except as otherwise stated in the Report and to the extent that statements, opinions, facts, conclusion and/or recommendations in the Report (*Conclusions*) are based in whole or in part on information provided by the Client and other parties identified in the Report (*Information*), those Conclusions are based on assumptions by WSP of the reliability, adequacy, accuracy and completeness of the Information and have not been verified. WSP accepts no responsibility for the Information.

The Conclusions are reflective of the current Site conditions and cannot be regarded as absolute without further extensive intrusive investigations, outside the scope of the services set out in the Agreement and are indicative of the environmental conditions of the Site at the time of preparing the Report. As a general principle, vertical and horizontal soil or groundwater conditions are not uniform. No monitoring, common or intrusive testing or sampling technique can eliminate the possibility that monitoring or testing results or samples taken, are not totally representative of soil and/or groundwater conditions encountered at the Site. It should also be recognised that Site conditions, including subsurface conditions can change with time due to the presence and concentration of contaminants, changing natural forces and man-made influences.

Within the limitations imposed by the scope of the service undertaken by WSP, the monitoring, testing (intrusive or otherwise), sampling for the preparation of this Report has been undertaken and performed in a professional manner in accordance with generally accepted practices, using a degree of skill and care ordinarily exercised by reputable environmental consultants under similar circumstances. No other warrant, expressed or implied, is made.

WSP has prepared the Report without regard to any special interest of any person other than the Client when undertaking the services described in the Agreement or in preparing the Report.

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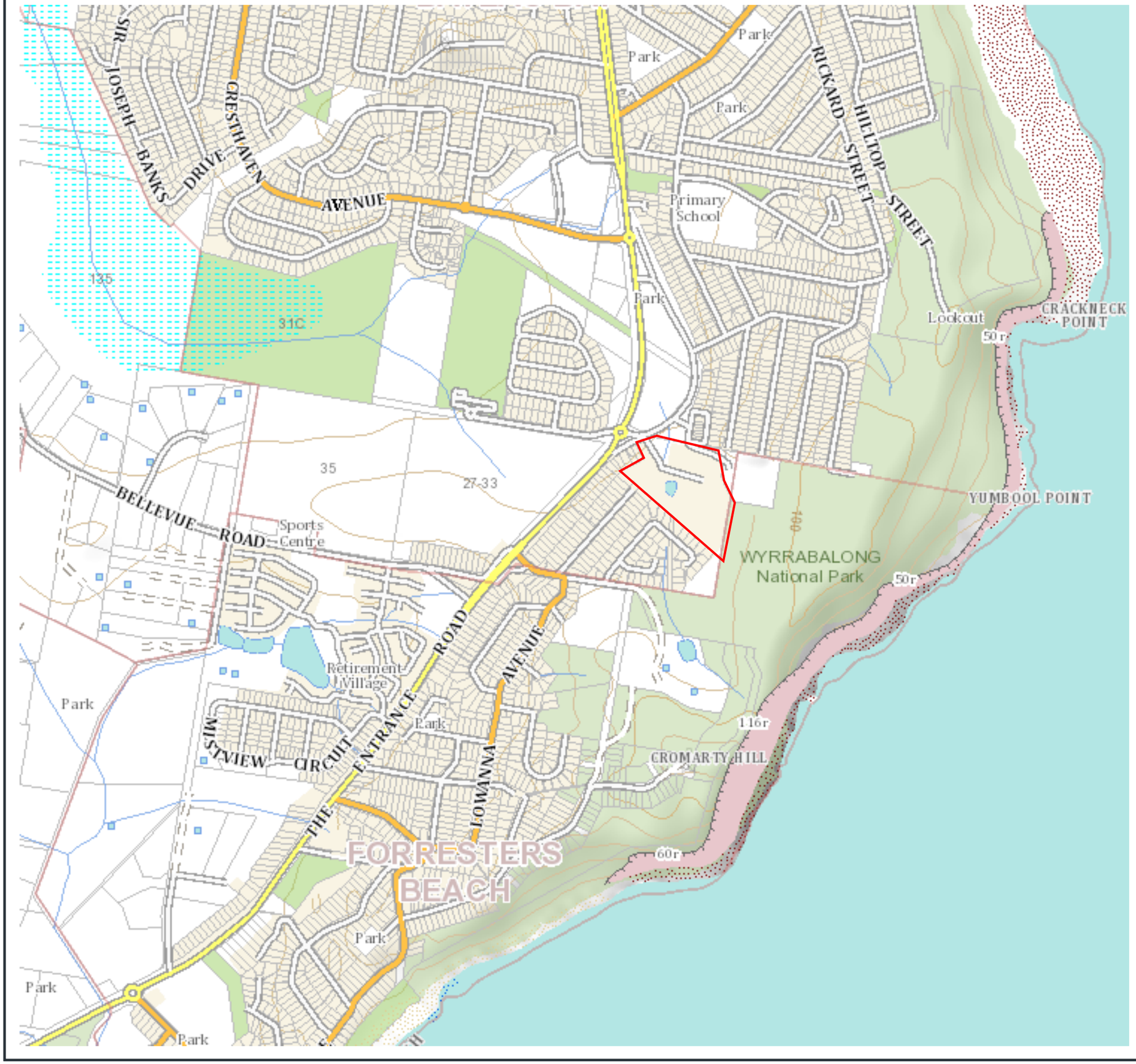
- NSW EPA 1994, *Guidelines for Assessing Service Station Sites*
- NSW EPA 2020, *Guidelines for Consultants Reporting on Contaminated Sites*
- NSW EPA 2015, *Guidelines on the Duty to Report Contamination*
- United States Environmental Protection Agency 2006, Guidance on Systematic Planning Using the Data Quality

APPENDIX A

FIGURES

Environmental Due Diligence

Figure A1
Site Locality



Legend

- Site location

682a The Entrance Road, Bateau Bay NSW

wsp

Environmental Due Diligence

Figure A2
Site Layout

Legend

- Subject property
- Bore location

682a The Entrance Road, Bateau Bay NSW

wsp

Environmental Due Diligence

Figure A3
Groundwater Monitoring Well Locations

Legend

- Subject property
- Groundwater monitoring well locations sampled during the current investigation

682a The Entrance Road, Bateau Bay NSW

APPENDIX B

PHOTOGRAPHIC LOG

	PHOTOGRAPHIC LOG – Site Inspection

Client Name	**Site Location**	**Project No.**
Red Bus Services	682a The Entrance Road, Bateau Bay	PS126618

Photo No.	**Date**
1	4 October 2021

Description

A and B blocks, facing north-east.

Photo No.	**Date**
2	4 October 2021

Description

A block, view of water separator. Facing north-east.

	PHOTOGRAPHIC LOG – Site Inspection

Client Name	**Site Location**	**Project No.**
Red Bus Services	682a The Entrance Road, Bateau Bay	PS126618

Photo No.	**Date**
3	4 October 2021

Description

AST Adblue and bowsers, facing west.

Photo No.	**Date**
4	4 October 2021

Description

B block, facing east.

	PHOTOGRAPHIC LOG – Site Inspection	
Client Name Red Bus Services	**Site Location** 682a The Entrance Road, Bateau Bay	**Project No.** PS126618

Photo No.	**Date**
5	4 October 2021

Description

Photo No.	**Date**
6	4 October 2021

Description

Buspark facing north.

	PHOTOGRAPHIC LOG – Site Inspection

Client Name	**Site Location**	**Project No.**
Red Bus Services	682a The Entrance Road, Bateau Bay	PS126618

Photo No.	**Date**
7	4 October 2021

Description

Carpark, facing south.

Photo No.	**Date**
8	4 October 2021

Description

Chemical building and C block, facing north-west

	PHOTOGRAPHIC LOG – Site Inspection	
Client Name Red Bus Services	**Site Location** 682a The Entrance Road, Bateau Bay	**Project No.** PS126618

Photo No.	**Date**
9	4 October 2021

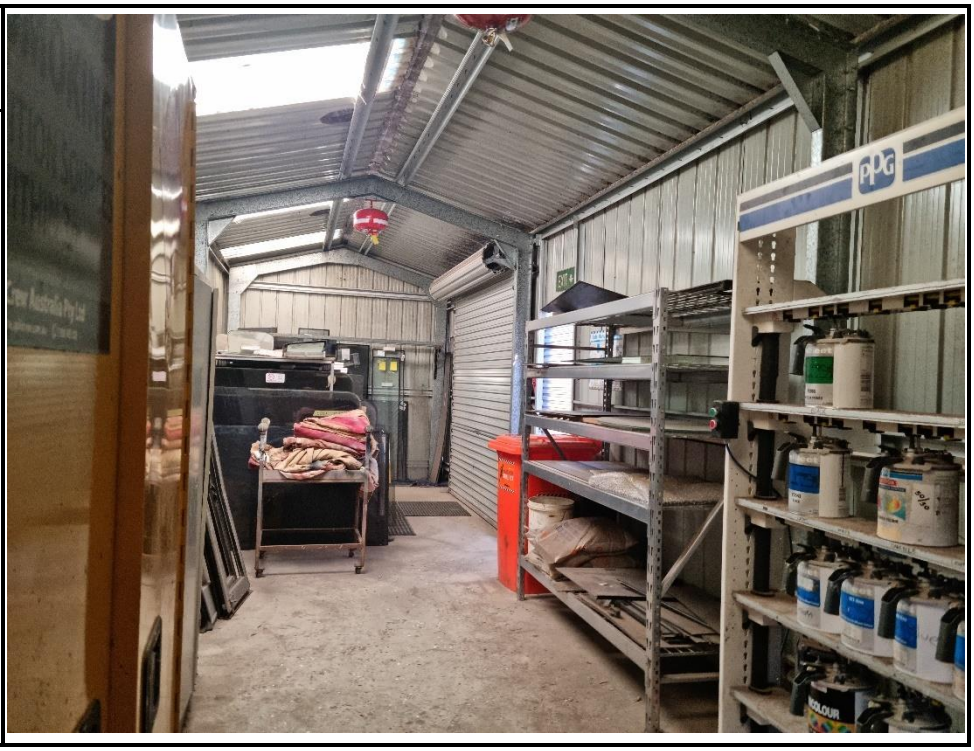
Description

Chemical storage within chemical building.

Photo No.	**Date**
10	4 October 2021

Description

Chemical building, storage of paint.



	PHOTOGRAPHIC LOG – Site Inspection	
Client Name Red Bus Services	**Site Location** 682a The Entrance Road, Bateau Bay	**Project No.** PS126618

Photo No.	**Date**
11	4 October 2021

Description

Cleaning chemicals within chemical building.

Photo No.	**Date**
12	4 October 2021

Description

ICB drums near Block B, facing south-west

	PHOTOGRAPHIC LOG – Site Inspection	
Client Name Red Bus Services	**Site Location** 682a The Entrance Road, Bateau Bay	**Project No.** PS126618

Photo No.	**Date**
13	4 October 2021

Description

Storage drums, unknown contents, near Block B. Facing south-west.

Photo No.	**Date**
14	4 October 2021

Description

Eastern portion, significant gradient. Facing north.

	PHOTOGRAPHIC LOG – Site Inspection	
Client Name Red Bus Services	**Site Location** 682a The Entrance Road, Bateau Bay	**Project No.** PS126618

Photo No.	**Date**
15	4 October 2021

Description

Empty chemical containers and IBC container between C and D block.

Photo No.	**Date**
16	4 October 2021

Description

F block facing west.

	PHOTOGRAPHIC LOG – Site Inspection

Client Name	**Site Location**	**Project No.**
Red Bus Services	682a The Entrance Road, Bateau Bay	PS126618

Photo No.	**Date**
17	4 October 2021

Description

H block container facing north

Photo No.	**Date**
18	4 October 2021

Description

Diesel AST, facing north-east.

	PHOTOGRAPHIC LOG – Site Inspection	
Client Name Red Bus Services	**Site Location** 682a The Entrance Road, Bateau Bay	**Project No.** PS126618

Photo No.	**Date**
19	4 October 2021

Description

Outside AST and lines, facing south-west.

Photo No.	**Date**
20	4 October 2021

Description

AST, facing south.

	PHOTOGRAPHIC LOG – Site Inspection

Client Name	**Site Location**	**Project No.**
Red Bus Services	682a The Entrance Road, Bateau Bay	PS126618

Photo No.	**Date**
21	4 October 2021

Description
Overflow Culvert, facing south.

Photo No.	**Date**
22	4 October 2021

Description
View from behind F block.

	PHOTOGRAPHIC LOG – Site Inspection	
Client Name Red Bus Services	**Site Location** 682a The Entrance Road, Bateau Bay	**Project No.** PS126618

Photo No.	**Date**
23	4 October 2021

Description

View from behind E block.

Photo No.	**Date**
24	4 October 2021

Description

View west of office.

APPENDIX C

HISTORICAL AERIAL PHOTOGRAPHS

HISTORICAL AERIAL PHOTO LOG

Client Name	Site Location	Project No.
The Entrance Red Bus Services	682a The Entrance Road, Bateau Bay	PS126618

Photo No.	Date
1	1966

Description

1966 historical aerial photograph

Photo No.	Date
2	1976

Description

1976 historical aerial photograph

HISTORICAL AERIAL PHOTO LOG

Client Name	Site Location	Project No.
The Entrance Red Bus Services	682a The Entrance Road, Bateau Bay	PS126618

Photo No.	Date
3	1984

Description

1984 historical aerial photograph

Photo No.	Date
4	1996

Description

1996 historical aerial photograph

	HISTORICAL AERIAL PHOTO LOG	
Client Name The Entrance Red Bus Services	**Site Location** 682a The Entrance Road, Bateau Bay	**Project No.** PS126618

Photo No.	**Date**
5	2004

Description

2004 historical aerial photograph

Photo No.	**Date**
6	2014

Description

2014 historical aerial photograph

	HISTORICAL AERIAL PHOTO LOG	
Client Name The Entrance Red Bus Services	**Site Location** 682a The Entrance Road, Bateau Bay	**Project No.** PS126618

Photo No.	**Date**	
7	2021	
Description 2021 current aerial photograph		

APPENDIX D

RESULTS TABLES

		Monocyclic Aromatic Hydrocarbo		Physicochemical parameters	Metals															
		Naphthalene (MAH)	Naphthalene (MAH)	% Moisture	Arsenic	Arsenic (filtered)	Cadmium	Cadmium (filtered)	Chromium	Chromium (filtered)	Copper	Copper (filtered)	Lead	Lead (filtered)	Mercury	Mercury (filtered)	Nickel	Nickel (filtered)	Zinc
		mg/kg	µg/L	%	mg/kg	µg/L	mg/kg	µg/L	mg/kg	µg/L	mg/kg	µg/L	mg/kg	µg/L	mg/kg	µg/L	mg/kg	µg/L	mg/kg
EQL		0.5	10	1	2	1	0.4	0.2	5	1	5	1	5	1	0.1	0.1	5	1	5
NEPM 2013 Table 1B(5) Generic EIL - Urban Res & Public Open Space					100				190		60		1,100				30		70
NEPM 2013 Table 1A(1) HILs Res A Soil					***100***		***20***				***6,000***		***300***		***40***		***400***		***7,400***
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand																			
>=0m, <1m																			
>=1m, <2m																			
>=2m, <4m																			
>=4m																			
Field ID	**Date**																		
BH1-0.1-0.2	**6/10/2021**	<0.5		1.2	6.9		<0.4		50		23		6.1		<0.1		43		26
BH1-0.4-0.5	**6/10/2021**	<0.5		20	<2		<0.4		<5		<5		<5		<0.1		<5		<5
BH2-0.3-0.4	**6/10/2021**	<0.5		8.7	2.4		<0.4		9.0		<5		5.5		<0.1		<5		15
BH2-0.9-1.0	**6/10/2021**	<0.5		17	2.5		<0.4		12		9.7		16		<0.1		<5		51
BH3-0.1-0.2	**6/10/2021**	<0.5		18	<2		<0.4		6.0		29		43		0.1		<5		62
BH3-0.4-0.5	**6/10/2021**	<0.5		10.0	<2		<0.4		<5		7.9		15		<0.1		<5		44
BH4-0.2-0.3	**6/10/2021**	<0.5		10	3.2		<0.4		65		29		10		<0.1		65		44
BH4-0.4-0.5	**6/10/2021**	<0.5		8.9	2.7		<0.4		11		<5		<5		<0.1		<5		<5
BH5-0.2-0.3	**6/10/2021**	<0.5		6.5	3.4		<0.4		24		8.2		<5		<0.1		18		20
BH5-0.5-0.6	**6/10/2021**	<0.5		8.4	2.7		<0.4		11		<5		<5		0.1		<5		<5
BH6-0.2-0.3	**6/10/2021**	<0.5		10	3.8		<0.4		14		<5		<5		<0.1		<5		<5
BH6-0.4-0.5	**6/10/2021**	<0.5		12	3.3		<0.4		12		<5		<5		<0.1		<5		<5
BH7-0.2-0.3	**6/10/2021**	<0.5		8.0	3.8		<0.4		12		<5		<5		0.1		<5		<5
BH7-0.5-0.6	**6/10/2021**	<0.5		8.2	3.8		<0.4		12		<5		<5		<0.1		<5		<5
BH8-0.1-0.2	**6/10/2021**	<0.5		8.9	2.7		<0.4		11		18		8.4		<0.1		<5		29
BH8-0.4-0.5	**6/10/2021**	<0.5		7.2	<2		<0.4		<5		<5		<5		<0.1		<5		8.1
BH9-0.1-0.2	**6/10/2021**	<0.5		3.5	2.3		<0.4		7.1		5.3		5.3		<0.1		<5		14
BH9-1.9-2.0	**6/10/2021**	<0.5		12	<2		<0.4		<5		<5		14		<0.1		<5		14
BH10-0.1-0.2	**6/10/2021**	<0.5		11	<2		<0.4		<5		<5		6.7		<0.1		<5		22
BH10-0.4-0.5	**6/10/2021**	<0.5		8.5	<2		<0.4		<5		<5		<5		<0.1		<5		<5
Statistics																			
Number of Results		**22**	**1**	**21**	**21**	**1**	**21**	**1**	**21**	**1**	**21**	**1**	**21**	**1**	**21**	**1**	**21**	**1**	**21**
Number of Detects		**0**	**0**	**21**	**14**	**0**	**0**	**0**	**15**	**0**	**9**	**0**	**11**	**0**	**3**	**0**	**4**	**0**	**13**
Minimum Concentration		**<0.5**	**<10**	**1.2**	**<2**	**<1**	**<0.4**	**<0.2**	**<5**	**<1**	**<5**	**<1**	**<5**	**<1**	**0.1**	**<0.1**	**<5**	**<1**	**<5**
Maximum Concentration		**<0.5**	**<10**	**20**	**6.9**	**<1**	**<0.4**	**<0.2**	**65**	**<1**	**29**	**<1**	**43**	**<1**	**0.1**	**<0.1**	**65**	**<1**	**62**
Standard Deviation *		**0**		**4.4**	**1.7**		**0**		**16**		**8.9**		**9.3**		**0.018**		**16**		**20**

* A Non Detect Multiplier of 0.5 has been applied.

		BTEX																		
	Zinc (filtered)	Benzene		Toluene		Ethylbenzene		Xylene (m & p)		Xylene (o)		Xylene (Sum)		Naphthalene		C6 - C9		C10 - C14		
	µg/L	mg/kg	µg/L	mg/kg	µg/L	mg/kg	µg/L	mg/kg	µg/L	mg/kg	µg/L	mg/kg	µg/L	mg/kg	µg/L	mg/kg	µg/L	mg/kg		
EQL	5	0.1	1	0.1	1	0.1	1	0.2	2	0.1	1	0.3	3	0.5	1	20	20	20		
NEPM 2013 Table 1B(5) Generic EIL - Urban Res & Public Open Space														170						
NEPM 2013 Table 1A(1) HILs Res A Soil																				
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand		0.5 | 0.5 | 0.5 | 0.5		160 | 220 | 310 | 540		55						40 | 60 | 95 | 170		3					
>=0m, <1m		0.5		160		55						40		3						
>=1m, <2m		0.5		220								60								
>=2m, <4m		0.5		310								95								
>=4m		0.5		540								170								
Field ID	**Date**																			
BH1-0.1-0.2	**6/10/2021**		<0.1		<0.1		<0.1		<0.2		<0.1		<0.3		<0.5		<20		<400	
BH1-0.4-0.5	**6/10/2021**		<0.1		<0.1		<0.1		<0.2		<0.1		<0.3		<0.5		<20		<20	
BH2-0.3-0.4	**6/10/2021**		<0.1		<0.1		<0.1		<0.2		<0.1		<0.3		<0.5		<20		<20	
BH2-0.9-1.0	**6/10/2021**		<0.1		<0.1		<0.1		<0.2		<0.1		<0.3		<0.5		<20		<20	
BH3-0.1-0.2	**6/10/2021**		<0.1		<0.1		<0.1		<0.2		<0.1		<0.3		<0.5		<20		<20	
BH3-0.4-0.5	**6/10/2021**		<0.1		<0.1		<0.1		<0.2		<0.1		<0.3		<0.5		<20		<20	
BH4-0.2-0.3	**6/10/2021**		<0.1		<0.1		<0.1		<0.2		<0.1		<0.3		<0.5		<20		<200	
BH4-0.4-0.5	**6/10/2021**		<0.1		<0.1		<0.1		<0.2		<0.1		<0.3		<0.5		<20		<20	
BH5-0.2-0.3	**6/10/2021**		<0.1		<0.1		<0.1		<0.2		<0.1		<0.3		<0.5		<20		<20	
BH5-0.5-0.6	**6/10/2021**		<0.1		<0.1		<0.1		<0.2		<0.1		<0.3		<0.5		<20		<20	
BH6-0.2-0.3	**6/10/2021**		<0.1		<0.1		<0.1		<0.2		<0.1		<0.3		<0.5		<20		<20	
BH6-0.4-0.5	**6/10/2021**		<0.1		<0.1		<0.1		<0.2		<0.1		<0.3		<0.5		<20		<20	
BH7-0.2-0.3	**6/10/2021**		<0.1		<0.1		<0.1		<0.2		<0.1		<0.3		<0.5		<20		<20	
BH7-0.5-0.6	**6/10/2021**		<0.1		<0.1		<0.1		<0.2		<0.1		<0.3		<0.5		<20		<20	
BH8-0.1-0.2	**6/10/2021**		<0.1		<0.1		<0.1		<0.2		<0.1		<0.3		<0.5		<20		<20	
BH8-0.4-0.5	**6/10/2021**		<0.1		<0.1		<0.1		<0.2		<0.1		<0.3		<0.5		<20		<20	
BH9-0.1-0.2	**6/10/2021**		<0.1		<0.1		<0.1		<0.2		<0.1		<0.3		<0.5		<20		<20	
BH9-1.9-2.0	**6/10/2021**		<0.1		<0.1		<0.1		<0.2		<0.1		<0.3		<0.5		<20		<20	
BH10-0.1-0.2	**6/10/2021**		<0.1		<0.1		<0.1		<0.2		<0.1		<0.3		<0.5		<20		<20	
BH10-0.4-0.5	**6/10/2021**		<0.1		<0.1		<0.1		<0.2		<0.1		<0.3		<0.5		<20		<20	
Statistics																				
Number of Results		**1**	**22**	**1**	**22**	**1**	**22**	**1**	**22**	**1**	**22**	**1**	**22**	**1**	**21**	**1**	**22**	**1**	**21**	
Number of Detects		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	
Minimum Concentration		**<5**	**<0.1**	**<1**	**<0.1**	**<1**	**<0.1**	**<1**	**<0.2**	**<2**	**<0.1**	**<1**	**<0.3**	**<3**	**<0.5**	**<1**	**<20**	**<20**	**<20**	
Maximum Concentration		**<5**	**<0.1**	**<1**	**<0.1**	**<1**	**<0.1**	**<1**	**<0.2**	**<2**	**<0.1**	**<1**	**<0.3**	**<3**	**<0.5**	**<1**	**<20**	**<20**	**<400**	
Standard Deviation *			**0**		**0**		**0**		**0**		**0**		**0**		**0**		**0**		**45**	

* A Non Detect Multiplier of 0.5 has been applied.

	TPH (NEPM 1999 Fraction)							TRH (NEPM 2013 Fraction)										
	C10 - C14	C15 - C28		C29 - C36		C10 - C36 (Sum)	C10 - C36 (Sum)	C6 - C10		C6 - C10 less BTEX (F1)		C10 - C16		C10 - C16 less Naphthalene (F2)		C16 - C34		C34 - C40
	µg/L	mg/kg	µg/L	mg/kg	µg/L	mg/kg	µg/L	mg/kg	µg/L	mg/kg	µg/L	mg/kg	µg/L	mg/kg	µg/L	mg/kg	µg/L	mg/kg
EQL	50	50	100	50	100	50	100	20	20	20	20	50	50	50	50	100	100	100
NEPM 2013 Table 1B(5) Generic EIL - Urban Res & Public Open Space																		
NEPM 2013 Table 1A(1) HILs Res A Soil																		
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand										45 | 70 | 110 | 200				110 | 240 | 440				
>=0m, <1m										45				110				
>=1m, <2m										70				240				
>=2m, <4m										110				440				
>=4m										200								
Field ID	**Date**																	
BH1-0.1-0.2	**6/10/2021**		<1,000		<1,000		<1,000		<20		<20		<1,000		<1,000		<2,000		<2,000
BH1-0.4-0.5	**6/10/2021**		<50		<50		<50		<20		<20		<50		<50		<100		<100
BH2-0.3-0.4	**6/10/2021**		<50		<50		<50		<20		<20		<50		<50		<100		<100
BH2-0.9-1.0	**6/10/2021**		<50		<50		<50		<20		<20		<50		<50		<100		<100
BH3-0.1-0.2	**6/10/2021**		<50		<50		<50		<20		<20		<50		<50		<100		<100
BH3-0.4-0.5	**6/10/2021**		<50		<50		<50		<20		<20		<50		<50		<100		<100
BH4-0.2-0.3	**6/10/2021**		<500		<500		<500		<20		<20		<500		<500		<1,000		<1,000
BH4-0.4-0.5	**6/10/2021**		<50		<50		<50		<20		<20		<50		<50		<100		<100
BH5-0.2-0.3	**6/10/2021**		120		<50		120		<20		<20		<50		<50		150		<100
BH5-0.5-0.6	**6/10/2021**		410		<50		410		<20		<20		64		64		390		<100
BH6-0.2-0.3	**6/10/2021**		<50		<50		<50		<20		<20		<50		<50		<100		<100
BH6-0.4-0.5	**6/10/2021**		<50		<50		<50		<20		<20		<50		<50		<100		<100
BH7-0.2-0.3	**6/10/2021**		<50		<50		<50		<20		<20		<50		<50		<100		<100
BH7-0.5-0.6	**6/10/2021**		<50		<50		<50		<20		<20		<50		<50		<100		<100
BH8-0.1-0.2	**6/10/2021**		<50		<50		<50		<20		<20		<50		<50		<100		<100
BH8-0.4-0.5	**6/10/2021**		<50		<50		<50		<20		<20		<50		<50		<100		<100
BH9-0.1-0.2	**6/10/2021**		<50		66		66		<20		<20		<50		<50		120		<100
BH9-1.9-2.0	**6/10/2021**		<50		<50		<50		<20		<20		<50		<50		<100		<100
BH10-0.1-0.2	**6/10/2021**		<50		<50		<50		<20		<20		<50		<50		<100		<100
BH10-0.4-0.5	**6/10/2021**		<50		<50		<50		<20		<20		<50		<50		<100		<100

Statistics

Number of Results	**1**	**21**	**1**	**21**	**1**	**21**	**1**	**22**	**1**	**22**	**1**	**21**	**1**	**21**	**1**	**21**	**1**	**21**
Number of Detects	**0**	**2**	**0**	**1**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**3**	**0**	**0**
Minimum Concentration	**<50**	**<50**	**<100**	**<50**	**<100**	**<50**	**<100**	**<20**	**<20**	**<20**	**<20**	**<50**	**<50**	**<50**	**<50**	**<100**	**<100**	**<100**
Maximum Concentration	**<50**	**<1,000**	**<100**	**<1,000**	**<100**	**<1,000**	**<100**	**<20**	**<20**	**<20**	**<20**	**<1,000**	**<50**	**<1,000**	**<50**	**<2,000**	**<100**	**<2,000**
Standard Deviation *		**135**		**112**		**135**		**0**		**0**		**112**		**112**		**230**		**225**

* A Non Detect Multiplier of 0.5 has been applied.

		C34 - C40	C10 - C40 (Sum)	C10 - C40 (Sum)	Acenaphthene		Acenaphthylene		Anthracene		Benz(a)anthracene		Benzo(a) pyrene		Benzo(a)pyrene TEQ calc (Zero)	Benzo(b&j)fluoranthene		Benzo(g,h,i)perylene		Benzo(k)fluoranthen
		µg/L	mg/kg	µg/L	mg/kg	µg/L	mg/kg	µg/L	mg/kg	µg/L	mg/kg	µg/L	mg/kg	µg/L	mg/kg	mg/kg	µg/L	mg/kg	µg/L	mg/kg
EQL		100	100	100	0.5	1	0.5	1	0.5	1	0.5	1	0.5	1	0.5	0.5	1	0.5	1	0.5
NEPM 2013 Table 1B(5) Generic EIL - Urban Res & Public Open Space																				
NEPM 2013 Table 1A(1) HILs Res A Soil															***3***					
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand																				
>=0m, <1m																				
>=1m, <2m																				
>=2m, <4m																				
>=4m																				
Field ID	**Date**																			
BH1-0.1-0.2	**6/10/2021**		<2,000		<0.5		<0.5		<0.5		<0.5		<0.5		<0.5	<0.5		<0.5		<0.5
BH1-0.4-0.5	**6/10/2021**		<100		<0.5		<0.5		<0.5		<0.5		0.6		0.6	<0.5		<0.5		<0.5
BH2-0.3-0.4	**6/10/2021**		<100		<0.5		<0.5		<0.5		<0.5		0.6		0.6	<0.5		<0.5		<0.5
BH2-0.9-1.0	**6/10/2021**		<100		<0.5		<0.5		<0.5		<0.5		<0.5		<0.5	<0.5		<0.5		<0.5
BH3-0.1-0.2	**6/10/2021**		<100		<0.5		<0.5		<0.5		<0.5		<0.5		<0.5	<0.5		<0.5		<0.5
BH3-0.4-0.5	**6/10/2021**		<100		<0.5		<0.5		<0.5		<0.5		<0.5		<0.5	<0.5		<0.5		<0.5
BH4-0.2-0.3	**6/10/2021**		<1,000		<0.5		<0.5		<0.5		<0.5		<0.5		<0.5	<0.5		<0.5		<0.5
BH4-0.4-0.5	**6/10/2021**		<100		<0.5		<0.5		<0.5		<0.5		<0.5		<0.5	<0.5		<0.5		<0.5
BH5-0.2-0.3	**6/10/2021**		150		<0.5		<0.5		<0.5		<0.5		<0.5		<0.5	<0.5		<0.5		<0.5
BH5-0.5-0.6	**6/10/2021**		454		<0.5		<0.5		<0.5		<0.5		<0.5		<0.5	<0.5		<0.5		<0.5
BH6-0.2-0.3	**6/10/2021**		<100		<0.5		<0.5		<0.5		<0.5		<0.5		<0.5	<0.5		<0.5		<0.5
BH6-0.4-0.5	**6/10/2021**		<100		<0.5		<0.5		<0.5		<0.5		<0.5		<0.5	<0.5		<0.5		<0.5
BH7-0.2-0.3	**6/10/2021**		<100		<0.5		<0.5		<0.5		<0.5		<0.5		<0.5	<0.5		<0.5		<0.5
BH7-0.5-0.6	**6/10/2021**		<100		<0.5		<0.5		<0.5		<0.5		<0.5		<0.5	<0.5		<0.5		<0.5
BH8-0.1-0.2	**6/10/2021**		<100		<0.5		<0.5		<0.5		<0.5		0.6		0.6	<0.5		<0.5		<0.5
BH8-0.4-0.5	**6/10/2021**		<100		<0.5		<0.5		<0.5		<0.5		0.5		0.5	<0.5		<0.5		<0.5
BH9-0.1-0.2	**6/10/2021**		120		<0.5		<0.5		<0.5		<0.5		<0.5		<0.5	<0.5		<0.5		<0.5
BH9-1.9-2.0	**6/10/2021**		<100		<0.5		<0.5		<0.5		<0.5		<0.5		<0.5	<0.5		<0.5		<0.5
BH10-0.1-0.2	**6/10/2021**		<100		<0.5		<0.5		<0.5		<0.5		<0.5		<0.5	<0.5		<0.5		<0.5
BH10-0.4-0.5	**6/10/2021**		<100		<0.5		<0.5		<0.5		<0.5		<0.5		<0.5	<0.5		<0.5		<0.5
Statistics																				
Number of Results		**1**	**21**	**1**	**21**	**1**	**21**	**1**	**21**	**1**	**21**	**1**	**21**	**1**	**21**	**21**	**1**	**21**	**1**	**21**
Number of Detects		**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**4**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration		**<100**	**<100**	**<100**	**<0.5**	**<1**	**<0.5**	**<1**	**<0.5**	**<1**	**<0.5**	**<1**	**0.5**	**<1**	**0.5**	**<0.5**	**<1**	**<0.5**	**<1**	**<0.5**
Maximum Concentration		**<100**	**<2,000**	**<100**	**<0.5**	**<1**	**<0.5**	**<1**	**<0.5**	**<1**	**<0.5**	**<1**	**0.6**	**<1**	**0.6**	**<0.5**	**<1**	**<0.5**	**<1**	**<0.5**
Standard Deviation *			**234**		**0**		**0**		**0**		**0**		**0.13**		**0.13**	**0**		**0**		**0**

* A Non Detect Multiplier of 0.5 has been applied.

		PAH																			
		e		Chrysene		Dibenz(a,h)anthracene		Fluoranthene		Fluorene		Indeno(1,2,3-c,d)pyrene		Phenanthrene		Pyrene		PAHs (Sum)		PAHs (Sum)		ACM - Comment	AF - Comment
		µg/L	mg/kg	µg/L	mg/kg	µg/L	mg/kg	µg/L	mg/kg	µg/L	mg/kg	µg/L	mg/kg	µg/L	mg/kg	µg/L	mg/kg	µg/L	mg/kg	µg/L		
EQL		1	0.5	1	0.5	1	0.5	1	0.5	1	0.5	1	0.5	1	0.5	1	0.5	1				
NEPM 2013 Table 1B(5) Generic EIL - Urban Res & Public Open Space																						
NEPM 2013 Table 1A(1) HILs Res A Soil																		***300***				
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand																						
>=0m, <1m																						
>=1m, <2m																						
>=2m, <4m																						
>=4m																						
Field ID	**Date**																					
BH1-0.1-0.2	**6/10/2021**		<0.5		<0.5		<0.5		<0.5		<0.5		<0.5		<0.5		<0.5		1		1	
BH1-0.4-0.5	**6/10/2021**		<0.5		<0.5		<0.5		<0.5		<0.5		<0.5		<0.5		0.6					
BH2-0.3-0.4	**6/10/2021**		<0.5		<0.5		<0.5		<0.5		<0.5		<0.5		<0.5		0.6		1		1	
BH2-0.9-1.0	**6/10/2021**		<0.5		<0.5		<0.5		<0.5		<0.5		<0.5		<0.5		<0.5		1		1	
BH3-0.1-0.2	**6/10/2021**		<0.5		<0.5		0.5		<0.5		<0.5		<0.5		<0.5		0.5		1		1	
BH3-0.4-0.5	**6/10/2021**		<0.5		<0.5		<0.5		<0.5		<0.5		<0.5		<0.5		<0.5					
BH4-0.2-0.3	**6/10/2021**		<0.5		<0.5		<0.5		<0.5		<0.5		<0.5		<0.5		<0.5		1		1	
BH4-0.4-0.5	**6/10/2021**		<0.5		<0.5		<0.5		<0.5		<0.5		<0.5		<0.5		<0.5					
BH5-0.2-0.3	**6/10/2021**		<0.5		<0.5		<0.5		<0.5		<0.5		<0.5		<0.5		<0.5		1		1	
BH5-0.5-0.6	**6/10/2021**		<0.5		<0.5		<0.5		<0.5		<0.5		<0.5		<0.5		<0.5					
BH6-0.2-0.3	**6/10/2021**		<0.5		<0.5		<0.5		<0.5		<0.5		<0.5		<0.5		<0.5		1		1	
BH6-0.4-0.5	**6/10/2021**		<0.5		<0.5		<0.5		<0.5		<0.5		<0.5		<0.5		<0.5					
BH7-0.2-0.3	**6/10/2021**		<0.5		<0.5		<0.5		<0.5		<0.5		<0.5		<0.5		<0.5		1		1	
BH7-0.5-0.6	**6/10/2021**		<0.5		<0.5		<0.5		<0.5		<0.5		<0.5		<0.5		<0.5					
BH8-0.1-0.2	**6/10/2021**		<0.5		<0.5		<0.5		<0.5		<0.5		<0.5		<0.5		0.6		1		1	
BH8-0.4-0.5	**6/10/2021**		<0.5		<0.5		<0.5		<0.5		<0.5		<0.5		<0.5		0.5					
BH9-0.1-0.2	**6/10/2021**		<0.5		<0.5		<0.5		<0.5		<0.5		<0.5		<0.5		<0.5					
BH9-1.9-2.0	**6/10/2021**		<0.5		<0.5		<0.5		<0.5		<0.5		<0.5		<0.5		<0.5		1		1	
BH10-0.1-0.2	**6/10/2021**		<0.5		<0.5		<0.5		<0.5		<0.5		<0.5		<0.5		<0.5		1		1	
BH10-0.4-0.5	**6/10/2021**		<0.5		<0.5		<0.5		<0.5		<0.5		<0.5		<0.5		<0.5					
Statistics																						
Number of Results		**1**	**21**	**1**	**21**	**1**	**21**	**1**	**21**	**1**	**21**	**1**	**21**	**1**	**21**	**1**	**21**	**1**	**11**	**11**		
Number of Detects		**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**0**	**11**	**11**		
Minimum Concentration		**<1**	**<0.5**	**<1**	**<0.5**	**<1**	**0.5**	**<1**	**<0.5**	**<1**	**<0.5**	**<1**	**<0.5**	**<1**	**<0.5**	**<1**	**<0.5**	**<1**	**1**	**1**		
Maximum Concentration		**<1**	**<0.5**	**<1**	**<0.5**	**<1**	**0.5**	**<1**	**<0.5**	**<1**	**<0.5**	**<1**	**<0.5**	**<1**	**<0.5**	**<1**	**0.6**	**<1**	**1**	**1**		
Standard Deviation *			**0**		**0**		**0.055**		**0**		**0**		**0**		**0**		**0.14**		**0**	**0**		

* A Non Detect Multiplier of 0.5 has been applied.

			Asbestos													Asbestos Classification and Qu
			Asbestos Reported Result	FA- Comment	Mass ACM	Mass AF	Mass Asbestos in AF	Mass Asbestos in FA & AF	Mass Asbestos in ACM	Mass Asbestos in FA	Mass FA	Synthetic Fibres - Comment	Approximate Sample Mass	Asbestos from ACM in Soil	Organic Fibres - Comment	Respirable Fibres - Comment	Asbestos (Fines and Fibrous FA+AF)
			Comment	Comment	g	g	g	g	g	g	g	Comment	g	%w/w	Comment	Comment	% (w/w)
EQL																	
NEPM 2013 Table 1B(5) Generic EIL - Urban Res & Public Open Space																	
NEPM 2013 Table 1A(1) HILs Res A Soil																	
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand																	
>=0m, <1m																	
>=1m, <2m																	
>=2m, <4m																	
>=4m																	
Field ID	**Date**																
BH1-0.1-0.2	**6/10/2021**	1	1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1	51	0.0000	1	1	0.0000
BH1-0.4-0.5	**6/10/2021**																
BH2-0.3-0.4	**6/10/2021**	1	1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1	67	0.0000	1	1	0.0000
BH2-0.9-1.0	**6/10/2021**	1	1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1	42	0.0000	1	1	0.0000
BH3-0.1-0.2	**6/10/2021**	1	1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1	47	0.0000	1	1	0.0000
BH3-0.4-0.5	**6/10/2021**																
BH4-0.2-0.3	**6/10/2021**	1	1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1	17	0.0000	1	1	0.0000
BH4-0.4-0.5	**6/10/2021**																
BH5-0.2-0.3	**6/10/2021**	1	1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1	46	0.0000	1	1	0.0000
BH5-0.5-0.6	**6/10/2021**																
BH6-0.2-0.3	**6/10/2021**	1	1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1	51	0.0000	1	1	0.0000
BH6-0.4-0.5	**6/10/2021**																
BH7-0.2-0.3	**6/10/2021**	1	1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1	46	0.0000	1	1	0.0000
BH7-0.5-0.6	**6/10/2021**																
BH8-0.1-0.2	**6/10/2021**	1	1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1	34	0.0000	1	1	0.0000
BH8-0.4-0.5	**6/10/2021**																
BH9-0.1-0.2	**6/10/2021**																
BH9-1.9-2.0	**6/10/2021**	1	1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1	38	0.0000	1	1	0.0000
BH10-0.1-0.2	**6/10/2021**	1	1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1	44	0.0000	1	1	0.0000
BH10-0.4-0.5	**6/10/2021**																

Statistics

Number of Results	**11**	**11**	**11**	**11**	**11**	**11**	**11**	**11**	**11**	**11**	**11**	**11**	**11**	**11**	**11**
Number of Detects	**11**	**11**	**11**	**11**	**11**	**11**	**11**	**11**	**11**	**11**	**11**	**11**	**11**	**11**	**11**
Minimum Concentration	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**17**	**0**	**1**	**1**	**0**
Maximum Concentration	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**67**	**0**	**1**	**1**	**0**
Standard Deviation *	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**12**	**0**	**0**	**0**	**0**

* A Non Detect Multiplier of 0.5 has been applied.

Groundwater gauging data
Red Bus Services Depot
682a The Entrance Road, Bateau Bay NSW

Well ID	Date gauged	Well depth	Screen	Top of casing elevation	Depth to water	Depth to LNAPL	Apparent LNAPL thickness	Corrected water elevation
		(mBTOC)	(mBTOC)	(mAHD)	(mBTOC)	(mBTOC)	(m)	(mAHD)
MW4	8/10/2021	11.100			9.030	-	-	
MW6	7/10/2021	11.540			9.010	-	-	
MW9	7/10/2021	11.230			9.050	-	-	
MW10	7/10/2021	11.680			8.760	-	-	
MW11	7/10/2021	11.620			8.820	-	-	
MW12	7/10/2021	11.720			8.870	-	-	
MW13	7/10/2021	11.450			8.980	-	-	
MW14	7/10/2021	11.430			9.030	-	-	
MW15	7/10/2021	11.480			9.030	-	-	
MW16	7/10/2021	10.900			8.960	-	-	
MW17	7/10/2021	11.830			8.950	-	-	
MW19	7/10/2021	11.000			8.840	-	-	
MW20	8/10/2021	9.800			9.000			
MW21	8/10/2021	11.450			8.950			
MW23	8/10/2021	11.360			9.070			
MW26	8/10/2021	11.440			9.000			
MW30	8/10/2021	11.630			9.110			
MW31	8/10/2021	9.450			DRY			
MW32	8/10/2021	12.350			8.940			
MW33	8/10/2021	12.200			8.900			
MW34	8/10/2021	12.050			8.880			

Groundwater quality parameters
Red Bus Services Depot
682a The Entrance Road, Bateau Bay NSW

Well ID	Date gauged	pH	Electrical conductivity	Redox (measured)	Redox (corrected)	Dissolved oxygen	Temperature
			(µS/cm)	(mV)	(mV)	(ppm)	(°C)
MW4	8/10/2021	6.23	497	-38.2	160.8	0.53	20.1
MW6	7/10/2021	5.79	418	-85.0	114.0	1.19	22.0
MW9	7/10/2021	6.40	330	83.0	282.0	1.56	21.8
MW10	7/10/2021	5.22	339	150.9	349.9	1.94	23.6
MW11	7/10/2021	5.19	300	201.2	400.2	1.99	22.4
MW12	7/10/2021	4.76	197	203.4	402.4	1.52	19.8
MW13	7/10/2021	6.39	153	152.5	351.5	1.15	20.0
MW14	7/10/2021	4.57	233	176.4	375.4	3.45	20.8
MW15	7/10/2021	4.45	173	196.8	395.8	2.60	21.8
MW16	7/10/2021	6.08	300	92.6	291.6	1.47	22.0
MW17	7/10/2021	4.37	301	220.0	419.0	4.04	21.7
MW19	7/10/2021	4.61	423	170.7	369.7	3.62	21.0
MW20	8/10/2021	4.61	174	155.5	354.5	1.56	24.7
MW21	8/10/2021	5.26	415	-35.5	163.5	1.49	23.1
MW23	8/10/2021	5.80	421	48.7	247.7	1.65	22.6
MW26	8/10/2021	5.70	315	110.0	309.0	4.74	21.3
MW30	8/10/2021	4.59	234	128.3	327.3	1.94	23.5
MW32	8/10/2021	6.12	466	-30.0	169.0	2.06	23.5
MW33	8/10/2021	6.19	469	-47.1	151.9	1.20	24.4
MW34	8/10/2021	6.41	253	-2.3	196.7	1.74	23.2

Notes
Redox: Reduction-oxidation potential - corrected by adding 199 mV to the measured value

		Monocyclic Aromatic Hydrocarbo	IWRG Combined Compounds	Metals								BTEX						TPH (NEPM 1999 Fraction)			
		Naphthalene (MAH)	Chlorinated hydrocarbons	Arsenic (filtered)	Cadmium (filtered)	Chromium (filtered)	Copper (filtered)	Lead (filtered)	Mercury (filtered)	Nickel (filtered)	Zinc (filtered)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene (Sum)	C6 - C9	C10 - C14	C15 - C28	C29 - C36
		µg/L	-	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL		10	0.005	1	0.2	1	1	1	0.1	1	5	1	1	1	2	1	3	20	50	100	100
ADWG 2011 (May 2019 Update) - Health				**10**	**2**		**2,000**	**10**	**1**	**20**		**1**	**800**	**300**			**600**				
NHMRC 2008 - Recreational Waters ADWG 2018				10	2		20,000	100	10	200		10	8,000	3,000			6,000				
NEPM 2013 Table 1A(4) Res HSL A & B GW for Vapour Intrusion, Sand												800 | 800 | 900									
>=8m												900									
NEPM 2013 Table 1C GILs, Fresh Waters					0.2		1.4	3.4	0.06	11	8	950				350					
Field ID	**Date**																				
MW4	**8/10/2021**	40	<0.005	6	<0.2	<1	<1	<1	<0.1	<1	<5	<1	<1	4	3	4	8	30	2,500	4,900	400
MW6	**7/10/2021**	10	<0.005	**21**	<0.2	2	<1	<1	<0.1	<1	<5	<1	<1	3	<2	1	<3	40	7,300	26,000	400
MW9	**7/10/2021**	20	<0.005	<1	<0.2	<1	<1	1	<0.1	<1	22	<1	<1	<1	4	7	11	40	490	1,100	<100
MW10	**7/10/2021**	<10	<0.005	<1	<0.2	<1	2	<1	<0.1	<1	5	<1	<1	<1	<2	<1	<3	30	2,100	9,700	100
MW11	**7/10/2021**	<10	<0.005	2	<0.2	<1	2	<1	<0.1	<1	7	<1	<1	<1	<2	<1	<3	<20	1,500	7,400	<100
MW12	**7/10/2021**	<10	<0.005	<1	<0.2	<1	<1	<1	<0.1	<1	<5	<1	<1	<1	<2	<1	<3	<20	<50	<100	<100
MW13	**7/10/2021**	<10	<0.005	<1	<0.2	<1	<1	<1	<0.1	<1	<5	<1	<1	<1	<2	4	5	<20	600	600	<100
MW14	**7/10/2021**	<10	<0.005	<1	<0.2	<1	<1	<1	0.3	<1	8	<1	<1	<1	<2	<1	<3	<20	<50	<100	<100
MW15	**7/10/2021**	<10	<0.005	<1	<0.2	<1	2	<1	<0.1	<1	<5	<1	<1	<1	<2	<1	<3	<20	<50	<100	<100
MW16	**7/10/2021**	<10	<0.005	1	<0.2	<1	<1	<1	<0.1	2	5	<1	<1	<1	<2	<1	<3	<20	<50	<100	<100
MW17	**7/10/2021**	<10	<0.005	<1	<0.2	<1	2	<1	0.2	<1	24	<1	<1	<1	<2	<1	<3	<20	<50	<100	<100
MW19	**7/10/2021**	<10	<0.005	<1	<0.2	<1	1	1	0.4	<1	6	<1	<1	<1	<2	<1	<3	<20	190	<100	<100
MW20	**8/10/2021**	<10	<0.005	<1	<0.2	<1	2	<1	<0.1	<1	<5	<1	<1	<1	<2	<1	<3	<20	<50	200	<100
MW21	**8/10/2021**	30	<0.005	**21**	<0.2	<1	<1	<1	<0.1	<1	17	<1	<1	2	<2	12	12	<20	140	<100	<100
MW23	**8/10/2021**	<10	<0.005	5	<0.2	<1	<1	<1	<0.1	<1	<5	<1	<1	1	<2	<1	<3	30	720	1,200	<100
MW26	**8/10/2021**	<10	<0.005	<1	<0.2	<1	4	<1	<0.1	<1	9	<1	<1	<1	<2	<1	<3	<20	<50	<100	<100
MW30	**8/10/2021**	<10	<0.005	<1	<0.2	<1	<1	<1	0.8	<1	<5	<1	<1	<1	<2	<1	<3	<20	<50	<100	<100
MW32	**8/10/2021**	20	<0.005	8	<0.2	<1	<1	<1	<0.1	<1	17	<1	<1	4	3	2	4	30	12,000	53,000	500
MW33	**8/10/2021**	70	<0.005	**26**	<0.2	<1	<1	<1	<0.1	<1	<5	<1	<1	11	5	21	26	90	<50	<100	<100
MW34	**8/10/2021**	40	<0.005	6	<0.2	<1	<1	<1	<0.1	<1	12	<1	<1	2	<2	<1	<3	30	2,500	7,300	<100
QA01	**7/10/2021**	<10	<0.005	<1	<0.2	<1	1	1	0.4	<1	6	<1	<1	<1	<2	<1	<3	<20	<50	<100	<100
RB02	**8/10/2021**			<1	<0.2	<1	<1	<1	<0.1	<1	<5										
TB01	**8/10/2021**	<10										<1	<1	<1	<2	<1	<3	<20			
Statistics																					
Number of Results		**22**	**21**	**22**	**22**	**22**	**22**	**22**	**22**	**22**	**22**	**22**	**22**	**22**	**22**	**22**	**22**	**22**	**21**	**21**	**21**
Number of Detects		**7**	**0**	**9**	**0**	**1**	**8**	**3**	**5**	**1**	**12**	**0**	**0**	**7**	**4**	**7**	**6**	**8**	**11**	**10**	**4**
Minimum Concentration		**10**	**<0.005**	**1**	**<0.2**	**<1**	**1**	**1**	**<0.1**	**<1**	**5**	**<1**	**<1**	**1**	**<2**	**1**	**<3**	**<20**	**<50**	**<100**	**100**
Maximum Concentration		**70**	**<0.005**	**26**	**<0.2**	**2**	**4**	**1**	**0.8**	**2**	**24**	**<1**	**<1**	**11**	**5**	**21**	**26**	**90**	**12,000**	**53,000**	**500**
Standard Deviation *		**17**	**0**	**7.7**	**0**	**0.32**	**0.91**	**0.18**	**0.19**	**0.32**	**6.7**	**0**	**0**	**2.4**	**1.1**	**5**	**5.8**	**19**	**2,949**	**12,485**	**138**

* A Non Detect Multiplier of 0.5 has been applied.

			TRH (NEPM 2013 Fraction)																			
		C10 - C36 (Sum)	C6 - C10	C6 - C10 less BTEX (F1)	C10 - C16	C10 - C16 less Naphthalene (F2)	C16 - C34	C34 - C40	C10 - C40 (Sum)	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,2,3-trichloropropane	1,2,4-trimethylbenzene	1,2-dibromoethane	1,2-dichlorobenzene	1,2-dichloroethane	1,2-dichloropropane
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL		100	20	20	50	50	100	100	100	1	1	1	1	1	1	1	1	1	1	1	1	1
ADWG 2011 (May 2019 Update) - Health															**30**			**1**	**1,500**	**3**	
NHMRC 2008 - Recreational Waters ADWG 2018																			1,500		
NEPM 2013 Table 1A(4) Res HSL A & B GW for Vapour In				1,000 | 1,000 | 1,000		1,000 | 1,000 | 1,000															
>=8m				1,000		1,000																
NEPM 2013 Table 1C GILs, Fresh Waters													6,500						160		
Field ID	**Date**																					
MW4	**8/10/2021**	7,800	180	170	3,800	3,760	3,700	<100	7,500	<1	<1	<1	<1	<1	<1	<1	22	<1	<1	<1	<1
MW6	**7/10/2021**	33,700	120	120	14,000	13,990	20,000	<100	34,000	<1	<1	<1	<1	<1	<1	<1	21	<1	<1	<1	<1
MW9	**7/10/2021**	1,590	200	190	760	740	800	<100	1,560	<1	<1	<1	<1	<1	<1	<1	41	<1	<1	<1	<1
MW10	**7/10/2021**	11,900	70	70	4,600	4,600	7,500	<100	12,100	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
MW11	**7/10/2021**	8,900	40	40	4,200	4,200	5,000	<100	9,200	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
MW12	**7/10/2021**	<100	30	30	<50	<50	<100	<100	<100	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
MW13	**7/10/2021**	1,200	80	80	1,100	1,100	200	<100	1,300	<1	<1	<1	<1	<1	<1	<1	4	<1	<1	<1	<1
MW14	**7/10/2021**	<100	<20	<20	<50	<50	<100	<100	<100	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
MW15	**7/10/2021**	<100	<20	<20	<50	<50	<100	<100	<100	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
MW16	**7/10/2021**	<100	<20	<20	<50	<50	<100	<100	<100	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
MW17	**7/10/2021**	<100	<20	<20	<50	<50	<100	<100	<100	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
MW19	**7/10/2021**	190	<20	<20	80	80	<100	<100	<100	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
MW20	**8/10/2021**	200	<20	<20	<50	<50	100	<100	100	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
MW21	**8/10/2021**	140	110	100	220	190	<100	<100	220	<1	<1	<1	<1	<1	<1	<1	7	<1	<1	<1	<1
MW23	**8/10/2021**	1,920	110	110	1,600	1,600	600	<100	2,200	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
MW26	**8/10/2021**	<100	<20	<20	<50	<50	<100	<100	<100	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
MW30	**8/10/2021**	<100	<20	<20	<50	<50	<100	<100	<100	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
MW32	**8/10/2021**	65,500	100	90	23,000	22,980	40,000	<100	63,000	<1	<1	<1	<1	<1	<1	<1	16	<1	<1	<1	<1
MW33	**8/10/2021**	<100	280	240	<50	<50	<100	<100	<100	<1	<1	<1	<1	<1	<1	<1	64	<1	<1	<1	<1
MW34	**8/10/2021**	9,800	90	90	5,200	5,160	4,800	<100	10,000	<1	<1	<1	<1	<1	<1	<1	22	<1	<1	<1	<1
QA01	**7/10/2021**	<100	<20	<20	<50	<50	<100	<100	<100	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
RB02	**8/10/2021**																				
TB01	**8/10/2021**		<20	<20																	
Statistics																					
Number of Results		**21**	**22**	**22**	**21**	**21**	**21**	**21**	**21**	**21**	**21**	**21**	**21**	**21**	**21**	**21**	**21**	**21**	**21**	**21**	**21**
Number of Detects		**12**	**12**	**12**	**11**	**11**	**10**	**0**	**11**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**8**	**0**	**0**	**0**	**0**
Minimum Concentration		**<100**	**<20**	**<20**	**<50**	**<50**	**100**	**<100**	**100**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**
Maximum Concentration		**65,500**	**280**	**240**	**23,000**	**22,980**	**40,000**	**<100**	**63,000**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**64**	**<1**	**<1**	**<1**	**<1**
Standard Deviation *		**15,546**	**75**	**68**	**5,679**	**5,674**	**9,458**	**0**	**15,109**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**17**	**0**	**0**	**0**	**0**

* A Non Detect Multiplier of 0.5 has been applied.

		VOC																				
		1,3,5-trimethylbenzene	1,3-dichlorobenzene	1,3-dichloropropane	1,4-dichlorobenzene	2-butanone (MEK)	4-chlorotoluene	4-methyl-2-pentanone (MIBK)	Acetone	Allyl chloride	Bromobenzene	Bromochloromethane	Bromodichloromethane	Bromoform	Bromomethane	Carbon disulfide	Carbon tetrachloride	Chlorobenzene	Chlorodibromomethane	Chloroethane	Chloroform	Chloromethane
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL		1	1	1	1	5	1	5	5	1	1	1	1	1	5	1	1	1	1	5	5	5
ADWG 2011 (May 2019 Update) - Health					**40**										**1**		**3**	**300**				
NHMRC 2008 - Recreational Waters ADWG 2018																						
NEPM 2013 Table 1A(4) Res HSL A & B GW for Vapour In >=8m																						
NEPM 2013 Table 1C GILs, Fresh Waters			260		60																	
Field ID	**Date**																					
MW4	**8/10/2021**	15	<1	<1	<1	<5	<1	<5	<5	<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<5	<5	<5
MW6	**7/10/2021**	15	<1	<1	<1	<5	<1	<5	<5	<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<5	<5	<5
MW9	**7/10/2021**	23	<1	<1	<1	<5	<1	<5	<5	<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<5	<5	<5
MW10	**7/10/2021**	<1	<1	<1	<1	<5	<1	<5	<5	<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<5	<5	<5
MW11	**7/10/2021**	2	<1	<1	<1	<5	<1	<5	<5	<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<5	<5	<5
MW12	**7/10/2021**	1	<1	<1	<1	<5	<1	<5	<5	<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<5	<5	<5
MW13	**7/10/2021**	10	<1	<1	<1	<5	<1	<5	<5	<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<5	<5	<5
MW14	**7/10/2021**	<1	<1	<1	<1	<5	<1	<5	<5	<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<5	<5	<5
MW15	**7/10/2021**	<1	<1	<1	<1	<5	<1	<5	<5	<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<5	<5	<5
MW16	**7/10/2021**	<1	<1	<1	<1	<5	<1	<5	<5	<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<5	<5	<5
MW17	**7/10/2021**	<1	<1	<1	<1	<5	<1	<5	<5	<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<5	<5	<5
MW19	**7/10/2021**	<1	<1	<1	<1	<5	<1	<5	<5	<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<5	<5	<5
MW20	**8/10/2021**	<1	<1	<1	<1	<5	<1	<5	<5	<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<5	<5	<5
MW21	**8/10/2021**	12	<1	<1	<1	<5	<1	<5	<5	<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<5	<5	<5
MW23	**8/10/2021**	7	<1	<1	<1	<5	<1	<5	<5	<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<5	<5	<5
MW26	**8/10/2021**	<1	<1	<1	<1	<5	<1	<5	<5	<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<5	<5	<5
MW30	**8/10/2021**	<1	<1	<1	<1	<5	<1	<5	<5	<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<5	<5	<5
MW32	**8/10/2021**	10	<1	<1	<1	<5	<1	<5	<5	<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<5	<5	<5
MW33	**8/10/2021**	27	<1	<1	<1	<5	<1	<5	<5	<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<5	<5	<5
MW34	**8/10/2021**	9	<1	<1	<1	<5	<1	<5	<5	<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<5	<5	<5
QA01	**7/10/2021**	<1	<1	<1	<1	<5	<1	<5	<5	<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<5	<5	<5
RB02	**8/10/2021**																					
TB01	**8/10/2021**																					
Statistics																						
Number of Results		**21**	**21**	**21**	**21**	**21**	**21**	**21**	**21**	**21**	**21**	**21**	**21**	**21**	**21**	**21**	**21**	**21**	**21**	**21**	**21**	**21**
Number of Detects		**11**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration		**1**	**<1**	**<1**	**<1**	**<5**	**<1**	**<5**	**<5**	**<1**	**<1**	**<1**	**<1**	**<1**	**<5**	**<1**	**<1**	**<1**	**<1**	**<5**	**<5**	**<5**
Maximum Concentration		**27**	**<1**	**<1**	**<1**	**<5**	**<1**	**<5**	**<5**	**<1**	**<1**	**<1**	**<1**	**<1**	**<5**	**<1**	**<1**	**<1**	**<1**	**<5**	**<5**	**<5**
Standard Deviation *		**8.1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

* A Non Detect Multiplier of 0.5 has been applied.

	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dibromomethane	Dichlorodifluoromethane	Dichloromethane	Iodomethane	Isopropylbenzene	Styrene	TCE	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Trichlorofluoromethane	Vinyl chloride
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	1	1	1	1	5	1	1	1	1	1	1	1	5	5
ADWG 2011 (May 2019 Update) - Health					**4**			**30**		**50**				**0.3**
NHMRC 2008 - Recreational Waters ADWG 2018														
NEPM 2013 Table 1A(4) Res HSL A & B GW for Vapour In														
>=8m														
NEPM 2013 Table 1C GILs, Fresh Waters														

Field ID	Date													
MW4	**8/10/2021**	<1	<1	<1	<1	<5	<1	3	<1	<1	<1	<1	<1	<5	<5
MW6	**7/10/2021**	<1	<1	<1	<1	<5	<1	2	<1	<1	<1	<1	<1	<5	<5
MW9	**7/10/2021**	<1	<1	<1	<1	<5	<1	2	<1	<1	<1	<1	<1	<5	<5
MW10	**7/10/2021**	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	<1	<1	<5	<5
MW11	**7/10/2021**	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	<1	<1	<5	<5
MW12	**7/10/2021**	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	<1	<1	<5	<5
MW13	**7/10/2021**	<1	<1	<1	<1	<5	<1	1	<1	<1	<1	<1	<1	<5	<5
MW14	**7/10/2021**	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	<1	<1	<5	<5
MW15	**7/10/2021**	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	<1	<1	<5	<5
MW16	**7/10/2021**	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	<1	<1	<5	<5
MW17	**7/10/2021**	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	<1	<1	<5	<5
MW19	**7/10/2021**	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	<1	<1	<5	<5
MW20	**8/10/2021**	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	<1	<1	<5	<5
MW21	**8/10/2021**	<1	<1	<1	<1	<5	<1	1	<1	<1	<1	<1	<1	<5	<5
MW23	**8/10/2021**	<1	<1	<1	<1	<5	<1	2	<1	<1	<1	<1	<1	<5	<5
MW26	**8/10/2021**	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	<1	<1	<5	<5
MW30	**8/10/2021**	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	<1	<1	<5	<5
MW32	**8/10/2021**	<1	<1	<1	<1	<5	<1	2	<1	<1	<1	<1	<1	<5	<5
MW33	**8/10/2021**	<1	<1	<1	<1	<5	<1	4	<1	<1	<1	<1	<1	<5	<5
MW34	**8/10/2021**	<1	<1	<1	<1	<5	<1	3	<1	<1	<1	<1	<1	<5	<5
QA01	**7/10/2021**	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	<1	<1	<5	<5
RB02	**8/10/2021**														
TB01	**8/10/2021**														

Statistics

Number of Results	**21**	**21**	**21**	**21**	**21**	**21**	**21**	**21**	**21**	**21**	**21**	**21**	**21**	**21**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**9**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<1**	**<1**	**<1**	**<1**	**<5**	**<1**	**1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<5**	**<5**
Maximum Concentration	**<1**	**<1**	**<1**	**<1**	**<5**	**<1**	**4**	**<1**	**<1**	**<1**	**<1**	**<1**	**<5**	**<5**
Standard Deviation *	**0**	**0**	**0**	**0**	**0**	**0**	**1.1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

* A Non Detect Multiplier of 0.5 has been applied.

APPENDIX E

QAQC TABLES

				Monocyclic Aromatic Hydrocarbo	Physicochemical parameters	Metals								BTEX					
				Naphthalene (MAH)	% Moisture	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene (Sum)
				mg/kg	%	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL				0.5	1	2	0.4	2	5	5	0.1	2	5	0.1	0.1	0.1	0.2	0.1	0.3
Lab Report Number	**Field ID**	**Matrix Type**	**Date**																
831991	**BH2-0.3-0.4**	**Soil**	**6/10/2021**	<0.5	8.7	2.4	<0.4	9.0	<5	5.5	<0.1	<5	15	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3
	QA03	**Soil**	**6/10/2021**	<0.5	7.1	6.9	<0.4	28	9.5	15	<0.1	9.4	61	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3
RPD				0	20	97	0	**103**	62	93	0	61	**121**	0	0	0	0	0	0
831991	**BH2-0.3-0.4**	**Soil**	**6/10/2021**	<0.5	8.7	2.4	<0.4	9.0	<5	5.5	<0.1	<5	15	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3
ES2137105	**QA03a**	**Soil**	**6/10/2021**		18.9	<5	<1	11	5	7	<0.1	4	26	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
RPD					**74**	0	0	20	0	24	0	0	54	0	0	0	0	0	0

***RPDs have only been considered where a concentration is greater than 1 times the EQL.**

****Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each EQL multiplier range are: 100 (5 - 10 x EQL); 50 (10 - 30 x EQL); 30 (> 30 x EQL))**

*****Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory**

					TPH (NEPM 1999 Fraction)						TRH (NEPM 2013 Fraction)									
				Naphthalene	C6 - C9	C10 - C14	C15 - C28	C29 - C36	C10 - C36 (Sum)	C6 - C10	C6 - C10 less BTEX (F1)	C10 - C16	C10 - C16 less Naphthalene (F2)	C16 - C34	C34 - C40	C10 - C40 (Sum)	Acenaphthene	Acenaphthylene	Anthracene
				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL				0.5	10	20	50	50	50	10	10	50	50	100	100	50	0.5	0.5	0.5
Lab Report Number	**Field ID**	**Matrix Type**	**Date**																
831991	**BH2-0.3-0.4**	**Soil**	**6/10/2021**	<0.5	<20	<20	<50	<50	<50	<20	<20	<50	<50	<100	<100	<100	<0.5	<0.5	<0.5
	QA03	**Soil**	**6/10/2021**	<0.5	<20	<20	<50	<50	<50	<20	<20	<50	<50	<100	<100	<100	<0.5	<0.5	<0.5
RPD				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
831991	**BH2-0.3-0.4**	**Soil**	**6/10/2021**	<0.5	<20	<20	<50	<50	<50	<20	<20	<50	<50	<100	<100	<100	<0.5	<0.5	<0.5
ES2137105	**QA03a**	**Soil**	**6/10/2021**	<0.5	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.5	<0.5	<0.5
RPD				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

***RPDs have only been considered where a concentration is greater than 1 times the EQL.**

****Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each EQL multiplier range a**

*****Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any meth**

				PAH														
				Benz(a)anthracene	Benzo(a) pyrene	Benzo(a)pyrene TEQ calc (Zero)	Benzo(b&j)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	PAHs (Sum)	ACM - Comment	AF - Comment
				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	Comment	Comment
EQL				0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		
Lab Report Number	**Field ID**	**Matrix Type**	**Date**																
831991	**BH2-0.3-0.4**	**Soil**	**6/10/2021**	<0.5	0.6	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1	1
	QA03	**Soil**	**6/10/2021**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		
RPD				0	18	18	0	0	0	0	0	0	0	0	0	0	18		
831991	**BH2-0.3-0.4**	**Soil**	**6/10/2021**	<0.5	0.6	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1	1
ES2137105	**QA03a**	**Soil**	**6/10/2021**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		
RPD				0	18	18	0	0	0	0	0	0	0	0	0	0	18		

***RPDs have only been considered where a concentration is greater than 1 times the EQL.**

****Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each EQL multiplier range a**

*****Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any metl**

				Asbestos														Asbestos Classification and Qu
				Asbestos Reported Result	FA- Comment	Mass ACM	Mass AF	Mass Asbestos in AF	Mass Asbestos in FA & AF	Mass Asbestos in ACM	Mass Asbestos in FA	Mass FA	Synthetic Fibres - Comment	Approximate Sample Mass	Asbestos from ACM in Soil	Organic Fibres - Comment	Respirable Fibres - Comment	Asbestos (Fines and Fibrous FA+AF)
				Comment	Comment	g	g	g	g	g	g	g	Comment	g	%w/w	Comment	Comment	% (w/w)
EQL																		
Lab Report Number	**Field ID**	**Matrix Type**	**Date**															
831991	**BH2-0.3-0.4**	**Soil**	**6/10/2021**	1	1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1	67	0.0000	1	1	0.0000
	QA03	**Soil**	**6/10/2021**															
RPD																		
831991	**BH2-0.3-0.4**	**Soil**	**6/10/2021**	1	1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1	67	0.0000	1	1	0.0000
ES2137105	**QA03a**	**Soil**	**6/10/2021**															
RPD																		

***RPDs have only been considered where a concentration is greater than 1 times the EQL.**

****Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each EQL multiplier range a**

*****Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any meth**

				Monocyclic Aromatic Hydrocarbo	IWRG Combined Compounds	Metals								BTEX					
				Naphthalene (MAH)	Chlorinated hydrocarbons	Arsenic (filtered)	Cadmium (filtered)	Chromium (filtered)	Copper (filtered)	Lead (filtered)	Mercury (filtered)	Nickel (filtered)	Zinc (filtered)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene (Sum)
				µg/L	-	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL				10	0.005	1	0.1	1	1	1	0.1	1	5	1	1	1	2	1	2
Lab Report Number	**Field ID**	**Matrix Type**	**Date**																
831781	**MW19**	**Water**	**7/10/2021**	<10	<0.005	<1	<0.2	<1	1	1	0.4	<1	6	<1	<1	<1	<2	<1	<3
	QA01	**Water**	**7/10/2021**	<10	<0.005	<1	<0.2	<1	1	1	0.4	<1	6	<1	<1	<1	<2	<1	<3
RPD				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
831781	**MW19**	**Water**	**7/10/2021**	<10	<0.005	<1	<0.2	<1	1	1	0.4	<1	6	<1	<1	<1	<2	<1	<3
ES2137105	**QA01a**	**Water**	**7/10/2021**			<1	<0.1	<1	<1	<1	0.4	<1	<5	<1	<2	<2	<2	<2	<2
RPD						0	0	0	0	0	0	0	18	0	0	0	0	0	0

***RPDs have only been considered where a concentration is greater than 1 times the EQL.**

****Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each EQL multiplier range are: 100 (5 - 10 x EQL); 50 (10 - 30 x EQL); 30 (> 30 x EQL))**

*****Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory**

					TPH (NEPM 1999 Fraction)					TRH (NEPM 2013 Fraction)									
				Naphthalene	C6 - C9	C10 - C14	C15 - C28	C29 - C36	C10 - C36 (Sum)	C6 - C10	C6 - C10 less BTEX (F1)	C10 - C16	C10 - C16 less Naphthalene (F2)	C16 - C34	C34 - C40	C10 - C40 (Sum)	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane
				µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL				5	20	50	100	50	50	20	20	50	50	100	100	100	1	1	1
Lab Report Number	**Field ID**	**Matrix Type**	**Date**																
831781	**MW19**	**Water**	**7/10/2021**		<20	190	<100	<100	190	<20	<20	80	80	<100	<100	<100	<1	<1	<1
	QA01	**Water**	**7/10/2021**		<20	<50	<100	<100	<100	<20	<20	<50	<50	<100	<100	<100	<1	<1	<1
RPD					0	117	0	0	62	0	0	46	46	0	0	0	0	0	0
831781	**MW19**	**Water**	**7/10/2021**		<20	190	<100	<100	190	<20	<20	80	80	<100	<100	<100	<1	<1	<1
ES2137105	**QA01a**	**Water**	**7/10/2021**	<5	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<5	<5	<5
RPD					0	117	0	0	117	0	0	0	0	0	0	0	0	0	0

***RPDs have only been considered where a concentration is greater than 1 times the EQL.**

****Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each EQL multiplier range a**

*****Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any meth**

				1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropene	1,2,3-trichlorobenzene	1,2,3-trichloropropane	1,2,4-trichlorobenzene	1,2,4-trimethylbenzene	1,2-dibromo-3-chloropropane	1,2-dibromoethane	1,2-dichlorobenzene	1,2-dichloroethane	1,2-dichloropropane	1,3,5-trimethylbenzene	1,3-dichlorobenzene	1,3-dichloropropane
				µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL				1	1	1	5	5	1	5	1	5	1	1	1	1	1	1	1
Lab Report Number	**Field ID**	**Matrix Type**	**Date**																
831781	**MW19**	**Water**	**7/10/2021**	<1	<1	<1			<1		<1		<1	<1	<1	<1	<1	<1	<1
	QA01	**Water**	**7/10/2021**	<1	<1	<1			<1		<1		<1	<1	<1	<1	<1	<1	<1
RPD				0	0	0			0		0		0	0	0	0	0	0	0
831781	**MW19**	**Water**	**7/10/2021**	<1	<1	<1			<1		<1		<1	<1	<1	<1	<1	<1	<1
ES2137105	**QA01a**	**Water**	**7/10/2021**	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
RPD				0	0	0			0		0		0	0	0	0	0	0	0

***RPDs have only been considered where a concentration is greater than 1 times the EQL.**

****Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each EQL multiplier range a**

*****Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any meth**

				VOC														
				1,4-dichlorobenzene	2,2-dichloropropane	2-butanone (MEK)	2-chlorotoluene	2-hexanone (MBK)	4-chlorotoluene	4-methyl-2-pentanone (MIBK)	Acetone	Allyl chloride	Bromobenzene	Bromochloromethane	Bromodichloromethane	Bromoform	Bromomethane	Carbon disulfide	Carbon tetrachloride
				µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL				1	5	5	5	50	1	5	5	1	1	1	1	1	5	1	1
Lab Report Number	**Field ID**	**Matrix Type**	**Date**																
831781	**MW19**	**Water**	**7/10/2021**	<1		<5			<1	<5	<5	<1	<1	<1	<1	<1	<5	<1	<1
	QA01	**Water**	**7/10/2021**	<1		<5			<1	<5	<5	<1	<1	<1	<1	<1	<5	<1	<1
RPD				0		0			0	0	0	0	0	0	0	0	0	0	0
831781	**MW19**	**Water**	**7/10/2021**	<1		<5			<1	<5	<5	<1	<1	<1	<1	<1	<5	<1	<1
ES2137105	**QA01a**	**Water**	**7/10/2021**	<5	<5	<50	<5	<50	<5	<50			<5		<5	<5	<50	<5	<5
RPD				0		0			0	0			0		0	0	0	0	0

***RPDs have only been considered where a concentration is greater than 1 times the EQL.**

****Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each EQL multiplier range a**

*****Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any meth**

				Chlorobenzene	Chlorodibromomethane	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	cis-1,4-Dichloro-2-butene	Dibromomethane	Dichlorodifluoromethane	Dichloromethane	Hexachlorobutadiene	Iodomethane	Isopropylbenzene	n-butylbenzene	n-propylbenzene
				µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL				1	1	5	5	5	1	1	5	1	1	5	5	1	1	5	5
Lab Report Number	**Field ID**	**Matrix Type**	**Date**																
831781	**MW19**	**Water**	**7/10/2021**	<1	<1	<5	<5	<5	<1	<1		<1	<1	<5		<1	<1		
	QA01	**Water**	**7/10/2021**	<1	<1	<5	<5	<5	<1	<1		<1	<1	<5		<1	<1		
RPD				0	0	0	0	0	0	0		0	0	0		0	0		
831781	**MW19**	**Water**	**7/10/2021**	<1	<1	<5	<5	<5	<1	<1		<1	<1	<5		<1	<1		
ES2137105	**QA01a**	**Water**	**7/10/2021**	<5	<5	<50	<5	<50	<5	<5	<5	<5	<50		<5	<5	<5	<5	<5
RPD				0	0	0	0	0	0	0		0	0			0	0		

***RPDs have only been considered where a concentration is greater than 1 times the EQL.**

****Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each EQL multiplier range a**

*****Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any met**

				Pentachloroethane	p-isopropyltoluene	sec-butylbenzene	Styrene	TCE	tert-butylbenzene	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	trans-1,4-Dichloro-2-butene	Trichlorofluoromethane	Vinyl acetate	Vinyl chloride
				µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL				5	5	5	1	1	5	1	1	1	5	5	50	5
Lab Report Number	**Field ID**	**Matrix Type**	**Date**													
831781	**MW19**	**Water**	**7/10/2021**				<1	<1		<1	<1	<1		<5		<5
	QA01	**Water**	**7/10/2021**				<1	<1		<1	<1	<1		<5		<5
RPD							0	0		0	0	0		0		0
831781	**MW19**	**Water**	**7/10/2021**				<1	<1		<1	<1	<1		<5		<5
ES2137105	**QA01a**	**Water**	**7/10/2021**	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<50	<50
RPD							0	0		0	0	0		0		0

***RPDs have only been considered where a concentration is greater than 1 times the EQL.**

****Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each EQL multiplier range a**

*****Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any metl**

APPENDIX F

BORELOGS

BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO.

BH01

SHEET 1 OF 1

Client:	**Red Bus Company Services**	Date Commenced:	**10/5/21**
Project:	**Groundwater Sampling and Site Assessment Report**	Date Completed:	**10/5/21**
Borehole Location:	**682A Coleridge Rd, Bateau Bay NSW 2261**	Recorded By:	**JW**
Project Number:	**PS126618**	Log Checked By:	**RL**

Drill Model/Mounting:	**Comacchio-Matrix**	Driller:	Surface RL:
Borehole Diameter:	**100 mm**	Driller Lic No:	Co-ords:

Borehole Information | **Field Material Description**

1 METHOD	2 SUPPORT	3 WATER	4 WELL CONSTRUCTION	5 RL(m)	5 DEPTH(m)	6 Field PID (ppm)	7 SAMPLE	8 GRAPHIC LOG	9 10 SOIL/ROCK MATERIAL FIELD DESCRIPTION	Field pH	11 MOISTURE	12 RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	13 STRUCTURE AND ADDITIONAL OBSERVATIONS
HA						0.1	J+B		Gravelly SAND; dry.				BH01_0.1-0.2
					0.20				NATURAL SAND; grey, medium to coarse grained, becoming orange with depths.				
						0.1	J+B						BH01_0.4-0.5
				0.5									
						0.1	J+B						BH01_0.9-1.0
				1.0	1.00 -1				Target depth reached at 1.00 m				

This borehole log should be read in conjunction with WSP's accompanying standard notes.

BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO.

BH02

SHEET 1 OF 1

Client:	**Red Bus Company Services**	Date Commenced:	**10/5/21**
Project:	**Groundwater Sampling and Site Assessment Report**	Date Completed:	**10/5/21**
Borehole Location:	**682A Coleridge Rd, Bateau Bay NSW 2261**	Recorded By:	**JW**
Project Number:	**PS126618**	Log Checked By:	**RL**

Drill Model/Mounting:	**Comacchio-Matrix**	Driller:	Surface RL:
Borehole Diameter:	**100 mm**	Driller Lic No:	Co-ords:

Borehole Information | **Field Material Description**

1 METHOD	2 SUPPORT	3 WATER	4 WELL CONSTRUCTION	5 RL(m)	5 DEPTH(m)	6 Field PID (ppm)	7 SAMPLE	8 GRAPHIC LOG	9 10 SOIL/ROCK MATERIAL FIELD DESCRIPTION	Field pH	11 MOISTURE	12 RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	13 STRUCTURE AND ADDITIONAL OBSERVATIONS
EX						0.1	J+B		FILL SAND; brown, rootlets, dry.				BH2_0.1-0.2
					0.30	0.1	J+B		SAND; brown and orange, moist, medium to coarse grained.				BH2_0.3-0.4 QA03, QA03A
				0.5	0.50				FILL: Gravelly CLAY; grey mottles, medium plasticity, moist, green patches.				
				1.0	-1	0.1	J+B						BH2_0.9-1.0
				1.5									
				2.0	2.00 -2				NATURAL: Sandy CLAY; black, moist, becoming sandy with depths, medium plasticity.				
				2.5									
				3.0	-3								
				3.5									
				4.0	-4	0.1	J+B						BH2_4.0
				4.5	4.50				Target depth reached at 4.50 m				

This borehole log should be read in conjunction with WSP's accompanying standard notes.

BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO.

BH03

SHEET 1 OF 1

Client:	**Red Bus Company Services**	Date Commenced:	**10/5/21**
Project:	**Groundwater Sampling and Site Assessment Report**	Date Completed:	**10/5/21**
Borehole Location:	**682A Coleridge Rd, Bateau Bay NSW 2261**	Recorded By:	**JW**
Project Number:	**PS126618**	Log Checked By:	**RL**

Drill Model/Mounting:	**Comacchio-Matrix**	Driller:	Surface RL:
Borehole Diameter:	**100 mm**	Driller Lic No:	Co-ords:

Borehole Information | **Field Material Description**

1 METHOD	2 SUPPORT	3 WATER	4 WELL CONSTRUCTION	5 RL(m)	5 DEPTH(m)	6 Field PID (ppm)	7 SAMPLE	8 GRAPHIC LOG	9 10 SOIL/ROCK MATERIAL FIELD DESCRIPTION	Field pH	11 MOISTURE	12 RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	13 STRUCTURE AND ADDITIONAL OBSERVATIONS
HA						0.1	J+B		Gravelly SAND; dry.				BH03_0.1-0.2
					0.20				NATURAL SAND; grey, medium to coarse grained, becoming orange with depths.				
						0.1	J+B						BH03_0.4-0.5
				0.5									
						0.1	J						BH03_0.9-1.0
				1.0	1.00 -1				Target depth reached at 1.00 m				

This borehole log should be read in conjunction with WSP's accompanying standard notes.

BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO.

BH04

Client:	**Red Bus Company Services**	Date Commenced:	**10/5/21**
Project:	**Groundwater Sampling and Site Assessment Report**	Date Completed:	**10/5/21**
Borehole Location:	**682A Coleridge Rd, Bateau Bay NSW 2261**	Recorded By:	**JW**
Project Number:	**PS126618**	Log Checked By:	**RL**

Drill Model/Mounting:	**Comacchio-Matrix**	Driller:	Surface RL:
Borehole Diameter:	**100 mm**	Driller Lic No:	Co-ords:

Borehole Information / Field Material Description

1 METHOD	2 SUPPORT	3 WATER	4 WELL CONSTRUCTION	5 RL(m)	5 DEPTH(m)	6 Field PID (ppm)	7 SAMPLE	8 GRAPHIC LOG	9 10 SOIL/ROCK MATERIAL FIELD DESCRIPTION	Field pH	11 MOISTURE	12 RELATIVE DENSITY /CONSISTENCY	13 STRUCTURE AND ADDITIONAL OBSERVATIONS
HA					0.10				Concrete				
						0.1	J+B		FILL Gravelly SAND; brown, fine to coarse grained, concrete cobbles.				BH04_0.2-0.3
					0.30				Becoming orange and brown, dry.				
						0.1	J+B						BH04_0.4-0.5
				0.5	0.50				Becoming white and brown, dry.				
					0.60				Clayey SAND; brown and orange, trace gravels, less than 3mm, medium plasticity, dry.				
					0.80				NATURAL SAND; orange, medium grained, moist.				
						0.1	J+B						BH04_0.9-1.0 QA01
				1.0	1.00 -1				Target depth reached at 1.00 m				

RELATIVE DENSITY /CONSISTENCY: VS S F ST VST H / FB VL L MD D VD

This borehole log should be read in conjunction with WSP's accompanying standard notes.

BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO.

BH05

SHEET 1 OF 1

Client:	**Red Bus Company Services**	Date Commenced:	**10/5/21**
Project:	**Groundwater Sampling and Site Assessment Report**	Date Completed:	**10/5/21**
Borehole Location:	**682A Coleridge Rd, Bateau Bay NSW 2261**	Recorded By:	**JW**
Project Number:	**PS126618**	Log Checked By:	**RL**

Drill Model/Mounting:	**Comacchio-Matrix**	Driller:	Surface RL:
Borehole Diameter:	**100 mm**	Driller Lic No:	Co-ords:

Borehole Information | **Field Material Description**

1 METHOD	2 SUPPORT	3 WATER	4 WELL CONSTRUCTION	5 RL(m)	5 DEPTH(m)	6 Field PID (ppm)	7 SAMPLE	8 GRAPHIC LOG	9 10 SOIL/ROCK MATERIAL FIELD DESCRIPTION	Field pH	11 MOISTURE	12 RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	13 STRUCTURE AND ADDITIONAL OBSERVATIONS
HA									Gravelly SAND; dry.				
					0.20	0.1	J+B		Gravelly SAND; grey, medium to coarse grained, becoming orange with depths.				BH05_0.2-0.3 QA02, QA02A
				0.5	0.50	0.1	J+B		SAND; orange, medium to coarse grained, dry.				BH05_0.5-0.6
						0.1	J+B						BH05_0.9-1.0
				1.0	1.00 -1				Target depth reached at 1.00 m				

This borehole log should be read in conjunction with WSP's accompanying standard notes.

BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO.

BH06

SHEET 1 OF 1

Client:	**Red Bus Company Services**	Date Commenced:	**10/5/21**
Project:	**Groundwater Sampling and Site Assessment Report**	Date Completed:	**10/5/21**
Borehole Location:	**682A Coleridge Rd, Bateau Bay NSW 2261**	Recorded By:	**JW**
Project Number:	**PS126618**	Log Checked By:	**RL**

Drill Model/Mounting:	**Comacchio-Matrix**	Driller:	Surface RL:
Borehole Diameter:	**100 mm**	Driller Lic No:	Co-ords:

Borehole Information | **Field Material Description**

1 METHOD	2 SUPPORT	3 WATER	4 WELL CONSTRUCTION	5 RL(m)	5 DEPTH(m)	6 Field PID (ppm)	7 SAMPLE	8 GRAPHIC LOG	9 10 SOIL/ROCK MATERIAL FIELD DESCRIPTION	Field pH	11 MOISTURE	12 RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	13 STRUCTURE AND ADDITIONAL OBSERVATIONS
HA									Gravelly SAND; dry.				
					0.20	0.1	J+B		Gravelly SAND; grey, medium to coarse grained, becoming orange with depths.				BH06_0.2-0.3
						0.1	J+B						BH06_0.4-0.5
				0.5	0.50				FILL SAND; orange, medium to coarse grained, dry.				
						0.1	J+B						BH06_0.9-1.0
				1.0	1.00 -1				Target depth reached at 1.00 m				

This borehole log should be read in conjunction with WSP's accompanying standard notes.

BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO.

BH07

SHEET 1 OF 1

Client:	**Red Bus Company Services**	Date Commenced:	**10/5/21**
Project:	**Groundwater Sampling and Site Assessment Report**	Date Completed:	**10/5/21**
Borehole Location:	**682A Coleridge Rd, Bateau Bay NSW 2261**	Recorded By:	**JW**
Project Number:	**PS126618**	Log Checked By:	**RL**

Drill Model/Mounting:	**Comacchio-Matrix**	Driller:	Surface RL:
Borehole Diameter:	**100 mm**	Driller Lic No:	Co-ords:

Borehole Information | **Field Material Description**

1 METHOD	2 SUPPORT	3 WATER	4 WELL CONSTRUCTION	5 RL(m)	5 DEPTH(m)	6 Field PID (ppm)	7 SAMPLE	8 GRAPHIC LOG	9 10 SOIL/ROCK MATERIAL FIELD DESCRIPTION	Field pH	11 MOISTURE	12 RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	13 STRUCTURE AND ADDITIONAL OBSERVATIONS
HA									Gravelly SAND; brown, less than 3mm, dry.				
					0.20	0.1	J+B		Gravelly SAND; grey, medium to coarse grained, becoming orange with depths.				BH07_0.2-0.3
				0.5	0.50	0.1	J+B		SAND; orange, medium to coarse grained, moist.				BH07_0.5-0.6
						0.1	J+B						BH07_0.9-1.0
				1.0	1.00 -1				Target depth reached at 1.00 m				

This borehole log should be read in conjunction with WSP's accompanying standard notes.

BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO.

BH08

SHEET 1 OF 1

Client:	**Red Bus Company Services**	Date Commenced:	**10/5/21**
Project:	**Groundwater Sampling and Site Assessment Report**	Date Completed:	**10/5/21**
Borehole Location:	**682A Coleridge Rd, Bateau Bay NSW 2261**	Recorded By:	**JW**
Project Number:	**PS126618**	Log Checked By:	**RL**

Drill Model/Mounting:	**Comacchio-Matrix**	Driller:	Surface RL:
Borehole Diameter:	**100 mm**	Driller Lic No:	Co-ords:

Borehole Information | **Field Material Description**

1 METHOD	2 SUPPORT	3 WATER	4 WELL CONSTRUCTION	5 RL(m)	5 DEPTH(m)	6 Field PID (ppm)	7 SAMPLE	8 GRAPHIC LOG	9 10 SOIL/ROCK MATERIAL FIELD DESCRIPTION	Field pH	11 MOISTURE	12 RELATIVE DENSITY /CONSISTENCY (FB VS VL S L F MD ST D VST VD H)	13 STRUCTURE AND ADDITIONAL OBSERVATIONS
EX						0.1	J+B		Clayey SAND; brown, less than 3mm, dry.				BH08_0.1-0.2
					0.40	0.1	J		NATURAL SAND; orange, fine to coarse grained.				BH08_0.4-0.5
				0.5									
						0.1	J						BH08_0.9-1.0
				1.0	1.00 -1				Target depth reached at 1.00 m				

This borehole log should be read in conjunction with WSP's accompanying standard notes.

BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO.

BH09

SHEET 1 OF 1

Client:	**Red Bus Company Services**	Date Commenced:	**10/5/21**
Project:	**Groundwater Sampling and Site Assessment Report**	Date Completed:	**10/5/21**
Borehole Location:	**682A Coleridge Rd, Bateau Bay NSW 2261**	Recorded By:	**JW**
Project Number:	**PS126618**	Log Checked By:	**RL**

Drill Model/Mounting:	**Comacchio-Matrix**	Driller:	Surface RL:
Borehole Diameter:	**100 mm**	Driller Lic No:	Co-ords:

Borehole Information | **Field Material Description**

1 METHOD	2 SUPPORT	3 WATER	4 WELL CONSTRUCTION	5 RL(m)	5 DEPTH(m)	6 Field PID (ppm)	7 SAMPLE	8 GRAPHIC LOG	9 10 SOIL/ROCK MATERIAL FIELD DESCRIPTION	Field pH	11 MOISTURE	12 RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	13 STRUCTURE AND ADDITIONAL OBSERVATIONS
EX						0.1	J+B		Clayey SAND; brown, less than 3mm, dry.				BH9_0.1-0.2
					0.40	0.1	J+B		CLAY; red, medium plasticity.				BH9_0.4-0.5
				0.5									
						0.1	J+B						BH9_0.9-1.0
				1.0	-1								
				1.5									
					1.80				SAND; brown, medium to coarse grained, moist.				
				2.0	2.00 -2				Target depth reached at 2.00 m				

This borehole log should be read in conjunction with WSP's accompanying standard notes.

BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO.

BH10

Client:	**Red Bus Company Services**	Date Commenced:	**10/5/21**
Project:	**Groundwater Sampling and Site Assessment Report**	Date Completed:	**10/5/21**
Borehole Location:	**682A Coleridge Rd, Bateau Bay NSW 2261**	Recorded By:	**JW**
Project Number:	**PS126618**	Log Checked By:	**RL**

Drill Model/Mounting:	**Comacchio-Matrix**	Driller:	Surface RL:
Borehole Diameter:	**100 mm**	Driller Lic No:	Co-ords:

Borehole Information | **Field Material Description**

1 METHOD	2 SUPPORT	3 WATER	4 WELL CONSTRUCTION	5 RL(m)	5 DEPTH(m)	6 Field PID (ppm)	7 SAMPLE	8 GRAPHIC LOG	9 10 SOIL/ROCK MATERIAL FIELD DESCRIPTION	Field pH	11 MOISTURE	12 RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	13 STRUCTURE AND ADDITIONAL OBSERVATIONS
EX						0.1	J		Clayey SAND; dry, brown, fine grained sand, low plasticity clay, no odour.				BH10_0.1-0.2
					0.40	0.1	J		CLAY; brown, medium plasticity, dry, no odour, no staining.				BH10_0.4-0.5
				0.5									
						0.1	J						BH10_0.7-0.8
					0.86				Target depth reached at 0.86 m				

This borehole log should be read in conjunction with WSP's accompanying standard notes.

APPENDIX G

CALIBRATION CERTIFICATES

Multi Parameter Water Meter

Instrument **YSI Quatro Pro Plus**
Serial No. **20M101177**

Air-Met Scientific Pty Ltd
1300 137 067

Item	Test	Pass	Comments
Battery	Charge Condition	✓	
	Fuses	✓	
	Capacity	✓	
Switch/keypad	Operation	✓	
Display	Intensity	✓	
	Operation (segments)	✓	
Grill Filter	Condition	✓	
	Seal	✓	
PCB	Condition	✓	
Connectors	Condition	✓	
Sensor	1. pH	✓	
	2. mV	✓	
	3. EC	✓	
	4. D.O	✓	
	5. Temp	✓	
Alarms	Beeper		
	Settings		
Software	Version		
Data logger	Operation		
Download	Operation		
Other tests:			

Certificate of Calibration

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

Sensor	Serial no	Standard Solutions	Certified	Solution Bottle Number	Instrument Reading
1. pH 10.00		pH 10.00		3670064	pH 9.89
2. pH 7.00		pH 7.00		372012	pH 7.02
3. pH 4.00		pH 4.00		367234	pH 4.07
4. mV		231.8 mV		371922/364219	231.8mV
5. EC		2.76mS		369734	2.75mS
6. D.O		0.00ppm		10959	0.00ppm
7. Temp		21.4°C		MultiTherm	21.1.°C

Calibrated by: **Gary Needs**

Calibration date: **16/09/2021**

Next calibration due: **17/10/2021**

Oil / Water Interface Meter

Instrument Interface Meter (30M)
Serial No. 348870

Air-Met Scientific Pty Ltd
1300 137 067

Item	Test	Pass	Comments
Battery	Compartment	✓	
	Capacity	✓	
Probe	Cleaned/Decon.	✓	
	Operation	✓	
Connectors	Condition	✓	
		✓	
Tape Check	Cleaned	✓	
	Checked for cuts	✓	
Instrument Test	At surface level	✓	

Certificate of Calibration

This is to certify that the above instrument has been cleaned and tested.

Calibrated by: **Kylie Boardman**

Calibration date: **17/09/2021**

Next calibration due: **16/11/2021**

PID Calibration Certificate

Instrument PhoCheck Tiger
Serial No. T-113989

Air-Met Scientific Pty Ltd
1300 137 067

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

Certificate of Calibration

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

Sensor	Serial no	Calibration gas and concentration	Certified	Gas bottle No		Instrument Reading
PID Lamp		93ppm Isobutylene	NATA	SY361		92.4 ppm

Calibrated by: **Kylie Rawlings**

Calibration date: **17/09/2021**

Next calibration due: **16/03/2022**

APPENDIX H

LABORATORY CERTIFICATES

eurofins | Environment Testing

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email: EnviroSales@eurofins.com

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NATA # 1261 Site # 1254

Sydney
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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

Eurofins ARL Pty Ltd
ABN: 91 05 0159 898

Perth
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Welshpool WA 6106
Phone : +61 8 6253 4444
NATA # 2377 Site # 2370

Eurofins Environment Testing NZ Limited
NZBN: 9429046024954

Auckland
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Penrose, Auckland 1061
Phone : +64 9 526 45 51
IANZ # 1327

Christchurch
43 Detroit Drive
Rolleston, Christchurch 7675
Phone : 0800 856 450
IANZ # 1290

Company Name: WSP Australia P/L Newcastle
Address: PO Box 1162
Newcastle
NSW 2300

Project Name: RED BUS SERVICES BATEAU BAY
Project ID: PS126618

Order No.: 30072355
Report #: 831781
Phone: 02 4929 8300
Fax: 02 4929 7299

Received: Oct 12, 2021 8:01 AM
Due: Oct 19, 2021
Priority: 5 Day
Contact Name: Richie Lamont

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						HOLD	Metals M8	Metals M8 filtered	Volatile Organics	Eurofins Suite B1	BTEXN and Volatile TRH
Melbourne Laboratory - NATA # 1261 Site # 1254											
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	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	MW4	Oct 08, 2021		Water	S21-Oc26683			X	X	X	
2	MW6	Oct 07, 2021		Water	S21-Oc26686			X	X	X	
3	MW9	Oct 07, 2021		Water	S21-Oc26687			X	X	X	
4	MW10	Oct 07, 2021		Water	S21-Oc26688			X	X	X	
5	MW11	Oct 07, 2021		Water	S21-Oc26689			X	X	X	
6	MW12	Oct 07, 2021		Water	S21-Oc26690			X	X	X	
7	MW13	Oct 07, 2021		Water	S21-Oc26691			X	X	X	
8	MW14	Oct 07, 2021		Water	S21-Oc26692			X	X	X	
9	MW15	Oct 07, 2021		Water	S21-Oc26693			X	X	X	

eurofins | Environment Testing

web: www.eurofins.com.au
email: EnviroSales@eurofins.com

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ABN: 50 005 085 521

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Sydney
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NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

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NATA # 2377 Site # 2370

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43 Detroit Drive
Rolleston, Christchurch 7675
Phone : 0800 856 450
IANZ # 1290

Company Name: WSP Australia P/L Newcastle
Address: PO Box 1162
Newcastle
NSW 2300

Project Name: RED BUS SERVICES BATEAU BAY
Project ID: PS126618

Order No.: 30072355
Report #: 831781
Phone: 02 4929 8300
Fax: 02 4929 7299

Received: Oct 12, 2021 8:01 AM
Due: Oct 19, 2021
Priority: 5 Day
Contact Name: Richie Lamont

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						HOLD	Metals M8	Metals M8 filtered	Volatile Organics	Eurofins Suite B1	BTEXN and Volatile TRH
Melbourne Laboratory - NATA # 1261 Site # 1254											
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794											
Mayfield Laboratory - NATA # 1261 Site # 25079											
Perth Laboratory - NATA # 2377 Site # 2370											
External Laboratory											
10	MW16	Oct 07, 2021		Water	S21-Oc26694			X	X	X	
11	MW17	Oct 07, 2021		Water	S21-Oc26695			X	X	X	
12	MW19	Oct 07, 2021		Water	S21-Oc26696			X	X	X	
13	MW20	Oct 08, 2021		Water	S21-Oc26697			X	X	X	
14	MW21	Oct 08, 2021		Water	S21-Oc26698			X	X	X	
15	MW23	Oct 08, 2021		Water	S21-Oc26699			X	X	X	
16	MW26	Oct 08, 2021		Water	S21-Oc26700			X	X	X	
17	MW30	Oct 08, 2021		Water	S21-Oc26701			X	X	X	
18	MW32	Oct 08, 2021		Water	S21-Oc26702			X	X	X	
19	MW33	Oct 08, 2021		Water	S21-Oc26703			X	X	X	
20	MW34	Oct 08, 2021		Water	S21-Oc26704			X	X	X	

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 # 20794

Newcastle
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Mayfield East NSW 2304
PO Box 60 Wickham 2293
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NATA # 1261 Site # 25079

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Rolleston, Christchurch 7675
Phone : 0800 856 450
IANZ # 1290

Company Name: WSP Australia P/L Newcastle
Address: PO Box 1162
Newcastle
NSW 2300

Project Name: RED BUS SERVICES BATEAU BAY
Project ID: PS126618

Order No.: 30072355
Report #: 831781
Phone: 02 4929 8300
Fax: 02 4929 7299

Received: Oct 12, 2021 8:01 AM
Due: Oct 19, 2021
Priority: 5 Day
Contact Name: Richie Lamont

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						HOLD	Metals M8	Metals M8 filtered	Volatile Organics	Eurofins Suite B1	BTEXN and Volatile TRH
Melbourne Laboratory - NATA # 1261 Site # 1254											
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794											
Mayfield Laboratory - NATA # 1261 Site # 25079											
Perth Laboratory - NATA # 2377 Site # 2370											
External Laboratory											
21	RB02	Oct 08, 2021		Water	S21-Oc26705			X			
22	TB01	Oct 08, 2021		Water	S21-Oc26706						X
23	QA01	Oct 07, 2021		Water	S21-Oc26707		X		X	X	
24	QA02	Oct 06, 2021		Water	S21-Oc26708	X					
25	QA02a	Oct 06, 2021		Water	S21-Oc26709	X					
Test Counts						2	1	21	21	21	1

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Christchurch
43 Detroit Drive
Rolleston, Christchurch 7675
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IANZ # 1290

Sample Receipt Advice

Company name:	WSP Australia P/L Newcastle
Contact name:	Richie Lamont
Project name:	RED BUS SERVICES BATEAU BAY
Project ID:	PS126618
Turnaround time:	5 Day
Date/Time received	Oct 12, 2021 8:01 AM
Eurofins reference	831781

Sample Information

✓	A detailed list of analytes logged into our LIMS, is included in the attached summary table.
✓	Sample Temperature of a random sample selected from the batch as recorded by Eurofins Sample Receipt : 13 degrees Celsius.
✓	All samples have been received as described on the above COC.
✗	COC has been completed correctly.
✓	Attempt to chill was evident.
✓	Appropriately preserved sample containers have been used.
✓	All samples were received in good condition.
✓	Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
✓	Appropriate sample containers have been used.
✓	Sample containers for volatile analysis received with zero headspace.
✓	Split sample sent to requested external lab.
✗	Some samples have been subcontracted.
N/A	Custody Seals intact (if used).

Notes

QA1a packed for ALS, Please indicate number of containers sent in containers column of the COC. Heavy Metals analysis is changed to Heavy Metals filtered analysis as filtered bottle was provided.

Contact

If you have any questions with respect to these samples, please contact your Analytical Services Manager:

Andrew Black on phone : (+61) 2 9900 8490 or by email: AndrewBlack@eurofins.com

Results will be delivered electronically via email to Richie Lamont - richie.lamont@wsp.com.

Note: A copy of these results will also be delivered to the general WSP Australia P/L Newcastle email address.

WSP Australia P/L Newcastle
PO Box 1162
Newcastle
NSW 2300

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: **Richie Lamont**

Report **831781-W**
Project name RED BUS SERVICES BATEAU BAY
Project ID PS126618
Received Date Oct 12, 2021

Client Sample ID			**MW4**	**MW6**	**MW9**	**MW10**
Sample Matrix			**Water**	**Water**	**Water**	**Water**
Eurofins Sample No.			**S21-Oc26683**	**S21-Oc26686**	**S21-Oc26687**	**S21-Oc26688**
Date Sampled			**Oct 08, 2021**	**Oct 07, 2021**	**Oct 07, 2021**	**Oct 07, 2021**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH C6-C9	0.02	mg/L	0.03	0.04	0.04	0.03
TRH C10-C14	0.05	mg/L	2.5	7.3	0.49	2.1
TRH C15-C28	0.1	mg/L	4.9	26	1.1	9.7
TRH C29-C36	0.1	mg/L	0.4	0.4	< 0.1	0.1
TRH C10-C36 (Total)	0.1	mg/L	7.8	33.7	1.59	11.9
Naphthalene[N02]	0.01	mg/L	0.04	0.01	0.02	< 0.01
TRH C6-C10	0.02	mg/L	0.18	0.12	0.20	0.07
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	0.17	0.12	0.19	0.07
TRH >C10-C16	0.05	mg/L	3.8	14	0.76	4.6
TRH >C10-C16 less Naphthalene (F2)[N01]	0.05	mg/L	3.76	13.99	0.74	4.6
TRH >C16-C34	0.1	mg/L	3.7	20	0.8	7.5
TRH >C34-C40	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	7.5	34	1.56	12.1
BTEX						
Benzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Toluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Ethylbenzene	0.001	mg/L	0.004	0.003	< 0.001	< 0.001
m&p-Xylenes	0.002	mg/L	0.003	< 0.002	0.004	< 0.002
o-Xylene	0.001	mg/L	0.004	0.001	0.007	< 0.001
Xylenes - Total*	0.003	mg/L	0.008	< 0.003	0.011	< 0.003
4-Bromofluorobenzene (surr.)	1	%	100	104	104	105
Volatile Organics						
1.1-Dichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.1-Trichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.1.2-Tetrachloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.2-Trichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.2.2-Tetrachloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dibromoethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2.3-Trichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2.4-Trimethylbenzene	0.001	mg/L	0.022	0.021	0.041	< 0.001
1.3-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001

Client Sample ID			MW4	MW6	MW9	MW10
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S21-Oc26683	S21-Oc26686	S21-Oc26687	S21-Oc26688
Date Sampled			Oct 08, 2021	Oct 07, 2021	Oct 07, 2021	Oct 07, 2021
Test/Reference	LOR	Unit				
Volatile Organics						
1.3-Dichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.3.5-Trimethylbenzene	0.001	mg/L	0.015	0.015	0.023	< 0.001
1.4-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
2-Butanone (MEK)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Propanone (Acetone)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Chlorotoluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
4-Methyl-2-pentanone (MIBK)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Allyl chloride	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromochloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromodichloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromoform	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromomethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Carbon disulfide	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Carbon Tetrachloride	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chloroethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Chloroform	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Chloromethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
cis-1.2-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
cis-1.3-Dichloropropene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibromochloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibromomethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dichlorodifluoromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Ethylbenzene	0.001	mg/L	0.004	0.003	< 0.001	< 0.001
Iodomethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Isopropyl benzene (Cumene)	0.001	mg/L	0.003	0.002	0.002	< 0.001
m&p-Xylenes	0.002	mg/L	0.003	< 0.002	0.004	< 0.002
Methylene Chloride	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
o-Xylene	0.001	mg/L	0.004	0.001	0.007	< 0.001
Styrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Tetrachloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Toluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
trans-1.2-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
trans-1.3-Dichloropropene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Trichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Trichlorofluoromethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Vinyl chloride	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Xylenes - Total*	0.003	mg/L	0.008	< 0.003	0.011	< 0.003
Total MAH*	0.003	mg/L	0.014	0.006	0.013	< 0.003
Vic EPA IWRG 621 CHC (Total)*	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Vic EPA IWRG 621 Other CHC (Total)*	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Bromofluorobenzene (surr.)	1	%	100	104	104	105
Toluene-d8 (surr.)	1	%	109	112	111	115

Client Sample ID			MW4	MW6	MW9	MW10
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S21-Oc26683	S21-Oc26686	S21-Oc26687	S21-Oc26688
Date Sampled			Oct 08, 2021	Oct 07, 2021	Oct 07, 2021	Oct 07, 2021
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic (filtered)	0.001	mg/L	0.006	0.021	< 0.001	< 0.001
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001	0.002	< 0.001	< 0.001
Copper (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	0.002
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001	0.001	< 0.001
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Zinc (filtered)	0.005	mg/L	< 0.005	< 0.005	0.022	0.005

Client Sample ID			MW11	MW12	MW13	MW14
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S21-Oc26689	S21-Oc26690	S21-Oc26691	S21-Oc26692
Date Sampled			Oct 07, 2021	Oct 07, 2021	Oct 07, 2021	Oct 07, 2021
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH C6-C9	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C10-C14	0.05	mg/L	1.5	< 0.05	0.60	< 0.05
TRH C15-C28	0.1	mg/L	7.4	< 0.1	0.6	< 0.1
TRH C29-C36	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C10-C36 (Total)	0.1	mg/L	8.9	< 0.1	1.2	< 0.1
Naphthalene[N02]	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
TRH C6-C10	0.02	mg/L	0.04	0.03	0.08	< 0.02
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	0.04	0.03	0.08	< 0.02
TRH >C10-C16	0.05	mg/L	4.2	< 0.05	1.1	< 0.05
TRH >C10-C16 less Naphthalene (F2)[N01]	0.05	mg/L	4.2	< 0.05	1.1	< 0.05
TRH >C16-C34	0.1	mg/L	5.0	< 0.1	0.2	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	9.2	< 0.1	1.3	< 0.1
BTEX						
Benzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Toluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
o-Xylene	0.001	mg/L	< 0.001	< 0.001	0.004	< 0.001
Xylenes - Total*	0.003	mg/L	< 0.003	< 0.003	0.005	< 0.003
4-Bromofluorobenzene (surr.)	1	%	102	101	97	97
Volatile Organics						
1.1-Dichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.1-Trichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.1.2-Tetrachloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.2-Trichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.2.2-Tetrachloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dibromoethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2.3-Trichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001

Client Sample ID			MW11	MW12	MW13	MW14
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S21-Oc26689	S21-Oc26690	S21-Oc26691	S21-Oc26692
Date Sampled			Oct 07, 2021	Oct 07, 2021	Oct 07, 2021	Oct 07, 2021
Test/Reference	LOR	Unit				
Volatile Organics						
1.2.4-Trimethylbenzene	0.001	mg/L	< 0.001	< 0.001	0.004	< 0.001
1.3-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.3-Dichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.3.5-Trimethylbenzene	0.001	mg/L	0.002	0.001	0.010	< 0.001
1.4-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
2-Butanone (MEK)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Propanone (Acetone)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Chlorotoluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
4-Methyl-2-pentanone (MIBK)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Allyl chloride	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromochloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromodichloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromoform	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromomethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Carbon disulfide	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Carbon Tetrachloride	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chloroethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Chloroform	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Chloromethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
cis-1.2-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
cis-1.3-Dichloropropene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibromochloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibromomethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dichlorodifluoromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Iodomethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Isopropyl benzene (Cumene)	0.001	mg/L	< 0.001	< 0.001	0.001	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Methylene Chloride	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
o-Xylene	0.001	mg/L	< 0.001	< 0.001	0.004	< 0.001
Styrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Tetrachloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Toluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
trans-1.2-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
trans-1.3-Dichloropropene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Trichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Trichlorofluoromethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Vinyl chloride	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Xylenes - Total*	0.003	mg/L	< 0.003	< 0.003	0.005	< 0.003
Total MAH*	0.003	mg/L	< 0.003	< 0.003	0.005	< 0.003
Vic EPA IWRG 621 CHC (Total)*	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Vic EPA IWRG 621 Other CHC (Total)*	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Bromofluorobenzene (surr.)	1	%	102	101	97	97
Toluene-d8 (surr.)	1	%	109	109	106	106

Client Sample ID			MW11	MW12	MW13	MW14
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S21-Oc26689	S21-Oc26690	S21-Oc26691	S21-Oc26692
Date Sampled			Oct 07, 2021	Oct 07, 2021	Oct 07, 2021	Oct 07, 2021
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic (filtered)	0.001	mg/L	0.002	< 0.001	< 0.001	< 0.001
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Copper (filtered)	0.001	mg/L	0.002	< 0.001	< 0.001	< 0.001
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	0.0003
Nickel (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Zinc (filtered)	0.005	mg/L	0.007	< 0.005	< 0.005	0.008

Client Sample ID			MW15	MW16	MW17	MW19
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S21-Oc26693	S21-Oc26694	S21-Oc26695	S21-Oc26696
Date Sampled			Oct 07, 2021	Oct 07, 2021	Oct 07, 2021	Oct 07, 2021
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH C6-C9	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C10-C14	0.05	mg/L	< 0.05	< 0.05	< 0.05	0.19
TRH C15-C28	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C29-C36	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C10-C36 (Total)	0.1	mg/L	< 0.1	< 0.1	< 0.1	0.19
Naphthalene[N02]	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
TRH C6-C10	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH >C10-C16	0.05	mg/L	< 0.05	< 0.05	< 0.05	0.08
TRH >C10-C16 less Naphthalene (F2)[N01]	0.05	mg/L	< 0.05	< 0.05	< 0.05	0.08
TRH >C16-C34	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
BTEX						
Benzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Toluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
o-Xylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Xylenes - Total*	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
4-Bromofluorobenzene (surr.)	1	%	97	95	98	96
Volatile Organics						
1.1-Dichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.1-Trichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.1.2-Tetrachloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.2-Trichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.2.2-Tetrachloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dibromoethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2.3-Trichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001

Client Sample ID			MW15	MW16	MW17	MW19
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S21-Oc26693	S21-Oc26694	S21-Oc26695	S21-Oc26696
Date Sampled			Oct 07, 2021	Oct 07, 2021	Oct 07, 2021	Oct 07, 2021
Test/Reference	LOR	Unit				
Volatile Organics						
1.2.4-Trimethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.3-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.3-Dichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.3.5-Trimethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.4-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
2-Butanone (MEK)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Propanone (Acetone)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Chlorotoluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
4-Methyl-2-pentanone (MIBK)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Allyl chloride	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromochloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromodichloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromoform	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromomethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Carbon disulfide	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Carbon Tetrachloride	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chloroethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Chloroform	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Chloromethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
cis-1.2-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
cis-1.3-Dichloropropene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibromochloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibromomethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dichlorodifluoromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Iodomethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Isopropyl benzene (Cumene)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Methylene Chloride	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
o-Xylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Styrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Tetrachloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Toluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
trans-1.2-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
trans-1.3-Dichloropropene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Trichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Trichlorofluoromethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Vinyl chloride	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Xylenes - Total*	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
Total MAH*	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
Vic EPA IWRG 621 CHC (Total)*	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Vic EPA IWRG 621 Other CHC (Total)*	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Bromofluorobenzene (surr.)	1	%	97	95	98	96
Toluene-d8 (surr.)	1	%	106	104	110	105

Client Sample ID			MW15	MW16	MW17	MW19
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S21-Oc26693	S21-Oc26694	S21-Oc26695	S21-Oc26696
Date Sampled			Oct 07, 2021	Oct 07, 2021	Oct 07, 2021	Oct 07, 2021
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic (filtered)	0.001	mg/L	< 0.001	0.001	< 0.001	< 0.001
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Copper (filtered)	0.001	mg/L	0.002	< 0.001	0.002	0.001
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	0.001
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	0.0002	0.0004
Nickel (filtered)	0.001	mg/L	< 0.001	0.002	< 0.001	< 0.001
Zinc (filtered)	0.005	mg/L	< 0.005	0.005	0.024	0.006

Client Sample ID			MW20	MW21	MW23	MW26
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S21-Oc26697	S21-Oc26698	S21-Oc26699	S21-Oc26700
Date Sampled			Oct 08, 2021	Oct 08, 2021	Oct 08, 2021	Oct 08, 2021
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH C6-C9	0.02	mg/L	< 0.02	< 0.02	0.03	< 0.02
TRH C10-C14	0.05	mg/L	< 0.05	0.14	0.72	< 0.05
TRH C15-C28	0.1	mg/L	0.2	< 0.1	1.2	< 0.1
TRH C29-C36	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C10-C36 (Total)	0.1	mg/L	0.2	0.14	1.92	< 0.1
Naphthalene[N02]	0.01	mg/L	< 0.01	0.03	< 0.01	< 0.01
TRH C6-C10	0.02	mg/L	< 0.02	0.11	0.11	< 0.02
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	< 0.02	0.10	0.11	< 0.02
TRH >C10-C16	0.05	mg/L	< 0.05	0.22	1.6	< 0.05
TRH >C10-C16 less Naphthalene (F2)[N01]	0.05	mg/L	< 0.05	0.19	1.6	< 0.05
TRH >C16-C34	0.1	mg/L	0.1	< 0.1	0.6	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	0.1	0.22	2.2	< 0.1
BTEX						
Benzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Toluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001	0.002	0.001	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
o-Xylene	0.001	mg/L	< 0.001	0.012	< 0.001	< 0.001
Xylenes - Total*	0.003	mg/L	< 0.003	0.012	< 0.003	< 0.003
4-Bromofluorobenzene (surr.)	1	%	96	96	99	98
Volatile Organics						
1.1-Dichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.1-Trichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.1.2-Tetrachloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.2-Trichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.2.2-Tetrachloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dibromoethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2.3-Trichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001

Client Sample ID			MW20	MW21	MW23	MW26
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S21-Oc26697	S21-Oc26698	S21-Oc26699	S21-Oc26700
Date Sampled			Oct 08, 2021	Oct 08, 2021	Oct 08, 2021	Oct 08, 2021
Test/Reference	LOR	Unit				
Volatile Organics						
1.2.4-Trimethylbenzene	0.001	mg/L	< 0.001	0.007	< 0.001	< 0.001
1.3-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.3-Dichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.3.5-Trimethylbenzene	0.001	mg/L	< 0.001	0.012	0.007	< 0.001
1.4-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
2-Butanone (MEK)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Propanone (Acetone)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Chlorotoluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
4-Methyl-2-pentanone (MIBK)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Allyl chloride	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromochloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromodichloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromoform	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromomethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Carbon disulfide	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Carbon Tetrachloride	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chloroethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Chloroform	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Chloromethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
cis-1.2-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
cis-1.3-Dichloropropene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibromochloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibromomethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dichlorodifluoromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001	0.002	0.001	< 0.001
Iodomethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Isopropyl benzene (Cumene)	0.001	mg/L	< 0.001	0.001	0.002	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Methylene Chloride	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
o-Xylene	0.001	mg/L	< 0.001	0.012	< 0.001	< 0.001
Styrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Tetrachloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Toluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
trans-1.2-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
trans-1.3-Dichloropropene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Trichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Trichlorofluoromethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Vinyl chloride	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Xylenes - Total*	0.003	mg/L	< 0.003	0.012	< 0.003	< 0.003
Total MAH*	0.003	mg/L	< 0.003	0.015	0.003	< 0.003
Vic EPA IWRG 621 CHC (Total)*	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Vic EPA IWRG 621 Other CHC (Total)*	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Bromofluorobenzene (surr.)	1	%	96	96	99	98
Toluene-d8 (surr.)	1	%	107	109	109	108

Client Sample ID			MW20	MW21	MW23	MW26
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S21-Oc26697	S21-Oc26698	S21-Oc26699	S21-Oc26700
Date Sampled			Oct 08, 2021	Oct 08, 2021	Oct 08, 2021	Oct 08, 2021
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic (filtered)	0.001	mg/L	< 0.001	0.021	0.005	< 0.001
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Copper (filtered)	0.001	mg/L	0.002	< 0.001	< 0.001	0.004
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Zinc (filtered)	0.005	mg/L	< 0.005	0.017	< 0.005	0.009

Client Sample ID			MW30	MW32	MW33	MW34
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S21-Oc26701	S21-Oc26702	S21-Oc26703	S21-Oc26704
Date Sampled			Oct 08, 2021	Oct 08, 2021	Oct 08, 2021	Oct 08, 2021
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH C6-C9	0.02	mg/L	< 0.02	0.03	0.09	0.03
TRH C10-C14	0.05	mg/L	< 0.05	12	< 0.05	2.5
TRH C15-C28	0.1	mg/L	< 0.1	53	< 0.1	7.3
TRH C29-C36	0.1	mg/L	< 0.1	0.5	< 0.1	< 0.1
TRH C10-C36 (Total)	0.1	mg/L	< 0.1	65.5	< 0.1	9.8
Naphthalene[N02]	0.01	mg/L	< 0.01	0.02	0.07	0.04
TRH C6-C10	0.02	mg/L	< 0.02	0.10	0.28	0.09
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	< 0.02	0.09	0.24	0.09
TRH >C10-C16	0.05	mg/L	< 0.05	23	< 0.05	5.2
TRH >C10-C16 less Naphthalene (F2)[N01]	0.05	mg/L	< 0.05	22.98	< 0.05	5.16
TRH >C16-C34	0.1	mg/L	< 0.1	40	< 0.1	4.8
TRH >C34-C40	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	< 0.1	63	< 0.1	10
BTEX						
Benzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Toluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001	0.004	0.011	0.002
m&p-Xylenes	0.002	mg/L	< 0.002	0.003	0.005	< 0.002
o-Xylene	0.001	mg/L	< 0.001	0.002	0.021	< 0.001
Xylenes - Total*	0.003	mg/L	< 0.003	0.004	0.026	< 0.003
4-Bromofluorobenzene (surr.)	1	%	86	110	100	91
Volatile Organics						
1.1-Dichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.1-Trichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.1.2-Tetrachloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.2-Trichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.2.2-Tetrachloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dibromoethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2.3-Trichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001

Client Sample ID			MW30	MW32	MW33	MW34
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S21-Oc26701	S21-Oc26702	S21-Oc26703	S21-Oc26704
Date Sampled			Oct 08, 2021	Oct 08, 2021	Oct 08, 2021	Oct 08, 2021
Test/Reference	LOR	Unit				
Volatile Organics						
1.2.4-Trimethylbenzene	0.001	mg/L	< 0.001	0.016	0.064	0.022
1.3-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.3-Dichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.3.5-Trimethylbenzene	0.001	mg/L	< 0.001	0.010	0.027	0.009
1.4-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
2-Butanone (MEK)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Propanone (Acetone)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Chlorotoluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
4-Methyl-2-pentanone (MIBK)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Allyl chloride	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromochloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromodichloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromoform	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromomethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Carbon disulfide	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Carbon Tetrachloride	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chloroethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Chloroform	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Chloromethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
cis-1.2-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
cis-1.3-Dichloropropene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibromochloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibromomethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dichlorodifluoromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001	0.004	0.011	0.002
Iodomethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Isopropyl benzene (Cumene)	0.001	mg/L	< 0.001	0.002	0.004	0.003
m&p-Xylenes	0.002	mg/L	< 0.002	0.003	0.005	< 0.002
Methylene Chloride	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
o-Xylene	0.001	mg/L	< 0.001	0.002	0.021	< 0.001
Styrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Tetrachloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Toluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
trans-1.2-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
trans-1.3-Dichloropropene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Trichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Trichlorofluoromethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Vinyl chloride	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Xylenes - Total*	0.003	mg/L	< 0.003	0.004	0.026	< 0.003
Total MAH*	0.003	mg/L	< 0.003	0.011	0.041	0.005
Vic EPA IWRG 621 CHC (Total)*	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Vic EPA IWRG 621 Other CHC (Total)*	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Bromofluorobenzene (surr.)	1	%	86	110	100	91
Toluene-d8 (surr.)	1	%	105	109	102	107

Client Sample ID			MW30	MW32	MW33	MW34
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S21-Oc26701	S21-Oc26702	S21-Oc26703	S21-Oc26704
Date Sampled			Oct 08, 2021	Oct 08, 2021	Oct 08, 2021	Oct 08, 2021
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic (filtered)	0.001	mg/L	< 0.001	0.008	0.026	0.006
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Copper (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Mercury (filtered)	0.0001	mg/L	0.0008	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Zinc (filtered)	0.005	mg/L	< 0.005	0.017	< 0.005	0.012

Client Sample ID			RB02	TB01	QA01
Sample Matrix			Water	Water	Water
Eurofins Sample No.			S21-Oc26705	S21-Oc26706	S21-Oc26707
Date Sampled			Oct 08, 2021	Oct 08, 2021	Oct 07, 2021
Test/Reference	LOR	Unit			
Total Recoverable Hydrocarbons					
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
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
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	%	-	98	108
Volatile Organics					
1.1-Dichloroethane	0.001	mg/L	-	-	< 0.001
1.1-Dichloroethene	0.001	mg/L	-	-	< 0.001
1.1.1-Trichloroethane	0.001	mg/L	-	-	< 0.001
1.1.1.2-Tetrachloroethane	0.001	mg/L	-	-	< 0.001
1.1.2-Trichloroethane	0.001	mg/L	-	-	< 0.001
1.1.2.2-Tetrachloroethane	0.001	mg/L	-	-	< 0.001
1.2-Dibromoethane	0.001	mg/L	-	-	< 0.001
1.2-Dichlorobenzene	0.001	mg/L	-	-	< 0.001
1.2-Dichloroethane	0.001	mg/L	-	-	< 0.001
1.2-Dichloropropane	0.001	mg/L	-	-	< 0.001
1.2.3-Trichloropropane	0.001	mg/L	-	-	< 0.001

Client Sample ID			RB02	TB01	QA01
Sample Matrix			Water	Water	Water
Eurofins Sample No.			S21-Oc26705	S21-Oc26706	S21-Oc26707
Date Sampled			Oct 08, 2021	Oct 08, 2021	Oct 07, 2021
Test/Reference	LOR	Unit			
Volatile Organics					
1.2.4-Trimethylbenzene	0.001	mg/L	-	-	< 0.001
1.3-Dichlorobenzene	0.001	mg/L	-	-	< 0.001
1.3-Dichloropropane	0.001	mg/L	-	-	< 0.001
1.3.5-Trimethylbenzene	0.001	mg/L	-	-	< 0.001
1.4-Dichlorobenzene	0.001	mg/L	-	-	< 0.001
2-Butanone (MEK)	0.005	mg/L	-	-	< 0.005
2-Propanone (Acetone)	0.005	mg/L	-	-	< 0.005
4-Chlorotoluene	0.001	mg/L	-	-	< 0.001
4-Methyl-2-pentanone (MIBK)	0.005	mg/L	-	-	< 0.005
Allyl chloride	0.001	mg/L	-	-	< 0.001
Benzene	0.001	mg/L	-	-	< 0.001
Bromobenzene	0.001	mg/L	-	-	< 0.001
Bromochloromethane	0.001	mg/L	-	-	< 0.001
Bromodichloromethane	0.001	mg/L	-	-	< 0.001
Bromoform	0.001	mg/L	-	-	< 0.001
Bromomethane	0.005	mg/L	-	-	< 0.005
Carbon disulfide	0.001	mg/L	-	-	< 0.001
Carbon Tetrachloride	0.001	mg/L	-	-	< 0.001
Chlorobenzene	0.001	mg/L	-	-	< 0.001
Chloroethane	0.005	mg/L	-	-	< 0.005
Chloroform	0.005	mg/L	-	-	< 0.005
Chloromethane	0.005	mg/L	-	-	< 0.005
cis-1.2-Dichloroethene	0.001	mg/L	-	-	< 0.001
cis-1.3-Dichloropropene	0.001	mg/L	-	-	< 0.001
Dibromochloromethane	0.001	mg/L	-	-	< 0.001
Dibromomethane	0.001	mg/L	-	-	< 0.001
Dichlorodifluoromethane	0.001	mg/L	-	-	< 0.001
Ethylbenzene	0.001	mg/L	-	-	< 0.001
Iodomethane	0.001	mg/L	-	-	< 0.001
Isopropyl benzene (Cumene)	0.001	mg/L	-	-	< 0.001
m&p-Xylenes	0.002	mg/L	-	-	< 0.002
Methylene Chloride	0.005	mg/L	-	-	< 0.005
o-Xylene	0.001	mg/L	-	-	< 0.001
Styrene	0.001	mg/L	-	-	< 0.001
Tetrachloroethene	0.001	mg/L	-	-	< 0.001
Toluene	0.001	mg/L	-	-	< 0.001
trans-1.2-Dichloroethene	0.001	mg/L	-	-	< 0.001
trans-1.3-Dichloropropene	0.001	mg/L	-	-	< 0.001
Trichloroethene	0.001	mg/L	-	-	< 0.001
Trichlorofluoromethane	0.005	mg/L	-	-	< 0.005
Vinyl chloride	0.005	mg/L	-	-	< 0.005
Xylenes - Total*	0.003	mg/L	-	-	< 0.003
Total MAH*	0.003	mg/L	-	-	< 0.003
Vic EPA IWRG 621 CHC (Total)*	0.005	mg/L	-	-	< 0.005
Vic EPA IWRG 621 Other CHC (Total)*	0.005	mg/L	-	-	< 0.005
4-Bromofluorobenzene (surr.)	1	%	-	-	108
Toluene-d8 (surr.)	1	%	-	-	109

Client Sample ID			RB02	TB01	QA01
Sample Matrix			Water	Water	Water
Eurofins Sample No.			S21-Oc26705	S21-Oc26706	S21-Oc26707
Date Sampled			Oct 08, 2021	Oct 08, 2021	Oct 07, 2021
Test/Reference	LOR	Unit			
Heavy Metals					
Arsenic (filtered)	0.001	mg/L	< 0.001	-	< 0.001
Cadmium (filtered)	0.0002	mg/L	< 0.0002	-	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001	-	< 0.001
Copper (filtered)	0.001	mg/L	< 0.001	-	0.001
Lead (filtered)	0.001	mg/L	< 0.001	-	0.001
Mercury (filtered)	0.0001	mg/L	< 0.0001	-	0.0004
Nickel (filtered)	0.001	mg/L	< 0.001	-	< 0.001
Zinc (filtered)	0.005	mg/L	< 0.005	-	0.006

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	Oct 13, 2021	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Oct 13, 2021	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons	Sydney	Oct 13, 2021	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Sydney	Oct 13, 2021	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Eurofins Suite B1			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Oct 13, 2021	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Volatile Organics	Sydney	Oct 15, 2021	7 Days
- Method: LTM-ORG-2150 VOCs in Soils Liquid and other Aqueous Matrices			
Metals M8 filtered	Sydney	Oct 19, 2021	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			

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Project Name: RED BUS SERVICES BATEAU BAY
Project ID: PS126618

Order No.: 30072355
Report #: 831781
Phone: 02 4929 8300
Fax: 02 4929 7299

Received: Oct 12, 2021 8:01 AM
Due: Oct 19, 2021
Priority: 5 Day
Contact Name: Richie Lamont

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						HOLD	Metals M8	Metals M8 filtered	Volatile Organics	Eurofins Suite B1	BTEXN and Volatile TRH
Melbourne Laboratory - NATA # 1261 Site # 1254											
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	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	MW4	Oct 08, 2021		Water	S21-Oc26683			X	X	X	
2	MW6	Oct 07, 2021		Water	S21-Oc26686			X	X	X	
3	MW9	Oct 07, 2021		Water	S21-Oc26687			X	X	X	
4	MW10	Oct 07, 2021		Water	S21-Oc26688			X	X	X	
5	MW11	Oct 07, 2021		Water	S21-Oc26689			X	X	X	
6	MW12	Oct 07, 2021		Water	S21-Oc26690			X	X	X	
7	MW13	Oct 07, 2021		Water	S21-Oc26691			X	X	X	
8	MW14	Oct 07, 2021		Water	S21-Oc26692			X	X	X	
9	MW15	Oct 07, 2021		Water	S21-Oc26693			X	X	X	

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Project Name: RED BUS SERVICES BATEAU BAY
Project ID: PS126618

Order No.: 30072355
Report #: 831781
Phone: 02 4929 8300
Fax: 02 4929 7299

Received: Oct 12, 2021 8:01 AM
Due: Oct 19, 2021
Priority: 5 Day
Contact Name: Richie Lamont

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						HOLD	Metals M8	Metals M8 filtered	Volatile Organics	Eurofins Suite B1	BTEXN and Volatile TRH
Melbourne Laboratory - NATA # 1261 Site # 1254											
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794											
Mayfield Laboratory - NATA # 1261 Site # 25079											
Perth Laboratory - NATA # 2377 Site # 2370											
External Laboratory											
10	MW16	Oct 07, 2021		Water	S21-Oc26694			X	X	X	
11	MW17	Oct 07, 2021		Water	S21-Oc26695			X	X	X	
12	MW19	Oct 07, 2021		Water	S21-Oc26696			X	X	X	
13	MW20	Oct 08, 2021		Water	S21-Oc26697			X	X	X	
14	MW21	Oct 08, 2021		Water	S21-Oc26698			X	X	X	
15	MW23	Oct 08, 2021		Water	S21-Oc26699			X	X	X	
16	MW26	Oct 08, 2021		Water	S21-Oc26700			X	X	X	
17	MW30	Oct 08, 2021		Water	S21-Oc26701			X	X	X	
18	MW32	Oct 08, 2021		Water	S21-Oc26702			X	X	X	
19	MW33	Oct 08, 2021		Water	S21-Oc26703			X	X	X	
20	MW34	Oct 08, 2021		Water	S21-Oc26704			X	X	X	

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Project Name: RED BUS SERVICES BATEAU BAY
Project ID: PS126618

Order No.: 30072355
Report #: 831781
Phone: 02 4929 8300
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Received: Oct 12, 2021 8:01 AM
Due: Oct 19, 2021
Priority: 5 Day
Contact Name: Richie Lamont

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						HOLD	Metals M8	Metals M8 filtered	Volatile Organics	Eurofins Suite B1	BTEXN and Volatile TRH
Melbourne Laboratory - NATA # 1261 Site # 1254											
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794											
Mayfield Laboratory - NATA # 1261 Site # 25079											
Perth Laboratory - NATA # 2377 Site # 2370											
External Laboratory											
21	RB02	Oct 08, 2021		Water	S21-Oc26705			X			
22	TB01	Oct 08, 2021		Water	S21-Oc26706						X
23	QA01	Oct 07, 2021		Water	S21-Oc26707		X		X	X	
24	QA02	Oct 06, 2021		Water	S21-Oc26708	X					
25	QA02a	Oct 06, 2021		Water	S21-Oc26709	X					
Test Counts						2	1	21	21	21	1

Internal Quality Control Review and Glossary

General

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

Holding Times

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

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

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

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

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

Units

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
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
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should be used as a guide only and may be different when site specific Sampling Analysis and Quality Plan (SAQP) have been implemented

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

Results <10 times the LOR : No Limit

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

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

NOTE: pH duplicates are reported as a range not as RPD

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

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

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QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time.Analysis will begin as soon as possible after sample receipt.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons							
TRH C6-C9	mg/L	< 0.02			0.02	Pass	
TRH C10-C14	mg/L	< 0.05			0.05	Pass	
TRH C15-C28	mg/L	< 0.1			0.1	Pass	
TRH C29-C36	mg/L	< 0.1			0.1	Pass	
Naphthalene	mg/L	< 0.01			0.01	Pass	
TRH C6-C10	mg/L	< 0.02			0.02	Pass	
TRH >C10-C16	mg/L	< 0.05			0.05	Pass	
TRH >C16-C34	mg/L	< 0.1			0.1	Pass	
TRH >C34-C40	mg/L	< 0.1			0.1	Pass	
Method Blank							
BTEX							
Benzene	mg/L	< 0.001			0.001	Pass	
Toluene	mg/L	< 0.001			0.001	Pass	
Ethylbenzene	mg/L	< 0.001			0.001	Pass	
m&p-Xylenes	mg/L	< 0.002			0.002	Pass	
o-Xylene	mg/L	< 0.001			0.001	Pass	
Xylenes - Total*	mg/L	< 0.003			0.003	Pass	
Method Blank							
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	< 0.005			0.005	Pass	
2-Propanone (Acetone)	mg/L	< 0.005			0.005	Pass	
4-Chlorotoluene	mg/L	< 0.001			0.001	Pass	
4-Methyl-2-pentanone (MIBK)	mg/L	< 0.005			0.005	Pass	
Allyl chloride	mg/L	< 0.001			0.001	Pass	
Benzene	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	< 0.005			0.005	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	< 0.005			0.005	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Chloroform	mg/L	< 0.005			0.005	Pass	
Chloromethane	mg/L	< 0.005			0.005	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	
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	< 0.005			0.005	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	< 0.005			0.005	Pass	
Vinyl chloride	mg/L	< 0.005			0.005	Pass	
Method Blank							
Heavy Metals							
Arsenic (filtered)	mg/L	< 0.001			0.001	Pass	
Cadmium (filtered)	mg/L	< 0.0002			0.0002	Pass	
Chromium (filtered)	mg/L	< 0.001			0.001	Pass	
Copper (filtered)	mg/L	< 0.001			0.001	Pass	
Lead (filtered)	mg/L	< 0.001			0.001	Pass	
Mercury (filtered)	mg/L	< 0.0001			0.0001	Pass	
Nickel (filtered)	mg/L	< 0.001			0.001	Pass	
Zinc (filtered)	mg/L	< 0.005			0.005	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons							
TRH C6-C9	%	90			70-130	Pass	
TRH C10-C14	%	109			70-130	Pass	
Naphthalene	%	94			70-130	Pass	
TRH C6-C10	%	90			70-130	Pass	
TRH >C10-C16	%	110			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	76			70-130	Pass	
Toluene	%	96			70-130	Pass	
Ethylbenzene	%	97			70-130	Pass	
m&p-Xylenes	%	96			70-130	Pass	
o-Xylene	%	98			70-130	Pass	
Xylenes - Total*	%	97			70-130	Pass	
LCS - % Recovery							
Volatile Organics							
1.1-Dichloroethene	%	101			70-130	Pass	
1.1.1-Trichloroethane	%	95			70-130	Pass	
1.2-Dichlorobenzene	%	91			70-130	Pass	
1.2-Dichloroethane	%	102			70-130	Pass	
Benzene	%	79			70-130	Pass	
Trichloroethene	%	94			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic (filtered)	%	91			80-120	Pass	
Cadmium (filtered)	%	97			80-120	Pass	

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Chromium (filtered)			%	99			80-120	Pass	
Copper (filtered)			%	100			80-120	Pass	
Lead (filtered)			%	98			80-120	Pass	
Mercury (filtered)			%	102			80-120	Pass	
Nickel (filtered)			%	101			80-120	Pass	
Zinc (filtered)			%	99			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-Oc26688	CP	%	72			70-130	Pass	
Naphthalene	S21-Oc26688	CP	%	96			70-130	Pass	
TRH C6-C10	S21-Oc26688	CP	%	73			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S21-Oc26688	CP	%	78			70-130	Pass	
Toluene	S21-Oc26688	CP	%	94			70-130	Pass	
Ethylbenzene	S21-Oc26688	CP	%	92			70-130	Pass	
m&p-Xylenes	S21-Oc26688	CP	%	91			70-130	Pass	
o-Xylene	S21-Oc26688	CP	%	94			70-130	Pass	
Xylenes - Total*	S21-Oc26688	CP	%	92			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons				Result 1					
TRH C6-C9	S21-Oc26696	CP	%	85			70-130	Pass	
TRH C10-C14	S21-Oc26696	CP	%	118			70-130	Pass	
Naphthalene	S21-Oc26696	CP	%	87			70-130	Pass	
TRH C6-C10	S21-Oc26696	CP	%	84			70-130	Pass	
TRH >C10-C16	S21-Oc26696	CP	%	119			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S21-Oc26696	CP	%	79			70-130	Pass	
Toluene	S21-Oc26696	CP	%	84			70-130	Pass	
Ethylbenzene	S21-Oc26696	CP	%	86			70-130	Pass	
m&p-Xylenes	S21-Oc26696	CP	%	91			70-130	Pass	
o-Xylene	S21-Oc26696	CP	%	89			70-130	Pass	
Xylenes - Total*	S21-Oc26696	CP	%	90			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic (filtered)	S21-Oc26703	CP	%	83			75-125	Pass	
Cadmium (filtered)	S21-Oc26703	CP	%	89			75-125	Pass	
Chromium (filtered)	S21-Oc26703	CP	%	92			75-125	Pass	
Copper (filtered)	S21-Oc26703	CP	%	92			75-125	Pass	
Lead (filtered)	S21-Oc26703	CP	%	90			75-125	Pass	
Mercury (filtered)	S21-Oc26703	CP	%	99			75-125	Pass	
Nickel (filtered)	S21-Oc26703	CP	%	92			75-125	Pass	
Zinc (filtered)	S21-Oc26703	CP	%	90			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 C10-C14	S21-Oc32902	NCP	mg/L	< 0.05	0.15	38	30%	Fail	Q15
TRH C15-C28	S21-Oc32902	NCP	mg/L	< 0.1	0.9	40	30%	Fail	Q15
TRH C29-C36	S21-Oc32902	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH >C10-C16	S21-Oc32902	NCP	mg/L	< 0.05	0.50	30	30%	Pass	
TRH >C16-C34	S21-Oc32902	NCP	mg/L	< 0.1	0.6	49	30%	Fail	Q15
TRH >C34-C40	S21-Oc32902	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	

Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic (filtered)	S21-Oc26683	CP	mg/L	0.006	0.006	2.0	30%	Pass	
Cadmium (filtered)	S21-Oc26683	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium (filtered)	S21-Oc26683	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Copper (filtered)	S21-Oc26683	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Lead (filtered)	S21-Oc26683	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Mercury (filtered)	S21-Oc26683	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel (filtered)	S21-Oc26683	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Zinc (filtered)	S21-Oc26683	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic (filtered)	S21-Oc26694	CP	mg/L	0.001	0.001	9.0	30%	Pass	
Cadmium (filtered)	S21-Oc26694	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium (filtered)	S21-Oc26694	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Copper (filtered)	S21-Oc26694	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Lead (filtered)	S21-Oc26694	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Mercury (filtered)	S21-Oc26694	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel (filtered)	S21-Oc26694	CP	mg/L	0.002	0.002	6.0	30%	Pass	
Zinc (filtered)	S21-Oc26694	CP	mg/L	0.005	0.005	4.0	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH C6-C9	S21-Oc26697	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Naphthalene	S21-Oc26697	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
TRH C6-C10	S21-Oc26697	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S21-Oc26697	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Toluene	S21-Oc26697	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Ethylbenzene	S21-Oc26697	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
m&p-Xylenes	S21-Oc26697	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
o-Xylene	S21-Oc26697	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Xylenes - Total*	S21-Oc26697	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
Duplicate									
Volatile Organics				Result 1	Result 2	RPD			
1.1-Dichloroethane	S21-Oc26697	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.1-Dichloroethene	S21-Oc26697	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.1.1-Trichloroethane	S21-Oc26697	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.1.1.2-Tetrachloroethane	S21-Oc26697	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.1.2-Trichloroethane	S21-Oc26697	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.1.2.2-Tetrachloroethane	S21-Oc26697	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.2-Dibromoethane	S21-Oc26697	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.2-Dichlorobenzene	S21-Oc26697	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.2-Dichloroethane	S21-Oc26697	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.2-Dichloropropane	S21-Oc26697	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.2.3-Trichloropropane	S21-Oc26697	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.2.4-Trimethylbenzene	S21-Oc26697	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.3-Dichlorobenzene	S21-Oc26697	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.3-Dichloropropane	S21-Oc26697	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.3.5-Trimethylbenzene	S21-Oc26697	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.4-Dichlorobenzene	S21-Oc26697	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
2-Butanone (MEK)	S21-Oc26697	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
2-Propanone (Acetone)	S21-Oc26697	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
4-Chlorotoluene	S21-Oc26697	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
4-Methyl-2-pentanone (MIBK)	S21-Oc26697	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Allyl chloride	S21-Oc26697	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	

Duplicate									
Volatile Organics				Result 1	Result 2	RPD			
Bromobenzene	S21-Oc26697	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Bromochloromethane	S21-Oc26697	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Bromodichloromethane	S21-Oc26697	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Bromoform	S21-Oc26697	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Bromomethane	S21-Oc26697	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Carbon disulfide	S21-Oc26697	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Carbon Tetrachloride	S21-Oc26697	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Chlorobenzene	S21-Oc26697	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Chloroethane	S21-Oc26697	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Chloroform	S21-Oc26697	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Chloromethane	S21-Oc26697	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
cis-1.2-Dichloroethene	S21-Oc26697	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
cis-1.3-Dichloropropene	S21-Oc26697	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Dibromochloromethane	S21-Oc26697	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Dibromomethane	S21-Oc26697	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Dichlorodifluoromethane	S21-Oc26697	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Iodomethane	S21-Oc26697	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Isopropyl benzene (Cumene)	S21-Oc26697	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Methylene Chloride	S21-Oc26697	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Styrene	S21-Oc26697	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Tetrachloroethene	S21-Oc26697	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
trans-1.2-Dichloroethene	S21-Oc26697	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
trans-1.3-Dichloropropene	S21-Oc26697	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Trichloroethene	S21-Oc26697	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Trichlorofluoromethane	S21-Oc26697	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Vinyl chloride	S21-Oc26697	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic (filtered)	S21-Oc26704	CP	mg/L	0.006	0.006	2.0	30%	Pass	
Cadmium (filtered)	S21-Oc26704	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium (filtered)	S21-Oc26704	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Copper (filtered)	S21-Oc26704	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Lead (filtered)	S21-Oc26704	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Mercury (filtered)	S21-Oc26704	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel (filtered)	S21-Oc26704	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Zinc (filtered)	S21-Oc26704	CP	mg/L	0.012	0.012	2.0	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.
Q15	The RPD reported passes Eurofins Environment Testing's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.

Authorised by:

Andrew Black	Analytical Services Manager
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.

CHAIN OF CUSTODY RECORD

ABN 50 005 085 521

☐ Eurofins | mgt Sydney Lab — Unit F3 Building F, 16 Mars Road, Lane Cove West, NSW 2066 P : +61 2 9900 8400 E : EnviroSampleNSW@eurofins.com.au

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☐ Eurofins | mgt Melbourne Lab — 2 Kingston Town Close, Oakleigh, VIC 3166 P : +61 3 8564 5000 F : +61 3 8564 5090 E : EnviroSampleVic@eurofins.com.au

Company	WSP Australia	Purchase Order		Project Manager	Richie Lamont
Address	Level 3/51-55 Bolton St, Newcastle NSW 2300	Eurofins | mgt Quote №		Project №	PS126618
Contact Name	Jessica Watson				
Contact Phone №	420200359				
Special Direction					
Relinquished by (Signature)	Jessica Watson JW				
(Time / Date)	10 : 00	11/10/21			

Project Name	Red bus services Bateau Bay
Electronic Results Format	excel and Esdat
Email for Results	Richie Lamont Richie.Lamont@wsp.com
Turn Around Requirements	☐ 1 DAY* ☐ 2 DAY* ☐ 3 DAY* * Surcharges apply ☑ 5 DAY (Std.) ☐ Other ( )

Analysis (Note: Where metals are requested, please specify "Total" or "Filtered".)

№	Client Sample ID	Date	Matrix	B7: TRH, BTEX, VOCs, Metals	ON HOLD	Containers: 1L Plastic	250mL Plastic	125mL Plastic	200mL Amber Glass	40mL vial	125mL Amber Glass	Jar	Sample Comments / DG Hazard Warning
1	MW4	8/10/21	water	X									
2	MW6	7/10/21	water	X									
3	MW9	7/10/21	water	X									
4	MW10	7/10/21	water	X									
5	MW11	7/10/21	water	X									
6	MW12	7/10/21	water	X									
7	MW13	7/10/21	water	X									
8	MW14	7/10/21	water	X									
9	MW15	7/10/21	water	X									
10	MW16	7/10/21	water	X									
11	MW17	7/10/21	water	X									
12	MW19	7/10/21	water	X									

Method of Shipment: ☑ Courier (#) ☐ Hand Delivered ☐ Postal

Laboratory Use Only								
Received By		SYD | BNE | MEL | PER | ADL | NEW | DAR	Date ___/___/___	Time ___:___	Signature		Temperature	
Received By		SYD | BNE | MEL | PER | ADL | NEW | DAR	Date ___/___/___	Time ___:___	Signature		Report №	831781

CHAIN OF CUSTODY RECORD

ABN 50 005 085 521

☑ Eurofins | mgt Sydney Lab — Unit F3 Building F, 16 Mars Road, Lane Cove West, NSW 2066 P : +61 2 9900 8400 E : EnviroSampleNSW@eurofins.com.au

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☐ Eurofins | mgt Melbourne Lab — 2 Kingston Town Close, Oakleigh, VIC 3166 P : +61 3 8564 5000 F : +61 3 8564 5090 E : EnviroSampleVic@eurofins.com.au

Company	WSP Australia	Purchase Order		Project Manager	Richie Lamont
Address	Level 3/51-55 Bolton St, Newcastle NSW 2300	Eurofins | mgt Quote №		Project №	PS126618
Contact Name	Jessica Watson				
Contact Phone №	420200359				
Special Direction					
Relinquished by	Jessica Watson				
(Signature)	JW				
(Time / Date)	10 : 00	11/10/21			

Project Name	Red bus services Bateau Bay
Electronic Results Format	excel and Esdat
Email for Results	Richie Lamont Richie.Lamont@wsp.com
Turn Around Requirements	☐ 1 DAY* ☐ 2 DAY* ☐ 3 DAY* * Surcharges apply ☑ 5 DAY (Std.) ☐ Other ( )

Analysis (Note: Where metals are requested, please specify "Total" or "Filtered".)

№	Client Sample ID	Date	Matrix	B7: TRH, BTEX, VOCs, Metals	Metals (8 metals)	TRH (C6-C10)	ON HOLD	Containers: 1L Plastic	250mL Plastic	125mL Plastic	200mL Amber Glass	40mL vial	125mL Amber Glass	Jar
1	MW20	8/10/21	water	X										
2	MW21	8/10/21	water	X										
3	MW23	7/10/21	water	X										
4	MW26	8/10/21	water	X										
5	MW30	8/10/21	water	X										
6	MW32	8/10/21	water	X										
7	MW33	8/10/21	water	X										
8	MW34	8/10/21	water	X										
9	RB02	8/10/21	water		X									
10	TB01	8/10/21	water			X								
11	QA01	7/10/21	water	X										
12	QA01a	7/10/21	water	X										

Method of Shipment: ☑ Courier (#) ☐ Hand Delivered ☐ Postal

Sample Comments / DG Hazard Warning: Please forward to ALS

Laboratory Use Only									
Received By		SYD | BNE | MEL | PER | ADL | NEW | DAR	Date ___/___/___	Time ___:___	Signature		Temperature	
Received By		SYD | BNE | MEL | PER | ADL | NEW | DAR	Date ___/___/___	Time ___:___	Signature		Report №	831781

CHAIN OF CUSTODY RECORD

ABN 50 005 085 521

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Company	WSP Australia	Purchase Order		Project Manager	Richie Lamont
Address	Level 3/51-55 Bolton St, Newcastle NSW 2300	Eurofins | mgt Quote №		Project №	PS126618
Contact Name	Jessica Watson				
Contact Phone №	420200359				
Special Direction					
Relinquished by	Jessica Watson				
(Signature)	JW				
(Time / Date)	10 : 00	11/10/21			

Project Name	Red bus services Bateau Bay
Electronic Results Format	excel and Esdat
Email for Results	Richie Lamont Richie.Lamont@wsp.com
Turn Around Requirements	☐ 1 DAY* ☐ 2 DAY* ☐ 3 DAY* * Surcharges apply ☑ 5 DAY (Std.) ☐ Other ( )

Analysis (Note: Where metals are requested, please specify "Total" or "Filtered".)

№	Client Sample ID	Date	Matrix	TRH	BTEX	VOCs	Metals (8 metals)	ON HOLD	Containers: 1L Plastic	250mL Plastic	125mL Plastic	200mL Amber Glass	40mL vial	125mL Amber Glass	Jar	Sample Comments / DG Hazard Warning
1	QA02	7/10/21	water					X								
2	QA02a	7/10/21	water					X								
3																
4																
5																
6																
7																
8																
9																
10																
11																
12																Please forward to ALS

Method of Shipment: ☑ Courier (#) ☐ Hand Delivered ☐ Postal

Laboratory Use Only								
Received By		SYD | BNE | MEL | PER | ADL | NEW | DAR	Date ___/___/___	Time ___:___	Signature		Temperature	
Received By		SYD | BNE | MEL | PER | ADL | NEW | DAR	Date ___/___/___	Time ___:___	Signature		Report №	831781

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Company Name: WSP Australia P/L Newcastle
Address: PO Box 1162
Newcastle
NSW 2300

Project Name: PS126618
Project ID: RED BUS SERVICES BATEAU BAY

Order No.:
Report #: 831991
Phone: 02 4929 8300
Fax: 02 4929 7299

Received: Oct 12, 2021 8:01 AM
Due: Oct 19, 2021
Priority: 5 Day
Contact Name: Richie Lamont

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Asbestos - AS4964	HOLD	Moisture Set	Eurofins Suite B7	BTEXN and Volatile TRH
Melbourne Laboratory - NATA # 1261 Site # 1254										
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	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	BH1-0.1-0.2	Oct 06, 2021		Soil	S21-Oc26648	X		X	X	
2	BH1-0.4-0.5	Oct 06, 2021		Soil	S21-Oc26649			X	X	
3	BH1-0.9-1.0	Oct 06, 2021		Soil	S21-Oc26650		X			
4	BH2-0.1-0.2	Oct 06, 2021		Soil	S21-Oc26651		X			
5	BH2-0.3-0.4	Oct 06, 2021		Soil	S21-Oc26652	X		X	X	
6	BH2-0.9-1.0	Oct 06, 2021		Soil	S21-Oc26653	X		X	X	
7	BH2-4.0	Oct 06, 2021		Soil	S21-Oc26654		X			
8	BH3-0.1-0.2	Oct 06, 2021		Soil	S21-Oc26655	X		X	X	
9	BH3-0.4-0.5	Oct 06, 2021		Soil	S21-Oc26656			X	X	

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Company Name: WSP Australia P/L Newcastle
Address: PO Box 1162
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NSW 2300

Project Name: PS126618
Project ID: RED BUS SERVICES BATEAU BAY

Order No.:
Report #: 831991
Phone: 02 4929 8300
Fax: 02 4929 7299

Received: Oct 12, 2021 8:01 AM
Due: Oct 19, 2021
Priority: 5 Day
Contact Name: Richie Lamont

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Asbestos - AS4964	HOLD	Moisture Set	Eurofins Suite B7	BTEXN and Volatile TRH
Melbourne Laboratory - NATA # 1261 Site # 1254										
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794										
Mayfield Laboratory - NATA # 1261 Site # 25079										
Perth Laboratory - NATA # 2377 Site # 2370										
External Laboratory										
10	BH4-0.2-0.3	Oct 06, 2021		Soil	S21-Oc26657	X		X	X	
11	BH4-0.4-0.5	Oct 06, 2021		Soil	S21-Oc26658			X	X	
12	BH4-0.9-1.0	Oct 06, 2021		Soil	S21-Oc26659		X			
13	BH5-0.2-0.3	Oct 06, 2021		Soil	S21-Oc26660	X		X	X	
14	BH5-0.5-0.6	Oct 06, 2021		Soil	S21-Oc26661			X	X	
15	BH5-0.9-1.0	Oct 06, 2021		Soil	S21-Oc26662		X			
16	BH6-0.2-0.3	Oct 06, 2021		Soil	S21-Oc26663	X		X	X	
17	BH3-0.9-1.0	Oct 06, 2021		Soil	S21-Oc26664		X			
18	BH6-0.4-0.5	Oct 06, 2021		Soil	S21-Oc26665			X	X	
19	BH6-0.9-1.0	Oct 06, 2021		Soil	S21-Oc26666		X			
20	BH7-0.2-0.3	Oct 06, 2021		Soil	S21-Oc26667	X		X	X	

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Company Name: WSP Australia P/L Newcastle
Address: PO Box 1162
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NSW 2300

Project Name: PS126618
Project ID: RED BUS SERVICES BATEAU BAY

Order No.:
Report #: 831991
Phone: 02 4929 8300
Fax: 02 4929 7299

Received: Oct 12, 2021 8:01 AM
Due: Oct 19, 2021
Priority: 5 Day
Contact Name: Richie Lamont

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Asbestos - AS4964	HOLD	Moisture Set	Eurofins Suite B7	BTEXN and Volatile TRH
Melbourne Laboratory - NATA # 1261 Site # 1254										
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794										
Mayfield Laboratory - NATA # 1261 Site # 25079										
Perth Laboratory - NATA # 2377 Site # 2370										
External Laboratory										
21	BH7-0.5-0.6	Oct 06, 2021		Soil	S21-Oc26668			X	X	
22	BH7-0.9-1.0	Oct 06, 2021		Soil	S21-Oc26669		X			
23	BH8-0.1-0.2	Oct 06, 2021		Soil	S21-Oc26670	X		X	X	
24	BH8-0.4-0.5	Oct 06, 2021		Soil	S21-Oc26671			X	X	
25	BH8-0.9-1.0	Oct 06, 2021		Soil	S21-Oc26672		X			
26	BH9-0.1-0.2	Oct 06, 2021		Soil	S21-Oc26673			X	X	
27	BH9-0.4-0.5	Oct 06, 2021		Soil	S21-Oc26674		X			
28	BH9-0.9-1.0	Oct 06, 2021		Soil	S21-Oc26675		X			
29	BH9-1.9-2.0	Oct 06, 2021		Soil	S21-Oc26676	X		X	X	
30	BH10-0.1-0.2	Oct 06, 2021		Soil	S21-Oc26677	X		X	X	
31	BH10-0.4-0.5	Oct 06, 2021		Soil	S21-Oc26678			X	X	

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NATA # 1261 Site # 18217

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Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

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NATA # 1261 Site # 25079

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IANZ # 1290

Company Name: WSP Australia P/L Newcastle
Address: PO Box 1162
Newcastle
NSW 2300

Project Name: PS126618
Project ID: RED BUS SERVICES BATEAU BAY

Order No.:
Report #: 831991
Phone: 02 4929 8300
Fax: 02 4929 7299

Received: Oct 12, 2021 8:01 AM
Due: Oct 19, 2021
Priority: 5 Day
Contact Name: Richie Lamont

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Asbestos - AS4964	HOLD	Moisture Set	Eurofins Suite B7	BTEXN and Volatile TRH
Melbourne Laboratory - NATA # 1261 Site # 1254										
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794										
Mayfield Laboratory - NATA # 1261 Site # 25079										
Perth Laboratory - NATA # 2377 Site # 2370										
External Laboratory										
32	BH10-0.7-0.8	Oct 06, 2021		Soil	S21-Oc26679		X			
33	RB01	Oct 06, 2021		Water	S21-Oc26680				X	
34	TB01	Oct 06, 2021		Soil	S21-Oc26681					X
35	QA03	Oct 06, 2021		Soil	S21-Oc26682			X	X	
36	TS01	Oct 06, 2021		Soil	S21-Oc28382					X
37	QA01	Oct 06, 2021		Soil	S21-Oc28383		X			
38	QA02	Oct 06, 2021		Soil	S21-Oc28384		X			
39	QA02A	Oct 06, 2021		Soil	S21-Oc28385		X			
40	TS LAB	Oct 06, 2021		Soil	S21-Oc28386					X
Test Counts						11	15	21	22	3

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Sample Receipt Advice

Company name:	WSP Australia P/L Newcastle
Contact name:	Richie Lamont
Project name:	PS126618
Project ID:	RED BUS SERVICES BATEAU BAY
Turnaround time:	5 Day
Date/Time received	Oct 12, 2021 8:01 AM
Eurofins reference	831991

Sample Information

✓	A detailed list of analytes logged into our LIMS, is included in the attached summary table.
✓	Sample Temperature of a random sample selected from the batch as recorded by Eurofins Sample Receipt : 13 degrees Celsius.
✓	All samples have been received as described on the above COC.
✓	COC has been completed correctly.
✓	Attempt to chill was evident.
✗	Appropriately preserved sample containers have been used.
✗	All samples were received in good condition.
✓	Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
✗	Appropriate sample containers have been used.
✓	Sample containers for volatile analysis received with zero headspace.
✗	Split sample sent to requested external lab.
✗	Some samples have been subcontracted.
N/A	Custody Seals intact (if used).

Notes

Contact

If you have any questions with respect to these samples, please contact your Analytical Services Manager:

Andrew Black on phone : (+61) 2 9900 8490 or by email: AndrewBlack@eurofins.com

Results will be delivered electronically via email to Richie Lamont - richie.lamont@wsp.com.

Note: A copy of these results will also be delivered to the general WSP Australia P/L Newcastle email address.

WSP Australia P/L Newcastle
PO Box 1162
Newcastle
NSW 2300

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: **Richie Lamont**

Report **831991-S**
Project name PS126618
Project ID RED BUS SERVICES BATEAU BAY
Received Date Oct 12, 2021

Client Sample ID			[G01]**BH1-0.1-0.2**	**BH1-0.4-0.5**	**BH2-0.3-0.4**	**BH2-0.9-1.0**
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**S21-Oc26648**	**S21-Oc26649**	**S21-Oc26652**	**S21-Oc26653**
Date Sampled			**Oct 06, 2021**	**Oct 06, 2021**	**Oct 06, 2021**	**Oct 06, 2021**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 400	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 1000	< 50	< 50	< 50
TRH C29-C36	50	mg/kg	< 1000	< 50	< 50	< 50
TRH C10-C36 (Total)	50	mg/kg	< 1000	< 50	< 50	< 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	< 1000	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 1000	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 2000	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	< 2000	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 2000	< 100	< 100	< 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	%	93	77	94	87
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	0.6	0.6	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	1.0	1.0	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.3	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	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	0.6	0.6	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5

Client Sample ID			[G01]BH1-0.1-0.2	BH1-0.4-0.5	BH2-0.3-0.4	BH2-0.9-1.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-Oc26648	S21-Oc26649	S21-Oc26652	S21-Oc26653
Date Sampled			Oct 06, 2021	Oct 06, 2021	Oct 06, 2021	Oct 06, 2021
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	0.6	0.6	< 0.5
2-Fluorobiphenyl (surr.)	1	%	89	105	92	122
p-Terphenyl-d14 (surr.)	1	%	87	78	77	103
Heavy Metals						
Arsenic	2	mg/kg	6.9	< 2	2.4	2.5
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	50	< 5	9.0	12
Copper	5	mg/kg	23	< 5	< 5	9.7
Lead	5	mg/kg	6.1	< 5	5.5	16
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	43	< 5	< 5	< 5
Zinc	5	mg/kg	26	< 5	15	51
% Moisture	1	%	1.2	20	8.7	17

Client Sample ID			BH3-0.1-0.2	BH3-0.4-0.5	[G01]BH4-0.2-0.3	BH4-0.4-0.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-Oc26655	S21-Oc26656	S21-Oc26657	S21-Oc26658
Date Sampled			Oct 06, 2021	Oct 06, 2021	Oct 06, 2021	Oct 06, 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	< 200	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	< 500	< 50
TRH C29-C36	50	mg/kg	< 50	< 50	< 500	< 50
TRH C10-C36 (Total)	50	mg/kg	< 50	< 50	< 500	< 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	< 500	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 500	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	< 1000	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 1000	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	< 1000	< 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	%	88	67	50	85

Client Sample ID			BH3-0.1-0.2	BH3-0.4-0.5	[G01]BH4-0.2-0.3	BH4-0.4-0.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-Oc26655	S21-Oc26656	S21-Oc26657	S21-Oc26658
Date Sampled			Oct 06, 2021	Oct 06, 2021	Oct 06, 2021	Oct 06, 2021
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	0.5	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	0.5	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	141	138	93	141
p-Terphenyl-d14 (surr.)	1	%	113	103	81	118
Heavy Metals						
Arsenic	2	mg/kg	< 2	< 2	3.2	2.7
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	6.0	< 5	65	11
Copper	5	mg/kg	29	7.9	29	< 5
Lead	5	mg/kg	43	15	10	< 5
Mercury	0.1	mg/kg	0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	< 5	< 5	65	< 5
Zinc	5	mg/kg	62	44	44	< 5
% Moisture	1	%	18	10.0	10	8.9

Client Sample ID			BH5-0.2-0.3	BH5-0.5-0.6	BH6-0.2-0.3	BH6-0.4-0.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-Oc26660	S21-Oc26661	S21-Oc26663	S21-Oc26665
Date Sampled			Oct 06, 2021	Oct 06, 2021	Oct 06, 2021	Oct 06, 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	120	410	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	< 50	< 50	< 50
TRH C10-C36 (Total)	50	mg/kg	120	410	< 50	< 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

Client Sample ID			BH5-0.2-0.3	BH5-0.5-0.6	BH6-0.2-0.3	BH6-0.4-0.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-Oc26660	S21-Oc26661	S21-Oc26663	S21-Oc26665
Date Sampled			Oct 06, 2021	Oct 06, 2021	Oct 06, 2021	Oct 06, 2021
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH >C10-C16	50	mg/kg	< 50	64	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	64	< 50	< 50
TRH >C16-C34	100	mg/kg	150	390	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	150	454	< 100	< 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	%	89	77	97	79
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	110	134	131	121
p-Terphenyl-d14 (surr.)	1	%	94	111	107	96
Heavy Metals						
Arsenic	2	mg/kg	3.4	2.7	3.8	3.3
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	24	11	14	12
Copper	5	mg/kg	8.2	< 5	< 5	< 5
Lead	5	mg/kg	< 5	< 5	< 5	< 5
Mercury	0.1	mg/kg	< 0.1	0.1	< 0.1	< 0.1
Nickel	5	mg/kg	18	< 5	< 5	< 5
Zinc	5	mg/kg	20	< 5	< 5	< 5
% Moisture	1	%	6.5	8.4	10	12

Client Sample ID			BH7-0.2-0.3	BH7-0.5-0.6	BH8-0.1-0.2	BH8-0.4-0.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-Oc26667	S21-Oc26668	S21-Oc26670	S21-Oc26671
Date Sampled			Oct 06, 2021	Oct 06, 2021	Oct 06, 2021	Oct 06, 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	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	< 50	< 50	< 50
TRH C10-C36 (Total)	50	mg/kg	< 50	< 50	< 50	< 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	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	< 100	< 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	%	94	88	129	93
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	0.6	0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	1.0	0.9
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	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	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	0.6	0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	0.6	0.5
2-Fluorobiphenyl (surr.)	1	%	134	121	86	86
p-Terphenyl-d14 (surr.)	1	%	101	96	62	59
Heavy Metals						
Arsenic	2	mg/kg	3.8	3.8	2.7	< 2
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	12	12	11	< 5
Copper	5	mg/kg	< 5	< 5	18	< 5

Client Sample ID			BH7-0.2-0.3	BH7-0.5-0.6	BH8-0.1-0.2	BH8-0.4-0.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-Oc26667	S21-Oc26668	S21-Oc26670	S21-Oc26671
Date Sampled			Oct 06, 2021	Oct 06, 2021	Oct 06, 2021	Oct 06, 2021
Test/Reference	LOR	Unit				
Heavy Metals						
Lead	5	mg/kg	< 5	< 5	8.4	< 5
Mercury	0.1	mg/kg	0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	< 5	< 5	< 5	< 5
Zinc	5	mg/kg	< 5	< 5	29	8.1
% Moisture	1	%	8.0	8.2	8.9	7.2

Client Sample ID			BH9-0.1-0.2	BH9-1.9-2.0	BH10-0.1-0.2	BH10-0.4-0.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-Oc26673	S21-Oc26676	S21-Oc26677	S21-Oc26678
Date Sampled			Oct 06, 2021	Oct 06, 2021	Oct 06, 2021	Oct 06, 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	< 50	< 50
TRH C29-C36	50	mg/kg	66	< 50	< 50	< 50
TRH C10-C36 (Total)	50	mg/kg	66	< 50	< 50	< 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	120	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	120	< 100	< 100	< 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	119	72	86
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5

Client Sample ID			BH9-0.1-0.2	BH9-1.9-2.0	BH10-0.1-0.2	BH10-0.4-0.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-Oc26673	S21-Oc26676	S21-Oc26677	S21-Oc26678
Date Sampled			Oct 06, 2021	Oct 06, 2021	Oct 06, 2021	Oct 06, 2021
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	97	129	146	136
p-Terphenyl-d14 (surr.)	1	%	83	107	120	112
Heavy Metals						
Arsenic	2	mg/kg	2.3	< 2	< 2	< 2
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	7.1	< 5	< 5	< 5
Copper	5	mg/kg	5.3	< 5	< 5	< 5
Lead	5	mg/kg	5.3	14	6.7	< 5
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	< 5	< 5	< 5	< 5
Zinc	5	mg/kg	14	14	22	< 5
% Moisture	1	%	3.5	12	11	8.5

Client Sample ID			TB01	QA03	TS01
Sample Matrix			Soil	Soil	Soil
Eurofins Sample No.			S21-Oc26681	S21-Oc26682	S21-Oc28382
Date Sampled			Oct 06, 2021	Oct 06, 2021	Oct 06, 2021
Test/Reference	LOR	Unit			
Total Recoverable Hydrocarbons					
TRH C6-C9	20	mg/kg	< 20	< 20	-
TRH C10-C14	20	mg/kg	-	< 20	-
TRH C15-C28	50	mg/kg	-	< 50	-
TRH C29-C36	50	mg/kg	-	< 50	-
TRH C10-C36 (Total)	50	mg/kg	-	< 50	-
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 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	-	< 100	-
TRH >C34-C40	100	mg/kg	-	< 100	-
TRH >C10-C40 (total)*	100	mg/kg	-	< 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	%	94	90	-

Client Sample ID			TB01	QA03	TS01
Sample Matrix			Soil	Soil	Soil
Eurofins Sample No.			S21-Oc26681	S21-Oc26682	S21-Oc28382
Date Sampled			Oct 06, 2021	Oct 06, 2021	Oct 06, 2021
Test/Reference	LOR	Unit			
Polycyclic Aromatic Hydrocarbons					
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	-	< 0.5	-
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	-	0.6	-
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	-	1.2	-
Acenaphthene	0.5	mg/kg	-	< 0.5	-
Acenaphthylene	0.5	mg/kg	-	< 0.5	-
Anthracene	0.5	mg/kg	-	< 0.5	-
Benz(a)anthracene	0.5	mg/kg	-	< 0.5	-
Benzo(a)pyrene	0.5	mg/kg	-	< 0.5	-
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	-	< 0.5	-
Benzo(g.h.i)perylene	0.5	mg/kg	-	< 0.5	-
Benzo(k)fluoranthene	0.5	mg/kg	-	< 0.5	-
Chrysene	0.5	mg/kg	-	< 0.5	-
Dibenz(a.h)anthracene	0.5	mg/kg	-	< 0.5	-
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	%	-	137	-
p-Terphenyl-d14 (surr.)	1	%	-	111	-
Heavy Metals					
Arsenic	2	mg/kg	-	6.9	-
Cadmium	0.4	mg/kg	-	< 0.4	-
Chromium	5	mg/kg	-	28	-
Copper	5	mg/kg	-	9.5	-
Lead	5	mg/kg	-	15	-
Mercury	0.1	mg/kg	-	< 0.1	-
Nickel	5	mg/kg	-	9.4	-
Zinc	5	mg/kg	-	61	-
% Moisture	1	%	-	7.1	-
TRH C6-C10	1	%	-	-	99
Total Recoverable Hydrocarbons					
Naphthalene	1	%	-	-	91
TRH C6-C9	1	%	-	-	97
BTEX					
Benzene	1	%	-	-	99
Ethylbenzene	1	%	-	-	99
m&p-Xylenes	1	%	-	-	100
o-Xylene	1	%	-	-	100
Toluene	1	%	-	-	94
Xylenes - Total	1	%	-	-	100
4-Bromofluorobenzene (surr.)	1	%	-	-	146

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	Oct 19, 2021	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Oct 19, 2021	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons	Sydney	Oct 19, 2021	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Sydney	Oct 19, 2021	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Oct 19, 2021	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Polycyclic Aromatic Hydrocarbons	Sydney	Oct 19, 2021	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Metals M8	Sydney	Oct 19, 2021	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
% Moisture	Sydney	Oct 13, 2021	14 Days
- Method: LTM-GEN-7080 Moisture			

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Company Name: WSP Australia P/L Newcastle
Address: PO Box 1162
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NSW 2300

Project Name: PS126618
Project ID: RED BUS SERVICES BATEAU BAY

Order No.:
Report #: 831991
Phone: 02 4929 8300
Fax: 02 4929 7299

Received: Oct 12, 2021 8:01 AM
Due: Oct 19, 2021
Priority: 5 Day
Contact Name: Richie Lamont

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Asbestos - AS4964	HOLD	Moisture Set	Eurofins Suite B7	BTEXN and Volatile TRH
Melbourne Laboratory - NATA # 1261 Site # 1254										
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	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	BH1-0.1-0.2	Oct 06, 2021		Soil	S21-Oc26648	X		X	X	
2	BH1-0.4-0.5	Oct 06, 2021		Soil	S21-Oc26649			X	X	
3	BH1-0.9-1.0	Oct 06, 2021		Soil	S21-Oc26650		X			
4	BH2-0.1-0.2	Oct 06, 2021		Soil	S21-Oc26651		X			
5	BH2-0.3-0.4	Oct 06, 2021		Soil	S21-Oc26652	X		X	X	
6	BH2-0.9-1.0	Oct 06, 2021		Soil	S21-Oc26653	X		X	X	
7	BH2-4.0	Oct 06, 2021		Soil	S21-Oc26654		X			
8	BH3-0.1-0.2	Oct 06, 2021		Soil	S21-Oc26655	X		X	X	
9	BH3-0.4-0.5	Oct 06, 2021		Soil	S21-Oc26656			X	X	

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Company Name: WSP Australia P/L Newcastle
Address: PO Box 1162
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Project Name: PS126618
Project ID: RED BUS SERVICES BATEAU BAY

Order No.:
Report #: 831991
Phone: 02 4929 8300
Fax: 02 4929 7299

Received: Oct 12, 2021 8:01 AM
Due: Oct 19, 2021
Priority: 5 Day
Contact Name: Richie Lamont

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Asbestos - AS4964	HOLD	Moisture Set	Eurofins Suite B7	BTEXN and Volatile TRH
Melbourne Laboratory - NATA # 1261 Site # 1254										
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794										
Mayfield Laboratory - NATA # 1261 Site # 25079										
Perth Laboratory - NATA # 2377 Site # 2370										
External Laboratory										
10	BH4-0.2-0.3	Oct 06, 2021		Soil	S21-Oc26657	X		X	X	
11	BH4-0.4-0.5	Oct 06, 2021		Soil	S21-Oc26658			X	X	
12	BH4-0.9-1.0	Oct 06, 2021		Soil	S21-Oc26659		X			
13	BH5-0.2-0.3	Oct 06, 2021		Soil	S21-Oc26660	X		X	X	
14	BH5-0.5-0.6	Oct 06, 2021		Soil	S21-Oc26661			X	X	
15	BH5-0.9-1.0	Oct 06, 2021		Soil	S21-Oc26662		X			
16	BH6-0.2-0.3	Oct 06, 2021		Soil	S21-Oc26663	X		X	X	
17	BH3-0.9-1.0	Oct 06, 2021		Soil	S21-Oc26664		X			
18	BH6-0.4-0.5	Oct 06, 2021		Soil	S21-Oc26665			X	X	
19	BH6-0.9-1.0	Oct 06, 2021		Soil	S21-Oc26666		X			
20	BH7-0.2-0.3	Oct 06, 2021		Soil	S21-Oc26667	X		X	X	

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Company Name: WSP Australia P/L Newcastle
Address: PO Box 1162
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Project Name: PS126618
Project ID: RED BUS SERVICES BATEAU BAY

Order No.:
Report #: 831991
Phone: 02 4929 8300
Fax: 02 4929 7299

Received: Oct 12, 2021 8:01 AM
Due: Oct 19, 2021
Priority: 5 Day
Contact Name: Richie Lamont

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Asbestos - AS4964	HOLD	Moisture Set	Eurofins Suite B7	BTEXN and Volatile TRH
Melbourne Laboratory - NATA # 1261 Site # 1254										
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794										
Mayfield Laboratory - NATA # 1261 Site # 25079										
Perth Laboratory - NATA # 2377 Site # 2370										
External Laboratory										
21	BH7-0.5-0.6	Oct 06, 2021		Soil	S21-Oc26668			X	X	
22	BH7-0.9-1.0	Oct 06, 2021		Soil	S21-Oc26669		X			
23	BH8-0.1-0.2	Oct 06, 2021		Soil	S21-Oc26670	X		X	X	
24	BH8-0.4-0.5	Oct 06, 2021		Soil	S21-Oc26671			X	X	
25	BH8-0.9-1.0	Oct 06, 2021		Soil	S21-Oc26672		X			
26	BH9-0.1-0.2	Oct 06, 2021		Soil	S21-Oc26673			X	X	
27	BH9-0.4-0.5	Oct 06, 2021		Soil	S21-Oc26674		X			
28	BH9-0.9-1.0	Oct 06, 2021		Soil	S21-Oc26675		X			
29	BH9-1.9-2.0	Oct 06, 2021		Soil	S21-Oc26676	X		X	X	
30	BH10-0.1-0.2	Oct 06, 2021		Soil	S21-Oc26677	X		X	X	
31	BH10-0.4-0.5	Oct 06, 2021		Soil	S21-Oc26678			X	X	

eurofins | Environment Testing

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Project ID: RED BUS SERVICES BATEAU BAY

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Received: Oct 12, 2021 8:01 AM
Due: Oct 19, 2021
Priority: 5 Day
Contact Name: Richie Lamont

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Asbestos - AS4964	HOLD	Moisture Set	Eurofins Suite B7	BTEXN and Volatile TRH
Melbourne Laboratory - NATA # 1261 Site # 1254										
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794										
Mayfield Laboratory - NATA # 1261 Site # 25079										
Perth Laboratory - NATA # 2377 Site # 2370										
External Laboratory										
32	BH10-0.7-0.8	Oct 06, 2021		Soil	S21-Oc26679		X			
33	RB01	Oct 06, 2021		Water	S21-Oc26680				X	
34	TB01	Oct 06, 2021		Soil	S21-Oc26681					X
35	QA03	Oct 06, 2021		Soil	S21-Oc26682			X	X	
36	TS01	Oct 06, 2021		Soil	S21-Oc28382					X
37	QA01	Oct 06, 2021		Soil	S21-Oc28383		X			
38	QA02	Oct 06, 2021		Soil	S21-Oc28384		X			
39	QA02A	Oct 06, 2021		Soil	S21-Oc28385		X			
40	TS LAB	Oct 06, 2021		Soil	S21-Oc28386					X
Test Counts						11	15	21	22	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.

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
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
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should be used as a guide only and may be different when site specific Sampling Analysis and Quality Plan (SAQP) have been implemented

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

Results <10 times the LOR : No Limit

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

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

NOTE: pH duplicates are reported as a range not as RPD

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

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

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QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time.Analysis will begin as soon as possible after sample receipt.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
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	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	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							
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	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
TRH C10-C14	%	115			70-130	Pass	
Naphthalene	%	84			70-130	Pass	
Naphthalene	%	86			70-130	Pass	
TRH C6-C10	%	89			70-130	Pass	
TRH C6-C10	%	86			70-130	Pass	
TRH >C10-C16	%	112			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	112			70-130	Pass	
Toluene	%	94			70-130	Pass	
Ethylbenzene	%	95			70-130	Pass	
m&p-Xylenes	%	94			70-130	Pass	
o-Xylene	%	94			70-130	Pass	
Xylenes - Total*	%	94			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	119			70-130	Pass	
Acenaphthylene	%	122			70-130	Pass	
Anthracene	%	103			70-130	Pass	
Benz(a)anthracene	%	126			70-130	Pass	
Benzo(a)pyrene	%	129			70-130	Pass	
Benzo(b&j)fluoranthene	%	117			70-130	Pass	
Benzo(g.h.i)perylene	%	121			70-130	Pass	
Benzo(k)fluoranthene	%	121			70-130	Pass	
Chrysene	%	124			70-130	Pass	
Dibenz(a.h)anthracene	%	125			70-130	Pass	
Fluoranthene	%	129			70-130	Pass	
Fluorene	%	125			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	128			70-130	Pass	
Naphthalene	%	120			70-130	Pass	
Phenanthrene	%	119			70-130	Pass	
Pyrene	%	127			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	88			80-120	Pass	
Cadmium	%	88			80-120	Pass	
Chromium	%	90			80-120	Pass	
Copper	%	89			80-120	Pass	
Lead	%	90			80-120	Pass	
Mercury	%	92			80-120	Pass	
Nickel	%	90			80-120	Pass	
Zinc	%	87			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 C10-C14	S21-Oc31566	NCP	%	108			70-130	Pass	
TRH >C10-C16	S21-Oc31566	NCP	%	104			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons				Result 1					
TRH C6-C9	S21-Oc26661	CP	%	79			70-130	Pass	
Naphthalene	S21-Oc26661	CP	%	78			70-130	Pass	
TRH C6-C10	S21-Oc26661	CP	%	80			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Benzene	S21-Oc26661	CP	%	91			70-130	Pass	
Toluene	S21-Oc26661	CP	%	75			70-130	Pass	
Ethylbenzene	S21-Oc26661	CP	%	75			70-130	Pass	
m&p-Xylenes	S21-Oc26661	CP	%	75			70-130	Pass	
o-Xylene	S21-Oc26661	CP	%	70			70-130	Pass	
Xylenes - Total*	S21-Oc26661	CP	%	73			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S21-Oc26661	CP	%	88			75-125	Pass	
Cadmium	S21-Oc26661	CP	%	90			75-125	Pass	
Chromium	S21-Oc26661	CP	%	96			75-125	Pass	
Copper	S21-Oc26661	CP	%	88			75-125	Pass	
Lead	S21-Oc26661	CP	%	91			75-125	Pass	
Mercury	S21-Oc26661	CP	%	99			75-125	Pass	
Nickel	S21-Oc26661	CP	%	92			75-125	Pass	
Zinc	S21-Oc26661	CP	%	88			75-125	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	S21-Oc26663	CP	%	111			70-130	Pass	
Acenaphthylene	S21-Oc26663	CP	%	124			70-130	Pass	
Anthracene	S21-Oc26663	CP	%	116			70-130	Pass	
Benz(a)anthracene	S21-Oc26663	CP	%	118			70-130	Pass	
Benzo(a)pyrene	S21-Oc26663	CP	%	121			70-130	Pass	
Benzo(b&j)fluoranthene	S21-Oc26663	CP	%	111			70-130	Pass	
Benzo(g.h.i)perylene	S21-Oc26663	CP	%	112			70-130	Pass	
Benzo(k)fluoranthene	S21-Oc26663	CP	%	124			70-130	Pass	
Chrysene	S21-Oc26663	CP	%	116			70-130	Pass	
Dibenz(a.h)anthracene	S21-Oc26663	CP	%	118			70-130	Pass	
Fluoranthene	S21-Oc26663	CP	%	120			70-130	Pass	
Fluorene	S21-Oc26663	CP	%	118			70-130	Pass	
Indeno(1.2.3-cd)pyrene	S21-Oc26663	CP	%	121			70-130	Pass	
Naphthalene	S21-Oc26663	CP	%	113			70-130	Pass	
Phenanthrene	S21-Oc26663	CP	%	112			70-130	Pass	
Pyrene	S21-Oc26663	CP	%	120			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 C6-C9	S21-Oc26660	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Naphthalene	S21-Oc26660	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	S21-Oc26660	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S21-Oc26660	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S21-Oc26660	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S21-Oc26660	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S21-Oc26660	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	S21-Oc26660	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total*	S21-Oc26660	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S21-Oc26660	CP	mg/kg	3.4	3.4	1.0	30%	Pass	
Cadmium	S21-Oc26660	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S21-Oc26660	CP	mg/kg	24	25	1.0	30%	Pass	
Copper	S21-Oc26660	CP	mg/kg	8.2	10.0	19	30%	Pass	

Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Lead	S21-Oc26660	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Mercury	S21-Oc26660	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	S21-Oc26660	CP	mg/kg	18	20	9.0	30%	Pass	
Zinc	S21-Oc26660	CP	mg/kg	20	16	21	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	S21-Oc26661	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	S21-Oc26661	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	S21-Oc26661	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	S21-Oc26661	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	S21-Oc26661	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	S21-Oc26661	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	S21-Oc26661	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	S21-Oc26661	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	S21-Oc26661	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	S21-Oc26661	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	S21-Oc26661	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	S21-Oc26661	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	S21-Oc26661	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	S21-Oc26661	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	S21-Oc26661	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	S21-Oc26661	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	S21-Oc26665	CP	%	12	12	5.0	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH C6-C9	S21-Oc26677	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Naphthalene	S21-Oc26677	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	S21-Oc26677	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S21-Oc26677	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S21-Oc26677	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S21-Oc26677	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S21-Oc26677	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	S21-Oc26677	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total*	S21-Oc26677	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S21-Oc26677	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Cadmium	S21-Oc26677	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S21-Oc26677	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Copper	S21-Oc26677	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Lead	S21-Oc26677	CP	mg/kg	6.7	7.1	6.0	30%	Pass	
Mercury	S21-Oc26677	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	S21-Oc26677	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Zinc	S21-Oc26677	CP	mg/kg	22	23	7.0	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH C10-C14	S21-Oc26678	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	S21-Oc26678	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	S21-Oc26678	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C10-C16	S21-Oc26678	CP	mg/kg	< 50	< 50	<1	30%	Pass	

Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH >C16-C34	S21-Oc26678	CP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	S21-Oc26678	CP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	S21-Oc26678	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	S21-Oc26678	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	S21-Oc26678	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	S21-Oc26678	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	S21-Oc26678	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	S21-Oc26678	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	S21-Oc26678	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	S21-Oc26678	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	S21-Oc26678	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	S21-Oc26678	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	S21-Oc26678	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	S21-Oc26678	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	S21-Oc26678	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	S21-Oc26678	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	S21-Oc26678	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	S21-Oc26678	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S21-Oc26678	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Cadmium	S21-Oc26678	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S21-Oc26678	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Copper	S21-Oc26678	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Lead	S21-Oc26678	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Mercury	S21-Oc26678	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	S21-Oc26678	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Zinc	S21-Oc26678	CP	mg/kg	< 5	7.3	62	30%	Fail	Q15

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	No
Appropriate sample containers have been used	No
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:

Andrew Black	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.

WSP Australia P/L Newcastle
PO Box 1162
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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, proficiency testing scheme providers and reference materials producers reports and certificates.

Attention: **Richie Lamont**

Report **831991-W**
Project name PS126618
Project ID RED BUS SERVICES BATEAU BAY
Received Date Oct 12, 2021

Client Sample ID			**RB01**
Sample Matrix			**Water**
Eurofins Sample No.			**S21-Oc26680**
Date Sampled			**Oct 06, 2021**
Test/Reference	LOR	Unit	
Total Recoverable Hydrocarbons			
TRH C6-C9	0.02	mg/L	< 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
Naphthalene[N02]	0.01	mg/L	< 0.01
TRH C6-C10	0.02	mg/L	< 0.02
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	< 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
BTEX			
Benzene	0.001	mg/L	< 0.001
Toluene	0.001	mg/L	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002
o-Xylene	0.001	mg/L	< 0.001
Xylenes - Total*	0.003	mg/L	< 0.003
4-Bromofluorobenzene (surr.)	1	%	120
Polycyclic Aromatic Hydrocarbons			
Acenaphthene	0.001	mg/L	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001
Anthracene	0.001	mg/L	< 0.001
Benz(a)anthracene	0.001	mg/L	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001
Benzo(b&j)fluoranthene[N07]	0.001	mg/L	< 0.001
Benzo(g.h.i)perylene	0.001	mg/L	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001
Chrysene	0.001	mg/L	< 0.001
Dibenz(a.h)anthracene	0.001	mg/L	< 0.001
Fluoranthene	0.001	mg/L	< 0.001
Fluorene	0.001	mg/L	< 0.001
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001

Client Sample ID			RB01
Sample Matrix			Water
Eurofins Sample No.			S21-Oc26680
Date Sampled			Oct 06, 2021
Test/Reference	LOR	Unit	
Polycyclic Aromatic Hydrocarbons			
Naphthalene	0.001	mg/L	< 0.001
Phenanthrene	0.001	mg/L	< 0.001
Pyrene	0.001	mg/L	< 0.001
Total PAH*	0.001	mg/L	< 0.001
2-Fluorobiphenyl (surr.)	1	%	54
p-Terphenyl-d14 (surr.)	1	%	101
Heavy Metals			
Arsenic (filtered)	0.001	mg/L	< 0.001
Cadmium (filtered)	0.0002	mg/L	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001
Copper (filtered)	0.001	mg/L	< 0.001
Lead (filtered)	0.001	mg/L	< 0.001
Mercury (filtered)	0.0001	mg/L	< 0.0001
Nickel (filtered)	0.001	mg/L	< 0.001
Zinc (filtered)	0.005	mg/L	< 0.005

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	Oct 13, 2021	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Oct 13, 2021	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Sydney	Oct 13, 2021	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Oct 13, 2021	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Polycyclic Aromatic Hydrocarbons	Sydney	Oct 13, 2021	7 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Metals M8 filtered	Sydney	Oct 19, 2021	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			

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Company Name: WSP Australia P/L Newcastle
Address: PO Box 1162
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NSW 2300

Project Name: PS126618
Project ID: RED BUS SERVICES BATEAU BAY

Order No.:
Report #: 831991
Phone: 02 4929 8300
Fax: 02 4929 7299

Received: Oct 12, 2021 8:01 AM
Due: Oct 19, 2021
Priority: 5 Day
Contact Name: Richie Lamont

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Asbestos - AS4964	HOLD	Moisture Set	Eurofins Suite B7	BTEXN and Volatile TRH
Melbourne Laboratory - NATA # 1261 Site # 1254										
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	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	BH1-0.1-0.2	Oct 06, 2021		Soil	S21-Oc26648	X		X	X	
2	BH1-0.4-0.5	Oct 06, 2021		Soil	S21-Oc26649			X	X	
3	BH1-0.9-1.0	Oct 06, 2021		Soil	S21-Oc26650		X			
4	BH2-0.1-0.2	Oct 06, 2021		Soil	S21-Oc26651		X			
5	BH2-0.3-0.4	Oct 06, 2021		Soil	S21-Oc26652	X		X	X	
6	BH2-0.9-1.0	Oct 06, 2021		Soil	S21-Oc26653	X		X	X	
7	BH2-4.0	Oct 06, 2021		Soil	S21-Oc26654		X			
8	BH3-0.1-0.2	Oct 06, 2021		Soil	S21-Oc26655	X		X	X	
9	BH3-0.4-0.5	Oct 06, 2021		Soil	S21-Oc26656			X	X	

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NSW 2300

Project Name: PS126618
Project ID: RED BUS SERVICES BATEAU BAY

Order No.:
Report #: 831991
Phone: 02 4929 8300
Fax: 02 4929 7299

Received: Oct 12, 2021 8:01 AM
Due: Oct 19, 2021
Priority: 5 Day
Contact Name: Richie Lamont

Eurofins Analytical Services Manager : Andrew Black

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Melbourne Laboratory - NATA # 1261 Site # 1254										
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794										
Mayfield Laboratory - NATA # 1261 Site # 25079										
Perth Laboratory - NATA # 2377 Site # 2370										
External Laboratory										
10	BH4-0.2-0.3	Oct 06, 2021		Soil	S21-Oc26657	X		X	X	
11	BH4-0.4-0.5	Oct 06, 2021		Soil	S21-Oc26658			X	X	
12	BH4-0.9-1.0	Oct 06, 2021		Soil	S21-Oc26659		X			
13	BH5-0.2-0.3	Oct 06, 2021		Soil	S21-Oc26660	X		X	X	
14	BH5-0.5-0.6	Oct 06, 2021		Soil	S21-Oc26661			X	X	
15	BH5-0.9-1.0	Oct 06, 2021		Soil	S21-Oc26662		X			
16	BH6-0.2-0.3	Oct 06, 2021		Soil	S21-Oc26663	X		X	X	
17	BH3-0.9-1.0	Oct 06, 2021		Soil	S21-Oc26664		X			
18	BH6-0.4-0.5	Oct 06, 2021		Soil	S21-Oc26665			X	X	
19	BH6-0.9-1.0	Oct 06, 2021		Soil	S21-Oc26666		X			
20	BH7-0.2-0.3	Oct 06, 2021		Soil	S21-Oc26667	X		X	X	

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Melbourne Laboratory - NATA # 1261 Site # 1254										
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794										
Mayfield Laboratory - NATA # 1261 Site # 25079										
Perth Laboratory - NATA # 2377 Site # 2370										
External Laboratory										
21	BH7-0.5-0.6	Oct 06, 2021		Soil	S21-Oc26668			X	X	
22	BH7-0.9-1.0	Oct 06, 2021		Soil	S21-Oc26669		X			
23	BH8-0.1-0.2	Oct 06, 2021		Soil	S21-Oc26670	X		X	X	
24	BH8-0.4-0.5	Oct 06, 2021		Soil	S21-Oc26671			X	X	
25	BH8-0.9-1.0	Oct 06, 2021		Soil	S21-Oc26672		X			
26	BH9-0.1-0.2	Oct 06, 2021		Soil	S21-Oc26673			X	X	
27	BH9-0.4-0.5	Oct 06, 2021		Soil	S21-Oc26674		X			
28	BH9-0.9-1.0	Oct 06, 2021		Soil	S21-Oc26675		X			
29	BH9-1.9-2.0	Oct 06, 2021		Soil	S21-Oc26676	X		X	X	
30	BH10-0.1-0.2	Oct 06, 2021		Soil	S21-Oc26677	X		X	X	
31	BH10-0.4-0.5	Oct 06, 2021		Soil	S21-Oc26678			X	X	

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Report #: 831991
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Received: Oct 12, 2021 8:01 AM
Due: Oct 19, 2021
Priority: 5 Day
Contact Name: Richie Lamont

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Asbestos - AS4964	HOLD	Moisture Set	Eurofins Suite B7	BTEXN and Volatile TRH
Melbourne Laboratory - NATA # 1261 Site # 1254										
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794										
Mayfield Laboratory - NATA # 1261 Site # 25079										
Perth Laboratory - NATA # 2377 Site # 2370										
External Laboratory										
32	BH10-0.7-0.8	Oct 06, 2021		Soil	S21-Oc26679		X			
33	RB01	Oct 06, 2021		Water	S21-Oc26680				X	
34	TB01	Oct 06, 2021		Soil	S21-Oc26681					X
35	QA03	Oct 06, 2021		Soil	S21-Oc26682			X	X	
36	TS01	Oct 06, 2021		Soil	S21-Oc28382					X
37	QA01	Oct 06, 2021		Soil	S21-Oc28383		X			
38	QA02	Oct 06, 2021		Soil	S21-Oc28384		X			
39	QA02A	Oct 06, 2021		Soil	S21-Oc28385		X			
40	TS LAB	Oct 06, 2021		Soil	S21-Oc28386					X
Test Counts						11	15	21	22	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.

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
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
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should be used as a guide only and may be different when site specific Sampling Analysis and Quality Plan (SAQP) have been implemented

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

Results <10 times the LOR : No Limit

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

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

NOTE: pH duplicates are reported as a range not as RPD

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

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

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QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time.Analysis will begin as soon as possible after sample receipt.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons							
TRH C6-C9	mg/L	< 0.02			0.02	Pass	
TRH C10-C14	mg/L	< 0.05			0.05	Pass	
TRH C15-C28	mg/L	< 0.1			0.1	Pass	
TRH C29-C36	mg/L	< 0.1			0.1	Pass	
Naphthalene	mg/L	< 0.01			0.01	Pass	
TRH C6-C10	mg/L	< 0.02			0.02	Pass	
TRH >C10-C16	mg/L	< 0.05			0.05	Pass	
TRH >C16-C34	mg/L	< 0.1			0.1	Pass	
TRH >C34-C40	mg/L	< 0.1			0.1	Pass	
Method Blank							
BTEX							
Benzene	mg/L	< 0.001			0.001	Pass	
Toluene	mg/L	< 0.001			0.001	Pass	
Ethylbenzene	mg/L	< 0.001			0.001	Pass	
m&p-Xylenes	mg/L	< 0.002			0.002	Pass	
o-Xylene	mg/L	< 0.001			0.001	Pass	
Xylenes - Total*	mg/L	< 0.003			0.003	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/L	< 0.001			0.001	Pass	
Acenaphthylene	mg/L	< 0.001			0.001	Pass	
Anthracene	mg/L	< 0.001			0.001	Pass	
Benz(a)anthracene	mg/L	< 0.001			0.001	Pass	
Benzo(a)pyrene	mg/L	< 0.001			0.001	Pass	
Benzo(b&j)fluoranthene	mg/L	< 0.001			0.001	Pass	
Benzo(g.h.i)perylene	mg/L	< 0.001			0.001	Pass	
Benzo(k)fluoranthene	mg/L	< 0.001			0.001	Pass	
Chrysene	mg/L	< 0.001			0.001	Pass	
Dibenz(a.h)anthracene	mg/L	< 0.001			0.001	Pass	
Fluoranthene	mg/L	< 0.001			0.001	Pass	
Fluorene	mg/L	< 0.001			0.001	Pass	
Indeno(1.2.3-cd)pyrene	mg/L	< 0.001			0.001	Pass	
Naphthalene	mg/L	< 0.001			0.001	Pass	
Phenanthrene	mg/L	< 0.001			0.001	Pass	
Pyrene	mg/L	< 0.001			0.001	Pass	
Method Blank							
Heavy Metals							
Arsenic (filtered)	mg/L	< 0.001			0.001	Pass	
Cadmium (filtered)	mg/L	< 0.0002			0.0002	Pass	
Chromium (filtered)	mg/L	< 0.001			0.001	Pass	
Copper (filtered)	mg/L	< 0.001			0.001	Pass	
Lead (filtered)	mg/L	< 0.001			0.001	Pass	
Mercury (filtered)	mg/L	< 0.0001			0.0001	Pass	
Nickel (filtered)	mg/L	< 0.001			0.001	Pass	
Zinc (filtered)	mg/L	< 0.005			0.005	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons							
TRH C6-C9	%	85			70-130	Pass	
TRH C10-C14	%	128			70-130	Pass	
Naphthalene	%	94			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
TRH C6-C10	%	84			70-130	Pass	
TRH >C10-C16	%	125			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	76			70-130	Pass	
Toluene	%	93			70-130	Pass	
Ethylbenzene	%	93			70-130	Pass	
m&p-Xylenes	%	92			70-130	Pass	
o-Xylene	%	94			70-130	Pass	
Xylenes - Total*	%	93			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	110			70-130	Pass	
Acenaphthylene	%	114			70-130	Pass	
Anthracene	%	125			70-130	Pass	
Benz(a)anthracene	%	119			70-130	Pass	
Benzo(a)pyrene	%	128			70-130	Pass	
Benzo(g.h.i)perylene	%	127			70-130	Pass	
Benzo(k)fluoranthene	%	121			70-130	Pass	
Chrysene	%	122			70-130	Pass	
Dibenz(a.h)anthracene	%	124			70-130	Pass	
Fluoranthene	%	126			70-130	Pass	
Fluorene	%	102			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	125			70-130	Pass	
Naphthalene	%	97			70-130	Pass	
Phenanthrene	%	108			70-130	Pass	
Pyrene	%	125			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic (filtered)	%	91			80-120	Pass	
Cadmium (filtered)	%	99			80-120	Pass	
Chromium (filtered)	%	103			80-120	Pass	
Copper (filtered)	%	105			80-120	Pass	
Lead (filtered)	%	102			80-120	Pass	
Mercury (filtered)	%	109			80-120	Pass	
Nickel (filtered)	%	104			80-120	Pass	
Zinc (filtered)	%	100			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-Oc26688	NCP	%	72			70-130	Pass	
TRH C10-C14	S21-Oc26696	NCP	%	118			70-130	Pass	
Naphthalene	S21-Oc26688	NCP	%	96			70-130	Pass	
TRH C6-C10	S21-Oc26688	NCP	%	73			70-130	Pass	
TRH >C10-C16	S21-Oc26696	NCP	%	119			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S21-Oc26688	NCP	%	78			70-130	Pass	
Toluene	S21-Oc26688	NCP	%	94			70-130	Pass	
Ethylbenzene	S21-Oc26688	NCP	%	92			70-130	Pass	
m&p-Xylenes	S21-Oc26688	NCP	%	91			70-130	Pass	
o-Xylene	S21-Oc26688	NCP	%	94			70-130	Pass	
Xylenes - Total*	S21-Oc26688	NCP	%	92			70-130	Pass	
Spike - % Recovery									

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Heavy Metals				Result 1					
Arsenic (filtered)	W21-Oc26125	NCP	%	86			75-125	Pass	
Cadmium (filtered)	W21-Oc26125	NCP	%	90			75-125	Pass	
Chromium (filtered)	W21-Oc26125	NCP	%	92			75-125	Pass	
Copper (filtered)	W21-Oc26125	NCP	%	91			75-125	Pass	
Lead (filtered)	W21-Oc26125	NCP	%	90			75-125	Pass	
Mercury (filtered)	W21-Oc26125	NCP	%	96			75-125	Pass	
Nickel (filtered)	W21-Oc26125	NCP	%	93			75-125	Pass	
Zinc (filtered)	W21-Oc26125	NCP	%	92			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-Oc26697	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
TRH C10-C14	W21-Oc26119	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH C15-C28	W21-Oc26119	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH C29-C36	W21-Oc26119	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Naphthalene	S21-Oc26697	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
TRH C6-C10	S21-Oc26697	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
TRH >C10-C16	W21-Oc26119	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH >C16-C34	W21-Oc26119	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH >C34-C40	W21-Oc26119	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S21-Oc26697	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Toluene	S21-Oc26697	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Ethylbenzene	S21-Oc26697	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
m&p-Xylenes	S21-Oc26697	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
o-Xylene	S21-Oc26697	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Xylenes - Total*	S21-Oc26697	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	S21-Oc23431	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Acenaphthylene	S21-Oc23431	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Anthracene	S21-Oc23431	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benz(a)anthracene	S21-Oc23431	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(a)pyrene	S21-Oc23431	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(b&j)fluoranthene	S21-Oc23431	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(g.h.i)perylene	S21-Oc23431	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(k)fluoranthene	S21-Oc23431	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Chrysene	S21-Oc23431	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Dibenz(a.h)anthracene	S21-Oc23431	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Fluoranthene	S21-Oc23431	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Fluorene	S21-Oc23431	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	S21-Oc23431	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Naphthalene	S21-Oc23431	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Phenanthrene	S21-Oc23431	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Pyrene	S21-Oc23431	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic (filtered)	S21-Oc26704	NCP	mg/L	0.006	0.006	2.0	30%	Pass	
Cadmium (filtered)	S21-Oc26704	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium (filtered)	S21-Oc26704	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Copper (filtered)	S21-Oc26704	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Lead (filtered)	S21-Oc26704	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	

Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Mercury (filtered)	S21-Oc26704	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel (filtered)	S21-Oc26704	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Zinc (filtered)	S21-Oc26704	NCP	mg/L	0.012	0.012	2.0	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	No
Appropriate sample containers have been used	No
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:

Andrew Black	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.

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2137105**	Page	: 1 of 8
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: RICHIE LAMONT	Telephone	: +61 2 8784 8555
Project	: PS126618 Red bus services Bateau Bay	Date Samples Received	: 14-Oct-2021
Site	: ----	Issue Date	: 21-Oct-2021
Sampler	: ----	No. of samples received	: 2
Order number	: 30072355	No. of samples analysed	: 2

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

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

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Duplicate (DUP) RPDs							
EG005(ED093)T: Total Metals by ICP-AES	ES2137069--001	Anonymous	**Zinc**	7440-66-6	74.0 %	0% - 20%	**RPD exceeds LOR based limits**

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EG035F: Dissolved Mercury by FIMS	ES2137107--001	Anonymous	**Mercury**	7439-97-6	44.8 %	70.0-130%	**Recovery less than lower data quality objective**

Outliers : Analysis Holding Time Compliance

Matrix: **WATER**

Method / Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EP080/071: Total Petroleum Hydrocarbons						
Amber Glass Bottle - Unpreserved						
QA01a	15-Oct-2021	14-Oct-2021	**1**	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions						
Amber Glass Bottle - Unpreserved						
QA01a	15-Oct-2021	14-Oct-2021	**1**	----	----	----

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Method	Count		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)					
TRH - Semivolatile Fraction	0	5	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
TRH - Semivolatile Fraction	0	5	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

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

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

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

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

Matrix: **SOIL**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation

Matrix: **SOIL**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055)							
QA03a	**06-Oct-2021**	**----**	----	----	**18-Oct-2021**	20-Oct-2021	✓
EG005(ED093)T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
QA03a	**06-Oct-2021**	**18-Oct-2021**	04-Apr-2022	✓	**19-Oct-2021**	04-Apr-2022	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
QA03a	**06-Oct-2021**	**18-Oct-2021**	03-Nov-2021	✓	**19-Oct-2021**	03-Nov-2021	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM))							
QA03a	**06-Oct-2021**	**18-Oct-2021**	20-Oct-2021	✓	**19-Oct-2021**	27-Nov-2021	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP071)							
QA03a	**06-Oct-2021**	**18-Oct-2021**	20-Oct-2021	✓	**19-Oct-2021**	27-Nov-2021	✓
Soil Glass Jar - Unpreserved (EP080)							
QA03a	**06-Oct-2021**	**18-Oct-2021**	20-Oct-2021	✓	**20-Oct-2021**	20-Oct-2021	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP071)							
QA03a	**06-Oct-2021**	**18-Oct-2021**	20-Oct-2021	✓	**19-Oct-2021**	27-Nov-2021	✓
Soil Glass Jar - Unpreserved (EP080)							
QA03a	**06-Oct-2021**	**18-Oct-2021**	20-Oct-2021	✓	**20-Oct-2021**	20-Oct-2021	✓
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080)							
QA03a	**06-Oct-2021**	**18-Oct-2021**	20-Oct-2021	✓	**20-Oct-2021**	20-Oct-2021	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020F: Dissolved Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F)							
QA01a	**07-Oct-2021**	**----**	----	----	**19-Oct-2021**	05-Apr-2022	✓
EG035F: Dissolved Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F)							
QA01a	**07-Oct-2021**	**----**	----	----	**20-Oct-2021**	04-Nov-2021	✓
EP074A: Monocyclic Aromatic Hydrocarbons							
Clear glass VOC vial - HCl (EP074)							
QA01a	**07-Oct-2021**	**18-Oct-2021**	21-Oct-2021	✓	**18-Oct-2021**	21-Oct-2021	✓
EP074B: Oxygenated Compounds							
Clear glass VOC vial - HCl (EP074)							
QA01a	**07-Oct-2021**	**18-Oct-2021**	21-Oct-2021	✓	**18-Oct-2021**	21-Oct-2021	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP074C: Sulfonated Compounds							
Clear glass VOC vial - HCl (EP074)							
QA01a	**07-Oct-2021**	**18-Oct-2021**	21-Oct-2021	✓	**18-Oct-2021**	21-Oct-2021	✓
EP074D: Fumigants							
Clear glass VOC vial - HCl (EP074)							
QA01a	**07-Oct-2021**	**18-Oct-2021**	21-Oct-2021	✓	**18-Oct-2021**	21-Oct-2021	✓
EP074E: Halogenated Aliphatic Compounds							
Clear glass VOC vial - HCl (EP074)							
QA01a	**07-Oct-2021**	**18-Oct-2021**	21-Oct-2021	✓	**18-Oct-2021**	21-Oct-2021	✓
EP074F: Halogenated Aromatic Compounds							
Clear glass VOC vial - HCl (EP074)							
QA01a	**07-Oct-2021**	**18-Oct-2021**	21-Oct-2021	✓	**18-Oct-2021**	21-Oct-2021	✓
EP074G: Trihalomethanes							
Clear glass VOC vial - HCl (EP074)							
QA01a	**07-Oct-2021**	**18-Oct-2021**	21-Oct-2021	✓	**18-Oct-2021**	21-Oct-2021	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071)							
QA01a	**07-Oct-2021**	**15-Oct-2021**	14-Oct-2021	×	**19-Oct-2021**	24-Nov-2021	✓
Clear glass VOC vial - HCl (EP080)							
QA01a	**07-Oct-2021**	**18-Oct-2021**	21-Oct-2021	✓	**18-Oct-2021**	21-Oct-2021	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071)							
QA01a	**07-Oct-2021**	**15-Oct-2021**	14-Oct-2021	×	**19-Oct-2021**	24-Nov-2021	✓
Clear glass VOC vial - HCl (EP080)							
QA01a	**07-Oct-2021**	**18-Oct-2021**	21-Oct-2021	✓	**18-Oct-2021**	21-Oct-2021	✓
EP080: BTEXN							
Clear glass VOC vial - HCl (EP080)							
QA01a	**07-Oct-2021**	**18-Oct-2021**	21-Oct-2021	✓	**18-Oct-2021**	21-Oct-2021	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	1	10	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	4	25.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	10	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	10	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	11	18.18	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	12	16.67	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	4	25.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	10	10.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	10	10.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	11	9.09	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	12	8.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	4	25.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	10	10.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	10	10.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	11	9.09	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	12	8.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	4	25.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	10	10.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	10	10.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	11	9.09	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	12	8.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Dissolved Mercury by FIMS	EG035F	1	8	12.50	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	13	15.38	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	5	0.00	10.00	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	15	13.33	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	2	19	10.53	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Dissolved Mercury by FIMS	EG035F	1	8	12.50	5.00	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Control Samples (LCS) - Continued							
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Dissolved Mercury by FIMS	EG035F	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Dissolved Mercury by FIMS	EG035F	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	5	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3)
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015 Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM Schedule B(3).
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM Schedule B(3) amended.
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. Samples are 0.45µm filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) Samples are 0.45µm filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3).
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015 The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM Schedule B(3)
Volatile Organic Compounds	EP074	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)

Analytical Methods	Method	Matrix	Method Descriptions
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for purging.

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2137105**	Page	: 1 of 8
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: RICHIE LAMONT	Telephone	: +61 2 8784 8555
Project	: PS126618 Red bus services Bateau Bay	Date Samples Received	: 14-Oct-2021
Site	: ----	Issue Date	: 21-Oct-2021
Sampler	: ----	No. of samples received	: 2
Order number	: 30072355	No. of samples analysed	: 2

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

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

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Duplicate (DUP) RPDs							
EG005(ED093)T: Total Metals by ICP-AES	ES2137069--001	Anonymous	**Zinc**	7440-66-6	74.0 %	0% - 20%	**RPD exceeds LOR based limits**

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EG035F: Dissolved Mercury by FIMS	ES2137107--001	Anonymous	**Mercury**	7439-97-6	44.8 %	70.0-130%	**Recovery less than lower data quality objective**

Outliers : Analysis Holding Time Compliance

Matrix: **WATER**

Method / Container / Client Sample ID(s)	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Days overdue	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Days overdue
EP080/071: Total Petroleum Hydrocarbons						
Amber Glass Bottle - Unpreserved						
QA01a	15-Oct-2021	14-Oct-2021	**1**	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions						
Amber Glass Bottle - Unpreserved						
QA01a	15-Oct-2021	14-Oct-2021	**1**	----	----	----

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Method	Count: QC	Count: Regular	Rate (%): Actual	Rate (%): Expected	Quality Control Specification
Laboratory Duplicates (DUP)					
TRH - Semivolatile Fraction	0	5	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
TRH - Semivolatile Fraction	0	5	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

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

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

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

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

Matrix: **SOIL**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Evaluation	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Evaluation

Matrix: **SOIL**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055)							
QA03a	**06-Oct-2021**	**----**	----	----	**18-Oct-2021**	20-Oct-2021	✓
EG005(ED093)T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
QA03a	**06-Oct-2021**	**18-Oct-2021**	04-Apr-2022	✓	**19-Oct-2021**	04-Apr-2022	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
QA03a	**06-Oct-2021**	**18-Oct-2021**	03-Nov-2021	✓	**19-Oct-2021**	03-Nov-2021	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM))							
QA03a	**06-Oct-2021**	**18-Oct-2021**	20-Oct-2021	✓	**19-Oct-2021**	27-Nov-2021	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP071)							
QA03a	**06-Oct-2021**	**18-Oct-2021**	20-Oct-2021	✓	**19-Oct-2021**	27-Nov-2021	✓
Soil Glass Jar - Unpreserved (EP080)							
QA03a	**06-Oct-2021**	**18-Oct-2021**	20-Oct-2021	✓	**20-Oct-2021**	20-Oct-2021	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP071)							
QA03a	**06-Oct-2021**	**18-Oct-2021**	20-Oct-2021	✓	**19-Oct-2021**	27-Nov-2021	✓
Soil Glass Jar - Unpreserved (EP080)							
QA03a	**06-Oct-2021**	**18-Oct-2021**	20-Oct-2021	✓	**20-Oct-2021**	20-Oct-2021	✓
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080)							
QA03a	**06-Oct-2021**	**18-Oct-2021**	20-Oct-2021	✓	**20-Oct-2021**	20-Oct-2021	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020F: Dissolved Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F)							
QA01a	**07-Oct-2021**	**----**	----	----	**19-Oct-2021**	05-Apr-2022	✓
EG035F: Dissolved Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F)							
QA01a	**07-Oct-2021**	**----**	----	----	**20-Oct-2021**	04-Nov-2021	✓
EP074A: Monocyclic Aromatic Hydrocarbons							
Clear glass VOC vial - HCl (EP074)							
QA01a	**07-Oct-2021**	**18-Oct-2021**	21-Oct-2021	✓	**18-Oct-2021**	21-Oct-2021	✓
EP074B: Oxygenated Compounds							
Clear glass VOC vial - HCl (EP074)							
QA01a	**07-Oct-2021**	**18-Oct-2021**	21-Oct-2021	✓	**18-Oct-2021**	21-Oct-2021	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP074C: Sulfonated Compounds							
Clear glass VOC vial - HCl (EP074)							
QA01a	**07-Oct-2021**	**18-Oct-2021**	21-Oct-2021	✓	**18-Oct-2021**	21-Oct-2021	✓
EP074D: Fumigants							
Clear glass VOC vial - HCl (EP074)							
QA01a	**07-Oct-2021**	**18-Oct-2021**	21-Oct-2021	✓	**18-Oct-2021**	21-Oct-2021	✓
EP074E: Halogenated Aliphatic Compounds							
Clear glass VOC vial - HCl (EP074)							
QA01a	**07-Oct-2021**	**18-Oct-2021**	21-Oct-2021	✓	**18-Oct-2021**	21-Oct-2021	✓
EP074F: Halogenated Aromatic Compounds							
Clear glass VOC vial - HCl (EP074)							
QA01a	**07-Oct-2021**	**18-Oct-2021**	21-Oct-2021	✓	**18-Oct-2021**	21-Oct-2021	✓
EP074G: Trihalomethanes							
Clear glass VOC vial - HCl (EP074)							
QA01a	**07-Oct-2021**	**18-Oct-2021**	21-Oct-2021	✓	**18-Oct-2021**	21-Oct-2021	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071)							
QA01a	**07-Oct-2021**	**15-Oct-2021**	14-Oct-2021	×	**19-Oct-2021**	24-Nov-2021	✓
Clear glass VOC vial - HCl (EP080)							
QA01a	**07-Oct-2021**	**18-Oct-2021**	21-Oct-2021	✓	**18-Oct-2021**	21-Oct-2021	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071)							
QA01a	**07-Oct-2021**	**15-Oct-2021**	14-Oct-2021	×	**19-Oct-2021**	24-Nov-2021	✓
Clear glass VOC vial - HCl (EP080)							
QA01a	**07-Oct-2021**	**18-Oct-2021**	21-Oct-2021	✓	**18-Oct-2021**	21-Oct-2021	✓
EP080: BTEXN							
Clear glass VOC vial - HCl (EP080)							
QA01a	**07-Oct-2021**	**18-Oct-2021**	21-Oct-2021	✓	**18-Oct-2021**	21-Oct-2021	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	1	10	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	4	25.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	10	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	10	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	11	18.18	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	12	16.67	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	4	25.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	10	10.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	10	10.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	11	9.09	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	12	8.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	4	25.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	10	10.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	10	10.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	11	9.09	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	12	8.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	4	25.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	10	10.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	10	10.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	11	9.09	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	12	8.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Dissolved Mercury by FIMS	EG035F	1	8	12.50	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	13	15.38	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	5	0.00	10.00	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	15	13.33	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	2	19	10.53	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Dissolved Mercury by FIMS	EG035F	1	8	12.50	5.00	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Control Samples (LCS) - Continued							
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Dissolved Mercury by FIMS	EG035F	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Dissolved Mercury by FIMS	EG035F	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	5	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3)
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015 Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM Schedule B(3).
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM Schedule B(3) amended.
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. Samples are 0.45µm filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) Samples are 0.45µm filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3).
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015 The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM Schedule B(3)
Volatile Organic Compounds	EP074	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)

Analytical Methods	Method	Matrix	Method Descriptions
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for purging.

CHAIN OF CUSTODY RECORD

ABN 50 005 085 521

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Company	WSP Australia	Purchase Order	
Address	Level 3/51-55 Bolton St, Newcastle NSW 2300	Eurofins | mgt Quote №	
Contact Name	Jessica Watson	Project Manager	Richie Lamont
Contact Phone №	420200359	Project №	PS126618
Special Direction	Please analyse for asbestos out of the jar	Project Name	Red bus services Bateau Bay
Relinquished by	Jessica Watson	Electronic Results Format	excel and Esdat
(Signature)	JW	Email for Results	Richie Lamont Richie.Lamont@wsp.com
(Time / Date)	10 : 00 — 11/10/21	Turn Around Requirements	☐ 1 DAY* ☐ 2 DAY* ☐ 3 DAY* * Surcharges apply ☑ 5 DAY (Std.) ☐ Other ( )

Analysis (Note: Where metals are requested, please specify "Total" or "Filtered")

№	Client Sample ID	Date	Matrix	TRH, BTEX, PAHs, Metals	Asbestos (presence/absence)	PAHs	Metals (8 metals)	Asbestos (presence/absence)	ON HOLD	Containers: 1L Plastic	250mL Plastic	125mL Plastic	200mL Amber Glass	40mL vial	125mL Amber Glass	Jar	Sample Comments / DG Hazard Warning
1	BH1-0.1-0.2	6/10/21	soil	X	X											X	
2	BH1-0.4-0.5	6/10/21	soil	X												X	
3	BH1-0.9-1.0	6/10/21	soil						X							X	
4	BH2-0.1-0.2	6/10/21	soil						X							X	
5	BH2-0.3-0.4	6/10/21	soil	X	X											X	
6	BH2-0.9-1.0	6/10/21	soil	X	X											X	
7	BH2-4.0	6/10/21	soil						X							X	
8	BH3-0.1-0.2	6/10/21	soil	X	X											X	
9	BH3-0.4-0.5	6/10/21	soil	X												X	
10	BH4-0.2-0.3	6/10/21	soil	X	X											X	
11	BH4-0.4-0.5	6/10/21	soil	X												X	
12	BH4-0.9-1.0	6/10/21	soil						X							X	

Method of Shipment: ☑ Courier (#) ☐ Hand Delivered ☐ Postal

Copy

Environmental Division Sydney
Work Order Reference
ES2137105

Telephone : +61-2-8784 8555

Laboratory Use Only								
Received By	Jack Clifton	(SYD) | BNE | MEL | PER | ADL | NEW | DAR	Date	14/10/21	Time	16:30	Signature	J Clifton
Received By		SYD | BNE | MEL | PER | ADL | NEW | DAR	Date	__/__/__	Time	__:__	Signature	

Temperature: 15.4°C

Report №:

CHAIN OF CUSTODY RECORD

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Company	WSP Australia	Purchase Order		Project Manager	Richie Lamont
Address	Level 3/51-55 Bolton St, Newcastle NSW 2300	Eurofins | mgt Quote №		Project №	PS126618
Contact Name	Jessica Watson				
Contact Phone №	420200359				
Special Direction	Please anaylse for asbestos from the jar				
Relinquished by	Jessica Watson				
(Signature)	JW				
(Time / Date)	10 : 00	11/10/21			

Project Name	Red bus services Bateau Bay
Electronic Results Format	excel and Esdat
Email for Results	Richie Lamont Richie.Lamont@wsp.com
Turn Around Requirements	☐ 1 DAY* ☐ 2 DAY* ☐ 3 DAY* * Surcharges apply ☑ 5 DAY (Std.) ☐ Other ( )

Containers | Method of Shipment

☑ Courier (#)
☐ Hand Delivered
☐ Postal

№	Client Sample ID	Date	Matrix	Analysis (Note: Where metals are requested, please specify "Total" or "Filtered") B7: TRH, BTEX, PAHs, Metals	Asbestos (presence/absence)	ON HOLD	1L Plastic	250mL Plastic	125mL Plastic	200mL Amber Glass	40mL Vial	125mL Amber Glass	Jar	Sample Comments / DG Hazard Warning
1	BH5-0.2-0.3	6/10/21	soil	X	X									
2	BH5-0.5-0.6	6/10/21	soil	X										
3	BH5-0.9-1.0	6/10/21	soil			X								
4	BH6-0.2-0.3	6/10/21	soil	X	X									
5	BH3-0.9-1.0	6/10/21	soil			X								
6	BH6-0.4-0.5	6/10/21	soil	X										
7	BH6-0.9-1.0	6/10/21	soil			X								
8	BH7-0.2-0.3	6/10/21	soil	X	X									
9	BH7-0.5-0.6	6/10/21	soil	X										
10	BH7-0.9-1.0	6/10/21	soil			X								
11	BH8-0.1-0.2	6/10/21	soil	X	X									
12	BH8-0.4-0.5	6/10/21	soil	X										

Laboratory Use Only								
Received By	Jack Chilton	(SYD) | BNE | MEL | PER | ADL | NEW | DAR	Date	11/10/21	Time	16:30	Signature	J Chilton
Received By		SYD | BNE | MEL | PER | ADL | NEW | DAR	Date	__/__/__	Time	__:__	Signature	

Temperature: 15.4°C

Report №:

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Company	WSP Australia	Purchase Order	
Address	Level 3/51-55 Bolton St, Newcastle NSW 2300	Eurofins | mgt Quote №	
Contact Name	Jessica Watson	Project Manager	Richie Lamont
Contact Phone №	420200359	Project №	PS126618
Special Direction	Please analyse asbestos from the jar	Project Name	Red bus services Bateau Bay
Relinquished by (Signature)	Jessica Watson — JW	Electronic Results Format	excel and Esdat
(Time / Date)	10 : 00 — 11/10/21	Email for Results	Richie Lamont Richie.Lamont@wsp.com

Turn Around Requirements: ☐ 1 DAY* ☐ 2 DAY* ☐ 3 DAY* (* Surcharges apply) ☑ 5 DAY (Std.) ☐ Other ( )

Analysis (Note: Where metals are requested, please specify "Total" or "Filtered")

№	Client Sample ID	Date	Matrix	b7: TRH, BTEX, PAHs, Metals	Asbestos (presence/absence)	ON HOLD	Containers: 1L Plastic	250mL Plastic	125mL Plastic	200mL Amber Glass	40mL vial	125mL Amber Glass	Jar	Sample Comments / DG Hazard Warning
1	BH8-0.9-1.0	6/10/21	soil			X								
2	BH9-0.1-0.2	6/10/21	soil	X										
3	BH9-0.4-0.5	6/10/21	soil			X								
4	BH9-0.9-1.0	6/10/21	soil			X								
5	BH9-1.9-2.0	6/10/21	soil	X	X									
6	BH10-0.1-0.2	6/10/21	soil	X	X									
7	BH10-0.4-0.5	6/10/21	soil	X										
8	BH10-0.7-0.8	6/10/21	soil			X								
9	RB01	6/10/21	water	X										
10	TB01	6/10/21	soil	X										
11	QA03	6/10/21	soil	X										
12	QA03a	6/10/21	soil	X										

Containers: Method of Shipment: ☑ Courier (#) ☐ Hand Delivered ☐ Postal

Please forward to ALS

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Received By	Jack Clifton	(SYD) | BNE | MEL | PER | ADL | NEW | DAR	Date	14/10/21	Time	16:30	Signature	J Clifton	Temperature 15.4°C
Received By		SYD | BNE | MEL | PER | ADL | NEW | DAR	Date	__/__/__	Time	__:__	Signature		Report №

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Company	WSP Australia	Purchase Order		Project Manager	Richie Lamont
Address	Level 3/51-55 Bolton St, Newcastle NSW 2300	Eurofins | mgt Quote №		Project №	PS126618
Contact Name	Jessica Watson				
Contact Phone №	420200359				
Special Direction					
Relinquished by	Jessica Watson				
(Signature)	JW				
(Time / Date)	10 : 00	11/10/21			

Project Name	Red bus services Bateau Bay				
Electronic Results Format	excel and Esdat				
Email for Results	Richie Lamont Richie.Lamont@wsp.com				
Turn Around Requirements	☐ 1 DAY* ☐ 2 DAY* ☐ 3 DAY* * Surcharges apply	☑ 5 DAY (Std.)	☐ Other ( )		

Analysis (Note: Where metals are requested, please specify "Total" or "Filtered".)

№	Client Sample ID	Date	Matrix	B7: TRH, BTEX, VOCs, Metals	ON HOLD	Containers: 1L Plastic	250mL Plastic	125mL Plastic	200mL Amber Glass	40mL vial	125mL Amber Glass	Jar	Sample Comments / DG Hazard Warning
1	MW4	8/10/21	water	X									
2	MW6	7/10/21	water	X									
3	MW9	7/10/21	water	X									
4	MW10	7/10/21	water	X									
5	MW11	7/10/21	water	X									
6	MW12	7/10/21	water	X									
7	MW13	7/10/21	water	X									
8	MW14	7/10/21	water	X									
9	MW15	7/10/21	water	X									
10	MW16	7/10/21	water	X									
11	MW17	7/10/21	water	X									
12	MW19	7/10/21	water	X									

Method of Shipment: ☑ Courier (#) ☐ Hand Delivered ☐ Postal

Laboratory Use Only								
Received By	Jack Clifton	(SYD) | BNE | MEL | PER | ADL | NEW | DAR	Date	14/10/21	Time	16:30	Signature	J Clifton
Received By		SYD | BNE | MEL | PER | ADL | NEW | DAR	Date	__/__/__	Time	__:__	Signature	

Temperature: 15.4°C

Report №:

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Company	WSP Australia	Purchase Order		Project Manager	Richie Lamont
Address	Level 3/51-55 Bolton St, Newcastle NSW 2300	Eurofins | mgt Quote №		Project №	PS126618
Contact Name	Jessica Watson				
Contact Phone №	420200359				
Special Direction					
Relinquished by (Signature)	Jessica Watson JW				
(Time / Date)	10 : 00	11/10/21			

Project Name	Red bus services Bateau Bay
Electronic Results Format	excel and Esdat
Email for Results	Richie Lamont Richie.Lamont@wsp.com
Turn Around Requirements	☐ 1 DAY* ☐ 2 DAY* ☐ 3 DAY* * Surcharges apply ☑ 5 DAY (Std.) ☐ Other ( )

Containers: 1L Plastic; 250mL Plastic; 125mL Plastic; 200mL Amber Glass; 40mLvial; 125mL Amber Glass; Jar

Method of Shipment: ☑ Courier (#) ☐ Hand Delivered ☐ Postal

№	Client Sample ID	Date	Matrix	Analysis (Note: Where metals are requested, please specify "Total" or "Filtered") B7: TRH, BTEX, VOCs, Metals	Metals (8 metals)	TRH (C6-C10)	ON HOLD	Sample Comments / DG Hazard Warning
1	MW20	8/10/21	water	X				
2	MW21	8/10/21	water	X				
3	MW23	7/10/21	water	X				
4	MW26	8/10/21	water	X				
5	MW30	8/10/21	water	X				
6	MW32	8/10/21	water	X				
7	MW33	8/10/21	water	X				
8	MW34	8/10/21	water	X				
9	RB02	8/10/21	water		X			
10	TB01	8/10/21	water			X		
11	QA01	7/10/21	water	X				
12	QA01a	7/10/21	water	X				Please forward to ALS

Laboratory Use Only							
Received By	Jack Clifton	(SYD) | BNE | MEL | PER | ADL | NEW | DAR	Date	14/10/21	Time	16:30	Signature: J Clifton
Received By		SYD | BNE | MEL | PER | ADL | NEW | DAR	Date	__/__/__	Time	__:__	Signature

Temperature: 15.9°C

Report №:

Submission of samples to the laboratory will be deemed as acceptance of Eurofins | mgt Standard Terms and Conditions unless agreed otherwise. A copy of Eurofins | mgt Standard Terms and Conditions is available on request.

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Company	WSP Australia	Purchase Order		Project Manager	Richie Lamont
Address	Level 3/51-55 Bolton St, Newcastle NSW 2300	Eurofins | mgt Quote №		Project №	PS126618
Contact Name	Jessica Watson				
Contact Phone №	420200359				
Special Direction					
Relinquished by (Signature)	Jessica Watson JW				
(Time / Date)	10 : 00	11/10/21			

Project Name	Red bus services Bateau Bay
Electronic Results Format	excel and Esdat
Email for Results	Richie Lamont Richie.Lamont@wsp.com
Turn Around Requirements	☐ 1 DAY* ☐ 2 DAY* ☐ 3 DAY* * Surcharges apply ☑ 5 DAY (Std.) ☐ Other ( )

№	Client Sample ID	Date	Matrix	Analysis (Note: Where metals are requested, please specify "Total" or "Filtered")	B7 TRH, BTEX, PAHs, metals	Asbestos (presence/absence)	ON HOLD	Containers: 1L Plastic	250mL Plastic	125mL Plastic	200mL Amber Glass	40mL vial	125mL Amber Glass	Jar	Method of Shipment: ☑ Courier (#) ☐ Hand Delivered ☐ Postal	Sample Comments / DG Hazard Warning
1	QA02	6/10/21	soil				X							x		
2	QA02a	6/10/21	soil				X							x		
3	QA01	6/10/21	soil				X							x		
4																
5																
6																
7																
8																
9																
10																
11																
12																

Laboratory Use Only								
Received By	Jack Clifton	(SYD) | BNE | MEL | PER | ADL | NEW | DAR	Date	10/10/21	Time	16:35	Signature	Temperature: 15.4°C
Received By		SYD | BNE | MEL | PER | ADL | NEW | DAR	Date	__/__/__	Time	__:__	Signature	Report №

CHAIN OF CUSTODY RECORD

ABN 50 005 085 521

☐ Eurofins | mgt Sydney Lab — Unit F3 Building F, 16 Mars Road, Lane Cove West, NSW 2066 P: +61 2 9900 8400 E: EnviroSampleNSW@eurofins.com.au

☐ Eurofins | mgt Brisbane Lab — Unit 1, 21 Smallwood Place, Murarrie, QLD 4172 P: +61 7 3902 4600 E: EnviroSampleQLD@eurofins.com.au

☐ Eurofins | mgt Melbourne Lab — 2 Kingston Town Close, Oakleigh, VIC 3166 P: +61 3 8564 5000 F: +61 3 8564 5090 E: EnviroSampleVic@eurofins.com.au

Company	WSP Australia	Purchase Order		Project Manager	Richie Lamont
Address	Level 3/51-55 Bolton St, Newcastle NSW 2300	Eurofins | mgt Quote №		Project №	PS126618
Contact Name	Jessica Watson				
Contact Phone №	420200359				
Special Direction					
Relinquished by (Signature)	Jessica Watson JW				
(Time / Date)	10 : 00	11/10/21			

Project Name	Red bus services Bateau Bay
Electronic Results Format	excel and Esdat
Email for Results	Richie Lamont Richie.Lamont@wsp.com
Turn Around Requirements	☐ 1 DAY* ☐ 2 DAY* ☐ 3 DAY* * Surcharges apply ☑ 5 DAY (Std.) ☐ Other ( )

№	Client Sample ID	Date	Matrix	TRH	BTEX	VOCs	Metals (8 metals)	ON HOLD	Containers: 1L Plastic	250mL Plastic	125mL Plastic	200mL Amber Glass	40mL vial	125mL Amber Glass	Jar	Sample Comments / DG Hazard Warning
1	QA02	7/10/21	water					X								
2	QA02a	7/10/21	water					X								
3																
4																
5																
6																
7																
8																
9																
10																
11																
12																

Analysis (Note: Where metals are requested, please specify "Total" or "Filtered")

Containers

Method of Shipment: ☑ Courier (#) ☐ Hand Delivered ☐ Postal

Please forward to ALS

Laboratory Use Only								
Received By	Jack Clifton	(SYD) | BNE | MEL | PER | ADL | NEW | DAR	Date	14/10/21	Time	16:30	Signature	J Clifton
Received By		SYD | BNE | MEL | PER | ADL | NEW | DAR	Date	/ /	Time	:	Signature	

Temperature: 15.4°C

Report №:

Submission of samples to the laboratory will be deemed as acceptance of Eurofins | mgt Standard Terms and Conditions unless agreed otherwise. A copy of Eurofins | mgt Standard Terms and Conditions is available on request