ARC Environmental
ABN 13 542 567 286

Suite 1.03
7 Westcott Street
West Melbourne VIC 3003

Tel: +61 3 8383 1950

www.arcenvironmental.com.au

20 April 2023

Liam Wallis
Director
Hip V Hype Development Pty Ltd
293 Barkly Street
Brunswick VIC 3056

Our reference: 2301314

Dear Liam,

RE: REPORT (V1) – ENVIRONMENTAL DUE DILIGENCE ASSESSMENT: 427 ALBERT STREET, BRUNSWICK, VICTORIA

1. INTRODUCTION

ARC Environmental (ARC) was engaged by HIP V. HYPE Development Pty Ltd ("the Client") to conduct an Environmental Due Diligence assessment for the proposed acquisition and redevelopment of the property located at 427 Albert Street, Brunswick ('the Site"). The area and location of the Site is defined in ***Figure 1***.

A Preliminary Site Investigation (PSI) was previously undertaken by Atma Environmental for the Site, with conclusions indicating the following:

- Fill material was identified in the northern portion of the Site to a depth of 0.2 – 0.4 mbgl;
- Underground Storage Tanks (USTs – it is understood two exist) and a fuel bowser are located in the northwest extent of the Site;
- A recent audit of 395-411 Albert Street, to the east of the Site, indicated methane gas concentrations exceeding the lower and upper explosive limits for air (5% and 15%, respectively). These results are considered to be associated with the historical landfilling activities to the north of this Audit Site, suggesting that similar impact could be present underneath 427 Albert Street;
- A vapour mitigation system is in place at the former quarry to the northwest of the Site;
- Groundwater to the north and east of the Site was found to be contaminated with lead, copper and zinc. However, the investigation of groundwater conditions was beyond the scope of the PSI undertaken at the Site and the condition of groundwater beneath the Site is unknown; and
- The identification of off-Site sources of groundwater contamination and production of landfill gas associated with former landfilling activities indicated that a groundwater and landfill gas assessment should be undertaken to assess if the quality of groundwater beneath the Site and any potential risks for future land use.

2. PROJECT OBJECTIVE

The objective of this due diligence assessment was to conduct an intrusive soil, groundwater, and landfill gas assessment to provide more information on the potential liabilities relating to both potential groundwater contamination and potential risk to human health, in the context of a future residential redevelopment, to inform the client ahead of the potential purchase of the Site.

3. SCOPE OF WORK

The scope of works was undertaken in general accordance with the requirements of the National Environment Protection (Assessment of Site Contamination) Measure (2013 NEPM); and the Victorian EPA Guidelines as follows:

- Preparation of project-specific health and safety documentation appropriate for the scope of works;
- Site walkover for drilling access purposes and supervision of Access Utility Engineering (AUE) to scan the Site for underground services;
- Soil, groundwater and landfill gas investigation:
    - Registration of the groundwater monitoring well;
    - Review dial before you dig asset plans and identify safe boring locations with an underground services location specialist;
    - Drilling of nine (9) soil bore locations (see ***Figure 2***) and collection of soil samples;
    - Installation of one (1) groundwater monitoring well to a maximum depth of up to 12 metres;
    - Installation of four (4) landfill gas bores to a maximum depth of 5 metres;
    - At least one week following installation, gauging and sampling of groundwater monitoring wells using low flow sampling techniques, followed by landfill gas monitoring and soil vapour sampling of four (4) landfill gas bores; and
    - Submitted selected soil, groundwater and soil vapour samples for laboratory analysis of contaminants of potential concern.
- Collation and interpretation of the data, including a quality assurance / quality control (QA/QC) data validation process, and preparation of this factual Environmental Due Diligence letter.

A summary of the site works undertaken has been provided below in ***Table 3.1***.

Table 3.1 Summary of Field Activities

Activity	Description
Dates of Field Activity	**10 February 2023** • Site walkover and subsurface utility survey of drilling locations. **13 & 14 February 2023**

Activity	Description
	• Drilling and installation of four (4) landfill gas bores (LFG01-LFG04) and collection of soil samples during drilling. • Drilling and installation of one (1) groundwater monitoring well (GW01) and collection of soil samples during drilling; • Drilling and soil sampling of four (4) soil bores (SB01, SB03 – SB05); and • Development of one (1) groundwater monitoring well (GW01). **28 February 2023** • Gauging and sampling of one (1) groundwater monitoring well (GW01). • Landfill gas monitoring and soil vapour sampling of three (3) landfill gas bores. **2 March 2023** • Landfill gas monitoring and soil vapour sampling of one (1) remaining landfill gas bores. **4 April 2023** • Additional landfill gas monitoring of four (4) landfill gas bores.
Hazard Identification, Site Inspection & Permitting	An initial on-site hazard recognition inspection site specific health and safety plan (HSE Plan) and relevant safe work method statements (SWMS) were completed by representatives of ARC. A 'Dial Before You Dig' underground utility search was performed prior to the commencement of site works. ARC engaged AUE, an experienced service locator, to complete a subsurface utility survey of the Site and drilling locations.
Soil Boring	ARC engaged and supervised Drillworx to drill nine (9) soil bores and install groundwater monitoring wells and landfill gas bores. Bores were concrete cored before being advanced via hand auger to a maximum depth of 1.0 mbgl, with the remaining drilling completed using a combination of push tube and solid stem auger. All observations and readings, including visual and olfactory observations and Photo-Ionisation Detector (PID) readings, were recorded in the field on soil bore logs and in line with USCS (Unified Soil Classification System). Bore logs are included in ***Attachment A***.
Soil Sampling	Soil samples were generally collected at the surface and a depth of 0.2 mbgl, 0.5 mbgl, 1.0 mbgl and from every subsequent meter of soil, from the hand auger or push tube sleeve until refusal on siltstone was encountered. Clean disposable nitrile gloves were used for soil sampling collection. Samples were placed in laboratory prepared glass jar sample containers with individual and unique identification including project number, sampling date and sample number, and then placed into a cooled, insulated and sealed container for transport to the laboratory under Chain of Custody (COC) procedures. Copies of the COC documentation are presented in ***Attachment B***.
Sampling Location Reinstatement	Following completion of logging and sampling, the soil bores not converted to a landfill gas bore were reinstated with soil cuttings in the order they were removed.
Well Construction	A bore construction license for the installation of groundwater monitoring wells was obtained from Southern Rural Water, which is contained in ***Attachment C***. The groundwater monitoring well was installed with 50 mm, flush jointed, class 18 uPVC, threaded screen and casing as follows: • GW01: Screen installed to 12 mbgl with a 7-meter length screen (5 - 12 mbgl); Sand filter packs were raised approximately 0.5 m above the top of the screen and a 1.5 m bentonite seal was set above the top of the sand pack. The wells were grout

Activity	Description
	sealed from the bentonite seal to the surface and were finished with a flush mounted gatic and fitted with a lockable well cap.
Well Development	The new groundwater monitoring well was developed using a stainless-steel bailer to remove any materials that may have been introduced during drilling and installation works including fines from the sand filter pack and fine sands and silts from the aquifer around the well screen. Approximately 40 L of groundwater was purged from the groundwater well. GW01 was fully developed with three bore volumes (40L) removed. The well development form is included with the field forms in ***Attachment D***.
LFG Bore Construction	The landfill gas bores were installed with 50 mm, flush jointed, class 18 uPVC, threaded screen and casing as follows: • LFG01-LFG04: casing from 0 – 1.0 mbgl and screen from 1.0 – 5.0 mbgl, Sand filter packs were raised to the top of the screen and a 0.5 m bentonite seal was set above the top of the sand pack. The bores were grout sealed from the bentonite seal to the surface and were finished with a flush mounted gatic and fitted with a valve cap. Bore construction details are included on the bore logs in ***Attachment A***.
Landfill Gas Monitoring	Soil gas monitoring was undertaken in accordance with the methodologies outlined in BS8576:2013. Monitoring of the landfill gas bores was conducted using a calibrated GA5000 analyser during periods of falling atmospheric pressure. Prior to the gas measurements the initial peak flow rate and relative pressure were noted. Following this, the methane; carbon dioxide; oxygen, carbon monoxide and hydrogen sulphide levels were recorded over a period of 5 minutes for each bore. Gas monitoring field sheets are provided in ***Attachment D*** and the equipment calibration certificates are presented in ***Attachment E***. Weather data sourced from the Bureau of Meteorology Essendon station, the closest weather station to the Site which records barometric pressure, is presented in ***Attachment F***.
Soil Vapour Sampling	Soil vapour sampling of four (4) soil vapour/landfill gas bores was undertaken by a suitably experienced ARC environmental consultant. A 'shut in" test was completed to ensure the sampling train was not leaking. Tubing was connected to each of the gauges provided, a vacuum of 20" Hg was then applied over a period of a minute using a hand pump to make sure a vacuum was able to be held and there were no leaking connections. Isopropanol was sprayed under a shroud to test for leaks in the pin and the sampling systems. Pre and post PID readings (calibrated to a known concentration of isobutylene gas) was undertaken. The calibration certificate is included within ***Attachment E*** and the PID measurements are included in the soil vapour sampling sheet provided in ***Attachment D***. Teflon tubing from the vapour probe was connected to the 1.4 L evacuated summa cannister provided by ALS, and a dedicated soil gas sampling train with flow restrictor (60 mL/min) was connected to the canister. To calculate the volume of sample drawn into the canister, vacuum pressure was recorded at the start and end of sampling. Upon receipt at the laboratory, the canister vacuum pressure was also measured to determine if any leaks occurred during transit.
Groundwater Gauging	The monitoring well was gauged using a calibrated oil/water interface probe (calibration certificate provided in ***Attachment E***) to measure the depth to groundwater and to determine if light non-aqueous phase liquid (LNAPL) was present in the monitoring well. Gauging was undertaken prior to sampling being undertaken across the Site. The groundwater gauging form is included with the field forms in ***Attachment D***.
Groundwater Sampling	Groundwater sampling of one (1) groundwater well, GW01, was completed using a low-flow peristaltic pump system. Field parameters were measured during purging and sampling and included temperature, pH, reduction-oxidation (redox) potential, electrical conductivity (EC) and

Activity	Description
	dissolved oxygen (DO). Groundwater sampling was completed after stabilisation of field parameters had occurred in each well. Fieldwork and purging sheets are included in ***Attachment D***. The intake of the sampling pump was placed below the standing water level at approximately 1 m from the top of the water table. The groundwater samples were taken directly from the LDPE tubing connected to the peristaltic pump, placed into laboratory provided sampling containers (pre-preserved where appropriate) and sampled without headspace. The samples for metal analysis were field filtered to 0.45 micron. All samples were labelled with a permanent marker pen on water resistant labels attached to the sample bottles, and then placed into a cooled, insulated and sealed container for transport to the laboratory under Chain of Custody (COC) procedures. Copies of the COC documentation are presented in ***Attachment B***.
Equipment Decontamination	Decontamination of re-useable equipment including the interface probe comprised rinsing in a mixture of industrial grade phosphate free detergent (Decon 90) and tap water, followed by a rinse in de-ionised water.
Waste Soil Disposal	Waste soil cuttings and purged groundwater was placed in locked metal drums and left in a secured location on-site for disposal to an appropriately licensed facility.

3.1 LABORATORY ANALYSIS

3.1.1 Soil

The soil analytical schedule included the following Contaminants of Potential Concern (CoPCs):

- TRH / BTEXN;
- PAH/Metals; and
- EPA 1828.2 Table 3 Fill Material Suite

3.1.2 Groundwater

The groundwater analytical schedule included the following CoPCs:

- TRH / BTEXN;
- PAHs;
- Low Level VOCs; and
- Metals.

3.1.3 Soil Vapour

The soil vapour analytical schedule included the following CoPCs:

- VOCs;
- TRH; and

- Permanent Gases (VI-PVI).

The soil, groundwater, and soil vapour samples and Quality Assurance / Quality Control (QAQC) samples were transported to ALS Laboratories (ALS) and Eurofins in Melbourne for chemical analysis. ALS and Eurofins are accredited by the National Association of Testing Authorities (NATA) for the analyses undertaken.

The following quality assurance / quality control samples were collected:

- Blind intra- and inter-laboratory duplicates for soil and groundwater at a rate of 1 in 20 (as per primary samples);
- One intra-laboratory duplicate for soil vapour (as per primary samples);
- One rinsate blank per day of sampling from non-disposable equipment (TRH / BTEXN / PAH / 8 metals); and
- One trip blank per laboratory batch (TRH C6-C10 and BTEXN).

4. ASSESSMENT CRITERIA

The Environment Protection Act 2017 (the Act), which came into effect on 1 July 2021, sets out the legislative framework for the protection of human health and the environment from pollution and waste. Under Section 93 of the Act, specific reference is made to the Environmental Reference Standard No. S245 (ERS, 2021). The ERS sets out the Environmental Values of the ambient air, ambient sound, land and water environments that are sought to be achieved or maintained in Victoria and standards to support those values. The standards outlined in the ERS for the Environmental Values exist of objectives for supporting different uses of the environment; and indicators that can be measured to determine whether those objectives are being met. The indicators and objectives provide a basis for assessment and reporting on environmental conditions in Victoria.

As per Section 35 of the Act, land is considered contaminated if waste, a chemical substance or a prescribed substance is present on or under the surface of the land at a concentration above the background level and creates a risk of harm to human health or the environment. Groundwater is part of this definition of 'land' as per the Act. Section 36 of the Act defines background level as the level determined in the ERS, or the naturally occurring concentration of the waste, chemical substance or prescribed substance on or under the surface of land in the vicinity of the land.

4.1 SOIL CONTAMINATION ASSESSMENT CRITERIA

Soil contaminant concentrations were compared against criteria relevant for low- and high-density residential land use. These are:

- **Maintenance of Ecosystems – Highly Modified Ecosystems**: NEPM 2013 Ecological Investigation Levels (Generic) and Ecological Screening Levels (Urban Residential and Public Open Space).

- **Human Health**: NEPM 2013 Health Investigation Levels and Health Screening Levels (HIL/HSL A/B – Residential), and CRC Care Health Screening Levels for direct contact for intrusive maintenance workers and vapour intrusion.

The ecological and human health "investigation levels" are not intended to be interpreted as "maximum permissible levels", "clean up levels" or "safe levels", rather, they are levels at which further investigation or assessment should be undertaken to provide assurance that unacceptable contamination does not occur. Subsequent assessment on a site-specific basis often results in higher levels being acceptable. However, since the "investigation levels" are generally set at conservatively low levels, they are often taken to be the acceptable levels.

4.2 WASTE SOIL CLASSIFICATION

Soil waste removed from site will need to be categorised in accordance with the following guidance:

- Victoria EPA Waste Disposal Categories – Characteristics and Thresholds (Publication 1828.2, March 2021); and

- EPA Victoria Industrial Waste Resource Guidelines (IWRG 701), Sampling and Analysis of Waters, Wastewaters, Soils and Waste, June 2009.

In accordance with EPA Publication 1828.2, the following Priority Waste categories exist that are applicable to this investigation:

- **Category A**: highly contaminated and not suitable for landfill disposal. Category A must be treated before landfilling.

- **Category B**: significantly contaminated but suitable for disposal to selected landfills.

- **Category C**: low level contaminated soil suitable for disposal to a number of EPA licensed landfills.

- **Fill Material**: not significantly contaminated and generally suitable for re-use (with some exceptions).

In accordance with EPA 1828.2, if total concentrations do not exceed contaminant concentrations thresholds specified for Fill Material, the soil waste will be Industrial Waste and classifies as Fill Material.

The classification of soil at the Site for off-site disposal is beyond the scope of this investigation and further data would need to be collected before any classification could be reached. However, EPA 1828.2 guideline values have been adopted to allow preliminary interpretation of the soil contaminant concentrations and its classification based on the data collected to date.

4.3 GROUNDWATER ASSESSMENT CRITERIA

Field measurement of the TDS concentration in the groundwater sample collected during the GME was 5,339 mg/L. Based on the site-specific data the beneficial use of the groundwater for this assessment corresponds to Groundwater Segment C.

The beneficial uses of groundwater and adopted assessment criteria relevant to the Site are explained as follows:

- **Water Dependent Ecosystems and Species:** Water dependent ecosystems and species is relevant at all sites, and the Water SEPP specifies the use of Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZG 2018). Based on information from surrounding audits and the topography of the area, Merri Creek, located approximately 2.7 km to the east, is considered the receiving water body for groundwater beneath the Site. Merri Creek is a tributary to the Yarra River, which eventually flows into Port Philip Bay. In accordance with the Water SEPP, the Port Philip Bay sub-segment of Central Foothills and Coastal Plains applies which is described as a slightly to moderately modified ecosystem (95% level of protection for freshwater).

- **Potable Mineral Water Supply:** The area in which the Site is situated is serviced by a reticulated water supply and is not a known mineral springs supply area, therefore 'Potable Mineral Water Supply' is not considered to be a relevant Environmental Value.

- **Agricultural and Irrigation (Stock Watering):** For the purposes of agriculture and irrigation (stock watering), groundwater must not be affected to the extent that the level of any environmental quality indicator is greater than the level of that indicator specified for livestock in the ANZECC Guidelines. Where no criteria are available for organics, the National Health and Medical Research Council and the National Resource Management Ministerial Council (2011) National Water Quality Management Strategy - Australian Drinking Water Guidelines updated 2019 would be adopted as default.

- **Industrial and Commercial:** There are no guidelines for the contaminants targeted in this assessment relating to industrial and commercial water use. Therefore, no further assessment of groundwater from the Site has been made with respect to industrial water beneficial use.

- **Water-Based Recreation (Primary Contact Recreation):** The NHMRC Guidelines for Managing Risks in Recreational Water (NHMRC, 20011) has been endorsed by the NHMRC as replacement guidelines to those specified in Table 5.2.3, ANZECC 2000, and Water Quality Guidelines for Recreational Purposes (General Chem). As such NHMRC 2008 guidelines have been adopted as the investigation levels relevant for the protection of this beneficial use. The NHMRC 2008 guidelines reference the NHMRC Drinking Water Guidelines, however the Drinking Water Guidelines have been updated in 2011 and 2019 since the recreational guidelines and as such the updated values have been adopted.

- **Traditional Owner Cultural Values and Cultural and Spiritual Values:** No specific environmental quality indicators or objectives are provided for the two beneficial uses of Traditional Owner cultural values and Cultural and spiritual values. Environmental quality objectives for other beneficial uses such as water dependent ecosystems and their species go some way to protecting the cultural and spiritual values, including spiritual relationships, sacred sites and customary use. Where environmental quality indicators and objectives specified for other beneficial uses do not adequately protect cultural and spiritual values or Traditional Owner cultural values then Schedule B1 and B4 of the NEPM (2013) applies. Traditional Owners should be engaged in the development of environmental quality indicators or objectives through local management and planning processes for waterways and catchments.

- **Buildings and Structures:** Target contaminants of this investigation do not cause groundwater to be corrosive to buildings and structures therefore no assessment of groundwater at the site was made with respect to the Environmental Value buildings and structures.

- **Geothermal Properties:** Groundwater quality that will not affect the natural thermal capacity of the groundwater (e.g. temperature) with the specific indicator stating that no activity must affect the geothermal properties of groundwater including increasing the temperature between 30 and 70 degrees Celsius.

- **Health Screening Levels for Vapour Intrusion:** The Amended National Environment Protection (Assessment of Site Contamination) Measure (NEPC, 2013) ('the NEPM') provides Tier 1 groundwater Health Screening Levels (HSLs) for vapour intrusion for petroleum related contaminants that have been developed for the protection of site users from vapours emanating from impacted groundwater. The screening levels provide a trigger for the consideration of additional assessment or remediation. Geological characterisation (soil logging) completed for the Site indicated the soil classification as fill overlying sandy clays and siltstone. As such, a sand soil type has been adopted for the purposes of selection of appropriate HSLs in accordance with the ASC NEPM (2013). The following HSLs have been selected as appropriate for the Site:

    - Residential Use A & B – Sand (>=8)

4.4 LANDFILL GAS AND SOIL VAPOUR CRITERIA

4.4.1 Soil Vapour Criteria

The NEPM (2013) provides soil vapour HSLs for vapour intrusion for petroleum related contaminants that have been developed for the protection of site users from vapours emanating from impacted soil. The screening levels provide a trigger for additional assessment or remediation. Further, the CRC CARE Technical Report No. 10 (2011) provides HSLs for vapour intrusion to intrusive maintenance workers in shallow trenches.

The HSLs have been developed to assess risk based on different geological settings, which directly influence vapour migration and the potential risks posed thereby. Soil logging identified at the top 1m of the soil profile was fill and as such, the HSLs derived for sand-based geology have been adopted, with soil vapour at 0-1m, 1-2m and 2-4m mbgl for residential land use.

The NEPM (2013) also provides interim soil vapour HILs for volatile organic chlorinated compounds, which have been adopted for residential (low- and high-density A/B) land use.

4.4.2 Landfill Gas Criteria

The EPA Landfill BPEM, EPA Publication 1490, EPA Publication 1684, BS8576:2013 and BS8485:2015 publications provide guidance for the assessment and management of sites impacted by hazardous ground gases with both assessment criteria and a risk assessment framework.

The assessment criteria provided for sub-surface landfill gas concentrations with EPA Landfill BPEM is for perimeter monitoring bores and as such is not relevant to this assessment. In addition to the above guideline, EPA Victoria has also released a guideline entitled Assessing Planning Proposals Within the Buffer of a Landfill (EPA Publication 1642, October 2018). Section 6 of this guideline recommends that

landfill gas risk assessments follow the methodology in the British Standard, BS 8485:2015, Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings (BS 8485).

4.4.3 Characteristic Gas Situation

To assess the risk posed by landfill gas in the subsurface, reference is typically made to Gas Screening Values (GSV) which incorporates both flow rate and gas concentrations (BS8485:2015). The screening process uses the GSV to determine the characteristic gas situation (CS) of a site, which in turn is used to influence the approach to be taken to property developments and the mitigation / protection measures that may need to apply.

ARC has applied the BS8485:2015 classification system and determined a risk rating based on GSV for each landfill gas bore, based on current results. These have been used to complete a quantitative risk assessment.

5. ANALYTICAL RESULTS

5.1 DESCRIPTION OF SOIL

The general lithology encountered in SB02/GW01, LFG01 – LFG04 was described as fill containing clayey, gravelly sand to a maximum depth of 1.9 mbgl. The fill material was underlain by Silty and Sandy Clay varying from low to high plasticity, which was underlain by Siltstone to the maximum depth of 12.5 mbgl.

Based on 2023 investigation, fill depth generally ranges from 0.65 to 1.9 mbgl, as summarised in ***Table 5.1***.

Table 5.1 Summary of Fill and Siltstone Depth

Bore ID	Maximum Fill Depth	Comments
LFG01	1.9 mbgl	Siltstone from 3.6 mbgl.
LFG02	0.7 mbgl	Siltstone from 4.0 mbgl.
LFG03	1.10 mbgl	Siltstone from 3.5 mbgl.
LFG04	0.8 mbgl	Siltstone from 3.3 mbgl.
SB01	0.8 mbgl	Fill material to 0.8 mbgl
SB02/GW01	1.5 mbgl	Fill material to 1.5 mbgl,
SB03	0.9 mbgl	Fill material to 0.9 mbgl.
SB04	1.0 mbgl*	Fill to depth.
SB05	0.65 mbgl	Fill to 0.65 mbgl, high plasticity clay to depth.

NOTES:

* Minimum fill depth – soil bore was terminated within the fill material.

The borehole logs from the investigation are presented in ***Attachment A*** and locations of soil bores are presented in ***Figure 2.***

5.2 SOIL ASSESSMENT FIELD OBSERVATIONS

The following field observations were made during the drilling:

- No odours or staining were noted during sampling, with the exception of a moderate hydrocarbon odour in SB05 at 0.2 mbgl which decreased to a minor odour with depth.
- PID readings were generally recorded below 5.0 ppm. The maximum reading was 14.2 in SB05 at 0.5 mbgl.
- Maximum depth of fill material at the Site was 1.8 mbgl at LFG01, however fill was generally observed to be less than 1.0 m in depth across the Site.
- Anthropogenic inclusions were noted in fill material across the Site, including concrete fragments, crushed brick and tile, minor ash and glass pieces.
- An Asbestos Containing Material (ACM) fragment was noted and collected for analysis near the surface at LFG01. Laboratory reports confirmed that the asbestos type was both Amosite and Chysotile.

5.3 SOIL ANALYTICAL RESULTS

5.3.1 Human Health & Environment

The soil data and adopted assessment criteria are presented in ***Attached Table 1*** (human health and ecological criteria) The NATA certified laboratory reports and accompanying Chain of Custody (CoC) documentation are included with the laboratory reports included within ***Attachment B***.

Laboratory reports indicated:

- Soil results from across the Site were reported below the adopted human health and ecological assessment criteria;
- Concentrations of TPH, TRH, BTEXN, phenols, hydrocarbons and pesticides were generally below laboratory limits of reporting (LORs), with the exception of some slightly elevated PAH concentrations which remained below the adopted assessment criteria; and
- Concentrations of metals in soil were generally above LORs but remained below the adopted human health and ecological assessment criteria.

5.3.2 Waste Soil Classification

In considering the potential removal of soil from the Site during future developments for the construction of a basement, the soil results were compared against Victoria EPA 1828.2 thresholds for categorisation for off-site disposal and included within ***Attached Table 2***. The exceedances of 1828.2 thresholds are summarised in ***Table 5.2***.

Table 5.2 Exceedances of Soil Assessment Criteria – Waste

Analyte	Results		Criteria Exceeded	
	Sample ID	Concentration (mg/kg)	Criteria (mg/kg)	Source
Arsenic	SB02/GW01_8.0	21	20	EPA Vic IWRG1828.2 Fill material upper limit
Copper	LFG01_0.2	160	100	EPA Vic IWRG1828.2 Fill material upper limit
Zinc	LFG01_0.2 SB02/GW01_8.0 SB04_0.5	241 202 247	200	EPA Vic IWRG1828.2 Fill material upper limit

The laboratory analytical results for total concentrations indicate that the imported fill materials identified at the Site would be classified as EPA 'Category C' or for off-site disposal purposes, based on concentrations of arsenic, copper and zinc. However, these are marginal exceedances of fill material criteria, so when a 95% UCL statistical calculation is applied, the suggested value for arsenic is 7.36, copper is 62.09 and zinc is 130. As such, results are below criteria and indicate 'fill material' classification.

ARC understands that approximately 5,280 m^3 of soil will be removed from Site for the construction of a two-level basement at the Site. It is considered that, in accordance with EPA IWRG 702 *Soil Sampling* guidelines, a total of 22 samples will need to be collected to classify this volume of soil. The current data set contains 11 primary (fill) soil samples which is not sufficient for waste classification purposes. Additional sampling should be undertaken for removal of soils off-site.

5.4 GROUNDWATER GAUGING

Groundwater gauging results are summarised in ***Attached Table 3*** and groundwater fieldwork sheets are presented in ***Attachment D***. Observations from the groundwater gauging event were as follows:

- Standing water level in GW01 was 9.43 m below top of casing (mBTOC); and
- No odours, LNAPL or DNAPL were noted during well development or sampling.

The inferred groundwater flow direction is unknown. However, based on surrounding audit information and topography in the area, it is expected that groundwater eventually flows towards the Merri Creek to the east; however, the presence of former quarries in the area is likely to have influenced local groundwater flow direction.

5.5 GROUNDWATER CHEMISTRY AND OBSERVATIONS

Groundwater physiochemical parameter results collected in-situ following sampling are presented in ***Attached Table 4*** and groundwater sampling forms are presented in ***Attachment D***. Results are summarised in ***Table 5.3*** below.

Table 5.3 Summary of Groundwater Physiochemical Parameters

Groundwater physiochemical parameter	Reading
pH	6.69
Temperature (ºC)	18.8
Estimated TDS (mg/L)	5,339
Electrical Conductivity (mS/cm)	8.21
Dissolved Oxygen (mg/L)	5.34
Redox Potential (mV)	56.9

5.6 GROUNDWATER ANALYTICAL RESULTS

Groundwater analytical results and adopted assessment criteria are presented in ***Attached Table 5***. The NATA certified laboratory reports and accompanying CoC documentation are included with the laboratory reports included within ***Attachment B***. Exceedances of adopted groundwater assessment criteria are summarised in ***Table 5.4***.

Table 5.4 Exceedances of Adopted Groundwater Assessment Criteria

Analyte	Results		Criteria Exceeded	
	Monitoring Well	Concentration (mg/L)	Criteria (mg/L)	Source
>C_{10}-C_{16} Fraction minus Naphthalene (F2)	GW01*	1,100	1,000	NEPM 2013 Table 1A(4) Res HSL A & B GW for Vapour Intrusion, Sand (>=8m)
Copper	GW01	0.074	0.0014	ANZG (2018) Freshwater 95% LOSP Toxicant DGVs 2021
Nickel	GW01	0.084	0.011	ANZG (2018) Freshwater 95% LOSP Toxicant DGVs 2021
Zinc	GW01	0.068	0.008	ANZG (2018) Freshwater 95% LOSP Toxicant DGVs 2021

* = duplicate or triplicate sample concentration adopted

Laboratory results also indicated that:

- With the exception of TRH C_{10}-C_{16}, concentrations of TPH and TRH were generally recorded above laboratory limits of reporting (LORs), but below criteria.
- BTEXN concentrations were generally reported below LORs, with the exception of 4 µg/L of Toluene, and therefore Total BTEX, in GW01.
- Results for chlorinated hydrocarbons and MAHs were generally below laboratory LORs.
- Acetone was noted in QC02, with a concentration of 0.006 mg/L.

5.7 SOIL VAPOUR ASSESSMENT

Soil Vapour analytical results and adopted assessment criteria are presented in ***Attached Table 6***. The NATA certified laboratory reports and accompanying CoC documentation are included with the laboratory reports included within ***Attachment B***.

Laboratory results indicated the following:

- All soil vapour analytical results were reported below the relevant screening criteria;
- Concentrations of BTEX and MAHs in soil vapour were generally above laboratory limits of reporting (LORs), but below the adopted assessment criteria;
- Concentrations of TPH/TRH fractions were generally above LORs, but below criteria, with the exception of TRH C_{10}-C_{16} fraction;
- Concentrations of Chlorinated Hydrocarbons were generally below laboratory LORs, with the exception of chloroform, chloromethane, dichloromethane and tetrachloroethene, which were above LORs but below criteria; and
- Carbon Dioxide and Oxygen concentrations were reported above LORs in all samples.

5.8 QUALITY ASSURANCE / QUALITY CONTROL RESULTS

To ensure that representative soil and groundwater samples are collected, and the analytical results are representative of the actual field conditions, rigorous field and laboratory Quality Assurance and Quality Control (QA/QC) procedures were adopted during sampling and laboratory analysis.

A summary of field quality assessment and quality control (QA/QC) samples collected includes all samples collected during the EDD assessments and is presented in ***Table 5.5***.

Table 5.5 Data Quality Objectives

Parameter	Data Quality Objective	Data Quality Assessment
Field QAQC		
COC Documentation	Documentation completed	Samples were provided to the laboratories with completed chain of custody documentation (attached in ***Attachment B***).
Blank Samples (Rinsate, Trip Blank, Trip Spike)	Concentrations at or near the Limit of Reporting (LOR)	Analytical results for the blank samples analysed are in **Attached Table 8a** and **8b**. Concentrations reported for trip blank samples taken during the soil and groundwater investigation were all less than the LOR, indicating that no cross contamination during transit to the laboratory has occurred. Concentrations reported for rinsate samples taken during the groundwater investigation was less than the LOR, indicating that correct rinsing techniques have been employed.

Parameter	Data Quality Objective	Data Quality Assessment
Inter and Intra-Laboratory Samples (1 in 20 samples)	Relative Percentage Difference (RPD) < 30%	Analytical results for the RPD samples analysed are in **Attached Table 6a** (soil), **Attached Table 6b** (groundwater) and **Attached Table 6c** (soil vapour). **Soil** Intra- and inter- laboratory duplicate soil samples were collected at a rate of at least 1 in 20 samples. All RPDs between the primary sample and intra- and inter-laboratory duplicate samples were within the acceptable range according to AS4482.1 – 2005 with the exception of: • *SB01_1.0 and QC02*: Arsenic (82%). This is not considered to affect the data as neither the primary, nor triplicate result were not exceeding adopted criteria. **Groundwater** Intra-laboratory and inter-laboratory groundwater samples were collected at a rate of at least 1 in 20 samples (1 intra-and inter-laboratory sample for 1 primary sample). All RPDs between the primary sample and intra- and inter-laboratory duplicate samples were within the acceptable range according to AS4482.1 – 2005, with the exception of: • *GW01 and QC02*: TPH C6-C9 (86%), TPH C15-C28 (78%), TPH C29-C36 (108%), TPH C10-C36 Sum (57%), TRH C6-C10 (100%), TRH C16-C34 (91%), TRH C10-C40 (72%), Toluene (120%); and • *GW01 and QC01*: TPH C10-C16 (85%), TPH C10-C36 (44%), Toluene (120%), total BTEX (120%). This is not considered to affect the data as neither the primary, nor the duplicate/triplicate sample exceeded the adopted assessment criteria for these contaminants. **Soil Vapour** Intra-laboratory soil vapour samples were collected at a rate of at least 1 in 10 samples (1 intra-laboratory sample for 1 primary samples). All RPDs between the primary sample and interlaboratory duplicate sample was within the acceptable range according to AS4482.1 – 2005.
Handling and Preservation	Samples received intact and cold (near 4°C)	The soil and groundwater samples were received by the laboratory cooled to a measured ambient temperature of between and 8.0 ºC (groundwater) and 11.8 ºC (soil). It is noted that ice was present upon receipt of samples, indicating that the samples were sufficiently cooled.
Laboratory QAQC		
Holding Time	Samples analysed within specified holding times	Samples were analysed within recommended holding times for the analysis requested.
Method Blank Samples (1 in 20 samples)	Concentrations at or below the LOR	The laboratory analysis of method blank samples reported all blank results below the laboratory reporting limits.

Parameter	Data Quality Objective	Data Quality Assessment
Laboratory Duplicate Samples (1 in 20 samples)	RPD < 50% or as per laboratory requirement	The laboratory analysis of duplicate samples reported all samples within acceptable limits with the exception of: • EM2303524: Toluene (125%) The frequency of laboratory duplicates was adequate for analysis, with the exception of: • EM2302568: PAH/Phenols
Laboratory Control Samples (1 in 20 samples)	Recovery 75–125% or as per laboratory requirement	Laboratory control recoveries showed all results within the acceptable range and with adequate frequency.
Matrix Spikes (1 in 20 Samples)	Recovery 75–125% or as per laboratory requirement	Matrix spike recoveries were all with adequate frequency, with the exception of: • EM2302568: Volatile Organic Compounds (soil) • EM2302568: PAH/Phenols and TRH – Semi-volatile fraction (water) Matrix spike recoveries were all within the laboratory requirements.
Surrogate (Every Sample)	Recovery with statistically derived QC limits or 70–130%	The laboratory analysis of surrogate recovery samples showed all results within the range 70 – 130% for all regular sample matrices.
Laboratory LORs	LORs lower than adopted guidelines	Limits of reporting for groundwater samples were deemed to be sufficiently low to enable comparison of contaminant concentrations with adopted assessment criteria.

Overall, the data quality information provides confidence that the soil and groundwater data is of sufficient quality (in terms of completeness, comparability, representativeness, precision and accuracy) and that the analytical data is suitable for the purposes of this assessment, with comments noted in the table above.

5.9 LANDFILL GAS RISK ASSESSMENT

5.9.1 Background Landfill Gas Concentrations

Properties surrounding the Site have been investigated for landfill gas risks due to their close proximity to former quarries and landfills in the area. Results of these investigations can indicate background methane, carbon dioxide and oxygen concentrations in the area.

Landfill gas monitoring undertaken at 395 – 411 Albert Street, 125 m to the east of the Site, indicated methane concentrations up to 41%, which exceeds both the lower and upper explosive limits for methane in air. The same property recorded carbon dioxide concentrations up to 16.8% and oxygen concentrations as low as <0.1%. These results were collected from the northwest of the property, within encroaching historical landfill. Samples collected outside of landfill areas indicated a maximum methane concentration of 4.8%, maximum carbon dioxide concentration of 5.5% and oxygen as low as <0.1%.

Landfill gas monitoring was also undertaken at 72 – 106 Dawson Street, 440 m to the southeast of the Site. Methane concentrations were reported at approximately 48%, 16% carbon dioxide and <1% oxygen. However, flow from landfill gas bores was found to be negligible.

5.9.2 Subsurface Gas Monitoring

With regards to LFG, methane and carbon dioxide are considered the primary gases of concern due to the explosive properties of methane and potential asphyxiation risk of carbon dioxide and associated health risk posed to future site occupants and intrusive maintenance workers.

For landfill gases, the EPA Publication 1642, 2017 outlines the approach to landfill gas risk assessment, based on site-specific ground gas measurements, based on the method proposed by Wilson and Card (1999) and outlined in BS8485:2015, as summarized in ***Table 5.6***.

Table 5.6 British Standard BS 8485 Classification

Site Gas Characterisation	Hazard Potential	Site Characteristic GSV (L / hr)	Additional Factors
CS1	Very Low	<0.07	Typically, <1% methane concentration and <5% carbon dioxide concentration (otherwise consider an increase to CS2)
CS2	Low	0.07 to <0.7	Typical measured flow rate <70 L/ hr (otherwise consider an increase to CS3)
CS3	Moderate	0.7 to <3.5	-
CS4	Moderate to High	3.5 to <15	Consider need for Level 3 Risk Assessment
CS5	High	15 to <70	Level 3 Risk Assessment Required
CS6	Very High	>70	

Notes: Source (BS4585:2015)

The screening process uses the Gas Screening Value (GSV) to determine the Characteristic Gas Situation (CS) of a site, which in turn is used to influence the approach to be taken to property developments and the mitigation / protection measures that may need to apply.

GSVs for each soil bore have been calculated based on flow rates and gas concentrations recorded. The GSV was calculated for all four bores, the highest value for each bore is listed in ***Table 5.7***, and these values are referred to as the worst credible scenario.

Table 5.7 Summary of Calculated GSV Values and Adopted Characteristic Situation

Landfill Gas Bore	Date	Peak Flow Rate (L/hr)	Peak CH4 (%v/v)	Peak CO2 (%v/v)	GSV CH4 (L/hr)	GSV CO2 (L/hr)	Adopted Characteristic Situation
LFG01	28/02/23	0.0	0.0	7.1	0	0	2**
	04/04/23	0.0	0.0	6.4	0	0	2**
LFG02	28/02/23	0.0	0.0	5.1	0	0	2**
	04/04/23	0.1	0.0	5.1	0	0.0051	2**

Landfill Gas Bore	Date	Peak Flow Rate (L/hr)	Peak CH4 (%v/v)	Peak CO2 (%v/v)	GSV CH4 (L/hr)	GSV CO2 (L/hr)	Adopted Characteristic Situation
LFG03	02/03/23	0.0	0.0	4.4	0	0	1
	04/04/23	0.1	0.0	6.7	0	0.0067	2**
LFG04	28/02/23	0.1	0.0	0.8	0	0.0008	1
	04/04/23	0.0	0.0	3.3	0	0	1

Note: Concentrations reported as %v/v

**Characteristic Gas Situation has been increased to CS2 due to carbon dioxide readings >5%.

The worst-case scenario for the Site has a GSV of 0.0067 L/hr for carbon dioxide. However, peak carbon dioxide was recorded at greater than 5%, and given the British Standard 8485 guideline for CO2, the Site is thereby classified as a Characteristic Gas Situation 2 (CS2). A classification of CS2 has a 'low' hazard potential.

LFG monitoring field sheets for both monitoring rounds are included in ***Attachment D***.

5.9.3 Gas Protection Measures

It is recommended that the level of protection required for a site be determined using the approach as outlined in British Standard 8485:2015. Considering the proposed development, it is interpreted to be likely classified as a 'Type B' Building which British Standard 8485:2015 describes as:

"Private or commercial property with central building management control of any alterations to the building or its uses but limited or no central building management control of the maintenance of the building, including the gas protection measures. Multiple occupancy. Small to medium size rooms with passive ventilation of rooms and other internal spaces throughout ground floor and basement areas. May be conventional building or civil engineering construction. Examples include managed apartments, multiple occupancy offices, some retail premises and parts of some public buildings (such as schools, hospitals, leisure centres) and parts of hotels."

An appropriate gas protection score is designated based on building type (Type B building) and gas characteristic situation (CS 1) specific to the Site, which is presented in ***Table 5.8***.

Table 5.8 Gas Protection Score by CS and Type of Building

Gas Characteristic Situation (CS)	Minimum gas protection score (points)			
	Type A Building	Type B Building	Type C Building	Type D Building
1	0	0	0	0
2	3.5	3.5	2.5	1.5
3	4.5	4	3	2.5
4	6.5 (A)	5.5 (A)	4.5	3.5
5	- (B)	6.5 (A)	5.5 (A)	4.5
6	- (B)	- (B)	7.5	6.5

(a) Residential buildings should not be built on CS4 or higher sites unless the type of construction or site circumstances allow

Gas Characteristic Situation (CS)	Minimum gas protection score (points)			
	Type A Building	Type B Building	Type C Building	Type D Building
	additional levels of protection to be incorporated, e.g., high-performance ventilation or pathway intervention measures, and an associated sustainable system of management of maintenance of the gas control system, e.g. in institutional and/or fully serviced contractual situations.			
(b)	The gas hazard is too high for this empirical method to be used to define the gas protection measures.			

Table 5.8 indicates that the gas protection score is 3.5 for a Characteristic Gas Situation 2. This means that protection measures are required with regards to landfill gas as part of development of Type B residential land use.

6. DISCUSSION AND CONCLUSIONS

As noted in ***Section 1***, the Preliminary Site Investigation (PSI) undertaken by Atma Environmental in 2015 identified a number of potential sources of contamination. On-Site, fill material was noted to a maximum depth of 0.4 mbgl and an Underground Storage Tank (UST) and former fuel bowser area were identified in the northwest extent of the Site. The Atma Environmental PSI report and review of surrounding audit reports by ARC identified a nearby former landfill as a potential off-site source of contamination. A nearby audit to the east reported elevated landfill gas concentrations, including methane levels greater than 15%. The former quarry and landfill site to the northwest has a vapour mitigation system in place. Preliminary findings indicated that landfill gas and groundwater assessments should be undertaken to understand any potential risks associated with these identified potential sources of contamination for future residential land use.

6.1 SOIL CONTAMINATION

This soil investigation included the drilling and installation of one (1) groundwater monitoring well adjacent to the USTs and former bowser area; four (4) landfill gas bores along the northern boundary of the Site, closest to the former landfill; and four (4) soil bores for general coverage of the Site. Soil sampling was undertaken at all locations.

Field observations and laboratory results indicated the following:

- No odours or staining were noted during sampling, with the exception of a moderate hydrocarbon odour in SB05 at 0.2 mbgl which decreased to a minor odour with depth.
- Maximum depth of fill material at the Site was 1.8 mbgl at LFG01, however fill was generally observed to be less than 1.0 m in depth across the Site.
- Anthropogenic inclusions were noted in fill material across the Site, including concrete fragments, crushed brick and tile, minor ash and glass pieces.
- An Asbestos Containing Material (ACM) fragment was noted and collected for analysis near the surface at LFG01. Laboratory reports confirmed that the asbestos type was both Amosite and Chysotile.

- Soil analytical results did not indicate any exceedances of the adopted human health or ecological criteria.

- Soil analytical results generally indicated that soils would likely be classified as 'fill material' with the use of a 95% UCL calculation for arsenic, copper and zinc concentrations. Further sampling and analysis would be required to classify the soils should off-site removal be required in the future.

- The presence of ACM fragments during sampling may indicate further ACM ins soils which will need to be considered during the removal of any surplus soils from the Site during basement excavations.

Based on the results of the soil investigation, contamination in exceedance of human health and ecological guidelines for the proposed land use was not identified. Risks associated with fill material and natural soils on-site is considered low and acceptable.

6.2 GROUNDWATER CONTAMINATION

One (1) groundwater monitoring well was installed adjacent to the USTs and former fuel bowser located in the northwest extent of the site.

The groundwater standing level is 9.43 m below top of casing (mBTOC) and no odours, LNAPL or DNAPL were noted during well development or sampling.

The inferred groundwater flow direction is unknown, based on the single well. However, based on surrounding audit information and topography in the area, it is expected that groundwater eventually flows towards the Merri Creek to the east; however, the presence of former quarries in the area is likely to have influenced local groundwater flow direction.

Laboratory analysis of groundwater indicated the following:

- Concentrations of TRH C_{10}-C_{16} in groundwater exceeded the human health criteria for vapour intrusion.

- Elevated metals concentrations, including arsenic, copper, nickel and zinc, were recorded in groundwater which exceeded drinking water and ecosystem protection guidelines.

- Concentrations of 1,4-dichlorobenzene exceeded the drinking water aesthetic criteria.

- Toluene, chlorobenzene and acetone concentrations in groundwater did not exceed criteria but were reported above laboratory limits of reporting.

A review of surrounding completed Audits indicated that groundwater in the vicinity of the Site is considered to be polluted primarily with metals and chlorobenzene. These Audits include 395 – 411 Albert St (85m east), 452 – 462 Victoria St (150 m northwest) and 106 Dawson St (440m southeast). The elevated concentrations reported in groundwater at the Site appear to be within the background regional concentrations based on a review of these completed Environmental Audits, and are not considered Site sourced, as summarised in ***Table 6.1***.

Table 6.1 Desktop Review of Surrounding Hydrogeological Conditions

Parameter	Subject Site	Exceeded Beneficial Use	395 – 411 Albert St 75370 85 m east	452 – 462 Victoria St 49972 150 m northwest	106 Dawson St 51425 440 m southeast	Regional Groundwater Quality
>C10-C16 Fraction minus Naphthalene (F2)	470 – **1,100** µg/L	Human Health	130 – 3,770	N/A	N/A	130 – 3,770
Arsenic	**0.013** – **0.014** mg/L	Drinking Water	<0.001 – 1.38	0.003 – 0.5	4 – 7 µg/L	<0.001 – 1.38
Copper	**0.069** – **0.076** mg/L	Freshwater	<0.001 – 0.006	0.002 – 0.73	4 – 46 µg/L	<0.001 – 0.73
Nickel	**0.083** – **0.086** mg/L	Drinking Water	0.002 – 0.121	0.003 – 0.17	6 – 54 µg/L	0.002 – 0.121
Zinc	**0.067** – **0.073** mg/L	Freshwater	<0.005 – 0.088	0.005 – 0.48	33 – 72 µg/L	<0.005 – 0.48
1,4-dichlorobenzene	**0.5** – **0.6** µg/L	Drinking Water	<2 – 4	N/A	N/A	<2 – 4
Chlorobenzene	<1 – 1 µg/L	N/A	<5 – 34	N/A	<LOR - 1	<5 – 34
Acetone	0.006 mg/L	N/A	N/A	N/A	N/A	N/A

Bold values indicate exceedance of one or more Beneficial Use (BU) criteria

N/A = parameter not included in sampling suite

Based on the comparison of results to background levels, it appears that there are likely off-site sources contributing to the concentrations of petroleum hydrocarbons, chlorinated hydrocarbons and metals found in groundwater beneath the Site.

6.2.1 Former Fuel Storage

The decommissioned USTs (and associated former bowser area) are potential point sources of hydrocarbon and possibly lead contamination at the Site. Groundwater results indicate some hydrocarbon impacts, which could be attributed to the decommissioned USTs at the Site, and are at least considered to be a result of off-site sources. Lead was not detected in groundwater. The consideration of the hydrocarbon impacts in groundwater are discussed further, as follows:

- Observations during drilling of two soil bores adjacent to the USTs and former bowser did not indicate hydrocarbon odours or staining, and PID results were below 5 ppm. Laboratory results of soil samples collected from these adjacent soil bores (SB01 and SB02) recorded hydrocarbon concentrations below the laboratory limits of reporting (LOR). SB02, which was extended to groundwater depth for the installation of a groundwater monitoring well (GW01), and was located near to the USTs, did not provide an indication of a leak from the tanks;

- The concentrations of hydrocarbons in the groundwater sample collected from GW01 were elevated. However, based on a review of surrounding audits, the hydrocarbons levels in groundwater at the Site are within regional background levels with the audit completed for 395-411 Albert Street concluding that the landfill was considered to be a co-source of hydrocarbons in groundwater;

- A likely former bowser location was identified in the adjacent property to the west, 429 Albert Street, which presents a further potential off-site source of hydrocarbons to groundwater; and

- The potential health risk from petroleum hydrocarbon vapours emanating from groundwater were directly assessed by soil vapour sampling which indicated that hydrocarbon concentrations do not pose a risk to health in a residential land use setting, which is further discussed in *Section 6.3*.

6.3 SOIL VAPOUR CONTAMINATION

Soil vapour sampling of four (4) landfill gas bores was undertaken along the northern boundary of the Site.

Laboratory results indicated the following:

- All soil vapour analytical results were reported below the relevant health screening criteria, including petroleum hydrocarbons;

- Concentrations of TPH/TRH fractions, BTEX and MAHs in soil vapour were generally above laboratory limits of reporting (LORs), but below the adopted assessment criteria;

- Concentrations of Chlorinated Hydrocarbons were generally below laboratory LORs, with the exception of chloroform, chloromethane, dichloromethane and tetrachloroethene, which were above LORs but below criteria; and

- Carbon Dioxide and Oxygen concentrations were reported above LORs in all samples.

Based on the results of the soil vapour investigation, while TRH, MAHs, BTEX and chlorinated hydrocarbons were detected, concentrations do not appear to pose a risk to health in a residential land use setting.

6.4 LANDFILL GAS RISK ASSESSMENT

Results of the Landfill Gas Risk Assessment indicated that the Site is considered to have a “Low” hazard potential, which when considering the proposed building type, requires gas protection (Type “B” building – required score of 3.5) with regards to landfill gas. Based on *BS 8485:2015:2019*, protection measures during development may include, but are not limited to the following:

- Ventilated car park (floor slab of occupied part of the building under consideration is underlain by a basement or undercroft car park) – 4.0 points;
- Passive sub floor disposal layer (very good performance) – 2.5 points;
- Passive sub floor disposal layer (good performance) – 1.5 points; and
- Active positive pressurisation by the creation of a blanket of external fresh air beneath the building floor slab by pumps supplying air to points across the central footprint of the building into a permeable layer, usually formed of a thin geocomposite blanket – 1.5 – 2.5 points.

6.5 CONCLUSIONS

The key conclusions, based on the results of the assessment in the context of the future residential redevelopment of the Site, with consideration of the Limitations of this report, are as follows:

- Based on the presence of the decommissioned tanks and bowser at the Site and the former landfill in the vicinity of the Site, it was considered that there is a high potential for contamination and an Environmental Audit will be required to be completed prior to residential use of the Site, in line with the current Environmental Audit Overlay for the Site.
- The underground storage tanks and pipelines will require removal and validation as part of the Environmental Audit. The soil sampling and drilling of well GW01 did not indicate a significant leak from the tanks or former bowser area at the Site, although there are some levels of petroleum hydrocarbons in groundwater.
- While the groundwater results indicate elevated concentrations of petroleum hydrocarbons, chlorinated hydrocarbons and metals, results are within background levels from surrounding audits. It appears that there are likely off-site sources contributing to the contaminated groundwater beneath the Site. The potential health risk from vapours emanating from contaminated groundwater were directly assessed by soil vapour sampling and while TRH, MAHs, BTEX and chlorinated hydrocarbons were detected, concentrations do not appear to pose a risk to health in a residential land use setting.
- The soil was generally considered to be within the Fill Material classification. However, it is possible that there are localised hotspots that could be classified higher. The presence of an ACM fragment may indicate further ACM in fill soils. This and further anthropogenic inclusions in shallow fill soils will need to be considered during the removal of any surplus soils from Site during the basement excavations.
- Landfill gas protection measures of at least 3.5 points are required for redevelopment of the Site into a high-density residential building (Type "B” building). This could include a ventilated car park (floor

slab of occupied part of the building under consideration is underlain by a basement or undercroft car park) which would provide 4.0 points.

ARC appreciates the opportunity to undertake the works outlined in this letter. Please do not hesitate to contact the undersigned should you wish to discuss.

Yours sincerely,
for ARC Environmental

Attachments

Georgia Bayley
Environmental Consultant

Jay Parmansche
Managing Principal CEnvP

Limitations
References
Figures
Attached Tables

Attachment A	Borelogs
Attachment B	Laboratory Documentation
Attachment C	Bore Construction Licence
Attachment D	Field Work Forms
Attachment E	Certificates of Calibration
Attachment F	BOM Weather Data

LIMITATIONS

This report was prepared in accordance with the scope of work outlined and/or referenced within this report and subject to the applicable cost, time and other constraints. ARC Environmental performed the services in a manner consistent with the normal level of care and expertise exercised by members of the environmental profession. No warranties, expressed or implied, are made.

ARC Environmental makes no warranty concerning the suitability of the site for any purpose or the permissibility of any use, development or re-development of the site. Use of the site for any purpose may require planning and other approvals and, in some cases, EPA and accredited site auditor approvals. ARC Environmental offers no opinion as to the likelihood of obtaining any such approvals, or the conditions and obligations which such approvals may impose, which may include the requirement for additional environment works.

Except as otherwise stated, ARC Environmental's assessment is limited strictly to identifying specified environmental conditions associated with the subject site and does not evaluate structural or geotechnical conditions of any part of the site (including any buildings, equipment or infrastructure).

This assessment is based on site conditions observed by ARC Environmental personnel in the course of performing their work, sampling and analyses described in the report, and information provided by Hip V Hype Developments Pty Ltd ("the Client"). Conclusions and recommendations made in the report are the professional opinions of the ARC Environmental personnel involved with the project and, while normal checking of the accuracy of data has been conducted, ARC Environmental assumes no responsibility or liability for errors in data obtained from such sources, regulatory agencies and/or any other external sources, nor from occurrences outside the scope of this project.

The information relating to the soil and groundwater conditions in this document is considered to be accurate at the date of site issue. Subsurface conditions can vary across a particular site, which cannot be wholly defined by investigation. As a result, it is unlikely that the results and estimations presented in this report will represent the extremes of conditions within the site. Subsurface conditions including impact concentrations can change in a limited period of time.

Only the chemicals specifically referred to in this report have been considered. ARC Environmental makes no statement or representation as to the existence (or otherwise) of any chemicals other than those specifically referred to herein. Except as otherwise specifically stated in this report, ARC Environmental makes no warranty or representation as to the presence or otherwise of asbestos and/or asbestos containing materials (“ACM”) on the site.

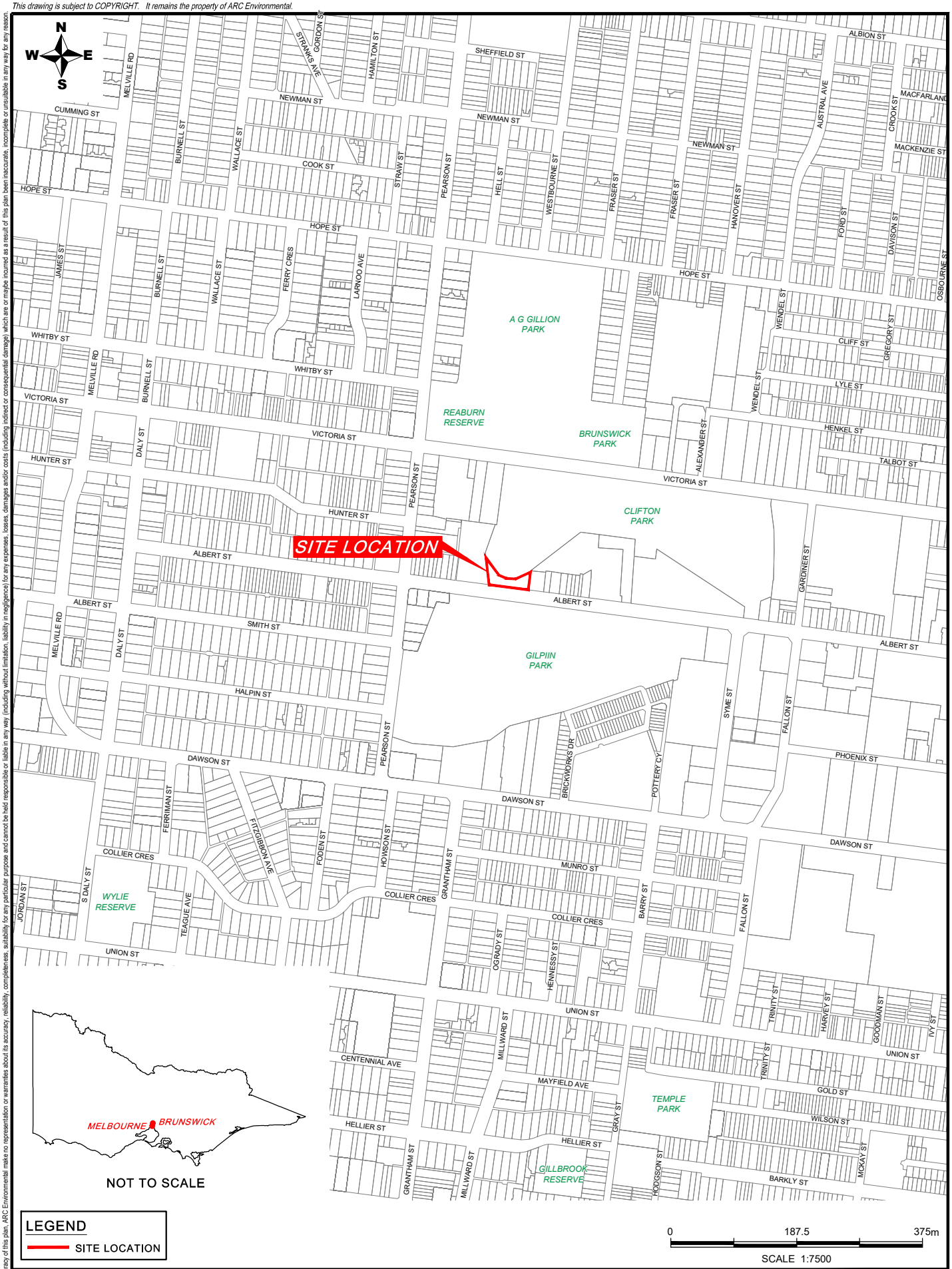
ARC Environmental is not engaged in environmental consulting and reporting for the purpose of advertising, sales promoting, or endorsement of any client interests, including raising investment capital, recommending investment decisions, or other publicity or investment purposes.

This report has been prepared for the sole use of the Client. The report may not be relied upon by any other party without the express written agreement of ARC Environmental. The provision of a copy of this report to any third party is provided for informational purposes only and any reliance on this report by a third party is done so at their own risk and ARC Environmental disclaim all liability to such third party to the extent permitted by law. Any use of this report by a third party is deemed to constitute acceptance of this limitation.

REFERENCES

- ATMA Environmental, 2015, Preliminary Site Investigation and Soil Assessment, 427 Albert Street, Brunswick, Victoria.
- National Environment Protection Council, April 2013: National Environment Protection (Assessment of Site Contamination) Amendment Measure 2013.
- National Environment Protection Council, and including ERRATA update 6 February 2014.
- Standards Australia, 2005. AS 4482.1-2005 Guide to the sampling of sites with potentially contaminated soil. Part 1: Non-Volatile and semi-volatile compounds.
- Standards Australia, 1999. AS 4482.2 – 1999 Guide to the sampling and investigation of potentially contaminated soil. Part 2: Volatile Substances.
- Victoria Environment Protection Authority, 2009a, Industrial Waste Resource Guidelines (IWRG621) Soil Hazard Categorisation and Management.
- Victoria Environment Protection Authority, 2009b, Industrial Waste Resource Guidelines (IWRG701) Sampling and Analysis of Waters, Wastewaters, Soils and Wastes.
- Victoria Environment Protection Authority, 2009c, Industrial Waste Resource Guidelines (IWRG702) Soil Sampling.
- Victorian Government Gazette, 2002, State Environment Protection Policy (Prevention and Management of Contamination of Land), No S95, 4 June 2002.

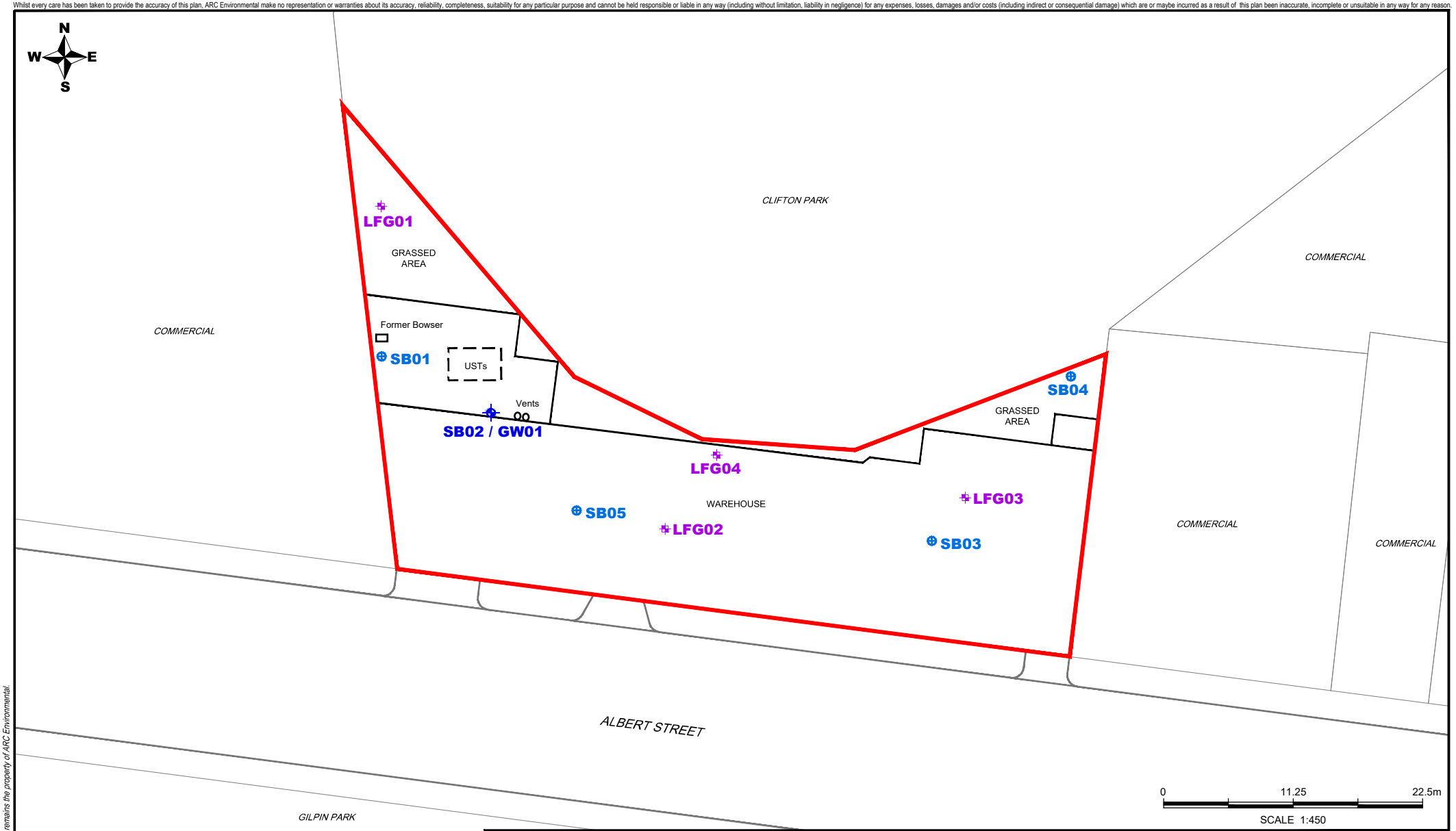
FIGURES



ARC ENVIRONMENTAL
MELBOURNE OFFICE
Ph: (03) 8383 1950

Client	Project	Title
HIP V. HYPE DEVELOPMENTS PTY LTD	HIP V HYPE ALBERT STREET BRUNSWICK EDD, 427 ALBERT STREET, BRUNSWICK, VICTORIA	SITE LOCATION

Drawn:	Designed:	Date:	File No.:	Job No.:	Figure:	Rev.
BBL	DT	17/03/2023	2302314-Figure 001	2302314	001	A



LEGEND

- SITE BOUNDARY
- GWx — GROUNDWATER MONITORING WELL LOCATION
- SBxx — SOIL BORE LOCATION
- LFGxx — LANDFILL SOIL GAS BORE LOCATION

ARC ENVIRONMENTAL
MELBOURNE OFFICE
Ph: (03) 8383 1950

Client: HIP V. HYPE DEVELOPMENTS PTY LTD

Project: HIP V HYPE ALBERT STREET BRUNSWICK EDD, 427 ALBERT STREET, BRUNSWICK, VICTORIA

Title: SITE LAYOUT

Drawn: BBL	Designed: DT	Date: 17/03/2023	File No.: 2302314-Figure 002	Job No.: 2302314	Figure: 002	Rev. A

ATTACHED TABLES

Table 1
Soil Analytical Results
HIP V HYPE Albert Street Brunswick EDD
427 Albert St, Brunswick, Victoria
2301314

	TPH					TRH							BTEX							
	C6-C9 Fraction	C10-C14 Fraction	C15-C28 Fraction	C29-C36 Fraction	C10-C36 Fraction (Sum)	C6-C10 Fraction	C6-C10 minus BTEX (F1)	>C10-C16 Fraction	>C10-C16 Fraction minus Naphthalene (F2)	>C16-C34 Fraction (F3)	>C34-C40 Fraction (F4)	>C10-C40 Fraction (Sum)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Total BTEX	Naphthalene (VOC)
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	10	20	50	50	50	10	10	50	50	100	100	50	0.1	0.1	0.1	0.2	0.1	0.3	0.2	0.5
NEPM 2013 Table 1B(5) Generic EIL - Urban Res & Public Open Space																				170
NEPM 2013 Table 1B(6) ESLs for Urban Res, Coarse Soil							180	120	120	300	2,800		50	85	70			105		
NEPM 2013 Table 1A(1) HILs Res A Soil																				
NEPM 2013 Table 1A(1) HILs Res B Soil																				
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand (0-2m)							45		110				0.5	160	55			40		3
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand (1-2m)							70		240				0.5	220				60		
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand (2-4m)							110		440				0.5	310				95		
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand (>=4m)							200						0.5	540				170		
CRC Care HSL - Direct Contact: Intrusive Maintenance Workers						82,000		62,000		85,000	120,000		1,100	120,000	85,000			130,000		29,000
CRC Care HSL- Intrusive Maintenance Worker Vapour Intrusion: Shallow trench 0-2m													77							
CRC Care HSL- Intrusive Maintenance Worker Vapour Intrusion Shallow Trench 2-4m													***160***							
Field ID	**Date**	**Depth (m)**	**Sample Type**																	
LFG01_0.2	**13/02/2023**	**0.2**	**Normal**	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<1
LFG01_0.5	**13/02/2023**	**0.5**	**Normal**	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	-	<1
LFG01_1.0	**13/02/2023**	**1**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LFG01_4.0	**13/02/2023**	**4**	**Normal**	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<1
LFG02_0.5	**14/02/2023**	**0.5**	**Normal**	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<1
QC05	**14/02/2023**	**0.5**	**QA/QC**	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<1
QC06	**14/02/2023**	**0.5**	**QA/QC**	<20	<20	<50	<50	<50	<20	<20	<50	<50	<100	<100	<100	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-	<0.5
LFG02_3.0	**14/02/2023**	**3**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LFG03_0.2	**14/02/2023**	**0.2**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LFG03_1.0	**14/02/2023**	**1**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LFG04_0.2	**14/02/2023**	**0.2**	**Normal**	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<1
LFG04_0.5	**14/02/2023**	**0.5**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LFG04_3.0	**14/02/2023**	**3**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB01_0.3	**13/02/2023**	**0.3**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB01_1.0	**13/02/2023**	**1**	**Normal**	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<1
QC01	**13/02/2023**	**1**	**QA/QC**	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<1
QC02	**13/02/2023**	**1**	**QA/QC**	<20	<20	<50	<50	<50	<20	<20	<50	<50	<100	<100	<100	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-	<0.5
SB02/GW1_0.3	**13/02/2023**	**0.3**	**Normal**	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<1
SB02/GW1_1.0	**13/02/2023**	**1**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB02/GW1_4.0	**13/02/2023**	**4**	**Normal**	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<1
SB02/GW1_8.0	**13/02/2023**	**8**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB03_0.2	**14/02/2023**	**0.2**	**Normal**	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<1
SB04_0.5	**14/02/2023**	**0.5**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB05_0.2	**14/02/2023**	**0.2**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB05_1.0	**14/02/2023**	**1**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Statistics

Number of Results	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**10**	**13**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<10**	**<20**	**<50**	**<50**	**<50**	**<10**	**<10**	**<50**	**<50**	**<100**	**<100**	**<50**	**<0.1**	**<0.1**	**<0.1**	**<0.2**	**<0.1**	**<0.3**	**<0.2**	**<0.5**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<20**	**<50**	**<100**	**<100**	**<50**	**<20**	**<20**	**<50**	**<50**	**<100**	**<100**	**<100**	**<0.2**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.2**	**<1**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**5.8**	**23**	**46**	**46**	**25**	**5.8**	**5.8**	**25**	**25**	**50**	**50**	**29**	**0.092**	**0.22**	**0.22**	**0.23**	**0.22**	**0.23**	**0.1**	**0.46**
Median Concentration *	**5**	**25**	**50**	**50**	**25**	**5**	**5**	**25**	**25**	**50**	**50**	**25**	**0.1**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.1**	**0.5**
Standard Deviation *	**1.9**	**5.6**	**9.4**	**9.4**	**0**	**1.9**	**1.9**	**0**	**0**	**0**	**0**	**9.4**	**0.019**	**0.075**	**0.075**	**0.056**	**0.075**	**0.038**	**0**	**0.094**
95% UCL (Student's-t) *	**6.697**	**25.48**	**50.79**	**50.79**	**25**	**6.697**	**6.697**	**25**	**25**	**50**	**50**	**33.49**	**0.102**	**0.256**	**0.256**	**0.255**	**0.256**	**0.253**	**0.1**	**0.508**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Table 1
Soil Analytical Results
HIP V HYPE Albert Street Brunswick EDD
427 Albert St, Brunswick, Victoria
2301314

	Metals													Inorganics				
	Arsenic	Cadmium	Chromium (hexavalent)	Chromium (III+VI)	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Tin	Zinc	Moisture Content	pH (CaCl2)	Cyanide Total	Fluoride	Moisture Content (dried @ 103°C)
	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	2	0.4	0.5	2	5	5	0.1	2	2	5	2	5	5	1	0.1	1	40	1
NEPM 2013 Table 1B(5) Generic EIL - Urban Res & Public Open Space	100					1,100												
NEPM 2013 Table 1B(6) ESLs for Urban Res, Coarse Soil																		
NEPM 2013 Table 1A(1) HILs Res A Soil	100	20	100		6,000	300	40		400	200			7,400					
NEPM 2013 Table 1A(1) HILs Res B Soil	**500**	**150**	**500**		**30,000**	**1,200**	**120**		**1,200**	**1,400**			**60,000**					
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand (0-2m)																		
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand (1-2m)																		
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand (2-4m)																		
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand (>=4m)																		
CRC Care HSL - Direct Contact: Intrusive Maintenance Workers																		
CRC Care HSL- Intrusive Maintenance Worker Vapour Intrusion: Shallow trench 0-2m																		
CRC Care HSL- Intrusive Maintenance Worker Vapour Intrusion Shallow Trench 2-4m																		
Field ID	**Date**	**Depth (m)**	**Sample Type**															
LFG01_0.2	**13/02/2023**	**0.2**	**Normal**	<5	<1	-	16	160	116	<0.1	-	26	-	-	-	241	3.2	-	-	-	-
LFG01_0.5	**13/02/2023**	**0.5**	**Normal**	5	<1	<0.5	-	50	54	<0.1	<2	24	<5	<2	9	94	13.2	6.8	<1	190	-
LFG01_1.0	**13/02/2023**	**1**	**Normal**	<5	<1	-	25	12	14	<0.1	-	29	-	-	-	27	15.5	-	-	-	-
LFG01_4.0	**13/02/2023**	**4**	**Normal**	10	<1	-	4	<5	7	<0.1	-	<2	-	-	-	<5	8.3	-	-	-	-
LFG02_0.5	**14/02/2023**	**0.5**	**Normal**	<5	<1	-	10	<5	<5	<0.1	-	3	-	-	-	<5	7.3	-	-	-	-
QC05	**14/02/2023**	**0.5**	**QA/QC**	<5	<1	-	10	<5	5	<0.1	-	3	-	-	-	<5	7.5	-	-	-	-
QC06	**14/02/2023**	**0.5**	**QA/QC**	<2	<0.4	-	13	<5	6.7	<0.1	-	<5	-	-	-	<5	-	-	-	-	7.5
LFG02_3.0	**14/02/2023**	**3**	**Normal**	<5	<1	-	41	10	9	<0.1	-	21	-	-	-	14	19.3	-	-	-	-
LFG03_0.2	**14/02/2023**	**0.2**	**Normal**	<5	<1	-	13	27	40	<0.1	-	11	-	-	-	111	10.1	-	-	-	-
LFG03_1.0	**14/02/2023**	**1**	**Normal**	<5	<1	-	16	<5	5	<0.1	-	7	-	-	-	6	8.6	-	-	-	-
LFG04_0.2	**14/02/2023**	**0.2**	**Normal**	<5	<1	-	5	20	29	<0.1	-	9	-	-	-	33	4.8	-	-	-	-
LFG04_0.5	**14/02/2023**	**0.5**	**Normal**	<5	<1	-	6	<5	<5	<0.1	-	<2	-	-	-	<5	1.5	-	-	-	-
LFG04_3.0	**14/02/2023**	**3**	**Normal**	<5	<1	-	14	<5	<5	<0.1	-	3	-	-	-	<5	18.1	-	-	-	-
SB01_0.3	**13/02/2023**	**0.3**	**Normal**	5	<1	-	12	62	44	<0.1	-	18	-	-	-	71	8.2	-	-	-	-
SB01_1.0	**13/02/2023**	**1**	**Normal**	<5	<1	-	27	6	10	<0.1	-	21	-	-	-	10	16.2	-	-	-	-
QC01	**13/02/2023**	**1**	**QA/QC**	<5	<1	-	22	<5	7	<0.1	-	17	-	-	-	8	15.5	-	-	-	-
QC02	**13/02/2023**	**1**	**QA/QC**	12	<0.4	-	37	6.3	16	<0.1	-	23	-	-	-	14	-	-	-	-	16
SB02/GW1_0.3	**13/02/2023**	**0.3**	**Normal**	<5	<1	-	12	<5	5	<0.1	-	5	-	-	-	7	16.6	-	-	-	-
SB02/GW1_1.0	**13/02/2023**	**1**	**Normal**	<5	<1	-	21	<5	8	<0.1	-	15	-	-	-	6	14.4	-	-	-	-
SB02/GW1_4.0	**13/02/2023**	**4**	**Normal**	<5	<1	-	4	<5	<5	<0.1	-	<2	-	-	-	<5	12.2	-	-	-	-
SB02/GW1_8.0	**13/02/2023**	**8**	**Normal**	21	<1	-	12	34	24	<0.1	-	57	-	-	-	202	9.0	-	-	-	-
SB03_0.2	**14/02/2023**	**0.2**	**Normal**	<5	<1	-	12	10	12	<0.1	-	7	-	-	-	19	11.2	-	-	-	-
SB04_0.5	**14/02/2023**	**0.5**	**Normal**	<5	<1	-	40	92	154	<0.1	-	38	-	-	-	247	5.5	-	-	-	-
SB05_0.2	**14/02/2023**	**0.2**	**Normal**	<5	<1	-	7	<5	9	<0.1	-	3	-	-	-	14	8.6	-	-	-	-
SB05_1.0	**14/02/2023**	**1**	**Normal**	<5	<1	-	26	<5	9	<0.1	-	15	-	-	-	7	18.8	-	-	-	-
Statistics																		
Number of Results				**25**	**25**	**1**	**24**	**25**	**25**	**25**	**1**	**25**	**1**	**1**	**1**	**25**	**23**	**1**	**1**	**1**	**2**
Number of Detects				**5**	**0**	**0**	**24**	**12**	**21**	**0**	**0**	**21**	**0**	**0**	**1**	**18**	**23**	**1**	**0**	**1**	**2**
Minimum Concentration				**<2**	**<0.4**	**<0.5**	**4**	**<5**	**5**	**<0.1**	**<2**	**<2**	**<5**	**<2**	**9**	**<5**	**1.5**	**6.8**	**<1**	**190**	**7.5**
Minimum Detect				**5**	**ND**	**ND**	**4**	**6**	**5**	**ND**	**ND**	**3**	**ND**	**ND**	**9**	**6**	**1.5**	**6.8**	**ND**	**190**	**7.5**
Maximum Concentration				**21**	**<1**	**<0.5**	**41**	**160**	**154**	**<0.1**	**<2**	**57**	**<5**	**<2**	**9**	**247**	**19.3**	**6.8**	**<1**	**190**	**16**
Maximum Detect				**21**	**ND**	**ND**	**41**	**160**	**154**	**ND**	**ND**	**57**	**ND**	**ND**	**9**	**247**	**19.3**	**6.8**	**ND**	**190**	**16**
Average Concentration *				**4.1**	**0.48**		**17**	**21**	**24**	**0.05**		**14**				**46**	**11**				**12**
Median Concentration *				**2.5**	**0.5**	**0.25**	**13**	**2.5**	**9**	**0.05**	**1**	**11**	**2.5**	**1**	**9**	**10**	**10.1**	**6.8**	**0.5**	**190**	**11.75**
Standard Deviation *				**4.3**	**0.083**		**11**	**37**	**37**	**0**		**14**				**75**	**5.1**				**6**
95% UCL (Student's-t) *				**5.53**	**0.504**		**20.69**	**33.43**	**36.28**	**0.05**		**19.07**				**71.74**	**12.86**				**38.58**
% of Detects				**20**	**0**	**0**	**100**	**48**	**84**	**0**	**0**	**84**	**0**	**0**	**100**	**72**	**100**	**100**	**0**	**100**	**100**
% of Non-Detects				**80**	**100**	**100**	**0**	**52**	**16**	**100**	**100**	**16**	**100**	**100**	**0**	**28**	**0**	**0**	**100**	**0**	**0**

* A Non Detect Multiplier of 0.5 has been applied.

Table 1
Soil Analytical Results
HIP V HYPE Albert Street Brunswick EDD
427 Albert St, Brunswick, Victoria
2301314

	Phenols																				
	3&4-Methylphenol (m&p-cresol)	2,3,5,6-Tetrachlorophenol	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,4-Dinitrophenol	2,6-Dichlorophenol	2,3,4,5 & 2,3,4,6-Tetrachlorophenol	2-Chlorophenol	2-Methylphenol	2-Nitrophenol	4,6-Dinitro-2-methylphenol	4,6-Dinitro-o-cyclohexyl phenol	4-chloro-3-methylphenol	4-Nitrophenol	Dinoseb	Pentachlorophenol	Phenol	Phenols (halogenated) EPAVic	Phenols (non-halogenated) EPAVic
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	1	0.03	0.05	0.05	0.03	1	5	0.03	0.05	0.03	1	1	5	5	0.03	5	5	0.2	1	0.03	1
NEPM 2013 Table 1B(5) Generic EIL - Urban Res & Public Open Space																					
NEPM 2013 Table 1B(6) ESLs for Urban Res, Coarse Soil																					
NEPM 2013 Table 1A(1) HILs Res A Soil																		100	3,000		
NEPM 2013 Table 1A(1) HILs Res B Soil																		**130**	**45,000**		
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand (0-2m)																					
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand (1-2m)																					
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand (2-4m)																					
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand (>=4m)																					
CRC Care HSL - Direct Contact: Intrusive Maintenance Workers																					
CRC Care HSL- Intrusive Maintenance Worker Vapour Intrusion: Shallow trench 0-2m																					
CRC Care HSL- Intrusive Maintenance Worker Vapour Intrusion Shallow Trench 2-4m																					
LFG01_0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LFG01_0.5	<1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.03	<1
LFG01_1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LFG01_4.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LFG02_0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC06	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LFG02_3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LFG03_0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LFG03_1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LFG04_0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LFG04_0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LFG04_3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB01_0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB01_1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB02/GW1_0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB02/GW1_1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB02/GW1_4.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB02/GW1_8.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB03_0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB04_0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB05_0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB05_1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Statistics																					
Number of Results	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.03	<1
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.03	<1
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *																					
Median Concentration *	0.5	0.015	0.025	0.025	0.015	0.5	2.5	0.015	0.025	0.015	0.5	0.5	2.5	2.5	0.015	2.5	2.5	0.1	0.5	0.015	0.5
Standard Deviation *																					
95% UCL (Student's-t) *																					
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

Field ID	Date	Depth (m)	Sample Type
LFG01_0.2	**13/02/2023**	**0.2**	**Normal**
LFG01_0.5	**13/02/2023**	**0.5**	**Normal**
LFG01_1.0	**13/02/2023**	**1**	**Normal**
LFG01_4.0	**13/02/2023**	**4**	**Normal**
LFG02_0.5	**14/02/2023**	**0.5**	**Normal**
QC05	**14/02/2023**	**0.5**	**QA/QC**
QC06	**14/02/2023**	**0.5**	**QA/QC**
LFG02_3.0	**14/02/2023**	**3**	**Normal**
LFG03_0.2	**14/02/2023**	**0.2**	**Normal**
LFG03_1.0	**14/02/2023**	**1**	**Normal**
LFG04_0.2	**14/02/2023**	**0.2**	**Normal**
LFG04_0.5	**14/02/2023**	**0.5**	**Normal**
LFG04_3.0	**14/02/2023**	**3**	**Normal**
SB01_0.3	**13/02/2023**	**0.3**	**Normal**
SB01_1.0	**13/02/2023**	**1**	**Normal**
QC01	**13/02/2023**	**1**	**QA/QC**
QC02	**13/02/2023**	**1**	**QA/QC**
SB02/GW1_0.3	**13/02/2023**	**0.3**	**Normal**
SB02/GW1_1.0	**13/02/2023**	**1**	**Normal**
SB02/GW1_4.0	**13/02/2023**	**4**	**Normal**
SB02/GW1_8.0	**13/02/2023**	**8**	**Normal**
SB03_0.2	**14/02/2023**	**0.2**	**Normal**
SB04_0.5	**14/02/2023**	**0.5**	**Normal**
SB05_0.2	**14/02/2023**	**0.2**	**Normal**
SB05_1.0	**14/02/2023**	**1**	**Normal**

* A Non Detect Multiplier of 0.5 has been applied.

Table 1
Soil Analytical Results
HIP V HYPE Albert Street Brunswick EDD
427 Albert St, Brunswick, Victoria
2301314

	Chlorinated Hydrocarbons																Organochlorine Pesticides					
	1,1,1,2-tetrachloroethane	Chlorinated hydrocarbons EPAVic	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethene	1,2-dichloroethane	Carbon tetrachloride	Chloroform	cis-1,2-dichloroethene	Dichloromethane	Hexachlorobutadiene	Tetrachloroethene	trans-1,2-dichloroethene	Trichloroethene	Vinyl chloride	Organochlorine pesticides EPAVic	4,4-DDE	a-BHC	Aldrin	b-BHC	Chlordane
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	0.01	0.01	0.01	0.02	0.04	0.01	0.02	0.01	0.02	0.01	0.4	0.02	0.02	0.02	0.02	0.02	0.03	0.05	0.03	0.03	0.03	0.03
NEPM 2013 Table 1B(5) Generic EIL - Urban Res & Public Open Space																						
NEPM 2013 Table 1B(6) ESLs for Urban Res, Coarse Soil															0.05							
NEPM 2013 Table 1A(1) HILs Res A Soil													0.2		0.01							50
NEPM 2013 Table 1A(1) HILs Res B Soil													**0.2**		**0.01**							**90**
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand (0-2m)																						
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand (1-2m)																						
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand (2-4m)																						
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand (>=4m)																						
CRC Care HSL - Direct Contact: Intrusive Maintenance Workers															28							
CRC Care HSL- Intrusive Maintenance Worker Vapour Intrusion: Shallow trench 0-2m																						
CRC Care HSL- Intrusive Maintenance Worker Vapour Intrusion Shallow Trench 2-4m																						
LFG01_0.2	**13/02/2023**	**0.2**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LFG01_0.5	**13/02/2023**	**0.5**	**Normal**	<0.01	<0.01	<0.01	<0.02	<0.04	<0.01	<0.02	<0.01	<0.02	<0.01	<0.4	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.03	<0.05	<0.03	<0.03	<0.03	<0.03	<0.03
LFG01_1.0	**13/02/2023**	**1**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LFG01_4.0	**13/02/2023**	**4**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LFG02_0.5	**14/02/2023**	**0.5**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC05	**14/02/2023**	**0.5**	**QA/QC**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC06	**14/02/2023**	**0.5**	**QA/QC**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LFG02_3.0	**14/02/2023**	**3**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LFG03_0.2	**14/02/2023**	**0.2**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LFG03_1.0	**14/02/2023**	**1**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LFG04_0.2	**14/02/2023**	**0.2**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LFG04_0.5	**14/02/2023**	**0.5**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LFG04_3.0	**14/02/2023**	**3**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB01_0.3	**13/02/2023**	**0.3**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB01_1.0	**13/02/2023**	**1**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC01	**13/02/2023**	**1**	**QA/QC**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC02	**13/02/2023**	**1**	**QA/QC**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB02/GW1_0.3	**13/02/2023**	**0.3**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB02/GW1_1.0	**13/02/2023**	**1**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB02/GW1_4.0	**13/02/2023**	**4**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB02/GW1_8.0	**13/02/2023**	**8**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB03_0.2	**14/02/2023**	**0.2**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB04_0.5	**14/02/2023**	**0.5**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB05_0.2	**14/02/2023**	**0.2**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB05_1.0	**14/02/2023**	**1**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Statistics																											
Number of Results				**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**
Number of Detects				**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration				**<0.01**	**<0.01**	**<0.01**	**<0.02**	**<0.04**	**<0.01**	**<0.02**	**<0.01**	**<0.02**	**<0.01**	**<0.4**	**<0.02**	**<0.02**	**<0.02**	**<0.02**	**<0.02**	**<0.03**	**<0.05**	**<0.03**	**<0.03**	**<0.03**	**<0.03**	**<0.03**	**<0.03**
Minimum Detect				**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration				**<0.01**	**<0.01**	**<0.01**	**<0.02**	**<0.04**	**<0.01**	**<0.02**	**<0.01**	**<0.02**	**<0.01**	**<0.4**	**<0.02**	**<0.02**	**<0.02**	**<0.02**	**<0.02**	**<0.03**	**<0.05**	**<0.03**	**<0.03**	**<0.03**	**<0.03**	**<0.03**	**<0.03**
Maximum Detect				**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *																											
Median Concentration *				**0.005**	**0.005**	**0.005**	**0.01**	**0.02**	**0.005**	**0.01**	**0.005**	**0.01**	**0.005**	**0.2**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.015**	**0.025**	**0.015**	**0.015**	**0.015**	**0.015**	**0.015**	**0.015**
Standard Deviation *																											
95% UCL (Student's-t) *																											
% of Detects				**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects				**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Table 1
Soil Analytical Results
HIP V HYPE Albert Street Brunswick EDD
427 Albert St, Brunswick, Victoria
2301314

	Organochlorine Pesticides															MAH		Halogenated Benzenes				
	Chlordane (cis)	Chlordane (trans)	d-BHC	DDD	DDT	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Methoxychlor	Monocylic aromatic hydrocarbons EPAVic	Styrene	1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,4-dichlorobenzene	Chlorobenzene	Hexachlorobenzene
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	0.03	0.03	0.03	0.05	0.05	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.2	0.5	0.01	0.02	0.02	0.02	0.03
NEPM 2013 Table 1B(5) Generic EIL - Urban Res & Public Open Space					180																	
NEPM 2013 Table 1B(6) ESLs for Urban Res, Coarse Soil																						
NEPM 2013 Table 1A(1) HILs Res A Soil										10			6		300							10
NEPM 2013 Table 1A(1) HILs Res B Soil										**20**			**10**		**500**							**15**
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand (0-2m)																						
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand (1-2m)																						
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand (2-4m)																						
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand (>=4m)																						
CRC Care HSL - Direct Contact: Intrusive Maintenance Workers																						
CRC Care HSL- Intrusive Maintenance Worker Vapour Intrusion: Shallow trench 0-2m																						
CRC Care HSL- Intrusive Maintenance Worker Vapour Intrusion Shallow Trench 2-4m																						
Field ID	**Date**	**Depth (m)**	**Sample Type**																						
LFG01_0.2	**13/02/2023**	**0.2**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LFG01_0.5	**13/02/2023**	**0.5**	**Normal**	<0.03	<0.03	<0.03	<0.05	<0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.2	<0.5	<0.01	<0.02	<0.02	<0.02	<0.03
LFG01_1.0	**13/02/2023**	**1**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LFG01_4.0	**13/02/2023**	**4**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LFG02_0.5	**14/02/2023**	**0.5**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC05	**14/02/2023**	**0.5**	**QA/QC**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC06	**14/02/2023**	**0.5**	**QA/QC**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LFG02_3.0	**14/02/2023**	**3**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LFG03_0.2	**14/02/2023**	**0.2**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LFG03_1.0	**14/02/2023**	**1**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LFG04_0.2	**14/02/2023**	**0.2**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LFG04_0.5	**14/02/2023**	**0.5**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LFG04_3.0	**14/02/2023**	**3**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB01_0.3	**13/02/2023**	**0.3**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB01_1.0	**13/02/2023**	**1**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC01	**13/02/2023**	**1**	**QA/QC**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC02	**13/02/2023**	**1**	**QA/QC**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB02/GW1_0.3	**13/02/2023**	**0.3**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB02/GW1_1.0	**13/02/2023**	**1**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB02/GW1_4.0	**13/02/2023**	**4**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB02/GW1_8.0	**13/02/2023**	**8**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB03_0.2	**14/02/2023**	**0.2**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB04_0.5	**14/02/2023**	**0.5**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB05_0.2	**14/02/2023**	**0.2**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB05_1.0	**14/02/2023**	**1**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Statistics																									
Number of Results				**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**
Number of Detects				**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration				**<0.03**	**<0.03**	**<0.03**	**<0.05**	**<0.05**	**<0.03**	**<0.03**	**<0.03**	**<0.03**	**<0.03**	**<0.03**	**<0.03**	**<0.03**	**<0.03**	**<0.03**	**<0.2**	**<0.5**	**<0.01**	**<0.02**	**<0.02**	**<0.02**	**<0.03**
Minimum Detect				**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration				**<0.03**	**<0.03**	**<0.03**	**<0.05**	**<0.05**	**<0.03**	**<0.03**	**<0.03**	**<0.03**	**<0.03**	**<0.03**	**<0.03**	**<0.03**	**<0.03**	**<0.03**	**<0.2**	**<0.5**	**<0.01**	**<0.02**	**<0.02**	**<0.02**	**<0.03**
Maximum Detect				**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *																									
Median Concentration *				**0.015**	**0.015**	**0.015**	**0.025**	**0.025**	**0.015**	**0.015**	**0.015**	**0.015**	**0.015**	**0.015**	**0.015**	**0.015**	**0.015**	**0.015**	**0.1**	**0.25**	**0.005**	**0.01**	**0.01**	**0.01**	**0.015**
Standard Deviation *																									
95% UCL (Student's-t) *																									
% of Detects				**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects				**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Table 1
Soil Analytical Results
HIP V HYPE Albert Street Brunswick EDD
427 Albert St, Brunswick, Victoria
2301314

	PAH																						PCBs
	Benzo(b+j+k)fluoranthene	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	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	Naphthalene	Phenanthrene	Pyrene	Benzo(a)pyrene TEQ calc (Half)	Benzo(a)pyrene TEQ (LOR)	Benzo(a)pyrene TEQ calc (Zero)	PAHs (Sum of total)	PAHs (Vic EPA List)	PCBs (Sum of total)
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.1
NEPM 2013 Table 1B(5) Generic EIL - Urban Res & Public Open Space															170								
NEPM 2013 Table 1B(6) ESLs for Urban Res, Coarse Soil						0.7																	
NEPM 2013 Table 1A(1) HILs Res A Soil																		3	3	3	300	300	1
NEPM 2013 Table 1A(1) HILs Res B Soil																		**4**	**4**	**4**	**400**	**400**	**1**
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand (0-2m)															3								
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand (1-2m)																							
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand (2-4m)																							
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand (>=4m)																							
CRC Care HSL - Direct Contact: Intrusive Maintenance Workers															29,000								
CRC Care HSL- Intrusive Maintenance Worker Vapour Intrusion: Shallow trench 0-2m																							
CRC Care HSL- Intrusive Maintenance Worker Vapour Intrusion Shallow Trench 2-4m																							
Field ID	**Date**	**Depth (m)**	**Sample Type**																						
LFG01_0.2	**13/02/2023**	**0.2**	**Normal**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	-	-
LFG01_0.5	**13/02/2023**	**0.5**	**Normal**	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	-	<0.5	<0.1
LFG01_1.0	**13/02/2023**	**1**	**Normal**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	-	-
LFG01_4.0	**13/02/2023**	**4**	**Normal**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	-	-
LFG02_0.5	**14/02/2023**	**0.5**	**Normal**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	-	-
QC05	**14/02/2023**	**0.5**	**QA/QC**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	-	-
QC06	**14/02/2023**	**0.5**	**QA/QC**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	-	-
LFG02_3.0	**14/02/2023**	**3**	**Normal**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	-	-
LFG03_0.2	**14/02/2023**	**0.2**	**Normal**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	-	-
LFG03_1.0	**14/02/2023**	**1**	**Normal**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	-	-
LFG04_0.2	**14/02/2023**	**0.2**	**Normal**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	-	-
LFG04_0.5	**14/02/2023**	**0.5**	**Normal**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	-	-
LFG04_3.0	**14/02/2023**	**3**	**Normal**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	-	-
SB01_0.3	**13/02/2023**	**0.3**	**Normal**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	-	-
SB01_1.0	**13/02/2023**	**1**	**Normal**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	-	-
QC01	**13/02/2023**	**1**	**QA/QC**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	-	-
QC02	**13/02/2023**	**1**	**QA/QC**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	-	-
SB02/GW1_0.3	**13/02/2023**	**0.3**	**Normal**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	-	-
SB02/GW1_1.0	**13/02/2023**	**1**	**Normal**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	-	-
SB02/GW1_4.0	**13/02/2023**	**4**	**Normal**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	-	-
SB02/GW1_8.0	**13/02/2023**	**8**	**Normal**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	-	-
SB03_0.2	**14/02/2023**	**0.2**	**Normal**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.7	<0.5	<0.5	<0.5	<0.5	0.7	0.6	1.2	<0.5	1.4	-	-
SB04_0.5	**14/02/2023**	**0.5**	**Normal**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.7	<0.5	<0.5	<0.5	<0.5	0.8	0.6	1.2	<0.5	1.5	-	-
SB05_0.2	**14/02/2023**	**0.2**	**Normal**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	-	-
SB05_1.0	**14/02/2023**	**1**	**Normal**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	-	-
Statistics																										
Number of Results				**1**	**25**	**25**	**25**	**25**	**25**	**24**	**25**	**24**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**24**	**1**	**1**
Number of Detects				**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**2**	**25**	**25**	**25**	**0**	**2**	**0**	**0**
Minimum Concentration				**<1**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**0.6**	**1.2**	**<0.5**	**<0.5**	**<0.5**	**<0.1**
Minimum Detect				**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**0.7**	**ND**	**ND**	**ND**	**ND**	**0.7**	**0.6**	**1.2**	**ND**	**1.4**	**ND**	**ND**
Maximum Concentration				**<1**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**0.7**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**0.8**	**0.6**	**1.2**	**<0.5**	**1.5**	**<0.5**	**<0.1**
Maximum Detect				**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**0.7**	**ND**	**ND**	**ND**	**ND**	**0.8**	**0.6**	**1.2**	**ND**	**1.5**	**ND**	**ND**
Average Concentration *					**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.29**	**0.25**	**0.25**	**0.25**	**0.25**	**0.29**	**0.6**	**1.2**	**0.25**	**0.35**		
Median Concentration *				**0.5**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.6**	**1.2**	**0.25**	**0.25**	**0.25**	**0.05**
Standard Deviation *					**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.12**	**0**	**0**	**0**	**0**	**0.14**	**0**	**0**	**0**	**0.34**		
95% UCL (Student's-t) *					**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.329**	**0.25**	**0.25**	**0.25**	**0.25**	**0.338**	**0.6**	**1.2**	**0.25**	**0.469**		
% of Detects				**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**8**	**0**	**0**	**0**	**0**	**8**	**100**	**100**	**0**	**8**	**0**	**0**
% of Non-Detects				**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**92**	**100**	**100**	**100**	**100**	**92**	**0**	**0**	**100**	**92**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Table 2
Soil Analytical Results - Waste Classification
HIP V HYPE Albert Street Brunswick EDD
427 Albert St, Brunswick, Victoria
2301314

	TPH					TRH							BTEX							
	C6-C9 Fraction	C10-C14 Fraction	C15-C28 Fraction	C29-C36 Fraction	C10-C36 Fraction (Sum)	C6-C10 Fraction	C6-C10 minus BTEX (F1)	>C10-C16 Fraction	>C10-C16 Fraction minus Naphthalene (F2)	>C16-C34 Fraction (F3)	>C34-C40 Fraction (F4)	>C10-C40 Fraction (Sum)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Total BTEX	Naphthalene (VOC)
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	10	20	50	50	50	10	10	50	50	100	100	50	0.1	0.1	0.1	0.2	0.1	0.3	0.2	0.5
EPA Vic IWRG1828.2 Category B upper limit	2,600				40,000								16	12,800	4,800			9,600		
EPA Vic IWRG1828.2 Category C upper limit	650				10,000								4	3,200	1,200			2,400		
EPA Vic IWRG1828.2 Fill material upper limit	100				1,000								1							
Field ID	**Date**	**Depth (m)**	**Soil Type**	**Sample Type**																
LFG01_0.2	13/02/2023	0.2	FILL	Normal	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<1
LFG01_0.5	13/02/2023	0.5	FILL	Normal	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	-	<1
LFG01_1.0	13/02/2023	1	FILL	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LFG01_4.0	13/02/2023	4	NAUTRAL	Normal	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<1
LFG02_0.5	14/02/2023	0.5	FILL	Normal	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<1
QC05	14/02/2023	0.5	FILL	QA/QC	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<1
QC06	14/02/2023	0.5	FILL	QA/QC	<20	<20	<50	<50	<50	<20	<20	<50	<50	<100	<100	<100	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-	<0.5
LFG02_3.0	14/02/2023	3	NAUTRAL	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LFG03_0.2	14/02/2023	0.2	FILL	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LFG03_1.0	14/02/2023	1	FILL	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LFG04_0.2	14/02/2023	0.2	FILL	Normal	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<1
LFG04_0.5	14/02/2023	0.5	FILL	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LFG04_3.0	14/02/2023	3	NAUTRAL	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB01_0.3	13/02/2023	0.3	FILL	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB01_1.0	13/02/2023	1	NAUTRAL	Normal	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<1
QC01	13/02/2023	1	NAUTRAL	QA/QC	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<1
QC02	13/02/2023	1	NAUTRAL	QA/QC	<20	<20	<50	<50	<50	<20	<20	<50	<50	<100	<100	<100	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-	<0.5
SB02/GW1_0.3	13/02/2023	0.3	FILL	Normal	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<1
SB02/GW1_1.0	13/02/2023	1	FILL	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB02/GW1_4.0	13/02/2023	4	NAUTRAL	Normal	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<1
SB02/GW1_8.0	13/02/2023	8	NAUTRAL	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB03_0.2	14/02/2023	0.2	FILL	Normal	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<1
SB04_0.5	14/02/2023	0.5	FILL	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB05_0.2	14/02/2023	0.2	FILL	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB05_1.0	14/02/2023	1	NAUTRAL	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Statistics

Number of Results	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	10	13
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<10	<20	<50	<50	<50	<10	<10	<50	<50	<100	<100	<50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.2	<0.5
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<20	<50	<100	<100	<50	<20	<20	<50	<50	<100	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<1
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	5.8	23	46	46	25	5.8	5.8	25	25	50	50	29	0.092	0.22	0.22	0.23	0.22	0.23	0.1	0.46
Median Concentration *	5	25	50	50	25	5	5	25	25	50	50	25	0.1	0.25	0.25	0.25	0.25	0.25	0.1	0.5
Standard Deviation *	1.9	5.6	9.4	9.4	0	1.9	1.9	0	0	0	0	9.4	0.019	0.075	0.075	0.056	0.075	0.038	0	0.094
95% UCL (Student's-t) *	6.697	25.48	50.79	50.79	25	6.697	6.697	25	25	50	50	33.49	0.102	0.256	0.256	0.255	0.256	0.253	0.1	0.508
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Table 2
Soil Analytical Results - Waste Classification
HIP V HYPE Albert Street Brunswick EDD
427 Albert St, Brunswick, Victoria
2301314

					Metals												Inorganics				
					Arsenic	Cadmium	Chromium (hexavalent)	Chromium (III+VI)	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Tin	Zinc	Moisture Content	pH (CaCl2)	Cyanide Total	Fluoride	Moisture Content (dried @ 103°C)
					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					2	0.4	0.5	2	5	5	0.1	2	2	5	2	5	5	1	0.1	1	40	1
EPA Vic IWRG1828.2 Category B upper limit					2,000	400	2,000		20,000	6,000	300	4,000	12,000	40,000	720		140,000			10,000	40,000	
EPA Vic IWRG1828.2 Category C upper limit					500	100	500		5,000	1,500	75	1,000	3,000	10,000	180		35,000			2,500	10,000	
EPA Vic IWRG1828.2 Fill material upper limit					20	3	1		100	300	1	40	60	10	10	50	200			50	450	
Field ID	**Date**	**Depth (m)**	**Soil Type**	**Sample Type**																		
LFG01_0.2	**13/02/2023**	**0.2**	**FILL**	**Normal**	<5	<1	-	16	160	116	<0.1	-	26	-	-	-	241	3.2	-	-	-	-
LFG01_0.5	**13/02/2023**	**0.5**	**FILL**	**Normal**	5	<1	<0.5	-	50	54	<0.1	<2	24	<5	<2	9	94	13.2	6.8	<1	190	-
LFG01_1.0	**13/02/2023**	**1**	**FILL**	**Normal**	<5	<1	-	25	12	14	<0.1	-	29	-	-	-	27	15.5	-	-	-	-
LFG01_4.0	**13/02/2023**	**4**	**NAUTRAL**	**Normal**	10	<1	-	4	<5	7	<0.1	-	<2	-	-	-	<5	8.3	-	-	-	-
LFG02_0.5	**14/02/2023**	**0.5**	**FILL**	**Normal**	<5	<1	-	10	<5	<5	<0.1	-	3	-	-	-	<5	7.3	-	-	-	-
QC05	**14/02/2023**	**0.5**	**FILL**	**QA/QC**	<5	<1	-	10	<5	5	<0.1	-	3	-	-	-	<5	7.5	-	-	-	-
QC06	**14/02/2023**	**0.5**	**FILL**	**QA/QC**	<2	<0.4	-	13	<5	6.7	<0.1	-	<5	-	-	-	<5	-	-	-	-	7.5
LFG02_3.0	**14/02/2023**	**3**	**NAUTRAL**	**Normal**	<5	<1	-	41	10	9	<0.1	-	21	-	-	-	14	19.3	-	-	-	-
LFG03_0.2	**14/02/2023**	**0.2**	**FILL**	**Normal**	<5	<1	-	13	27	40	<0.1	-	11	-	-	-	111	10.1	-	-	-	-
LFG03_1.0	**14/02/2023**	**1**	**FILL**	**Normal**	<5	<1	-	16	<5	5	<0.1	-	7	-	-	-	6	8.6	-	-	-	-
LFG04_0.2	**14/02/2023**	**0.2**	**FILL**	**Normal**	<5	<1	-	5	20	29	<0.1	-	9	-	-	-	33	4.8	-	-	-	-
LFG04_0.5	**14/02/2023**	**0.5**	**FILL**	**Normal**	<5	<1	-	6	<5	<5	<0.1	-	<2	-	-	-	<5	1.5	-	-	-	-
LFG04_3.0	**14/02/2023**	**3**	**NAUTRAL**	**Normal**	<5	<1	-	14	<5	<5	<0.1	-	3	-	-	-	<5	18.1	-	-	-	-
SB01_0.3	**13/02/2023**	**0.3**	**FILL**	**Normal**	5	<1	-	12	62	44	<0.1	-	18	-	-	-	71	8.2	-	-	-	-
SB01_1.0	**13/02/2023**	**1**	**NAUTRAL**	**Normal**	<5	<1	-	27	6	10	<0.1	-	21	-	-	-	10	16.2	-	-	-	-
QC01	**13/02/2023**	**1**	**NAUTRAL**	**QA/QC**	<5	<1	-	22	<5	7	<0.1	-	17	-	-	-	8	15.5	-	-	-	-
QC02	**13/02/2023**	**1**	**NAUTRAL**	**QA/QC**	12	<0.4	-	37	6.3	16	<0.1	-	23	-	-	-	14	-	-	-	-	16
SB02/GW1_0.3	**13/02/2023**	**0.3**	**FILL**	**Normal**	<5	<1	-	12	<5	5	<0.1	-	5	-	-	-	7	16.6	-	-	-	-
SB02/GW1_1.0	**13/02/2023**	**1**	**FILL**	**Normal**	<5	<1	-	21	<5	8	<0.1	-	15	-	-	-	6	14.4	-	-	-	-
SB02/GW1_4.0	**13/02/2023**	**4**	**NAUTRAL**	**Normal**	<5	<1	-	4	<5	<5	<0.1	-	<2	-	-	-	<5	12.2	-	-	-	-
SB02/GW1_8.0	**13/02/2023**	**8**	**NAUTRAL**	**Normal**	21	<1	-	12	34	24	<0.1	-	57	-	-	-	202	9.0	-	-	-	-
SB03_0.2	**14/02/2023**	**0.2**	**FILL**	**Normal**	<5	<1	-	12	10	12	<0.1	-	7	-	-	-	19	11.2	-	-	-	-
SB04_0.5	**14/02/2023**	**0.5**	**FILL**	**Normal**	<5	<1	-	40	92	154	<0.1	-	38	-	-	-	247	5.5	-	-	-	-
SB05_0.2	**14/02/2023**	**0.2**	**FILL**	**Normal**	<5	<1	-	7	<5	9	<0.1	-	3	-	-	-	14	8.6	-	-	-	-
SB05_1.0	**14/02/2023**	**1**	**NAUTRAL**	**Normal**	<5	<1	-	26	<5	9	<0.1	-	15	-	-	-	7	18.8	-	-	-	-
Statistics																						
Number of Results					**25**	**25**	**1**	**24**	**25**	**25**	**25**	**1**	**25**	**1**	**1**	**1**	**25**	**23**	**1**	**1**	**1**	**2**
Number of Detects					**5**	**0**	**0**	**24**	**12**	**21**	**0**	**0**	**21**	**0**	**0**	**1**	**18**	**23**	**1**	**0**	**1**	**2**
Minimum Concentration					**<2**	**<0.4**	**<0.5**	**4**	**<5**	**5**	**<0.1**	**<2**	**<2**	**<5**	**<2**	**9**	**<5**	**1.5**	**6.8**	**<1**	**190**	**7.5**
Minimum Detect					**5**	**ND**	**ND**	**4**	**6**	**5**	**ND**	**ND**	**3**	**ND**	**ND**	**9**	**6**	**1.5**	**6.8**	**ND**	**190**	**7.5**
Maximum Concentration					**21**	**<1**	**<0.5**	**41**	**160**	**154**	**<0.1**	**<2**	**57**	**<5**	**<2**	**9**	**247**	**19.3**	**6.8**	**<1**	**190**	**16**
Maximum Detect					**21**	**ND**	**ND**	**41**	**160**	**154**	**ND**	**ND**	**57**	**ND**	**ND**	**9**	**247**	**19.3**	**6.8**	**ND**	**190**	**16**
Average Concentration *					**4.1**	**0.48**		**17**	**21**	**24**	**0.05**		**14**				**46**	**11**				**12**
Median Concentration *					**2.5**	**0.5**	**0.25**	**13**	**2.5**	**9**	**0.05**	**1**	**11**	**2.5**	**1**	**9**	**10**	**10.1**	**6.8**	**0.5**	**190**	**11.75**
Standard Deviation *					**4.3**	**0.083**		**11**	**37**	**37**	**0**		**14**				**75**	**5.1**				**6**
95% UCL (Student's-t) *					**5.53**	**0.504**		**20.69**	**33.43**	**36.28**	**0.05**		**19.07**				**71.74**	**12.86**				**38.58**
% of Detects					**20**	**0**	**0**	**100**	**48**	**84**	**0**	**0**	**84**	**0**	**0**	**100**	**72**	**100**	**100**	**0**	**100**	**100**
% of Non-Detects					**80**	**100**	**100**	**0**	**52**	**16**	**100**	**100**	**16**	**100**	**100**	**0**	**28**	**0**	**0**	**100**	**0**	**0**

* A Non Detect Multiplier of 0.5 has been applied.

Table 2
Soil Analytical Results - Waste Classification
HIP V HYPE Albert Street Brunswick EDD
427 Albert St, Brunswick, Victoria
2301314

					Phenols																	
					3&4-Methylphenol (m&p-cresol)	2,3,5,6-Tetrachlorophenol	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,4-Dinitrophenol	2,6-Dichlorophenol	2,3,4,5 & 2,3,4,6-Tetrachlorophenol	2-Chlorophenol	2-Methylphenol	2-Nitrophenol	4,6-Dinitro-2-methylphenol	4,6-Dinitro-o-cyclohexyl phenol	4-chloro-3-methylphenol	4-Nitrophenol	Dinoseb	Pentachlorophenol	Phenol	Phenols (halogenated) EPAVic	Phenols (non-halogenated) EPAVic
					mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL					1	0.03	0.05	0.05	0.03	1	5	0.03	0.05	0.03	1	1	5	5	0.03	5	5	0.2	1	0.03	1
EPA Vic IWRG1828.2 Category B upper limit							64,000	320	3,200					4,800										2,200
EPA Vic IWRG1828.2 Category C upper limit							16,000	80	800					1,200										560
EPA Vic IWRG1828.2 Fill material upper limit																							1	60
Field ID	**Date**	**Depth (m)**	**Soil Type**	**Sample Type**																				
LFG01_0.2	**13/02/2023**	**0.2**	**FILL**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LFG01_0.5	**13/02/2023**	**0.5**	**FILL**	**Normal**	<1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.03	<1
LFG01_1.0	**13/02/2023**	**1**	**FILL**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LFG01_4.0	**13/02/2023**	**4**	**NAUTRAL**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LFG02_0.5	**14/02/2023**	**0.5**	**FILL**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC05	**14/02/2023**	**0.5**	**FILL**	**QA/QC**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC06	**14/02/2023**	**0.5**	**FILL**	**QA/QC**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LFG02_3.0	**14/02/2023**	**3**	**NAUTRAL**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LFG03_0.2	**14/02/2023**	**0.2**	**FILL**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LFG03_1.0	**14/02/2023**	**1**	**FILL**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LFG04_0.2	**14/02/2023**	**0.2**	**FILL**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LFG04_0.5	**14/02/2023**	**0.5**	**FILL**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LFG04_3.0	**14/02/2023**	**3**	**NAUTRAL**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB01_0.3	**13/02/2023**	**0.3**	**FILL**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB01_1.0	**13/02/2023**	**1**	**NAUTRAL**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC01	**13/02/2023**	**1**	**NAUTRAL**	**QA/QC**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC02	**13/02/2023**	**1**	**NAUTRAL**	**QA/QC**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB02/GW1_0.3	**13/02/2023**	**0.3**	**FILL**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB02/GW1_1.0	**13/02/2023**	**1**	**FILL**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB02/GW1_4.0	**13/02/2023**	**4**	**NAUTRAL**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB02/GW1_8.0	**13/02/2023**	**8**	**NAUTRAL**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB03_0.2	**14/02/2023**	**0.2**	**FILL**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB04_0.5	**14/02/2023**	**0.5**	**FILL**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB05_0.2	**14/02/2023**	**0.2**	**FILL**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB05_1.0	**14/02/2023**	**1**	**NAUTRAL**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Statistics																									
Number of Results					1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Number of Detects					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration					<1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.03	<1
Minimum Detect					ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration					<1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.03	<1
Maximum Detect					ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *																									
Median Concentration *					0.5	0.015	0.025	0.025	0.015	0.5	2.5	0.015	0.025	0.015	0.5	0.5	2.5	2.5	0.015	2.5	2.5	0.1	0.5	0.015	0.5
Standard Deviation *																									
95% UCL (Student's-t) *																									
% of Detects					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects					100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Table 2
Soil Analytical Results - Waste Classification
HIP V HYPE Albert Street Brunswick EDD
427 Albert St, Brunswick, Victoria
2301314

					Chlorinated Hydrocarbons																Organochlorine Pesticides					
					1,1,1,2-tetrachloroethane	Chlorinated hydrocarbons EPAVic	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethene	1,2-dichloroethane	Carbon tetrachloride	Chloroform	cis-1,2-dichloroethene	Dichloromethane	Hexachlorobutadiene	Tetrachloroethene	trans-1,2-dichloroethene	Trichloroethene	Vinyl chloride	Organochlorine pesticides EPAVic	4,4-DDE	a-BHC	Aldrin	b-BHC	Chlordane
					mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL					0.01	0.01	0.01	0.02	0.04	0.01	0.02	0.01	0.02	0.01	0.4	0.02	0.02	0.02	0.02	0.02	0.03	0.05	0.03	0.03	0.03	0.03
EPA Vic IWRG1828.2 Category B upper limit					1,600		4,800	210	190	480	48	48	960		64	11	800		80	4.8						16
EPA Vic IWRG1828.2 Category C upper limit					400		1,200	52	48	120	12	12	240		16	2.8	200		20	1.2						4
EPA Vic IWRG1828.2 Fill material upper limit						1															1					
Field ID	**Date**	**Depth (m)**	**Soil Type**	**Sample Type**																						
LFG01_0.2	**13/02/2023**	**0.2**	**FILL**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LFG01_0.5	**13/02/2023**	**0.5**	**FILL**	**Normal**	<0.01	<0.01	<0.01	<0.02	<0.04	<0.01	<0.02	<0.01	<0.02	<0.01	<0.4	<0.02	<0.02	<0.02	<0.02	<0.02	<0.03	<0.05	<0.03	<0.03	<0.03	<0.03
LFG01_1.0	**13/02/2023**	**1**	**FILL**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LFG01_4.0	**13/02/2023**	**4**	**NAUTRAL**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LFG02_0.5	**14/02/2023**	**0.5**	**FILL**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC05	**14/02/2023**	**0.5**	**FILL**	**QA/QC**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC06	**14/02/2023**	**0.5**	**FILL**	**QA/QC**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LFG02_3.0	**14/02/2023**	**3**	**NAUTRAL**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LFG03_0.2	**14/02/2023**	**0.2**	**FILL**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LFG03_1.0	**14/02/2023**	**1**	**FILL**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LFG04_0.2	**14/02/2023**	**0.2**	**FILL**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LFG04_0.5	**14/02/2023**	**0.5**	**FILL**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LFG04_3.0	**14/02/2023**	**3**	**NAUTRAL**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB01_0.3	**13/02/2023**	**0.3**	**FILL**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB01_1.0	**13/02/2023**	**1**	**NAUTRAL**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC01	**13/02/2023**	**1**	**NAUTRAL**	**QA/QC**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC02	**13/02/2023**	**1**	**NAUTRAL**	**QA/QC**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB02/GW1_0.3	**13/02/2023**	**0.3**	**FILL**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB02/GW1_1.0	**13/02/2023**	**1**	**FILL**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB02/GW1_4.0	**13/02/2023**	**4**	**NAUTRAL**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB02/GW1_8.0	**13/02/2023**	**8**	**NAUTRAL**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB03_0.2	**14/02/2023**	**0.2**	**FILL**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB04_0.5	**14/02/2023**	**0.5**	**FILL**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB05_0.2	**14/02/2023**	**0.2**	**FILL**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB05_1.0	**14/02/2023**	**1**	**NAUTRAL**	**Normal**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Statistics																										
Number of Results					1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Number of Detects					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration					<0.01	<0.01	<0.01	<0.02	<0.04	<0.01	<0.02	<0.01	<0.02	<0.01	<0.4	<0.02	<0.02	<0.02	<0.02	<0.02	<0.03	<0.05	<0.03	<0.03	<0.03	<0.03
Minimum Detect					ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration					<0.01	<0.01	<0.01	<0.02	<0.04	<0.01	<0.02	<0.01	<0.02	<0.01	<0.4	<0.02	<0.02	<0.02	<0.02	<0.02	<0.03	<0.05	<0.03	<0.03	<0.03	<0.03
Maximum Detect					ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *																										
Median Concentration *					0.005	0.005	0.005	0.01	0.02	0.005	0.01	0.005	0.01	0.005	0.2	0.01	0.01	0.01	0.01	0.01	0.015	0.025	0.015	0.015	0.015	0.015
Standard Deviation *																										
95% UCL (Student's-t) *																										
% of Detects					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects					100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Table 2
Soil Analytical Results - Waste Classification
HIP V HYPE Albert Street Brunswick EDD
427 Albert St, Brunswick, Victoria
2301314

	Organochlorine Pesticides															MAH		Halogenated Benzenes				
	Chlordane (cis)	Chlordane (trans)	d-BHC	DDD	DDT	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Methoxychlor	Monocylic aromatic hydrocarbons EPAVic	Styrene	1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,4-dichlorobenzene	Chlorobenzene	Hexachlorobenzene
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	0.03	0.03	0.03	0.05	0.05	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.2	0.5	0.01	0.02	0.02	0.02	0.03
EPA Vic IWRG1828.2 Category B upper limit													4.8				480		24,000	640	4,800	
EPA Vic IWRG1828.2 Category C upper limit													1.2				120		6,000	160	1,200	
EPA Vic IWRG1828.2 Fill material upper limit																7						
Field ID	**Date**	**Depth (m)**	**Soil Type**	**Sample Type**																			
LFG01_0.2	13/02/2023	0.2	FILL	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LFG01_0.5	13/02/2023	0.5	FILL	Normal	<0.03	<0.03	<0.03	<0.05	<0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.2	<0.5	<0.01	<0.02	<0.02	<0.02	<0.03
LFG01_1.0	13/02/2023	1	FILL	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LFG01_4.0	13/02/2023	4	NAUTRAL	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LFG02_0.5	14/02/2023	0.5	FILL	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC05	14/02/2023	0.5	FILL	QA/QC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC06	14/02/2023	0.5	FILL	QA/QC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LFG02_3.0	14/02/2023	3	NAUTRAL	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LFG03_0.2	14/02/2023	0.2	FILL	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LFG03_1.0	14/02/2023	1	FILL	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LFG04_0.2	14/02/2023	0.2	FILL	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LFG04_0.5	14/02/2023	0.5	FILL	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LFG04_3.0	14/02/2023	3	NAUTRAL	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB01_0.3	13/02/2023	0.3	FILL	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB01_1.0	13/02/2023	1	NAUTRAL	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC01	13/02/2023	1	NAUTRAL	QA/QC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC02	13/02/2023	1	NAUTRAL	QA/QC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB02/GW1_0.3	13/02/2023	0.3	FILL	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB02/GW1_1.0	13/02/2023	1	FILL	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB02/GW1_4.0	13/02/2023	4	NAUTRAL	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB02/GW1_8.0	13/02/2023	8	NAUTRAL	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB03_0.2	14/02/2023	0.2	FILL	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB04_0.5	14/02/2023	0.5	FILL	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB05_0.2	14/02/2023	0.2	FILL	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB05_1.0	14/02/2023	1	NAUTRAL	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Statistics																										
Number of Results					1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Number of Detects					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration					<0.03	<0.03	<0.03	<0.05	<0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.2	<0.5	<0.01	<0.02	<0.02	<0.02	<0.03
Minimum Detect					ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration					<0.03	<0.03	<0.03	<0.05	<0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.2	<0.5	<0.01	<0.02	<0.02	<0.02	<0.03
Maximum Detect					ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *																										
Median Concentration *					0.015	0.015	0.015	0.025	0.025	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.1	0.25	0.005	0.01	0.01	0.01	0.015
Standard Deviation *																										
95% UCL (Student's-t) *																										
% of Detects					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects					100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Table 2
Soil Analytical Results - Waste Classification
HIP V HYPE Albert Street Brunswick EDD
427 Albert St, Brunswick, Victoria
2301314

	PAH																						PCBs
	Benzo(b+j+k)fluoranthene	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	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	Naphthalene	Phenanthrene	Pyrene	Benzo(a)pyrene TEQ calc (Half)	Benzo(a)pyrene TEQ (LOR)	Benzo(a)pyrene TEQ calc (Zero)	PAHs (Sum of total)	PAHs (Vic EPA List)	PCBs (Sum of total)
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.1
EPA Vic IWRG1828.2 Category B upper limit						160															400	400	6
EPA Vic IWRG1828.2 Category C upper limit						40															100	100	50
EPA Vic IWRG1828.2 Fill material upper limit						1															20	20	2
Field ID	**Date**	**Depth (m)**	**Soil Type**	**Sample Type**																				
LFG01_0.2	**13/02/2023**	**0.2**	**FILL**	**Normal**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	-	-
LFG01_0.5	**13/02/2023**	**0.5**	**FILL**	**Normal**	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	-	<0.5	<0.1
LFG01_1.0	**13/02/2023**	**1**	**FILL**	**Normal**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	-	-
LFG01_4.0	**13/02/2023**	**4**	**NAUTRAL**	**Normal**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	-	-
LFG02_0.5	**14/02/2023**	**0.5**	**FILL**	**Normal**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	-	-
QC05	**14/02/2023**	**0.5**	**FILL**	**QA/QC**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	-	-
QC06	**14/02/2023**	**0.5**	**FILL**	**QA/QC**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	-	-
LFG02_3.0	**14/02/2023**	**3**	**NAUTRAL**	**Normal**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	-	-
LFG03_0.2	**14/02/2023**	**0.2**	**FILL**	**Normal**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	-	-
LFG03_1.0	**14/02/2023**	**1**	**FILL**	**Normal**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	-	-
LFG04_0.2	**14/02/2023**	**0.2**	**FILL**	**Normal**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	-	-
LFG04_0.5	**14/02/2023**	**0.5**	**FILL**	**Normal**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	-	-
LFG04_3.0	**14/02/2023**	**3**	**NAUTRAL**	**Normal**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	-	-
SB01_0.3	**13/02/2023**	**0.3**	**FILL**	**Normal**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	-	-
SB01_1.0	**13/02/2023**	**1**	**NAUTRAL**	**Normal**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	-	-
QC01	**13/02/2023**	**1**	**NAUTRAL**	**QA/QC**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	-	-
QC02	**13/02/2023**	**1**	**NAUTRAL**	**QA/QC**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	-	-
SB02/GW1_0.3	**13/02/2023**	**0.3**	**FILL**	**Normal**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	-	-
SB02/GW1_1.0	**13/02/2023**	**1**	**FILL**	**Normal**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	-	-
SB02/GW1_4.0	**13/02/2023**	**4**	**NAUTRAL**	**Normal**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	-	-
SB02/GW1_8.0	**13/02/2023**	**8**	**NAUTRAL**	**Normal**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	-	-
SB03_0.2	**14/02/2023**	**0.2**	**FILL**	**Normal**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.7	<0.5	<0.5	<0.5	<0.5	0.7	0.6	1.2	<0.5	1.4	-	-
SB04_0.5	**14/02/2023**	**0.5**	**FILL**	**Normal**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.7	<0.5	<0.5	<0.5	<0.5	0.8	0.6	1.2	<0.5	1.5	-	-
SB05_0.2	**14/02/2023**	**0.2**	**FILL**	**Normal**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	-	-
SB05_1.0	**14/02/2023**	**1**	**NAUTRAL**	**Normal**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	-	-
Statistics																								
Number of Results					**1**	**25**	**25**	**25**	**25**	**25**	**24**	**25**	**24**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**24**	**1**	**1**
Number of Detects					**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**2**	**25**	**25**	**0**	**2**	**0**	**0**
Minimum Concentration					**<1**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**0.6**	**1.2**	**<0.5**	**<0.5**	**<0.5**	**<0.1**
Minimum Detect					**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**0.7**	**ND**	**ND**	**ND**	**ND**	**0.7**	**0.6**	**1.2**	**ND**	**1.4**	**ND**	**ND**
Maximum Concentration					**<1**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**0.7**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**0.8**	**0.6**	**1.2**	**<0.5**	**1.5**	**<0.5**	**<0.1**
Maximum Detect					**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**0.7**	**ND**	**ND**	**ND**	**ND**	**0.8**	**0.6**	**1.2**	**ND**	**1.5**	**ND**	**ND**
Average Concentration *						**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.29**	**0.25**	**0.25**	**0.25**	**0.25**	**0.29**	**0.6**	**1.2**	**0.25**	**0.35**		
Median Concentration *	**0.5**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.6**	**1.2**	**0.25**	**0.25**	**0.25**	**0.05**
Standard Deviation *		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.12**	**0**	**0**	**0**	**0**	**0.14**	**0**	**0**	**0**	**0.34**				
95% UCL (Student's-t) *		**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.329**	**0.25**	**0.25**	**0.25**	**0.25**	**0.338**	**0.6**	**1.2**	**0.25**	**0.469**				
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**8**	**0**	**0**	**0**	**0**	**8**	**100**	**100**	**0**	**8**	**0**	**0**		
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**92**	**100**	**100**	**100**	**100**	**92**	**0**	**0**	**100**	**92**	**100**	**100**		

* A Non Detect Multiplier of 0.5 has been applied.

Table 3
Groundwater Gauging Results
HIP V HYPE Albert Street Brunswick EDD
427 Albert St, Brunswick, Victoria
2301314

Well ID	Gauging Date	TOC Elevation (RL)	Well Depth (mbgl)	Depth to NAPL (mbTOC)	Depth to Water (mbTOC)	NAPL Thickness (m)	Water Elevation (mAHD)	Comments	Well Conditon
MW01	28-Feb-23	-	12.22	9.43	-	-	-	No odour or sheen.	Good

Notes:

NAPL - Non-aqueous phase liquid
RL - Relative level
MGA - Map Grid of Australia
mbTOC - Metres below top of well casing

Interface Probe Number: 485283

Table 4
Groundwater Field Parameters
HIP V HYPE Albert Street Brunswick EDD
427 Albert St, Brunswick, Victoria
2301314

Well ID	Purge Date	pH	Temp (ºC)	EC (mS/cm)	Estimated TDS (mg/L)	DO (mg/L)	Redox Potential (mV)	Comments
MW1	28-Feb-23	6.69	18.8	8.21	5,339	5.34	56.90	Slight grey turbidity, no odour.

Table 5
Groundwater Analytical Results
HIP V HYPE Albert Street Brunswick EDD
427 Albert St, Brunswick, Victoria
2301314

			TPH					TRH							BTEXN							
			C6-C9 Fraction	C10-C14 Fraction	C15-C28 Fraction	C29-C36 Fraction	C10-C36 Fraction (Sum)	C6-C10 Fraction	C6-C10 minus BTEX (F1)	>C10-C16 Fraction	>C10-C16 Fraction minus Naphthalene (F2)	>C16-C34 Fraction (F3)	>C34-C40 Fraction (F4)	>C10-C40 Fraction (Sum)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Total BTEX	Naphthalene (VOC)
			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	mg/L
EQL			20	50	100	50	50	20	20	50	50	100	100	100	1	1	1	1	1	1	1	0.005
ANZG (2018) Freshwater 95% LOSP Toxicant DGVs 2021															950	180	80		350			0.016
NHMRC 2011 - Managing Risks in Recreational Water															1	800	300			600		
ANZECC 2000 Livestock DW Low Risk Trigger Values																						
NEPM 2013 Table 1A(4) Res HSL A & B GW for Vapour Intrusion, Sand (>=8m)									1,000		1,000				900	NL	NL			NL		NL
Field ID	**Date**	**Sample Type**																				
GW01	**28 Feb 2023**	**Normal**	<20	670	1,360	60	2,090	<20	<20	800	800	1,080	<100	1,880	<1	4	<1	<1	<1	<1	4	<0.005
QC01	**28 Feb 2023**	**Field_D**	<20	270	1,060	<50	1,330	<20	<20	470	470	860	<100	1,330	<1	<1	<1	<1	<1	<1	<1	<0.005
QC02	**28 Feb 2023**	**Interlab_D**	50	450	3,100	200	3,750	60	60	1,100	1,100	2,900	<100	4,000	<1	<1	<1	<2	<1	<3	-	<0.01
Statistics																						
Number of Results			**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**4**	**3**	**3**	**3**	**3**	**2**	**3**
Number of Detects			**1**	**3**	**3**	**2**	**3**	**1**	**1**	**3**	**3**	**3**	**0**	**3**	**0**	**2**	**0**	**0**	**0**	**0**	**1**	**0**
Minimum Concentration			**<20**	**270**	**1,060**	**<50**	**1,330**	**<20**	**<20**	**470**	**470**	**860**	**<100**	**1,330**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<0.005**
Minimum Detect			**50**	**270**	**1,060**	**60**	**1,330**	**60**	**60**	**470**	**470**	**860**	**ND**	**1,330**	**ND**	**4**	**ND**	**ND**	**ND**	**ND**	**4**	**ND**
Maximum Concentration			**50**	**670**	**3,100**	**200**	**3,750**	**60**	**60**	**1,100**	**1,100**	**2,900**	**<100**	**4,000**	**<1**	**4**	**<1**	**<2**	**<1**	**<3**	**4**	**<0.01**
Maximum Detect			**50**	**670**	**3,100**	**200**	**3,750**	**60**	**60**	**1,100**	**1,100**	**2,900**	**ND**	**4,000**	**ND**	**4**	**ND**	**ND**	**ND**	**ND**	**4**	**ND**
Average Concentration *			**23**	**463**	**1,840**	**95**	**2,390**	**27**	**27**	**790**	**790**	**1,613**	**50**	**2,403**	**0.5**	**2.2**	**0.5**	**0.67**	**0.5**	**0.83**	**2.2**	**0.0033**
Median Concentration *			**10**	**450**	**1,360**	**60**	**2,090**	**10**	**10**	**800**	**800**	**1,080**	**50**	**1,880**	**0.5**	**2.25**	**0.5**	**0.5**	**0.5**	**0.5**	**2.25**	**0.0025**
Standard Deviation *			**23**	**200**	**1,101**	**93**	**1,238**	**29**	**29**	**315**	**315**	**1,120**	**0**	**1,410**	**0**	**2**	**0**	**0.29**	**0**	**0.58**	**2.5**	**0.0014**
95% UCL (Student's-t) *			**62.27**	**801.1**	**3,697**	**251.1**	**4,476**	**75.33**	**75.33**	**1,321**	**1,321**	**3,501**	**50**	**4,780**	**0.5**	**4.628**	**0.5**	**1.153**	**0.5**	**1.807**	**13.3**	**0.00577**
% of Detects			**33**	**100**	**100**	**67**	**100**	**33**	**33**	**100**	**100**	**100**	**0**	**100**	**0**	**50**	**0**	**0**	**0**	**0**	**50**	**0**
% of Non-Detects			**67**	**0**	**0**	**33**	**0**	**67**	**67**	**0**	**0**	**0**	**100**	**0**	**100**	**50**	**100**	**100**	**100**	**100**	**50**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Notes:

A: Australian Drinking Water Guidelines, Aesthetics

Table 5
Groundwater Analytical Results
HIP V HYPE Albert Street Brunswick EDD
427 Albert St, Brunswick, Victoria
2301314

			Metals								Chlorinated Hydrocarbons															
			Arsenic (filtered)	Cadmium (filtered)	Chromium (III+VI) (filtered)	Copper (filtered)	Lead (filtered)	Mercury (filtered)	Nickel (filtered)	Zinc (filtered)	Other chlorinated hydrocarbons EPAVic	1,1-dichloroethane (SIM)	1,2-dichloroethane (SIM)	cis-1,2-dichloroethene (SIM)	Dichloromethane (SIM)	Tetrachloroethene (SIM)	Vinyl chloride (SIM)	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropene	1,2,3-trichloropropane
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/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			0.001	0.0001	0.001	0.001	0.001	0.0001	0.001	0.005	5	0.01	0.01	0.01	0.02	0.02	0.05	1	1	1	1	1	1	1	1
ANZG (2018) Freshwater 95% LOSP Toxicant DGVs 2021				0.0002		0.0014	0.0034	0.00006	0.011	0.008									270	400	6,500		700		
NHMRC 2011 - Managing Risks in Recreational Water			0.1	0.02		20	0.1	0.01	0.2	30									8,000		0.28		30		
ANZECC 2000 Livestock DW Low Risk Trigger Values			0.5	0.01	1	0.4	0.1	0.002	1	20															
NEPM 2013 Table 1A(4) Res HSL A & B GW for Vapour Intrusion, Sand (>=8m)																									
Field ID	**Date**	**Sample Type**																							
GW01	**28 Feb 2023**	**Normal**	0.013	<0.0001	0.005	0.074	<0.001	<0.0001	0.084	0.068	-	-	-	-	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1
QC01	**28 Feb 2023**	**Field_D**	0.014	<0.0001	0.006	0.076	<0.001	<0.0001	0.086	0.073	-	-	-	-	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1
QC02	**28 Feb 2023**	**Interlab_D**	0.013	<0.0002	0.006	0.069	<0.001	<0.0001	0.083	0.067	<5	<0.01	<0.01	0.09	<0.02	<0.02	<0.05	<1	<1	<1	<1	-	<1	-	<1
Statistics																									
Number of Results			3	3	3	3	3	3	3	3	1	1	1	1	1	1	1	3	3	3	3	2	3	2	3
Number of Detects			3	0	3	3	0	0	3	3	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration			0.013	<0.0001	0.005	0.069	<0.001	<0.0001	0.083	0.067	<5	<0.01	<0.01	0.09	<0.02	<0.02	<0.05	<1	<1	<1	<1	<1	<1	<1	<1
Minimum Detect			0.013	ND	0.005	0.069	ND	ND	0.083	0.067	ND	ND	ND	0.09	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration			0.014	<0.0002	0.006	0.076	<0.001	<0.0001	0.086	0.073	<5	<0.01	<0.01	0.09	<0.02	<0.02	<0.05	<1	<1	<1	<1	<1	<1	<1	<1
Maximum Detect			0.014	ND	0.006	0.076	ND	ND	0.086	0.073	ND	ND	ND	0.09	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *			0.013	0.000067	0.0057	0.073	0.0005	0.00005	0.084	0.069								0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Median Concentration *			0.013	0.00005	0.006	0.074	0.0005	0.00005	0.084	0.068	2.5	0.005	0.005	0.09	0.01	0.01	0.025	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Standard Deviation *			0.00058	0.000029	0.00058	0.0036	0	0	0.0015	0.0032								0	0	0	0	0	0	0	0
95% UCL (Student's-t) *			0.0143	0.00011533	0.00664	0.0791	0.0005	0.00005	0.0869	0.0748								0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
% of Detects			100	0	100	100	0	0	100	100	0	0	0	100	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects			0	100	0	0	100	100	0	0	100	100	100	0	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Notes:

A: Australian Drinking Water Guidelines, Aesthetics

Table 5
Groundwater Analytical Results
HIP V HYPE Albert Street Brunswick EDD
427 Albert St, Brunswick, Victoria
2301314

			Chlorinated Hydrocarbons																					
			1,2-dibromo-3-chloropropane	1,2-dichloroethane	1,2-dichloropropane	1,3-dichloropropane	2,2-dichloropropane	Bromochloromethane	Bromodichloromethane	Bromoform	Carbon tetrachloride	Chlorodibromomethane	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dibromomethane	Dichloromethane	Hexachlorobutadiene	Tetrachloroethene	trans-1,2-dichloroethene	Trichloroethene	trans-1,3-dichloropropene	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	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL			1	1	1	1	1	1	1	1	1	1	5	1	5	1	1	1	2	0.5	1	1	1	1	0.2
ANZG (2018) Freshwater 95% LOSP Toxicant DGVs 2021				1,900	900	1,100					240			770					4,000		70		330		100
NHMRC 2011 - Managing Risks in Recreational Water				3							3			0.22					4	0.7	50		0.49		0.3
ANZECC 2000 Livestock DW Low Risk Trigger Values																									
NEPM 2013 Table 1A(4) Res HSL A & B GW for Vapour Intrusion, Sand (>=8m)																									
Field ID	**Date**	**Sample Type**																							
GW01	**28 Feb 2023**	**Normal**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10	<1	<2	<1	<2	<0.5	<1	<1	<1	<2	<0.2
QC01	**28 Feb 2023**	**Field_D**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10	<1	<2	<1	<2	<0.5	<1	<1	<1	<2	<0.2
QC02	**28 Feb 2023**	**Interlab_D**	-	-	<1	<1	-	<1	<1	<1	<1	<1	<5	<5	<5	-	<1	<1	-	-	-	<1	-	<1	-
Statistics																									
Number of Results			**2**	**2**	**3**	**3**	**2**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**2**	**3**	**3**	**2**	**2**	**2**	**3**	**2**	**3**	**2**
Number of Detects			**0**	**0**	**0**	**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**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<5**	**<1**	**<5**	**<1**	**<1**	**<1**	**<2**	**<0.5**	**<1**	**<1**	**<1**	**<1**	**<0.2**
Minimum Detect			**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration			**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<10**	**<5**	**<10**	**<1**	**<2**	**<1**	**<2**	**<0.5**	**<1**	**<1**	**<1**	**<2**	**<0.2**
Maximum Detect			**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *			**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**4.2**	**1.2**	**4.2**	**0.5**	**0.83**	**0.5**	**1**	**0.25**	**0.5**	**0.5**	**0.5**	**0.83**	**0.1**
Median Concentration *			**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**5**	**0.5**	**5**	**0.5**	**1**	**0.5**	**1**	**0.25**	**0.5**	**0.5**	**0.5**	**1**	**0.1**
Standard Deviation *			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1.4**	**1.2**	**1.4**	**0**	**0.29**	**0**	**0**	**0**	**0**	**0**	**0**	**0.29**	**0**
95% UCL (Student's-t) *			**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**6.6**	**3.113**	**6.6**	**0.5**	**1.32**	**0.5**	**1**	**0.25**	**0.5**	**0.5**	**0.5**	**1.32**	**0.1**
% of Detects			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects			**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Notes:

A: Australian Drinking Water Guidelines, Aesthetics

Table 5
Groundwater Analytical Results
HIP V HYPE Albert Street Brunswick EDD
427 Albert St, Brunswick, Victoria
2301314

	MAH										Halogenated Benzenes											
	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Isopropylbenzene	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene	Styrene	tert-butylbenzene	Total MAH	1,4-dichlorobenzene (SIM)	Chlorobenzene (SIM)	1,2,3-trichlorobenzene	1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	2-chlorotoluene	4-chlorotoluene	Bromobenzene	Chlorobenzene	Trichlorobenzene (total)
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L
EQL	1	1	1	1	1	1	1	1	1	0.003	0.01	0.01	1	1	1	1	0.1	1	1	1	1	0.001
ANZG (2018) Freshwater 95% LOSP Toxicant DGVs 2021			30										3	85	160	260	60				55	
NHMRC 2011 - Managing Risks in Recreational Water								30							1,500		40				300	0.03
ANZECC 2000 Livestock DW Low Risk Trigger Values																						
NEPM 2013 Table 1A(4) Res HSL A & B GW for Vapour Intrusion, Sand (>=8m)																						
Field ID	**Date**	**Sample Type**																				
GW01	**28 Feb 2023**	**Normal**	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	-	-	<1	<1	<1	<1	0.5	<1	<1	<1	<1	<0.001
QC01	**28 Feb 2023**	**Field_D**	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	-	-	<1	<1	<1	<1	0.6	<1	<1	<1	1	<0.001
QC02	**28 Feb 2023**	**Interlab_D**	<1	<1	<1	-	-	-	-	<1	-	<0.003	0.57	0.99	-	-	<1	<1	-	-	<1	<1	-	-
Statistics																						
Number of Results			**3**	**3**	**3**	**2**	**2**	**2**	**2**	**3**	**2**	**1**	**1**	**1**	**2**	**2**	**3**	**3**	**2**	**2**	**3**	**3**	**2**	**2**
Number of Detects			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**1**	**0**
Minimum Concentration			**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<0.003**	**0.57**	**0.99**	**<1**	**<1**	**<1**	**<1**	**0.5**	**<1**	**<1**	**<1**	**1**	**<0.001**
Minimum Detect			**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**0.57**	**0.99**	**ND**	**ND**	**ND**	**ND**	**0.5**	**ND**	**ND**	**ND**	**1**	**ND**
Maximum Concentration			**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<0.003**	**0.57**	**0.99**	**<1**	**<1**	**<1**	**<1**	**0.6**	**<1**	**<1**	**<1**	**1**	**<0.001**
Maximum Detect			**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**0.57**	**0.99**	**ND**	**ND**	**ND**	**ND**	**0.6**	**ND**	**ND**	**ND**	**1**	**ND**
Average Concentration *			**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**				**0.5**	**0.5**	**0.5**	**0.5**	**0.55**	**0.5**	**0.5**	**0.5**	**0.75**	**0.0005**
Median Concentration *			**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.0015**	**0.57**	**0.99**	**0.5**	**0.5**	**0.5**	**0.5**	**0.55**	**0.5**	**0.5**	**0.5**	**0.75**	**0.0005**
Standard Deviation *			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**				**0**	**0**	**0**	**0**	**0.071**	**0**	**0**	**0**	**0.35**	**0**
95% UCL (Student's-t) *			**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**				**0.5**	**0.5**	**0.5**	**0.5**	**0.866**	**0.5**	**0.5**	**0.5**	**2.328**	**0.0005**
% of Detects			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**100**	**100**	**0**	**0**	**0**	**0**	**100**	**0**	**0**	**0**	**50**	**0**
% of Non-Detects			**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**0**	**0**	**100**	**100**	**100**	**100**	**0**	**100**	**100**	**100**	**50**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Notes:

A: Australian Drinking Water Guidelines, Aesthetics

Table 5
Groundwater Analytical Results
HIP V HYPE Albert Street Brunswick EDD
427 Albert St, Brunswick, Victoria
2301314

			Halogenated Hydrocarbons					VOCs						PAH							
			1,2-dibromoethane	Bromomethane	Dichlorodifluoromethane	Iodomethane	Trichlorofluoromethane	Trichloroethene (SIM)	1,3-Dichloropropene	cis-1,4-Dichloro-2-butene	trans-1,4-Dichloro-2-butene	Pentachloroethane	Trihalomethanes	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b+j)fluoranthene	Benzo(g,h,i)perylene
			µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L
EQL			1	5	5	1	5	0.00001	2	1	1	1	0.001	1	1	1	1	0.5	0.001	1
ANZG (2018) Freshwater 95% LOSP Toxicant DGVs 2021												80				0.01		0.1		
NHMRC 2011 - Managing Risks in Recreational Water			1	1					100				0.25					0.01		
ANZECC 2000 Livestock DW Low Risk Trigger Values																				
NEPM 2013 Table 1A(4) Res HSL A & B GW for Vapour Intrusion, Sand (>=8m)																				
Field ID	**Date**	**Sample Type**																		
GW01	**28 Feb 2023**	**Normal**	<1	<10	<10	<1	<10	-	<2	<1	<1	<1	<0.001	<1.0	<1.0	<1.0	<1.0	<0.5	<0.0010	<1.0
QC01	**28 Feb 2023**	**Field_D**	<1	<10	<10	<1	<10	-	<2	<1	<1	<1	<0.001	<1.0	<1.0	<1.0	<1.0	<0.5	<0.0010	<1.0
QC02	**28 Feb 2023**	**Interlab_D**	<1	<5	<5	<1	<5	<0.00001	-	-	-	-	-	<1	<1	<1	<1	<1	<0.001	<1
Statistics																				
Number of Results			**3**	**3**	**3**	**3**	**3**	**1**	**2**	**2**	**2**	**2**	**2**	**3**	**3**	**3**	**3**	**3**	**3**	**3**
Number of Detects			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration			**<1**	**<5**	**<5**	**<1**	**<5**	**<0.00001**	**<2**	**<1**	**<1**	**<1**	**<0.001**	**<1**	**<1**	**<1**	**<1**	**<0.5**	**<0.001**	**<1**
Minimum Detect			**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration			**<1**	**<10**	**<10**	**<1**	**<10**	**<0.00001**	**<2**	**<1**	**<1**	**<1**	**<0.001**	**<1**	**<1**	**<1**	**<1**	**<1**	**<0.001**	**<1**
Maximum Detect			**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *			**0.5**	**4.2**	**4.2**	**0.5**	**4.2**		**1**	**0.5**	**0.5**	**0.5**	**0.0005**	**0.5**	**0.5**	**0.5**	**0.5**	**0.33**	**0.0005**	**0.5**
Median Concentration *			**0.5**	**5**	**5**	**0.5**	**5**	**0.000005**	**1**	**0.5**	**0.5**	**0.5**	**0.0005**	**0.5**	**0.5**	**0.5**	**0.5**	**0.25**	**0.0005**	**0.5**
Standard Deviation *			**0**	**1.4**	**1.4**	**0**	**1.4**		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.14**	**0**	**0**
95% UCL (Student's-t) *			**0.5**	**6.6**	**6.6**	**0.5**	**6.6**		**1**	**0.5**	**0.5**	**0.5**	**0.0005**	**0.5**	**0.5**	**0.5**	**0.5**	**0.577**	**0.0005**	**0.5**
% of Detects			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects			**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Notes:

A: Australian Drinking Water Guidelines, Aesthetics

Table 5
Groundwater Analytical Results
HIP V HYPE Albert Street Brunswick EDD
427 Albert St, Brunswick, Victoria
2301314

			PAH											Solvents							
			Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	Phenanthrene	Pyrene	Benzo(a)pyrene TEQ calc (Zero)	PAHs (Sum of total)	Methyl Ethyl Ketone	2-hexanone (MBK)	4-Methyl-2-pentanone	Acetone	Allyl chloride	Carbon disulfide	Vinyl acetate
			µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	µg/L	µg/L
EQL			1	1	1	1	1	1	1	1	1	0.0005	0.5	5	10	5	0.005	0.001	1	10
ANZG (2018) Freshwater 95% LOSP Toxicant DGVs 2021						1			16	0.6										
NHMRC 2011 - Managing Risks in Recreational Water																	18			
ANZECC 2000 Livestock DW Low Risk Trigger Values																				
NEPM 2013 Table 1A(4) Res HSL A & B GW for Vapour Intrusion, Sand (>=8m)									NL											
Field ID	**Date**	**Sample Type**																		
GW01	**28 Feb 2023**	**Normal**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.0005	<0.5	<10	<10	<10	-	-	<1	<10
QC01	**28 Feb 2023**	**Field_D**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.0005	<0.5	<10	<10	<10	-	-	<1	<10
QC02	**28 Feb 2023**	**Interlab_D**	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<5	-	<5	0.006	<0.001	<1	-
Statistics																				
Number of Results			**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**2**	**3**	**3**	**2**	**3**	**1**	**1**	**3**	**2**
Number of Detects			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**
Minimum Concentration			**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<0.0005**	**<0.5**	**<5**	**<10**	**<5**	**0.006**	**<0.001**	**<1**	**<10**
Minimum Detect			**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**0.006**	**ND**	**ND**	**ND**
Maximum Concentration			**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<0.0005**	**<1**	**<10**	**<10**	**<10**	**0.006**	**<0.001**	**<1**	**<10**
Maximum Detect			**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**0.006**	**ND**	**ND**	**ND**
Average Concentration *			**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.00025**	**0.33**	**4.2**	**5**	**4.2**			**0.5**	**5**
Median Concentration *			**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.00025**	**0.25**	**5**	**5**	**5**	**0.006**	**0.0005**	**0.5**	**5**
Standard Deviation *			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.14**	**1.4**	**0**	**1.4**			**0**	**0**
95% UCL (Student's-t) *			**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.00025**	**0.577**	**6.6**	**5**	**6.6**			**0.5**	**5**
% of Detects			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**100**	**0**	**0**	**0**
% of Non-Detects			**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**0**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Notes:

A: Australian Drinking Water Guidelines, Aesthetics

Table 6
Soil Vapour Analytical Results
HIP V HYPE Albert Street Brunswick EDD
427 Albert St, Brunswick, Victoria
2301314

			TPH		TRH				BTEX						Chlorinated Hydrocarbons					
			C6-C9 Fraction	C10-C14 Fraction	C6-C10 Fraction	C6-C10 minus BTEX (F1)	>C10-C16 Fraction	>C10-C16 Fraction minus Naphthalene (F2)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,2-dichloroethane
			µg/m3	µg/m3	mg/m3	mg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3
EQL			200	350	0.2	0.2	400	400	1.6	1.9	2.2	4.3	2.2	6.5	2.7	3.4	2.7	2	2	2
NEPM 2013 Table 1A(2) Res A Soil Vap VOCC HILs															60,000					
NEPM 2013 Table 1A(2) Res B Soil Vap VOCC HILs															**60,000**					
NEPM 2013 Table 1A(5) Res Soil Vapour HSL A/B for Vapour Intrusion, Sand (0-1m)						180		130,000	1,000	1,300,000	330,000			220,000						
NEPM 2013 Table 1A(5) Res Soil Vapour HSL A/B for Vapour Intrusion, Sand (1-2m)						640		560,000	3,000	3,800,000	1,100,000			750,000						
NEPM 2013 Table 1A(5) Res Soil Vapour HSL A/B for Vapour Intrusion, Sand (2-4m)						1,300		1,200,000	6,000	7,300,000	2,200,000			1,500,000						
Field ID	**Date**	**Sample Type**																		
LFG01	**28 Feb 2023**	**Normal**	430	380	0.48	0.33	<400	<400	7.0	27.9	16.5	42.1	11.7	53.8	<2.7	<3.4	<2.7	<2.0	<2.0	<2.0
LFG02	**28 Feb 2023**	**Normal**	1,100	450	0.98	0.81	<400	<400	8.3	42.9	18.2	45.6	13.0	58.6	<2.7	<3.4	<2.7	<2.0	<2.0	<2.0
LFG03	**02 Mar 2023**	**Normal**	<800	<1,400	0.82	<0.8	<1,600	<1,600	<6.4	72.3	25.2	65.1	23.9	89.0	<10.8	<13.6	<10.8	<8.0	<8.0	<8.0
LFG04	**28 Feb 2023**	**Normal**	380	<350	0.44	0.27	<400	<400	4.8	51.6	14.8	40.4	13.0	53.4	<2.7	<3.4	<2.7	<2.0	<2.0	<2.0
LFG04_D	**28 Feb 2023**	**Field_D**	360	<350	0.42	0.26	<400	<400	4.2	52.0	13.4	38.2	11.7	49.9	<2.7	<3.4	<2.7	<2.0	<2.0	<2.0
Statistics																				
Number of Results			**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**
Number of Detects			**4**	**2**	**5**	**4**	**0**	**0**	**4**	**5**	**5**	**5**	**5**	**5**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration			**360**	**<350**	**0.42**	**0.26**	**<400**	**<400**	**4.2**	**27.9**	**13.4**	**38.2**	**11.7**	**49.9**	**<2.7**	**<3.4**	**<2.7**	**<2**	**<2**	**<2**
Minimum Detect			**360**	**380**	**0.42**	**0.26**	**ND**	**ND**	**4.2**	**27.9**	**13.4**	**38.2**	**11.7**	**49.9**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration			**1,100**	**<1,400**	**0.98**	**0.81**	**<1,600**	**<1,600**	**8.3**	**72.3**	**25.2**	**65.1**	**23.9**	**89**	**<10.8**	**<13.6**	**<10.8**	**<8**	**<8**	**<8**
Maximum Detect			**1,100**	**450**	**0.98**	**0.81**	**ND**	**ND**	**8.3**	**72.3**	**25.2**	**65.1**	**23.9**	**89**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *			**534**	**376**	**0.63**	**0.41**	**320**	**320**	**5.5**	**49**	**18**	**46**	**15**	**61**	**2.2**	**2.7**	**2.2**	**1.6**	**1.6**	**1.6**
Median Concentration *			**400**	**380**	**0.48**	**0.33**	**200**	**200**	**4.8**	**51.6**	**16.5**	**42.1**	**13**	**53.8**	**1.35**	**1.7**	**1.35**	**1**	**1**	**1**
Standard Deviation *			**317**	**219**	**0.26**	**0.23**	**268**	**268**	**2.1**	**16**	**4.6**	**11**	**5.2**	**16**	**1.8**	**2.3**	**1.8**	**1.3**	**1.3**	**1.3**
95% UCL (Student's-t) *			**836.7**	**584.5**	**0.872**	**0.632**	**575.8**	**575.8**	**7.498**	**64.72**	**22.01**	**56.64**	**19.62**	**76.18**	**3.887**	**4.894**	**3.887**	**2.879**	**2.879**	**2.879**
% of Detects			**80**	**40**	**100**	**80**	**0**	**0**	**80**	**100**	**100**	**100**	**100**	**100**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects			**20**	**60**	**0**	**20**	**100**	**100**	**20**	**0**	**0**	**0**	**0**	**0**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Table 6
Soil Vapour Analytical Results
HIP V HYPE Albert Street Brunswick EDD
427 Albert St, Brunswick, Victoria
2301314

			Chlorinated Hydrocarbons														MAH			
			1,2-dichloropropane	Benzyl chloride	Carbon tetrachloride	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dichloromethane	Hexachlorobutadiene	Tetrachloroethene	Trichloroethene	trans-1,3-dichloropropene	Vinyl chloride	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	1-methyl-4 ethyl benzene	Styrene
			µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3
EQL			2.3	2.6	3.1	1.3	2.4	1	2	2.3	1.7	5.3	3.4	2.7	2.3	1.3	2.4	2.4	2.4	2.1
NEPM 2013 Table 1A(2) Res A Soil Vap VOCC HILs									80				2,000	20		30				
NEPM 2013 Table 1A(2) Res B Soil Vap VOCC HILs									**80**				**2,000**	**20**		**30**				
NEPM 2013 Table 1A(5) Res Soil Vapour HSL A/B for Vapour Intrusion, Sand (0-1m)																				
NEPM 2013 Table 1A(5) Res Soil Vapour HSL A/B for Vapour Intrusion, Sand (1-2m)																				
NEPM 2013 Table 1A(5) Res Soil Vapour HSL A/B for Vapour Intrusion, Sand (2-4m)																				
Field ID	**Date**	**Sample Type**																		
LFG01	**28 Feb 2023**	**Normal**	<2.3	<2.6	<3.1	<1.3	11.2	<1.0	<2.0	<2.3	2.4	<5.3	62.4	<2.7	<2.3	<1.3	7.9	3.4	2.9	4.2
LFG02	**28 Feb 2023**	**Normal**	<2.3	<2.6	<3.1	<1.3	50.3	2.1	<2.0	<2.3	2.8	<5.3	51.5	<2.7	<2.3	<1.3	9.3	4.4	4.4	6.0
LFG03	**02 Mar 2023**	**Normal**	<9.2	<10.4	<12.4	<5.2	41.0	<4.0	<8.0	<9.2	<6.8	<21.2	50.8	<10.8	<9.2	<5.2	<9.6	<9.6	<9.6	9.4
LFG04	**28 Feb 2023**	**Normal**	<2.3	<2.6	<3.1	<1.3	<2.4	1.0	<2.0	<2.3	<1.7	<5.3	34.6	<2.7	<2.3	<1.3	11.3	4.4	4.4	5.1
LFG04_D	**28 Feb 2023**	**Field_D**	<2.3	<2.6	<3.1	<1.3	<2.4	1.0	<2.0	<2.3	<1.7	<5.3	35.2	<2.7	<2.3	<1.3	9.3	3.9	3.4	5.1
Statistics																				
Number of Results			**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**
Number of Detects			**0**	**0**	**0**	**0**	**3**	**3**	**0**	**0**	**2**	**0**	**5**	**0**	**0**	**0**	**4**	**4**	**4**	**5**
Minimum Concentration			**<2.3**	**<2.6**	**<3.1**	**<1.3**	**<2.4**	**1**	**<2**	**<2.3**	**<1.7**	**<5.3**	**34.6**	**<2.7**	**<2.3**	**<1.3**	**7.9**	**3.4**	**2.9**	**4.2**
Minimum Detect			**ND**	**ND**	**ND**	**ND**	**11.2**	**1**	**ND**	**ND**	**2.4**	**ND**	**34.6**	**ND**	**ND**	**ND**	**7.9**	**3.4**	**2.9**	**4.2**
Maximum Concentration			**<9.2**	**<10.4**	**<12.4**	**<5.2**	**50.3**	**<4**	**<8**	**<9.2**	**<6.8**	**<21.2**	**62.4**	**<10.8**	**<9.2**	**<5.2**	**11.3**	**<9.6**	**<9.6**	**9.4**
Maximum Detect			**ND**	**ND**	**ND**	**ND**	**50.3**	**2.1**	**ND**	**ND**	**2.8**	**ND**	**62.4**	**ND**	**ND**	**ND**	**11.3**	**4.4**	**4.4**	**9.4**
Average Concentration *			**1.8**	**2.1**	**2.5**	**1**	**21**	**1.3**	**1.6**	**1.8**	**2.1**	**4.2**	**47**	**2.2**	**1.8**	**1**	**8.5**	**4.2**	**4**	**6**
Median Concentration *			**1.15**	**1.3**	**1.55**	**0.65**	**11.2**	**1**	**1**	**1.15**	**2.4**	**2.65**	**50.8**	**1.35**	**1.15**	**0.65**	**9.3**	**4.4**	**4.4**	**5.1**
Standard Deviation *			**1.5**	**1.7**	**2.1**	**0.87**	**23**	**0.7**	**1.3**	**1.5**	**1.2**	**3.6**	**12**	**1.8**	**1.5**	**0.87**	**2.4**	**0.54**	**0.79**	**2**
95% UCL (Student's-t) *			**3.311**	**3.743**	**4.463**	**1.871**	**43.02**	**1.985**	**2.879**	**3.311**	**3.166**	**7.63**	**58.23**	**3.887**	**3.311**	**1.871**	**10.81**	**4.695**	**4.738**	**7.891**
% of Detects			**0**	**0**	**0**	**0**	**60**	**60**	**0**	**0**	**40**	**0**	**100**	**0**	**0**	**0**	**80**	**80**	**80**	**100**
% of Non-Detects			**100**	**100**	**100**	**100**	**40**	**40**	**100**	**100**	**60**	**100**	**0**	**100**	**100**	**100**	**20**	**20**	**20**	**0**

* A Non Detect Multiplier of 0.5 has been applied.

Table 6
Soil Vapour Analytical Results
HIP V HYPE Albert Street Brunswick EDD
427 Albert St, Brunswick, Victoria
2301314

			Halogenated Benzenes					Halogenated Hydrocarbons				VOCs		Gases				
			1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	Chlorobenzene	1,2-dibromoethane	Bromomethane	Dichlorodifluoromethane	Trichlorofluoromethane	Freon 113	Freon 114	Helium	Carbon Dioxide	Carbon Monoxide	Hydrogen	Oxygen
			µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	mg/m³	mg/m³	mg/m³	mg/m³	mg/m³
EQL			3.7	3	3	3	2.3	3.8	1.9	2.5	2.8	3.8	3.5					
NEPM 2013 Table 1A(2) Res A Soil Vap VOCC HILs																		
NEPM 2013 Table 1A(2) Res B Soil Vap VOCC HILs																		
NEPM 2013 Table 1A(5) Res Soil Vapour HSL A/B for Vapour Intrusion, Sand (0-1m)																		
NEPM 2013 Table 1A(5) Res Soil Vapour HSL A/B for Vapour Intrusion, Sand (1-2m)																		
NEPM 2013 Table 1A(5) Res Soil Vapour HSL A/B for Vapour Intrusion, Sand (2-4m)																		
Field ID	**Date**	**Sample Type**																
LFG01	**28 Feb 2023**	**Normal**	<3.7	<3.0	<3.0	<3.0	<2.3	<3.8	<1.9	3.0	27.5	<3.8	<3.5	<16	104,000	<120	<8	174,000
LFG02	**28 Feb 2023**	**Normal**	<3.7	<3.0	<3.0	<3.0	<2.3	<3.8	<1.9	3.0	59.0	<3.8	<3.5	<16	79,500	<120	<8	176,000
LFG03	**02 Mar 2023**	**Normal**	<14.8	<12.0	<12.0	<12.0	<9.2	<15.2	<7.6	<10.0	70.2	<15.2	<14.0	<16	95,800	<120	<8	183,000
LFG04	**28 Feb 2023**	**Normal**	<3.7	<3.0	<3.0	<3.0	<2.3	<3.8	<1.9	<2.5	20.8	<3.8	<3.5	<16	14,200	<120	<8	247,000
LFG04_D	**28 Feb 2023**	**Field_D**	<3.7	<3.0	<3.0	<3.0	<2.3	<3.8	<1.9	<2.5	21.3	<3.8	<3.5	<16	14,400	<120	<8	248,000
Statistics																		
Number of Results			**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**
Number of Detects			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**5**	**0**	**0**	**0**	**5**	**0**	**0**	**5**
Minimum Concentration			**<3.7**	**<3**	**<3**	**<3**	**<2.3**	**<3.8**	**<1.9**	**<2.5**	**20.8**	**<3.8**	**<3.5**	**<16**	**14,200**	**<120**	**<8**	**174,000**
Minimum Detect			**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**3**	**20.8**	**ND**	**ND**	**ND**	**14,200**	**ND**	**ND**	**174,000**
Maximum Concentration			**<14.8**	**<12**	**<12**	**<12**	**<9.2**	**<15.2**	**<7.6**	**<10**	**70.2**	**<15.2**	**<14**	**<16**	**104,000**	**<120**	**<8**	**248,000**
Maximum Detect			**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**3**	**70.2**	**ND**	**ND**	**ND**	**104,000**	**ND**	**ND**	**248,000**
Average Concentration *			**3**	**2.4**	**2.4**	**2.4**	**1.8**	**3**	**1.5**	**2.7**	**40**	**3**	**2.8**	**8**	**61,580**	**60**	**4**	**205,600**
Median Concentration *			**1.85**	**1.5**	**1.5**	**1.5**	**1.15**	**1.9**	**0.95**	**3**	**27.5**	**1.9**	**1.75**	**8**	**79,500**	**60**	**4**	**183,000**
Standard Deviation *			**2.5**	**2**	**2**	**2**	**1.5**	**2.5**	**1.3**	**1.6**	**23**	**2.5**	**2.3**	**0**	**44,052**	**0**	**0**	**38,397**
95% UCL (Student's-t) *			**5.326**	**4.319**	**4.319**	**4.319**	**3.311**	**5.47**	**2.735**	**4.183**	**61.85**	**5.47**	**5.038**	**8**	**103,579**	**60**	**4**	**242,207**
% of Detects			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**40**	**100**	**0**	**0**	**0**	**100**	**0**	**0**	**100**
% of Non-Detects			**100**	**100**	**100**	**100**	**100**	**100**	**100**	**60**	**0**	**100**	**100**	**100**	**0**	**100**	**100**	**0**

* A Non Detect Multiplier of 0.5 has been applied.

Table 7a
QA/QC Results - Soil RPDs
HIP V HYPE Albert Street Brunswick EDD
427 Albert St, Brunswick, Victoria
2301314

Lab Report Number			EM2302568	EM2302568		EM2302568	964732		EM2302568	EM2302568		EM2302568	964732	
Field ID			SB01_1.0	QC01		SB01_1.0	QC02		LFG02_0.5	QC05		LFG02_0.5	QC06	
Date			13 Feb 2023	13 Feb 2023		13 Feb 2023	13 Feb 2023		14 Feb 2023	14 Feb 2023		14 Feb 2023	14 Feb 2023	
Matrix Type			Soil	Soil		Soil	Soil		Soil	Soil		Soil	Soil	
Sample Type			Normal	Field_D	RPD	Normal	Interlab_D	RPD	Normal	Field_D	RPD	Normal	Interlab_D	RPD
	Unit	EQL												
TPH														
C6-C9 Fraction	mg/kg	10	<10	<10	0	<10	<20	0	<10	<10	0	<10	<20	0
C10-C14 Fraction	mg/kg	20	<50	<50	0	<50	<20	0	<50	<50	0	<50	<20	0
C15-C28 Fraction	mg/kg	50	<100	<100	0	<100	<50	0	<100	<100	0	<100	<50	0
C29-C36 Fraction	mg/kg	50	<100	<100	0	<100	<50	0	<100	<100	0	<100	<50	0
C10-C36 Fraction (Sum)	mg/kg	50	<50	<50	0	<50	<50	0	<50	<50	0	<50	<50	0
TRH														
C6-C10 Fraction	mg/kg	10	<10	<10	0	<10	<20	0	<10	<10	0	<10	<20	0
C6-C10 minus BTEX (F1)	mg/kg	10	<10	<10	0	<10	<20	0	<10	<10	0	<10	<20	0
>C10-C16 Fraction	mg/kg	50	<50	<50	0	<50	<50	0	<50	<50	0	<50	<50	0
>C10-C16 Fraction minus Naphthalene (F2)	mg/kg	50	<50	<50	0	<50	<50	0	<50	<50	0	<50	<50	0
>C16-C34 Fraction (F3)	mg/kg	100	<100	<100	0	<100	<100	0	<100	<100	0	<100	<100	0
>C34-C40 Fraction (F4)	mg/kg	100	<100	<100	0	<100	<100	0	<100	<100	0	<100	<100	0
>C10-C40 Fraction (Sum)	mg/kg	50	<50	<50	0	<50	<100	0	<50	<50	0	<50	<100	0
BTEX														
Benzene	mg/kg	0.1	<0.2	<0.2	0	<0.2	<0.1	0	<0.2	<0.2	0	<0.2	<0.1	0
Toluene	mg/kg	0.1	<0.5	<0.5	0	<0.5	<0.1	0	<0.5	<0.5	0	<0.5	<0.1	0
Ethylbenzene	mg/kg	0.1	<0.5	<0.5	0	<0.5	<0.1	0	<0.5	<0.5	0	<0.5	<0.1	0
Xylene (m & p)	mg/kg	0.2	<0.5	<0.5	0	<0.5	<0.2	0	<0.5	<0.5	0	<0.5	<0.2	0
Xylene (o)	mg/kg	0.1	<0.5	<0.5	0	<0.5	<0.1	0	<0.5	<0.5	0	<0.5	<0.1	0
Xylene Total	mg/kg	0.3	<0.5	<0.5	0	<0.5	<0.3	0	<0.5	<0.5	0	<0.5	<0.3	0
Total BTEX	mg/kg	0.2	<0.2	<0.2	0	<0.2	-	-	<0.2	<0.2	0	<0.2	-	-
Naphthalene (VOC)	mg/kg	0.5	<1	<1	0	<1	<0.5	0	<1	<1	0	<1	<0.5	0
Metals														
Arsenic	mg/kg	2	<5	<5	0	<5	12	82	<5	<5	0	<5	<2	0
Cadmium	mg/kg	0.4	<1	<1	0	<1	<0.4	0	<1	<1	0	<1	<0.4	0
Chromium (III+VI)	mg/kg	2	27	22	20	27	37	31	10	10	0	10	13	26
Copper	mg/kg	5	6	<5	18	6	6.3	5	<5	<5	0	<5	<5	0
Lead	mg/kg	5	10	7	35	10	16	46	<5	5	0	<5	6.7	29
Mercury	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0
Nickel	mg/kg	2	21	17	21	21	23	9	3	3	0	3	<5	0
Zinc	mg/kg	5	10	8	22	10	14	33	<5	<5	0	<5	<5	0
Inorganics														
Moisture Content	%	1	16.2	15.5	4	16.2	-	-	7.3	7.5	3	7.3	-	-
PAH														
Acenaphthene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
Acenaphthylene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
Anthracene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
Benz(a)anthracene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
Benzo(a) pyrene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
Benzo(b+j)fluoranthene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
Benzo(g,h,i)perylene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
Benzo(k)fluoranthene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
Chrysene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
Dibenz(a,h)anthracene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
Fluoranthene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
Fluorene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
Indeno(1,2,3-c,d)pyrene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
Naphthalene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
Phenanthrene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
Pyrene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
Benzo(a)pyrene TEQ calc (Half)	mg/kg	0.5	0.6	0.6	0	0.6	0.6	0	0.6	0.6	0	0.6	0.6	0
Benzo(a)pyrene TEQ (LOR)	mg/kg	0.5	1.2	1.2	0	1.2	1.2	0	1.2	1.2	0	1.2	1.2	0
Benzo(a)pyrene TEQ calc (Zero)	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
PAHs (Sum of total)	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	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: 81 (1 - 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**

Table 7b
QA/QC Results - Groundwater RPDs
HIP V HYPE Albert Street Brunswick EDD
427 Albert St, Brunswick, Victoria
2301314

			Lab Report Number	EM2303524	EM2303524		EM2303524	968396	
			Field ID	GW1	QC01		GW1	QC02	
			Date	28 Feb 2023	28 Feb 2023		28 Feb 2023	28 Feb 2023	
			Matrix Type	Water	Water		Water	Water	
			Sample Type	Normal	Field_D	RPD	Normal	Interlab_D	RPD
	Unit	EQL							
TPH									
C6-C9 Fraction	µg/L	20	<20	<20	0	<20	50	86
C10-C14 Fraction	µg/L	50	670	270	85	670	450	39
C15-C28 Fraction	µg/L	100	1,360	1,060	25	1,360	3,100	78
C29-C36 Fraction	µg/L	50	60	<50	18	60	200	108
C10-C36 Fraction (Sum)	µg/L	50	2,090	1,330	44	2,090	3,750	57
TRH									
C6-C10 Fraction	µg/L	20	<20	<20	0	<20	60	100
C6-C10 minus BTEX (F1)	µg/L	20	<20	<20	0	<20	60	100
>C10-C16 Fraction	µg/L	50	800	470	52	800	1,100	32
>C10-C16 Fraction minus Naphthalene (F2)	µg/L	50	800	470	52	800	1,100	32
>C16-C34 Fraction (F3)	µg/L	100	1,080	860	23	1,080	2,900	91
>C34-C40 Fraction (F4)	µg/L	100	<100	<100	0	<100	<100	0
>C10-C40 Fraction (Sum)	µg/L	100	1,880	1,330	34	1,880	4,000	72
BTEX									
Benzene	µg/L	1	<1	<1	0	<1	<1	0
Toluene	µg/L	1	4	<1	120	4	<1	120
Ethylbenzene	µg/L	1	<1	<1	0	<1	<1	0
Xylene (m & p)	µg/L	1	<1	<1	0	<1	<2	0
Xylene (o)	µg/L	1	<1	<1	0	<1	<1	0
Xylene Total	µg/L	1	<1	<1	0	<1	<3	0
Total BTEX	µg/L	1	4	<1	120	4	-	-
Naphthalene (VOC)	mg/L	0.005	<0.005	<0.005	0	<0.005	<0.01	0
Metals									
Arsenic (filtered)	mg/L	0.001	0.013	0.014	7	0.013	0.013	0
Cadmium (filtered)	mg/L	0.0001	<0.0001	<0.0001	0	<0.0001	<0.0002	0
Chromium (III+VI) (filtered)	mg/L	0.001	0.005	0.006	18	0.005	0.006	18
Copper (filtered)	mg/L	0.001	0.074	0.076	3	0.074	0.069	7
Lead (filtered)	mg/L	0.001	<0.001	<0.001	0	<0.001	<0.001	0
Mercury (filtered)	mg/L	0.0001	<0.0001	<0.0001	0	<0.0001	<0.0001	0
Nickel (filtered)	mg/L	0.001	0.084	0.086	2	0.084	0.083	1
Zinc (filtered)	mg/L	0.005	0.068	0.073	7	0.068	0.067	1
Chlorinated Hydrocarbons									
1,1,1,2-tetrachloroethane	µg/L	1	<1	<1	0	<1	<1	0
1,1,1-trichloroethane	µg/L	1	<1	<1	0	<1	<1	0
1,1,2,2-tetrachloroethane	µg/L	1	<1	<1	0	<1	<1	0
1,1,2-trichloroethane	µg/L	1	<1	<1	0	<1	<1	0
1,1-dichloroethane	µg/L	1	<1	<1	0	<1	-	-
1,1-dichloroethene	µg/L	1	<1	<1	0	<1	<1	0
1,1-dichloropropene	µg/L	1	<1	<1	0	<1	-	-
1,2,3-trichloropropane	µg/L	1	<1	<1	0	<1	<1	0
1,2-dibromo-3-chloropropane	µg/L	1	<1	<1	0	<1	-	-
1,2-dichloroethane	µg/L	1	<1	<1	0	<1	-	-
1,2-dichloropropane	µg/L	1	<1	<1	0	<1	<1	0
1,3-dichloropropane	µg/L	1	<1	<1	0	<1	<1	0
2,2-dichloropropane	µg/L	1	<1	<1	0	<1	-	-
Bromochloromethane	µg/L	1	<1	<1	0	<1	<1	0
Bromodichloromethane	µg/L	1	<1	<1	0	<1	<1	0
Bromoform	µg/L	1	<1	<1	0	<1	<1	0
Carbon tetrachloride	µg/L	1	<1	<1	0	<1	<1	0
Chlorodibromomethane	µg/L	1	<1	<1	0	<1	<1	0
Chloroethane	µg/L	5	<10	<10	0	<10	<5	0
Chloroform	µg/L	1	<1	<1	0	<1	<5	0
Chloromethane	µg/L	5	<10	<10	0	<10	<5	0
cis-1,2-dichloroethene	µg/L	1	<1	<1	0	<1	-	-
cis-1,3-dichloropropene	µg/L	1	<2	<2	0	<2	<1	0
Dibromomethane	µg/L	1	<1	<1	0	<1	<1	0
Dichloromethane	µg/L	2	<2	<2	0	<2	-	-
Hexachlorobutadiene	µg/L	0.5	<0.5	<0.5	0	<0.5	-	-
Tetrachloroethene	µg/L	1	<1	<1	0	<1	-	-
trans-1,2-dichloroethene	µg/L	1	<1	<1	0	<1	<1	0
Trichloroethene	µg/L	1	<1	<1	0	<1	-	-
trans-1,3-dichloropropene	µg/L	1	<2	<2	0	<2	<1	0
Vinyl chloride	µg/L	0.2	<0.2	<0.2	0	<0.2	-	-

Table 7b
QA/QC Results - Groundwater RPDs
HIP V HYPE Albert Street Brunswick EDD
427 Albert St, Brunswick, Victoria
2301314

Lab Report Number			**EM2303524**	**EM2303524**		**EM2303524**	**968396**		
Field ID			**GW1**	**QC01**		**GW1**	**QC02**		
Date			**28 Feb 2023**	**28 Feb 2023**		**28 Feb 2023**	**28 Feb 2023**		
Matrix Type			**Water**	**Water**		**Water**	**Water**		
Sample Type			**Normal**	**Field_D**	**RPD**	**Normal**	**Interlab_D**	**RPD**	
	Unit	EQL							
MAH									
1,2,4-trimethylbenzene	**µg/L**	1	<1	<1	0	<1	<1	0	
1,3,5-trimethylbenzene	**µg/L**	1	<1	<1	0	<1	<1	0	
Isopropylbenzene	**µg/L**	1	<1	<1	0	<1	<1	0	
n-butylbenzene	**µg/L**	1	<1	<1	0	<1	-	-	
n-propylbenzene	**µg/L**	1	<1	<1	0	<1	-	-	
p-isopropyltoluene	**µg/L**	1	<1	<1	0	<1	-	-	
sec-butylbenzene	**µg/L**	1	<1	<1	0	<1	-	-	
Styrene	**µg/L**	1	<1	<1	0	<1	<1	0	
tert-butylbenzene	**µg/L**	1	<1	<1	0	<1	-	-	
Halogenated Benzenes									
1,2,3-trichlorobenzene	**µg/L**	1	<1	<1	0	<1	-	-	
1,2,4-trichlorobenzene	**µg/L**	1	<1	<1	0	<1	-	-	
1,2-dichlorobenzene	**µg/L**	1	<1	<1	0	<1	<1	0	
1,3-dichlorobenzene	**µg/L**	1	<1	<1	0	<1	<1	0	
1,4-dichlorobenzene	**µg/L**	0.1	0.5	0.6	18	0.5	-	-	
2-chlorotoluene	**µg/L**	1	<1	<1	0	<1	-	-	
4-chlorotoluene	**µg/L**	1	<1	<1	0	<1	<1	0	
Bromobenzene	**µg/L**	1	<1	<1	0	<1	<1	0	
Chlorobenzene	**µg/L**	1	<1	1	0	<1	-	-	
Trichlorobenzene (total)	**mg/L**	0.001	<0.001	<0.001	0	<0.001	-	-	
Halogenated Hydrocarbons									
1,2-dibromoethane	**µg/L**	1	<1	<1	0	<1	<1	0	
Bromomethane	**µg/L**	5	<10	<10	0	<10	<5	0	
Dichlorodifluoromethane	**µg/L**	5	<10	<10	0	<10	<5	0	
Iodomethane	**µg/L**	1	<1	<1	0	<1	<1	0	
Trichlorofluoromethane	**µg/L**	5	<10	<10	0	<10	<5	0	
VOCs									
1,3-Dichloropropene	**µg/L**	2	<2	<2	0	<2	-	-	
cis-1,4-Dichloro-2-butene	**µg/L**	1	<1	<1	0	<1	-	-	
trans-1,4-Dichloro-2-butene	**µg/L**	1	<1	<1	0	<1	-	-	
Pentachloroethane	**µg/L**	1	<1	<1	0	<1	-	-	
Trihalomethanes	**mg/L**	0.001	<0.001	<0.001	0	<0.001	-	-	
PAH									
Acenaphthene	**µg/L**	1	<1.0	<1.0	0	<1.0	<1	0	
Acenaphthylene	**µg/L**	1	<1.0	<1.0	0	<1.0	<1	0	
Anthracene	**µg/L**	1	<1.0	<1.0	0	<1.0	<1	0	
Benz(a)anthracene	**µg/L**	1	<1.0	<1.0	0	<1.0	<1	0	
Benzo(a) pyrene	**µg/L**	0.5	<0.5	<0.5	0	<0.5	<1	0	
Benzo(b+j)fluoranthene	**mg/L**	0.001	<0.0010	<0.0010	0	<0.0010	<0.001	0	
Benzo(g,h,i)perylene	**µg/L**	1	<1.0	<1.0	0	<1.0	<1	0	
Benzo(k)fluoranthene	**µg/L**	1	<1.0	<1.0	0	<1.0	<1	0	
Chrysene	**µg/L**	1	<1.0	<1.0	0	<1.0	<1	0	
Dibenz(a,h)anthracene	**µg/L**	1	<1.0	<1.0	0	<1.0	<1	0	
Fluoranthene	**µg/L**	1	<1.0	<1.0	0	<1.0	<1	0	
Fluorene	**µg/L**	1	<1.0	<1.0	0	<1.0	<1	0	
Indeno(1,2,3-c,d)pyrene	**µg/L**	1	<1.0	<1.0	0	<1.0	<1	0	
Naphthalene	**µg/L**	1	<1.0	<1.0	0	<1.0	<1	0	
Phenanthrene	**µg/L**	1	<1.0	<1.0	0	<1.0	<1	0	
Pyrene	**µg/L**	1	<1.0	<1.0	0	<1.0	<1	0	
Benzo(a)pyrene TEQ calc (Zero)	**mg/L**	0.0005	<0.0005	<0.0005	0	<0.0005	-	-	
PAHs (Sum of total)	**µg/L**	0.5	<0.5	<0.5	0	<0.5	<1	0	
Solvents									
Methyl Ethyl Ketone	**µg/L**	5	<10	<10	0	<10	<5	0	
2-hexanone (MBK)	**µg/L**	10	<10	<10	0	<10	-	-	
4-Methyl-2-pentanone	**µg/L**	5	<10	<10	0	<10	<5	0	
Carbon disulfide	**µg/L**	1	<1	<1	0	<1	<1	0	
Vinyl acetate	**µg/L**	10	<10	<10	0	<10	-	-	

***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: 81 (1 - 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**

Table 7c
QA/QC Results - Soil Vapour RPDs
HIP V HYPE Albert Street Brunswick EDD
427 Albert St, Brunswick, Victoria
2301314

		Lab Report Number	EN2302227	EN2302227	
		Field ID	LFG04	LFG04_D	
		Date	28 Feb 2023	28 Feb 2023	
		Matrix Type	Air	Air	
		Sample Type	Normal	Field_D	RPD
	Unit	EQL			
TPH					
C6-C9 Fraction	µg/m3	200	380	360	5
C10-C14 Fraction	µg/m3	350	<350	<350	0
TRH					
C6-C10 Fraction	mg/m3	0.2	0.44	0.42	5
C6-C10 minus BTEX (F1)	mg/m3	0.2	0.27	0.26	4
>C10-C16 Fraction	µg/m3	400	<400	<400	0
>C10-C16 Fraction minus Naphthalene (F2)	µg/m3	400	<400	<400	0
BTEX					
Benzene	µg/m3	1.6	4.8	4.2	13
Toluene	µg/m3	1.9	51.6	52.0	1
Ethylbenzene	µg/m3	2.2	14.8	13.4	10
Xylene (m & p)	µg/m3	4.3	40.4	38.2	6
Xylene (o)	µg/m3	2.2	13.0	11.7	11
Xylene Total	µg/m3	6.5	53.4	49.9	7
Chlorinated Hydrocarbons					
1,1,1-trichloroethane	µg/m3	2.7	<2.7	<2.7	0
1,1,2,2-tetrachloroethane	µg/m3	3.4	<3.4	<3.4	0
1,1,2-trichloroethane	µg/m3	2.7	<2.7	<2.7	0
1,1-dichloroethane	µg/m3	2	<2.0	<2.0	0
1,1-dichloroethene	µg/m3	2	<2.0	<2.0	0
1,2-dichloroethane	µg/m3	2	<2.0	<2.0	0
1,2-dichloropropane	µg/m3	2.3	<2.3	<2.3	0
Benzyl chloride	µg/m3	2.6	<2.6	<2.6	0
Carbon tetrachloride	µg/m3	3.1	<3.1	<3.1	0
Chloroethane	µg/m3	1.3	<1.3	<1.3	0
Chloroform	µg/m3	2.4	<2.4	<2.4	0
Chloromethane	µg/m3	1	1.0	1.0	0
cis-1,2-dichloroethene	µg/m3	2	<2.0	<2.0	0
cis-1,3-dichloropropene	µg/m3	2.3	<2.3	<2.3	0
Dichloromethane	µg/m3	1.7	<1.7	<1.7	0
Hexachlorobutadiene	µg/m3	5.3	<5.3	<5.3	0
Tetrachloroethene	µg/m3	3.4	34.6	35.2	2
Trichloroethene	µg/m3	2.7	<2.7	<2.7	0
trans-1,3-dichloropropene	µg/m3	2.3	<2.3	<2.3	0
Vinyl chloride	µg/m3	1.3	<1.3	<1.3	0
MAH					
1,2,4-trimethylbenzene	µg/m3	2.4	11.3	9.3	19
1,3,5-trimethylbenzene	µg/m3	2.4	4.4	3.9	12
1-methyl-4 ethyl benzene	µg/m3	2.4	4.4	3.4	26
Styrene	µg/m3	2.1	5.1	5.1	0
Halogenated Benzenes					
1,2,4-trichlorobenzene	µg/m3	3.7	<3.7	<3.7	0
1,2-dichlorobenzene	µg/m3	3	<3.0	<3.0	0
1,3-dichlorobenzene	µg/m3	3	<3.0	<3.0	0
1,4-dichlorobenzene	µg/m3	3	<3.0	<3.0	0
Chlorobenzene	µg/m3	2.3	<2.3	<2.3	0
Halogenated Hydrocarbons					
1,2-dibromoethane	µg/m3	3.8	<3.8	<3.8	0
Bromomethane	µg/m3	1.9	<1.9	<1.9	0
Dichlorodifluoromethane	µg/m3	2.5	<2.5	<2.5	0
Trichlorofluoromethane	µg/m3	2.8	20.8	21.3	2
VOCs					
Freon 113	µg/m3	3.8	<3.8	<3.8	0
Freon 114	µg/m3	3.5	<3.5	<3.5	0
Gasses					
Helium	mg/m³	-	<16	<16	0
Carbon Dioxide	mg/m³	-	14,200	14,400	1
Carbon Monoxide	mg/m³	-	<120	<120	0
Hydrogen	mg/m³	-	<8	<8	0
Oxygen	mg/m³	-	247,000	248,000	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: 81 (1 - 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**

Table 8a
QA/QC Results - Soil Field Blanks
HIP V HYPE Albert Street Brunswick EDD
427 Albert St, Brunswick, Victoria
2301314

		Lab Report Number	EM2302568	EM2302568	EM2302568
		Field ID	QC03	QC04	QC09
		Date	13 Feb 2023	13 Feb 2023	14 Feb 2023
		Matrix Type	Water	Water	Water
		Sample Type	Rinsate	Trip_B	Rinsate
	Unit	EQL			
TPH					
C6-C9 Fraction	µg/L	20	<20	<20	<20
C10-C14 Fraction	µg/L	50	<50	-	<50
C15-C28 Fraction	µg/L	100	<100	-	<100
C29-C36 Fraction	µg/L	50	<50	-	<50
C10-C36 Fraction (Sum)	µg/L	50	<50	-	<50
TRH					
C6-C10 Fraction	µg/L	20	<20	<20	<20
C6-C10 minus BTEX (F1)	µg/L	20	<20	<20	<20
>C10-C16 Fraction	µg/L	100	<100	-	<100
>C10-C16 Fraction minus Naphthalene (F2)	µg/L	100	<100	-	<100
>C16-C34 Fraction (F3)	µg/L	100	<100	-	<100
>C34-C40 Fraction (F4)	µg/L	100	<100	-	<100
>C10-C40 Fraction (Sum)	µg/L	100	<100	-	<100
BTEX					
Benzene	µg/L	1	<1	<1	<1
Toluene	µg/L	2	<2	<2	<2
Ethylbenzene	µg/L	2	<2	<2	<2
Xylene (m & p)	µg/L	2	<2	<2	<2
Xylene (o)	µg/L	2	<2	<2	<2
Xylene Total	µg/L	2	<2	<2	<2
Total BTEX	µg/L	1	<1	<1	<1
Naphthalene (VOC)	mg/L	0.005	<0.005	<0.005	<0.005
Metals					
Arsenic	mg/L	0.001	<0.001	-	<0.001
Cadmium	mg/L	0.0001	<0.0001	-	<0.0001
Chromium (III+VI)	mg/L	0.001	<0.001	-	<0.001
Copper	mg/L	0.001	<0.001	-	<0.001
Lead	mg/L	0.001	<0.001	-	<0.001
Mercury	mg/L	0.0001	<0.0001	-	<0.0001
Nickel	mg/L	0.001	<0.001	-	<0.001
Zinc	mg/L	0.005	<0.005	-	<0.005
PAH					
Acenaphthene	µg/L	1	<1.0	-	<1.0
Acenaphthylene	µg/L	1	<1.0	-	<1.0
Anthracene	µg/L	1	<1.0	-	<1.0
Benz(a)anthracene	µg/L	1	<1.0	-	<1.0
Benzo(a) pyrene	µg/L	0.5	<0.5	-	<0.5
Benzo(b+j)fluoranthene	mg/L	0.001	<0.0010	-	<0.0010
Benzo(g,h,i)perylene	µg/L	1	<1.0	-	<1.0
Benzo(k)fluoranthene	µg/L	1	<1.0	-	<1.0
Chrysene	µg/L	1	<1.0	-	<1.0
Dibenz(a,h)anthracene	µg/L	1	<1.0	-	<1.0
Fluoranthene	µg/L	1	<1.0	-	<1.0
Fluorene	µg/L	1	<1.0	-	<1.0
Indeno(1,2,3-c,d)pyrene	µg/L	1	<1.0	-	<1.0
Naphthalene	µg/L	1	<1.0	-	<1.0
Phenanthrene	µg/L	1	<1.0	-	<1.0
Pyrene	µg/L	1	<1.0	-	<1.0
Benzo(a)pyrene TEQ calc (Zero)	mg/L	0.0005	<0.0005	-	<0.0005
PAHs (Sum of total)	µg/L	0.5	<0.5	-	<0.5

Table 8b
QA/QC Results - Groundwater Field Blanks
HIP V HYPE Albert Street Brunswick EDD
427 Albert St, Brunswick, Victoria
2301314

		Lab Report Number	EM2303524	EM2303524
		Field ID	QC03	QC04
		Date	28 Feb 2023	28 Feb 2023
		Matrix Type	Water	Water
		Sample Type	Rinsate	Trip_B
	Unit	EQL		
TPH				
C6-C9 Fraction	µg/L	20	<20	<20
C10-C14 Fraction	µg/L	50	<50	-
C15-C28 Fraction	µg/L	100	<100	-
C29-C36 Fraction	µg/L	50	<50	-
C10-C36 Fraction (Sum)	µg/L	50	<50	-
TRH				
C6-C10 Fraction	µg/L	20	<20	<20
C6-C10 minus BTEX (F1)	µg/L	20	<20	<20
>C10-C16 Fraction	µg/L	100	<100	-
>C10-C16 Fraction minus Naphthalene (F2)	µg/L	100	<100	-
>C16-C34 Fraction (F3)	µg/L	100	<100	-
>C34-C40 Fraction (F4)	µg/L	100	<100	-
>C10-C40 Fraction (Sum)	µg/L	100	<100	-
BTEX				
Benzene	µg/L	1	<1	<1
Toluene	µg/L	2	<2	<2
Ethylbenzene	µg/L	2	<2	<2
Xylene (m & p)	µg/L	2	<2	<2
Xylene (o)	µg/L	2	<2	<2
Xylene Total	µg/L	2	<2	<2
Total BTEX	µg/L	1	<1	<1
Naphthalene (VOC)	mg/L	0.005	<0.005	<0.005
Metals				
Arsenic	mg/L	0.001	<0.001	-
Cadmium	mg/L	0.0001	<0.0001	-
Chromium (III+VI)	mg/L	0.001	<0.001	-
Copper	mg/L	0.001	<0.001	-
Lead	mg/L	0.001	<0.001	-
Mercury	mg/L	0.0001	<0.0001	-
Nickel	mg/L	0.001	<0.001	-
Zinc	mg/L	0.005	<0.005	-
PAH				
Acenaphthene	µg/L	1	<1.0	-
Acenaphthylene	µg/L	1	<1.0	-
Anthracene	µg/L	1	<1.0	-
Benz(a)anthracene	µg/L	1	<1.0	-
Benzo(a) pyrene	µg/L	0.5	<0.5	-
Benzo(b+j)fluoranthene	mg/L	0.001	<0.0010	-
Benzo(g,h,i)perylene	µg/L	1	<1.0	-
Benzo(k)fluoranthene	µg/L	1	<1.0	-
Chrysene	µg/L	1	<1.0	-
Dibenz(a,h)anthracene	µg/L	1	<1.0	-
Fluoranthene	µg/L	1	<1.0	-
Fluorene	µg/L	1	<1.0	-
Indeno(1,2,3-c,d)pyrene	µg/L	1	<1.0	-
Naphthalene	µg/L	1	<1.0	-
Phenanthrene	µg/L	1	<1.0	-
Pyrene	µg/L	1	<1.0	-
Benzo(a)pyrene TEQ calc (Zero)	mg/L	0.0005	<0.0005	-
PAHs (Sum of total)	µg/L	0.5	<0.5	-

Attachment A

BORE LOGS

Landfill Gas Bore LFG01

PROJECT NUMBER 2301314
PROJECT NAME HvH Albert St Brunswick EDD
CLIENT HIP V. HYPE Development Pty Ltd
ADDRESS 427 Albert Street, Brunswick
DRILLING DATE 13/02/2023

DRILLING METHOD CC/HA/PT/SA
TOTAL DEPTH 5 mbgl
DIAMETER 150mm
CASING 0-1 mbgl
SCREEN 1-5 mbgl

COORDINATES -
COORD SYS -
COMPLETION -
SURFACE ELEVATION -
WELL TOC

COMMENTS

LOGGED BY DT
CHECKED BY GB

Material Description	Drilling Method	Depth (m)	PID (ppm)	Samples	Additional Observations
Topsoil	HA				
FILL: Topsoil and minor gravels intermixed, small rocks, minor rootlets, small basalt chunks, brown/dark brown.			0.9	LFG01_0.2	
FILL: Sand, rootlets, large roots, large concrete chunks, plastic pieces, grey.		0.5	2.1	LFG01_0.5	
Large root and rusted nail.					
FILL: Clay, minor rootlets, small rocks, small basalt chunks, brown with light brown/orange mottle, low plasticity, dry.		1	2.4	LFG01_1.0	
FILL: Clay, ash, minor rocks, brown/orange with white/dark brown mottle, low plasticity, moist.	PT	1.5			
Small basalt chunks.					
CLAY: Mottled brown/orange/light brown/dark brown, low plasticity, moist.		2	0.8	LFG01_2.0	
Clayey SAND: Light brown/grey/orange/red, minor clays of low plasticity, fine grain, dry.		2.5			No odour or staining.
		3	1.6	LFG01_3.0	
SILT: White, chunks of siltstone, hard, fine grain, dry.	SA	3.5			
		4	4.2	LFG01_4.0	
		4.5			
		5	2.5	LFG01_5.0	
EOH at 5.0 mbgl.		5.5			

Landfill Gas Bore LFG02

PROJECT NUMBER 2301314
PROJECT NAME HvH Albert St Brunswick EDD
CLIENT HIP V. HYPE Development Pty Ltd
ADDRESS 427 Albert Street, Brunswick
DRILLING DATE 14/02/2023

DRILLING METHOD CC/HA/PT/SA
TOTAL DEPTH 5 mbgl
DIAMETER 150mm
CASING 0-1 mbgl
SCREEN 1-5 mbgl

COORDINATES -
COORD SYS -
COMPLETION -
SURFACE ELEVATION -
WELL TOC

COMMENTS

LOGGED BY DT
CHECKED BY GB

Material Description	Graphic Log	Drilling Method	Bore Diagram	Depth (m)	PID (ppm)	Samples	Analysed	Additional Observations
Concrete		CC						
FILL: Topsoil, rocks, minor light brown/grey mottle, moist.		HA			0.0	LFG02_0.2		
FILL: Clay/topsoil intermixed, brown, low plasticity, moist.				0.5	0.0	LFG02_0.5		
Increasing clay content with minor light brown mottle.								
CLAY: Mottled brown/light brown/dark orange/grey, low plasticity, moist.								
Dark brown colour introduced, increasing plasticity.				1	0.0	LFG02_1.0		
CLAY: Mottled grey/orange, firm, low plasticity, moist.		PT						
Increasing grey colour.				1.5				
CLAY: Mottled grey/orange, firm, low plasticity, moist.								
				2	0.0	LFG02_2.0		
Minor silt introduced, minor brown mottle.				2.5				No odour or staining.
				3	0.0	LFG02_3.0		
		SA		3.5				
				4	0.0	LFG02_4.0		
SILT: Light brown/yellow, fine grain, moist.				4.5				
				5	0.0	LFG02_5.0		
EOH at 5.0 mbgl.				5.5				

Landfill Gas Bore LFG03

PROJECT NUMBER 2301314
PROJECT NAME HvH Albert St Brunswick EDD
CLIENT HIP V. HYPE Development Pty Ltd
ADDRESS 427 Albert Street, Brunswick
DRILLING DATE 14/02/2023

DRILLING METHOD CC/HA/PT/SA
TOTAL DEPTH 5 mbgl
DIAMETER 150mm
CASING 0-1 mbgl
SCREEN 1-5 mbgl

COORDINATES -
COORD SYS -
COMPLETION -
SURFACE ELEVATION -
WELL TOC

COMMENTS

LOGGED BY DT
CHECKED BY GB

Material Description	Graphic Log	Drilling Method	Bore Diagram	Depth (m)	PID (ppm)	Samples	Analysed	Additional Observations
Concrete		CC		0	0.0	LFG03_0.2		
FILL: Topsoil, small and large rocks, concrete fragments, brick fragments, tile fragments, grey/light brown, moist.		HA						
FILL: Topsoil, minor gravels, brown/orange clay chunks of medium plasticity, ash, brick fragments, minor glass pieces, dark brown, moist.				0.5	0.0	LFG03_0.5		
FILL: Fine grain sands with minor gravels intermixed, minor brick, dark brown with minor grey mottle, moist.								
SAND: Grey, fine grain, moist.				1	0.0	LFG03_1.0		
Sandy CLAY: Light brown with grey/orange mottle, low plasticity, moist, ash, minor brick fragments.		PT						
CLAY: Brown with grey/orange/dark brown mottle, low plasticity, moist.				1.5				
White mottle, increasing plasticity.				2	0.0	LFG03_2.0		No odour or staining.
				2.5				
				3	0.0	LFG03_3.0		
Minor red sands introduced.								
SILT: Light brown/yellow, fine grain, dry.		SA		3.5				
				4	0.0	LFG03_4.0		
				4.5				
				5	0.0	LFG03_5.0		
EOH at 5.0 mbgl.				5.5				

produced by ESlog.ESdat.net on 06 Apr 2023

Landfill Gas Bore LFG04

PROJECT NUMBER 2301314
PROJECT NAME HvH Albert St Brunswick EDD
CLIENT HIP V. HYPE Development Pty Ltd
ADDRESS 427 Albert Street, Brunswick
DRILLING DATE 14/02/2023

DRILLING METHOD CC/HA/PT/SA
TOTAL DEPTH 5 mbgl
DIAMETER 150mm
CASING 0-1 mbgl
SCREEN 1-5 mbgl

COORDINATES -
COORD SYS -
COMPLETION -
SURFACE ELEVATION -
WELL TOC

COMMENTS

LOGGED BY DT
CHECKED BY GB

Material Description	Graphic Log	Drilling Method	Bore Diagram	Depth (m)	PID (ppm)	Samples	Analysed	Additional Observations
Concrete		CC		0	0.0	LFG04_0.2		
FILL: Topsoil and gravel intermixed, small rocks, light brown, moist.		HA						
Large rocks, concrete chunks, increasing dark brown colour.				0.5	0.0	LFG04_0.5		
FILL: Sands and gravels intermixed, light brown, fine grain, moist.								
FILL: Fine grain silt, concrete chunks, minor rocks, light brown/grey mottle, dry.		PT		1	0.0	LFG04_1.0		
Silty CLAY: Light brown with orange/red mottle, hard, low plasticity, dry, minor basalt chunks.								
Sandy CLAY: Mottled orange/grey/light brown, firm, low plasticity, dry, red/white fine grain sands.				1.5				
CLAY: Brown/orange with minor black mottle, low plasticity, dry.				2	0.0	LFG04_2.0		
Red, fine grain sands returned.								
Silty CLAY: Light brown/grey, low plasticity, dry.				2.5				
				3	0.0	LFG04_3.0		
SILT: White/light grey, hard, fine grain, dry.		SA		3.5				
				4	0.0	LFG04_4.0		
				4.5				
				5	0.0	LFG04_5.0		
EOH at 5.0 mbgl.				5.5				

Disclaimer This bore log is intended for environmental not geotechnical purposes.

produced by ESlog.ESdat.net on 06 Apr 2023

Soil Bore SB01

PROJECT NUMBER 2301314	**DRILLING METHOD** CC/HA	**COORDINATES** -
PROJECT NAME HvH Albert St Brunswick EDD	**TOTAL DEPTH** 1 mbgl	**COORD SYS** -
CLIENT HIP V. HYPE Development Pty Ltd	**DIAMETER**	**COMPLETION** -
ADDRESS 427 Albert Street, Brunswick	**CASING**	**SURFACE ELEVATION** -
DRILLING DATE 13/02/2023	**SCREEN**	**WELL TOC**

COMMENTS

LOGGED BY DT
CHECKED BY GB

Material Description	Graphic Log	Drilling Method	Bore Diagram	Depth (m)	PID (ppm)	Samples	Analysed	Additional Observations
Concrete		CC		0.1				
FILL: Sandy clay and topsoil intermixed, minor rocks, brown/grey, moist.		HA		0.2	0.0	SB01_0.2		
Increasing moisture.				0.3				
FILL: Clay, small rocks, Light brown with minor grey/dark brown/dark orange mottle, medium plasticity, moist.				0.4				
				0.5	0.0	SB01_0.5		No odour or staining.
Minor black rocks, increasing moisture.				0.6				
				0.7				
CLAY: Light brown with minor orange/grey mottle, medium plasticity, moist.				0.8				
Very minor ash.				0.9				
				1	0.0	SB01_1.0		
EOH at 1.0 mbgl.				1.1				
				1.2				
				1.3				
				1.4				

produced by ESlog.ESdat.net on 06 Apr 2023

Groundwater Monitoring Well SB02/GW01

PROJECT NUMBER 2301314
PROJECT NAME HvH Albert St Brunswick EDD
CLIENT HIP V. HYPE Development Pty Ltd
ADDRESS 427 Albert Street, Brunswick
DRILLING DATE 13/02/2023

DRILLING METHOD CC/HA/PT/SA
TOTAL DEPTH 5 mbgl
DIAMETER 150mm
CASING 0-5 mbgl
SCREEN 5-12 mbgl

COORDINATES -
COORD SYS -
COMPLETION -
SURFACE ELEVATION -
WELL TOC

COMMENTS

LOGGED BY DT
CHECKED BY GB

Material Description	Graphic Log	Drilling Method	Bore Diagram	Depth (m)	PID (ppm)	Samples	Analysed	Additional Observations
Concrete		CC		0	0.0	SB02/GW01_0.2		
FILL: Sand, rocks, grey/light brown with orange mottle, soft, coarse grain, wet.		HA		0.5	0.0	SB02/GW01_0.5		
FILL: Clay, minor ash, mottled light brown/orange/ dark orange/dark brown, high plasticity, moist.				1	0.0	SB02/GW01_1.0		
Increasing clay content.		PT		1.5				
Decreasing moisture.								
Ash.				2	0.2	SB02/GW01_2.0		
Minor black/orange mottle.				2.5				
CLAY: Light brown with grey/dark brown/orange mottle, low plasticity, dry.				3	0.0	SB02/GW01_3.0		
Silty CLAY: Mottled grey/orange, low plasticity, moist.				3.5				
Increasing silt content.				4	0.0	SB02/GW01_4.0		
SILT: Light brown, soft, coarse grain, moist.		SA		4.5				
				5	0.0	SB02/GW01_5.0		
				5.5				
				6	0.1	SB02/GW01_6.0		No odour or staining.
Light brown/grey.				6.5				
				7	0.0	SB02/GW01_7.0		
				7.5				
				8	0.1	SB02/GW01_8.0		
Darker brown/orange.				8.5				
				9				
				9.5				
				10	0.4	SB02/GW01_10.0		
				10.5				
Increased moisture.				11				
				11.5				
				12				
EOH at 12.5 mbgl.				12.5				

Soil Bore SB03

PROJECT NUMBER 2301314	**DRILLING METHOD** CC/HA	**COORDINATES** -
PROJECT NAME HvH Albert St Brunswick EDD	**TOTAL DEPTH** 1 mbgl	**COORD SYS** -
CLIENT HIP V. HYPE Development Pty Ltd	**DIAMETER**	**COMPLETION** -
ADDRESS 427 Albert Street, Brunswick	**CASING**	**SURFACE ELEVATION** -
DRILLING DATE 14/02/2023	**SCREEN**	**WELL TOC**

COMMENTS

LOGGED BY DT
CHECKED BY GB

Material Description	Graphic Log	Drilling Method	Bore Diagram	Depth (m)	PID (ppm)	Samples	Analysed	Additional Observations
Concrete		CC		0.1				
FILL: Topsoil and crushed rock intermixed, small rocks, plastic sheets, dark brown with minor light brown mottle, moist.		HA		0.2	0.0	SB03_0.2		
FILL: Clayey sand, rubber pieces, small rocks, clay chunks of low plasticity, dark brown, coarse grain, moist.				0.3 0.4 0.5	1.0	SB03_0.5		No odour or staining.
Increasing grey colour.				0.6 0.7				
Increasing clay content.				0.8				
FILL: Clay, minor brick, minor plastic pieces, brown, soft, medium plasticity, moist.				0.9				
CLAY: Brown with minor grey/dark brown/orange mottle, medium plasticity, moist.				1	0.3	SB03_1.0		
EOH at 1.0 mbgl.				1.1 1.2 1.3 1.4				

produced by ESlog.ESdat.net on 06 Apr 2023

Soil Bore SB04

PROJECT NUMBER 2301314	**DRILLING METHOD** HA	**COORDINATES** -
PROJECT NAME HvH Albert St Brunswick EDD	**TOTAL DEPTH** 1 mbgl	**COORD SYS** -
CLIENT HIP V. HYPE Development Pty Ltd	**DIAMETER**	**COMPLETION** -
ADDRESS 427 Albert Street, Brunswick	**CASING**	**SURFACE ELEVATION** -
DRILLING DATE 14/02/2023	**SCREEN**	**WELL TOC**

COMMENTS

LOGGED BY DT
CHECKED BY GB

Material Description	Graphic Log	Drilling Method	Bore Diagram	Depth (m)	PID (ppm)	Samples	Analysed	Additional Observations
Topsoil/Grass		HA		0.1				
FILL: Sand, rocks, and gravels intermixed, minor and major rootlets, chunks of slag, minor brick chunks, grey.				0.2	0.0	SB04_0.2		
Old, rusted bolt, decreasing rootlets.				0.3				
				0.4				
Large slag chunks.				0.5	0.1	SB04_0.5		No odour or staining.
				0.6				
				0.7				
				0.8				
				0.9				
				1	0.0	SB04_1.0		
EOH at 1.0 mbgl.				1.1				
				1.2				
				1.3				
				1.4				

produced by ESlog.ESdat.net on 06 Apr 2023

Soil Bore SB05

PROJECT NUMBER 2301314	**DRILLING METHOD** CC/HA	**COORDINATES** -
PROJECT NAME HvH Albert St Brunswick EDD	**TOTAL DEPTH** 1 mbgl	**COORD SYS** -
CLIENT HIP V. HYPE Development Pty Ltd	**DIAMETER**	**COMPLETION** -
ADDRESS 427 Albert Street, Brunswick	**CASING**	**SURFACE ELEVATION** -
DRILLING DATE 14/02/2023	**SCREEN**	**WELL TOC**

COMMENTS

LOGGED BY DT
CHECKED BY GB

Material Description	Graphic Log	Drilling Method	Bore Diagram	Depth (m)	PID (ppm)	Samples	Analysed	Additional Observations
Concrete		CC		0.1				
FILL: Sand, topsoil, and minor gravels intermixed, grey/light brown, moist.		HA		0.2	0.6	SB05_0.2		Moderate hydrocarbon odour from 0.2 - 0.65mbgl, low hydrocarbon odour from 0.65 - 1.0 mbgl. No staining throughout.
Minor low plasticity clays introduced.				0.3				
				0.4				
FILL: Clay, brown with minor orange/grey mottle, medium plasticity, moist.				0.5	14.2	SB05_0.5		
				0.6				
CLAY: Brown with minor orange mottle, high plasticity, moist.				0.7				
				0.8				
				0.9				
				1	0.6	SB05_1.0		
EOH at 1.0 mbgl.				1.1				
				1.2				
				1.3				
				1.4				

produced by ESlog.ESdat.net on 06 Apr 2023

Attachment B

LABORATORY DOCUMENTATION

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EN2302227**	Page	: 1 of 7
Client	: **ARC ENVIRONMENTAL**	Laboratory	: Environmental Division Newcastle
Contact	: GEORGIA BAYLEY	Contact	: Katie Davis
Address	: Suite 103, 7 Jeffcott Street WEST MELBOURNE	Address	: 5/585 Maitland Road Mayfield West NSW Australia 2304
Telephone	: ----	Telephone	: +61 2 4014 2500
Project	: 2301314	Date Samples Received	: 06-Mar-2023 11:49
Order number	: ----	Date Analysis Commenced	: 07-Mar-2023
C-O-C number	: ----	Issue Date	: 09-Mar-2023 17:35
Sampler	: DECLAN TENNENT, GEORGIA BAYLEY		
Site	: HvH 427 Albert St		
Quote number	: MEBQ/216/21 Primary work		
No. of samples received	: 5		
No. of samples analysed	: 5		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
Dale Semple	Analyst	Newcastle - Organics, Mayfield West, NSW
Daniel Junek	Senior Air Analyst	Newcastle - Organics, Mayfield West, NSW
Daniel Junek	Senior Air Analyst	Newcastle, Mayfield West, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- CAN-001: Results for Pressure - As Received are measured under controlled conditions using calibrated laboratory gauges. These results are expressed as an absolute pressure. Equivalent gauge pressures may be calculated by subtracting the Pressure - Laboratory Atmosphere.
- CAN-001: Results for Pressure - Gauge As Received are obtained from uncalibrated field gauges and are indicative only. These results may not precisely match calibrated gauge readings and may vary from field measurements due to changes in temperature and pressure.
- CAN-001: Results for Vacuum - As Received are calculated from the pressures of the canister and laboratory atmosphere at the time of receipt, and are expressed as a measure of the vacuum remaining. A positive value indicates that the canister was below atmospheric pressure upon receipt.
- EP101, EP103: Samples LFG03 required dilution due to the presence of high level isopropanol. LOR values have been adjusted accordingly.
- EP101, EP103: Results reported in µg/m³ are calculated from PPBV results based on a temperature of 25°C and atmospheric pressure of 101.3 kPa.
- EP104: Results reported in mg/m³ are calculated from Mol% results based on a temperature of 25°C and atmospheric pressure of 101.3 kPa
- EP104: Sample canisters were received at sub-ambient pressures and required dilution in the laboratory prior to analysis. LOR values have been adjusted accordingly

Analytical Results

Sub-Matrix: **SOIL GAS** (Matrix: **AIR**)

Compound	CAS Number	LOR	Unit	Sample ID	LFG03 C10695 S018	LFG01 C5390 S264	LFG02 C12335 S269	LFG04 C12441 S241	LFG04_D C12368 S241
				Sampling date / time	02-Mar-2023 00:00	28-Feb-2023 00:00	28-Feb-2023 00:00	28-Feb-2023 00:00	28-Feb-2023 00:00
					EN2302227-001	EN2302227-002	EN2302227-003	EN2302227-004	EN2302227-005
					Result	Result	Result	Result	Result
EP101: VOCs by USEPA Method TO15 (Calculated Concentration)									
Freon 12	75-71-8	2.5	µg/m³		<10.0	**3.0**	**3.0**	<2.5	<2.5
Chloromethane	74-87-3	1.0	µg/m³		<4.0	<1.0	**2.1**	**1.0**	**1.0**
Freon 114	76-14-2	3.5	µg/m³		<14.0	<3.5	<3.5	<3.5	<3.5
Vinyl chloride	75-01-4	1.3	µg/m³		<5.2	<1.3	<1.3	<1.3	<1.3
Bromomethane	74-83-9	1.9	µg/m³		<7.6	<1.9	<1.9	<1.9	<1.9
Chloroethane	75-00-3	1.3	µg/m³		<5.2	<1.3	<1.3	<1.3	<1.3
Freon 11	75-69-4	2.8	µg/m³		**70.2**	**27.5**	**59.0**	**20.8**	**21.3**
1.1-Dichloroethene	75-35-4	2.0	µg/m³		<8.0	<2.0	<2.0	<2.0	<2.0
Dichloromethane	75-09-2	1.7	µg/m³		<6.8	**2.4**	**2.8**	<1.7	<1.7
Freon 113	76-13-1	3.8	µg/m³		<15.2	<3.8	<3.8	<3.8	<3.8
1.1-Dichloroethane	75-34-3	2.0	µg/m³		<8.0	<2.0	<2.0	<2.0	<2.0
cis-1.2-Dichloroethene	156-59-2	2.0	µg/m³		<8.0	<2.0	<2.0	<2.0	<2.0
Chloroform	67-66-3	2.4	µg/m³		**41.0**	**11.2**	**50.3**	<2.4	<2.4
1.2-Dichloroethane	107-06-2	2.0	µg/m³		<8.0	<2.0	<2.0	<2.0	<2.0
1.1.1-Trichloroethane	71-55-6	2.7	µg/m³		<10.8	<2.7	<2.7	<2.7	<2.7
Benzene	71-43-2	1.6	µg/m³		<6.4	**7.0**	**8.3**	**4.8**	**4.2**
Carbon Tetrachloride	56-23-5	3.1	µg/m³		<12.4	<3.1	<3.1	<3.1	<3.1
1.2-Dichloropropane	78-87-5	2.3	µg/m³		<9.2	<2.3	<2.3	<2.3	<2.3
Trichloroethene	79-01-6	2.7	µg/m³		<10.8	<2.7	<2.7	<2.7	<2.7
cis-1.3-Dichloropropylene	10061-01-5	2.3	µg/m³		<9.2	<2.3	<2.3	<2.3	<2.3
trans-1.3-Dichloropropene	10061-02-6	2.3	µg/m³		<9.2	<2.3	<2.3	<2.3	<2.3
1.1.2-Trichloroethane	79-00-5	2.7	µg/m³		<10.8	<2.7	<2.7	<2.7	<2.7
Toluene	108-88-3	1.9	µg/m³		**72.3**	**27.9**	**42.9**	**51.6**	**52.0**
1.2-Dibromoethane (EDB)	106-93-4	3.8	µg/m³		<15.2	<3.8	<3.8	<3.8	<3.8
Tetrachloroethene	127-18-4	3.4	µg/m³		**50.8**	**62.4**	**51.5**	**34.6**	**35.2**
Chlorobenzene	108-90-7	2.3	µg/m³		<9.2	<2.3	<2.3	<2.3	<2.3
Ethylbenzene	100-41-4	2.2	µg/m³		**25.2**	**16.5**	**18.2**	**14.8**	**13.4**
meta- & para-Xylene	108-38-3 106-42-3	4.3	µg/m³		**65.1**	**42.1**	**45.6**	**40.4**	**38.2**
Styrene	100-42-5	2.1	µg/m³		**9.4**	**4.2**	**6.0**	**5.1**	**5.1**
1.1.2.2-Tetrachloroethane	79-34-5	3.4	µg/m³		<13.6	<3.4	<3.4	<3.4	<3.4
ortho-Xylene	95-47-6	2.2	µg/m³		**23.9**	**11.7**	**13.0**	**13.0**	**11.7**
4-Ethyltoluene	622-96-8	2.4	µg/m³		<9.6	**2.9**	**4.4**	**4.4**	**3.4**
Total Xylenes	----	6.5	µg/m³		**89.0**	**53.8**	**58.6**	**53.4**	**49.9**
1.3.5-Trimethylbenzene	108-67-8	2.4	µg/m³		<9.6	**3.4**	**4.4**	**4.4**	**3.9**

Analytical Results

Sub-Matrix: SOIL GAS (Matrix: AIR)				Sample ID	LFG03 C10695 S018	LFG01 C5390 S264	LFG02 C12335 S269	LFG04 C12441 S241	LFG04_D C12368 S241
				Sampling date / time	02-Mar-2023 00:00	28-Feb-2023 00:00	28-Feb-2023 00:00	28-Feb-2023 00:00	28-Feb-2023 00:00
Compound	CAS Number	LOR	Unit		EN2302227-001	EN2302227-002	EN2302227-003	EN2302227-004	EN2302227-005
					Result	Result	Result	Result	Result
EP101: VOCs by USEPA Method TO15 (Calculated Concentration) - Continued									
1.2.4-Trimethylbenzene	95-63-6	2.4	µg/m³		<9.6	**7.9**	**9.3**	**11.3**	**9.3**
1.3-Dichlorobenzene	541-73-1	3.0	µg/m³		<12.0	<3.0	<3.0	<3.0	<3.0
Benzylchloride	100-44-7	2.6	µg/m³		<10.4	<2.6	<2.6	<2.6	<2.6
1.4-Dichlorobenzene	106-46-7	3.0	µg/m³		<12.0	<3.0	<3.0	<3.0	<3.0
1.2-Dichlorobenzene	95-50-1	3.0	µg/m³		<12.0	<3.0	<3.0	<3.0	<3.0
1.2.4-Trichlorobenzene	120-82-1	3.7	µg/m³		<14.8	<3.7	<3.7	<3.7	<3.7
Hexachlorobutadiene	87-68-3	5.3	µg/m³		<21.2	<5.3	<5.3	<5.3	<5.3
EP101: VOCs by USEPA Method TO15r									
Freon 12	75-71-8	0.5	ppbv		<2.0	**0.6**	**0.6**	<0.5	<0.5
Chloromethane	74-87-3	0.5	ppbv		<2.0	<0.5	**1.0**	**0.5**	**0.5**
Freon 114	76-14-2	0.5	ppbv		<2.0	<0.5	<0.5	<0.5	<0.5
Vinyl chloride	75-01-4	0.5	ppbv		<2.0	<0.5	<0.5	<0.5	<0.5
Bromomethane	74-83-9	0.5	ppbv		<2.0	<0.5	<0.5	<0.5	<0.5
Chloroethane	75-00-3	0.5	ppbv		<2.0	<0.5	<0.5	<0.5	<0.5
Freon 11	75-69-4	0.5	ppbv		**12.5**	**4.9**	**10.5**	**3.7**	**3.8**
1.1-Dichloroethene	75-35-4	0.5	ppbv		<2.0	<0.5	<0.5	<0.5	<0.5
Dichloromethane	75-09-2	0.5	ppbv		<2.0	**0.7**	**0.8**	<0.5	<0.5
Freon 113	76-13-1	0.5	ppbv		<2.0	<0.5	<0.5	<0.5	<0.5
1.1-Dichloroethane	75-34-3	0.5	ppbv		<2.0	<0.5	<0.5	<0.5	<0.5
cis-1.2-Dichloroethene	156-59-2	0.5	ppbv		<2.0	<0.5	<0.5	<0.5	<0.5
Chloroform	67-66-3	0.5	ppbv		**8.4**	**2.3**	**10.3**	<0.5	<0.5
1.2-Dichloroethane	107-06-2	0.5	ppbv		<2.0	<0.5	<0.5	<0.5	<0.5
1.1.1-Trichloroethane	71-55-6	0.5	ppbv		<2.0	<0.5	<0.5	<0.5	<0.5
Benzene	71-43-2	0.5	ppbv		<2.0	**2.2**	**2.6**	**1.5**	**1.3**
Carbon Tetrachloride	56-23-5	0.5	ppbv		<2.0	<0.5	<0.5	<0.5	<0.5
1.2-Dichloropropane	78-87-5	0.5	ppbv		<2.0	<0.5	<0.5	<0.5	<0.5
Trichloroethene	79-01-6	0.5	ppbv		<2.0	<0.5	<0.5	<0.5	<0.5
cis-1.3-Dichloropropylene	10061-01-5	0.5	ppbv		<2.0	<0.5	<0.5	<0.5	<0.5
trans-1.3-Dichloropropene	10061-02-6	0.5	ppbv		<2.0	<0.5	<0.5	<0.5	<0.5
1.1.2-Trichloroethane	79-00-5	0.5	ppbv		<2.0	<0.5	<0.5	<0.5	<0.5
Toluene	108-88-3	0.5	ppbv		**19.2**	**7.4**	**11.4**	**13.7**	**13.8**
1.2-Dibromoethane (EDB)	106-93-4	0.5	ppbv		<2.0	<0.5	<0.5	<0.5	<0.5
Tetrachloroethene	127-18-4	0.5	ppbv		**7.5**	**9.2**	**7.6**	**5.1**	**5.2**
Chlorobenzene	108-90-7	0.5	ppbv		<2.0	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL GAS (Matrix: AIR)				Sample ID	LFG03 C10695 S018	LFG01 C5390 S264	LFG02 C12335 S269	LFG04 C12441 S241	LFG04_D C12368 S241
				Sampling date / time	02-Mar-2023 00:00	28-Feb-2023 00:00	28-Feb-2023 00:00	28-Feb-2023 00:00	28-Feb-2023 00:00
Compound	CAS Number	LOR	Unit		EN2302227-001	EN2302227-002	EN2302227-003	EN2302227-004	EN2302227-005
					Result	Result	Result	Result	Result
EP101: VOCs by USEPA Method TO15r - Continued									
Ethylbenzene	100-41-4	0.5	ppbv		5.8	3.8	4.2	3.4	3.1
meta- & para-Xylene	108-38-3 106-42-3	1.0	ppbv		15.0	9.7	10.5	9.3	8.8
Styrene	100-42-5	0.5	ppbv		2.2	1.0	1.4	1.2	1.2
1.1.2.2-Tetrachloroethane	79-34-5	0.5	ppbv		<2.0	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	ppbv		5.5	2.7	3.0	3.0	2.7
4-Ethyltoluene	622-96-8	0.5	ppbv		<2.0	0.6	0.9	0.9	0.7
1.3.5-Trimethylbenzene	108-67-8	0.5	ppbv		<2.0	0.7	0.9	0.9	0.8
1.2.4-Trimethylbenzene	95-63-6	0.5	ppbv		<2.0	1.6	1.9	2.3	1.9
1.3-Dichlorobenzene	541-73-1	0.5	ppbv		<2.0	<0.5	<0.5	<0.5	<0.5
Benzylchloride	100-44-7	0.5	ppbv		<2.0	<0.5	<0.5	<0.5	<0.5
1.4-Dichlorobenzene	106-46-7	0.5	ppbv		<2.0	<0.5	<0.5	<0.5	<0.5
1.2-Dichlorobenzene	95-50-1	0.5	ppbv		<2.0	<0.5	<0.5	<0.5	<0.5
1.2.4-Trichlorobenzene	120-82-1	0.5	ppbv		<2.0	<0.5	<0.5	<0.5	<0.5
Hexachlorobutadiene	87-68-3	0.5	ppbv		<2.0	<0.5	<0.5	<0.5	<0.5
EP103: Petroleum Hydrocarbons in Gaseous Samples									
C6 - C9 Fraction	----	50	ppbv		<200	105	268	93	88
C10 - C14 Fraction	----	50	ppbv		<200	54	65	<50	<50
EP103: Petroleum Hydrocarbons in Gaseous Samples (Calc Conc)									
C6 - C9 Fraction	----	200	µg/m³		<800	430	1100	380	360
C10 - C14 Fraction	----	350	µg/m³		<1400	380	450	<350	<350
EP103: Total Recoverable Hydrocarbons - NEPM 2013									
C6 - C10 Fraction	C6_C10	50	ppbv		201	118	241	107	102
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	50	ppbv		<200	82	198	66	63
>C10 - C16 Fraction	----	50	ppbv		<200	<50	<50	<50	<50
>C10 - C16 Fraction minus Naphthalene (F2)	----	50	ppbv		<200	<50	<50	<50	<50
EP103: Total Recoverable Hydrocarbons - NEPM 2013 (Calc Conc)									
C6 - C10 Fraction	C6_C10	200	µg/m³		820	480	980	440	420
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	200	µg/m³		<800	330	810	270	260
>C10 - C16 Fraction	----	400	µg/m³		<1600	<400	<400	<400	<400
>C10 - C16 Fraction minus Naphthalene (F2)	----	400	µg/m³		<1600	<400	<400	<400	<400

Analytical Results

Sub-Matrix: SOIL GAS (Matrix: AIR)				Sample ID	LFG03 C10695 S018	LFG01 C5390 S264	LFG02 C12335 S269	LFG04 C12441 S241	LFG04_D C12368 S241
				Sampling date / time	02-Mar-2023 00:00	28-Feb-2023 00:00	28-Feb-2023 00:00	28-Feb-2023 00:00	28-Feb-2023 00:00
Compound	CAS Number	LOR	Unit		EN2302227-001	EN2302227-002	EN2302227-003	EN2302227-004	EN2302227-005
					Result	Result	Result	Result	Result
EP104: Permanent Gases									
Carbon Dioxide	124-38-9	0.005	Mol %		5.33	5.80	4.42	0.788	0.800
Carbon Monoxide	630-08-0	0.005	Mol %		<0.010	<0.010	<0.010	<0.010	<0.010
Hydrogen	1333-74-0	0.005	Mol %		<0.010	<0.010	<0.010	<0.010	<0.010
Helium	7440-59-7	0.005	Mol %		<0.010	<0.010	<0.010	<0.010	<0.010
Oxygen	7782-44-7	0.10	Mol %		14.0	13.3	13.4	18.9	19.0
EP104: Permanent Gases (Calc Conc)									
Carbon Dioxide	124-38-9	90	mg/m³		95800	104000	79500	14200	14400
Carbon Monoxide	630-08-0	60	mg/m³		<120	<120	<120	<120	<120
Hydrogen	1333-74-0	4	mg/m³		<8	<8	<8	<8	<8
Oxygen	7782-44-7	1310	mg/m³		183000	174000	176000	247000	248000
Helium	7440-59-7	8	mg/m³		<16	<16	<16	<16	<16
Sampling Quality Assurance									
Pressure - As received	PRESSURE	0.1	kPaa		101	88.7	90.9	87.9	88.0
Pressure - Laboratory Atmosphere	----	0.1	kPaa		100	100	100	100	100
Temperature as Received	----	0.1	°C		21.0	21.0	21.0	21.0	21.0
Vacuum - As received	----	0.03	Inches Hg		<0.03	3.34	2.69	3.57	3.54
USEPA Air Toxics Method TO15r Surrogates									
4-Bromofluorobenzene	460-00-4	0.5	%		93.7	92.9	92.7	92.8	92.9

Surrogate Control Limits

Sub-Matrix: **SOIL GAS**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
USEPA Air Toxics Method TO15r Surrogates			
4-Bromofluorobenzene	460-00-4	60	140

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EN2302227**

Client	: **ARC ENVIRONMENTAL**	Laboratory	: Environmental Division Newcastle
Contact	: GEORGIA BAYLEY	Contact	: Katie Davis
Address	: Suite 103, 7 Jeffcott Street WEST MELBOURNE	Address	: 5/585 Maitland Road Mayfield West NSW Australia 2304
E-mail	: georgia@arcenvironmental.com.au	E-mail	: katie.davis@alsglobal.com
Telephone	: ----	Telephone	: +61 2 4014 2500
Facsimile	: ----	Facsimile	: +61 2 4967 7382
Project	: 2301314	Page	: 1 of 2
Order number	: ----	Quote number	: EM2017ARCENV0001 (MEBQ/216/21 Primary work)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: HvH 427 Albert St		
Sampler	: DECLAN TENNENT, GEORGIA BAYLEY		

Dates

Date Samples Received	: 06-Mar-2023 11:49	Issue Date	: 06-Mar-2023
Client Requested Due Date	: 13-Mar-2023	Scheduled Reporting Date	: **13-Mar-2023**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Not Available
No. of coolers/boxes	: ----	Temperature	: ----
Receipt Detail	:	No. of samples received / analysed	: 5 / 5

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Sample Disposal - Aqueous Chemistry (3 weeks), Aqueous Microbiological (1 week), Solid (2 months ± 1 week) from receipt of samples.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Any sample identifications that cannot be displayed entirely in the analysis summary table will be listed below.

EN2302227-005 : [28-Feb-2023] : LFG04_D - C12368 S241

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **AIR**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	AIR - CAN-1.4L-SAMPLE Canister Sampling - Field Data (1.4 litre canister)	AIR - VI-HG1 TO14 VOCs + NEPM TRH + Gases - Ambient Air
EN2302227-001	02-Mar-2023 00:00	LFG03 C10695 S018	✓	✓
EN2302227-002	28-Feb-2023 00:00	LFG01 C5390 S264	✓	✓
EN2302227-003	28-Feb-2023 00:00	LFG02 C12335 S269	✓	✓
EN2302227-004	28-Feb-2023 00:00	LFG04 C12441 S241	✓	✓
EN2302227-005	28-Feb-2023 00:00	LFG04_D C12368 S241	✓	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ESDAT REPORTING

- EDI Format - ESDAT (ESDAT)	Email	arcenvironmental@esdat.com.au
- Electronic SRN for ESdat (ESRN_ESDAT)	Email	arcenvironmental@esdat.com.au

GEORGIA BAYLEY

- *AU Certificate of Analysis - NATA (COA)	Email	georgia@arcenvironmental.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	georgia@arcenvironmental.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	georgia@arcenvironmental.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	georgia@arcenvironmental.com.au
- A4 - AU Tax Invoice (INV)	Email	georgia@arcenvironmental.com.au
- Chain of Custody (CoC) (COC)	Email	georgia@arcenvironmental.com.au
- EDI Format - ENMRG (ENMRG)	Email	georgia@arcenvironmental.com.au
- EDI Format - ESDAT (ESDAT)	Email	georgia@arcenvironmental.com.au

AIR CANISTER CHAIN OF CUSTODY

If sourced from an ALS Laboratory: please tick →

Client Supplied Canister(s)? Y / N

☐ADELAIDE 3/1 Burma Road Pooraka SA 5095 Ph: 08 81625130 E: adelaide@alsglobal.com
☐BRISBANE 2 Byth Street Stafford QLD 4053 Ph: 07 3243 7222 E: samples.brisbane@alsglobal.com
☐GLADSTONE 46 Callemondah Drive Clinton QLD 4680 Ph: 07 7471 5600 E: gladstone@alsglobal.com
☐MACKAY Ph: 07 49525795 E: ALSEnviro.Mackay@alsglobal.com
☐MELBOURNE 2-4 Westall Road Springvale VIC 3171 Ph: 03 8549 9600 E: samples.melbourne@alsglobal.com
☐MUDGEE 1/29 Sydney Road Mudgee NSW 2850 Ph: 02 6372 6735 E: mudgee.mail@alsglobal.com
☐NEWCASTLE Ph: 02 4014 2500 E: samples.newcastle@alsglobal.com
☐NOWRA 4/13 Geary Place North Nowra NSW 2541 Ph: 02 4423 2063 E: nowra@alsglobal.com
☐PERTH 26 Rigali Way Wangara WA 6065 Ph: 08 94061301 E: samples.perth@alsglobal.com
☐SYDNEY Ph: 02 8784 8555 E: samples.sydney@alsglobal.com
☐TOWNSVILLE Carlton Street Kirwan QLD 4817 Ph: 07 4773 0000 E: ALSEnviro.townsville@alsglobal.com
☐WOLLONGONG 1/19-21 Ralph Black Drive Nth Wollongong NSW 2500 Ph: 02 4225 3125 E: wollongong@alsglobal.com

mahch BN Foil MYTP951129

CLIENT: ARC ENVIRONMENTAL
OFFICE:
PROJECT: HVH 427 Albert St PROJECT NO: 230131[4]
CANISTER REQUEST NO: PURCHASE ORDER NO.:
PROJECT MANAGER: Georgia Bayley CONTACT PH: 0450263886
SAMPLER: GB + DT SAMPLER MOBILE: " "
COC Emailed to ALS? (YES / (NO)) Placed in case with canisters EDD FORMAT (or default):
Email Reports to (will default to PM if no other addresses are listed): georgia@arcenvironmental.com.au
Email Invoice to (will default to PM if no other addresses are listed):

TURNAROUND REQUIREMENTS: ☑ Standard TAT (List due date):
(Standard TAT may be extended for multiple sequential analysis suites) ☐ Non Standard or urgent TAT (List due date):
ALS QUOTE NO.: MEBQ-216-21
COUNTRY OF ORIGIN:
COC SEQUENCE NUMBER (Circle) COC: 1 2 3 4 5 6 7 OF: 1 2 3 4 5 6 7

LABORATORY USE ONLY (Circle) Receiver to initial and date/time
Custody Seal Intact? Rec Lab Y/N NE Y/N N/A
Valves closed on Receipt? Rec Lab Y/N NE Y/N N/A
Canister/Sampler Complete and Not Damaged (Yes) No
Other comment: Temperature °C 22.3

RELINQUISHED BY:	RELINQUISHED BY:	RELINQUISHED BY:	RELINQUISHED BY:
Signature and date/time	Signature and date/time	Signature and date/time	Signature and date/time
RECEIVED BY: [signature] 3/3 935	RECEIVED BY: AN 950 6.3.23	RECEIVED BY:	RECEIVED BY:
Signature and date/time	Signature and date/time	Signature and date/time	Signature and date/time

COMMENTS/SPECIAL HANDLING/REPLACEMENT OR RETURN INSTRUCTIONS:

GAS SAMPLE CONTAINER INFORMATION

Refer to Canister Verification Reports and COAs for pressures measured by the Lab

Suite Codes must be listed to attract suite price

LAB ID (ALS USE ONLY)	CANISTER SERIAL NO.	FLOW CONTROLLER SERIAL NO.	CLIENT SAMPLE ID	DATE / TIME SAMPLED	MATRIX (eg Air, Soil Gas)	Canister Gauge Pressures (PSI) Pre-Sampling	Post Sampling	LORs Ambient Air	Soil Gas (NEPM)	Other / Indoor	Units ppbv, µg/m³	ppmv, mg/m³	VOCs	TRH	Permanent Gases				Additional Information
	10695	SSS018	LFG03	02/03/23	SG	-35	-6						X	X	X				LAB CODES:
	5390	SSS264	LFG01	28/02/23	SG	-30	-5						X	X	X				~~VI-PHT~~
	12335	SSS269	LFG02	28/02/23	SG	-30	-5						X	X	X				VI-HGI
	12441	DSS241	LFG04	28/02/23	SG	-30	-5						X	X	X				
	12368	DSS241	LFG04-D	28/02/23	SG	-30	-5						X	X	X				

Comments on LORs required, potential hazards, likely contaminant levels, or samples requiring specific QC analysis etc. (LOR defaults to routine method LOR after dilution)

Environmental Division
Newcastle
Work Order Reference
EN2302227

Telephone: + 61 2 4014 2500

Job Specific Instructions:

GAS CANISTER SAMPLING EQUIPMENT

ALS

DISPATCH RECORD

Enquiries: Client Services - Newcastle, Phone: +61 (02) 4014 2500, E-mail: alsenviro.newcastle@alsglobal.com

Client / Office:	ARC Enviro	ALS USE ONLY	
Contact:	Georgia Bayley	Request Received By:	KS 28/02
Telephone:	0450 263 886	Deliver By:	29/2
ALS Quotation:		Dispatch By:	28/2
Delivery Address:	29 Kent St	Workorder:	
	KEW VIC 3101	Agreed Rent Free Period:	21 days

Special Instructions: _____

Equipment Request

CANISTERS

No	Canister Type	Size	Gauge	Valve	Cap	Rental[1]	Leak Checked	Certified OK
1	Entech Silonite MiniCan™	1.4L	No	QT	Yes	$120 ea	✓ 10695	

Analyst's Initials & Date: 28.2.23

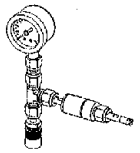
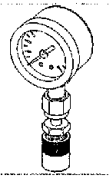
CONNECTORS AND FLOW CONTROL

No	Equipment Type	Duration (hrs)	Flow (ml/min)	T-Piece	Gauge	Certified	Sealed / Vacuum	Connection Q Quick Connect S Swagelok	Rental[1]
1	Soil gas sampling train - single		60ml	No	Yes	Yes	Yes / Yes	Q	Incl Above
-	Soil gas sampling train - duplicate			Yes	Yes	Yes	Yes / Yes	Q	Incl Above
1	Quick-connect fittings - female QT	-	-	-	-	-	-	Q	$120 ea. Replacement
1	Quick-connect fittings - male QT	-	-	-	-	-	-	Q	$120 ea. Replacement
1	Pressure Gauge - QT	-	-	-	-	-	Yes / Yes	Q	$250 ea. Replacement
-	T-Piece - QT	-	-	Yes	No	No	Yes / Yes	Q	$300 ea. Replacement
-	T-Piece - Swagelok	-	-	Yes	No	No	-	S	$250 ea. Replacement
-	Additional ¼" Swagelok nuts/ferrules	-	-	-	-	-	-	S	$5 ea. Replacement
-	Sampling Kit Case - Soil Gas	-	-	-	-	-	Yes / -	-	$200 Replacement
-	Other (Specify)								

[1] Refer to Acceptance of Terms

ALS use only:	Clean Certificates Included (Y / N)	Leak Check OK (Y / N)	Recorded by:	Packed by:	
Canister Sampling Guide Included (Y / N)	Blank COC Included (Y / N)		Dispatch Time / Date:	28.2.23 2pm	
Courier:	TNT	Consignment Note #:	345935338	# Boxes: 1	Dispatched By:

ALS Supplied Equipment

Item	Quantity	Item Description	Serial Number(s)
	1	1.4 L Silonite™ MiniCan	10695 ✓
	1	Soil gas sampler - Compact - 60ml	018 ✓
	1	QT vacuum gauge	G.037 ✓ -29 "Hg
	1	Female QT to ¼" tube connector	✓
	1	Male QT to ¼" tube connector	✓

GAS CANISTER SAMPLING EQUIPMENT

DISPATCH RECORD

Enquiries: Client Services - Newcastle, Phone: +61 (02) 4014 2500, E-mail: alsenviro.newcastle@alsglobal.com

Client / Office:	ARC Enviro	ALS USE ONLY	
Contact:	Georgia Bayley	Request Received By:	KS 17/02
Telephone:	0450 263 886	Deliver By:	28/2
ALS Quotation:		Dispatch By:	24/2
Delivery Address:	29 Kent St	Workorder:	
	KEW VIC 3101	Agreed Rent Free Period:	21 days

Special Instructions: ____________

Equipment Request

CANISTERS

No	Canister Type	Size	Gauge	Valve	Cap	Rental[1]	Leak Checked	Certified OK
4	Entech Silonite MiniCan™	1.4L	No	QT	Yes	$120 ea	✓	Wales 24.2.23 (Analysts Initials & Date)

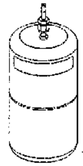
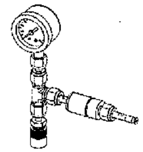
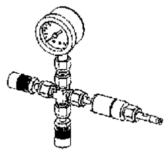
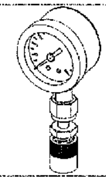
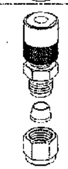
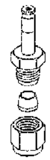
CONNECTORS AND FLOW CONTROL

No	Equipment Type	Duration (hrs)	Flow (ml/min)	T-Piece	Gauge	Certified	Sealed / Vacuum	Connection Q Quick Connect S Swagelok	Rental[1]
2	Soil gas sampling train - single		60ml	No	Yes	Yes	Yes / Yes	Q	Incl Above
1	Soil gas sampling train - duplicate		60ml	Yes	Yes	Yes	Yes / Yes	Q	Incl Above
3	Quick-connect fittings - female QT	-	-	-	-	-	-	Q	$120 ea. Replacement
1	Quick-connect fittings - male QT	-	-	-	-	-	-	Q	$120 ea. Replacement
1	Pressure Gauge - QT	-	-	-	-	-	Yes / Yes	Q	$250 ea. Replacement
	T-Piece - QT	-	-	Yes	No	No	Yes / Yes	Q	$300 ea. Replacement
	T-Piece - Swagelok	-	-	Yes	No	No	-	S	$250 ea. Replacement
	Additional ¼" Swagelok nuts/ferrules	-	-	-	-	-	-	S	$5 ea. Replacement
1	Sampling Kit Case - Soil Gas	-	-	-	-	-	Yes / -	-	$200 Replacement
1	Other (Specify)	1.5m Tubing							

[1] Refer to Acceptance of Terms

ALS use only:	Clean Certificates Included (Y / N)	Leak Check OK (Y / N)	Recorded by:	Packed by:
Canister Sampling Guide Included (Y / N) [Y circled]	Blank COC Included (Y/N) [N circled]	Dispatch Time / Date: 24/02 2pm.		
Courier: TNT	Consignment Note #: 343055769	# Boxes: 1	Dispatched By: LC	

ALS Supplied Equipment

Item	Quantity	Item Description	Serial Number(s)
	4	1.4 L Silonite™ MiniCan	5390 ✓ 12441 ✓ 12368 ✓ 12335 ✓
	2	Soil gas sampler - Compact - 60ml	269 ✓ 264 ✓
	1	Soil gas sampler - Duplicate - 60ml	241 ✓
	1	QT vacuum gauge	G.001 ✓ -31" Hg
	3	Female QT to ¼" tube connector	3 ✓
	1	Male QT to ¼" tube connector	✓

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EN2302227**	Page	: 1 of 4
Client	: **ARC ENVIRONMENTAL**	Laboratory	: Environmental Division Newcastle
Contact	: GEORGIA BAYLEY	Telephone	: +61 2 4014 2500
Project	: 2301314	Date Samples Received	: 06-Mar-2023
Site	: HvH 427 Albert St	Issue Date	: 09-Mar-2023
Sampler	: DECLAN TENNENT, GEORGIA BAYLEY	No. of samples received	: 5
Order number	: ----	No. of samples analysed	: 5

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

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: **AIR**

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
EP101: VOCs by USEPA Method TO15r							
Gas Canister - ALS Stainless Steel Silonite (EP101-15X) LFG03 - C10695 S018	**02-Mar-2023**	**----**	----	----	**08-Mar-2023**	01-Apr-2023	✓
Gas Canister - ALS Stainless Steel Silonite (EP101-15X) LFG01 - C5390 S264, LFG02 - C12335 S269, LFG04 - C12441 S241, LFG04_D - C12368 S241	**28-Feb-2023**	**----**	----	----	**07-Mar-2023**	30-Mar-2023	✓
EP103: Petroleum Hydrocarbons in Gaseous Samples							
Gas Canister - ALS Stainless Steel Silonite (EP103-PC) LFG03 - C10695 S018	**02-Mar-2023**	**----**	----	----	**09-Mar-2023**	01-Apr-2023	✓
Gas Canister - ALS Stainless Steel Silonite (EP103-PC) LFG01 - C5390 S264, LFG02 - C12335 S269, LFG04 - C12441 S241, LFG04_D - C12368 S241	**28-Feb-2023**	**----**	----	----	**07-Mar-2023**	30-Mar-2023	✓
EP103: Total Recoverable Hydrocarbons - NEPM 2013							
Gas Canister - ALS Stainless Steel Silonite (EP103-PC) LFG03 - C10695 S018	**02-Mar-2023**	**----**	----	----	**09-Mar-2023**	01-Apr-2023	✓
Gas Canister - ALS Stainless Steel Silonite (EP103-PC) LFG01 - C5390 S264, LFG02 - C12335 S269, LFG04 - C12441 S241, LFG04_D - C12368 S241	**28-Feb-2023**	**----**	----	----	**07-Mar-2023**	30-Mar-2023	✓
EP104: Permanent Gases							
Gas Canister - ALS Stainless Steel Silonite (EP104) LFG03 - C10695 S018	**02-Mar-2023**	**----**	----	----	**08-Mar-2023**	01-Apr-2023	✓
Gas Canister - ALS Stainless Steel Silonite (EP104) LFG01 - C5390 S264, LFG02 - C12335 S269, LFG04 - C12441 S241, LFG04_D - C12368 S241	**28-Feb-2023**	**----**	----	----	**08-Mar-2023**	30-Mar-2023	✓
Sampling Quality Assurance							
Gas Canister - ALS Stainless Steel Silonite (CAN-001) LFG03 - C10695 S018	**02-Mar-2023**	**----**	----	----	**07-Mar-2023**	01-Mar-2024	✓
Gas Canister - ALS Stainless Steel Silonite (CAN-001) LFG01 - C5390 S264, LFG02 - C12335 S269, LFG04 - C12441 S241, LFG04_D - C12368 S241	**28-Feb-2023**	**----**	----	----	**07-Mar-2023**	28-Feb-2024	✓

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: **AIR**

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*	
Duplicate Control Samples (DCS)							
Permanent Gases and Light Hydrocarbons	EP104	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
VOCs in Air by USEPA TO15r - Extended Suite	EP101-15X	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile TPH/TRH in Gaseous Samples	EP103-PC	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Duplicates (DUP)							
Permanent Gases and Light Hydrocarbons	EP104	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
VOCs in Air by USEPA TO15r - Extended Suite	EP101-15X	1	6	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile TPH/TRH in Gaseous Samples	EP103-PC	1	6	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Permanent Gases and Light Hydrocarbons	EP104	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
VOCs in Air by USEPA TO15r - Extended Suite	EP101-15X	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile TPH/TRH in Gaseous Samples	EP103-PC	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Permanent Gases and Light Hydrocarbons	EP104	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
VOCs in Air by USEPA TO15r - Extended Suite	EP101-15X	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile TPH/TRH in Gaseous Samples	EP103-PC	1	6	**16.67**	**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
Canister Sampling - Field Data	CAN-001	AIR	In house: Referenced to USEPA TO14 / TO15
VOCs in Air by USEPA TO15r - Extended Suite	EP101-15X	AIR	In house: Referenced to USEPA TO15r Volatile Organic Compounds in Air by USEPA TO15. Extended Suite
VOCs in Air by USEPA TO15r - Extended Suite (mass/volume)	EP101-15X-MV	AIR	In house: Referenced to USEPA TO15r Volatile Organic Compounds in Air by USEPA TO15. Extended Suite (Calculated Concentration)
Volatile TPH/TRH in Gaseous Samples	EP103-PC	AIR	Volatile TPH/TRH by GC-MS with Preconcentration and Thermal Desorption Injection Based on USEPA TO15, MassDEP APH and TPH/NEPM Schedule B(3) Fractions
Volatile TPH/TRH in Gaseous Samples (Calc Conc)	EP103-PC-MV	AIR	Volatile TPH/TRH by GC-MS with Preconcentration and Thermal Desorption Injection Based on USEPA TO15, MassDEP APH and TPH/NEPM Schedule B(3) Fractions, calculated from ppbv results based on given Temperature and Atmospheric Pressure and mid-range molecular weights
Permanent Gases and Light Hydrocarbons	EP104	AIR	Hydrocarbons, Carbon Dioxide and Carbon Monoxide by GC-FID-TCD. Gases by GC-TCD In house: Referenced to ASTM D1945 applied to Gases and Light Hydrocarbons (C1-C4) using capillary GC
Permanent Gases and Light Hydrocarbons (mass/volume)	EP104-MV	AIR	Permanent Gases and Light Hydrocarbons - Calculated as mass/volume concentration from percentage composition and given termperature and pressure.

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM2303524**	Page	: 1 of 8
Client	: **ARC ENVIRONMENTAL**	Laboratory	: Environmental Division Melbourne
Contact	: GEORGIA BAYLEY	Contact	: Katie Davis
Address	: Suite 103, 7 Jeffcott Street WEST MELBOURNE	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +61-3-8549 9600
Project	: 2301314	Date Samples Received	: 01-Mar-2023 10:20
Order number	: ----	Date Analysis Commenced	: 02-Mar-2023
C-O-C number	: ----	Issue Date	: 07-Mar-2023 12:07
Sampler	: ----		
Site	: ----		
Quote number	: MEBQ/216/21 Primary work		
No. of samples received	: 4		
No. of samples analysed	: 4		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
Jarwis Nheu	Non-Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Nancy Wang	2IC Organic Chemist	Melbourne Organics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP075 (SIM): Where reported, Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.
- EP074-WF: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP074-WF: Where reported, Total Trihalomethanes is the sum of the reported concentrations of all Trihalomethanes at or above the LOR.
- EP074-WF: Where reported, Total Trimethylbenzenes is the sum of the reported concentrations of 1.2.3-Trimethylbenzene, 1.2.4-Trimethylbenzene and 1.3.5-Trimethylbenzene at or above the LOR.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP074-WF: Where reported, Total 1.2-Dichloroethene is the sum of the reported concentrations of trans-1.2-Dichloroethene and cis-1.2-Dichloroethene at or above the LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.
- EP074-WF: Where reported, Sum of Trichlorobenzenes is the sum of the reported concentrations of 1,2,3-Trichlorobenzene and 1,2,4-Trichlorobenzene, and 1,3,5-Trichlorobenzene at or above the LOR.
- EP074-WF: Particular sample EM2303524_001 shows poor duplicate precision due to sample heterogeneity between sample vials. Confirmed by re-analysis.
- EP071: EM2303597_001 Poor duplicate precision observed. Insufficient sample remains to confirm sample heterogeneity via re-extraction and re-analysis

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	GW1	QC01	QC03	QC04	----
				Sampling date / time	28-Feb-2023 00:00	28-Feb-2023 00:00	28-Feb-2023 00:00	28-Feb-2023 00:00	----
Compound	CAS Number	LOR	Unit		EM2303524-001	EM2303524-002	EM2303524-003	EM2303524-004	--------
					Result	Result	Result	Result	----
EG020F: Dissolved Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		**0.013**	**0.014**	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	<0.0001	----	----	----
Chromium	7440-47-3	0.001	mg/L		**0.005**	**0.006**	----	----	----
Copper	7440-50-8	0.001	mg/L		**0.074**	**0.076**	----	----	----
Lead	7439-92-1	0.001	mg/L		<0.001	<0.001	----	----	----
Nickel	7440-02-0	0.001	mg/L		**0.084**	**0.086**	----	----	----
Zinc	7440-66-6	0.005	mg/L		**0.068**	**0.073**	----	----	----
EG020T: Total Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		----	----	<0.001	----	----
Cadmium	7440-43-9	0.0001	mg/L		----	----	<0.0001	----	----
Chromium	7440-47-3	0.001	mg/L		----	----	<0.001	----	----
Copper	7440-50-8	0.001	mg/L		----	----	<0.001	----	----
Lead	7439-92-1	0.001	mg/L		----	----	<0.001	----	----
Nickel	7440-02-0	0.001	mg/L		----	----	<0.001	----	----
Zinc	7440-66-6	0.005	mg/L		----	----	<0.005	----	----
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	<0.0001	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		----	----	<0.0001	----	----
EP074A: Monocyclic Aromatic Hydrocarbons									
Benzene	71-43-2	1	µg/L		<1	<1	----	----	----
Toluene	108-88-3	1	µg/L		**4**	<1	----	----	----
Ethylbenzene	100-41-4	1	µg/L		<1	<1	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	1	µg/L		<1	<1	----	----	----
Styrene	100-42-5	1	µg/L		<1	<1	----	----	----
ortho-Xylene	95-47-6	1	µg/L		<1	<1	----	----	----
Isopropylbenzene	98-82-8	1	µg/L		<1	<1	----	----	----
n-Propylbenzene	103-65-1	1	µg/L		<1	<1	----	----	----
1.3.5-Trimethylbenzene	108-67-8	1	µg/L		<1	<1	----	----	----
sec-Butylbenzene	135-98-8	1	µg/L		<1	<1	----	----	----
1.2.4-Trimethylbenzene	95-63-6	1	µg/L		<1	<1	----	----	----
tert-Butylbenzene	98-06-6	1	µg/L		<1	<1	----	----	----
p-Isopropyltoluene	99-87-6	1	µg/L		<1	<1	----	----	----
n-Butylbenzene	104-51-8	1	µg/L		<1	<1	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	GW1	QC01	QC03	QC04	----
				Sampling date / time	28-Feb-2023 00:00	28-Feb-2023 00:00	28-Feb-2023 00:00	28-Feb-2023 00:00	----
Compound	CAS Number	LOR	Unit		EM2303524-001	EM2303524-002	EM2303524-003	EM2303524-004	--------
					Result	Result	Result	Result	----
EP074A: Monocyclic Aromatic Hydrocarbons - Continued									
^ Total Xylenes	----	1	µg/L		<1	<1	----	----	----
EP074B: Oxygenated Compounds									
Vinyl Acetate	108-05-4	10	µg/L		<10	<10	----	----	----
2-Butanone (MEK)	78-93-3	10	µg/L		<10	<10	----	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	10	µg/L		<10	<10	----	----	----
2-Hexanone (MBK)	591-78-6	10	µg/L		<10	<10	----	----	----
EP074C: Sulfonated Compounds									
Carbon disulfide	75-15-0	1	µg/L		<1	<1	----	----	----
EP074D: Fumigants									
2.2-Dichloropropane	594-20-7	1	µg/L		<1	<1	----	----	----
1.2-Dichloropropane	78-87-5	1	µg/L		<1	<1	----	----	----
cis-1.3-Dichloropropylene	10061-01-5	2	µg/L		<2	<2	----	----	----
trans-1.3-Dichloropropylene	10061-02-6	2	µg/L		<2	<2	----	----	----
1.2-Dibromoethane (EDB)	106-93-4	1	µg/L		<1	<1	----	----	----
^ 1.3-Dichloropropylene (cis & trans)	----	2	µg/L		<2	<2	----	----	----
EP074E: Halogenated Aliphatic Compounds									
Dichlorodifluoromethane	75-71-8	10	µg/L		<10	<10	----	----	----
Chloromethane	74-87-3	10	µg/L		<10	<10	----	----	----
Vinyl chloride	75-01-4	0.2	µg/L		<0.2	<0.2	----	----	----
Bromomethane	74-83-9	10	µg/L		<10	<10	----	----	----
Chloroethane	75-00-3	10	µg/L		<10	<10	----	----	----
Trichlorofluoromethane	75-69-4	10	µg/L		<10	<10	----	----	----
1.1-Dichloroethene	75-35-4	1	µg/L		<1	<1	----	----	----
Iodomethane	74-88-4	1	µg/L		<1	<1	----	----	----
Methylene chloride	75-09-2	2	µg/L		<2	<2	----	----	----
trans-1.2-Dichloroethene	156-60-5	1	µg/L		<1	<1	----	----	----
1.1-Dichloroethane	75-34-3	1	µg/L		<1	<1	----	----	----
cis-1.2-Dichloroethene	156-59-2	1	µg/L		<1	<1	----	----	----
1.1.1-Trichloroethane	71-55-6	1	µg/L		<1	<1	----	----	----
1.1-Dichloropropylene	563-58-6	1	µg/L		<1	<1	----	----	----
Carbon Tetrachloride	56-23-5	1	µg/L		<1	<1	----	----	----
1.2-Dichloroethane	107-06-2	1	µg/L		<1	<1	----	----	----
Trichloroethene	79-01-6	1	µg/L		<1	<1	----	----	----
Dibromomethane	74-95-3	1	µg/L		<1	<1	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	GW1	QC01	QC03	QC04	----
				Sampling date / time	28-Feb-2023 00:00	28-Feb-2023 00:00	28-Feb-2023 00:00	28-Feb-2023 00:00	----
Compound	CAS Number	LOR	Unit		EM2303524-001	EM2303524-002	EM2303524-003	EM2303524-004	--------
					Result	Result	Result	Result	----
EP074E: Halogenated Aliphatic Compounds - Continued									
1.1.2-Trichloroethane	79-00-5	1	µg/L		<1	<1	----	----	----
1.3-Dichloropropane	142-28-9	1	µg/L		<1	<1	----	----	----
Tetrachloroethene	127-18-4	1	µg/L		<1	<1	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	1	µg/L		<1	<1	----	----	----
trans-1.4-Dichloro-2-butene	110-57-6	1	µg/L		<1	<1	----	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	1	µg/L		<1	<1	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	1	µg/L		<1	<1	----	----	----
1.2.3-Trichloropropane	96-18-4	1	µg/L		<1	<1	----	----	----
Pentachloroethane	76-01-7	1	µg/L		<1	<1	----	----	----
1.2-Dibromo-3-chloropropane	96-12-8	1	µg/L		<1	<1	----	----	----
Hexachlorobutadiene	87-68-3	0.5	µg/L		<0.5	<0.5	----	----	----
Bromochloromethane	74-97-5	1	µg/L		<1	<1	----	----	----
EP074F: Halogenated Aromatic Compounds									
Chlorobenzene	108-90-7	1	µg/L		<1	**1**	----	----	----
Bromobenzene	108-86-1	1	µg/L		<1	<1	----	----	----
2-Chlorotoluene	95-49-8	1	µg/L		<1	<1	----	----	----
4-Chlorotoluene	106-43-4	1	µg/L		<1	<1	----	----	----
1.3-Dichlorobenzene	541-73-1	1	µg/L		<1	<1	----	----	----
1.4-Dichlorobenzene	106-46-7	0.1	µg/L		**0.5**	**0.6**	----	----	----
1.2-Dichlorobenzene	95-50-1	1	µg/L		<1	<1	----	----	----
1.2.4-Trichlorobenzene	120-82-1	1	µg/L		<1	<1	----	----	----
1.2.3-Trichlorobenzene	87-61-6	1	µg/L		<1	<1	----	----	----
^ Sum of Trichlorobenzenes	----	1	µg/L		<1	<1	----	----	----
EP074G: Trihalomethanes									
Chloroform	67-66-3	1	µg/L		<1	<1	----	----	----
Bromodichloromethane	75-27-4	1	µg/L		<1	<1	----	----	----
Dibromochloromethane	124-48-1	1	µg/L		<1	<1	----	----	----
Bromoform	75-25-2	1	µg/L		<1	<1	----	----	----
^ Total Trihalomethanes	----	1	µg/L		<1	<1	----	----	----
EP074H: Naphthalene									
Naphthalene	91-20-3	5	µg/L		<5	<5	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Acenaphthylene	208-96-8	1.0	µg/L		<1.0	<1.0	<1.0	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	GW1	QC01	QC03	QC04	----
				Sampling date / time	28-Feb-2023 00:00	28-Feb-2023 00:00	28-Feb-2023 00:00	28-Feb-2023 00:00	----
Compound	CAS Number	LOR	Unit		EM2303524-001	EM2303524-002	EM2303524-003	EM2303524-004	--------
					Result	Result	Result	Result	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Acenaphthene	83-32-9	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Fluorene	86-73-7	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Phenanthrene	85-01-8	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Anthracene	120-12-7	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Fluoranthene	206-44-0	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Pyrene	129-00-0	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Benz(a)anthracene	56-55-3	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Chrysene	218-01-9	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L		<0.5	<0.5	<0.5	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L		<1.0	<1.0	<1.0	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L		<0.5	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L		<0.5	<0.5	<0.5	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	<20	<20	<20	----
C10 - C14 Fraction	----	50	µg/L		**670**	**270**	<50	----	----
C15 - C28 Fraction	----	100	µg/L		**1360**	**1060**	<100	----	----
C29 - C36 Fraction	----	50	µg/L		**60**	<50	<50	----	----
^ C10 - C36 Fraction (sum)	----	50	µg/L		**2090**	**1330**	<50	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	<20	<20	<20	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L		<20	<20	<20	<20	----
>C10 - C16 Fraction	----	100	µg/L		**800**	**470**	<100	----	----
>C16 - C34 Fraction	----	100	µg/L		**1080**	**860**	<100	----	----
>C34 - C40 Fraction	----	100	µg/L		<100	<100	<100	----	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L		**1880**	**1330**	<100	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L		**800**	**470**	<100	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	<1	<1	<1	----
Toluene	108-88-3	2	µg/L		**4**	<2	<2	<2	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	GW1	QC01	QC03	QC04	----
				Sampling date / time	28-Feb-2023 00:00	28-Feb-2023 00:00	28-Feb-2023 00:00	28-Feb-2023 00:00	----
Compound	CAS Number	LOR	Unit		EM2303524-001	EM2303524-002	EM2303524-003	EM2303524-004	--------
					Result	Result	Result	Result	----
EP080: BTEXN - Continued									
Ethylbenzene	100-41-4	2	µg/L		<2	<2	<2	<2	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	<2	<2	<2	----
ortho-Xylene	95-47-6	2	µg/L		<2	<2	<2	<2	----
^ Total Xylenes	----	2	µg/L		<2	<2	<2	<2	----
^ Sum of BTEX	----	1	µg/L		4	<1	<1	<1	----
Naphthalene	91-20-3	5	µg/L		<5	<5	<5	<5	----
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	1	%		113	120	----	----	----
Toluene-D8	2037-26-5	1	%		124	119	----	----	----
4-Bromofluorobenzene	460-00-4	1	%		122	127	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1.0	%		38.8	32.9	21.3	----	----
2-Chlorophenol-D4	93951-73-6	1.0	%		61.8	56.4	46.3	----	----
2.4.6-Tribromophenol	118-79-6	1.0	%		122	113	78.5	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		88.8	87.0	61.6	----	----
Anthracene-d10	1719-06-8	1.0	%		89.4	84.6	77.6	----	----
4-Terphenyl-d14	1718-51-0	1.0	%		97.0	91.9	93.9	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		115	122	100	104	----
Toluene-D8	2037-26-5	2	%		110	119	94.4	96.4	----
4-Bromofluorobenzene	460-00-4	2	%		122	127	105	105	----

Surrogate Control Limits

Sub-Matrix: **WATER**

Compound	CAS Number	Recovery Limits (%) Low	High
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	72	120
Toluene-D8	2037-26-5	70	130
4-Bromofluorobenzene	460-00-4	70	128
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	51
2-Chlorophenol-D4	93951-73-6	30	114
2.4.6-Tribromophenol	118-79-6	26	133
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	35	127
Anthracene-d10	1719-06-8	44	122
4-Terphenyl-d14	1718-51-0	44	124
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	73	129
Toluene-D8	2037-26-5	70	125
4-Bromofluorobenzene	460-00-4	71	129

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EM2303524**

Client	: **ARC ENVIRONMENTAL**	Laboratory	: Environmental Division Melbourne
Contact	: GEORGIA BAYLEY	Contact	: Katie Davis
Address	: Suite 103, 7 Jeffcott Street WEST MELBOURNE	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: georgia@arcenvironmental.com.au	E-mail	: katie.davis@alsglobal.com
Telephone	: ----	Telephone	: +61-3-8549 9600
Facsimile	: ----	Facsimile	: +61-3-8549 9626
Project	: 2301314	Page	: 1 of 2
Order number	: ----	Quote number	: EM2017ARCENV0001 (MEBQ/216/21 Primary work)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	:		

Dates

Date Samples Received	: 01-Mar-2023 10:20	Issue Date	: 01-Mar-2023
Client Requested Due Date	: 08-Mar-2023	Scheduled Reporting Date	: **08-Mar-2023**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Intact.
No. of coolers/boxes	: 1	Temperature	: 8.0°C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 4 / 4

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please direct any queries related to sample condition / numbering / breakages to Client Services.**
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **Analytical work for this work order will be conducted at ALS Springvale.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP074-WF ADWG 2011 Low Level VOC incl. DCM, VC 0.2ug/L,	WATER - W-18 TRH(C6 - C9)/BTEXN	WATER - W-26 TRH/BTEXN/PAH/8 Metals	WATER - W-26T TRH/BTEXN/PAH/Total 8 Metals
EM2303524-001	28-Feb-2023 00:00	GW1	✓		✓	
EM2303524-002	28-Feb-2023 00:00	QC01	✓		✓	
EM2303524-003	28-Feb-2023 00:00	QC03				✓
EM2303524-004	28-Feb-2023 00:00	QC04		✓		

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

Admin		
- A4 - AU Tax Invoice (INV)	Email	admin@arcenvironmental.com.au
ESDAT REPORTING		
- EDI Format - ESDAT (ESDAT)	Email	arcenvironmental@esdat.com.au
- Electronic SRN for ESdat (ESRN_ESDAT)	Email	arcenvironmental@esdat.com.au
GEORGIA BAYLEY		
- *AU Certificate of Analysis - NATA (COA)	Email	georgia@arcenvironmental.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	georgia@arcenvironmental.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	georgia@arcenvironmental.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	georgia@arcenvironmental.com.au
- A4 - AU Tax Invoice (INV)	Email	georgia@arcenvironmental.com.au
- Chain of Custody (CoC) (COC)	Email	georgia@arcenvironmental.com.au
- EDI Format - ENMRG (ENMRG)	Email	georgia@arcenvironmental.com.au
- EDI Format - ESDAT (ESDAT)	Email	georgia@arcenvironmental.com.au

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM2303524**	Page	: 1 of 7
Client	: **ARC ENVIRONMENTAL**	Laboratory	: Environmental Division Melbourne
Contact	: GEORGIA BAYLEY	Telephone	: +61-3-8549 9600
Project	: 2301314	Date Samples Received	: 01-Mar-2023
Site	: ----	Issue Date	: 07-Mar-2023
Sampler	: ----	No. of samples received	: 4
Order number	: ----	No. of samples analysed	: 4

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

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

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Duplicate (DUP) RPDs							
EP074A: Monocyclic Aromatic Hydrocarbons	EM2303524--001	GW1	**Toluene**	108-88-3	125 %	0% - 50%	**RPD exceeds LOR based limits**
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons	EM2303597--001	Anonymous	**Naphthalene**	91-20-3	45.8 %	0% - 20%	**RPD exceeds LOR based limits**
EP080/071: Total Petroleum Hydrocarbons	EM2303597--001	Anonymous	**C10 - C14 Fraction**	----	135 %	0% - 20%	**RPD exceeds LOR based limits**
EP080/071: Total Petroleum Hydrocarbons	EM2303597--001	Anonymous	**C15 - C28 Fraction**	----	138 %	0% - 20%	**RPD exceeds LOR based limits**
EP080/071: Total Petroleum Hydrocarbons	EM2303597--001	Anonymous	**C29 - C36 Fraction**	----	130 %	0% - 50%	**RPD exceeds LOR based limits**
EP080/071: Total Recoverable Hydrocarbons - NEPM 2	EM2303597--001	Anonymous	**>C10 - C16 Fraction**	----	132 %	0% - 20%	**RPD exceeds LOR based limits**
EP080/071: Total Recoverable Hydrocarbons - NEPM 2	EM2303597--001	Anonymous	**>C16 - C34 Fraction**	----	139 %	0% - 20%	**RPD exceeds LOR based limits**

Analysis Holding Time Compliance

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

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

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

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

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020F: Dissolved Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F)							
GW1, QC01	**28-Feb-2023**	**----**	----	----	**02-Mar-2023**	27-Aug-2023	✓
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T)							
QC03	**28-Feb-2023**	**03-Mar-2023**	27-Aug-2023	✓	**03-Mar-2023**	27-Aug-2023	✓
EG035F: Dissolved Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F)							
GW1, QC01	**28-Feb-2023**	**----**	----	----	**03-Mar-2023**	28-Mar-2023	✓
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T)							
QC03	**28-Feb-2023**	**----**	----	----	**03-Mar-2023**	28-Mar-2023	✓
EP074A: Monocyclic Aromatic Hydrocarbons							
Amber VOC Vial - Sulfuric Acid (EP074-WF)							
GW1, QC01	**28-Feb-2023**	**02-Mar-2023**	14-Mar-2023	✓	**03-Mar-2023**	14-Mar-2023	✓
EP074B: Oxygenated Compounds							
Amber VOC Vial - Sulfuric Acid (EP074-WF)							
GW1, QC01	**28-Feb-2023**	**02-Mar-2023**	14-Mar-2023	✓	**03-Mar-2023**	14-Mar-2023	✓

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								
Amber VOC Vial - Sulfuric Acid (EP074-WF)								
GW1,	QC01	**28-Feb-2023**	**02-Mar-2023**	14-Mar-2023	✓	**03-Mar-2023**	14-Mar-2023	✓
EP074D: Fumigants								
Amber VOC Vial - Sulfuric Acid (EP074-WF)								
GW1,	QC01	**28-Feb-2023**	**02-Mar-2023**	14-Mar-2023	✓	**03-Mar-2023**	14-Mar-2023	✓
EP074E: Halogenated Aliphatic Compounds								
Amber VOC Vial - Sulfuric Acid (EP074-WF)								
GW1,	QC01	**28-Feb-2023**	**02-Mar-2023**	14-Mar-2023	✓	**03-Mar-2023**	14-Mar-2023	✓
EP074F: Halogenated Aromatic Compounds								
Amber VOC Vial - Sulfuric Acid (EP074-WF)								
GW1,	QC01	**28-Feb-2023**	**02-Mar-2023**	14-Mar-2023	✓	**03-Mar-2023**	14-Mar-2023	✓
EP074G: Trihalomethanes								
Amber VOC Vial - Sulfuric Acid (EP074-WF)								
GW1,	QC01	**28-Feb-2023**	**02-Mar-2023**	14-Mar-2023	✓	**03-Mar-2023**	14-Mar-2023	✓
EP074H: Naphthalene								
Amber VOC Vial - Sulfuric Acid (EP074-WF)								
GW1,	QC01	**28-Feb-2023**	**02-Mar-2023**	14-Mar-2023	✓	**03-Mar-2023**	14-Mar-2023	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP075(SIM))								
GW1, QC03	QC01,	**28-Feb-2023**	**02-Mar-2023**	07-Mar-2023	✓	**04-Mar-2023**	11-Apr-2023	✓
EP080/071: Total Petroleum Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP071)								
GW1, QC03	QC01,	**28-Feb-2023**	**02-Mar-2023**	07-Mar-2023	✓	**04-Mar-2023**	11-Apr-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080)								
QC03,	QC04	**28-Feb-2023**	**02-Mar-2023**	14-Mar-2023	✓	**02-Mar-2023**	14-Mar-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080)								
GW1,	QC01	**28-Feb-2023**	**02-Mar-2023**	14-Mar-2023	✓	**03-Mar-2023**	14-Mar-2023	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
Amber Glass Bottle - Unpreserved (EP071)								
GW1, QC03	QC01,	**28-Feb-2023**	**02-Mar-2023**	07-Mar-2023	✓	**04-Mar-2023**	11-Apr-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080)								
QC03,	QC04	**28-Feb-2023**	**02-Mar-2023**	14-Mar-2023	✓	**02-Mar-2023**	14-Mar-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080)								
GW1,	QC01	**28-Feb-2023**	**02-Mar-2023**	14-Mar-2023	✓	**03-Mar-2023**	14-Mar-2023	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080: BTEXN								
Amber VOC Vial - Sulfuric Acid (EP080)								
QC03,	QC04	**28-Feb-2023**	**02-Mar-2023**	14-Mar-2023	✓	**02-Mar-2023**	14-Mar-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080)								
GW1,	QC01	**28-Feb-2023**	**02-Mar-2023**	14-Mar-2023	✓	**03-Mar-2023**	14-Mar-2023	✓

Quality Control Parameter Frequency Compliance

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

Matrix: **WATER**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Dissolved Mercury by FIMS	EG035F	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	13	**15.38**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	3	27	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds WF Detection Limits	EP074-WF	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Dissolved Mercury by FIMS	EG035F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	27	**7.41**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds WF Detection Limits	EP074-WF	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Dissolved Mercury by FIMS	EG035F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	27	**7.41**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds WF Detection Limits	EP074-WF	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Dissolved Mercury by FIMS	EG035F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	27	**7.41**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds WF Detection Limits	EP074-WF	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

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

Analytical Methods	Method	Matrix	Method Descriptions
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. Samples are 0.45µm filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	In house: Referenced to APHA 3112 Hg - B (Flow-injection (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).
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM 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 WF Detection Limits	EP074-WF	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)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
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

CERTIFICATE OF ANALYSIS

Work Order	: **EM2302569**	Page	: 1 of 3
Client	: **ARC ENVIRONMENTAL**	Laboratory	: Environmental Division Melbourne
Contact	: GEORGIA BAYLEY	Contact	: Katie Davis
Address	: Suite 103, 7 Jeffcott Street WEST MELBOURNE	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +61-3-8549 9600
Project	: 2301314	Date Samples Received	: 15-Feb-2023 11:25
Order number	: ----	Date Analysis Commenced	: 16-Feb-2023
C-O-C number	: ----	Issue Date	: 17-Feb-2023 16:48
Sampler	: DT		
Site	: HVH Brunswick		
Quote number	: MEBQ/216/21 Primary work		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
MINNIE TRAN	Approved Asbestos Identifier	Melbourne Asbestos, Springvale, VIC

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- **EA200 Legend**
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Ch' Chrysotile (white asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EA200: Analysis of asbestos from swabs and tapes is not covered under the current scope of NATA accreditation.
- EA200: N/A - Not Applicable

Analytical Results

Sub-Matrix: **SOLID** (Matrix: **SOLID**)			Sample ID	**LFG01_0.2**	**----**	**----**	**----**	**----**
			Sampling date / time	13-Feb-2023 00:00	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**EM2302569-001**	**--------**	**--------**	**--------**	**--------**
				Result	----	----	----	----
EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples								
Asbestos Detected	1332-21-4	0.1	g/kg	**Yes**	**----**	**----**	**----**	**----**
Asbestos Type	1332-21-4	-	--	**Ch + Am**	**----**	**----**	**----**	**----**
Asbestos (Trace)	1332-21-4	5	Fibres	**No**	**----**	**----**	**----**	**----**
Sample weight (dry)	----	0.01	g	**12.2**	**----**	**----**	**----**	**----**
Synthetic Mineral Fibre	----	-	-	**No**	**----**	**----**	**----**	**----**
Organic Fibre	----	-	-	**No**	**----**	**----**	**----**	**----**
APPROVED IDENTIFIER:	----	-	--	**M. TRAN**	**----**	**----**	**----**	**----**

Analytical Results

Descriptive Results

Sub-Matrix: **SOLID**

Method: Compound	Sample ID - Sampling date / time	Analytical Results
EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples		
EA200: Description	LFG01_0.2 - 13-Feb-2023 00:00	Asbestos sheeting fragment approx 50 x 30 x 5mm.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EM2302569**

Client	: **ARC ENVIRONMENTAL**	Laboratory	: Environmental Division Melbourne
Contact	: GEORGIA BAYLEY	Contact	: Katie Davis
Address	: Suite 103, 7 Jeffcott Street WEST MELBOURNE	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: georgia@arcenvironmental.com.au	E-mail	: katie.davis@alsglobal.com
Telephone	: ----	Telephone	: +61-3-8549 9600
Facsimile	: ----	Facsimile	: +61-3-8549 9626
Project	: 2301314	Page	: 1 of 2
Order number	: ----	Quote number	: EM2017ARCENV0001 (MEBQ/216/21 Primary work)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: HVH Brunswick		
Sampler	: DT		

Dates

Date Samples Received	: 15-Feb-2023 11:25	Issue Date	: 16-Feb-2023
Client Requested Due Date	: 22-Feb-2023	Scheduled Reporting Date	: **22-Feb-2023**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Intact.
No. of coolers/boxes	: 1	Temperature	: 14.9°c - Ice present
Receipt Detail	:	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please direct any queries related to sample condition / numbering / breakages to Client Services.**
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **Analytical work for this work order will be conducted at ALS Springvale.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOLID**

Laboratory sample ID	Sampling date / time	Sample ID	SOLID - EA200B Asbestos Identification in Bulk Solids (Excluding
EM2302569-001	13-Feb-2023 00:00	LFG01_0.2	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

Admin		
- A4 - AU Tax Invoice (INV)	Email	admin@arcenvironmental.com.au
ESDAT REPORTING		
- EDI Format - ESDAT (ESDAT)	Email	arcenvironmental@esdat.com.au
- Electronic SRN for ESdat (ESRN_ESDAT)	Email	arcenvironmental@esdat.com.au
GEORGIA BAYLEY		
- *AU Certificate of Analysis - NATA (COA)	Email	georgia@arcenvironmental.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	georgia@arcenvironmental.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	georgia@arcenvironmental.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	georgia@arcenvironmental.com.au
- A4 - AU Tax Invoice (INV)	Email	georgia@arcenvironmental.com.au
- Chain of Custody (CoC) (COC)	Email	georgia@arcenvironmental.com.au
- EDI Format - ENMRG (ENMRG)	Email	georgia@arcenvironmental.com.au
- EDI Format - ESDAT (ESDAT)	Email	georgia@arcenvironmental.com.au

Chain of Custody Documentation

ARC ENVIRONMENTAL
Suite 1.03 7 Jeffcott Street, West Melbourne 3003
Phone: (03) 8383 1950

LAB: ALS	SAMPLER: Declan
LAB ADDRESS: 2-4 Westall Rd	MOBILE: 0439 919 543
PROJECT MANAGER (PM): Georgia Bayley	PHONE:
PROJECT ID: 23013.4	EMAIL REPORT TO: georgia@
SITE: HvH Pakenham	EMAIL INVOICE TO: (if different to report) admin@arcenvironmental.com.au
RESULTS REQUIRED (Date): Standard	Primary Lab Quote: / Secondary Lab Quote:

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

ANALYSIS REQUIRED including SUITES

SAMPLE INFORMATION (note: S = Soil, W=Water)					CONTAINER INFORMATION		ASB/TOS ID.												Notes: e.g. Highly contaminated samples e.g. "High PAHs expected". Extra volume for QC or trace LORs etc.
LAB ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles													
1)	LFH01_0.2[redacted]		13/02		Bag	1	X												
																			EA200B ↳ Asbestos ID.

Environmental Division
Melbourne
Work Order Reference
EM2302569

Telephone : +61-3-8549 9600

RELINQUISHED BY:		RECEIVED BY		METHOD OF SHIPMENT
Name: Declan Tennant	Date: 14/02/23	Name:	Date: 15/2	Con' Note No:
Of: PRL Environmental	Time:	Of:	Time: 11.25	
Name:	Date:	Name:	Date:	Transport Co:
Of:	Time:	Of:	Time:	

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; V = VOA Vial HCl Preserved; VS = VOA Vial Sulphuric Preserved; SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM2302569**	Page	: 1 of 4
Client	: **ARC ENVIRONMENTAL**	Laboratory	: Environmental Division Melbourne
Contact	: GEORGIA BAYLEY	Telephone	: +61-3-8549 9600
Project	: 2301314	Date Samples Received	: 15-Feb-2023
Site	: HVH Brunswick	Issue Date	: 17-Feb-2023
Sampler	: DT	No. of samples received	: 1
Order number	: ----	No. of samples analysed	: 1

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

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: **SOLID**

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
EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples							
Snap Lock Bag: Separate bag received (EA200)							
LFG01_0.2	**13-Feb-2023**	**----**	----	----	**16-Feb-2023**	12-Aug-2023	✓

Quality Control Parameter Frequency Compliance

- **No Quality Control data available for this section.**

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
Asbestos Identification in Bulk Solids	EA200	SOLID	In house: Referenced to AS 4964 Method for the qualitative identification of asbestos in bulk samples Analysis by Polarised Light Microscopy including dispersion staining

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM2302568**	Page	: 1 of 22
Client	: **ARC ENVIRONMENTAL**	Laboratory	: Environmental Division Melbourne
Contact	: GEORGIA BAYLEY	Contact	: Katie Davis
Address	: Suite 103, 7 Jeffcott Street WEST MELBOURNE	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +61-3-8549 9600
Project	: 2301314	Date Samples Received	: 15-Feb-2023 11:25
Order number	: ----	Date Analysis Commenced	: 16-Feb-2023
C-O-C number	: ----	Issue Date	: 21-Feb-2023 17:36
Sampler	: DT		
Site	: HVH Brunswick		
Quote number	: MEBQ/216/21 Primary work		
No. of samples received	: 57		
No. of samples analysed	: 26		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
Jarwis Nheu	Non-Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Nancy Wang	2IC Organic Chemist	Melbourne Organics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP075 (SIM): Where reported, Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP074-UT: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.
- EP074-WF: Where reported, Sum of trichlorobenzenes is the sum of the reported concentrations of 1,2,3-Trichlorobenzene and 1,2,4-Trichlorobenzene, and 1,3,5-Trichlorobenzene at or above the LOR.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	SB01_0.3	SB01_1.0	QC01	SB02_0.3	SB02_1.0
			Sampling date / time	13-Feb-2023 00:00	13-Feb-2023 00:00	13-Feb-2023 00:00	13-Feb-2023 00:00	13-Feb-2023 00:00
Compound	CAS Number	LOR	Unit	EM2302568-001	EM2302568-003	EM2302568-004	EM2302568-005	EM2302568-007
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	8.2	16.2	15.5	16.6	14.4
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	5	<5	<5	<5	<5
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	12	27	22	12	21
Copper	7440-50-8	5	mg/kg	62	6	<5	<5	<5
Lead	7439-92-1	5	mg/kg	44	10	7	5	8
Nickel	7440-02-0	2	mg/kg	18	21	17	5	15
Zinc	7440-66-6	5	mg/kg	71	10	8	7	6
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	0.6	0.6	0.6	0.6	0.6
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	1.2	1.2	1.2	1.2	1.2
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	----	<10	<10	<10	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	SB01_0.3	SB01_1.0	QC01	SB02_0.3	SB02_1.0
			Sampling date / time	13-Feb-2023 00:00	13-Feb-2023 00:00	13-Feb-2023 00:00	13-Feb-2023 00:00	13-Feb-2023 00:00
Compound	CAS Number	LOR	Unit	EM2302568-001	EM2302568-003	EM2302568-004	EM2302568-005	EM2302568-007
				Result	Result	Result	Result	Result
EP080/071: Total Petroleum Hydrocarbons - Continued								
C10 - C14 Fraction	----	50	mg/kg	----	<50	<50	<50	----
C15 - C28 Fraction	----	100	mg/kg	----	<100	<100	<100	----
C29 - C36 Fraction	----	100	mg/kg	----	<100	<100	<100	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	----	<50	<50	<50	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	----	<10	<10	<10	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	----	<10	<10	<10	----
>C10 - C16 Fraction	----	50	mg/kg	----	<50	<50	<50	----
>C16 - C34 Fraction	----	100	mg/kg	----	<100	<100	<100	----
>C34 - C40 Fraction	----	100	mg/kg	----	<100	<100	<100	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	----	<50	<50	<50	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	----	<50	<50	<50	----
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	----	<0.2	<0.2	<0.2	----
Toluene	108-88-3	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Ethylbenzene	100-41-4	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
ortho-Xylene	95-47-6	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
^ Sum of BTEX	----	0.2	mg/kg	----	<0.2	<0.2	<0.2	----
^ Total Xylenes	----	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Naphthalene	91-20-3	1	mg/kg	----	<1	<1	<1	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	**94.2**	**82.5**	**84.4**	**82.9**	**84.3**
Anthracene-d10	1719-06-8	0.5	%	**108**	**95.3**	**98.4**	**96.4**	**97.8**
4-Terphenyl-d14	1718-51-0	0.5	%	**102**	**89.1**	**90.9**	**89.9**	**91.0**
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	----	**79.4**	**94.3**	**102**	----
Toluene-D8	2037-26-5	0.2	%	----	**82.2**	**96.3**	**100**	----
4-Bromofluorobenzene	460-00-4	0.2	%	----	**94.7**	**113**	**111**	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	SB02_4.0	SB02_8.0	LFG01_0.2	LFG01_0.5	LFG01_1.0
			Sampling date / time	13-Feb-2023 00:00	13-Feb-2023 00:00	13-Feb-2023 00:00	13-Feb-2023 00:00	13-Feb-2023 00:00
Compound	CAS Number	LOR	Unit	EM2302568-010	EM2302568-014	EM2302568-016	EM2302568-017	EM2302568-018
				Result	Result	Result	Result	Result
EA001: pH in soil using 0.01M CaCl extract								
pH (CaCl2)	----	0.1	pH Unit	----	----	----	6.8	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	12.2	9.0	3.2	13.2	15.5
EG005(ED093)T: Total Metals by ICP-AES								
Molybdenum	7439-98-7	2	mg/kg	----	----	----	<2	----
Selenium	7782-49-2	5	mg/kg	----	----	----	<5	----
Silver	7440-22-4	2	mg/kg	----	----	----	<2	----
Tin	7440-31-5	5	mg/kg	----	----	----	9	----
Arsenic	7440-38-2	5	mg/kg	<5	21	<5	5	<5
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	4	12	16	----	25
Copper	7440-50-8	5	mg/kg	<5	34	160	50	12
Lead	7439-92-1	5	mg/kg	<5	24	116	54	14
Nickel	7440-02-0	2	mg/kg	<2	57	26	24	29
Zinc	7440-66-6	5	mg/kg	<5	202	241	94	27
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)								
Hexavalent Chromium	18540-29-9	0.5	mg/kg	----	----	----	<0.5	----
EK026SF: Total CN by Segmented Flow Analyser								
Total Cyanide	57-12-5	1	mg/kg	----	----	----	<1	----
EK040T: Fluoride Total								
Fluoride	16984-48-8	40	mg/kg	----	----	----	190	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	----	----	<0.1	----
EP074A: Monocyclic Aromatic Hydrocarbons								
Benzene	71-43-2	0.2	mg/kg	----	----	----	<0.2	----
Toluene	108-88-3	0.5	mg/kg	----	----	----	<0.5	----
Ethylbenzene	100-41-4	0.5	mg/kg	----	----	----	<0.5	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	----	----	----	<0.5	----
Styrene	100-42-5	0.5	mg/kg	----	----	----	<0.5	----
ortho-Xylene	95-47-6	0.5	mg/kg	----	----	----	<0.5	----
^ Sum of monocyclic aromatic hydrocarbons	----	0.2	mg/kg	----	----	----	<0.2	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	SB02_4.0	SB02_8.0	LFG01_0.2	LFG01_0.5	LFG01_1.0
			Sampling date / time	13-Feb-2023 00:00	13-Feb-2023 00:00	13-Feb-2023 00:00	13-Feb-2023 00:00	13-Feb-2023 00:00
Compound	CAS Number	LOR	Unit	EM2302568-010	EM2302568-014	EM2302568-016	EM2302568-017	EM2302568-018
				Result	Result	Result	Result	Result
EP074A: Monocyclic Aromatic Hydrocarbons - Continued								
^ Total Xylenes	----	0.5	mg/kg	----	----	----	<0.5	----
EP074H: Naphthalene								
Naphthalene	91-20-3	1	mg/kg	----	----	----	<1	----
EP074I: Volatile Halogenated Compounds								
Vinyl chloride	75-01-4	0.02	mg/kg	----	----	----	<0.02	----
1.1-Dichloroethene	75-35-4	0.01	mg/kg	----	----	----	<0.01	----
Methylene chloride	75-09-2	0.4	mg/kg	----	----	----	<0.4	----
trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	----	----	----	<0.02	----
cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	----	----	----	<0.01	----
Chloroform	67-66-3	0.02	mg/kg	----	----	----	<0.02	----
1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	----	----	----	<0.01	----
Carbon Tetrachloride	56-23-5	0.01	mg/kg	----	----	----	<0.01	----
1.2-Dichloroethane	107-06-2	0.02	mg/kg	----	----	----	<0.02	----
Trichloroethene	79-01-6	0.02	mg/kg	----	----	----	<0.02	----
1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	----	----	----	<0.04	----
Tetrachloroethene	127-18-4	0.02	mg/kg	----	----	----	<0.02	----
1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	----	----	----	<0.01	----
1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	----	----	----	<0.02	----
Hexachlorobutadiene	87-68-3	0.02	mg/kg	----	----	----	<0.02	----
Chlorobenzene	108-90-7	0.02	mg/kg	----	----	----	<0.02	----
1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	----	----	----	<0.02	----
1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	----	----	----	<0.02	----
1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	----	----	----	<0.01	----
^ Sum of volatile chlorinated hydrocarbons	----	0.01	mg/kg	----	----	----	<0.01	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	SB02_4.0	SB02_8.0	LFG01_0.2	LFG01_0.5	LFG01_1.0
			Sampling date / time	13-Feb-2023 00:00	13-Feb-2023 00:00	13-Feb-2023 00:00	13-Feb-2023 00:00	13-Feb-2023 00:00
Compound	CAS Number	LOR	Unit	EM2302568-010	EM2302568-014	EM2302568-016	EM2302568-017	EM2302568-018
				Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	**0.6**	**0.6**	**0.6**	----	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	**1.2**	**1.2**	**1.2**	----	**1.2**
EP075A: Phenolic Compounds (Halogenated)								
2-Chlorophenol	95-57-8	0.03	mg/kg	----	----	----	<0.03	----
2.4-Dichlorophenol	120-83-2	0.03	mg/kg	----	----	----	<0.03	----
2.6-Dichlorophenol	87-65-0	0.03	mg/kg	----	----	----	<0.03	----
4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg	----	----	----	<0.03	----
2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	----	----	----	<0.05	----
2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	----	----	----	<0.05	----
2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg	----	----	----	<0.03	----
2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/58-90-2	0.05	mg/kg	----	----	----	<0.05	----
Pentachlorophenol	87-86-5	0.2	mg/kg	----	----	----	<0.2	----
^ Sum of Phenols (halogenated)	----	0.03	mg/kg	----	----	----	<0.03	----
EP075A: Phenolic Compounds (Non-halogenated)								
Phenol	108-95-2	1	mg/kg	----	----	----	<1	----
2-Methylphenol	95-48-7	1	mg/kg	----	----	----	<1	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	----	----	----	<1	----
2-Nitrophenol	88-75-5	1	mg/kg	----	----	----	<1	----
2.4-Dimethylphenol	105-67-9	1	mg/kg	----	----	----	<1	----
2.4-Dinitrophenol	51-28-5	5	mg/kg	----	----	----	<5	----
4-Nitrophenol	100-02-7	5	mg/kg	----	----	----	<5	----
2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	----	----	----	<5	----
Dinoseb	88-85-7	5	mg/kg	----	----	----	<5	----
2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	----	----	----	<5	----
^ Sum of Phenols (non-halogenated)	----	1	mg/kg	----	----	----	<1	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	SB02_4.0	SB02_8.0	LFG01_0.2	LFG01_0.5	LFG01_1.0
			Sampling date / time	13-Feb-2023 00:00	13-Feb-2023 00:00	13-Feb-2023 00:00	13-Feb-2023 00:00	13-Feb-2023 00:00
Compound	CAS Number	LOR	Unit	EM2302568-010	EM2302568-014	EM2302568-016	EM2302568-017	EM2302568-018
				Result	Result	Result	Result	Result
EP075A: Phenolic Compounds (Non-halogenated) - Continued								
EP075B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	----	----	----	<0.5	----
Acenaphthene	83-32-9	0.5	mg/kg	----	----	----	<0.5	----
Acenaphthylene	208-96-8	0.5	mg/kg	----	----	----	<0.5	----
Fluorene	86-73-7	0.5	mg/kg	----	----	----	<0.5	----
Phenanthrene	85-01-8	0.5	mg/kg	----	----	----	<0.5	----
Anthracene	120-12-7	0.5	mg/kg	----	----	----	<0.5	----
Fluoranthene	206-44-0	0.5	mg/kg	----	----	----	<0.5	----
Pyrene	129-00-0	0.5	mg/kg	----	----	----	<0.5	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	----	----	----	<0.5	----
Chrysene	218-01-9	0.5	mg/kg	----	----	----	<0.5	----
Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	1.0	mg/kg	----	----	----	<1.0	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	----	----	----	<0.5	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	----	----	----	<0.5	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	----	----	----	<0.5	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	----	----	----	<0.5	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	----	----	----	<0.5	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	----	----	----	<0.5	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	----	----	----	**0.6**	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	----	----	----	**1.2**	----
EP075I: Organochlorine Pesticides								
alpha-BHC	319-84-6	0.03	mg/kg	----	----	----	<0.03	----
Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	----	----	----	<0.03	----
beta-BHC	319-85-7	0.03	mg/kg	----	----	----	<0.03	----
gamma-BHC	58-89-9	0.03	mg/kg	----	----	----	<0.03	----
delta-BHC	319-86-8	0.03	mg/kg	----	----	----	<0.03	----
Heptachlor	76-44-8	0.03	mg/kg	----	----	----	<0.03	----
Aldrin	309-00-2	0.03	mg/kg	----	----	----	<0.03	----
Heptachlor epoxide	1024-57-3	0.03	mg/kg	----	----	----	<0.03	----
cis-Chlordane	5103-71-9	0.03	mg/kg	----	----	----	<0.03	----
trans-Chlordane	5103-74-2	0.03	mg/kg	----	----	----	<0.03	----
Endosulfan 1	959-98-8	0.03	mg/kg	----	----	----	<0.03	----
4.4`-DDE	72-55-9	0.05	mg/kg	----	----	----	<0.05	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	SB02_4.0	SB02_8.0	LFG01_0.2	LFG01_0.5	LFG01_1.0
			Sampling date / time	13-Feb-2023 00:00	13-Feb-2023 00:00	13-Feb-2023 00:00	13-Feb-2023 00:00	13-Feb-2023 00:00
Compound	CAS Number	LOR	Unit	EM2302568-010	EM2302568-014	EM2302568-016	EM2302568-017	EM2302568-018
				Result	Result	Result	Result	Result
EP075l: Organochlorine Pesticides - Continued								
Dieldrin	60-57-1	0.03	mg/kg	----	----	----	<0.03	----
Endrin aldehyde	7421-93-4	0.03	mg/kg	----	----	----	<0.03	----
Endrin	72-20-8	0.03	mg/kg	----	----	----	<0.03	----
Endosulfan 2	33213-65-9	0.03	mg/kg	----	----	----	<0.03	----
4.4`-DDD	72-54-8	0.05	mg/kg	----	----	----	<0.05	----
Endosulfan sulfate	1031-07-8	0.03	mg/kg	----	----	----	<0.03	----
4.4`-DDT	50-29-3	0.05	mg/kg	----	----	----	<0.05	----
Methoxychlor	72-43-5	0.03	mg/kg	----	----	----	<0.03	----
^ Sum of organochlorine pesticides	----	0.03	mg/kg	----	----	----	<0.03	----
^ Chlordane	57-74-9	0.03	mg/kg	----	----	----	<0.03	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	----	<10	----	----
C6 - C9 Fraction	----	10	mg/kg	----	----	----	<10	----
C10 - C14 Fraction	----	50	mg/kg	<50	----	<50	----	----
C10 - C14 Fraction	----	50	mg/kg	----	----	----	<50	----
C6 - C10 Fraction	C6_C10	10	mg/kg	----	----	----	<10	----
C15 - C28 Fraction	----	100	mg/kg	<100	----	<100	----	----
C15 - C28 Fraction	----	100	mg/kg	----	----	----	<100	----
C29 - C36 Fraction	----	100	mg/kg	<100	----	<100	----	----
C29 - C36 Fraction	----	100	mg/kg	----	----	----	<100	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	<50	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	----	----	----	<50	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	----	<10	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	----	<10	----	----
>C10 - C16 Fraction	----	50	mg/kg	<50	----	<50	----	----
>C10 - C16 Fraction	----	50	mg/kg	----	----	----	<50	----
>C16 - C34 Fraction	----	100	mg/kg	<100	----	<100	----	----
>C16 - C34 Fraction	----	100	mg/kg	----	----	----	<100	----
>C34 - C40 Fraction	----	100	mg/kg	<100	----	<100	----	----
>C34 - C40 Fraction	----	100	mg/kg	----	----	----	<100	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	----	<50	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	----	----	----	<50	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	SB02_4.0	SB02_8.0	LFG01_0.2	LFG01_0.5	LFG01_1.0
				Sampling date / time	13-Feb-2023 00:00	13-Feb-2023 00:00	13-Feb-2023 00:00	13-Feb-2023 00:00	13-Feb-2023 00:00
Compound	CAS Number	LOR	Unit		EM2302568-010	EM2302568-014	EM2302568-016	EM2302568-017	EM2302568-018
					Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	----	<50	----	----
>C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		----	----	----	<50	----
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		----	----	----	<10	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	----	<0.2	----	----
Toluene	108-88-3	0.5	mg/kg		<0.5	----	<0.5	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	----	<0.5	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	----	<0.5	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	----	<0.5	----	----
^ Sum of BTEX	----	0.2	mg/kg		<0.2	----	<0.2	----	----
^ Total Xylenes	----	0.5	mg/kg		<0.5	----	<0.5	----	----
Naphthalene	91-20-3	1	mg/kg		<1	----	<1	----	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		----	----	----	89.2	----
EP074S: VOC Surrogates (Ultra-Trace)									
1.2-Dichloroethane-D4	17060-07-0	0.1	%		----	----	----	71.7	----
Toluene-D8	2037-26-5	0.1	%		----	----	----	73.9	----
4-Bromofluorobenzene	460-00-4	0.1	%		----	----	----	81.0	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		81.6	80.6	83.1	----	85.7
Anthracene-d10	1719-06-8	0.5	%		96.0	96.2	93.6	----	99.6
4-Terphenyl-d14	1718-51-0	0.5	%		87.7	87.8	89.2	----	92.9
EP075S: Acid Extractable Surrogates (Waste Classification)									
Phenol-d6	13127-88-3	0.025	%		----	----	----	86.8	----
2-Chlorophenol-D4	93951-73-6	0.025	%		----	----	----	78.4	----
2.4.6-Tribromophenol	118-79-6	0.025	%		----	----	----	79.6	----
EP075T: Base/Neutral Extractable Surrogates (Waste Classification)									
Nitrobenzene-D5	4165-60-0	0.025	%		----	----	----	89.4	----
1.2-Dichlorobenzene-D4	2199-69-1	0.025	%		----	----	----	80.5	----
2-Fluorobiphenyl	321-60-8	0.025	%		----	----	----	80.3	----
Anthracene-d10	1719-06-8	0.025	%		----	----	----	82.8	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	SB02_4.0	SB02_8.0	LFG01_0.2	LFG01_0.5	LFG01_1.0
				Sampling date / time	13-Feb-2023 00:00	13-Feb-2023 00:00	13-Feb-2023 00:00	13-Feb-2023 00:00	13-Feb-2023 00:00
Compound	CAS Number	LOR	Unit		EM2302568-010	EM2302568-014	EM2302568-016	EM2302568-017	EM2302568-018
					Result	Result	Result	Result	Result
EP075T: Base/Neutral Extractable Surrogates (Waste Classification) - Continued									
4-Terphenyl-d14	1718-51-0	0.025	%		----	----	----	86.4	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		83.8	----	89.1	----	----
Toluene-D8	2037-26-5	0.2	%		86.8	----	91.9	----	----
4-Bromofluorobenzene	460-00-4	0.2	%		92.5	----	102	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	LFG01_4.0	LFG02_0.5	LFG02_3.0	QC05	LFG03_0.2
			Sampling date / time	13-Feb-2023 00:00	14-Feb-2023 00:00	14-Feb-2023 00:00	14-Feb-2023 00:00	14-Feb-2023 00:00
Compound	CAS Number	LOR	Unit	EM2302568-021	EM2302568-026	EM2302568-029	EM2302568-032	EM2302568-033
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	8.3	7.3	19.3	7.5	10.1
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	10	<5	<5	<5	<5
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	4	10	41	10	13
Copper	7440-50-8	5	mg/kg	<5	<5	10	<5	27
Lead	7439-92-1	5	mg/kg	7	<5	9	5	40
Nickel	7440-02-0	2	mg/kg	<2	3	21	3	11
Zinc	7440-66-6	5	mg/kg	<5	<5	14	<5	111
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	0.6	0.6	0.6	0.6	0.6
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	1.2	1.2	1.2	1.2	1.2
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	----	<10	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	LFG01_4.0	LFG02_0.5	LFG02_3.0	QC05	LFG03_0.2
			Sampling date / time	13-Feb-2023 00:00	14-Feb-2023 00:00	14-Feb-2023 00:00	14-Feb-2023 00:00	14-Feb-2023 00:00
Compound	CAS Number	LOR	Unit	EM2302568-021	EM2302568-026	EM2302568-029	EM2302568-032	EM2302568-033
				Result	Result	Result	Result	Result
EP080/071: Total Petroleum Hydrocarbons - Continued								
C10 - C14 Fraction	----	50	mg/kg	<50	<50	----	<50	----
C15 - C28 Fraction	----	100	mg/kg	<100	<100	----	<100	----
C29 - C36 Fraction	----	100	mg/kg	<100	<100	----	<100	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	----	<50	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	----	<10	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	----	<10	----
>C10 - C16 Fraction	----	50	mg/kg	<50	<50	----	<50	----
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	----	<100	----
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	----	<100	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	----	<50	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	----	<50	----
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	----	<0.2	----
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	----	<0.2	----
^ Total Xylenes	----	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
Naphthalene	91-20-3	1	mg/kg	<1	<1	----	<1	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	**78.9**	**85.1**	**83.2**	**83.8**	**83.4**
Anthracene-d10	1719-06-8	0.5	%	**92.5**	**100**	**97.4**	**99.0**	**94.7**
4-Terphenyl-d14	1718-51-0	0.5	%	**85.1**	**91.8**	**89.5**	**92.3**	**90.6**
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	**95.6**	**77.0**	----	**82.0**	----
Toluene-D8	2037-26-5	0.2	%	**87.9**	**82.5**	----	**82.8**	----
4-Bromofluorobenzene	460-00-4	0.2	%	**100**	**89.9**	----	**89.0**	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	LFG03_1.0	LFG04_0.2	LFG04_0.5	LFG04_3.0	SB03_0.2
			Sampling date / time	14-Feb-2023 00:00	14-Feb-2023 00:00	14-Feb-2023 00:00	14-Feb-2023 00:00	14-Feb-2023 00:00
Compound	CAS Number	LOR	Unit	EM2302568-035	EM2302568-040	EM2302568-041	EM2302568-044	EM2302568-048
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	8.6	4.8	1.5	18.1	11.2
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	<5
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	16	5	6	14	12
Copper	7440-50-8	5	mg/kg	<5	20	<5	<5	10
Lead	7439-92-1	5	mg/kg	5	29	<5	<5	12
Nickel	7440-02-0	2	mg/kg	7	9	<2	3	7
Zinc	7440-66-6	5	mg/kg	6	33	<5	<5	19
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	0.7
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	0.7
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	1.4
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	0.6	0.6	0.6	0.6	0.6
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	1.2	1.2	1.2	1.2	1.2
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	----	<10	----	----	<10

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	LFG03_1.0	LFG04_0.2	LFG04_0.5	LFG04_3.0	SB03_0.2
				Sampling date / time	14-Feb-2023 00:00	14-Feb-2023 00:00	14-Feb-2023 00:00	14-Feb-2023 00:00	14-Feb-2023 00:00
Compound	CAS Number	LOR	Unit		EM2302568-035	EM2302568-040	EM2302568-041	EM2302568-044	EM2302568-048
					Result	Result	Result	Result	Result
EP080/071: Total Petroleum Hydrocarbons - Continued									
C10 - C14 Fraction	----	50	mg/kg		----	<50	----	----	<50
C15 - C28 Fraction	----	100	mg/kg		----	<100	----	----	<100
C29 - C36 Fraction	----	100	mg/kg		----	<100	----	----	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		----	<50	----	----	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		----	<10	----	----	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		----	<10	----	----	<10
>C10 - C16 Fraction	----	50	mg/kg		----	<50	----	----	<50
>C16 - C34 Fraction	----	100	mg/kg		----	<100	----	----	<100
>C34 - C40 Fraction	----	100	mg/kg		----	<100	----	----	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		----	<50	----	----	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		----	<50	----	----	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		----	<0.2	----	----	<0.2
Toluene	108-88-3	0.5	mg/kg		----	<0.5	----	----	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		----	<0.5	----	----	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		----	<0.5	----	----	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		----	<0.5	----	----	<0.5
^ Sum of BTEX	----	0.2	mg/kg		----	<0.2	----	----	<0.2
^ Total Xylenes	----	0.5	mg/kg		----	<0.5	----	----	<0.5
Naphthalene	91-20-3	1	mg/kg		----	<1	----	----	<1
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**111**	**102**	**104**	**93.6**	**93.6**
2-Chlorophenol-D4	93951-73-6	0.5	%		**104**	**103**	**104**	**98.4**	**99.2**
2.4.6-Tribromophenol	118-79-6	0.5	%		**98.1**	**101**	**91.4**	**85.2**	**92.4**
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		**93.7**	**98.7**	**96.6**	**95.2**	**94.2**
Anthracene-d10	1719-06-8	0.5	%		**103**	**106**	**110**	**106**	**109**
4-Terphenyl-d14	1718-51-0	0.5	%		**111**	**111**	**115**	**119**	**110**
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		----	**86.8**	----	----	**86.1**
Toluene-D8	2037-26-5	0.2	%		----	**91.4**	----	----	**86.6**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	LFG03_1.0	LFG04_0.2	LFG04_0.5	LFG04_3.0	SB03_0.2
				Sampling date / time	14-Feb-2023 00:00	14-Feb-2023 00:00	14-Feb-2023 00:00	14-Feb-2023 00:00	14-Feb-2023 00:00
Compound	CAS Number	LOR	Unit		EM2302568-035	EM2302568-040	EM2302568-041	EM2302568-044	EM2302568-048
					Result	Result	Result	Result	Result
EP080S: TPH(V)/BTEX Surrogates - Continued									
4-Bromofluorobenzene	460-00-4	0.2	%		**----**	**96.1**	**----**	**----**	**94.3**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	SB04_0.5	SB05_0.2	SB05_1.0	----	----
			Sampling date / time	14-Feb-2023 00:00	14-Feb-2023 00:00	14-Feb-2023 00:00	----	----
Compound	CAS Number	LOR	Unit	EM2302568-052	EM2302568-054	EM2302568-056	--------	--------
				Result	Result	Result	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**5.5**	**8.6**	**18.8**	----	----
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	----	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	----	----
Chromium	7440-47-3	2	mg/kg	**40**	**7**	**26**	----	----
Copper	7440-50-8	5	mg/kg	**92**	<5	<5	----	----
Lead	7439-92-1	5	mg/kg	**154**	**9**	**9**	----	----
Nickel	7440-02-0	2	mg/kg	**38**	**3**	**15**	----	----
Zinc	7440-66-6	5	mg/kg	**247**	**14**	**7**	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Fluoranthene	206-44-0	0.5	mg/kg	**0.7**	<0.5	<0.5	----	----
Pyrene	129-00-0	0.5	mg/kg	**0.8**	<0.5	<0.5	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	**1.5**	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	**0.6**	**0.6**	**0.6**	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	**1.2**	**1.2**	**1.2**	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	**86.9**	**90.6**	**90.5**	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	SB04_0.5	SB05_0.2	SB05_1.0	----	----
				Sampling date / time	14-Feb-2023 00:00	14-Feb-2023 00:00	14-Feb-2023 00:00	----	----
Compound	CAS Number	LOR	Unit		EM2302568-052	EM2302568-054	EM2302568-056	--------	--------
					Result	Result	Result	----	----
EP075(SIM)S: Phenolic Compound Surrogates - Continued									
2-Chlorophenol-D4	93951-73-6	0.5	%		**90.4**	**70.7**	**70.3**	**----**	**----**
2.4.6-Tribromophenol	118-79-6	0.5	%		**86.2**	**73.6**	**71.7**	**----**	**----**
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		**93.9**	**95.4**	**93.5**	**----**	**----**
Anthracene-d10	1719-06-8	0.5	%		**103**	**125**	**129**	**----**	**----**
4-Terphenyl-d14	1718-51-0	0.5	%		**110**	**103**	**104**	**----**	**----**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC03	QC04	QC09	----	----
				Sampling date / time	13-Feb-2023 00:00	13-Feb-2023 00:00	14-Feb-2023 00:00	----	----
Compound	CAS Number	LOR	Unit		EM2302568-023	EM2302568-024	EM2302568-057	--------	--------
					Result	Result	Result	----	----
EG020T: Total Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		<0.001	----	<0.001	----	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	----	<0.0001	----	----
Chromium	7440-47-3	0.001	mg/L		<0.001	----	<0.001	----	----
Copper	7440-50-8	0.001	mg/L		<0.001	----	<0.001	----	----
Lead	7439-92-1	0.001	mg/L		<0.001	----	<0.001	----	----
Nickel	7440-02-0	0.001	mg/L		<0.001	----	<0.001	----	----
Zinc	7440-66-6	0.005	mg/L		<0.005	----	<0.005	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	----	<0.0001	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	1.0	µg/L		<1.0	----	<1.0	----	----
Acenaphthylene	208-96-8	1.0	µg/L		<1.0	----	<1.0	----	----
Acenaphthene	83-32-9	1.0	µg/L		<1.0	----	<1.0	----	----
Fluorene	86-73-7	1.0	µg/L		<1.0	----	<1.0	----	----
Phenanthrene	85-01-8	1.0	µg/L		<1.0	----	<1.0	----	----
Anthracene	120-12-7	1.0	µg/L		<1.0	----	<1.0	----	----
Fluoranthene	206-44-0	1.0	µg/L		<1.0	----	<1.0	----	----
Pyrene	129-00-0	1.0	µg/L		<1.0	----	<1.0	----	----
Benz(a)anthracene	56-55-3	1.0	µg/L		<1.0	----	<1.0	----	----
Chrysene	218-01-9	1.0	µg/L		<1.0	----	<1.0	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L		<1.0	----	<1.0	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L		<1.0	----	<1.0	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L		<0.5	----	<0.5	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L		<1.0	----	<1.0	----	----
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L		<1.0	----	<1.0	----	----
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L		<1.0	----	<1.0	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L		<0.5	----	<0.5	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L		<0.5	----	<0.5	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	<20	<20	----	----
C10 - C14 Fraction	----	50	µg/L		<50	----	<50	----	----
C15 - C28 Fraction	----	100	µg/L		<100	----	<100	----	----
C29 - C36 Fraction	----	50	µg/L		<50	----	<50	----	----
^ C10 - C36 Fraction (sum)	----	50	µg/L		<50	----	<50	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC03	QC04	QC09	----	----
				Sampling date / time	13-Feb-2023 00:00	13-Feb-2023 00:00	14-Feb-2023 00:00	----	----
Compound	CAS Number	LOR	Unit		EM2302568-023	EM2302568-024	EM2302568-057	--------	--------
					Result	Result	Result	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	<20	<20	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L		<20	<20	<20	----	----
>C10 - C16 Fraction	----	100	µg/L		<100	----	<100	----	----
>C16 - C34 Fraction	----	100	µg/L		<100	----	<100	----	----
>C34 - C40 Fraction	----	100	µg/L		<100	----	<100	----	----
^ **>C10 - C40 Fraction (sum)**	----	100	µg/L		<100	----	<100	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	100	µg/L		<100	----	<100	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	<1	<1	----	----
Toluene	108-88-3	2	µg/L		<2	<2	<2	----	----
Ethylbenzene	100-41-4	2	µg/L		<2	<2	<2	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	<2	<2	----	----
ortho-Xylene	95-47-6	2	µg/L		<2	<2	<2	----	----
^ **Total Xylenes**	----	2	µg/L		<2	<2	<2	----	----
^ **Sum of BTEX**	----	1	µg/L		<1	<1	<1	----	----
Naphthalene	91-20-3	5	µg/L		<5	<5	<5	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1.0	%		**27.1**	----	**28.4**	----	----
2-Chlorophenol-D4	93951-73-6	1.0	%		**57.1**	----	**64.1**	----	----
2.4.6-Tribromophenol	118-79-6	1.0	%		**90.6**	----	**92.2**	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		**73.6**	----	**78.3**	----	----
Anthracene-d10	1719-06-8	1.0	%		**86.0**	----	**85.3**	----	----
4-Terphenyl-d14	1718-51-0	1.0	%		**95.9**	----	**93.6**	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		**105**	**99.4**	**101**	----	----
Toluene-D8	2037-26-5	2	%		**103**	**103**	**102**	----	----
4-Bromofluorobenzene	460-00-4	2	%		**104**	**104**	**104**	----	----

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	41	122
EP074S: VOC Surrogates (Ultra-Trace)			
1.2-Dichloroethane-D4	17060-07-0	59	119
Toluene-D8	2037-26-5	55	117
4-Bromofluorobenzene	460-00-4	59	123
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	54	125
2-Chlorophenol-D4	93951-73-6	65	123
2.4.6-Tribromophenol	118-79-6	34	122
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	61	125
Anthracene-d10	1719-06-8	62	130
4-Terphenyl-d14	1718-51-0	67	133
EP075S: Acid Extractable Surrogates (Waste Classification)			
Phenol-d6	13127-88-3	63	134
2-Chlorophenol-D4	93951-73-6	60	125
2.4.6-Tribromophenol	118-79-6	54	129
EP075T: Base/Neutral Extractable Surrogates (Waste Classification)			
Nitrobenzene-D5	4165-60-0	63	131
1.2-Dichlorobenzene-D4	2199-69-1	61	124
2-Fluorobiphenyl	321-60-8	69	131
Anthracene-d10	1719-06-8	70	133
4-Terphenyl-d14	1718-51-0	59	141
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	51	125
Toluene-D8	2037-26-5	55	125
4-Bromofluorobenzene	460-00-4	56	124

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	51
2-Chlorophenol-D4	93951-73-6	30	114
2.4.6-Tribromophenol	118-79-6	26	133
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	35	127
Anthracene-d10	1719-06-8	44	122
4-Terphenyl-d14	1718-51-0	44	124

Sub-Matrix: **WATER**		Recovery Limits (%)	
Compound	*CAS Number*	***Low***	***High***
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	73	129
Toluene-D8	2037-26-5	70	125
4-Bromofluorobenzene	460-00-4	71	129

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EM2302568**

Client	: **ARC ENVIRONMENTAL**	Laboratory	: Environmental Division Melbourne
Contact	: GEORGIA BAYLEY	Contact	: Katie Davis
Address	: Suite 103, 7 Jeffcott Street WEST MELBOURNE	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: georgia@arcenvironmental.com.au	E-mail	: katie.davis@alsglobal.com
Telephone	: ----	Telephone	: +61-3-8549 9600
Facsimile	: ----	Facsimile	: +61-3-8549 9626
Project	: 2301314	Page	: 1 of 4
Order number	: ----	Quote number	: EM2017ARCENV0001 (MEBQ/216/21 Primary work)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: HVH Brunswick		
Sampler	: DT		

Dates

Date Samples Received	: 15-Feb-2023 11:25	Issue Date	: 16-Feb-2023
Client Requested Due Date	: 22-Feb-2023	Scheduled Reporting Date	: **22-Feb-2023**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Intact.
No. of coolers/boxes	: 2	Temperature	: 11.8°C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 57 / 26

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please direct any queries related to sample condition / numbering / breakages to Client Services.**
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **Analytical work for this work order will be conducted at ALS Springvale.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	(On Hold) SOIL No analysis requested	SOIL - EA055-103 Moisture Content	SOIL - EP075 SIM PAH only SIM - PAH only	SOIL - P-30/4 EPA 1828.2 Table 3 Suite EPA 1828.2 Table 3 Fill Material Suite	SOIL - S-02 8 Metals (incl. Digestion)	SOIL - S-26 8 metals/TRH/BTEXN/PAH
EM2302568-001	13-Feb-2023 00:00	SB01_0.3		✓	✓		✓	
EM2302568-002	13-Feb-2023 00:00	SB01_0.5	✓					
EM2302568-003	13-Feb-2023 00:00	SB01_1.0		✓				✓
EM2302568-004	13-Feb-2023 00:00	QC01		✓				✓
EM2302568-005	13-Feb-2023 00:00	SB02_0.3		✓				✓
EM2302568-006	13-Feb-2023 00:00	SB02_0.8	✓					
EM2302568-007	13-Feb-2023 00:00	SB02_1.0		✓	✓		✓	
EM2302568-008	13-Feb-2023 00:00	SB02_2.0	✓					
EM2302568-009	13-Feb-2023 00:00	SB02_3.0	✓					
EM2302568-010	13-Feb-2023 00:00	SB02_4.0		✓				✓
EM2302568-011	13-Feb-2023 00:00	SB02_5.0	✓					
EM2302568-012	13-Feb-2023 00:00	SB02_6.0	✓					
EM2302568-013	13-Feb-2023 00:00	SB02_7.0	✓					
EM2302568-014	13-Feb-2023 00:00	SB02_8.0		✓	✓		✓	
EM2302568-015	13-Feb-2023 00:00	SB02_10.0	✓					
EM2302568-016	13-Feb-2023 00:00	LFG01_0.2		✓				✓
EM2302568-017	13-Feb-2023 00:00	LFG01_0.5		✓		✓		
EM2302568-018	13-Feb-2023 00:00	LFG01_1.0		✓	✓		✓	
EM2302568-019	13-Feb-2023 00:00	LFG01_2.0	✓					
EM2302568-020	13-Feb-2023 00:00	LFG01_3.0	✓					
EM2302568-021	13-Feb-2023 00:00	LFG01_4.0		✓				✓
EM2302568-022	13-Feb-2023 00:00	LFG01_5.0	✓					
EM2302568-025	14-Feb-2023 00:00	LFG02_0.2	✓					
EM2302568-026	14-Feb-2023 00:00	LFG02_0.5		✓				✓
EM2302568-027	14-Feb-2023 00:00	LFG02_1.0	✓					
EM2302568-028	14-Feb-2023 00:00	LFG02_2.0	✓					
EM2302568-029	14-Feb-2023 00:00	LFG02_3.0		✓	✓		✓	
EM2302568-030	14-Feb-2023 00:00	LFG02_4.0	✓					
EM2302568-031	14-Feb-2023 00:00	LFG02_5.0	✓					
EM2302568-032	14-Feb-2023 00:00	QC05		✓				✓
EM2302568-033	14-Feb-2023 00:00	LFG03_0.2		✓	✓		✓	
EM2302568-034	14-Feb-2023 00:00	LFG03_0.5	✓					
EM2302568-035	14-Feb-2023 00:00	LFG03_1.0		✓	✓		✓	
EM2302568-036	14-Feb-2023 00:00	LFG03_2.0	✓					
EM2302568-037	14-Feb-2023 00:00	LFG03_3.0	✓					

			(On Hold) SOIL No analysis requested	SOIL - EA055-103 Moisture Content	SOIL - EP075 SIM PAH only SIM - PAH only	SOIL - P-30/4 EPA 1828.2 Table 3 Suite EPA 1828.2 Table 3 Fill Material Suite	SOIL - S-02 8 Metals (incl. Digestion)	SOIL - S-26 8 metals/TRH/BTEXN/PAH
EM2302568-038	14-Feb-2023 00:00	LFG03_4.0	✓					
EM2302568-039	14-Feb-2023 00:00	LFG03_5.0	✓					
EM2302568-040	14-Feb-2023 00:00	LFG04_0.2		✓				✓
EM2302568-041	14-Feb-2023 00:00	LFG04_0.5		✓	✓		✓	
EM2302568-042	14-Feb-2023 00:00	LFG04_1.0	✓					
EM2302568-043	14-Feb-2023 00:00	LFG04_2.0	✓					
EM2302568-044	14-Feb-2023 00:00	LFG04_3.0		✓	✓		✓	
EM2302568-045	14-Feb-2023 00:00	LFG04_4.0	✓					
EM2302568-046	14-Feb-2023 00:00	LFG04_5.0	✓					
EM2302568-047	14-Feb-2023 00:00	QC07	✓					
EM2302568-048	14-Feb-2023 00:00	SB03_0.2		✓				✓
EM2302568-049	14-Feb-2023 00:00	SB03_0.5	✓					
EM2302568-050	14-Feb-2023 00:00	SB03_1.0	✓					
EM2302568-051	14-Feb-2023 00:00	SB04_0.2	✓					
EM2302568-052	14-Feb-2023 00:00	SB04_0.5		✓	✓		✓	
EM2302568-053	14-Feb-2023 00:00	SB04_1.0	✓					
EM2302568-054	14-Feb-2023 00:00	SB05_0.2		✓	✓		✓	
EM2302568-055	14-Feb-2023 00:00	SB05_0.5	✓					
EM2302568-056	14-Feb-2023 00:00	SB05_1.0		✓	✓		✓	

Matrix: **WATER**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	WATER - W-26T TRH/BTEXN/PAH/Total 8 Metals
EM2302568-023	13-Feb-2023 00:00	QC03	✓
EM2302568-057	14-Feb-2023 00:00	QC09	✓

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - W-18 TRH(C6 - C9)/BTEXN
EM2302568-024	13-Feb-2023 00:00	QC04	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

Admin		
- A4 - AU Tax Invoice (INV)	Email	admin@arcenvironmental.com.au
ESDAT REPORTING		
- EDI Format - ESDAT (ESDAT)	Email	arcenvironmental@esdat.com.au
- Electronic SRN for ESdat (ESRN_ESDAT)	Email	arcenvironmental@esdat.com.au
GEORGIA BAYLEY		
- *AU Certificate of Analysis - NATA (COA)	Email	georgia@arcenvironmental.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	georgia@arcenvironmental.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	georgia@arcenvironmental.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	georgia@arcenvironmental.com.au
- A4 - AU Tax Invoice (INV)	Email	georgia@arcenvironmental.com.au
- Chain of Custody (CoC) (COC)	Email	georgia@arcenvironmental.com.au
- EDI Format - ENMRG (ENMRG)	Email	georgia@arcenvironmental.com.au
- EDI Format - ESDAT (ESDAT)	Email	georgia@arcenvironmental.com.au
- EPA Waste Classification & Categorisation Guideline Report (COA_GL_EPA_WASTE)	Email	georgia@arcenvironmental.com.au

Chain of Custody Documentation

ARC ENVIRONMENTAL
Suite 1.03 7 Jeffcott Street, West Melbourne 3003
Phone: (03) 8383 1950

LAB: ALS	SAMPLER: DT
LAB ADDRESS: 2-4 Westall Rd.	MOBILE: 0439 919 543
PROJECT MANAGER (PM): Georgia Bayley	PHONE:
PROJECT ID: 230131U	EMAIL REPORT TO: georgia@arcenvironmental.com.au
SITE: HvH Brunswick — Primary Lab Quote: Melb9-216.	EMAIL INVOICE TO: (if different to report) admin@arcenvironmental.com.au
RESULTS REQUIRED (Date): Standard Turnaround — Secondary Lab Quote:	ANALYSIS REQUIRED including SUITES (and Code)

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

Forwarded to Secondary Lab
Initials BN Date 16/2

Notes: e.g. Highly contaminated samples
e.g. "High PAHs expected".
Extra volume for QC or trace LORs etc.

LAB ID	SAMPLE ID	MATRIX	DATE	Time	Container Type / Code	Total bottles	PAH/8 metals	TRH/BTEXN	P-30/4							HOLD
1	SB01-0.3	S	13/02/23	1	Jar	1	X									
2	SB02-0.5			2												X
3	SB01-1.0			3			X	X								
4	QC01			4			X	X								
5	QC02						→ FORWARD TO LABORATORY									
6	SB02-0.3	S	13/02/23	5	Jar	1	X	X								
7	SB02-0.5			6												X
8	SB02-1.0			7			X									
9	SB02-2.0			8												X
10	SB02-3.0			9												X
11	SB02-4.0			10			X	X								
12	SB02-5.0			11												X
13	SB02-6.0			12												X
14	SB02-7.0			13												X
15	SB02-8.0			14			X									X
16	SB02 10.0			15												X

5 suites
S-26: TRH/BTEXN/PAHs/8 metals
P-30/4: EPA 1828.2 Table 3 Fill Material Suite

RELINQUISHED BY:			RECEIVED BY			
Name: Deelan Tennent.	Date: 15/02/23		Name: [illegible]	Date: 15/2	Con'l
Of: ARC Environmental	Time:		Of: ARC	Time: 11.25	
Name:	Date:		Name:	Date:	Trans
Of:	Time:		Of:	Time:	

Environmental Division
Melbourne
Work Order Reference
EM2302568

Telephone : +61-3-8549 9600

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; V = VOA Vial HCl Preserved; VS = VOA Vial Sulphuric Preserved; SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

Chain of Custody Documentation

ARC ENVIRONMENTAL
Suite 1.03 7 Jeffcott Street, West Melbourne 3003
Phone: (03) 8383 1950

LAB: ALS
LAB ADDRESS: 24 Westall Rd
PROJECT MANAGER (PM): Georgia Bayley
PROJECT ID: 230131A
SITE: HMAS Brunswick
Primary Lab Quote: Melbq-24b
RESULTS REQUIRED (Date): Standard Turnaround
Secondary Lab Quote:

SAMPLER: Declan Tennens
MOBILE: 0439 919 563
PHONE:
EMAIL REPORT TO: georgia@arcenvironmental.com.au
EMAIL INVOICE TO: (if different to report) admin@arcenvironmental.com.au

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

ANALYSIS REQUIRED including SUITES (and Code)

Notes: e.g. Highly contaminated samples e.g. "High PAHs expected". Extra volume for QC or trace LORs etc.

SAMPLE INFORMATION (note: S = Soil, W=Water)					CONTAINER INFORMATION		PAH/Metals	TRH/BTEXN	P-30/4	V-26	TRH/BTEXN					HOLD	
LAB ID	SAMPLE ID	MATRIX	DATE	~~time~~	Type / Code	Total bottles											
16	LFH01_0.2	S	13/02/23		Jar	1	X	X									
17	LFH01 - 0.5								X								
18	LFH01 - 1.0						X										
19	LFH01 - 2.0															X	
20	LFH01 - 3.0															X	
21	LFH01 - 4.0						X	X									
22	LF401 _ 5.0															X	W-26; TRH/BTEXN/PAH/Metals
23	QC03	W	13/02/23		Bottle	4				X							
24	QC04	W	13/02/23		Bottle	1					X						
	"		~~14/02/23~~		~~Jar~~	—											
25	LFH02-0.2		14/02/23		Jar	1										X	
26	LFH02_0.5						X	X									
27	LFH02_1.0															X	
28	LFH02 - 2.0															X	
29	LFH02_3.0						X										
30	LFH02_4.0															X	

RELINQUISHED BY:		RECEIVED BY			METHOD OF SHIPMENT
Name: Declan Tennens	Date: 14/02/23	Name:	Date:		Con' Note No:
Of: ARC Environmental	Time:	Of: ACL	Time:		
Name:	Date:	Name:	Date:		Transport Co:
Of:	Time:	Of:	Time:		

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; V = VOA Vial HCl Preserved; VS = VOA Vial Sulphuric Preserved; SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

Chain of Custody Documentation

ARC ENVIRONMENTAL
Suite 1.03 7 Jeffcott Street, West Melbourne 3003
Phone: (03) 8383 1950

LAB: ALS	SAMPLER: Declan Tennent
LAB ADDRESS: 2-4 Westall Rd	MOBILE: 0439 919 543
PROJECT MANAGER (PM): Georgia Bayley	PHONE:
PROJECT ID: 23013114	EMAIL REPORT TO: georgia@arcenvironmental.com.au
SITE: HVM Brunswick — Primary Lab Quote: Melb-216	EMAIL INVOICE TO: (if different to report) admin@arcenvironmental.com.au
RESULTS REQUIRED (Date): Standard Turnaround — Secondary Lab Quote:	ANALYSIS REQUIRED including SUITES

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

Notes: e.g. Highly contaminated samples e.g. "High PAHs expected". Extra volume for QC or trace LORs etc.

SAMPLE INFORMATION (note: S = Soil, W=Water)					CONTAINER INFORMATION		PAH/8 metals	TRH/BTEXN	8 - 30/4										HOLD	
LAB ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles														
31	LFH02_5.0	S	14/02	23	J	1													X	
32	QC05	↓	↓		↓	↓	X	X												
→	QC06																		→	FORWARD TO EUROFINS
33	LFH03_0.2	S	14/02	23	J	1	X													
34	LFH03_0.5																		X	
35	LFH03_1.0						X													
36	LFH03_2.0																		X	
37	LFH03_3.0																		X	
38	LFH03_4.0																		X	
39	LFH03_5.0																		X	
40	LFH04_0.2						X	X												
41	LFH04_0.5						X													
42	LFH04_1.0																		X	
43	LFH04_2.0																		X	
44	LFH04_3.0						X													
45	LFH04_4.0	↓	↓		↓	↓													Y	

RELINQUISHED BY:			RECEIVED BY			METHOD OF SHIPMENT
Name: Declan Tennent	Date: 14/02		Name:	Date:		Con' Note No:
Of: ARC Environmental	Time:		Of:	Time:		
Name:	Date:		Name:	Date:		Transport Co:
Of:	Time:		Of:	Time:		

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; V = VOA Vial HCl Preserved; VS = VOA Vial Sulphuric Preserved; SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

Chain of Custody Documentation

ARC ENVIRONMENTAL
Suite 1.03 7 Jeffcott Street, West Melbourne 3003
Phone: (03) 8383 1950

LAB: ALS
LAB ADDRESS: 2-4 Westall Rd
PROJECT MANAGER (PM): Georgia Bayley
PROJECT ID: 230314
SITE: HvH Brunswick
Primary Lab Quote: Melbq-216
RESULTS REQUIRED (Date): Standard Turnaround
Secondary Lab Quote:

SAMPLER: DF
MOBILE: 0439 919 543
PHONE:
EMAIL REPORT TO: georgia@arcenvironmental.com.au
EMAIL INVOICE TO: (if different to report) admin@arcenvironmental.com.au

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

ANALYSIS REQUIRED including SUITES

LAB ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles	PAH/8 metals	TRH/BTEXN	0-30/4	W-26	HOLD	Notes: e.g. Highly contaminated samples e.g. "High PAHs expected". Extra volume for QC or trace LORs etc.
46	WFH04-5.0	S	14/02/23		Jar	1					X	
47	QC07	↓	↓		↓	↓					X	
→	QC08											SEND TO EUROFINS
48	SB03-0.2	S	14/02/23		Jar	1	X	X				
49	SB03-0.5										X	
50	SB03-1.0										X	
51	SB04-0.2										X	
52	SB04-0.5						X					
53	SB04-1.0										X	
54	SB05-0.2						X				X	
55	SB05-0.5										X	
56	SB05-1.0	↓	↓		↓	↓	X					
57	QC09	W	14/2/23		Bottle	4			X			

RELINQUISHED BY:

Name:	Declan Tennent	Date:	14/02
Of:	ARC Environmental	Time:	
Name:		Date:	
Of:		Time:	

RECEIVED BY

Name:		Date:	
Of:		Time:	
Name:		Date:	
Of:		Time:	

METHOD OF SHIPMENT
Con' Note No:
Transport Co:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; V = VOA Vial HCl Preserved; VS = VOA Vial Sulphuric Preserved; SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM2302568**	Page	: 1 of 12
Client	: **ARC ENVIRONMENTAL**	Laboratory	: Environmental Division Melbourne
Contact	: GEORGIA BAYLEY	Telephone	: +61-3-8549 9600
Project	: 2301314	Date Samples Received	: 15-Feb-2023
Site	: HVH Brunswick	Issue Date	: 21-Feb-2023
Sampler	: DT	No. of samples received	: 57
Order number	: ----	No. of samples analysed	: 26

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

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

Outliers : Frequency of Quality Control Samples

Matrix: **SOIL**

Quality Control Sample Type / Method	Count QC	Count Regular	Rate (%) Actual	Rate (%) Expected	Quality Control Specification
Matrix Spikes (MS)					
Volatile Organic Compounds - Ultra-trace	0	1	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Quality Control Sample Type / Method	Count QC	Count Regular	Rate (%) Actual	Rate (%) Expected	Quality Control Specification
Laboratory Duplicates (DUP)					
PAH/Phenols (GC/MS - SIM)	0	2	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
PAH/Phenols (GC/MS - SIM)	0	2	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	3	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
EA001: pH in soil using 0.01M CaCl extract							
Soil Glass Jar - Unpreserved (EA001)							
LFG01_0.5	**13-Feb-2023**	**20-Feb-2023**	20-Feb-2023	✓	**20-Feb-2023**	20-Feb-2023	✓
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055)							
SB01_0.3, SB01_1.0, QC01, SB02_0.3, SB02_1.0, SB02_4.0, SB02_8.0, LFG01_0.2, LFG01_0.5, LFG01_1.0, LFG01_4.0	**13-Feb-2023**	**----**	----	----	**17-Feb-2023**	27-Feb-2023	✓
Soil Glass Jar - Unpreserved (EA055)							
LFG02_0.5, LFG02_3.0, QC05, LFG03_0.2, LFG03_1.0, LFG04_0.2, LFG04_0.5, LFG04_3.0, SB03_0.2, SB04_0.5, SB05_0.2, SB05_1.0	**14-Feb-2023**	**----**	----	----	**17-Feb-2023**	28-Feb-2023	✓

Matrix: **SOIL**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG005(ED093)T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
SB01_0.3, SB01_1.0, QC01, SB02_0.3, SB02_1.0, SB02_4.0, SB02_8.0, LFG01_0.2, LFG01_0.5, LFG01_1.0, LFG01_4.0	**13-Feb-2023**	**17-Feb-2023**	12-Aug-2023	✓	**17-Feb-2023**	12-Aug-2023	✓
Soil Glass Jar - Unpreserved (EG005T)							
LFG02_0.5, LFG02_3.0, QC05, LFG03_0.2, LFG03_1.0, LFG04_0.2, LFG04_0.5, LFG04_3.0, SB03_0.2, SB04_0.5, SB05_0.2, SB05_1.0	**14-Feb-2023**	**17-Feb-2023**	13-Aug-2023	✓	**17-Feb-2023**	13-Aug-2023	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
SB01_0.3, SB01_1.0, QC01, SB02_0.3, SB02_1.0, SB02_4.0, SB02_8.0, LFG01_0.2, LFG01_0.5, LFG01_1.0, LFG01_4.0	**13-Feb-2023**	**17-Feb-2023**	13-Mar-2023	✓	**19-Feb-2023**	13-Mar-2023	✓
Soil Glass Jar - Unpreserved (EG035T)							
LFG02_0.5, LFG02_3.0, QC05, LFG03_0.2, LFG03_1.0, LFG04_0.2, LFG04_0.5, LFG04_3.0, SB03_0.2, SB04_0.5, SB05_0.2, SB05_1.0	**14-Feb-2023**	**17-Feb-2023**	14-Mar-2023	✓	**19-Feb-2023**	14-Mar-2023	✓
EG048: Hexavalent Chromium (Alkaline Digest)							
Soil Glass Jar - Unpreserved (EG048G)							
LFG01_0.5	**13-Feb-2023**	**17-Feb-2023**	13-Mar-2023	✓	**21-Feb-2023**	24-Feb-2023	✓
EK026SF: Total CN by Segmented Flow Analyser							
Soil Glass Jar - Unpreserved (EK026SF)							
LFG01_0.5	**13-Feb-2023**	**17-Feb-2023**	27-Feb-2023	✓	**21-Feb-2023**	03-Mar-2023	✓
EK040T: Fluoride Total							
Soil Glass Jar - Unpreserved (EK040T)							
LFG01_0.5	**13-Feb-2023**	**17-Feb-2023**	13-Mar-2023	✓	**19-Feb-2023**	13-Mar-2023	✓
EP066: Polychlorinated Biphenyls (PCB)							
Soil Glass Jar - Unpreserved (EP066-EM)							
LFG01_0.5	**13-Feb-2023**	**16-Feb-2023**	27-Feb-2023	✓	**20-Feb-2023**	28-Mar-2023	✓

Matrix: **SOIL**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP074A: Monocyclic Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP074-UT)							
LFG01_0.5	**13-Feb-2023**	**17-Feb-2023**	20-Feb-2023	✓	**17-Feb-2023**	20-Feb-2023	✓
EP074H: Naphthalene							
Soil Glass Jar - Unpreserved (EP074-UT)							
LFG01_0.5	**13-Feb-2023**	**17-Feb-2023**	20-Feb-2023	✓	**17-Feb-2023**	20-Feb-2023	✓
EP074I: Volatile Halogenated Compounds							
Soil Glass Jar - Unpreserved (EP074-UT)							
LFG01_0.5	**13-Feb-2023**	**17-Feb-2023**	20-Feb-2023	✓	**17-Feb-2023**	20-Feb-2023	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM))							
SB01_0.3, SB01_1.0, QC01, SB02_0.3, SB02_1.0, SB02_4.0, SB02_8.0, LFG01_0.2, LFG01_1.0, LFG01_4.0	**13-Feb-2023**	**17-Feb-2023**	27-Feb-2023	✓	**18-Feb-2023**	29-Mar-2023	✓
Soil Glass Jar - Unpreserved (EP075(SIM))							
LFG02_0.5, LFG02_3.0, QC05, LFG03_0.2, LFG03_1.0, LFG04_0.2, LFG04_0.5, LFG04_3.0, SB03_0.2, SB04_0.5	**14-Feb-2023**	**17-Feb-2023**	28-Feb-2023	✓	**18-Feb-2023**	29-Mar-2023	✓
Soil Glass Jar - Unpreserved (EP075(SIM))							
SB05_0.2, SB05_1.0	**14-Feb-2023**	**17-Feb-2023**	28-Feb-2023	✓	**19-Feb-2023**	29-Mar-2023	✓
EP075A: Phenolic Compounds (Halogenated)							
Soil Glass Jar - Unpreserved (EP075-EM)							
LFG01_0.5	**13-Feb-2023**	**16-Feb-2023**	27-Feb-2023	✓	**21-Feb-2023**	28-Mar-2023	✓
EP075A: Phenolic Compounds (Non-halogenated)							
Soil Glass Jar - Unpreserved (EP075-EM)							
LFG01_0.5	**13-Feb-2023**	**16-Feb-2023**	27-Feb-2023	✓	**21-Feb-2023**	28-Mar-2023	✓
EP075B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075-EM)							
LFG01_0.5	**13-Feb-2023**	**16-Feb-2023**	27-Feb-2023	✓	**21-Feb-2023**	28-Mar-2023	✓
EP075I: Organochlorine Pesticides							
Soil Glass Jar - Unpreserved (EP075-EM)							
LFG01_0.5	**13-Feb-2023**	**16-Feb-2023**	27-Feb-2023	✓	**21-Feb-2023**	28-Mar-2023	✓

Matrix: **SOIL**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP071-EM)							
LFG01_0.5	**13-Feb-2023**	**16-Feb-2023**	27-Feb-2023	✓	**20-Feb-2023**	28-Mar-2023	✓
Soil Glass Jar - Unpreserved (EP080)							
SB01_1.0, QC01, SB02_0.3, SB02_4.0, LFG01_0.2, LFG01_0.5, LFG01_4.0	**13-Feb-2023**	**17-Feb-2023**	27-Feb-2023	✓	**17-Feb-2023**	27-Feb-2023	✓
Soil Glass Jar - Unpreserved (EP071)							
SB01_1.0, QC01, SB02_0.3, SB02_4.0, LFG01_0.2, LFG01_4.0	**13-Feb-2023**	**17-Feb-2023**	27-Feb-2023	✓	**18-Feb-2023**	29-Mar-2023	✓
Soil Glass Jar - Unpreserved (EP080)							
LFG02_0.5, QC05, LFG04_0.2, SB03_0.2	**14-Feb-2023**	**17-Feb-2023**	28-Feb-2023	✓	**17-Feb-2023**	28-Feb-2023	✓
Soil Glass Jar - Unpreserved (EP071)							
LFG02_0.5, QC05, LFG04_0.2, SB03_0.2	**14-Feb-2023**	**17-Feb-2023**	28-Feb-2023	✓	**18-Feb-2023**	29-Mar-2023	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP071-EM)							
LFG01_0.5	**13-Feb-2023**	**16-Feb-2023**	27-Feb-2023	✓	**20-Feb-2023**	28-Mar-2023	✓
Soil Glass Jar - Unpreserved (EP080)							
SB01_1.0, QC01, SB02_0.3, SB02_4.0, LFG01_0.2, LFG01_0.5, LFG01_4.0	**13-Feb-2023**	**17-Feb-2023**	27-Feb-2023	✓	**17-Feb-2023**	27-Feb-2023	✓
Soil Glass Jar - Unpreserved (EP071)							
SB01_1.0, QC01, SB02_0.3, SB02_4.0, LFG01_0.2, LFG01_4.0	**13-Feb-2023**	**17-Feb-2023**	27-Feb-2023	✓	**18-Feb-2023**	29-Mar-2023	✓
Soil Glass Jar - Unpreserved (EP080)							
LFG02_0.5, QC05, LFG04_0.2, SB03_0.2	**14-Feb-2023**	**17-Feb-2023**	28-Feb-2023	✓	**17-Feb-2023**	28-Feb-2023	✓
Soil Glass Jar - Unpreserved (EP071)							
LFG02_0.5, QC05, LFG04_0.2, SB03_0.2	**14-Feb-2023**	**17-Feb-2023**	28-Feb-2023	✓	**18-Feb-2023**	29-Mar-2023	✓
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080)							
SB01_1.0, QC01, SB02_0.3, SB02_4.0, LFG01_0.2, LFG01_4.0	**13-Feb-2023**	**17-Feb-2023**	27-Feb-2023	✓	**17-Feb-2023**	27-Feb-2023	✓
Soil Glass Jar - Unpreserved (EP080)							
LFG02_0.5, QC05, LFG04_0.2, SB03_0.2	**14-Feb-2023**	**17-Feb-2023**	28-Feb-2023	✓	**17-Feb-2023**	28-Feb-2023	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) QC03	**13-Feb-2023**	**17-Feb-2023**	12-Aug-2023	✓	**17-Feb-2023**	12-Aug-2023	✓
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) QC09	**14-Feb-2023**	**17-Feb-2023**	13-Aug-2023	✓	**17-Feb-2023**	13-Aug-2023	✓
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T) QC03	**13-Feb-2023**	**----**	----	----	**21-Feb-2023**	13-Mar-2023	✓
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T) QC09	**14-Feb-2023**	**----**	----	----	**21-Feb-2023**	14-Mar-2023	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM)) QC03	**13-Feb-2023**	**16-Feb-2023**	20-Feb-2023	✓	**17-Feb-2023**	28-Mar-2023	✓
Amber Glass Bottle - Unpreserved (EP075(SIM)) QC09	**14-Feb-2023**	**16-Feb-2023**	21-Feb-2023	✓	**17-Feb-2023**	28-Mar-2023	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071) QC03	**13-Feb-2023**	**16-Feb-2023**	20-Feb-2023	✓	**18-Feb-2023**	28-Mar-2023	✓
Amber Glass Bottle - Unpreserved (EP071) QC09	**14-Feb-2023**	**16-Feb-2023**	21-Feb-2023	✓	**18-Feb-2023**	28-Mar-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC03, QC04	**13-Feb-2023**	**17-Feb-2023**	27-Feb-2023	✓	**17-Feb-2023**	27-Feb-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC09	**14-Feb-2023**	**17-Feb-2023**	28-Feb-2023	✓	**17-Feb-2023**	28-Feb-2023	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071) QC03	**13-Feb-2023**	**16-Feb-2023**	20-Feb-2023	✓	**18-Feb-2023**	28-Mar-2023	✓
Amber Glass Bottle - Unpreserved (EP071) QC09	**14-Feb-2023**	**16-Feb-2023**	21-Feb-2023	✓	**18-Feb-2023**	28-Mar-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC03, QC04	**13-Feb-2023**	**17-Feb-2023**	27-Feb-2023	✓	**17-Feb-2023**	27-Feb-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC09	**14-Feb-2023**	**17-Feb-2023**	28-Feb-2023	✓	**17-Feb-2023**	28-Feb-2023	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080) QC03, QC04	**13-Feb-2023**	**17-Feb-2023**	27-Feb-2023	✓	**17-Feb-2023**	27-Feb-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC09	**14-Feb-2023**	**17-Feb-2023**	28-Feb-2023	✓	**17-Feb-2023**	28-Feb-2023	✓

Quality Control Parameter Frequency Compliance

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

Matrix: **SOIL**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	13	**15.38**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055	3	29	**10.34**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	3	30	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH in soil using a 0.01M CaCl2 extract	EA001	2	11	**18.18**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	9	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	4	38	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	5	38	**13.16**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	10	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	1	**100.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	13	**15.38**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	2	30	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH in soil using a 0.01M CaCl2 extract	EA001	2	11	**18.18**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	38	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	38	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	2	30	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	38	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **SOIL**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Method Blanks (MB) - Continued							
Total Metals by ICP-AES	EG005T	2	38	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	13	**15.38**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	2	30	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	38	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	38	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	0	1	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	2	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	11	**18.18**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	3	**33.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Matrix Spikes (MS)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	2	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	3	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

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

Analytical Methods	Method	Matrix	Method Descriptions
pH in soil using a 0.01M CaCl2 extract	EA001	SOIL	In house: Referenced to Rayment and Lyons 4B3 (mod.) or 4B4 (mod.) 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM Schedule B(3).
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 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)
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	SOIL	In house: Referenced to USEPA SW846, Method 3060. Hexavalent chromium is extracted by alkaline digestion. The digest is determined by photometrically by automatic discrete analyser, following pH adjustment. The instrument uses colour development using dephenylcarbazide. Each run of samples is measured against a five-point calibration curve. This method is compliant with NEPM Schedule B(3)
Total Cyanide by Segmented Flow Analyser	EK026SF	SOIL	In house: Referenced to APHA 4500-CN C / ASTM D7511 / ISO 14403. Caustic leachates of soil samples are introduced into an automated segmented flow analyser. Complex bound cyanide is decomposed in a continuously flowing stream, at a pH of 3.8, by the effect of UV light. A UV-B lamp (312 nm) and a decomposition spiral of borosilicate glass are used to filter out UV light with a wavelength of less than 290 nm thus preventing the conversion of thiocyanate into cyanide. The hydrogen cyanide present at a pH of 3.8 is separated by gas dialysis. The hydrogen cyanide is then determined photometrically, based on the reaction of cyanide with chloramine-T to form cyanogen chloride. This then reacts with 4-pyridine carboxylic acid and 1,3-dimethylbarbituric acid to give a red colour which is measured at 600 nm. This method is compliant with NEPM Schedule B(3).
Total Fluoride	EK040T	SOIL	(In-house) Total fluoride is determined by ion specific electrode (ISE) in a solution obtained after a Sodium Carbonate / Potassium Carbonate fusion dissolution.
PCB - VIC EPA 448.3 Screen	EP066-EM	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3).
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).
TRH - Semivolatile Fraction	EP071-EM	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40.

Analytical Methods	Method	Matrix	Method Descriptions
Volatile Organic Compounds - Ultra-trace	EP074-UT	SOIL	In house: Referenced to USEPA SW 846 - 8260 Extracts are analysed by Purge and Trap, Capillary GC/MS in partial SIM/Scan mode. Quantification is by comparison against an established multi-point calibration curves. This method is compliant with NEPM Schedule B(3).
Volatile Organic Compounds - Ultra-trace - Summations	EP074-UT-SUM	SOIL	Summation of MAHs and VHCs
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)
Semivolatile Organic Compounds - Waste Classification	EP075-EM	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM Schedule B(3).
SVOC - Waste Classification (Sums)	EP075-EM-SUM	SOIL	Summations for EP075 (EM variation)
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.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3).
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015 The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
NaOH leach for CN in Soils	CN-PR	SOIL	In house: APHA 4500 CN. Samples are extracted by end-over-end tumbling with NaOH.
pH in soil using a 0.01M CaCl2 extract	EA001-PR	SOIL	In house: Referenced to Rayment and Lyons 4B1, 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM Schedule B(3).
Alkaline digestion for Hexavalent Chromium	EG048PR	SOIL	In house: Referenced to USEPA SW846, Method 3060A.

Preparation Methods	Method	Matrix	Method Descriptions
Total Fluoride	EK040T-PR	SOIL	In house: Samples are fused with Sodium Carbonate / Potassium Carbonate flux.
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.
Methanolic Extraction of Soils - Ultra-trace.	ORG16-UT	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.
Tumbler Extraction of Solids - VIC EPA Screen	ORG17-EM	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM Schedule B(3)
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for purging.

ARC Environmental Pty Ltd
40 Heller St
Brunswick West
VIC 3055

Attention: **Georgia Bayley**

Report **968396-W**
Project name HVH ALBERT ST BRUNSWICK
Project ID 2301314
Received Date Mar 02, 2023

Client Sample ID			**QC02**
Sample Matrix			**Water**
Eurofins Sample No.			**M23-Ma0004892**
Date Sampled			**Feb 28, 2023**
Test/Reference	LOR	Unit	
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	%	90
Volatile Organics (selected analytes by SIM)			
1.1-Dichloroethane (SIM)	0.00001	mg/L	< 0.00001
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 (SIM)	0.00001	mg/L	< 0.00001
1.2-Dichloropropane	0.001	mg/L	< 0.001
1.2.3-Trichloropropane	0.001	mg/L	< 0.001
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 (SIM)	0.00001	mg/L	0.00057
2-Butanone (MEK)	0.005	mg/L	< 0.005
2-Propanone (Acetone)	0.005	mg/L	0.006
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

Client Sample ID			QC02
Sample Matrix			Water
Eurofins Sample No.			M23-Ma0004892
Date Sampled			Feb 28, 2023
Test/Reference	LOR	Unit	
Volatile Organics (selected analytes by SIM)			
Carbon disulfide	0.001	mg/L	< 0.001
Carbon Tetrachloride	0.001	mg/L	< 0.001
Chlorobenzene (SIM)	0.00001	mg/L	0.00099
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 (SIM)	0.00001	mg/L	0.00009
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	0.005	mg/L	< 0.005
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 (SIM)	0.00002	mg/L	< 0.00002
o-Xylene	0.001	mg/L	< 0.001
Styrene	0.001	mg/L	< 0.001
Tetrachloroethene (SIM)	0.00002	mg/L	< 0.00002
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 (SIM)	0.00001	mg/L	< 0.00001
Trichlorofluoromethane	0.005	mg/L	< 0.005
Vinyl chloride (SIM)	0.00005	mg/L	< 0.00005
Xylenes - Total*	0.003	mg/L	< 0.003
Toluene-d8 (surr.)	1	%	109
4-Bromofluorobenzene (surr.)	1	%	90
Vic EPA IWRG 621 Other chlorinated hydrocarbons (Total)	0.005	mg/L	< 0.005
Vic EPA IWRG 621 Chlorinated hydrocarbons (Total)	0.005	mg/L	< 0.005
Total MAH*	0.003	mg/L	< 0.003
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
Naphthalene[N02]	0.01	mg/L	< 0.01
Total Recoverable Hydrocarbons			
TRH C6-C9	0.02	mg/L	0.05
TRH C10-C14	0.05	mg/L	0.45
TRH C15-C28	0.1	mg/L	3.1
TRH C29-C36	0.1	mg/L	0.2
TRH C10-C36 (Total)	0.1	mg/L	3.75
TRH C6-C10	0.02	mg/L	0.06
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	0.06
TRH >C10-C16	0.05	mg/L	1.1
TRH >C10-C16 less Naphthalene (F2)[N01]	0.05	mg/L	1.1
TRH >C16-C34	0.1	mg/L	2.9
TRH >C34-C40	0.1	mg/L	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	4

Client Sample ID			QC02
Sample Matrix			Water
Eurofins Sample No.			M23-Ma0004892
Date Sampled			Feb 28, 2023
Test/Reference	LOR	Unit	
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
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	%	62
p-Terphenyl-d14 (surr.)	1	%	90
Heavy Metals			
Arsenic (filtered)	0.001	mg/L	0.013
Cadmium (filtered)	0.0002	mg/L	< 0.0002
Chromium (filtered)	0.001	mg/L	0.006
Copper (filtered)	0.001	mg/L	0.069
Lead (filtered)	0.001	mg/L	< 0.001
Mercury (filtered)	0.0001	mg/L	< 0.0001
Nickel (filtered)	0.001	mg/L	0.083
Zinc (filtered)	0.005	mg/L	0.067

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
BTEX and Naphthalene			
BTEX	Melbourne	Mar 02, 2023	14 Days
- Method: LTM-ORG-2010 BTEX and Volatile TRH			
Volatile Organics (selected analytes by SIM)	Melbourne	Mar 02, 2023	7 Days
- Method: LTM-ORG-2150 VOCs in Soils Liquid and Aqueous (SIM) (USEPA 8260)			
Polycyclic Aromatic Hydrocarbons	Melbourne	Mar 02, 2023	7 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Metals M8 filtered	Melbourne	Mar 02, 2023	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Total Recoverable Hydrocarbons	Melbourne	Mar 02, 2023	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Melbourne	Mar 02, 2023	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Mar 02, 2023	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Mar 02, 2023	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			

eurofins

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

Eurofins Environment Testing Australia Pty Ltd
ABN: 50 005 085 521

Melbourne
6 Monterey Road
Dandenong South
VIC 3175
Tel: +61 3 8564 5000
NATA# 1261 Site# 1254

Geelong
19/8 Lewalan Street
Grovedale
VIC 3216
Tel: +61 3 8564 5000
NATA# 1261 Site# 25403

Sydney
179 Magowar Road
Girraween
NSW 2145
Tel: +61 2 9900 8400
NATA# 1261 Site# 18217

Canberra
Unit 1,2 Dacre Street
Mitchell
ACT 2911
Tel: +61 2 6113 8091
NATA# 1261 Site# 25466

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

Newcastle
1/2 Frost Drive
Mayfield West NSW 2304
Tel: +61 2 4968 8448
NATA# 1261
Site# 25079 & 25289

Eurofins ARL Pty Ltd
ABN: 91 05 0159 898

Perth
46-48 Banksia Road
Welshpool
WA 6106
Tel: +61 8 6253 4444
NATA# 2377 Site# 2370

Eurofins Environment Testing NZ Ltd
NZBN: 9429046024954

Auckland
35 O'Rorke Road
Penrose,
Auckland 1061
Tel: +64 9 526 45 51
IANZ# 1327

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

Company Name: ARC Environmental Pty Ltd
Address: 40 Heller St
Brunswick West
VIC 3055

Project Name: HVH ALBERT ST BRUNSWICK
Project ID: 2301314

Order No.:
Report #: 968396
Phone: 03 8383 1950
Fax:

Received: Mar 2, 2023 9:00 AM
Due: Mar 9, 2023
Priority: 5 Day
Contact Name: Georgia Bayley

Eurofins Analytical Services Manager : Harry Bacalis

Sample Detail						Polycyclic Aromatic Hydrocarbons	Metals M8 filtered	Volatile Organics (selected analytes by SIM)	BTEX and Naphthalene	Total Recoverable Hydrocarbons
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X	X
External Laboratory										
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**					
1	QC02	Feb 28, 2023		Water	M23-Ma0004892	X	X	X	X	X
Test Counts						1	1	1	1	1

eurofins | Environment Testing

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
µg/L: micrograms per litre
ppm: parts per million
ppb: parts per billion
%: Percentage
org/100 mL: Organisms per 100 millilitres
NTU: Nephelometric Turbidity Units
MPN/100 mL: Most Probable Number of organisms per 100 millilitres
CFU: Colony forming unit

Terms

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	Tributyltin oxide (*bis*-tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment however free tributyltin was measured and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

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

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

Results <10 times the LOR: No Limit

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

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

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

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.4 where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

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							
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 (selected analytes by SIM)							
1.1-Dichloroethane (SIM)	mg/L	< 0.00001			0.00001	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 (SIM)	mg/L	< 0.00001			0.00001	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 (SIM)	mg/L	< 0.00001			0.00001	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	
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 (SIM)	mg/L	< 0.00001			0.00001	Pass	
Chloroethane	mg/L	< 0.005			0.005	Pass	
Chloroform	mg/L	< 0.005			0.005	Pass	
Chloromethane	mg/L	< 0.005			0.005	Pass	
cis-1.2-Dichloroethene (SIM)	mg/L	< 0.00001			0.00001	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	< 0.005			0.005	Pass	
Iodomethane	mg/L	< 0.001			0.001	Pass	
Isopropyl benzene (Cumene)	mg/L	< 0.001			0.001	Pass	
Methylene chloride (SIM)	mg/L	< 0.00002			0.00002	Pass	
Styrene	mg/L	< 0.001			0.001	Pass	
Tetrachloroethene (SIM)	mg/L	< 0.00002			0.00002	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
trans-1.2-Dichloroethene	mg/L	< 0.001			0.001	Pass	
trans-1.3-Dichloropropene	mg/L	< 0.001			0.001	Pass	
Trichloroethene (SIM)	mg/L	< 0.00001			0.00001	Pass	
Trichlorofluoromethane	mg/L	< 0.005			0.005	Pass	
Vinyl chloride (SIM)	mg/L	< 0.00005			0.00005	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/L	< 0.01			0.01	Pass	
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	
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							
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							
BTEX							
Benzene	%	116			70-130	Pass	
Toluene	%	103			70-130	Pass	
Ethylbenzene	%	100			70-130	Pass	
m&p-Xylenes	%	101			70-130	Pass	
Xylenes - Total*	%	101			70-130	Pass	
LCS - % Recovery							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Volatile Organics (selected analytes by SIM)							
1.1-Dichloroethene	%	116			70-130	Pass	
1.1.1-Trichloroethane	%	99			70-130	Pass	
1.2-Dichlorobenzene	%	110			70-130	Pass	
1.2-Dichloroethane (SIM)	%	97			70-130	Pass	
Trichloroethene (SIM)	%	99			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	122			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons							
TRH C6-C9	%	109			70-130	Pass	
TRH C10-C14	%	121			70-130	Pass	
TRH C6-C10	%	113			70-130	Pass	
TRH >C10-C16	%	122			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	116			70-130	Pass	
Acenaphthylene	%	108			70-130	Pass	
Anthracene	%	103			70-130	Pass	
Benz(a)anthracene	%	112			70-130	Pass	
Benzo(a)pyrene	%	119			70-130	Pass	
Benzo(b&j)fluoranthene	%	77			70-130	Pass	
Benzo(g.h.i)perylene	%	113			70-130	Pass	
Benzo(k)fluoranthene	%	125			70-130	Pass	
Chrysene	%	90			70-130	Pass	
Dibenz(a.h)anthracene	%	112			70-130	Pass	
Fluoranthene	%	115			70-130	Pass	
Fluorene	%	118			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	88			70-130	Pass	
Naphthalene	%	100			70-130	Pass	
Phenanthrene	%	113			70-130	Pass	
Pyrene	%	111			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic (filtered)	%	103			80-120	Pass	
Cadmium (filtered)	%	100			80-120	Pass	
Chromium (filtered)	%	104			80-120	Pass	
Copper (filtered)	%	94			80-120	Pass	
Lead (filtered)	%	84			80-120	Pass	
Mercury (filtered)	%	101			80-120	Pass	
Nickel (filtered)	%	98			80-120	Pass	
Zinc (filtered)	%	103			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	M23-Ma0010129	NCP	%	108			70-130	Pass	
TRH >C10-C16	M23-Ma0010129	NCP	%	108			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	M23-Ma0005212	NCP	%	96			70-130	Pass	
Acenaphthylene	M23-Ma0005212	NCP	%	85			70-130	Pass	
Anthracene	M23-Ma0005212	NCP	%	90			70-130	Pass	
Benz(a)anthracene	M23-Ma0005212	NCP	%	120			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Benzo(a)pyrene	M23-Ma0005212	NCP	%	74			70-130	Pass	
Benzo(b&j)fluoranthene	M23-Ma0005212	NCP	%	124			70-130	Pass	
Benzo(g.h.i)perylene	M23-Ma0005212	NCP	%	75			70-130	Pass	
Benzo(k)fluoranthene	M23-Ma0005212	NCP	%	103			70-130	Pass	
Chrysene	M23-Ma0005212	NCP	%	116			70-130	Pass	
Dibenz(a.h)anthracene	M23-Ma0005212	NCP	%	78			70-130	Pass	
Fluoranthene	M23-Ma0005212	NCP	%	78			70-130	Pass	
Fluorene	M23-Ma0005212	NCP	%	83			70-130	Pass	
Indeno(1.2.3-cd)pyrene	M23-Ma0005212	NCP	%	85			70-130	Pass	
Naphthalene	M23-Ma0005212	NCP	%	116			70-130	Pass	
Phenanthrene	M23-Ma0005212	NCP	%	80			70-130	Pass	
Pyrene	M23-Ma0005212	NCP	%	73			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic (filtered)	M23-Ma0004893	NCP	%	101			75-125	Pass	
Cadmium (filtered)	M23-Ma0004893	NCP	%	100			75-125	Pass	
Chromium (filtered)	M23-Ma0004893	NCP	%	99			75-125	Pass	
Copper (filtered)	M23-Ma0004893	NCP	%	87			75-125	Pass	
Lead (filtered)	M23-Ma0006043	NCP	%	83			75-125	Pass	
Mercury (filtered)	M23-Ma0004893	NCP	%	85			75-125	Pass	
Nickel (filtered)	M23-Ma0004893	NCP	%	84			75-125	Pass	
Zinc (filtered)	M23-Ma0004893	NCP	%	94			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	M23-Ma0010128	NCP	mg/L	12	11	8.3	30%	Pass	
TRH C15-C28	M23-Ma0010128	NCP	mg/L	0.4	0.4	15	30%	Pass	
TRH C29-C36	M23-Ma0010128	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH >C10-C16	M23-Ma0010128	NCP	mg/L	4.7	4.3	9.7	30%	Pass	
TRH >C16-C34	M23-Ma0010128	NCP	mg/L	0.2	0.2	26	30%	Pass	
TRH >C34-C40	M23-Ma0010128	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	M23-Ma0003388	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Acenaphthylene	M23-Ma0003388	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Anthracene	M23-Ma0003388	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benz(a)anthracene	M23-Ma0003388	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(a)pyrene	M23-Ma0003388	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(b&j)fluoranthene	M23-Ma0003388	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(g.h.i)perylene	M23-Ma0003388	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(k)fluoranthene	M23-Ma0003388	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Chrysene	M23-Ma0003388	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Dibenz(a.h)anthracene	M23-Ma0003388	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Fluoranthene	M23-Ma0003388	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Fluorene	M23-Ma0003388	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	M23-Ma0003388	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Naphthalene	M23-Ma0003388	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Phenanthrene	M23-Ma0003388	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Pyrene	M23-Ma0003388	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	

Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic (filtered)	M23-Ma0004893	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Cadmium (filtered)	M23-Ma0004893	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium (filtered)	M23-Ma0004893	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Copper (filtered)	M23-Ma0004893	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Lead (filtered)	M23-Ma0004893	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Mercury (filtered)	M23-Ma0004893	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel (filtered)	M23-Ma0004893	NCP	mg/L	0.069	0.068	<1	30%	Pass	
Zinc (filtered)	M23-Ma0004893	NCP	mg/L	0.007	0.007	6.4	30%	Pass	

Comments

Sample Integrity

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

Qualifier Codes/Comments

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

Authorised by:

Amy Meunier	Analytical Services Manager
Edward Lee	Senior Analyst-Organic
Joseph Edouard	Senior Analyst-Organic
Joseph Edouard	Senior Analyst-Volatile
Scott Beddoes	Senior Analyst-Metal

Glenn Jackson
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

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

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

eurofins

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

Eurofins Environment Testing Australia Pty Ltd
ABN: 50 005 085 521

Melbourne
6 Monterey Road
Dandenong South
VIC 3175
Tel: +61 3 8564 5000
NATA# 1261 Site# 1254

Geelong
19/8 Lewalan Street
Grovedale
VIC 3216
Tel: +61 3 8564 5000
NATA# 1261 Site# 25403

Sydney
179 Magowar Road
Girraween
NSW 2145
Tel: +61 2 9900 8400
NATA# 1261 Site# 18217

Canberra
Unit 1,2 Dacre Street
Mitchell
ACT 2911
Tel: +61 2 6113 8091
NATA# 1261 Site# 25466

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

Newcastle
1/2 Frost Drive
Mayfield West NSW 2304
Tel: +61 2 4968 8448
NATA# 1261
Site# 25079 & 25289

Eurofins ARL Pty Ltd
ABN: 91 05 0159 898

Perth
46-48 Banksia Road
Welshpool
WA 6106
Tel: +61 8 6253 4444
NATA# 2377 Site# 2370

Eurofins Environment Testing NZ Ltd
NZBN: 9429046024954

Auckland
35 O'Rorke Road
Penrose,
Auckland 1061
Tel: +64 9 526 45 51
IANZ# 1327

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

Company Name: ARC Environmental Pty Ltd
Address: 40 Heller St
Brunswick West
VIC 3055

Project Name: HVH ALBERT ST BRUNSWICK
Project ID: 2301314

Order No.:
Report #: 968396
Phone: 03 8383 1950
Fax:

Received: Mar 2, 2023 9:00 AM
Due: Mar 9, 2023
Priority: 5 Day
Contact Name: Georgia Bayley

Eurofins Analytical Services Manager : Harry Bacalis

Sample Detail						Polycyclic Aromatic Hydrocarbons	Metals M8 filtered	Volatile Organics (selected analytes by SIM)	BTEX and Naphthalene	Total Recoverable Hydrocarbons
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X	X
External Laboratory										
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**					
1	QC02	Feb 28, 2023		Water	M23-Ma0004892	X	X	X	X	X
Test Counts						1	1	1	1	1

2

Chain of Custody Documentation

ARC ENVIRONMENTAL
Suite 1.03 7 Jeffcott Street, West Melbourne 3003
Phone: (03) 8383 1950

LAB: Eurofins	SAMPLER: DT
LAB ADDRESS:	MOBILE: 0439 919 543
PROJECT MANAGER (PM): Georgia Bayley	PHONE:
PROJECT ID: 230131?	EMAIL REPORT TO: georgia@arcenvironmental.com.au
SITE: HVH Albert St, Brunswick — Primary Lab Quote: [illegible]	EMAIL INVOICE TO: (if different to report) admin@arcenvironmental.com.au
RESULTS REQUIRED (Date): Standard — Secondary Lab Quote:	ANALYSIS REQUIRED including SUITES (and Code)

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL

Notes: e.g. Highly contaminated samples e.g. "High PAHs expected". Extra volume for QC or trace LORs etc.

LAB ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles	TRH/BTEXN	PAHs	Low level VOCs	8 metals							Notes
	QC02	W	28/02		Bottle	4	X	X	X	X							

SAMPLE INFORMATION (note: S = Soil, W=Water); CONTAINER INFORMATION

DATE: 2/3 9am
TIME:
COURIER:
TEMPERATURE 3
ATTEMP TO CHILL: YES NO
TW

RELINQUISHED BY:		RECEIVED BY		METHOD OF SHIPMENT
Name: ~~[illegible]~~ Georgia	Date: ~~28/02~~ 01/03	Name: Manan	Date: 1/3	Con' Note No:
Of: ARC Environmental	Time: 8:30AM	Of: [illegible]	Time: 1020	
Name: ELP	Date: 1-3-23	Name:	Date:	Transport Co:
Of: (ALS)	Time: 1745	Of:	Time:	

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved;
V = VOA Vial HCl Preserved; VS = VOA Vial Sulphuric Preserved; SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

COC Page 1 of 1

#968396
[illegible]
2/3/23

ARC Environmental Pty Ltd
40 Heller St
Brunswick West
VIC 3055

NATA Accredited
Accreditation Number 1261
Site Number 1254

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: **Georgia Bayley**

Report **964732-S**
Project name HVH BRUNSWICK
Project ID 2301314
Received Date Feb 17, 2023

Client Sample ID			**QC02**	**QC06**
Sample Matrix			**Soil**	**Soil**
Eurofins Sample No.			**M23-Fe0041161**	**M23-Fe0041162**
Date Sampled			**Feb 13, 2023**	**Feb 14, 2023**
Test/Reference	LOR	Unit		
Total Recoverable Hydrocarbons				
TRH C6-C9	20	mg/kg	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	< 50
TRH C10-C36 (Total)	50	mg/kg	< 50	< 50
TRH C6-C10	20	mg/kg	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100
BTEX				
Benzene	0.1	mg/kg	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	65	84
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5
Polycyclic Aromatic Hydrocarbons				
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5

Client Sample ID			QC02	QC06
Sample Matrix			Soil	Soil
Eurofins Sample No.			M23-Fe0041161	M23-Fe0041162
Date Sampled			Feb 13, 2023	Feb 14, 2023
Test/Reference	LOR	Unit		
Polycyclic Aromatic Hydrocarbons				
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	75	76
p-Terphenyl-d14 (surr.)	1	%	92	91
Heavy Metals				
Arsenic	2	mg/kg	12	< 2
Cadmium	0.4	mg/kg	< 0.4	< 0.4
Chromium	5	mg/kg	37	13
Copper	5	mg/kg	6.3	< 5
Lead	5	mg/kg	16	6.7
Mercury	0.1	mg/kg	< 0.1	< 0.1
Nickel	5	mg/kg	23	< 5
Zinc	5	mg/kg	14	< 5
Sample Properties				
% Moisture	1	%	16	7.5

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	Melbourne	Feb 22, 2023	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Feb 22, 2023	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Feb 22, 2023	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX and Naphthalene			
BTEX	Melbourne	Feb 22, 2023	14 Days
- Method: LTM-ORG-2010 BTEX and Volatile TRH			
Polycyclic Aromatic Hydrocarbons	Melbourne	Feb 22, 2023	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Metals M8	Melbourne	Feb 22, 2023	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
% Moisture	Melbourne	Feb 17, 2023	14 Days
- Method: LTM-GEN-7080 Moisture			

eurofins

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

Eurofins Environment Testing Australia Pty Ltd
ABN: 50 005 085 521

Melbourne
6 Monterey Road
Dandenong South
VIC 3175
Tel: +61 3 8564 5000
NATA# 1261 Site# 1254

Geelong
19/8 Lewalan Street
Grovedale
VIC 3216
Tel: +61 3 8564 5000
NATA# 1261 Site# 25403

Sydney
179 Magowar Road
Girraween
NSW 2145
Tel: +61 2 9900 8400
NATA# 1261 Site# 18217

Canberra
Unit 1,2 Dacre Street
Mitchell
ACT 2911
Tel: +61 2 6113 8091
NATA# 1261 Site# 25466

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

Newcastle
1/2 Frost Drive
Mayfield West NSW 2304
Tel: +61 2 4968 8448
NATA# 1261
Site# 25079 & 25289

Eurofins ARL Pty Ltd
ABN: 91 05 0159 898

Perth
46-48 Banksia Road
Welshpool
WA 6106
Tel: +61 8 6253 4444
NATA# 2377 Site# 2370

Eurofins Environment Testing NZ Ltd
NZBN: 9429046024954

Auckland
35 O'Rorke Road
Penrose,
Auckland 1061
Tel: +64 9 526 45 51
IANZ# 1327

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

Company Name: ARC Environmental Pty Ltd
Address: 40 Heller St
Brunswick West
VIC 3055

Project Name: HVH BRUNSWICK
Project ID: 2301314

Order No.:
Report #: 964732
Phone: 03 8383 1950
Fax:

Received: Feb 17, 2023 9:00 AM
Due: Feb 24, 2023
Priority: 5 Day
Contact Name: Georgia Bayley

Eurofins Analytical Services Manager : Harry Bacalis

Sample Detail						HOLD	Polycyclic Aromatic Hydrocarbons	Metals M8	BTEX and Naphthalene	Moisture Set	Total Recoverable Hydrocarbons
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X	X	X
External Laboratory											
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**						
1	QC02	Feb 13, 2023		Soil	M23-Fe0041161		X	X	X	X	X
2	QC06	Feb 14, 2023		Soil	M23-Fe0041162		X	X	X	X	X
3	QC08	Feb 14, 2023		Soil	M23-Fe0041163	X					
Test Counts						1	2	2	2	2	2

eurofins | Environment Testing

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
µg/L: micrograms per litre
ppm: parts per million
ppb: parts per billion
%: Percentage
org/100 mL: Organisms per 100 millilitres
NTU: Nephelometric Turbidity Units
MPN/100 mL: Most Probable Number of organisms per 100 millilitres
CFU: Colony forming unit

Terms

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	Tributyltin oxide (*bis*-tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment however free tributyltin was measured and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

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

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

Results <10 times the LOR: No Limit

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

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

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

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.4 where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

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	
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							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
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	%	97			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
TRH C10-C14	%	98			70-130	Pass	
TRH C6-C10	%	95			70-130	Pass	
TRH >C10-C16	%	106			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	83			70-130	Pass	
Toluene	%	95			70-130	Pass	
Ethylbenzene	%	88			70-130	Pass	
m&p-Xylenes	%	88			70-130	Pass	
Xylenes - Total*	%	88			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	92			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	81			70-130	Pass	
Acenaphthylene	%	72			70-130	Pass	
Anthracene	%	83			70-130	Pass	
Benz(a)anthracene	%	80			70-130	Pass	
Benzo(a)pyrene	%	84			70-130	Pass	
Benzo(b&j)fluoranthene	%	83			70-130	Pass	
Benzo(g.h.i)perylene	%	76			70-130	Pass	
Benzo(k)fluoranthene	%	87			70-130	Pass	
Chrysene	%	90			70-130	Pass	
Dibenz(a.h)anthracene	%	91			70-130	Pass	
Fluoranthene	%	84			70-130	Pass	
Fluorene	%	84			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	86			70-130	Pass	
Naphthalene	%	79			70-130	Pass	
Phenanthrene	%	71			70-130	Pass	
Pyrene	%	84			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	88			80-120	Pass	
Cadmium	%	107			80-120	Pass	
Chromium	%	95			80-120	Pass	
Copper	%	92			80-120	Pass	
Lead	%	92			80-120	Pass	
Mercury	%	101			80-120	Pass	
Nickel	%	89			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 C6-C9	M23-Fe0042225	NCP	%	97			70-130	Pass	
TRH C10-C14	M23-Fe0040156	NCP	%	109			70-130	Pass	
TRH C6-C10	M23-Fe0042225	NCP	%	94			70-130	Pass	
TRH >C10-C16	M23-Fe0040156	NCP	%	117			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	M23-Fe0042225	NCP	%	80			70-130	Pass	
Toluene	M23-Fe0042225	NCP	%	89			70-130	Pass	
Ethylbenzene	M23-Fe0042225	NCP	%	86			70-130	Pass	
m&p-Xylenes	M23-Fe0042225	NCP	%	86			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
o-Xylene	M23-Fe0042225	NCP	%	88			70-130	Pass	
Xylenes - Total*	M23-Fe0042225	NCP	%	87			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	M23-Fe0042225	NCP	%	89			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	M23-Fe0042118	NCP	%	113			70-130	Pass	
Acenaphthylene	M23-Fe0042118	NCP	%	92			70-130	Pass	
Anthracene	M23-Fe0042118	NCP	%	117			70-130	Pass	
Benz(a)anthracene	M23-Fe0042118	NCP	%	73			70-130	Pass	
Benzo(a)pyrene	M23-Fe0042118	NCP	%	115			70-130	Pass	
Benzo(b&j)fluoranthene	M23-Fe0042118	NCP	%	71			70-130	Pass	
Benzo(g.h.i)perylene	M23-Fe0042118	NCP	%	80			70-130	Pass	
Benzo(k)fluoranthene	M23-Fe0042118	NCP	%	125			70-130	Pass	
Chrysene	M23-Fe0042118	NCP	%	118			70-130	Pass	
Dibenz(a.h)anthracene	M23-Fe0042118	NCP	%	87			70-130	Pass	
Fluoranthene	M23-Fe0042118	NCP	%	114			70-130	Pass	
Fluorene	M23-Fe0042118	NCP	%	119			70-130	Pass	
Indeno(1.2.3-cd)pyrene	M23-Fe0042118	NCP	%	76			70-130	Pass	
Naphthalene	M23-Fe0042118	NCP	%	147			70-130	Fail	Q08
Phenanthrene	M23-Fe0042118	NCP	%	81			70-130	Pass	
Pyrene	M23-Fe0042118	NCP	%	115			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	M23-Fe0041851	NCP	%	86			75-125	Pass	
Cadmium	M23-Fe0041851	NCP	%	96			75-125	Pass	
Chromium	M23-Fe0041851	NCP	%	79			75-125	Pass	
Copper	M23-Fe0041851	NCP	%	107			75-125	Pass	
Lead	M23-Fe0041851	NCP	%	91			75-125	Pass	
Mercury	M23-Fe0041851	NCP	%	103			75-125	Pass	
Nickel	M23-Fe0041849	NCP	%	87			75-125	Pass	
Zinc	M23-Fe0041851	NCP	%	74			75-125	Fail	Q08
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	M23-Fe0042243	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	M23-Fe0042310	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	M23-Fe0042310	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	M23-Fe0042310	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C6-C10	M23-Fe0042243	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH >C10-C16	M23-Fe0042310	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	M23-Fe0042310	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	M23-Fe0042310	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	M23-Fe0042243	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	M23-Fe0042243	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	M23-Fe0042243	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	M23-Fe0042243	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	M23-Fe0042243	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total*	M23-Fe0042243	NCP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	M23-Fe0042243	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	

Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	M23-Fe0040675	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	M23-Fe0040675	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	M23-Fe0040675	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	M23-Fe0040675	NCP	mg/kg	0.9	0.6	36	30%	Fail	Q15
Benzo(a)pyrene	M23-Fe0040675	NCP	mg/kg	1.2	0.8	37	30%	Fail	Q15
Benzo(b&j)fluoranthene	M23-Fe0040675	NCP	mg/kg	0.7	< 0.5	31	30%	Fail	Q15
Benzo(g.h.i)perylene	M23-Fe0040675	NCP	mg/kg	0.5	< 0.5	39	30%	Fail	Q15
Benzo(k)fluoranthene	M23-Fe0040675	NCP	mg/kg	0.9	0.6	43	30%	Fail	Q15
Chrysene	M23-Fe0040675	NCP	mg/kg	1.1	0.8	32	30%	Fail	Q15
Dibenz(a.h)anthracene	M23-Fe0040675	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	M23-Fe0040675	NCP	mg/kg	2.1	1.5	34	30%	Fail	Q15
Fluorene	M23-Fe0040675	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	M23-Fe0040675	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	M23-Fe0040675	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	M23-Fe0040675	NCP	mg/kg	0.7	< 0.5	33	30%	Fail	Q15
Pyrene	M23-Fe0040675	NCP	mg/kg	2.0	1.5	32	30%	Fail	Q15
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	M23-Fe0038885	NCP	mg/kg	< 2	2.0	27	30%	Pass	
Cadmium	M23-Fe0038885	NCP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	M23-Fe0038885	NCP	mg/kg	31	29	5.8	30%	Pass	
Copper	M23-Fe0038885	NCP	mg/kg	38	32	15	30%	Pass	
Lead	M23-Fe0038885	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Mercury	M23-Fe0038885	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	M23-Fe0038885	NCP	mg/kg	20	19	4.8	30%	Pass	
Zinc	M23-Fe0038885	NCP	mg/kg	56	52	7.7	30%	Pass	
Duplicate									
Sample Properties				Result 1	Result 2	RPD			
% Moisture	M23-Fe0041133	NCP	%	2.2	2.7	18	30%	Pass	

Comments

Sample Integrity

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

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
Q08	The matrix spike recovery is outside of the recommended acceptance criteria. An acceptable recovery was obtained for the laboratory control sample indicating a sample matrix interference.
Q15	The RPD reported passes Eurofins Environment Testing's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.

Authorised by:

Harry Bacalis	Analytical Services Manager
Joseph Edouard	Senior Analyst-Organic
Joseph Edouard	Senior Analyst-Volatile
Linda Chouman	Senior Analyst-Sample Properties
Mary Makarios	Senior Analyst-Metal

Glenn Jackson
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

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

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

eurofins

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

Eurofins Environment Testing Australia Pty Ltd
ABN: 50 005 085 521

Melbourne
6 Monterey Road
Dandenong South
VIC 3175
Tel: +61 3 8564 5000
NATA# 1261 Site# 1254

Geelong
19/8 Lewalan Street
Grovedale
VIC 3216
Tel: +61 3 8564 5000
NATA# 1261 Site# 25403

Sydney
179 Magowar Road
Girraween
NSW 2145
Tel: +61 2 9900 8400
NATA# 1261 Site# 18217

Canberra
Unit 1,2 Dacre Street
Mitchell
ACT 2911
Tel: +61 2 6113 8091
NATA# 1261 Site# 25466

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

Newcastle
1/2 Frost Drive
Mayfield West NSW 2304
Tel: +61 2 4968 8448
NATA# 1261
Site# 25079 & 25289

Eurofins ARL Pty Ltd
ABN: 91 05 0159 898

Perth
46-48 Banksia Road
Welshpool
WA 6106
Tel: +61 8 6253 4444
NATA# 2377 Site# 2370

Eurofins Environment Testing NZ Ltd
NZBN: 9429046024954

Auckland
35 O'Rorke Road
Penrose,
Auckland 1061
Tel: +64 9 526 45 51
IANZ# 1327

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

Company Name: ARC Environmental Pty Ltd
Address: 40 Heller St
Brunswick West
VIC 3055

Project Name: HVH BRUNSWICK
Project ID: 2301314

Order No.:
Report #: 964732
Phone: 03 8383 1950
Fax:

Received: Feb 17, 2023 9:00 AM
Due: Feb 24, 2023
Priority: 5 Day
Contact Name: Georgia Bayley

Eurofins Analytical Services Manager : Harry Bacalis

Sample Detail						HOLD	Polycyclic Aromatic Hydrocarbons	Metals M8	BTEX and Naphthalene	Moisture Set	Total Recoverable Hydrocarbons
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X	X	X
External Laboratory											
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**						
1	QC02	Feb 13, 2023		Soil	M23-Fe0041161		X	X	X	X	X
2	QC06	Feb 14, 2023		Soil	M23-Fe0041162		X	X	X	X	X
3	QC08	Feb 14, 2023		Soil	M23-Fe0041163	X					
Test Counts						1	2	2	2	2	2

Chain of Custody Documentation

ARC ENVIRONMENTAL
Suite 1.03 7 Jeffcott Street, West Melbourne 3003
Phone: (03) 8383 1950

LAB: Envirolab	SAMPLER: Declan
LAB ADDRESS :	MOBILE: 0439 819 543
PROJECT MANAGER (PM): Georgia Bayley	PHONE:
PROJECT ID: 230131	EMAIL REPORT TO: georgia@arcenvironmental.com.au
SITE: K+H Brunswick — Primary Lab Quote:	EMAIL INVOICE TO: (if different to report) admin@arcenvironmental.com.au
RESULTS REQUIRED (Date): Standard Turnaround — Secondary Lab Quote:	ANALYSIS REQUIRED including SUITES

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE °C
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

Notes: e.g. Highly contaminated samples e.g. "High PAHs expected".
Extra volume for QC or trace LORs etc.

LAB ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles	TRH/BTEXN	PAH	8 metals	HOLD
	QC02	S	13/02/23		Jar	1	x	x	x	
	QC06	S	14/02/23		Jar	1	x	x	x	
	QC08	S	14/02/23		Jar	1				x

EM2302568
#210

#964732
17/02/23

DATE: 17/2/23
TIME: 9:00AM
COURIER: YES
TEMPERATURE 4.8
ATTEMP TO CHILL: YES NO

RELINQUISHED BY:		RECEIVED BY		METHOD OF SHIPMENT
Name: Declan Tennent	Date: 14/02/23	Name: Monash Apes	Date: 15/2	Con' Note No:
Of: ARC Environmental	Time:	Of:	Time: 11:25	
Name:	Date:	Name:	Date:	Transport Co:
Of:	Time:	Of:	Time:	

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; V = VOA Vial HCl Preserved; VS = VOA Vial Sulphuric Preserved; SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

Attachment C

BORE CONSTRUCTION LICENCE

Works Licence ID:

WLE084892

Printed on: 07 Feb 2023 4:14:02 pm

COPY OF RECORD IN THE VICTORIAN WATER REGISTER

LICENCE TO CONSTRUCT WORKS

under Section 67 of the Water Act 1989

The information in this copy of record is as recorded at the time of printing. Current information should be obtained by a search of the register. The State of Victoria does not warrant the accuracy or completeness of this information and accepts no responsibility for any subsequent release, publication or reproduction of this information.

This licence does not remove the need to apply for any authorisation or permission necessary under any other Act of Parliament with respect to anything authorised by the works licence.

Water used under this licence is not fit for any use that may involve human consumption, directly or indirectly, without first being properly treated.

This licence is not to be interpreted as an endorsement of the design and/or construction of any works (including dams). The Authority does not accept any responsibility or liability for any suits or actions arising from injury, loss, damage or death to person or property which may arise from the maintenance, existence or use of the works.

Each person named as a licence holder is responsible for ensuring all the conditions of this licence are complied with.

This licence authorises its holders to construct the described works, subject to the conditions.

Licence Holder(s)

DECLAN TENNENT of 2 BRINE STREET MOUNT WAVERLEY VIC 3149

Licence Contact Details

D TENNENT	2 BRINE STREET MOUNT WAVERLEY VIC 3149

Licence Details

Expiry date	07 Feb 2024
Status	Active
Authority	Southern Rural Water
Name of waterway or aquifer	NA for construct/decommission
Water system	Unincorporated (GMU)

Summary of Licensed Works

The details in this section are a summary only. They are subject to the conditions specified in this licence.

Works ID	*Works type*	*Use of water*
WRK136419	Bore	Investigation
WRK136420	Bore	Investigation

Description of Licensed Works

WORKS ID WRK136419

Works type	Bore
Works subtype	Drilled bore
Proposed maximum depth	30.000 metres

Works location

Easting	*Northing*	*Zone MGA*
319487.670	5818026.686	Zone 55

Land description

Volume 8527 Folio 932
Lot 1 of Plan LP056807

Property address

2/427 ALBERT STREET, BRUNSWICK, VIC 3056

Description of Licensed Works

WORKS ID WRK136420

Works type	Bore
Works subtype	Drilled bore
Proposed maximum depth	30.000 metres

Works location

Easting	*Northing*	*Zone MGA*
319516.879	5818017.308	Zone 55

Land description

Volume 8527 Folio 932
Lot 1 of Plan LP056807

Property address

2/427 ALBERT STREET, BRUNSWICK, VIC 3056

Related Instruments

Related entitlements	Nil
Related water-use entities	Nil

Application History

Reference	*Type*	*Status*	*Lodged date*	*Approved date*	*Recorded date*
WLI617727	Issue	Approved	07 Feb 2023	07 Feb 2023	

Conditions

Licence WLE084892 is subject to the following conditions:

Siting and construction

1 The bore(s) must be drilled at the location specified in the application approved by the Authority.

2 If after drilling the bore is considered unsatisfactory a replacement bore may be drilled on the land specified in the licence.

Preventing pollution

3 All earthworks must be carried out, and all drilling fluids and waters produced during construction and development must be disposed of, in ways that avoid contaminating native vegetation, waterways, aquifers, the riparian environment, the riverine environment or other people's property.

4 Construction must stop immediately if the Authority reasonably believes that fuel, lubricant, drilling fluid, soil or water produced during construction and development is at risk of being spilled into native vegetation, waterways, aquifers, the riparian environment, the riverine environment or other people's property.

5 The licence holder must construct and maintain bund walls, in accordance with the timeframe, specifications, guidelines or standards prescribed by the Authority, to prevent fuel, lubricant, drilling fluid, soil or water produced during construction and development from being spilled into native vegetation, waterways, aquifers, the riparian environment, the riverine environment or other people's property.

Drilling licence and supervision requirements

6 The bore(s) must be constructed by, or under the direct supervision of, a driller licensed under the Water Act 1989 and endorsed as a Class 1, 2, or 3 driller, with appropriate endorsements.

7 If artesian pressure is expected or encountered, then a driller licensed under the Water Act 1989, and endorsed as a class 3 driller, must install casing in the bore(s) to a suitable depth, and in a suitable manner, to prevent its outbreak. A suitable valve must also be fitted to the bore.

Bore completion report

8 A Bore Completion Report must be submitted to the Authority within 28 working days of the bore(s) being completed.

Protecting water resources

9 At the completion of drilling, and before the drilling rig leaves the site, all bore(s) must be decommissioned so as to eliminate physical hazards, conserve aquifer yield, prevent groundwater contamination and prevent the intermingling of desirable and undesirable waters.

10 The bore(s) must be located at least 30 metres from any authority's channel, reserve or easement unless authorised by the Authority.

Protecting water quality

11 Drilling must not exceed the maximum depth.

12 The bore(s) must be constructed so as to prevent aquifer contamination caused by vertical flow outside the casing.

13 If two or more aquifers are encountered, the bore(s) must be constructed to ensure that an impervious seal is made and maintained between each aquifer to prevent aquifer connection through vertical flow outside the casing; under no circumstances are two or more aquifers to be screened within the one bore or in any other manner to allow connection between them.

14 Boreheads must be constructed, to ensure that no flood water, surface runoff or potential subsurface contaminated soakage can enter the bore or bore annulus.

Fees and charges

15 The licence holder must, when requested by the Authority, pay all fees, costs and other charges under the Water Act 1989 in respect of this licence.

END OF COPY OF RECORD

Attachment D

FIELD WORK FORMS & PRO UCL DATA

Groundwater - Well Sampling Data Form

ARC ENVIRONMENTAL

Job Information

Date: 28/02/2023	Time: arrive 8:00 depart
Project Name: HvH Albert St Brunswick	Project Number: 2301314
Site Location: HvH Albert St (427)	Sampler: DT
Well ID: MW01	Weather: Fine (Indoor).

Equipment

Water quality equipment description: YSI (18L020022) Interface probe number: 485283

Purging equipment (please circle): Bailer type: Plastic Teflon

Pump type: ✓ Peristaltic Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations

Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm
Conversion Factor (volume in factor L/m)	0.49	1.96	7.85	12.3	17.7	31.4	49.1	70.7

Volume of water in well / V
= P r x r x h
V = volume in litres
P = 3.14159
r = radius in cm
h = height of water column in cm

Total Well Depth (-) **Water level** (=) Water Column

_____m (-) _____m (=) _____m

Water Column (x) Conversion Factor (=) Litres per 1 Well Volume

_____m (x) _____ (=) _____L

Depth to product: _____m Product Thickness: _____ m

Verified with Bailer: Y N

N/A.

Water Quality Parameters

Beginning purge time: Ending purge time: Pump Intake Depth (mbtoc):

Litres	Time	pH	Temp °C	Cond µS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments
0.2	8:45	6.93	18.6	8229	6.88	73.1	9.43	Clear, slight turbidity.
0.7	8:50	6.80	18.6	8198	6.57	80.5	9.49	Slight grey turbidity
1.2	8:55	6.69	18.6	8200	5.80	84.4	9.62	No odour. t/pump.
1.7	9:00	6.67	18.7	8204	5.52	86.7	9.78	
2.0	9:05	6.67	18.9	8234	5.36	88.6	9.79	→ slowed.
2.3	9:10	6.69	18.8	8214	5.34	56.9	9.79	

*pH, temp, cond readings not necessary if well is purged dry

Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth

~2.3L **Total Well Volume** Actual amount of water prior to sampling Sample time 9:20. Containers used _____

~100mL **Flow rate** mL/minute Did field parameters stabilise? Y N NA Was the well dry purged? Y N

Field QC Checks

Was pre-cleaned sampling equipment used for these samples?	Y	N		Final water level (mbtoc):
Was pre-cleaning sampling equipment properly protected from contamination?	Y	N		
Was documentation of equipment conducted?	Y	N	NA	
Were air bubbles present in vials at time of collection?	Y	N	NA	
Was sample for metals field filtered prior to preservations?	Y	N	NA	
Duplicate sample collected?	Y	N		Duplicate Sample ID QC01/QC02
Rinsate blank collected?	Y	N		Rinsate blank ID QC03.

WELL GAUGING FORM

ARC ENVIRONMENTAL

PROJECT No: 2301314
PROJECT: 427 Albert St
DATE: 28/02/23
WEATHER:
OPERATOR:
METHOD:

WELL ID	TIME	WELL DEPTH (mBTOC)	DEPTH WATER (mBTOC)	DEPTH NAPL (mBTOC)	LNAPL THICKNESS (m)	COMMENTS	WELL CONDITION
GW01	8:36	12.22	9.43	-	-	No O/S	Good

NOTES:

LFG Bore Monitoring Form

Project Name:	HvH 427 Albert St		**Date:**	28/02/23	
Project Number:	2301314		**Field Staff:**	GB + DT	
Site Address:	427 Albert St, Brunswick			**Equipment:**	GA5000
Weather Conditions:	~~18~~ 17°C, Cloudy	**Barometric Pressure (mb):**	1,008 mb	**Relative Pressure (Pa):**	- 0.07mb
Borehole ID:	LFG01	**Bore Condition:**	Good	**Max Gas Flow Rate** (Take before gas readings):	0.01/hr
Depth to Water (Take after gas readings):	N/A	**Rainfall** (mm in past 24 hours):	1mm		

	Time (start)	CO (ppm)	CH4 (%v/v)	CO2 (%v/v)	O2 (%v/v)	Balance (%v/v)	H2S (ppm)	Comments
Ambient	8:43	2	0.0	0.1	21.3	78.6	0	
Bore	8:47	2	0.0	5.2	20.5	74.4	0	
	8:48	2	0.0	5.3	16.1	78.6	0	
	8:49	2	0.0	5.4	15.9	78.7	0	
	8:50	2	0.0	5.8	15.4	78.8	0	
	8:51	2	0.0	7.1	13.9	78.9	0	
Maximum	-	2	0.0	7.1	20.5	78.9	0	

Vapour Monitoring Field Sheet - Summa Canisters

ARC ENVIRONMENTAL

Project Information

Date: 28/02/23	Site: 427 Albert St
Vapour Monitoring Well ID: LFG01	Project No: 2301314
Sample ID: LFG01	Laboratory Used: ALS
Sampler name: GB	

Equipment Information

Pump used (type/ID): Hand pump	Rotometer/Flow Meter (type/ID):
Multi-Gas Meter (type/ID) GA5000	Timer ID: garmin
PID (type/lamp/ID): Gx-6000	LEL (Type/ID):

Leak Testing

Leak Test Performed (Y/N): Pass

Method: Hand pump/shroud in + Isopropyl

Time: 9:13

Results*: Pass + 207 ppm

* Reference additional field sheets, if necessary

Purging

Planned Target Flow Rate (ml/min): 60	Planned Purge Volume (L) 1.3
Purge Start Time:	Purge Stop Time:
Purge Rate (ml/min) 60	Total Purge Volume: 1.3

Sampling

Summa Type:	1.4L Mini	Start pressure	= -30 Hg
Flow Controller ID:	SSS264	Stop pressure	= -5 Hg
Canister ID:	SNS390		
Start Time:	9:18		
Flow Rate (ml/min)	60ml/min		
Stop Time:	9:40		
Total Volume Collected	~1.3L		

Field Readings

PID (ppm): 0.0	Time: 8:51	CH4 (ppm): 0.0	Time: 8:51
PID (ppm): 0.0	Time: 9:43	CH4 (ppm): 0.0	Time: 9:43
LEL (%): ~~—~~	Time:	CO2 (ppm): 7.1	Time: 8:51
LEL (%): ~~—~~	Time: ~~—~~	CO2 (ppm): ~~14.6~~ 6.8	Time: 9:43
Oxygen (%): 13.9	Time: 8:51		
Oxygen (%): 14.6	Time: 9:43		

Weather Information

Outside Temperature: 17°C	Barometric Pressure: 1,008mb
Wind Speed/Direction: 8km/hr N	Humidity: 78%
Significant rain within 12 hours of sampling?: 1mm	

Additional Notes (e.g. condition of well, changes observed, photo notes, etc.)

Notes: Flow rate through sample train should be approximately 100mL/min.
Purging only to include bore sand pack if new installation.

LFG Bore Monitoring Form

Project Name:	427 Albert			**Date:**	28/02/23
Project Number:	2301314			**Field Staff:**	GB + DT
Site Address:	427 Albert St, Brunswick			**Equipment:**	GA5000
Weather Conditions:	17°C, Cloudy	**Barometric Pressure (mb):**	1,008 mb	**Relative Pressure (Pa):**	0.09 mb
Borehole ID:	LFG02	**Bore Condition:**	Good	**Max Gas Flow Rate** (Take before gas readings):	0.0 L/hr
Depth to Water (Take after gas readings):	N/A	**Rainfall** (mm in past 24 hours):	1mm		

	Time (start)	CO (ppm)	CH4 (%v/v)	CO2 (%v/v)	O2 (%v/v)	Balance (%v/v)	H2S (ppm)	Comments
Ambient	10:20	1	0.0	~~0.0~~ 0.1	21.1	78.8	0	
Bore	10:24	3	0.0	5.1	13.4	81.5	0	
	10:25	4	0.0	5.1	13.2	81.7	0	
	10:26	4	0.0	5.1	13.1	81.8	0	
	10:27	3	0.0	5.1	13.1	81.8	1	
	10:28	3	0.0	5.1	13.1	81.8	1	
Maximum	-	4	0.0	5.1	13.4	81.1	1	

Vapour Monitoring Field Sheet - Summa Canisters

ARC ENVIRONMENTAL

Project Information			
Date: 28/02/23		Site: 427 Albert St	
Vapour Monitoring Well ID: LFG02		Project No: 2301314	
Sample ID: LFG02		Laboratory Used: ALS	
Sampler name: GB+DT			
Equipment Information			
Pump used (type/ID): Hand pump		Rotometer/Flow Meter (type/ID):	
Multi-Gas Meter (type/ID) GA500		Timer ID: garmin	
PID (type/lamp/ID): GX-6000		LEL (Type/ID):	
Leak Testing			
Leak Test Performed (Y/N): Pass			
Method: Shut in / Isopropyl			
Time: 10:15			
Results*: Pass / 115 ppm		* Reference additional field sheets, if necessary	
Purging			
Planned Target Flow Rate (ml/min): 60		Planned Purge Volume (L) 1.3	
Purge Start Time: 10:24		Purge Stop Time:	
Purge Rate (ml/min) 60		Total Purge Volume: 1.3	
Sampling			
Summa Type:	1.4L Mini	Start pressure=	-30 Hg
Flow Controller ID:	555269	Stop pressure=	-5 Hg
Canister ID:	SN12335		
Start Time:	10:30		
Flow Rate (ml/min)	60ml/min		
Stop Time:	10:55		
Total Volume Collected	~1.3L		

Field Readings					
PID (ppm): 0.0	Time: 10:28	CH4 (ppm): 0.0	Time: 10:28		
PID (ppm): 0.4	Time: 10:55	CH4 (ppm): 0.0	Time: 11:00		
~~LEL (%):~~	~~Time:~~	CO2 (ppm): 5.1	Time: 10:28		
~~LEL (%):~~	~~Time:~~	CO2 (ppm): 3.7	Time: 11:00		
Oxygen (%): 13.1	Time: 10:28				
Oxygen (%): 18.2	Time: 11:00				

Weather Information	
Outside Temperature: 17°C	Barometric Pressure: 1008 mb
Wind Speed/Direction: 8km/hr N	Humidity: 78%
Significant rain within 12 hours of sampling?:	mm

Additional Notes (e.g. condition of well, changes observed, photo notes, etc.)

Notes: Flow rate through sample train should be approximately 100mL/min.
Purging only to include bore sand pack if new installation.

LFG Bore Monitoring Form

Project Name:	A27 Alwent St / H+M		**Date:**	28/07/2023	
Project Number:	2301314		**Field Staff:**	SB+DK	
Site Address:	427 Alwent St			**Equipment:**	GA5608
Weather Conditions:	17°C, Cloudy	**Barometric Pressure (mb):**	1007	**Relative Pressure (Pa):**	0.03 mbar
Borehole ID:	LFL04	**Bore Condition:**	Good, Cap slightly loose	**Max Gas Flow Rate** (Take before gas readings):	~~0.0~~ 0.1 l/h
Depth to Water (Take after gas readings):	N/A.	**Rainfall** (mm in past 24 hours):	1mm		

	Time (start)	CO (ppm)	CH4 (%v/v)	CO2 (%v/v)	O2 (%v/v)	Balance (%v/v)	H2S (ppm)	Comments
Ambient	11.45	1	0.0	0.1	21.2	78.8	0	
Bore	11.57	1	0.0	0.5	20.5	79.0	0	
	11.58	1	0.0	0.4	20.6	79.0	0	
	11.59	1	0.0	0.5	20.5	79.0	1	
	12.00	1	0.0	0.7	20.3	79.0	1	
	12.01	1	0.0	0.8	20.5	79.0	0	
Maximum	-	1	0.0	0.7	20.6	79.0	1	

ARC ENVIRONMENTAL

Vapour Monitoring Field Sheet - Summa Canisters

Project Information

Date: 28/03/23	Site: 427 Albert St
Vapour Monitoring Well ID: LFG04	Project No: 2301314
Sample ID: LFG04 + LFG04_D	Laboratory Used: ALS
Sampler name:	

Equipment Information

Pump used (type/ID): Hand Pump	Rotometer/Flow Meter (type/ID):
Multi-Gas Meter (type/ID) GA5000	Timer ID: Garmin 254 Music
PID (type/lamp/ID): ax-6000	LEL (Type/ID):

Leak Testing

Leak Test Performed (Y/N):	PASS
Method:	SHUT IN / ISOPROPYL
Time:	12:55 / 12:04
Results*:	PASS / 482 ppm

* Reference additional field sheets, if necessary

Purging

Planned Target Flow Rate (ml/min): 60	Planned Purge Volume (L) ~1.3L
Purge Start Time: 12:01	Purge Stop Time:
Purge Rate (ml/min) 60	Total Purge Volume: ~1.3L

Sampling

	LFG04	LFG04_D	
Summa Type:	1.4C Mini	1.4C Mini	Start Pressure = -30
Flow Controller ID:	DSS241	DSS241	
Canister ID:	SN12441	SN12368	Stop Pressure = -5Hg
Start Time:	12:04	12:04	
Flow Rate (ml/min)	60	60	
Stop Time:	12:56	12:56	
Total Volume Collected	~1.3L	~1.3L	

Field Readings

PID (ppm):	0.0	Time: 12:01	CH4 (ppm):	0.0	Time: 12:01
PID (ppm):	0.0	Time: 12:59	CH4 (ppm):	0.0	Time: 1:03
~~LEL (%)~~:		Time: →	CO2 (ppm):	0.5	Time: 12:01
~~LEL (%)~~:		Time:	CO2 (ppm):	0.6	Time: 1:03
Oxygen (%):	20.8	Time: 12:01			
Oxygen (%):	20.8	Time: 1:03			

Weather Information

Outside Temperature: 15.°C	Barometric Pressure: 1007 mb
Wind Speed/Direction: 17km/h SW.	Humidity: 100%
~~Significant~~ rain within 12 hours of sampling?: YES (0-1mm)	

Additional Notes (e.g. condition of well, changes observed, photo notes, etc.)

Notes: Flow rate through sample train should be approximately 100mL/min.
Purging only to include bore sand pack if new installation.

LFG Bore Monitoring Form

Project Name:	427 Albert St (HvH)	**Date:**	02/03/23		
Project Number:	23013/4	**Field Staff:**	GB		
Site Address:	427 Albert St, Brunswick			**Equipment:**	GA5000
Weather Conditions:	18°C, Cloudy	**Barometric Pressure (mb):**	1,010 mb	**Relative Pressure (Pa):**	0.02 mb
Borehole ID:	LFG03	**Bore Condition:**	Good	**Max Gas Flow Rate** (Take before gas readings):	0.0 L/hr
Depth to Water (Take after gas readings):	N/A	**Rainfall** (mm in past 24 hours):	N/A		

	Time (start)	CO (ppm)	CH4 (%v/v)	CO2 (%v/v)	O2 (%v/v)	Balance (%v/v)	H2S (ppm)	Comments
Ambient	11:54	0	0.0	0.1	21.3	78.6	0	-0.02 mb RP
Bore	11:57	4	0.0	~~18.9~~ 4.0	18.9	77.1	0	
	11:58	5	0.0	2.8	17.8	79.4	0	
	11:59	5	0.0	3.0	17.6	79.4	0	
	12:00	5	0.0	3.5	17.0	79.4	0	
	12:01	5	0.0	4.4	16.2	79.4	0	
Maximum	-	5	0.0	4.4	18.9	79.4	0	

ARC ENVIRONMENTAL

Vapour Monitoring Field Sheet - Summa Canisters

Project Information

Date: 02/03/23	Site: 427 Albert St
Vapour Monitoring Well ID: LFG03	Project No: 230314
Sample ID: LFG03	Laboratory Used: ALS
Sampler name: GB	

Equipment Information

Pump used (type/ID): Hand pump	Rotometer/Flow Meter (type/ID):
Multi-Gas Meter (type/ID) GA5000	Timer ID: garmin
PID (type/lamp/ID): GX-6000	LEL (Type/ID):

Leak Testing

Leak Test Performed (Y/N): Yes - Pass	
Method: Shut in / Isopropyl	
Time: ~~11~~ 11:50 / 12:02	
Results*: Pass / 58.6 ppm	* Reference additional field sheets, if necessary

Purging

Planned Target Flow Rate (ml/min): ~60	Planned Purge Volume (L)
Purge Start Time: 11:57	Purge Stop Time: 12:01
Purge Rate (ml/min) ~60	Total Purge Volume:

Sampling

Summa Type:	1.4L Mini	Start pressure =	~~-30 Hg~~ -35 Hg
Flow Controller ID:	555018	Stop pressure =	-6 Hg
Canister ID:	SN10695		
Start Time:	12:03		
Flow Rate (ml/min)	60		
Stop Time:	12:34		
Total Volume Collected	~1.3L		

Field Readings

PID (ppm): 0.8	Time: 11:50AM	CH4 (ppm): 0.0	Time: 12:01
PID (ppm): 3.4	Time: 12:34	CH4 (ppm): 0.0	Time: 12:36
~~LEL (%):~~	~~Time:~~	CO2 (ppm): 4.4	Time: 12:01
~~LEL (%):~~	~~Time:~~	CO2 (ppm): 4.7	Time: 12:36
Oxygen (%): 16.2	Time: 12:01	CO = 5	12:01
Oxygen (%): 15.7	Time: 12:36	CO = 6	12:36

Weather Information

Outside Temperature: 18°C	Barometric Pressure: 1,010mb
Wind Speed/Direction: Still	Humidity: 65%
Significant rain within 12 hours of sampling?: N/A	

Additional Notes (e.g. condition of well, changes observed, photo notes, etc.)

Notes: Flow rate through sample train should be approximately 100mL/min.
Purging only to include bore sand pack if new installation.

LFG Bore Monitoring Form

Project Name:	HvH 427 Albert		**Date:**	04/04/23	
Project Number:	2301314		**Field Staff:**	GB	
Site Address:	427 Albert St, Brunswick			**Equipment:**	GA5000
Weather Conditions:	20°C, Cloudy	**Barometric Pressure (mb):**	1,012 mb	**Relative Pressure (Pa):**	0.05 mb
Borehole ID:	LFG01	**Bore Condition:**	Good	**Max Gas Flow Rate** (Take before gas readings):	0.0 L/hr
Depth to Water (Take after gas readings):	N/A	**Rainfall** (mm in past 24 hours):			

	Time (start)	CO (ppm)	CH4 (%v/v)	CO2 (%v/v)	O2 (%v/v)	Balance (%v/v)	H2S (ppm)	Comments
Ambient	12:42	0	0.0	0.1	20.3	79.6	0	0.0 mb RP
Bore	12:44	2	0.0	4.6	18.9	76.5	0	
	12:45	1	0.0	4.7	16.4	79.0	0	
	12:46	1	0.0	4.7	16.4	78.9	0	
	12:47	1	0.0	4.8	16.3	78.9	0	
	12:48	1	0.0	6.4	14.7	78.9	0	
Maximum	-	2	0.0	6.4	18.9	79.0	0	

LFG Bore Monitoring Form

Project Name:	HvH 427 Albert		**Date:**	04/04/23	
Project Number:	2301314		**Field Staff:**	GB	
Site Address:	427 Albert St, Brunswick			**Equipment:**	GA5000
Weather Conditions:	20°C ~~Sun~~ cloudy	**Barometric Pressure (mb):**	1,012mb	**Relative Pressure (Pa):**	0.03mb
Borehole ID:	LFG02	**Bore Condition:**	Good	**Max Gas Flow Rate** (Take before gas readings):	0.1 L/hr
Depth to Water (Take after gas readings):	N/A	**Rainfall** (mm in past 24 hours):			

	Time (start)	CO (ppm)	CH4 (%v/v)	CO2 (%v/v)	O2 (%v/v)	Balance (%v/v)	H2S (ppm)	Comments
Ambient	12:56	10	0.0	0.1	20.6	79.3	0	-0.02mb RP
Bore	12:59	2	0.0	4.9	16.0	79.1	0	
	1:00	1	0.0	5.0	14.8	80.1	0	
	1:01	2	0.0	5.0	14.8	80.2	0	
	1:02	2	0.0	5.1	14.8	80.2	0	
	1:03	2	0.0	5.1	14.7	80.2	0	
Maximum	-	2	0.0	5.1	~~##~~16.0	80.2	0	

LFG Bore Monitoring Form

Project Name:	~~BE~~ HvH 427 Albert St		**Date:**	04/04/23	
Project Number:	2301314		**Field Staff:**	GB	
Site Address:	427 Albert St, Brunswick			**Equipment:**	GA5000
Weather Conditions:	20°C, Sunny	**Barometric Pressure (mb):**	1,012mb	**Relative Pressure (Pa):**	0.05mb
Borehole ID:	LFG03	**Bore Condition:**	Good	**Max Gas Flow Rate** (Take before gas readings):	0.1L/hr
Depth to Water (Take after gas readings):	N/A	**Rainfall** (mm in past 24 hours):			

	Time (start)	CO (ppm)	CH4 (%v/v)	CO2 (%v/v)	O2 (%v/v)	Balance (%v/v)	H2S (ppm)	Comments
Ambient	1:15	1	0.0	0.1	20.9	79.0	0	0.02mb RP
Bore	1:18	2	0.0	6.7	15.1	78.2	0	
	1:19	2	0.0	3.9	17.2	79.0	0	
	1:20	0	0.0	3.7	17.3	79.0	0	
	1:21	1	0.0	3.7	~~15~~ 17.4	79.0	0	
	1:22	0	0.0	3.7	17.3	79.0	0	
Maximum	-	2	0.0	6.7	17.4	79.0	0	

LFG Bore Monitoring Form

Project Name:	HvH 427 Albert		**Date:**	04/04/23	
Project Number:	2301314		**Field Staff:**	GB	
Site Address:	427 Albert St, Brunswick			**Equipment:**	GA5000
Weather Conditions:	20°C, Cloudy	**Barometric Pressure (mb):**	1,012 mb	**Relative Pressure (Pa):**	0.02 mb
Borehole ID:	LFG04	**Bore Condition:**	Good	**Max Gas Flow Rate** (Take before gas readings):	0.0 L/hr
Depth to Water (Take after gas readings):	N/A	**Rainfall** (mm in past 24 hours):			

	Time (start)	CO (ppm)	CH4 (%v/v)	CO2 (%v/v)	O2 (%v/v)	Balance (%v/v)	H2S (ppm)	Comments
Ambient	1:05	3	0.0	0.1	20.8	79.2	0	
Bore	1:08	2	0.0	2.5	18.6	78.8	0	
	1:09	1	0.0	2.5	18.6	78.8	0	
	1:10	1	0.0	2.9	18.5	78.6	0	
	1:11	1	0.0	3.1	18.1	78.8	0	
	1:12	1	0.0	3.3	17.9	78.8	0	
Maximum	-	2	0.0	3.3	18.6	78.8	0	

1				UCL Statistics for Uncensored Full Data Sets							
2											
3			User Selected Options								
4			Date/Time of Computation	ProUCL 5.16/04/2023 2:09:29 PM							
5			From File	WorkSheet.xls							
6			Full Precision	OFF							
7			Confidence Coefficient	95%							
8			Number of Bootstrap Operations	2000							
9											
10											
11	Arsenic										
12											
13					General Statistics						
14				Total Number of Observations	21			Number of Distinct Observations	3		
15								Number of Missing Observations	0		
16				Minimum	5			Mean	6		
17				Maximum	21			Median	5		
18				SD	3.606			Std. Error of Mean	0.787		
19				Coefficient of Variation	0.601			Skewness	4.032		
20											
21					Normal GOF Test						
22				Shapiro Wilk Test Statistic	0.313			Shapiro Wilk GOF Test			
23				5% Shapiro Wilk Critical Value	0.908			Data Not Normal at 5% Significance Level			
24				Lilliefors Test Statistic	0.514			Lilliefors GOF Test			
25				5% Lilliefors Critical Value	0.188			Data Not Normal at 5% Significance Level			
26					Data Not Normal at 5% Significance Level						
27											
28					Assuming Normal Distribution						
29				95% Normal UCL				95% UCLs (Adjusted for Skewness)			
30				95% Student's-t UCL	7.357			95% Adjusted-CLT UCL (Chen-1995)	8.034		
31								95% Modified-t UCL (Johnson-1978)	7.472		
32											
33					Gamma GOF Test						
34				A-D Test Statistic	6.632			Anderson-Darling Gamma GOF Test			
35				5% A-D Critical Value	0.745			Data Not Gamma Distributed at 5% Significance Level			
36				K-S Test Statistic	0.527			Kolmogorov-Smirnov Gamma GOF Test			
37				5% K-S Critical Value	0.19			Data Not Gamma Distributed at 5% Significance Level			
38					Data Not Gamma Distributed at 5% Significance Level						
39											
40					Gamma Statistics						
41				k hat (MLE)	6.337			k star (bias corrected MLE)	5.463		
42				Theta hat (MLE)	0.947			Theta star (bias corrected MLE)	1.098		
43				nu hat (MLE)	266.1			nu star (bias corrected)	229.5		
44				MLE Mean (bias corrected)	6			MLE Sd (bias corrected)	2.567		
45								Approximate Chi Square Value (0.05)	195.4		
46				Adjusted Level of Significance	0.0383			Adjusted Chi Square Value	193		
47											
48					Assuming Gamma Distribution						
49				95% Approximate Gamma UCL (use when n>=50))	7.046			95% Adjusted Gamma UCL (use when n<50)	7.134		
50											
51					Lognormal GOF Test						
52				Shapiro Wilk Test Statistic	0.339			Shapiro Wilk Lognormal GOF Test			
53				5% Shapiro Wilk Critical Value	0.908			Data Not Lognormal at 5% Significance Level			
54				Lilliefors Test Statistic	0.522			Lilliefors Lognormal GOF Test			
55				5% Lilliefors Critical Value	0.188			Data Not Lognormal at 5% Significance Level			
56					Data Not Lognormal at 5% Significance Level						
57											

58					Lognormal Statistics						
59				Minimum of Logged Data	1.609				Mean of logged Data	1.711	
60				Maximum of Logged Data	3.045				SD of logged Data	0.341	
61											
62					Assuming Lognormal Distribution						
63				95% H-UCL	6.758				90% Chebyshev (MVUE) UCL	7.176	
64				95% Chebyshev (MVUE) UCL	7.778				97.5% Chebyshev (MVUE) UCL	8.613	
65				99% Chebyshev (MVUE) UCL	10.25						
66											
67					Nonparametric Distribution Free UCL Statistics						
68					Data do not follow a Discernible Distribution (0.05)						
69											
70					Nonparametric Distribution Free UCLs						
71				95% CLT UCL	7.294				95% Jackknife UCL	7.357	
72				95% Standard Bootstrap UCL	N/A				95% Bootstrap-t UCL	N/A	
73				95% Hall's Bootstrap UCL	N/A				95% Percentile Bootstrap UCL	N/A	
74				95% BCA Bootstrap UCL	N/A						
75				90% Chebyshev(Mean, Sd) UCL	8.36				95% Chebyshev(Mean, Sd) UCL	9.43	
76				97.5% Chebyshev(Mean, Sd) UCL	10.91				99% Chebyshev(Mean, Sd) UCL	13.83	
77											
78					Suggested UCL to Use						
79				95% Student's-t UCL	7.357				or 95% Modified-t UCL	7.472	
80											
81	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.										
82	Recommendations are based upon data size, data distribution, and skewness.										
83	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).										
84	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.										
85											
86											
87	Copper										
88											
89					General Statistics						
90				Total Number of Observations	21				Number of Distinct Observations	11	
91									Number of Missing Observations	0	
92				Minimum	5				Mean	25.38	
93				Maximum	160				Median	6	
94				SD	38.6				Std. Error of Mean	8.423	
95				Coefficient of Variation	1.521				Skewness	2.593	
96											
97					Normal GOF Test						
98				Shapiro Wilk Test Statistic	0.608			Shapiro Wilk GOF Test			
99				5% Shapiro Wilk Critical Value	0.908			Data Not Normal at 5% Significance Level			
100				Lilliefors Test Statistic	0.302			Lilliefors GOF Test			
101				5% Lilliefors Critical Value	0.188			Data Not Normal at 5% Significance Level			
102					Data Not Normal at 5% Significance Level						
103											
104					Assuming Normal Distribution						
105				95% Normal UCL				95% UCLs (Adjusted for Skewness)			
106				95% Student's-t UCL	39.91				95% Adjusted-CLT UCL (Chen-1995)	44.33	
107									95% Modified-t UCL (Johnson-1978)	40.7	
108											
109					Gamma GOF Test						
110				A-D Test Statistic	2.178			Anderson-Darling Gamma GOF Test			
111				5% A-D Critical Value	0.78			Data Not Gamma Distributed at 5% Significance Level			
112				K-S Test Statistic	0.264			Kolmogorov-Smirnov Gamma GOF Test			
113				5% K-S Critical Value	0.196			Data Not Gamma Distributed at 5% Significance Level			
114					Data Not Gamma Distributed at 5% Significance Level						

115											
116					Gamma Statistics						
117				k hat (MLE)	0.804			k star (bias corrected MLE)	0.721		
118				Theta hat (MLE)	31.55			Theta star (bias corrected MLE)	35.19		
119				nu hat (MLE)	33.78			nu star (bias corrected)	30.29		
120				MLE Mean (bias corrected)	25.38			MLE Sd (bias corrected)	29.89		
121								Approximate Chi Square Value (0.05)	18.72		
122				Adjusted Level of Significance	0.0383			Adjusted Chi Square Value	18.02		
123											
124					Assuming Gamma Distribution						
125			95% Approximate Gamma UCL (use when n>=50))		41.07			95% Adjusted Gamma UCL (use when n<50)	42.66		
126											
127					Lognormal GOF Test						
128				Shapiro Wilk Test Statistic	0.791			Shapiro Wilk Lognormal GOF Test			
129				5% Shapiro Wilk Critical Value	0.908			Data Not Lognormal at 5% Significance Level			
130				Lilliefors Test Statistic	0.259			Lilliefors Lognormal GOF Test			
131				5% Lilliefors Critical Value	0.188			Data Not Lognormal at 5% Significance Level			
132					Data Not Lognormal at 5% Significance Level						
133											
134					Lognormal Statistics						
135				Minimum of Logged Data	1.609			Mean of logged Data	2.497		
136				Maximum of Logged Data	5.075			SD of logged Data	1.136		
137											
138					Assuming Lognormal Distribution						
139				95% H-UCL	46.58			90% Chebyshev (MVUE) UCL	40.93		
140				95% Chebyshev (MVUE) UCL	49.46			97.5% Chebyshev (MVUE) UCL	61.31		
141				99% Chebyshev (MVUE) UCL	84.58						
142											
143					Nonparametric Distribution Free UCL Statistics						
144					Data do not follow a Discernible Distribution (0.05)						
145											
146					Nonparametric Distribution Free UCLs						
147				95% CLT UCL	39.23			95% Jackknife UCL	39.91		
148				95% Standard Bootstrap UCL	38.93			95% Bootstrap-t UCL	53.1		
149				95% Hall's Bootstrap UCL	88.31			95% Percentile Bootstrap UCL	40		
150				95% BCA Bootstrap UCL	45.67						
151				90% Chebyshev(Mean, Sd) UCL	50.65			95% Chebyshev(Mean, Sd) UCL	62.09		
152				97.5% Chebyshev(Mean, Sd) UCL	77.98			99% Chebyshev(Mean, Sd) UCL	109.2		
153											
154					Suggested UCL to Use						
155				95% Chebyshev (Mean, Sd) UCL	62.09						
156											
157			Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.								
158			Recommendations are based upon data size, data distribution, and skewness.								
159			These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).								
160			However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.								
161											
162											
163	Zinc										
164											
165					General Statistics						
166				Total Number of Observations	21			Number of Distinct Observations	14		
167								Number of Missing Observations	0		
168				Minimum	5			Mean	54		
169				Maximum	247			Median	14		
170				SD	79.94			Std. Error of Mean	17.45		
171				Coefficient of Variation	1.48			Skewness	1.722		

172											
173					Normal GOF Test						
174				Shapiro Wilk Test Statistic	0.661			Shapiro Wilk GOF Test			
175				5% Shapiro Wilk Critical Value	0.908			Data Not Normal at 5% Significance Level			
176				Lilliefors Test Statistic	0.318			Lilliefors GOF Test			
177				5% Lilliefors Critical Value	0.188			Data Not Normal at 5% Significance Level			
178					Data Not Normal at 5% Significance Level						
179											
180					Assuming Normal Distribution						
181				95% Normal UCL				95% UCLs (Adjusted for Skewness)			
182				95% Student's-t UCL	84.09			95% Adjusted-CLT UCL (Chen-1995)	89.7		
183								95% Modified-t UCL (Johnson-1978)	85.18		
184											
185					Gamma GOF Test						
186				A-D Test Statistic	1.683			Anderson-Darling Gamma GOF Test			
187				5% A-D Critical Value	0.795			Data Not Gamma Distributed at 5% Significance Level			
188				K-S Test Statistic	0.23			Kolmogorov-Smirnov Gamma GOF Test			
189				5% K-S Critical Value	0.199			Data Not Gamma Distributed at 5% Significance Level			
190					Data Not Gamma Distributed at 5% Significance Level						
191											
192					Gamma Statistics						
193				k hat (MLE)	0.613			k star (bias corrected MLE)	0.557		
194				Theta hat (MLE)	88.13			Theta star (bias corrected MLE)	96.96		
195				nu hat (MLE)	25.74			nu star (bias corrected)	23.39		
196				MLE Mean (bias corrected)	54			MLE Sd (bias corrected)	72.36		
197								Approximate Chi Square Value (0.05)	13.39		
198				Adjusted Level of Significance	0.0383			Adjusted Chi Square Value	12.81		
199											
200					Assuming Gamma Distribution						
201				95% Approximate Gamma UCL (use when n>=50))	94.36			95% Adjusted Gamma UCL (use when n<50)	98.63		
202											
203					Lognormal GOF Test						
204				Shapiro Wilk Test Statistic	0.848			Shapiro Wilk Lognormal GOF Test			
205				5% Shapiro Wilk Critical Value	0.908			Data Not Lognormal at 5% Significance Level			
206				Lilliefors Test Statistic	0.195			Lilliefors Lognormal GOF Test			
207				5% Lilliefors Critical Value	0.188			Data Not Lognormal at 5% Significance Level			
208					Data Not Lognormal at 5% Significance Level						
209											
210					Lognormal Statistics						
211				Minimum of Logged Data	1.609			Mean of logged Data	2.984		
212				Maximum of Logged Data	5.509			SD of logged Data	1.425		
213											
214					Assuming Lognormal Distribution						
215				95% H-UCL	150.6			90% Chebyshev (MVUE) UCL	105.6		
216				95% Chebyshev (MVUE) UCL	130.8			97.5% Chebyshev (MVUE) UCL	165.8		
217				99% Chebyshev (MVUE) UCL	234.5						
218											
219					Nonparametric Distribution Free UCL Statistics						
220					Data do not follow a Discernible Distribution (0.05)						
221											
222					Nonparametric Distribution Free UCLs						
223				95% CLT UCL	82.69			95% Jackknife UCL	84.09		
224				95% Standard Bootstrap UCL	81.26			95% Bootstrap-t UCL	97.68		
225				95% Hall's Bootstrap UCL	83.31			95% Percentile Bootstrap UCL	84.19		
226				95% BCA Bootstrap UCL	87.67						
227				90% Chebyshev(Mean, Sd) UCL	106.3			95% Chebyshev(Mean, Sd) UCL	130		
228				97.5% Chebyshev(Mean, Sd) UCL	162.9			99% Chebyshev(Mean, Sd) UCL	227.6		

	A	B	C	D	E	F	G	H	I	J	K	L
229												
230						Suggested UCL to Use						
231					95% Chebyshev (Mean, Sd) UCL	130						
232												
233	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
234	Recommendations are based upon data size, data distribution, and skewness.											
235	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).											
236	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.											
237												

Attachment E

CALIBRATION CERTIFICATES

Equipment Calibration Form
RKI GX-6000 PID

UNIT IDENTIFICATION	
Model Number	GX-6000
Serial Number	51M0139203-4RN
Unit Type	RKI GX-6000 PID/LEL

INSEPCTION RECORD / CONDITION REPORT					
Inlet Flow Adequate/Clear	☒	**Pump**			
Alarm Limits	**PID**	High	100 ppm	Low	5 ppm
	LEL	High	10%	Low	5%

CALIBRATION DETAILS				
Sensor	**Span Gas**	**Value**	**Reading**	**Gas Bottle No.**
PID	Isobutylene	100 ppm	100 ppm	**10009-6**
	Air	0 ppm	0 ppm	
LEL	CH_4	50%	50%	**10011-3**
Calibration Successful	☒			

Calibrated by: **Declan Tennent**

Calibration date: **13/02/2023**

Next calibration due: **20/02/2023**

Multi Parameter Water Meter

Instrument YSI Quatro Pro Plus
Serial No. 18L102022

airmet
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. D.O		0 ppm		391223	0 ppm
2. Conductivity		2760uS		385789	2760uS
3. pH7		pH 7.00		399304	pH 7.00
4. pH4		pH 4.00		389384	pH 4.00
5. ORP mV		237.52		381475 / 387511	237.52
6. Temp °C		18.4		163377	18.4

Calibrated by: **Asha Azmi**

Calibration date: **24-Feb-23**

Next calibration due: **23-Aug-23**

Gas Calibration Certificate

airmet

Air-Met Scientific Pty Ltd
1300 137 067

Instrument GA5000
Serial No. G505865
Sensors CH4, CO2, O2, CO, H2S

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	O2	✓	
	CH4	✓	
	CO2	✓	
	H2S	✓	
	CO	✓	
Alarms	Beeper	✓	
	Settings	✓	
Software	Version		
Datalogger	Operation		
Download	Operation		
Other tests:			

Certificate of Calibration

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

Diffusion mode Aspirated mode

Sensor	Serial no	Calibration gas and concentration	Certified	Gas bottle No	Instrument Reading
O2		20.90%		Fresh Air	
H2S		25ppm H2S	NIST	ME933	25ppm H2S
CO		100ppm CO	NIST	ME933	100ppm CO
CH4		60% CH4	NIST	ME786	60% CH4
CO2		40% CO2	NIST	ME786	40% CO2

Calibrated By: **Herman Chau**

Calibration date: **24/02/2023**

Next calibration due: **23/08/2023**

Gas Calibration Certificate

Instrument GA5000
Serial No. G505372
Sensors CH4, CO2, O2, CO, H2S

airmet
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	O2	✓	
	CH4	✓	
	CO2	✓	
	H2S	✓	
	CO	✓	
Alarms	Beeper	✓	
	Settings	✓	
Software	Version		
Datalogger	Operation		
Download	Operation		
Other tests:			

Certificate of Calibration

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

Diffusion mode Aspirated mode

Sensor	Serial no	Calibration gas and concentration	Certified	Gas bottle No	Instrument Reading
O2		20.90%		Fresh Air	
H2S		25ppm H2S	NIST	ME933	25ppm H2S
CO		100ppm CO	NIST	ME933	100ppm CO
CH4		60% CH4	NIST	ME786	60% CH4
CO2		40% CO2	NIST	ME786	40% CO2

Calibrated By: **Herman Chau**

Calibration date: **30/03/2023**

Next calibration due: **26/09/2023**

Attachment F

BOM WEATHER DATA

Essendon, Victoria
February 2023 Daily Weather Observations

Most observations taken from Essendon Airport, some taken from Melbourne Airport.

Australian Government
Bureau of Meteorology

Date	Day	Temps		Rain	Evap	Sun	Max wind gust			9am						3pm					
		Min	Max				Dirn	Spd	Time	Temp	RH	Cld	Dirn	Spd	MSLP	Temp	RH	Cld	Dirn	Spd	MSLP
		°C	°C	mm	mm	hours		km/h	local	°C	%	eighths		km/h	hPa	°C	%	eighths		km/h	hPa
1	We	12.5	21.8	0	7.2	4.0	SSW	52	10:49	17.7	65	1	WSW	15	1006.5	16.0	91	7	S	26	1006.3
2	Th	10.9	21.9	0	4.4	5.6	SW	69	15:31	15.8	48	7	W	20	998.0	20.4	39	7	NNW	35	990.2
3	Fr	10.2	19.1	10.4	7.2	5.7	W	65	15:40	12.6	67	4	NNW	24	992.9	17.3	45	6	W	33	993.6
4	Sa	10.8	23.0	3.8	4.8	6.6	WSW	56	15:21	14.5	95	7	W	24	1004.1	20.6	46	6	SW	28	1008.1
5	Su	12.2	20.1	0.2	5.2	1.7	SSW	37	11:47	16.2	77	7	WSW	11	1017.1	19.7	57	7	SSW	13	1017.3
6	Mo	15.3	21.5	0	4.2	7.5	SSE	31	15:04	16.7	74	7	SW	17	1020.3	20.6	57	3	S	17	1019.7
7	Tu	15.5	22.1	0	5.2	8.0	SSW	41	17:47	16.9	73	8	SSE	15	1019.8	20.8	56	3	S	22	1017.8
8	We	12.9	23.1	0	5.8	11.0	S	37	15:22	17.6	67	3	S	11	1017.0	22.6	59	3	S	24	1014.4
9	Th	12.3	28.5	0	8.4	12.4	SSE	33	14:25	18.4	81	1	WNW	9	1010.7	27.0	50	1	SSE	22	1006.9
10	Fr	14.2	27.0	0	6.6	10.2	SSE	33	13:53	16.9	98		N	6	1007.1	25.3	57	3	S	24	1003.9
11	Sa	14.0	29.7	0	6.8	12.5	SW	41	11:59	19.8	80	1	NNW	7	1000.3	27.0	50	1	SSW	26	1001.2
12	Su	15.9	21.7	0	9.2	6.6	S	54	13:08	17.9	68	7	WSW	24	1010.0	20.1	46	5	S	33	1012.0
13	Mo	14.7	21.5	0	7.6	8.2	SSE	43	13:30	16.9	58	7	SSE	22	1014.7	20.3	45	7	S	30	1013.8
14	Tu	11.6	23.1	0	6.0	12.7	SSW	43	15:48	17.4	73	1	SE	17	1015.5	23.0	47	1	SSE	26	1013.5
15	We	10.5	33.8	0	8.0	10.7	N	46	08:35	21.3	61	5	N	17	1013.5	31.1	28	7	W	17	1011.2
16	Th	16.2	37.6	0	9.4	10.8	N	57	09:16	26.0	43	7	N	24	1012.9	37.0	16	7	NW	19	1010.7
17	Fr	22.1	41.3	0	15.2	9.9	SSW	65	15:11	29.4	33	5	N	28	1010.0	39.6	15	2	NNW	33	1006.2
18	Sa	16.7	24.4	0	12.6	8.2	S	43	17:51	17.6	69	7	SW	17	1014.2	22.5	49	1	SSE	15	1014.9
19	Su	13.1	28.8	0	6.8	12.4	S	35	17:29	17.8	82	1	WSW	4	1019.0	26.9	38	1	ESE	9	1017.1
20	Mo	13.8	26.3	0	6.0	10.1	S	35	15:20	17.5	88	7	WSW	9	1020.2	25.3	49	1	S	15	1020.3
21	Tu	16.3	22.1	0.2	6.2	6.9	S	52	15:33	16.9	87	8	SSE	22	1027.2	21.3	44	5	S	33	1027.5
22	We	13.0	30.6	0	6.4	11.7	SSE	39	14:24	17.7	75	1	W	7	1024.5	29.1	35	3	SSE	15	1020.9
23	Th	17.4	32.4	0	10.8	12.1	N	61	07:52	21.3	47	4	N	41	1020.5	30.7	29	5	N	17	1018.5
24	Fr	17.4	33.0	0	11.6	11.9	N	59	08:18	23.2	48	4	N	33	1017.4	30.8	27	7	N	30	1014.1
25	Sa	23.0	27.3	0	15.4	1.1	N	52	07:59	24.8	37	7	N	33	1012.1	24.2	42	8	SW	20	1012.3
26	Su	14.4	26.3	1.6	3.4	4.6	SW	35	00:34	16.7	77	7	W	13	1012.4	23.8	45	6	SW	19	1011.0
27	Mo	15.3	20.7	1.4	4.0	0.2	S	37	15:40	16.5	100	7	SW	15	1015.1	19.7	66	7	S	20	1015.5
28	Tu	15.0	16.8	0	3.8	0.0	S	33	18:27	15.1	97	8	WSW	17	1013.0	15.4	100	7	SSW	20	1011.2
Statistics for February 2023																					
Mean		14.5	25.9		7.4	8.0				18.5	70	5		17	1013.1	24.2	47	4		22	1011.8
Lowest		10.2	16.8		3.4	0.0				12.6	33	1	WSW	4	992.9	15.4	15	1	ESE	9	990.2
Highest		23.0	41.3	10.4	15.4	12.7	SW	69		29.4	100	8	N	41	1027.2	39.6	100	8	NNW	35	1027.5
Total				17.6	208.2	223.3															

Temperature, humidity, wind, pressure and rainfall observations are from Essendon Airport {station 086038}. Cloud, evaporation and sunshine observations are from Melbourne Airport {station 086282}

Some cloud observations are from automated equipment; these are somewhat different to those made by a human observer and may not appear every day.

IDCJDW3026.202302 Prepared at 23:37 UTC on 1 Mar 2023

Essendon, Victoria
March 2023 Daily Weather Observations

Most observations taken from Essendon Airport, some taken from Melbourne Airport.

Australian Government
Bureau of Meteorology

Date	Day	Temps		Rain	Evap	Sun	Max wind gust			9am						3pm					
		Min	Max				Dirn	Spd	Time	Temp	RH	Cld	Dirn	Spd	MSLP	Temp	RH	Cld	Dirn	Spd	MSLP
		°C	°C	mm	mm	hours		km/h	local	°C	%	eighths		km/h	hPa	°C	%	eighths		km/h	hPa
1	We	13.4	22.8	1.4	2.0	4.4	SSW	37	12:31	14.6	94	7	SSW	13	1013.0	20.3	54	7	SSW	20	1012.9
2	Th	12.7	21.3	0	3.8	1.3	S	35	15:00	15.6	80	7	WSW	19	1014.8	20.7	52	7	SSE	15	1014.1
3	Fr	14.4	21.1	0.2	4.0	7.9	SSW	43	17:39	16.1	75	6	SE	28	1018.7	19.7	50	1	SSW	26	1017.0
4	Sa	11.8	32.1	0	7.6	5.7	N	41	15:37	17.1	80	6	ESE	6	1013.1	29.9	35	6	N	26	1008.0
5	Su	13.9	34.4	0	6.6	7.2	W	61	22:56	23.8	55	1	N	28	1003.8	31.9	15	5	NW	22	1000.7
6	Mo	13.9	25.0	4.8	10.8	11.2	NW	50	23:02	17.0	69	1	NW	13	1004.9	24.1	35	3	WNW	24	1003.2
7	Tu	14.3	23.4	0	8.8	7.6	NW	54	15:40	15.8	60	7	NW	22	1006.7	22.1	37	6	NNW	26	1004.0
8	We	11.0	21.3	1.6	9.6	8.7	SW	52	16:31	13.3	74	1	WNW	15	1007.2	18.7	34	7	W	20	1006.5
9	Th	11.5	23.6	0	5.2	6.2	W	43	14:51	14.6	65	7	WNW	17	1011.8	21.8	42	7	W	22	1011.8
10	Fr	13.8	25.4	0	4.6	8.2	S	31	15:34	16.8	72	7	WNW	9	1016.8	23.5	45	1	SW	13	1014.1
11	Sa	12.4	26.6	0	6.0	10.5	S	39	16:46	17.0	83	1	SE	4	1014.3	24.6	46	3	S	26	1011.5
12	Su	16.0	21.6	0	7.0	2.5	S	48	15:01	17.4	70	7	SSE	15	1014.6	21.0	52	6	SSW	24	1015.1
13	Mo	10.6	24.5	0	2.4	9.6	SSW	31	12:55	15.1	78	7	WNW	11	1018.2	23.8	45	1	SW	9	1016.3
14	Tu	14.1	31.6	0	5.2	8.3	N	48	08:53	18.5	83	6	ENE	7	1016.3	29.3	34	6	N	19	1013.0
15	We	16.6	27.2	0	8.0	5.1	S	30	14:34	18.1	93	8	NNE	4	1013.8	24.8	60	7	SSE	20	1009.9
16	Th	16.8	30.5	0	4.8	6.7	W	57	14:53	18.7	55	7	WSW	15	1010.1	27.9	37	2	WNW	26	1007.5
17	Fr	15.3	26.3	0.2	6.6	10.6	SW	50	23:38	16.3	68	4	WSW	17	1016.5	24.0	34	1	NW	9	1014.5
18	Sa	13.1	37.6	0	7.4	2.9	N	69	10:58	21.7	44	7	NNE	30	1011.3	33.1	23	7	NNW	31	1008.9
19	Su	16.8	19.4	0	8.8	0.0	S	37	21:45	17.1	85	8	SSE	17	1019.3	18.0	76	7	S	20	1019.9
20	Mo	14.6	21.0	0	3.8	8.2	S	46	12:44	15.5	57	3	SE	28	1027.5	19.6	44	2	S	31	1026.3
21	Tu	10.2	20.1	0	5.4	0.0	ENE	22	10:39	13.5	83	7	NW	2	1025.6	17.7	83	8	E	9	1022.6
22	We	12.5	23.9	2.4	1.2	8.6	SSE	31	11:55	16.4	98	4	ENE	4	1021.0	22.9	58	5	SE	20	1018.8
23	Th	14.7		4.4	4.0					15.6	100	8	SSW	15	1017.4	21.9	69	4	S	11	1015.5
Statistics for the first 23 days of March 2023																					
Mean		13.7	25.5		5.8	6.4				16.8	74	5		14	1014.6	23.5	46	4		20	1012.7
Lowest		10.2	19.4		1.2	0.0				13.3	44	1	NW	2	1003.8	17.7	15	1	#	9	1000.7
Highest		16.8	37.6	4.8	10.8	11.2	N	69		23.8	100	8	NNE	30	1027.5	33.1	83	8	#	31	1026.3
Total				15.0	133.6	141.4															

Temperature, humidity, wind, pressure and rainfall observations are from Essendon Airport {station 086038}. Cloud, evaporation and sunshine observations are from Melbourne Airport {station 086282}

Some cloud observations are from automated equipment; these are somewhat different to those made by a human observer and may not appear every day.

IDCJDW3026.202303 Prepared at 05:36 UTC on 23 Mar 2023

Essendon, Victoria
April 2023 Daily Weather Observations

Most observations taken from Essendon Airport, some taken from Melbourne Airport.

Australian Government
Bureau of Meteorology

Date	Day	Temps		Rain	Evap	Sun	Max wind gust			9am						3pm					
		Min	Max				Dirn	Spd	Time	Temp	RH	Cld	Dirn	Spd	MSLP	Temp	RH	Cld	Dirn	Spd	MSLP
		°C	°C	mm	mm	hours		km/h	local	°C	%	eighths		km/h	hPa	°C	%	eighths		km/h	hPa
1	Sa	9.4	15.9	3.4	2.4	2.4	SSE	48	10:36	10.9	98	7	WSW	7	1019.4	14.4	65	7	SSW	24	1019.6
2	Su	6.7	19.1	1.6	2.0	10.2	S	28	13:56	13.3	77	2	WNW	4	1021.8	18.2	52	3	SSE	13	1019.1
3	Mo	7.3	24.4	0	3.4	8.8	S	28	14:09	14.6	85	1		Calm	1020.2	20.3	59	6	S	19	1016.4
4	Tu	11.3	26.8	0	5.0	10.1	S	35	13:33	17.4	73	1	NE	4	1019.2	21.1	72	6	S	24	1016.1
5	We	14.5		0	4.0					16.4	80	7	ENE	11	1018.6	17.8	74	7	SSE	19	1016.3
Statistics for the first 5 days of April 2023																					
Mean		9.8	21.6		3.4	7.9				14.5	82	3		5	1019.8	18.4	64	5		19	1017.5
Lowest		6.7	15.9		2.0	2.4				10.9	73	1		Calm	1018.6	14.4	52	3	SSE	13	1016.1
Highest		14.5	26.8	3.4	5.0	10.2	SSE	48		17.4	98	7	ENE	11	1021.8	21.1	74	7	#	24	1019.6
Total				5.0	16.8	31.5															

Temperature, humidity, wind, pressure and rainfall observations are from Essendon Airport {station 086038}. Cloud, evaporation and sunshine observations are from Melbourne Airport {station 086282}

Some cloud observations are from automated equipment; these are somewhat different to those made by a human observer and may not appear every day.

IDCJDW3026.202304 Prepared at 05:36 UTC on 5 Apr 2023